

JEFFREY VEEN

VEEN

The Art & Science of Web Design

The Art & Science of Web Design

New
Riders



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decoration: none}  
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document.WM.menu = new Object();  
document.WM.menu.dropdown = new Array();
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size="1"><div class="searchforms"><input type=hid
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</tr><tr><td colspan=2><font face=Verdana,Arial s
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href="/webmonkey/authoring/index.html" onclick="W
class="headerlink" onmouseover="WM_imageSwap('ins esign
'http://a1112.g.akamai.net/7/1112/492/02012000/st
```

```
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<a href="/webmonkey/authoring/browsers/" class="sublink">
<a href="/webmonkey/authoring/tools/" class="sublink">
<a href="/webmonkey/authoring/stylesheets" class="sublink">
<a href="/webmonkey/authoring/dynamic_html" class="sublink">
<a href="/webmonkey/authoring/xml" class="sublink">
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  <span><input type="button" value="Edit" /></span>
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“Why?” rather than “How?”
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Acknowledgments

“If I have seen further, it is by standing on the shoulders of giants.” — Isaac Newton, 1676

This book would not have been possible without years of collaboration with some of the most talented people in the industry. Specifically, I am eternally grateful to have had the opportunity to work with HotWired’s creative director Barbara Kuhr. Not only did she spark many of the theories and processes in this book, but put together an unbelievably competent and articulate design team. Two of those designers in particular, Eric Eaton and Douglas Bowman, have been indispensable sources of inspiration. Doug also designed this book, and spent long hours making sure every detail was perfect.

I’m also thankful that I was able to convince Steven Champeon to edit this book. He suffered through countless iterations and desperate phone calls when I couldn’t find the words for the ideas I had. He has inspired much of this work, and has pointed me in the right direction on matters of small-batch bourbon and alternative country music.

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Michael Nolan and Karen Whitehouse encouraged me to take on this project and pushed me to make it the best it could be. They also took me out to dinner a lot, which really helps.

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Jonathan Louie, Lance Arthur, John Shipley, Jesse James **Introduction**

Garret, Alex Wright, Margaret Gould Stewart, Michael Kay, Kim Ladin, Frank Leahy, Dave Hendry, Michael Sippey, Greg Veen, Mark Hurst, June Cohen, David Reid, Jeffrey Zeldman, Derek Powazek, and a bunch of others whose names I've undoubtedly missed.

Finally, none of this would have ever been possible without the unrelenting support and encouragement of my wife He is well-dressed, confident, standing before the staff Leslie. Thank you for reading chapter after chapter, telling meeting ready to present a “revolutionary change in how we me when things were good *and* bad, and not letting me drop view this company’s very identity.” The conference room out of school all those years ago.

lights are dimmed and the LCD projector is humming.

Someone types a URL into the 20 square feet of browser on the screen, and up pops one of those sites. “Loading...” the screen reports, and there’s a bit of nervous chatter in the room as half a meg of multimedia streams through the corporate T1. Suddenly the screen explodes into spinning text and bright-colored objects careening onto the page. A techno music loop thumps

along as executives around the table lean in. “This is,” says the proud presenter, “EXACTLY

what we should be doing online!”

“Actually,” you shout over the maddening music, “this is the LAST thing we should EVER do with our online presence.” The music stops. The room is silent but for the slight creaking noise of 16 leather conference room chairs all swivel-ing in unison to look at you, the Web Designer. You’re on.

The skills it takes to be successful on the Web reach far beyond knowing the code. While most of us who build the Web for a living have the basic technologies wired to our brainstem, rare is the designer that fundamentally understands the Web at its core. Yes, there are plenty of resources available to teach us HTML and Cascading Stylesheets and JavaScript and even User-Centered Design. But lacking is a guide to fully understanding *why* the technologies work they way they do, and how to exploit that knowledge to build successful sites.

Back at the conference table, you pause for a moment, then stand up and walk to the screen, pointing out a dozen reasons why this particular site fails—not only as an exam-

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The Art & Science of Web Design Introduction

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ple of smart Web design, but how it fails to meet the basic

- There are so many new technologies vying for our needs of your customers. The Web is post-cool now, you attention. How can I ensure we don’t commit our slyly suggest. It’s time we build a site that pushes our com-Web site to one, or get stuck designing 3D fly-pany into a new medium, rather than dragging the baggage throughs of the corporate campus?

of the old with us.

- We hired a designer, but he works in Photoshop all the time. This book is not a reference manual or even a style guide. Rather, it's a mentor for Web designers or those who don't even understand HTML. That's not good to be, whispering in their ears during those meetings. It's design, is it?

embodies that nagging voice in the back of your heads

- - -

while sitting at the screen pushing the pixels around, it seems almost cliché these days to be nostalgic for reminding us that there are now new rules and new ways to technology from days past, but I must admit I am. My past break them. It is the college English professor that not only is one shared by almost everyone with whom I consider a taught you how to write, but helped you to recognize and peer: early video games in elementary school, a Commodore seek out elegant writing. “You know grammar, you know 64 in junior high, and a Macintosh in college. I bring this how to spell,” she told you. “Now, let’s tear into the classics, up because there was a sensation I felt the first time I used a let’s dig down to the deepest etymologies—this is linguistics Mac in the dark basement lab at my alma mater. It was a for the sheer joy of language and story.”

feeling of being disconnected and empowered at the same time. The book is structured around the basic Web concepts. I poked at the elegant icons with my mouse and that so often get only a passing mention in the reference dragged windows around the screen. “Oh I get it. You don’t books on designers’ shelves today. Yet these are the very write programs with this, you just use them!” I suddenly issues Web designers and developers deal with each day.

realized that most people would want to use a computer to simply get stuff done. Computers were tools. Very powerful

- How does our Web team work together—we’ve got ones, at that.

marketing writing content, designers laying out So here we are, a decade later, facing an explodingly pages, and engineers wiring all of it together. Is this popular World Wide Web. It's disconnection and empow-the right way to be structured?

erment all over again. From the initial pit in your stom-

- Do I really need to know HTML? Can't I just get by ach: "I can't believe there's so much here!" to the first with a good authoring tool?

realization of participation: "I can add to it!" The Web

- How do I incorporate advertising effectively in my grabs us and draws us in.

site? Will we ever make a dime on all of this Web The Web is everywhere now. The Web has infused itself investment?

into our mainstream culture. URLs are becoming as ubiqui-

- Everyone is talking about "personalization" and "one-tous as toll-free 800 numbers—showing up on billboards, to-one" marketing, exactly what does that mean to matchbooks, and television sitcoms. The Web is a hobby.

you when sketching out a site?

The Web is big business. The Web is a medium for personal

- Our site looks great, until the CEO gets a WebTV for expression, and a conduit for a commerce revolution.

Christmas. Now our vacation is cut short while we It's getting better and it's getting worse.

rethink our entire design strategy. What went wrong?

What do I mean by that? Metcalf's Law, named after Bob Metcalf, the man who invented Ethernet, states that

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networks become more valuable as the number of people using them grows. A computer with an email application is worthless unless it's somehow connected to another. Add two more to the connection, and it doubles in value. Add 100 million more, and suddenly the world changes.

It's obvious how Metcalf's Law, when applied to the Web, has made significant changes in the way we live, work, and interact with one another. As a larger and larger percentage of the world's population comes online, the value of the network skyrockets. New uses of the Web emerge simply because there are so many people around.

The Web gets better as it gets bigger.

What is not obvious is how the Web is straining under the load. I'm not talking about simple network architecture, although that's a significant concern for some. Rather, we need to look at how this unbelievable popularization has amplified some basic flaws in the design of our Web sites, the software we use to reach them, and business models we rely on to finance it all.

Ultimately, the solutions to many of the Web's problems are grounded in good design. I have spent the last five years making Web sites for HotWired, one of the first commercial publishers to focus its efforts exclusively online. These sites have relied on basic industry standards, have been funded through advertising, and have served a broad spectrum of technically literate users. Along the way, I've worked with some amazing designers, and have developed a few ideas on how to embrace the limitations of technology and to make a site successful. Applying these ideas on a large scale quite possibly could solve some of the Web's problems.

This is a book for Web designers, but it's also a book for anyone who wants to understand the Web from the inside.

What makes a good Web site? Where did the Web really come from? Why does the technology work the way it does?

Am I even using it correctly?

We'll get to these questions, but first, we all will need to understand what Web design is. And to do that, we need to start at the very beginning.

ASWD_001121.qxd 11/27/00 11:17 AM Page xiv **Chapter One**

[1]

Foundations

The Web has function, it has interactivity, it has behavior... and it is spreading like a brushfire fanned by winds of a new networked economy.

way the Web was built. Why is that important? Because we need to deconstruct the basic philosophy of Web design: how the integration of structure, style, and behavior form the basis of our thinking about development on the Web today.

Then, from the theoretical to the concrete, we'll look at how that underlying theory applies to the technologies that make up the Web, as well as the collaboration of Web teams, and the interconnection of the people and the technologies they use. Through that lens, we can look at today's Web interfaces.

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The Art & Science of Web Design Chapter One - Foundations

Charles Goldfarb liked to get people lost.

recombine the results into new documents. The problem It was 1966. Two years out of Harvard, the young lawyer reminded Charles of the frustration he had felt years ago, was already bored with the frustrating redundancy of preparing-sending dictated briefs over and over again to a secretary for ing briefs for the firm that employed him. To burn off some revision and retying—an exceptionally inefficient process.

energy, Charles would spend countless hours working on his The rudimentary text storage systems of the time were hobby: organizing Boston-area sports car rallies.

capable of storing documents and spitting them back out As “rallymaster,” he would plot courses for the roadsters again—while retaining the basic formatting encoded with-on maps, then convert the courses to a detailed set of in. But Charles found that storing the text in a database instructions. It was a game for Charles, and he enjoyed (even if that database used cardboard media) was the easy encoding logic puzzles into his crib sheets. Instead of a sim-part—getting at the text and doing something interesting ple list of instructions, he would add commands like “Repeat with it was the hard part. At first, he considered stripping the last six steps replacing ‘right turn’ with ‘left turn’.”

all the text clean of any formatting at all, then retrieving it Eventually, a friend told Charles his routes were just like using simple text searching algorithms. But what if you computer programs. “Really?” he replied. “What’s a comput-wanted to do more compelling things than just find an er program?” Soon, he found that IBM would pay him a occurrence of a few words? What if you wanted to get just a comfortable salary to write his logic-based instructions for list of document subheads, or find all the documents written computers, rather than driving enthusiasts. Suddenly, if by a particular lawyer, or on a particular legal precedent?

you'll excuse the pun, his career took a permanent turn.

Charles faced a dilemma. How could he store the text in By 1969, the excitement had worn off the thrill of a database so that it was both formatted for proper output, punch-card coding mainframes. Charles was beginning to but also could be queried in powerful ways? A search for a consider heading back to the courtroom, but before he did, solution was, in fact, a lesson in publishing history.

IBM offered him an interesting project: figure out how to apply current computer technology to the practice of law.

The History of Electronic Text

The idea was to store legal briefs as electronic text in a Historically, when a printed manuscript was given to a copy database, then let lawyers query that information and editor for grammatical and formatting edits, the process **A Web Design Timeline**

1965

1968

1969

Ted Nelson coins the term “hypertext”

Douglas Englebart demonstrates his

Charles Goldfarb, Edward Mosher, and Raymond Lorie, at the annual conference of the

“Augment/NLS” hypertext system, including an working at IBM, invent the Generalized Markup Lanugage Association of Computing Machinery

early mouse prototype and video conferencing as a way of editing, sharing, and reusing electronic text **1967**

1969

1974

William Tunnicliffe presents to the Canadian First packets flow across the ARPANET, a

Bob Kahn and Vint Cerf publish paper

Government Printing Office on the value of separating predecesor to today's Internet

proposing basic Internet protocols

content of documents from presentation

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The Art & Science of Web Design Chapter One - Foundations

would include something called “markup.” In the case of, a concept that would eventually find its way into all aspects say, a turn-of-the-century newspaper, an editor would scrib-of publishing as well as disciplines like computer science.

ble codes in the margins of a particular story that described Early computer word-processing applications followed a how it should look. Then the codes were interpreted by a similar evolution. Much like copyeditors adding formatting typesetter (the person who was responsible for putting codes, these tools processed text with *specific markup*. The together the final page on the press). Headlines, for exam-user was able to denote text with instructions that would ple, would be marked with a shorthand notation describing describe how the text should be presented: whether bold, which typographical convention to use. Thus, the editor italic, big, or small.

might write something like “TR36b/c” and point to the first While this may have been fairly interesting in an line of text on a page, effectively telling the typesetter to abstract historical context, it was ground-breaking to the set that line as a headline in Times Roman 36 point bold handful of researchers like Charles Goldfarb in the late and centered.

1960s. They began to realize that using typographical con-Most publications, however, defined standards for each ventions in word processors was shortsighted. Rather, they individual part of a story and page. That way, the editor believed electronic text should be tagged with *general* wouldn’t need to write the same typographic codes again *markup*, which would give meaning to page elements much and again. Instead, each page element could simply be speci-like the markup codes traditionally shared between editors fied by name. Not only did this save time, but it ensured and typesetters. By separating the presentation of a docu-consistency across a publication. A newspaper, for example, ment from its basic structural content, the electronic text might have defined six different headline weights to corre-was no longer locked into one static visual design.

spond to a story’s position on a page. The paper’s editor Charles experimented with storing his electronic legal could save time when doing the layout by tagging a story’s briefs in pieces, and labeling each piece of the brief based first line of text with a standard notation like “HEAD3”. A on what they were, rather than what they should look like.

typesetter, encountering the notation, would look up the Now, instead of marking a chunk of text as being 36pt code on a sheet listing the style standards, and format the Times Roman, he could simply label it as “Title.” The same headline accordingly. This process is known as indirection—

could be done for every other chunk in the document: **A Web Design Timeline (continued)**

1984

1987

1989

1991

Apple Macintosh computers ship, including HyperCard, a 10,000

Tim Berners-Lee begins work on his

First draft of Hypertext Markup

graphical hypertext system for personal computers Internet hosts

World Wide Web project

Language (HTML) released on the net

1986

1989

1991

SGML, derived from Goldfarb's GML, is adopted 100,000

Gopher, a distributed online repository of data, by the International Standards Organization Internet hosts

developed at the University of Minnesota

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T h e A r t & S c i e n c e o f W e b D e s i g n C h a p t e r O n e - F o u n d a t i o n s 7

author, date published, abstract, and so forth. When thou-all be done with the same software, regardless of whether sands of briefs had been marked

up with standard tags, you were sending out legal briefs or pages of a newspaper.

could start to do some amazing things such as grouping summaries of briefs written by a particular lawyer, or collapsing a document down to a simple outline form. Then, when you initials of the inventors for posterity).

were satisfied with the final brief, you could print the document. And here's the interesting part: GML was developed so that by specifying a style sheet much like editors and it could be shared by *all* electronic text. If there was a standard for encoding content—the reasoning went, particular formatting style, and the document was produced in then any computer could read any document. The value of a physical form. Updating, redesigning, and republishing a system like this would grow exponentially.

was a breeze. Charles was no longer bored. Technology and The concept quickly spread from the confines of IBM.

publishing had intersected in a remarkably powerful way.

The publishing community realized that by truly standardizing the methodology of GML, publishing systems worldwide early 1970s with Edward Mosher and Ray Lorie. As they could be developed around the same core ideas. For years, researched their integrated law office information systems, researchers toiled over the best way to achieve these goals, they developed a system of encoding information about a document's structure by using a set of tags. These tags followed the same basic philosophy of representing the meaning, known to the world as ISO 8879, is still in use today.

ing of individual elements, with the presentation then SGML successfully took the ideas incorporated into applied to structural elements rather than

the individual GML much further. Tags could go far beyond simple typewords. The team started to abstract the idea. Rather than graphic formatting controls. They could be used to trigger develop a standard set of tags, why not just set up the basic elaborate programs that performed all sorts of advanced rules for tagging documents? Then every document could be behaviors. For example, if the title of a book was tagged with tagged based on its own unique characteristics, but the a <book> tag, an SGML system could do much more than searching, styling, and publishing of these documents could simply make the text italic. The book tag could trigger code

A Web Design Timeline (continued)

1992

1994

1995

1996

1998

1,000,000

Netscape releases its first version of

Microsoft releases

Cascading Stylesheets (CSS)

Extensible Markup Language (XML)

Internet hosts

a graphical Web Browser

Internet Explorer

becomes a W3C Recommendation

becomes a W3C Recommendation

1993

1995

1997

2000

Marc Andreesen and Eric Bina develop one of 10,000,000

Version 4.0 of both Navigator and Internet Explorer 75,000,000

the first graphical browsers, Mosaic, at the Internet hosts

include support for “Dynamic HTML” allowing Internet hosts

University of Illinois

limited progression from static pages

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The Art & Science of Web Design Chapter One - Foundations

in the publishing system to look up an ISBN number, and NeXT server, and began distributing the software.

then create a bibliographic reference including the author, Popularity grew as clients, or “browsers,” were developed for publisher, and other information. SGML could also be used other computer systems. By 1994, traffic on the Web had to generate *compound documents*, which are electronic docu-surpassed all other forms of Internet traffic and new ments that are pulled together automatically from a number browsers like Mosaic

and Netscape's Navigator had entered of different sources. A document no longer needed to be a the public conscience. The Web was alive.

collection of paragraphs, but could include references to Part of the incredible growth of the Web has been information in a database that could be formatted on the fly.

attributed to its simplicity—especially the ease of creating Consider the statistics on the sports page of a newspaper; documents for reading in browsers. Berners-Lee knew that a raw data flows through formatting rules to automatically basic document format would be required for passing infor-generate the daily page; or imagine a catalog that always mation back and forth between computer systems. His first printed the current prices and inventory data from a ware-effort, the HyperText Markup Language, or HTML, closely house. Electronic publishing began to come of age.

followed the basics of SGML, but with a few differences. He As a standard, SGML was a remarkable accomplish-ment. Getting thousands of companies, organizations, and institutions to agree on a systematic way of encoding electronic documents was revolutionary. The problem, however, was that in order to be universally inclusive, SGML ended up being massively complicated. So complicated, in fact, **Revisionist History?**

that the only real uses of the language were the largest con-stituents of the standards group: IBM, the Department of Virtually any historical account is sur-specifications for [print] processing; (b) Defense, and other cultivators of massive electronic rounded by a certain amount of contro-the notion of using names for markup

libraries. SGML was a long way away from the desktops of versy. Seldom are all historians in unani-elements which identified text objects emerging personal computers at the time.

mous agreement as to how events

“descriptively” or “generically”; (c) the actually transpired, who did what when,

notion of using a (formal) grammar to **The Birth of the Web**

and what it all means. It should come

model structural relationships between Fast forward to 1989. A researcher named Tim Berners-Lee, as no surprise, then, that the birth of

encoded text objects. Some of these

working at the European Particle Physics Laboratory, made electronic publishing is equally rife with *intellectual streams eventually flowed* a proposal for a simple hypertext system. Hoping to connect debate. Robin Cover, who maintains a

into the standards work where they

the distributed work of physics researchers, Berners-Lee repository of SGML resources on the

took a particular canonical shape, and developed a prototype system for linking information Web at www.oasis-open.org/cover/, pro-some important intellectual work devel-including three critical pieces: a way of giving everything a vides links to a number of different

oped outside the standards arena. How uniform address, a protocol for transmitting these linked interpretations of what was happening

many of the “fundamental” notions ...

bits of information, and finally a language for encoding the in the late 1960s. He also provides the

were (first, best) articulated within information. Working with fellow researcher Mike Sendall, following introduction:

efforts that may be reckoned as belong-Berners-Lee created both a server for storing and distribut-It appears certain to me that at

ing, genetically or otherwise, to “the ing information, as well as a client application for browsing.

least these three ideas were common

beginnings of SGML” will probably

They called this system “Worldwideweb,” set it up on a already in the 1960’s, often within dis-remain a matter of personal interpretation communities which rarely talked to tion rather than of public record.

each other: (a) the notion of separating

“content and structure” encoding from

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The Art & Science of Web Design Chapter One - Foundations

knew that for his proposal to succeed, it had to embody the **All Structure, No Style**

following characteristics:

So let's review this progression. Historically, editors would add formatting instructions for the typesetters, who would

- **Simplicity:** Keenly aware of the incredible complexity lay out the physical pages of a publication based on those inherent in SGML, Berners-Lee opted for a tiny sub-rules. As a method of shorthand, style rules would be developed for describing a document, and didn't both-oped for each piece of a publication, and then editors sim-er with a method for describing a document's styles.

ply would mark each section of a document with its seman-

- **Universality:** He imagined dozens, or even hundreds, of codes of hypertext formats in the future, and smart clients were added electronically to text to describe how a computer—that could easily negotiate and translate documents—would do the formatting. Eventually, SGML was created from servers across the Net. While this vision may have been a standard way of encoding this information, but it was not have become reality, the fact remains today that too complicated for everyday usage. Today's World Wide Web and its derivatives can be read on virtually every Web uses a small and very simple application of SGML

any computer, and on many devices like phones and dubbed the Hypertext Markup Language (or HTML), hand-held units.

which defines only a limited number of codes that any computer

- **Degradability:** While maintaining a simple system, as a computer can present.

well as one that worked across the diversity of the Internet. In the historical tradition of authoring, editing, and Internet, Berners-Lee realized that HTML would be designed for a standard set of general document typesetting. To accommodate man-made growth, he added a final axiom regarding new codes. But you've probably already noticed two problems: versions: they must never break older releases of the HTML was only designed to encode structure—leaving the language. So as the nascent Web evolved, it would be up to the browser to interpret style, and HTML had only the most basic elements: <H1> through <H6> denoting headlines and subheads, <P> for paragraphs, for lists, etc. Since there was no associated presentation information, any browser

to include style rules, and a way to extend HTML to include any structural element and still maintain this universal standard. Thus, the first version of HTML was created with a few basic elements: <H1> through <H6> denoting headlines and subheads, <P> for paragraphs, for lists, etc. Since there was no associated presentation information, any browser

basic elements: <H1> through <H6> denoting headlines and subheads, <P> for paragraphs, for lists, etc. Since there was much the same way that GML did in the research labs of was no associated presentation information, any browser

the early 1970s. Software engineers, publishers, editors, and running on any computer system—could interpret this basic graphic designers would have collaborated on the best possi-collection of tags and display them in the most appropriate ble method for advancing the state of Web technology. So, way. High-end workstations could present typographically once the popularity of the Web was obvious, the next few rich documents on color monitors while simple terminal steps easily could have been achieved—HTML could have emulators could offer a stripped down version that matched been extended in a clean way to accommodate new and dif-the limited capacity of the device. Suddenly, everyone ferent types of documents. Then a powerful style language could exchange electronic documents, and they could do so could have been added, giving designers the typographical in an incredibly simple, albeit constrained, way.

and layout control to which they were accustomed. Finally, And suddenly, they did.

HTML could have taken a back seat to allow a simple

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framework to emerge, letting anyone develop any set of tags overnight became the most popular browser on the Web.

they deemed necessary with browsing software smart With this popularity came a demanding audience. The Web enough to discover new tag sets, understand them, and dis-was amazing, but it sure was limited. Why, even the sim-play them in appropriate ways.

plest desktop publishing software 10 years ago allowed some Actually, this has been happening behind the scenes of typographical control. Yet Netscape's browser was limited to the Web over the course of the last few

years. The World that simple handful of HTML tags developed by Tim Wide Web Consortium, or W3C, is a group of industry Berners-Lee just a few years back. “Give us more control!”

experts representing the many disciplines of electronic pub-demanded the users. “Our pages are boring!”

lishing and distribution. And while the Web has been mov-Netscape responded, and did so quickly. Sure, the W3C

ing full speed ahead into the mainstream fabric of our was focusing research on how to best add advanced stylistic world’s culture, this group of researchers has been plotting control to the Web, but that could take forever. Netscape its technological course.

needed to innovate immediately, and did so by introducing But there is tragedy to this idyllic world of the Web. As a set of new tags that gave their users a least a little of the the W3C worked through the mid-1990s to build a perfect power they demanded, but without the learning curve of a group of compatible technologies, the Web itself spread like whole new technology.

a California brushfire fanned by winds of a new networked Thus was introduced the tag, and with it the economy. Companies went public and quadrupled their capability to control the appearance of an HTML document value overnight based on the simple idea of passing HTML

by setting typographical attributes like the font face, size, documents back and forth.

and color. Web sites, which were now becoming vehicles for Look, for example, at the addition of images to the corporate communication and even electronic commerce, Web. Early browsers were simply text-based, and there was could now give their pages a look and feel unique from the an immediate desire to display figures and icons inline on a competition. “More!” demanded Web designers. And more page. In 1993, a debate was

exploding on the fledgling they got. Netscape, and newly awakened corporate rival HTML mailing list, and finally a college student named Microsoft, began adding as many proprietary tags and tech-Marc Andreessen added to his Mosaic browser.

nologies to their browsers as they possibly could. Almost People objected, saying it was too limited. They wanted overnight, the Web was a rich landscape of new ideas, new

<include> or <embed>, which would allow you to add any looks, and experimentation.

sort of medium to a Web page with the much-touted con-HTML continued to grow with new, powerful, and tent negotiation used on the client. That was too big a exciting tags. We got <background>, <frame>, , and of project, according to Marc. He needed to ship ASAP. He course, <blink>. Microsoft parried with <marquee>, <iframe>, added to his browser. It would be years before media and <bgsound> and started competing for room in the specifi-would be included in a page using <embed> or <applet> or cation. And all this time, the W3C furiously debated some-

<object> tags; and, it would be years before the topic even thing called HTML 3, a sprawling document outlining all would resurface again.

sorts of neat new features that nobody supported (remember Andreessen packed up and headed west to the Silicon

<banner> and <fig>?). It was now 1995, and things were an Valley, where he and a number of other talented developers absolute mess.

created the Netscape Communications Corporation.

Something needed to give. If things kept up the way Released in October of 1994, their software almost they were going, Netscape and Microsoft would eventually

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have two completely proprietary versions of HTML, but vendors, the Web would spin out of control into a world of with no way of supporting the utopian vision of content proprietary, inoperable versions of HTML. Small, formal negotiation. Instead, people would be forced to choose one working groups formed (known as editorial review boards), browser or the other, and surf content specifically created consisting of member companies and invited experts. These for that platform. Content providers would have to either groups worked to find common ground among the popular choose between vendors or spend more resources creating browsers, and then to extend the specification in a way multiple versions of their pages.

everyone could agree upon. Since the groups were made up There are still vestiges of this lingering on today's Web, of the people who would be shipping the browsers, the but not the nightmare scenario that was anticipated. The speed at which the new specifications could react began to HTML arm of the W3C changed course and started collect-fall in line with the releases of new software. HTML 3.2

ing and recording *current practice* in shipping browsers, and the subsequent version 4.0 are successful examples of rather than designing a future, unattainable version of the this strategy at work.

language. The consortium began a shift from *proclamation*—

But can you see the shift? It was subtle, but did not go developing standards and handing them down from on unnoticed by the true HTML purists of the day—especially high—to *consolidation*, providing common ground from those with roots reaching back into the depths of SGML.

which the industry could grow. The history of HTML is a Suddenly, the simple and pure Hypertext Markup Language perfect example of this transition.

wasn't a markup language at all, but a collection of presentational hacks that only barely worked from browser to browser—much to the effect that, “This is terrible. Standardization was losing ground. But more important—how things are going to be.” And, at the time, it made perfect sense. The Web didn't have nearly the reach it does.

 say about the text that it was marking up? Nothing now. Back then there were few Web browsers (and no concern about its meaning—just some presentational clues for the commercial ones), and the users of those browsers developed browser to use when rendering.

ers of content realized that this new medium was a moving target—things would change, and investment in content **Conceptual Model**

could be wasted in six months. That was fine, for a while.

Well, great. So the Web came from a bunch of obsessive Then came HTML 3. Coinciding with the explosion of researchers interested in creating searchable databases out of the Web as a commercial force, this version attempted a massive extension of the language. What could that possibly have to do with my Web site? Can we please just get to the part about Netscape cool graphics and fonts?

was busily responding to its customers' demands by adding Unfortunately, it's not that easy. Before we can decide whatever it could do to HTML, virtually ignoring the academic—what to do, we need to understand *why* to do it.

ic standards work that was happening at the W3C. Again, When I first started developing Web sites, it was for this is understandable (although very regrettable in HotWired magazine’s early commercial Web venture sight). As a result, the HTML 3 specification never really made it pass the draft stage. This was early in 1994, and none of us real-made it pass the draft stage.

ly understood much about how the new medium really worked. Soon, the consortium realized that unless it began to work, or what would work in the new medium, for that document current practices of the big commercial browser

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matter. So we looked to the traditional process that we knew: designing and developing magazines.

At the time, I was working with Barbara Kuhr, one of the founders and creative directors from *Wired* magazine.

She insisted at the time, and still does, that developing a **Code** magazine was not a linear process: you simply didn't take stories from writers, pass them through editors, dump them on designers, and ship it all out to be printed. Rather, it was an iterative process. Editors and designers had to be collaborative with one another to ensure success.

"Words and pictures," she would say, "can never be **Words**

Pictures

separated."

Of course, she wasn't suggesting that all designers only concerned themselves with photos and illustrations—just as editors and writers are more than mere wordsmiths. The statement is a metaphor for how the interaction between content and presentation are intimately bound. It is a simplification of the intense collaboration necessary to succeed.

The only way to successfully communicate through a print-The Web, however, has its own vocabulary, and to add ed page is to tie together the stories being told with how more detail to our conceptual model, we'll adopt it. The they're being presented in such a fundamental way as to words, pictures, and code categories translate to the elec-achieve something greater than the sum of their parts. And tronic publishing model with the categories of Structure, when you look at the amazingly successful work archived in Presentation, and Behavior. So in other words, in the *Web Wired* magazine, you can see this theory played out in page publishing world, we can extend the model to: after page of stunning work.

How then could we apply this to the Web? At first

- **Presentation:** how that organization is presented glance, it seems obvious: the Web, too, is an interplay of visually to users

words and pictures—structured content and visual presenta-

- **Structure:** how something is organized and optimized tion. But it is also more than that. The Web adds a third for ease of use and understanding

angle to the metaphor—that of behavior. Web sites and

- **Behavior:** how those users then interact with the Web pages are things we use and interact with in a much product and the product's resulting behavior more participatory way than a paper magazine. A Web site can offer the ability to solve problems in such a way that we As we examine the interplay between these influences, never had imagined. We can buy airline tickets or manage we'll see that they not only represent a conceptual model stock portfolios or learn JavaScript or read the morning for the Web at large, but for the pages and sites we're build-news and check the weather forecast.

ing today, as well as for the collaborative teams that work Thus developed a model for Web development: the colon them.

laboration of Words, Pictures, and Code.

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ASCII-text document? Words may be the fundamental piece of communication, but visual design can't be discounted for its emotional impact. Plain **BEHAVIOR**

text just doesn't cut it.

- **Text is not engaging.** Look beyond graphic design to **Code**

multimedia—streaming audio, video, and the interactivity of other binary objects like Flash animation and Java. Text may do a fine job describing things, but at some point you are probably going to want to *show* what it is you're talking about. That's the point **S**

N

T

O

where you leave text behind.

Words

Pictures

R

I

U

TA

- **Text is not quite universal.** Ever wonder what the **C**

T

TU

N

acronym ASCII actually stands for? “American **RE**

P RESE

Standard Code for Information Interchange.” That’s right, our universal text format—shared by computers around the globe—is based on an *American* standard. Ever try to do Kanji in a text doc? Good luck.

Structure

So why the emphasis on text? Again, there are a few reasons: Let’s start with HTML as our basis for discussing structure. We’ve already seen where it came from—humble

- **Text is (sort of) universal.** As I just mentioned, beginnings in early database systems and its evolution ASCII may come from just one country, but the fact through SGML. And we’ve seen why its goals of simplicity remains that virtually every computer system in the and forgiveness made it so rapidly popular. But how can world is capable of understanding a .txt file in a pret-something so pervasive come from something so simple?

ty fundamental way. Some day, ASCII will be The answer lies in the basic building block of the Web: text.

replaced with UNICODE, a system for encoding tens As far back as you look in the history of the Web, plain of thousands of international characters into text old text has been the *lingua franca*. I’m referring to the sim-files. But for now, at least we can exchange basic doc-ple .txt files on your

computer—like the READMEs that come with virtually anyone in the world.

come with new software (also, as a matter of fact, the for-

- **Text is fast.** The bytes you find in a text document (most of the HTML files we use to build our Web sites). But are about as stripped down as possible. Compare a now, with all our modern applications and emphasis on text file to a heavily formatted Microsoft Word documents and visuals, isn't text outdated? For example: most, and the size difference will be hefty. Compare a text file to a streaming video file, and you'll start to

- **Text is visually limiting.** Think about it: How see orders of magnitude.

many stunning presentations have you witnessed?

- **Text is machine-readable.** This is the key. The con-And how many of them were done by someone tents of a text file can be read into a computer, and standing in front of a video projector showing an they can easily be “understood” for the words that

The screenshot shows a web page with a yellow header bar containing links for "World Home", "News", "Regions", and "Message Boards". Below the header is a large yellow rectangular area containing a text input field, a dropdown menu set to "English to French", and a "Translate" button. Below this form, there is promotional text encouraging users to download the Babel Fish toolbar and SYSTRAN Personal software. At the bottom of the yellow area, there are links for "Frequently Asked Questions" and "Add translation to your Web site.", followed by a call-to-action button labeled "Try the New Babel Fish!". At the very bottom of the page, there are two logos: "SYSTRAN TRANSLATION SOFTWARE" and "h2g2.com Origin of the Babel Fish" featuring a cartoon fish.

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they are. Think about spell-checking a file in a word **Translating the Web with Babelfish**

processor. How does the computer know which words to flag? Simple pattern matching on the val-It can be tempting to bypass the limita-

capability to translate Web pages into

ues of the characters it finds in the document.

tions of HTML for the visually stunning

other languages. Thus, if you find an

Compare that to the computationally intensive task impact of graphics. By imprisoning parts

interesting looking page written in

of, say, recognizing the words in an audio file. You of your pages as graphics, you can

Spanish (and you don't happen to *habla* could do it, but it would be a lot harder than just achieve a variety of effects beyond the

Español), you can let the Babelfish zipping through a text file.

rather rudimentary capabilities of

translator convert it to English.

today's browsers. Headlines can come

That is, if the page is actually still

Thus, the fact that HTML is derived from plain text alive in any typeface you desire. Text

text. The engine can't get to the words

means that it inherits all the computer-enabled benefits of can rotate and show off drop shadows,

found in graphics, so all those fancy

ASCII. Computers can manipulate the text. We can create and on and on and on.

headlines are going to stay elusive.

programs to do all sorts of wonderful things to our content: But is it really such a good idea?

Bummer, considering that's often the

We can index it and search it, we can translate it into other For a perfectly clear example of the

most important content on the page.

languages, and we can copy and paste it. The possibilities power of text, we can turn to the Alta

And those sites that create their content are, quite literally, endless.

Vista Search Engine. One of the interest-

as a graphic or Flash animation? Well,

None of these things are possible when you leave text ing features the service offers is the

you're completely out of luck.

behind. In traditional print design, for example, it is not uncommon to take text from a layout program like QuarkXPress and drop it into a graphics application like Photoshop. By turning the text into a graphic, designers can manipulate it all they want to achieve the desired effect.

They can stretch and rotate and embellish until a headline or drop cap is perfect, and then import it back into their documents. But what if we do this on the Web? The words in the headline, as a graphic, lose their meaning. The computer can no longer distinguish them as words—it sees only a graphic. The machine-readable benefits of text are gone.

With a foundation of plain text, HTML takes it a step further into *structured text*. If machine readability is an admirable goal, then structure applied to simple text is the proverbial Holy Grail. Think about it: If a computer can process a file, adding structure by means of tags can provide clues to what that text actually means. For example, take the following bit of text:

The story was about Microsoft and Bill Gates.

The Alta Vista translation service, Babelfish, will convert Web pages between a number of different languages... if it can read them.

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What can a computer do with the line above? Well, as Which is more valuable? Obviously, the second allows us we've seen, it can do any number of transformations. It can far more opportunity to disambiguate the content. The be spell-checked, searched, translated, converted to capital tag may render the company's name in boldface type, but it letters, or printed in green. But consider the following: tells us nothing about the

content. The <company> tag, on the other hand, gives us a clear idea of what is being referred to.

<p>The story was about
Microsoft, but says nothing about how our browser should display the word. Wouldn't it be great if we could get the best symbol="MSFT">Microsoft</company> and of both worlds, adding rich metadata while maintaining

<person title="President" employer="Microsoft">Bill Gates</person>. </p> Luckily, that is exactly how HTML was designed.

Now consider how easy it would be to programmatically **Style** manipulate the text. Not only can I do all the things we discussed earlier in this chapter, HTML was never intended to do to the previous example, but I can add even more intended to address the presentation of a document. Rather, the markup language was created to merely specify what was mentioned. I can build a link to the company's home page each part of a document was. And, as we've seen, it has on the Web. I can link to any biographical information I been quite successful at that. In fact, where HTML was may have on Mr. Gates. I can search this text, and any extended to try to encompass things like fonts and layout, it other text we have, and aggregate all the officers of public has largely been unsuccessful.

companies. And the list goes on and on.

How, then, are we to do any sort of visual design on our We've just added a very powerful feature to our text—

pages and sites?

something called *metadata*, or information about informa-Enter Cascading Style Sheets.

tion. The metadata in the tags is not intended to be dis-

“Trying to design with HTML,” says my old friend played as part of the sentence but rather as embellishment Steve Mulder, “is like trying to paint a portrait with a and annotation of the sentence. It is adding value. It is paint roller.”

allowing us to reference parts of our content.

And he is right. Steve wrote a book on Cascading Style These are structural tags. They talk about the semantics Sheets (CSS) a few years back, pining for the day when we of a document and add metadata so that we can manipulate would have complete control over the visual presentation of our content. Others, purely presentational tags, offer none our Web pages. Browser compatibility and vendor priorities of these benefits. Think for a second, about the difference being what they are, we've only recently seen a critical mass between these two examples:

of users upgrading to browsers that just barely support enough CSS functionality to be useful. But the theory The story was about Microsoft and Bill Gates.

behind CSS is important.

CSS is a simple, yet powerful text-based standard for and specifying how our content should look in browsers. While HTML excels at telling us what a document has in it, CSS

The story was about <company>Microsoft</company> steps in and tells us exactly how it should appear. I won't go and Bill Gates.

into the details and syntax of how the technology actually

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works, see the sidebar *Getting Stylish* for a variety of Look at the shift here, though. Our presentation of the resources to help you with that.

paragraph is associated with the actual paragraph by name The true power of CSS lies in the power of abstraction.

only, not location. That means that we can change the Put simply: keeping your content separate from its presenta-appearance of our paragraphs—yes, all the paragraphs in our tion is a valuable strategy. Here's how it works.

document at once—by editing one line of our style sheet When you create an HTML document, you add tags that *while never touching our content*. Add the fact that our style describe the contents of the document to the computer. By sheet can be linked as a separate document and linked to adding a style sheet, you can also tell the browser how each multiple pages across our Web sites, you can start to see the tag should be rendered. You are, in effect, telling the brows-amazing change. Edit one style declaration, and you change er to ignore the default visual appearance of each element the look and feel for an entire site.

on your page.

See the connection? All of this is built on a model that

“Go through my document and set every paragraph in dates back hundreds of years to the communication and col-the font family Verdana. And while you’re at it, make it laboration between editors and typesetters—little style 9-point with 16-point leading. Also, half-inch margins notes in the columns of copy, requesting a particular for-would be nice.” And thus you start your conversation with matting. Yet we can harness this power of using text files the browser, informing the browser how you want your and browsers. Our presentation and structure are both pow-pages to display. This instruction, by the way, would look erfully joined and valuably separate.

something like this:

Behavior

```
P {font: normal 9pt/16pt Verdana; margin: .5in}
```

The Web, though, is much more than a metaphor of words and pictures. The Web has function; it has interactivity; it has behavior.

These qualities, in fact, are what sets the Web apart from other media—from print design, or film, or even animation. In the coming chapters, we’ll touch on many **Getting Stylish**

aspects of interactivity and behavior, and particularly how it affects design and our approach to it.

Cascading Style Sheets should be part

Webreview’s CSS Compatibility Guide

This area, in particular, is where the boundaries between of every Web designer’s vocabulary.

An in-depth look at how well the

the disciplines of words, pictures, and code get fuzzy. Where Here are a few resources that can help

browsers are doing at CSS support.

do we draw the line when, say, we need our pages to main-you with the basics:

Includes bugs and inconsistencies across

tain the look and feel of a brand experience, but still func-platforms and versions, as well as a

tion as an e-commerce application? When do designers stop **Mulder's CSS Tutorial**

“leader board” that ranks the browsers.

worrying about color choices and page layout, and start ana-Brought to you by Webmonkey, a Web

<http://style.webreview.com/>

lyzing the tasks and actions that lead to successfully pur-developer resource, this collection of les-chasing of a product, or executing a stock trade, or perform-sons will help you understand everything

Cascading Style Sheet Specification

ing a search, or downloading music?

you need to know about CSS basics.

From the horse's mouth, so to speak. A

But there are more ways in which interactivity intersects

<http://webmonkey.com/authoring/>

collection of resources and technical

with design. Even the most basic of design decisions start to stylesheets/

specifications set out from the World

Wide Web Consortium.

<http://www.w3.org/Style/CSS/>

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get tangled in complexity on the Web. The painfully real fact A good Web page, of course, will be a solid blend of that the browsers used by your audience are varied and incon-presentation, structure, and interactivity. Put simply, the sistent will force you to develop a design strategy that includes ultimate goal of a successful Web site is a collaboration of a healthy dose of programmatic code *in your design*. The size design and editorial content with interface functionality and scope of Web sites, as well, are growing at an insane clip.

and a solid backend system. Good design is much more The only solution has been to develop systems that generate than decoration, just as well-planned architecture will take Web pages from databases using templates. Imagine the varia confusing hierarchy of data and guide an audience ables: you don't know which browser *or* what content will through layers of information to the nuggets they need.

show up in the interfaces you're trying designing.

This tenuous balance is invisible to the user when done cor-And that's just the beginning. There is an onslaught of rectly, and painfully obvious when askew.

new technologies and innovations hurling through cyber-That's the expression of content on the Web. Couldn't space every day. How can we

keep up?

you use the same formula for approaching a project in the We probably don't have to. But we do need to know the first place? Building a team for developing a Web project is possibilities and limitations of our new medium. And we nearly identical to building the project itself. Carefully can get help. We can collaborate.

matching the disciplines of design, content, and programming—and managing that balance—can be as difficult as **From Code to Teams** building the end product.

You can tell when the interconnectivity among the words, Case in point: When I was working with the design team pictures, and code of a Web site are out of balance. We've on the first version of the HotBot search engine, we faced all seen Web sites only a designer could love: chocked-full unique circumstances. The group was part of a larger devel-of artistic touches and eye candy. Or, for that matter, pages so focused on pure information retrieval that surfing them is as exciting and entertaining as waiting in line at the post office. These sites may well suit their intended audience and justify their existence, but they appear to have been created **ENGINEERS** in a vacuum.

Imagine, for a moment, two Web sites with two com-Code pletely opposite approaches to delivering content online.

One displays an artist's portfolio through a slide-show presentation. The interface offers you a linear path through a series of full-screen photographs. The other is a vast data-A

base of, say, information on airplane parts arranged hierar-R

S

C

Words

Pictures

R

H

chically and coded by serial number. Each site has a very **E**

IT

N

E

specific purpose and audience. Each takes a radically differ-**C**

IG

TS

DES

ent approach to the organization and presentation of information on the Web. Yet a common thread ties sites like these together.

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T h e A r t & S c i e n c e o f W e b D e s i g n C h a p t e r O n e - F o u n d a t i o n s 29

opment team at Wired Digital, and we were building this Sure, you're thinking, that's fine for the big Web site of some Web application using

licensed technology from a company huge corporate interest, I just want to build my home page.

called Inktomi. The problem, of course, was in collaboration. That's the point. Thinking like a development team, Inktomi had remarkably talented engineers, programmers-even if you are a team of one, is the right place to start mers, and computer scientists who had built its technology.

when you're approaching a new project, no matter what the We, on the other hand, were developing interfaces, planning scale. Rather than just throwing together a handcrafted marketing campaign, and setting up a production environment-exhibit of art or a structured presentation of data, step back ment. We had a series of planning meetings, thought we and study the endeavor from all aspects of development.

understood each other, then went off and built our respective How does interactivity play a role? What is the aesthetic chunks of the search engine. Inktomi tackled the back-quality of the information? What are the goals of your users, end index; we focused on the front-end design. When it and how can you help them be successful?

came time to wire them together, well, you can imagine You can begin thinking like a coherent development team what happened. Designers scratched their heads as engineers and the choices you make will be grounded in solid answers, tried in vain to explain why our solutions would not work rather than the assumptions you had when you started.

with their technology. Back to the proverbial drawing board, this time with much tighter communication.

Looking Ahead

The converse has been true as well. I can remember In the coming chapters, we'll examine all three angles of reworking countless interfaces after a designer, working in the Words-Pictures-Code model. We'll see how stylistic Photoshop, handed off an interface to a production manager-conventions are being developed to increase the Web's ease er tasked with

creating the HTML representation. Without of use. We'll look at how structural integration of large-fail, the HTML guru would come back begging for changes, scale Web sites is being developed and exploited. And, we'll while the designer demanded perfection for the work of art examine the emerging discipline of dynamic design—both that was the interface.

in interfaces and across Web sites—that encompasses The solution, of course, is intimate collaboration behavior and interactivity.

between developers, designers, editors, architects, produc-All of this means nothing, of course, without the collab-tion gurus, marketing managers, the sales team, and every-oration among those who excel at the disciplines I've intro-one else who touches the Web site.

duced. This collaboration—communication, really—is Right, I know, not likely. But if you use this model of without exception the most critical factor in the success of structure, presentation, and behavior as a foundation for a Web project and the resulting product. Without it, you'll how we build our teams and manage the development just be practicing.

process, then at least you have a head start.

Web teams are inherently interdisciplinary. Web designers may be domain experts in their corner of our triangle, but the more they can branch out—the more they can approach the behavior and structural needs of a design—the easier success will be. This communication, and ultimately translation between disciplines, is critical.

Chapter Two

Interface

[2]

Consistency

To dismiss basic contexts such as link colors, page Not too long ago, it was easy to make assumptions about Web audiences.

layouts, navigation systems, and visual hierarchy Everyone who was using the Web back then was creating the Web, as well. We as “boring” or “pedestrian” is akin to laughing at built interfaces assuming that. However, as the Web quickly grew, the sophisti-a car’s steering wheel as unimaginative.

cated users became the one percentile, and designers had to stop relying only on experimentation with interfaces and concentrate on building sites that were simple and consistent. Impatient users, it turned out, weren’t interested in learning new and different navigation schemes every time they happened across a new site. This chapter explains how those contexts have developed and how you can exploit them on your site while still maintaining an edge. Of course, there’s still a lot of experimentation going on with Web interface design, and something called Pattern Language design will help us embrace it.

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The Art & Science of Web Design Chapter Two - Interface
Consistency 33

Mark Hurst calls himself an “Ease of Use Evangelist.” The computers. It’s a tenuous balance between hardware, soft-goal of his company, Creative Good, is to make the World ware, and the rest of the world. On top of that, you need to Wide Web easy to use for as many people as possible (while do more comparison shopping, and eventually settle on a making his clients more money, of course). By way of intro-Internet Service Provider. Got that? Good. Modem dials?

duction, he offers a compelling list of hurdles the average Great! Connection established? Fantastic.

person must negotiate simply to get started using the World Now on to the Web browser. Microsoft or Netscape?

Wide Web. Despite every effort of software and operating What’s the difference? What’s a URL? What’s a bookmark?

system developers, it is clearly a daunting task. According DNS error? 404 - File not found? What’s going on? Where to Hurst, the path to the Internet looks something like this: am I? Who exactly has my credit card number?

Imagine knowing nothing about computers—at all.

Ouch.

You’re standing before rows of gray boxes and monitors at The Web is hard. Our average new computer user has the local consumer electronics superstore as an anxious just gone through a remarkably difficult experience and has sales associate hovers nearby, eager to send you home somehow managed to get to the front door of your fancy with the perfect—or at least most expensive—computer Web site. Exactly how much effort do you think this poor system he can.

soul is going to put into learning your particular interface?

So you make a choice, based on some combination of Think about the user’s experience. The experimental, your intended uses for the contraption

—probably some mix cutting-edge Web design you were so proud of can quickly of managing your finances, educating the kids, playing some turn into a barrier for entry—a wall between your audience games, and, of course, accessing the Internet.

and your site.

Once home, you unpack the cartons, and follow the You’re not alone. Virtually every Web site is experienc-thick instruction manual step-by-step through the installa-ing this fundamental issue: Users get confused, and many tion of your new hardware. This plugs into that, this CD-are clicking around aimlessly looking for some reason to jus-ROM needs to go in first, followed by that one. Finally, by tify their Web experience.

some twist of fate, you managed to get the all the combina-Web site developers are finding that if they manage their tions right, and you’re greeted with a “virtual desktop” filled users’ expectations through consistency—and not just inter-with icons and menus and a world of other possibilities.

nally, but with other similar sites—those users respond. It is But wait, says Hurst, there’s more. Even though you were interesting to look at how sites build trust with their users able to compare the features of all the systems on the mar-through consistency and how that is causing homogeneous ket, and get your particular model home and working, you interface solutions on the Web. Or, rather, why the entire have yet to crack the operating system. There is even more Web is starting to look the same.

to learn here—from the relatively simple task of getting a word processor installed to write letters, to the more **Building Trust with Consistency**

obscure chore of configuring device drivers sufficiently to The path from shopping for a computer to your Web site is allow the eventual printing of that letter.

a long one for consumers. One of the ways computer ven-But let’s skip over that for the moment. Our task at hand dors and software developers have

attempted to make this is surfing the Web.

experience easier for their users is through consistency. If you thought the operating system was difficult, wait premise is simple: If you go through the effort of learning until we try to get that OS to talk to a network of other something once, why not use that new skill over and over

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The Art & Science of Web Design Chapter Two - Interface Consistency

again and build on that foundation, rather than relearning pressed to go faster, and so on. Imagine if the 2001

the same basic techniques.

Volkswagens used joysticks to steer, and a big knob on the The Macintosh computer, developed in the early dashboard to control speed. Lexus might counter with a 1980s, used this strategy to introduce computing to an trackball, followed by the Nissan retina tracking line-of-entirely new audience. Every program on the Mac looked sight steering system. You get the idea....

and worked the same as every other one. The “Copy”

command in a word processor did the same thing as the **Putting Consistency into Context**

“Copy” command in your address book application and Consumers of these products aren’t the only beneficiaries.

drawing program. Interface widgets like scrollbars, close The people who produce them rely on consistency, as well.

boxes, and cursors were shared by every program, both in Computer software developers and automobile designers appearance and function.

know that they can build consistency into their products to Contrast that to the first attempts at a graphical oper-avoid solving the same problems over and over. Rather than ating system by Microsoft. Early Windows programs lacked spend time reinventing scrollbars to move through a docu-the consistent functionality assumed in Macintosh appli-ment, software developers can focus on making it easier and cations, and were often criticized as far more difficult to more efficient to write a letter using their word processor.

learn and use. On the Mac, every application had a File The scrolling problem was solved long ago; they need not menu, and the last item on that menu was Quit, which worry about it. Likewise, instead of literally reinventing the could be accessed by simultaneously pressing the “Apple wheel, auto manufacturers can assume how steering works, Key” and “Q.” Every program worked that way; learn it and put more effort into more important areas of innova-once, use it over and over. This wasn’t the case in the tion—like getting better gas mileage out of their vehicles.

Windows OS. Quitting a program may require a “Quit”

Assumptions like these exist in the world of print design command, but might be accomplished by an “Exit” com-as well, and again are seldom challenged. Think about the mand, or “Break,” “Stop,” “End,” or whatever the applica-rules for how a magazine works—a front cover, a table of tion’s developer decided to use. That command could be contents, page numbers, headlines, photo captions, even on any menu, and could be accessed by any key combina-the number of pages and the quality of paper stock. These tion —or possibly not have a keyboard shortcut at all.

are all shortcuts to understanding the focus and function of Applied to all possible commands across all possible appli-a particular publication. Print-based designers can take all cations, it’s easy to see why Windows was considered more of these rules for granted as they develop a particular proj-

difficult to learn and use than the Macintosh. In fact, the ect, focusing instead on the message to be communicated.

last few years have seen the Windows operating system Think of these basic rules of consistency as *context* that achieve a much more consistent—and therefore easier to both consumers and producers of products can use. These use—approach to application design.

contextual clues are all around us as we live our lives in Computer interfaces aren't the only systems that benefit our modern world. We see a red octagon while driving, we from consistency. Learn to drive a car and you've acquired know to stop. We see a little box with an X in the corner the skills necessary to drive any car. There is a standard of of a program's window, and we know that we can click it consistency in automobile interfaces that we take for grant-to close that window. We learn the clues once, we use ed—the wheel in front of the driver turns counterclockwise them over and over.

to steer the vehicle left, the pedal on the floor can be

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The Art & Science of Web Design Chapter Two - Interface Consistency³⁷

From Print to the Web

The blue underlined word became one of the Web's first It's easy for Web designers to envy print designers. Those contextual clues to functionality. By simply attaching the working in print know the rules, how to bend them, and appropriate code to a word or phrase, designers would trig-when to break them. Designers have had over 600 years of ger the browser to render a link. This would let the user history and tradition with powerful context that developed know that she could navigate by clicking those words. As through centuries of printed material. A magazine designer the technology

of the Web advanced over time, allowing doesn't have to worry about how a magazine works. The greater control of design elements like typography and designer can assume that readers will turn pages and, in color, the context of hypertext links evolved. Now, links Western society at least, read from top to bottom.

need not be just blue, but can simply be a contrasting color Navigation, page layout, and all the other basic pieces of to the text around them. In certain circumstances, such as a product's usability are taken for granted. *Wired* magazine, when a large group of links have been give the spatial rela-for example, broke many rules when it hit the newsstands tionships common to navigation systems, even the underin 1993, but the experimental design was still printed on lining can be eliminated.

pages that you turned from left to right. It wasn't printed on So context can evolve. The fact remains though that a cone that you spun on your head ... it was a magazine, Web designers aren't required to teach every user how and despite its rebellious and experimental visual aesthetic, hypertext works. They can simply indicate a link through a it still followed the basic context of a magazine.

well-defined contextual clue, and leave it at that. "It's a Early on in the evolution of the Web, when the first link," the color tells us, "Go ahead and click it."

users of the first browsers surfed the first Web sites, there While a native context like hypertext continues to was little context. The Web itself was such a dramatic step evolve on the Web, we can also borrow and adapt new con-toward making the confusing Internet easier to use, that textual clues from the real world. Think of the simplicity of most were glad they could simply point and click. And con-an arrow pointing to the right. Imagine typing a URL for sidering the incredibly limited state of HTML at the time the fictional Blexo Corporation into your browser window, and the under-powered browsers that existed back then, and seeing the following on a Web page:

most sites looked pretty similar anyway.

The Web has become mainstream, though, and is deve-BLEXO INDUSTRIES

oping its own context. The last five years may be a hyperspeed blur of a rapidly growing new medium, but the basic Would you have any question in your mind as to where context has been evolving slowly as a constant flood of new to click, and where you would expect to go? At least in the users comes online. Look at one of the most basic units in Western world, an arrow pointing to the right means “more the foundation of the Web, the hypertext link, as an exam-this way,” “next,” or “continue.” We unconsciously assume ple of a context on the Web.

that the arrow is relaying a message ingrained in us from Someone once decided that in graphical browsers, links years of using printed material. “Turn to the next page” it should be set apart by color and given an underline. In tells us. We understand without thought that the arrow will addition, when a user moves the cursor over the link, that take us to Blexo’s home page.

cursor should indicate “clickability”—usually by changing What if the arrow had been pointing up? A subtle from an arrow to a hand with a pointing finger.

change, yet a shattering of context, and you’re left wonder-ing just what exactly would happen if you clicked. If the

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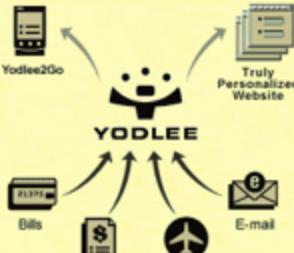
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Chapter Two - Interface Consistency 39

Evolving Links

all the type on a page in blue. Add the

changed—*carefully*—to match the aes-

<U> tag for an underline, and you could thetics of your pages. Most Web users

Links may very well have been the first

really start confusing people. And to

have learned that links can be any

context for the Web, and it is certainly obfuscate things even further, the color, as long as that color is sufficiently true that the basic unit of hypertext is

Cascading Stylesheets specification distinguishable from that which is not one of the first things new users grasp. brought us the text-decoration property. And underlining can be eliminated.

But how far can we push this fundamen-

ty, giving us the ability to turn off the nated, as long as you clearly communi-mental understanding? The answers tell

underlining for links. All of these are
cate some other way—either through
us quite a bit about how design on the
powerful tools when placed in the
layout, or association—that the words
Web is evolving.

Designer Drue Miller recommends the
hands of smart designers. But all can
are hyperlinks.

It pays to reflect on where HTML

squint test: Squint as you look at the be used for good as well as evil. So

Just don't do the opposite: Using

started, and just how limited the presen-

screen and see if the links are still where does that leave us now?

hypertext conventions when the text

tational functionality of the Web was in

distinguishable. If they are, you're

To this day, it is true that the default

isn't a link is always bad. Underlined

the early 1990s. In the pre-Netscape era, *safe. She also offers this example of* blue, underlined text will communicate

text will be perceived as a link, as will there was virtually no control over things *the <U> tag gone horribly wrong in her* to your users that the words are a link.

colored words out of context. And that

like typeface, color, or size. As a result, *presentation “Design Effective*

These stylistic conventions can be

will confuse your users.

those writing early Web documents sim-

Navigation.” Nothing on this page is a `ply wrapped an <a> tag around text they link. What a mess.`

wanted to link to some other Web refer-

ence. The text would render in blue,

VISITED on the `<BODY>` element, design-with an underline, and that was that.

ers could start to develop an aesthetic

The dawn of the `` tag changed

sensibility in their pages using color

that. Paired with attributes like LINK and schemes. But, with any new freedom

comes new

responsibility.

Now, a basic

usability axiom

could be abused.

You could, for

example, change

the link color to

something other

than blue. Would

users learn that

Must hypertext always be expressed with underlined text? Not any color could

necessarily. The links on the front page of the Yodlee.com serv-be a link? You

It would be easy to make some sort of rule proclaiming “Link Colors Must Always Be ice clearly point to sections such as “company,” “products,” and could also, if so

Consistent On a Page,” but there are exceptions to every rule. Here, the links into the

“partners” without requiring a redundant underline. Sometimes inclined, use the

Hotbot directory use two colors to denote categories and subcategories. Those colors careful page layout is enough to communicate a link.

* tag to set*

match the rest of the site’s color scheme and effectively communicate hierarchy.

◀ MoMA

Introduction

1. Ed Annink, born 1956
"Knob Ob" Coat Hooks, 1994 (1992)*
2. Gijs Bakker, born 1942
"Fruittable," 1993 (1993)
3. Charles Bergmans, born 1950
"Terra Plana" Shoehorn, 1988 (1988)
4. Jurgen Bey and Jan Konings, born 1965 and 1966
Folding Bookcase, 1993 (1991)
5. Arian Brekvedt, born 1968
"Soft Lamps," 1995 (1995)
6. Djoke de Jong, born 1970
"Drawing Table," 1993 (1992)
7. Annelies de Leede, of Oak, born 1958
Recycled Ceramic Bowls, 1992 (1992)
18. Ronald Meijs, born 1962
"Primostar Pino" Lamp, 1994 (1993)
Pur foam, polycarbonate, metal, glass
Manufactured by Lumiance bv, Haarlem
Lent by Lumiance bv
13 1/4 x diam 3" (34 x diam. 7.5 cm)
Photo by Chris Hoefsmit, courtesy Lumiance bv

The Pino lamps are flexible and their necks can be adjusted to many different positions. The rubber neck flows into the glass portion of the lamp elegantly.

◀ MoMA

Introduction

1. Ed Annink, born 1956

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The Art & Science of Web Design Chapter Two - Interface Consistency 41

arrow had been pointing down, however, you may have designer has exposed a piece of his mental model to the user looked for scrollbars or simply assumed that clicking the through context.

arrow would

The CHI community likes to talk about mental models move you down and mental maps using the analogy of how we navigate to where the con-through the streets and avenues of the cities we live in and tent was. A left with which we are familiar. You know where you're going, facing arrow, on how things work, what the symbols mean, and even to the other hand, avoid 5th Avenue because they're tearing it up again. You would probably seldom get lost and rarely need more than an address and give you the cross street to find a new restaurant or shop.

sense that you

But think about the last time you visited a completely missed some-new city, especially in a foreign country. As you wandered thing. “Blexo is around the city as a tourist, you probably felt a sense of dis-back there” the screen would imply, orientation, even though you still knew the basic rules. You “Go back that way to see it.”

walked on the sidewalk and not in traffic, you stopped at The elegantly designed Web site for the This process of learning is often intersections, you understood that the numbers on the build-Museum of Modern Art provides very referred to as building mental models—

ings represented addresses which go up in one direction and *simple contextual clues*. Here, a small a bit of cognitive psychology jargon down if you go the other way. Thankfully, your previous *arrow next to the logo provides a clear* used by those in the Computer/Human experience with the design of cities applied to this one too.

navigational pointer.

Interaction (CHI) community. It's a

By applying your mental model of cities to this one, you useful concept that we'll put in prac-made the differences that much easier to negotiate.

tice to see how our Web audiences learn to use our pages.

But back to the Web. For your design to be successful, you must match your mental model with the one the user is **Navigating with Models and Maps**

progressively building. Again, this is another way of adding It's no secret that the act of designing is a process of com-consistency to your Web pages. Your site may have a communication between audience and user. The layout of a pany logo in the corner of the page. A user discovers that page in a magazine tells a reader of that magazine where to by clicking on it, they return to the site's home page.

look, what's important, where to start reading, and more.

They've just been given a glimpse into how the system—in The same goes for the designer of, say, the knobs and but-this case your Web site—works. If, a few pages later, the tons on a car stereo. The designer knows exactly how it same user clicks the logo and it *doesn't* take them back to works, since he was involved in the process of designing the the home page, you've chipped away at the user's model.

device from the start. Since designers are privy to the inner workings of a device, or story, or Web page, it's easy for the user, things fall apart quickly.

them to form a model in their minds to represent those What you are trying to create are a set of internal conventions across your Web site, based on external conventions from the rest of the Web. In fact, it would be useful to consider the following axioms for building and managing your users' mental models:

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The Art & Science of Web Design Chapter Two - Interface Consistency

- External interface conventions come to your site applications used to create new stuff—like word processors with your users. Break these, even if you do so with and image editors—and the browsers we use to find stuff.

internal consistency, and you'll confuse your users.

Bruce “Tog” Tognazzini, the respected interface designer

- You can extend external conventions, but you can behind the original Macintosh Finder interface, calls this only do this with extreme caution.

problem “hidden discoverability.” He’s referring to this

- Do something differently from everyone else only basic difference: When people are using the Web, they are when there is a measurable benefit for doing so.

viewing documents they did not create, but using an inter-

- Internal interface conventions build trust with the face that assumes they did. That's why, he argues, so many user. Break one, and you erode that trust.

people fail to understand that there is more content extending past the bottom of the screen. They need to Mental models are useful when talking about the Web.

scroll to see the rest, but they often don't. They don't see Even more useful, however, can be a specific type of model the scrollbar, because they don't realize the page is so long, called a *mental map*. These mental maps are built by users as because they didn't create it.

they move through a space. Imagine visiting Disney Land While it may be an interesting theory, Web advertisers and wandering through the park without the free map they know this is true, and they let designers know this with give you at the gate. It would take a lot longer to find the their checkbooks. Anything that doesn't show up on the rides you would want to go on, and you'd probably miss quite initial screen—or “above the fold” to borrow an old news-a few. Rather, you use the printed guide to show you where paper term—isn't nearly as valuable as the words and pic-you are, what is near you, and where else you can go. I proba-tures users see first. Ad placement, then, becomes critical, bly don't have to draw too hard of an analogy to the Web at often at the expense of the user.

this point, we're all wandering around without one word.

There are other ways that context develops and then is Mental maps for a particular Web site can be developed broken, often by designers with the best intentions. Think almost instantly, if done with extreme simplicity and using for a moment about the simple hypertext link I spoke of existing models and context as a base. These are simple earlier. As I said, it's one of the first contextual clues new examples, but they are valuable in helping us understand uses discover as they venture out on the Web. To them, it how powerful a simple context, used with consistency, can means “click here to

go somewhere else.” But not all links be. It can be even more powerful to see how they *don’t* work.

are the same.

Often, authors of exceptionally long documents will **Broken Models and Maps**

offer a sort of table of contents at the top of the page—usu-Some contextual and mental models that we take for ally a listing of the subheads that are coming below. By granted on the Web may not be that appropriate after all.

using a feature of HTML’s link mechanism, authors can put The scrollbar, for example, has long been a staple of win-a “named anchor” around each subhead, effectively linking dows-based functionality in graphical user interfaces. It to a *specific location* in a document. But, for new users, there simply denotes that there isn’t enough screen real estate is no way of telling the difference. To them, they see links, available to show all the information in the current docu-which take them somewhere else. When they click the link, ment. Therefore, an interface is presented to allow the user odds are they won’t notice that the URL or page title hasn’t of the document to move around the page, canvas, or win-changed? Do they see that the scrollbar has moved halfway dow. But there is a subtle yet important difference between down the page? If they’ve been building a mental map of

3 Yahoo - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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YAHOO!

What's New Check Email

New Free 56K Internet Access

Yahoo! Messenger Lowestfare.com

Vegas Deals

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Shopping · Auctions · Yellow Pages · People Search · Maps · Travel · Classifieds · Personal · Games · Chat · Club Mail · Calendar · Messenger · Companion · My Yahoo! · News · Sports · Weather · TV · Stock Quotes · more...

Yahoo Shopping - Thousands of stores. Millions of products.

Departments	Stores	Products
Apparel	Flowers	Toys R Us
Bath/Beauty	Food/Drink	Digital cameras
Computers	Music	Pokemon
Electronics	Video/DVD	MP3 players
		DVD players
		Macy's

In the News

- McCain wins Michigan, Arizona primaries
- Judge hints at Microsoft breakup
- Space shuttle ends mapping mission

more...

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3 Yahoo - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.yahoo.com/

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What's New Check Email

New Free 56K Internet Access

Yahoo! Messenger Lowestfare.com

Vegas Deals

Search advanced search

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Yahoo Shopping - Thousands of stores. Millions of products.

Departments	Stores	Products
Apparel	Flowers	Toys R Us
Bath/Beauty	Food/Drink	Digital cameras
Computers	Music	Pokemon
Electronics	Video/DVD	MP3 players
		DVD players
		Macy's

Arts & Humanities
Literature, Photography...

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Marketplace

- Y! Auctions - Peanuts, Hello Kitty, Pokemon
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Internet



W3C® ARCHITECTURE domain

Extensible Markup Language (XML)

[Working Drafts \(Developer Discussion\)](#) □ [Events/Pubs \(translations\)](#) □ [Software](#) □ [Bookmarks](#)

The Extensible Markup Language (XML) is the universal format for structured documents and data on the Web. [XML in 10 points](#) explains XML briefly. The base specifications are [XML 1.0](#), W3C Recommendation Feb '98, and [Namespaces](#), Jan '99. The [XML Activity Statement](#) explains the W3C's work on this topic in more detail. For related work, see:

Nearby: [XML Schema](#) □ [XML Query](#) □ [XPath, XPointer, XLink](#) □ [DOM](#) □ [RDF](#) □ [CSS XSL](#) □ [XHTML](#)
 □ [MathML](#) □ [SMIL](#) □ [SVG](#) □ [XML Signature](#)

! New and Upcoming

- [XML-Query Requirements](#), released 15 August 2000

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Where is the “fold?”

the site as a hierarchy, what happens now? A link hasn't take them deeper in the site, it just has moved them around It's interesting to see how the subtlest

of this writing, 800x600 seems to have

the document. Confusion sets in.

of factors affect a product's design strat-the highest percentage. Ideally, we

Or consider the basic tension between site navigation egypt. Newspapers, for example, are fold-should all create interfaces that scale

and browser navigation. You land on a home page, then fold in half to fit in the vending boxes on according to a particular resolution (as

click on a link to enter the site. You are now one page deep the street. In order to sell more papers, discussed in Chapter Four, "Behavior").

into the site, based on the map you're building in your editors would put what they felt to be

But at the very least, check out what's

head. The page you are on has a link back to the home the most compelling stories "above the

actually making it above the fold.

page—good user

fold" such that potential readers would

interface design,

be attracted while walking by. Thus, get-

right? "Never

ting a story above the fold was a goal
leave a dead end”

of intrepid journalists.

the old rule

The same is true, in a sense, on Web

states. So you

pages. Editors, advertisers, product

click the link and

managers, and interface developers all

you’re back on

compete to get their particular feature,

the home page.

banner, story, or link on the default

Your experience:

viewing area of the browser—the Web

You arrived at a

version of the fold. The more visible a

site, you went

site’s feature, the thinking goes, the

down into it, you

Which links on this page point to other documents and which more attention it will get from users.

came back up.

just navigate to other parts of the page? The links here are a But where is the elusive browser “fold?”

Now look up

confusing mix of both.

Unfortunately, there’s no definitive

in your browser’s

answer to where the browser will cut off

toolbar and you’ll see two buttons labeled “Back” and your page.

Computers can be set at

“Forward.” Clicking the back button takes you... gasp...

many different resolutions, and users

forward to the page you dug deep into. And the forward often size their browser windows differ-button isn’t even active. As far as the browser is concerned, ently. There are some standards you

you’ve not been back from anywhere yet. All it remembers should be aware of, however. The vast

is a long list of pages you’ve been to, in the order you visit-majority of users have their screens set

ed them—even if you went up and down a few times. Those at one of the following resolutions:

just count as entries in that list. So the site has a hierarchy-640x480, 800x600, or 1024x768. By

cal navigation model and it's bumping up against the brows-changing your monitor preferences while

er's linear model.

developing your designs, you can test

Who is seeing what? At 640x480 (top), Could it be possible that users, flighty and impatient as your interface at those three specific

Yahoo doesn't even appear to have cat-they tend to be, don't bother with mental models, maps, or resolutions and see just what your users

egories. Higher resolutions like 800x600

a singular context as they land on your site? Maybe, in the see.

(middle), or 1024x768 (bottom) bring

few seconds you manage to keep them on your home page, Recent studies have shown that, as

progressively more to the page.

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the only tools they bother to use are the ones they learned And, there is a notable difference between my seating on the outside of the Web. Does that mean your Web site chart example and Web page layout: As users of our pages needs to be more like all the other ones out there? There's a learn

them and become comfortable with them, they chance that may just be the case.

demand they stay unchanged. Forever.

*Page layout is unquestionably one of the strongest con-*Using Page Layout to Create Context

texts used by designers. These layout-based contexts didn't I loved seating charts. As a student throughout my elemen-happen by accident, either, but have grown and evolved tary school years, I felt the system was continuously in my along with the technology and trends of the Web itself.

favor. At least with my less creative teachers, the seating Understanding where they came from, how they're continu-chart was alphabetical—Dana Abby always sat in the front, ing to evolve, and why so many have adopted them can Harold Zinser scored a back corner. I, of course, with the give us both a foundation for good Web design, as well as a last name Veen, was assured a spot somewhere in the back view of a brighter future.

*of the class. As my early-alphabet classmates answered questions and suffered discipline, I slouched in the back of the **The 3-Panel Page***

room, passing notes and generally learning little.

There has been a lot of buzz around the terms “usability,”

My teachers did this, of course, as a way to place 30 new

“user experience,” and “user friendly” in Web design circles.

faces with 30 new names each year. By Halloween, names In a quantitative sense, increasing the usability of a Web were associated with parts of the classroom, and, unfortu-site can be a difficult series of iterations, testing a design nately, with the general behavior of those areas. My teach-over and over again until every possible conflict and all ers would unthinkingly focus particular messages to particu-embedded confusion have been eliminated.

*With a few similar parts of the room when an important point needed to be
ple tools, however, qualitative usability can be a lot easier.*

*made. By Thanksgiving, my teacher would know us so well When we
evaluate a page by asking a few simple questions, we'd be rearranged into
a new chart, and for some reason I we can define a small set of heuristics
that can guide us to was always up front.*

*effective interfaces. Of course, heuristic evaluation can be a The
arrangement of students allowed the teacher to easi-complicated, time-
consuming affair. But at its essence, the ly make assumptions about the
class, and thereby tailor the process can be very simple.*

*day's lessons to fit. We're seeing the same sort of “layout-But what does this
have to do with context? The answer based” assumptions being applied to
Web pages. As a page is all around us on the Web today. Designers across
the Web loads, the way in which the elements of that page are have been
taking the most obvious and basic heuristics and arranged on the screen
immediately means something to a applying them to Web pages. Many of
them have found user. Big words at the top, a vertical list of colored words
remarkably similar solutions. The result: The Web as a whole down the
righthand side, a text-box interface with a submit grows in consistency
based on context, but innovation lags.*

button, a cluster of paragraphs in the middle of the page—

The Web, as many complain, looks the same everywhere.

*all of these things, by the very nature of their position, have Let's look at
how this happened.*

*immediate meaning to today's Web users. This is a critical As I said, the
complexity of evaluating a Web site or point, because the meaning a user
places on a page element page can fall anywhere on a continuum from very
simple to may be quite different from what you, the author, designer quite
involved. For this example, we'll take the lead from or developer of the
page, thought they meant.*

Keith Instone, Usability Engineer at Argus and Associates

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and the maintainer of Usable Web (www.usableweb.com).

generalize this as navigation. Finally the bulk of the page Instone offers a bare bones solution to heuristic evaluation.

(#3) is devoted to content, or “What’s here?”—we’ll refer to Choose a random page on your site, ask three questions this as the canvas.

*about that page, and evaluate the answers you get. If you are unsatisfied with any of your answers, something is wrong **Where am I?***

with the page. It sounds simple, and it is. But it’s remarkable—Users seldom follow the traffic patterns that designers able how many obvious errors are introduced to a Web page intended. They often don’t come through the front door of during the rounds of compromise in the development a Web site, but rather come tumbling in from all directions.

process. The questions are:

Search engines, bookmarks, URLs passed from friends, links from other sites—these are just a few ways users find their

- *Where am I?*

way to a particular page on a given site. Localizing them—

- *What’s here?*

immediately telling users exactly where they are—is critical.

- *Where can I go?*

If you've ever come up from a subway station in an unfamiliar city, you know the sensation. You immediately scan the Try it. Surf to any page on the Web and ask these three street for everything from street signs to the direction of questions. Can you tell where you are? Can you instantly shadows cast by the sun in an attempt to re-orient yourself determine what the page is about? Do you get a sense of the to your new surroundings. Same goes for the all-too-com-overall site architecture, and where you go next if you con-mon effect of popping into the center of a Web site.

tinued surfing?

Localization happens in two ways—one free, one you Again, we're not interested in defining a model for have to build yourself. Free localization is given by the usability on the Web right now. The important point here browser interface. The simple fact that the browser displays is how these questions represent the most basic needs and the URL and Title of every page it renders gives users at expectations of a Web audience traveling through cyber-least some indication that they ended up at their expected space. Do they know where they are, what they've found, destination. The browser might also indicate whether the and where they can go? On most large, commercial Web current Web site is sending encrypted pages over a secure sites, the answer is undoubtedly yes. But at what cost?

connection, how much of the page has loaded, whether the If you take our three criteria and

current network connection is still active or not, and a vari-see how they've been applied to the

ety of other subtle clues.

1

majority of Web pages, you'll see an

But title bars, overly complex address displays, and built-obvious pattern emerge.

in interfaces only go so far. Overt localization comes from The diagram to the left shows a

careful page design, and almost always take the form of simple Web page deconstructed to

branding. No matter how simple or complex, small or big, show three general regions of the page.

information-based or experiential your site, the fact that it's 2

3

The strip across the top (#1) answers

a self-contained entity means that at some level, it has a our first question, “Where am I?” Let’s

brand—even if it’s nothing more than a restating of the call this the brand bar. A strip down domain name.

the left side of the page (#2) gives tells Take this example: Reading a Web page, you come our users “Where can I go?”—we’ll

across a link on the phrase “Edward Tufte’s Envisioning

The screenshot shows the Amazon.com homepage with a search bar and various navigation links like Welcome, Directory, Books, Search, Browse Subjects, Bestsellers, New & Future Releases, Bargain Books, Awards, and Election 2000. The main content area displays a product page for 'Envisioning Information' by Edward R. Tufte. The page includes a search bar, book information, a thumbnail image, and details about the book's price (\$48.00), availability (usually ships within 24 hours), and a link to see a larger photo. A 'READY TO BUY?' section features an 'Add to Shopping Cart' button and a lock icon with the text 'Shopping with us is 100% safe. Guaranteed.' Below this, there are links to add it to a wish list and view the wish list.

Edward Tufte



Professor of Political Science, Statistics and Computer Science ; Senior Critic, Graphic Design
 B.S., M.S., Stanford University, 1964
 Ph.D., Yale University, 1968
 Joined Yale Faculty 1977

Among Edward Tufte's six books, *Envisioning Information*, which Tufte wrote, designed, and published, has won ten prizes for design and content (including awards from ACM-SIGGRAPH and ACM SIGDOC, the Phi Beta Kappa Award in Science, and the 1991 Best Graphic Design Award from International Design). He has prepared evidence for several jury trials, and has worked on statistical and design matters for The New York Times, IBM, Hewlett-Packard, Lotus Development Corporation, Newsweek, CBS, NBC, and the Bureau of the Census. He is a fellow of the American Statistical Association, the Guggenheim Foundation, the Center for Advanced Study in the Behavioral Sciences, and the American Academy of Arts and Sciences. His new book is *Visual Explanations*, which deals with scientific visualization, information design, and images as evidence.

Representative Publications

- *Visual Explanation*, Graphics Press, 1996

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Information.” You click the link; the destination’s branding fully evaluate an interface. This maps the functions of local-bar immediately takes over. Did you land at a site named ization, site structure, and content offerings to the regions

“Amazon - The earth’s largest bookstore?” Does the site suggest what users expect.

*gest it contains book reviews? Or were you directed to Tufte’s own site? Regardless of where you ended up, the **Where can I go?***

point is that if the site follows our heuristics, the area at the top of the page—the brand bar—told

how users begin to develop a representation of a particular you immediately.

*site the instant they land on it. Our second heuristic for page layout feeds directly into this user behavior. Once your **What’s here?***

users have established their current location, they’ll try to be Users need to be immediately assured

determine what else is available to them on this particular they’ve found what they were looking

site. They do this typically by scanning the navigation that for. The Three-Panel Layout leaves

has been represented on the page.

the rest of the page dedicated to that

In the Three-Panel Layout, I’ve drawn the navigation as task. While this may seem obvious,

a vertical stripe down the lefthand side of the page. Again, I’m constantly amazed at how often

if you compare this basic context with others, like our link this simple fact gets forgotten.

example before, we can draw some interesting conclusions.

Designers look at their pages all day,

For as long as there have been Web sites, there have every day, and fail to see them the way

been strategies for navigation. Even today, the Web is rid-their users invariably do. That, cou-

pled with the fact that users seldom

navigate sites the way designers anticipi-

Edward Tufte's home page and a page

pate, leads to pages lacking a clear

selling his books on Amazon.com. How

sense of purpose. Remember: People

URLs as Navigation Context

quickly can users tell the difference use bookmarks, get links via e-mail,

between these two pages? Established

find pages directly through search

How important is something as minor as

to this typical example from a dynamic

contexts inform them immediately.

engines, and happen across a particular

URL structure? You'd be surprised. With

site:

page in scores of other unforeseen

*the advent of commercial dynamic pub-
ways.*

lishing systems, the addresses that con-

http://www.site.com/computers.dll?134

*I'm not going to spend a lot of time talking about the front most users as
they click through a*

5,1,,22,567,009a.html

*best way to communicate what content lives on a given Web site can be
appalling. Despite the*

*page. Using clear visual hierarchy and appropriate page fact that URLs
were never intended to*

In the first example, a quick glance

*labels will accomplish much of that task. Simple, humanly even be seen,
most users depend on*

to the browser's address bar tells users

*readable URLs help too. And don't discount the power of a them for critical
information: where a*

where they've landed, no matter what

well-written <TITLE>.

link is about to take them, or where

may be on the screen (especially when

By following an existing context, you can effectively they are in the overall site structure.

network anomalies delay page loading).

communicate to any user coming from any direction to a Compare something as simple as...

With the second, there's little to help

given page the most basic information they need to success-the hapless surfer.

<http://www.site.com/computers/note->

<books/lightweight/compare.html>

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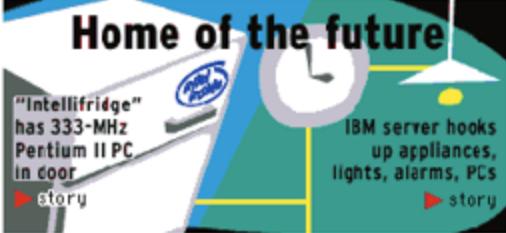
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dled with different schemes for moving users through a set pixels differently from the rest, and you'll have a guaranteed of pages. From tab-based systems, to horizontal labels to definition of the region of the screen, no matter how wide pull-down menu effects, there is a slew of choices for any or tall it may be.

given situation. But what we are interested in at the Thus, a context was born. Users of CNet began to moment is not the best possible choice, but how to effec-understand subconsciously that "yellow bar means naviga-

tively communicate what on the page is navigation. This tion” just as quickly as new users understood “blue under- process of heuristic evaluation happens in an instant and lined word means hypertext link.” And, of course, they occurs at a nearly subconscious level. So how can you tell a brought that new knowledge with them to other Web sites.

user something about the structure of your site in virtually CNet and most of its competitors have redesigned its no time and with almost no thought? Again, we fall back navigation system since those days. The rigorous consisten-on context.

cy has remained.

Years ago, a few Web sites—notably

Remember that navigation does more than just tell your the commercial computing resource

users where they can go. Effective navigation also acts as free CNet.com— began to experiment with

advertising for the rest of your site. Or, to state the effect in rigid consistency in navigation across

our new jargon, a clear communication of a site’s structure their sites. CNet, in particular, focused will help develop a user’s mental model. Be careful not to on a navigation strategy that closely

judge the effectiveness of such navigation strategies based on aligned with its brand. Since color can

click through and traffic patterns alone. Many parts of the be so intimately associated with corpo-page are never touched by users, but aid tremendously in rate identity (think Coca-Cola red or

helping them to understand what your site does and how National Car Rental green), CNet

that functionality is represented through its architecture.

chose a particular shade of yellow, and

The classic Three-Panel Layout as

never wavered in its use. This color,

The Sincerest Form of Flattery

embodied (and some say invented) at

paired with a very literal representa-

Imagine the pain of having to teach users how a link works CNet.com. The yellow strip down the

tion of the structure of its site, turned every single time you added one to your page. Your designs lefthand side of the page not only

into a navigation system that stuck in

would be riddled with explanations of how moving one's defines the region as navigation, but users' minds. The strategy was a simple

mouse to a particular point on the page and clicking the communicates the CNet brand. This

one: List the site map on every page of

appropriate mouse button will make this page disappear and example represents navigation and

the site, and separate it from content

a new page from a new location begin to draw. Thankfully, localization working hand in hand.

with a strictly enforced band of color.

we can rely on context to simplify our interfaces.

Why a vertical stripe of color on

That reliance, though, can appear to be theft when the left of the page? The decision was most likely based on applied to something like basic page layout. The screen-the constraint of past versions of HTML and browser tech-shot below makes use of the Three-Panel Layout heuris-nology. There are very few constants in a user's environ-tics we've been discussing, and does so in a very effective ment: We have no idea how big the screen is or how wide way. Notice that the interface is labeled in Spanish.

the browser window is on that screen. But we do know that Even if you're not familiar with the language, you can the upper lefthand corner is where we start rendering.

discern what the regions of the page are doing: the top Include a background image that colors the first, say, 150

brands and localizes, the left column is for navigation,

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Arafat advierte que se desatará el caos si fracasa reunión de Londres

El dirigente palestino Yasser Arafat acusó a Israel de intransigencia y advirtió que un fracaso en las conversaciones de Londres llevaría a un caos en el Medio Oriente.

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The End of the Perception-Driven Market

The recent excitement about Internet stocks has sparked all sorts of comparisons with the furious rally among Internet-related companies in the spring of 1996. Though the enthusiasm feels familiar, some shifts in the Internet firmament are beginning to surface, and investors should pay heed.

Deja vu at H&Q

It was the stock story that wouldn't die. Although 3,000 fund managers and venture capitalists came to last week's Hamrecht + Quist Technology Conference to hear tech companies talk, K-tel was on everyone's lips.

IPO Tide Still Rising

Although public companies are enjoying the bubble, investment bankers haven't sensed a pell-mell rush to get new IPOs in under the wire at least not yet.

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PORTFOLIO

Welcome to "NORTHLIGHT." The online portfolio of Greg Melander. Browse through my original work, which ranges from graphic design and illustration to new media. Take a look at some of the [awards and reviews](#) this site has received. Also, feel free to contact me in regards to this Web site.

I use both traditional tools and the latest technology to create compelling images and designs. I don't try to make "pretty pictures" just for the sake of pretty pictures. My works are crafted to evoke an emotion, give identity, communicate an idea or compel a response. Now that is the power of pictures! Using the vocabulary of line, shape, and color I create visual statements that speak for themselves.

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and content fills the rest. But this interface is virtually indistinguishable from the CNet example we've just examined earlier. When does exploiting context cross the line to simple copying?

The answer is that we need to

find a balance, of course. Just as the

contextual clues for hypertext have

changed and evolved over the few

years of its popularization, so too

have those of the Three-Panel

Layout. Strategies from other naviga-

tion systems have been co-opted and

synthesized to unique effect. In this

Web is naive. Yet for all the exploration and experimentation screenshot from an older interface

we've done to date, there have been a few strategies from the Industry Standard's Web

and design implementations that have proven successful. To presence

dismiss basic contexts such as link colors, page layouts, nav-

(<http://www.thestandard.com/>), a tab-based metaphor is ignored systems, and visual hierarchy as “boring” or “pedes-applied successfully to a Three-Panel Layout. The tabs trian” is akin to laughing at a car’s steering wheel as allow for a sort of modal-switch in how the navigation unimaginative.

works. This strategy slowly pushes the evolution of the And we haven’t even started talking about portals yet...

existing context. Users know how tabs work. Users know how the navigation in this layout works. Add the two **The LSD Design**

existing bits of knowledge for seam-

A few years back a couple of grad students at Stanford less learning.

University started a side project. It was simple enough: Even sites with a more avant-garde

They began a collection of their favorite sites, and organ-aesthetic can use the most basic con-

ized them in a hierarchy sorted by subject. The project text as a foundation. On the

grew, and the Web site they created started attracting some Northlight site, the Three-Panel

attention. As with most things on the Web at that time, its Layout has evolved almost beyond

reputation started to spread and soon their project, now recognition. Yet the basic assump-dubbed “Yet Another Hierarchically Officious Oracle”—or tions—a rigid grid, a known point of

YAHOO—outgrew its little server on Stanford’s network.

origin, standard content area—again

The rest of the story is, of course, the stuff of Net legend.

play to users' basic assumptions.

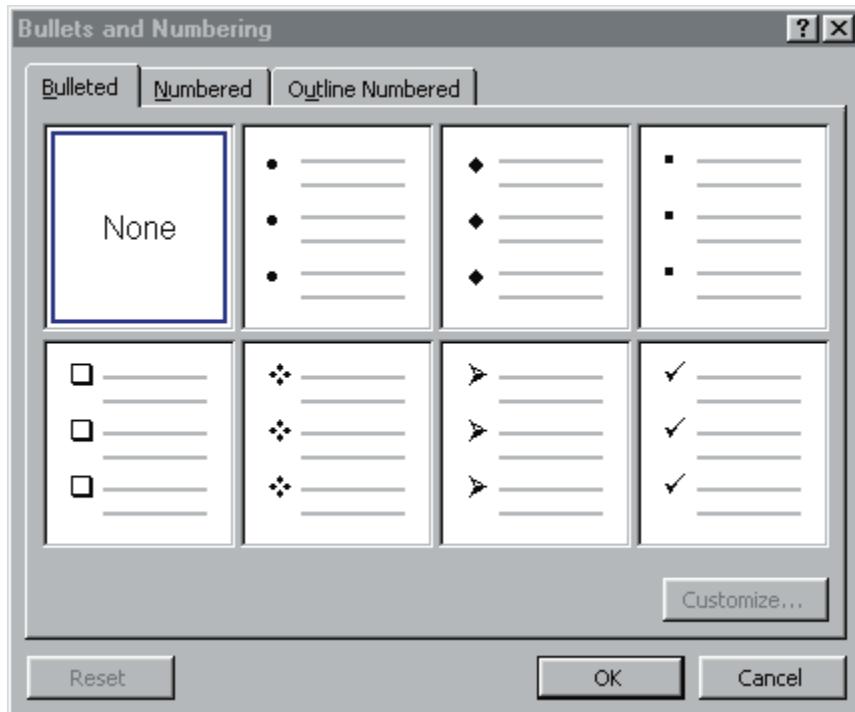
But it's interesting to see how something as innocuous as a It's tempting to reject such basic

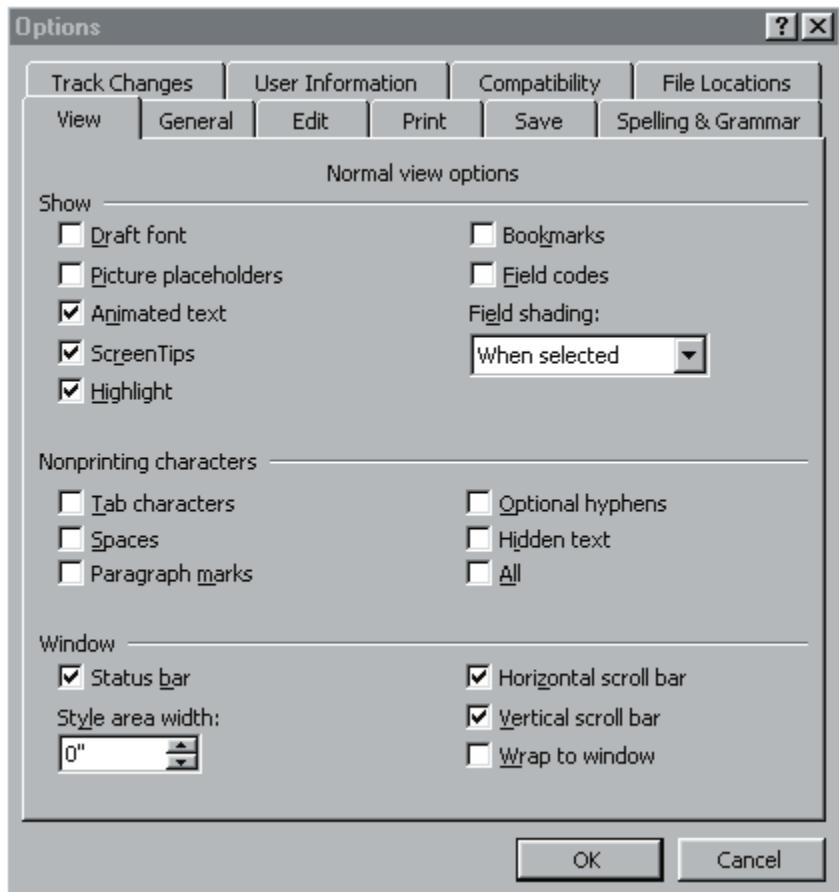
hierarchy has grown into one of the most used interface conventions as an over-simplified

solutions on today's Web.

approach to interface design. It is,

The Yahoo interface developed simply as a way to organ-after all, an exciting new medium. To think we've even ize what was essentially a map of the entire Web. In order to scratched the surface on what is and will be possible on the provide a manageable list of subjects, a certain amount of





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Using Tabs

If today's interfaces are any indication, in an almost random like fashion as you

the Web has become the world's largest

click back and forth.

filng cabinet with its various subjects

But why the popularity on the Web?

displayed on millions of tiny folder tabs.

Whereas tabs are an effective strategy

Amazon.com's tabs, while once an effective map of user goals, are now extended Click from site to site and you'll see

for the confined space of a dialog box,

beyond effectiveness.

them. Tabs, it seems, are all the rage.

does their meaning effectively translate

In the Macintosh Human Interface

to large e-commerce sites? Yes and no.

effective use of "view switching" as it

defined. When Amazon and a handful of

Guidelines, the tab-based interface If tab-based interfaces can be

were. The tabs were small, but so

other e-commerce sites proved success-

widget is defined as, “... a convenient thought of as different views of the where the concepts: books, music, ful with their interfaces, the strategy way to present information in a multi- same information, then it should be videos. As Amazon grew, so did their spread across the Web in an instant.

page format. This control is distin- possible to extend that meaning on the use of tabs. Quickly, the tab strategy Suddenly everyone had tabs, regardless guished by the visual appearance of Web to different views of the same scaled beyond its initial effectiveness.

of their meaning of mapping. The defini- folder tabs. The user selects the desired task. On Amazon.com, for example, the Whereas before, the meaning of each tion of the tab widget began to slip into page by clicking the appropriate tab,

users’ goal is in fairly sharp focus:

*tab was clear, additions of things like
obscurity, much like overused jargon.
which highlights and displays its page.”*

*They are there to buy. Tabs, then, were
“Auctions” started to erode that mean-
Eventually, tabs began to mean nothing
You may be familiar with this rendering
used early on in the Amazon interface
ing. Are you to assume that clicking*

*more than a random structure of a site,
from preference screens or control pan-
to define what users could buy—an
“Auctions” allows you to buy an auc-
or worse: they simply exposed features.*

*els. Microsoft even took the step in
tion? Of course not, but you can see*

*Now, it’s not uncommon to see a site
some of their Office applications of
how the metaphor begins to fall apart.
with a tab system labeled “Home,”*

*evolving tabs into two rows that toggle
Later, an obscure “zShops” was added,
“Free e-mail,” “Search,” and “Site map.”*

*and soon after a tab labeled
How are users supposed to understand
“Welcome,” effectively muddling the
the particular meaning of an interface
interface beyond recognition.*

like this? Tabs have become nothing

*Even worse, though, is the poor use
more than well-promoted links. Use
of tabs when users’ goals are less well
them correctly or don’t use them at all.*

Microsoft uses a tab-based interface in Word to select modes in many dialog. The online grocery delivery service Peapod misses the mark with tabs that have no boxes. Unfortunately, they get carried away in some cases with tabs in multiple conceptual relevance to one another.

rows. Clicking an upper tab on the right dialog box causes the two rows to switch positions. Very confusing.

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ambiguity was inevitable. Thus, the 16 categories attempted to explain the full breadth of Yahoo. Soon after, subcategories were added to ease the selection

process. Would you find “Recycling”

under “Science” or “Society &

Culture?” Tough call, until you notice

the “Environment” subcategory associ-

ated with the later. The rest of the

interface was an academic exercise in

typography and layout. Subcategories

should be smaller than their parent

categories, and an ellipse shows that

there are more than just the three

Categories + Subcategories = the Yahoo being shown. Two columns get more

Directory. This particular architecture above the fold. Add the requisite

Users bring previous experiences with them to your site.

has been copied and refined more than branding and search engine and a new

Consider how many interface elements you can identify in this just about any other.

context is born: Logo, Search box, and

screenshot of Denmark's Jubii.com.

Directory—or the LSD design.

*Thus, as with the Three-Panel Layout, user expectations **Designing with Patterns***

became ingrained. The LSD design spread to sites eager to As you read this, look around. Is there a door near where leverage the simplicity of Yahoo, and the prior knowledge you are? How does the doorknob work? Go take a look at it.

users had gained there. Through 1997 and into 1999, nearly Is there a lock? What is the mechanism for locking and every site that attempted to compete with Yahoo (and quite unlocking it? How does the knob turn? Is it round, or more a few that didn't) conjured up a version of the LSD inter-of a handle? Do you need to twist it, slide it, or push it in face.

order to open the door?

As we saw with the Three-Panel Layout, designers can Lots of questions. You could probably think of even leverage users' previous experience with interfaces like this more if you stared at the doorknob long enough. In fact, if to make the mental map-building process seem nearly trans-you spent enough time studying the process of opening and parent. Looking at the screenshot below, how much of the closing, locking and unlocking doors, you could become interface can you identify just by its implementation of quite an expert on doorknobs.

existing context? (Assuming, of course, that you don't speak I'm describing a particular design process in the para-the Danish language.)

graphs above. It's known as a Pattern Language and is a fas-Of course, merely understanding contexts from other sites cinating approach to determining the ultimate “goodness”

is only the first step in applying consistency to your site. You of a design solution. Pattern Language design has been need to find solutions for your contexts as well. Solving around for some time, but the concept is generally attrib-design problems is, after all, a blending of external conve-nuted to architect Christopher Alexander, who developed tions and specific situations. Thankfully, there is a process the notion and applied it to not only the study of door-for developing the best answers that goes back decades.

knobs, but doors, rooms, houses, neighborhoods and cities.



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The Art & Science of Web Design Chapter Two - Interface Consistency

His basic premise was that we should start from the bottom window latches or light switches or sidewalks or park and work our way up—that is, by asking questions about benches. The same holds true when looking for patterns in very simple things, we can find the best answers and com-our Web sites. You may have many different types of infor-bine them into complex things.

mation, or a dozen distinct tasks that your audience is try-Take the doorknob example again. Once you've become ing to accomplish. But start small. Chances are that if you a doorknob expert, you should be able to accurately have a site for some time, it grew very rapidly and very describe

how that device should work. Then, you should organically. It may feel like the site is completely out of start studying doors. Where should the knob go? What's the control. Don't get overwhelmed with the seeming complexity of hinge the door to a frame? What's the best size of your existing site. Just pick something and start there.

for a door? Where should it go in a room? How many doors should a room have? Now you're starting to become a room expert. You'll also become a window expert, and a floor and ceiling and wall expert. How should rooms be arranged in a house? What heuristics make for a space that feels good to be in? How do you connect those spaces? As you work from A simple search interface for a music portal site. This particular solution was the bottom up, you'll find yourself looking at bigger and bigger results of a number of design patterns derived from many contexts.

ger issues—like how public spaces can foster community interaction, or how city design can alleviate congestion.

Let's look at searching as an example. If your Web site The process of developing pattern languages isn't con-has a search engine, how does it work? Be very specific. I fined to the world of architecture. Patterns have been chose one from a Web site I worked on and pictured it developed for such far reaching disciplines as computer above. It has a text input box, a couple of options that science and corporate organization. And, as you may have modify the search, and a submit button. Now here's where guessed by now, a Pattern Language design process also we start making decisions. Once I understood the technolo-works very well when applied to Web design; even though gy behind the search, as well as the way my audience would we don't have doorknobs on the Web, their equivalents be using it, I could generate the following questions: are pervasive.

So where do we start? We'll need a clear idea of just

- What is the optimal size of the text input box?

what a pattern is. In his book, *A Pattern Language: Towns,*

- Should the options be before the box or after?

Buildings, Construction, Alexander describes patterns as “a

- What sort of interface elements should the three-part rule, which expresses a relation between a certain options use?

context, a problem, and a solution.” The problems

- What is the best text for the submit button?

Alexander was referring to were ones that would happen

- Should the submit button be rendered as default repeatedly. The solutions he proposed were abstract enough HTML, or should it be an image?

that they could be used over and over again. Let’s try it

- Should there be line breaks between elements, or with a Web design dilemma.

should they all be on one line?

Starting to develop patterns is as easy as simply looking

- Should this whole interface be labeled? If so, at an existing Web site and just picking something. In my with what?

real-world doorknob example, I could have started with

SEARCH: Artists Songs

FOR: Go!

SEARCH: Artists Songs

FOR: Go!

SEARCH: Artists

FOR: Go!

SEARCH: Artists Songs

FOR: Go!

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I tried to answer these questions based on the research I've done both on my audience, and the conventional wisdom for the Web in general. For example, my content will elicit a pretty specific set of queries when my audience does searches. I can look at those queries and evaluate them, which can inform the answer to my first question. For this site, most queries had multiple words in them. If, however, I had been building a stock quote server that took companies'

three- or four-letter ticker symbols as input, then my box could have been significantly smaller.

I've now developed the first pattern for my language. I could state it like this:

Prototyping all the possible solutions to the search interface

- **Context:** Users are searching for known items by *problem*.

typing text into an input box.

- **Problem:** If the input box is too small, it's difficult. Now, I'll evaluate each solution. The first won't work, for users to see errors they've made or edit their since checkboxes allow users to select *both* artists and song.

query. However, there are interface constraints on My database doesn't work that way, so I can't offer my users how big the box can be.

that functionality. Radio buttons, however, can only be

- **Solution:** When building a search interface, base the used for choosing one selection from many choices. So this size of the text input box for queries on the length of works better for this particular search application. The pull-your users' typical queries.

down menu has the same effect. Users can click the menu and see the list of all choices, then select the one they Let's continue with the questions above and see a few want. This would be compatible with my search features, more examples. I've got two options for my search. The but I'm not as happy with this solution. In the tests done on search interface is designed for a music site, so I've given user interfaces on the Web, I've seen a lot of users ignore my users the ability to target their query to either Artists or pulldown menus. Since the options in a pulldown are not Albums. That way, some one searching for Rolling Stones immediately visible and require the user to click and will find the band, and can exclude references to the Bob explore the options, they often go unnoticed. Of course, Dylan song, "Like a Rolling Stone." So where should those this doesn't mean these widgets should *never* be used—in options go?

fact, they're quite an effective use of space when a user I start by looking at all the possible options available to needs to choose between many items in a known set. (For me. In this case, I'll have multiple items from which my users example, pulldowns work great when a user needs to select will choose. Looking through the form elements in HTML, I the state they live

in. They know that the pulldown menu see that there are four possible interface widgets that will will have a list of 50 states.) Since I'm motivated to com-allow users to select from multiple items: checkboxes, radio municate the options available, I'll choose not to hide them buttons, pulldown menus and option boxes. With this knowl-in a pulldown. Finally, the option list in the last example edge, I quickly prototyped all four possible solutions: offers users the ability to see all the available search param-

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eters, but again allows users to select multiple items. It also they've successfully submitted the form. I won't, however, be takes up more vertical space that I care for in this case. So able to tailor the button to match my look and feel.

option lists are rejected. The winner, then, is the radio but-Especially considering that most form widgets can be clunky ton prototype. Another pattern added to my language: in the context of a well-designed identity. So another pattern emerges for my interface:

- **Context:** A form-based interface for a search engine with multiple sources that can be queried.
- **Context:** Submitting an HTML form.
- **Problem:** HTML forms offer many ways to select
- **Problem:** There are two ways of displaying a button between different options. Which is the best?

on a Web page: as an HTML element, or as an

- **Solution:** When offering a small number of distinct image search options, radio buttons are the clearest and
- **Solution:** The usability benefits of an HTML form most effective solution. submit button outweigh the visual flexibility of an image button.

That leaves us with the submit button. HTML forms give us two ways of submitting forms. The first allows me to I would continue through every question I was able to create a simple button to be rendered by the operating sys-generate from my simple search interface. In fact, the tem. The second allows me to create my own button as an process of developing patterns often leads to more problems image. Both work the same way—a user clicks the button in need of solutions. As you can see from the examples and submits the form. Which should I use?

above, the particular context of my users and my content Again, it depends on the situation. In this case, I've fac-make a big difference when developing design solutions.

tored in some of the constraints on this page. Performance is But I also should be looking externally, as well. One effec-important, as is feedback for users who may not be as famil-tive method is the competitive analysis. With this process, iar with the Web as I'd like. For these reasons, I'll choose we can choose one interface element, and compare all the the HTML submit button. It has a series of benefits that possible solutions, find the similarities and differences, and make me more comfortable than simply using an image but-apply them to our contexts.

ton. For example, the button will be rendered using a stan-Let's look at another interface convention popular in dard element from my user's operating system—Macintosh contemporary Web design: the topic path.

users will see a Macintosh button and Windows users will see the appropriate translation into their OS. This allows me **Finding Your Way**

Back Home

to rely on an existing external context that is, users will

“Topic paths” are a navigational tool designed to help users inherently understand how the button works because they’ve understand where they are in a Web site, and how they can used it before in other applications on their computers. I get around. This interface element provides navigation by won’t have to go through all the work of developing a “but-listing sections of a Web site in a parent-child relationship, ton-like” image that mimics the buttons they’re used to see-with the top-most resource at the left, and links to the right ing. It is also faster. The image button requires yet another that become progressively more detailed. All portals use connection between the Web server and my user’s browser.

them, as do many content and e-commerce sites. Topic And I also appreciate the feedback of an HTML button; it paths are a well-known convention across even the newest appears to push down when a user clicks it, signifying that Web users, due largely to the fact that both the Windows

Top: Sports: Canoe and Kayaking: Sea Kayaking: Folding Kayaks



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operating system and the Web's URLs both force this navi-

- **Solution:** Using a greater-than sign is a clear and conga-tion scheme on everyone.

cise way to signify a parent-child relationship for an audience that may not be technically sophisticated.

How preeminent should the topic path be? Should it be separated from the page title? Should it be separated from *A Topic Path showing a user's location in a hierarchically-structured Web site*.

the page's branding? All of these questions are addressed when deciding where the navigation should fit into the The image above is a typical example of a topic paths page layout. Clearly, the topic paths should be near the top navigation scheme from the Open Directory Project. Note of the page. When a user lands on a particular spot in a how categories get more specific. The last category, or large site, that user instantly tries to determine where the

“node,” is not linked in this case and serves as the headline page fits into the bigger architecture. Branding and nava-for this particular page.

tion do that work, and topic paths in particular can quickly Stylistically, topic path strategies differ in only a few and accurately shape a user's mental model of the site.

ways across the many portals and sites that implement There seem to be as many strategies as there are sites them. Most notable are the separators used between parents that implement topic paths when it comes to page loca-and children, the location on the page, and the type of tions. Sometimes they appear immediately below the site's description used for the last node.

branding and logo; sometimes they take a position below The individual children of a topic path trail need to be the ad banner, at the “beginning of the content.”

separated from one another with some sort of punctuation.

That mark should have some semantic value; it needs to describe the relationship between the parents and children, or “this is in this.” The majority of sites use either a colon (:), or a greater than sign (>). On some occasions, especially with sites catering to a more technologically sophisticated audience, a backslash (/) is used (mimicking the convention used in URLs). Which is best? For my audience, a Yahoo, for example, separates the last item in the topic backslash makes the navigation too technical. And at the path and breaks the line. They increase the weight and size font size I want to use, colons look to much like the vertical of the typeface as well, and change the background color to bar character (|). So a greater-than sign it is.

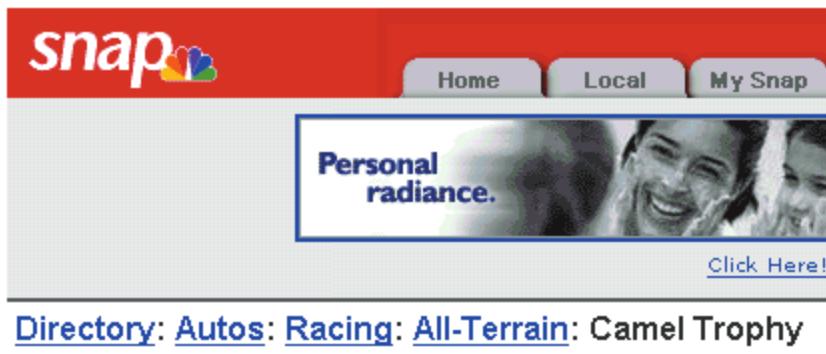
appear as a header. All of this happens above the ad banner, separating it from the rest of the content of the page. This

- **Context:** Topic path navigation of a hierarchically feels artificial.

organized Web site.

- **Problem:** Users need to distinguish between links in the navigation system in a way that communicates the relationship between the items.

The Go portal integrates topic paths even tighter into its directory. Here, the navigation is more a feature of the



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page than a method for localization. The links are set under **Evolving Context**

the main category into which the user has navigated. This But where does all this leave us? We have problems to solve on header unit is below both the branding and the advertising.

our Web sites; are we to assume that existing interfaces have happened upon all the solutions? Is our job merely to copy?

Of course not. There are as many exceptions to the existing contexts I've outlined in this chapter as there are examples. Still, there are three very important lessons to take away from our discussion of interface consistency.

- Users bring external contexts to your site. You will confuse users if you break them.
- These contexts are evolving, but the evolution is slow.

Snap, on the other hand, uses topic paths as a clear

- Innovation can be found by developing patterns.

starting point for the page. They begin below a well-defined Seek them out.

advertising area (set off with a browser-chrome gray background). Once again, the topic path is being used as the First, merely copying interface strategies will get you into definitive headline for the page. One's location is often con-trouble. An interface solution popularized on a successful noted by the words that are contained in the drilldown site may work well on your site as well. It may also fail mis-links. Moreover, when you click on a drilldown link the erably. The Three-Panel Layout has its place, as does the

topic path changes. There is a cause-and-effect that must be LSD design, and a tab-based structure. There are hundreds visible. Thus, other things equal, it is important that the of other approaches as well. The best way to know what topic path and the drilldown links share the same locality people are using and, more importantly, what is working on the page. The Yahoo directory does it incorrectly. Snap and why is to be keenly aware of the evolution of today's does it better. Why put the heading at the end of the topic Web sites. Do you know who your competition is? Evaluate path? To make cause-and-effect visible. I like this solution, the dozen sites that do something similar to what you're trying to accomplish. Look at the sameness and where they testing, all the subjects noticed the topic path in the overall diverge. Try to uncover the strengths and weaknesses of page layout and could identify its use.

them. List as many conventions as you can, from color choice and typography to layout, architecture, and editorial

- **Context:** Topic path navigation of a hierarchically tone. Only then can you start to leverage the contextual organized Web site.

knowledge your users are bringing with them to your site.

- **Problem:** Where on the page should this type of navi-Think back to our real-world examples: You wouldn't design gation go so it has a clear relationship with the con-a bicycle with a steering wheel unless you applied only the tent, but also is noticeable among other page elements.

most superficial of research into piloting vehicles.

- **Solution:** If a site has a strong sense of hierarchy, Second, you need to understand the rules before you can design the topic path as if it were the page's headline.

break them. It's a truism that applies to everything from writing prose to riding motorcycles, and it sticks to the Web

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the store
bookmark
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HOME POPULAR DEMAND

10 October 2000

It's nearly spooky time, when we can all slip into something a little less comfortable and pretend to be the the thing we wish we really were. A funny thing happens around here at glassdog world domination headquarters—everyone dresses up like Bill Gates. What that says about the (cult)ure here is a little too scary to contemplate.

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HOME

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Monday, February 8, 1999

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- Ceremony Heard Closing Arguments Today
- Extra!**
- Jordan: What Next?

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Monday, Feb. 8

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- King Hussein buried: thousands mourn death of Jordan's monarch
- NDA Action
- NATO Project: Cops fired 41 rounds, killing unarmed man
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SITEMAP **WHAT'S NEW**

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as well. I am baffled by competent

site's structure and navigational potential. But how will it designers eschewing "traditional infor-change? Where can we see clues for this evolution?

mation architectures" or "tired old

I find inspiration in noncommercial Web creations.

navigation schemes” when we barely

These labor-of-love sites—outside the

even understand how people are using

mainstream of viable e-commerce and

our sites. We’re only now seeing suc-

content—are experimenting and

cessful strategies for rendering large

expanding our interface vocabulary

information spaces. Those strategies

every day. Take, for example, the navi-

need to evolve, but that evolution may

gational mechanism used by designer

not be happening as quickly as we like.

Lance Arthur on his site at

Finally, don’t fear innovation, espe-

Glassdog.com. While taking its basic

cially if you have a clear understanding

form from the Three-Panel Layout, he

of your audience. By using a process of

innovates by using advanced scripting uncovering design patterns (or whatever other method you are comfortable with), you can focus in on what links pointing to the rest of his site texts and conventions exist with your scrolls with you. Is it usable? Is it consistent with users' external contexts for Solutions will fall out of a careful study site-wide navigation? Who cares. It's of your site from the bottom up, and by an inspiring look at how navigation *Beyond simple evolution*, Glassdog.com thinking like your audience, you can could work, and a target for future evo-shows interface innovation with auto- find the best answers to these problems. It's absurd to think a main- *scrolling navigation.*

stream portal implementing a Shockwave-based multimedia interface to its product. It's equally absurd to picture a artist's portfolio in the LSD design. The choices you make should transcend the conventional wisdom, but only if you understand intimately what that wisdom currently is.

As Yahoo gained market dominance, its competitors did whatever they could to keep up. These screenshots from 1998

we'll be living indefinitely with a Web show various portals' attempts to mimic that mimics Yahoo and Amazon. Nor

Yahoo's success—exploiting the LSD do I think a colored strip down the interface and even using the same lefthand side of the page is necessarily shade of blue.

the best we can do to communicate a

OceanofPDF.com

Chapter Three

[3]

Structure

Most Web sites are ever-growing, evolving Judging a book by its cover may result in a proverbial misunderstanding, but you collections of information and services. With so certainly can learn a lot by simply looking at a printed work. Books have size much content, so many services, and untold and shape and page counts and paper quality. You can tell the difference user tasks, who makes sense of it all?

between a telephone directory, a corporate annual report, and a photocopied zine just by holding them in your hands. What does a Web site have that communicates its contents and functionality? How can you tell the scope and meaning of a Web site from its interface? The process of identifying and exposing these basic qualities of a Web site is encapsulated in the discipline of Information Architecture. This chapter will give you an overview of that pure blend of art and science and deconstruct a number of very large-scale architectures—the world of Web portals.

[open directory project](#)

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Top: Arts: Music: Bands and Artists: B: Beck (25)

- [Deconstructing Beck](#) (3)
- [Shopping](#) (2)

See also:

- [Arts: Music: Styles: Rock: Alternative](#) (322)

This category in other languages: [\[Spanish\]](#)

- [beck.com](#) ★ - The official Beck site, and also the most complete. Excellent.
- [AllExperts Beck](#) - Ask the expert a question and they shall answer.
- [Albums.net Beck](#) - Features articles, audio clips, biography, discography, pictures, links, and album reviews.
- [ArtistDirect.com Beck TV](#) - Beck TV - Exclusive Video of Beck, links to Beck lyrics, mp3, pictures, and merchandise
- [Beck - The Setlist](#) - List of live Beck performances.
- [Beck: Beautiful Monochrome](#) - Includes archive of interviews.
- [Beck Lyrics Page](#) - Here you'll find lyrics to 4 major Beck albums, plus some photos, links to guitar tabs, and more.
- [Beck the Loaded Fanatic](#) - Beck fanatics for fans by fans.
- [Beck World \(Vibes for the Easy\)](#) - Content includes variety of links, news, MP3s and MP3 search, song of the week, and links to related artists.
- [Beckut and Racer](#) - Beck news, discography, lyrics, new releases and record availability, and chat
- [The DeShawned Beck Page](#) - Personal site with latest news.
- [Equipment List for March/April 1997 US Tour](#) - Hardware used by Beck on part of the Odelay tour.
- [I Wanna Get with Beck \(And His Sister Deborah\)](#) - Includes photos and news.
- [Katherine's Beck page](#) - Unfortunately no updates since April 1998, but included are some nice pictures and that personalized touch.
- [Lisa's Beck Page](#) - Includes pictures, lyrics, biography, and sound files.
- [NSIN Automatic Booty](#) - Contains news, tour dates, discography, and pictures.
- [Project9's Real Audio Site](#) - Beck's CD Odelay in RealAudio format.
- [Ranshackle Land](#) - Beck biography, pictures, discography, and sound files.
- [RollingStone.com -- Beck](#) - Includes bio, photo gallery, news, discography, album reviews, audio/video, and message boards.
- [Slo-jam Central Beck](#) - Includes news, photos, reviews, Pink Noise, and Quotes for the Week.
- [Sonatabot's Beck Tabs](#) - Source for Beck guitar tabs including Devil's Haricot, Brother, and Loser.
- [Sonarset.com Beck](#) - Contains music news, album reviews, audio downloads, biography, discography, links, and bulletin boards.
- [Sponger's Beck Discography](#) - Most complete discography up to Odelay era ('96, early '97). Up until then, you'll find almost every Beck record known to man, and then some. After that, no updates, but hopefully one day.
- [TheMusicVine Beck](#) - A music community with chat message boards, clubs, forums and homepages.
- [VH1 Fan Club Beck](#) - Includes news, biography, musical influences, audio clips, pictures, music videos, bulletin boards, and links.

- Usenet alt.music.beck - [newsgroups](#) - [dns](#)
- "Beck" search on: [All the Web](#) · [AhaVarta](#) · [Deja](#) · [Google](#) · [NetVibes](#) · [Lyrics](#) · [Northern Lights](#) · [Yahoo](#)

Category editor [\[edit\]](#)



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The Art & Science of Web Design Chapter Three - Structure

There are cows in Los Angeles. Lots of them. In the suburbs-the words-pictures-code triangle. In the last chapter, I dis-ban town of Chino, some 40

miles due east of downtown LA, cussed the appropriateness of Pattern Languages in Web there exists large dairy farms that butt up against the tract design, and how technologies like Cascading Stylesheets homes and strip malls. These days, the farms are being rapidly can be used to parallel that strategy.

chipped away by development, but in the mid 1980s, when I In this chapter, I'll demonstrate how the structure of a was in high school, there were acres and acres of them.

Web site affects your users' experience. I'll start by examin-The cows don't all live in Southern California. Many of ing a typical user experience—in this case, using a series of them live farther north, in the state's large Central Valley.

search engines and content sites to research a specific topic.

Big semi trucks ship these animals back and forth every day Then we'll look at how some of the largest sites on the Web in long metal trailers. The ride from north to south places have attempted to make this kind of experience easier the cows in a certain amount of intestinal stress, and after through the practice of integration

the six-hour trip the trailers are more than a little messy. I, through solid Information

as a 16-year-old high school student desperate for cash, had Architecture. Finally, we'll look at

the unique job of climbing into the back of these trucks how the technological promise of

wearing rubber boots and wielding a large pressure hose. For XML is foretelling a future of integra-long summer days I would do my best to remove the rem-tion across the Web.

nants of the preceding journey, and wonder just what my future life had in store.

Search and Research

Well, as it turns out, dealing with the mess of ill-con-How many times have you stumbled

ceived Web sites isn't all that much different from my earli-across a subject you'd like to know

er vocation. So many sites are thrown together so quickly more about, and turned to the Web for

and without thought of users or their goals that I've begun the solution? It happens to me all the

to see dramatic similarities between them and the trailers I time with musicians. I'll hear some-slogged through years ago. With a mess this bad, the task of thing new, catch the name of the

bringing order out of the chaos can seem daunting.

artist, then tear into the Web to find

Seriously though, there are a lot of folks facing similar all I can about them: bio, history,

problems with the Web sites they maintain and develop.

influences, discography, tour dates,

Part of the problem with today's Web is simply finding what music samples. The Web, when used

you're looking for. This problem grows out of an interesting well, is a wonderful place.

force: it's a little too easy to build Web sites. Since pretty Let's take the popular artist Beck as

much anyone can pick up the basics of HTML, and every-an example. What would you expect

one thinks they've got something to tell the world, we're from a search engine if you simply

left with an ocean of content to traverse and not so much typed his name as a query string? If

A page of site reviews at the Open

as a dime store compass with which to navigate.

you said, "Depends on the search

Directory on the artist Beck.

Fixing the Web may be well beyond our abilities, but we engine," you would be exactly right.

can certainly affect the experiences of users visiting our So let's start with the Open Directory at sites. Thinking back to the conceptual model from earlier http://www.dmoz.org. Since this is a human-edited catalog of in the book, we find ourselves on the structural corner of Web site reviews (as opposed to a raw index of sites like

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**T h e A r t & S c i e n c e o f W e b D e s i g n C h a p t e r T h r e e - S t r u c
t u r e 77**

Alta Vista), our search for Beck turns up a fairly focused set This is not an uncommon user experience on the Web. I of results within the directory

itself. The most useful did a significant amount of research, then acted on the appears to be here:

results and participated in a transaction. I could have had a
http://www.dmoz.org/Arts/Music/Bands_and_Artists/B/Beck/

similar experience buying a new scanner for my computer, or Here, we find a fairly comprehensive collection of sites a new set of wheels for my mountain bike. The key to these that deal entirely with Beck, including his own official site.

experiences, though, is that I already knew what sites to visit Not a bad start, but certainly not the encyclopedic resource to build my research to a point where I'm comfortable acting I was after. I want a complete understanding of who this guy on it. What if I had been looking for the best place to go fly is, after all.

fish? I don't know the first thing about fly fishing, or So off to one of my favorite music sites, the All Music where to even look on the Web for information.

Guide at <http://www.allmusic.com/>. I can spend hours here, And that, in a nutshell, is the goal of some of the largest digging through the thousands of artists all cross-referenced sites on the Web—the portals—to always be the first place to each other. What this site lacks is any sort of structure—

someone goes to learn about something online. And those in fact, if it wasn't for the cross-referencing hyperlinks and a sites have largely succeeded. User tests have shown that substantial search engine, this site may be entirely unusable.

most Web users will have a primary source of information However, typing "Beck" into the search box gives me what for subjects they care about, and a secondary source for I'm after—a pointer to a remarkable page of information on things with which they aren't as familiar. Ask a basketball the artist. Here, I find a detailed biography, along with fan the score to the last New York Knicks game was, and pointers to other artists like Beck, as

well as his influences he'll go to ESPN.com. Ask him the country code for dialing and collaborators. A discography even rates his best albums Estonia, and he'll likely start at Yahoo.

and gives track descriptions. Yet, despite the amazing While most of the portals started life as simple search amount of information here, I'm skeptical. What do the engines, all have evolved into more ambitious destinations.

kids on the street really think of Beck? For all of the All The best possible user experience, it turns out, is the worst Music Guide's depth, it lacks one key element: a connec-possible business case. Think about what you want out of a tion to other Beck fans.

search engine: ask a question, find the Web site with an Off I go to Talkcity.com, a collection of community-answer. Two page views is ideal. This “single dip” experi-building applications, like chat and message boards, based ence, though, isn’t optimized at all for companies providing on a subject arrangement. Sure enough, there is a whole Web services that generate revenue from ad banners. And collection of Beck conversations happening right now. As I the more pages viewed per user, the more ad banners they start to dig in, I find that *Odelay* may have been a popular can charge for. Thus, the search engines morphed into por-album for Beck, but his true fans think *One Foot in the tals*. Sites like Yahoo, Lycos, Excite, and Snap began to offer *Grave* is his best work to date. So I head over to services—any services—that would keep users on their sites AudioFind.com to download MP3s from that album, and longer. Why send users out to the external Web when we after a listen decide that I want to buy it. Now to can satisfy their needs here, goes the logic.

MySimon.com to compare prices and availability across all As you can imagine, building interfaces for sites like the online music vendors, and finally to Half.com where I these can be challenging at best. Not only must the designs pick up a used copy of the album for five bucks.

eliminate nearly all cognitive stress from the user experience, but they must provide this experience for all possible

The Art & Science of Web Design Chapter Three - Structure 79

users across all possible user goals. Traditional research I like this definition because it captures not only the methods such as task analysis and usability testing can apply tasks assigned to such a person, but the process and in a very localized sense (“Can you find out the weather in methodology wrapped up in doing them. It also sets Boston?”), but fail across the overall product.

Information Architects apart from their real-world counter-One way to examine how these sites, and eventually parts. We’re talking about data, not buildings. While the how *your* site, cope with growth is to look at their architec-metaphor may be accurate, it’s just that: a metaphor.

ture. For a few years now, the term Information Building architects develop blueprints for structures based Architecture has been growing in popularity as a way of on any number of constraints: the intended use, the avail-describing how the structure of content is presented.

able materials, budget and schedule limitations. All of these issues affect the work done by Information Architects as **Information Architecture**

well, but with a difference. Information Architects deal Most, if not all, Web sites are ever-growing, evolving collec-with structuring content. For example, on an e-commerce tions of information and services. With so much content, so Web site, should the “Registration” process be associated many services, and untold user tasks, who keeps track of it with “Preferences?” Are there relevant connections all? In Chapter One, “Foundations,” we set up a triangle of between different products that can

be uncovered? The disciplines made up of Presentation, Behavior, and Architect should know enough about how people register at Structure. Presentation fell in the domain of designers, e-commerce sites and what their shopping patterns are to those who specialize in the aesthetic choices that enable inform these decisions.

communication and identity. Behavior, conversely, falls on But Information Architecture goes beyond simply struc-engineers, programmers, and script authors. Here, we have turing of data and uncovering the patterns and relation-the fundamental front-end and back-end code that facili-ships in content. Architects also need to *present* these tates interactivity. That leaves us with Structure, the structures, patterns, and relationships. Bear in mind that by domain of Information Architects.

“presentation” I’m not just talking about the realm of style, Information Architecture is at its core a metaphor.

but about how items are emphasized, hierarchical associa-Architects in the real world design buildings, architects on tions, and how the eye draws across the page, etc. These the Web design sites. How do they compare?

are all basic graphic art and design principles, but with the Information Architecture is a newly popular discipline, distinction of being specifically applied to the purpose of but its roots go back decades. Author and designer Richard presenting *information*.

Saul Wurman popularized the profession years ago in his I prefer to add the metaphor of cartography to the mix book, *Information Architects*. This, from the introduction, in this definition. I think of surveyors with their spotting does a good job of laying the groundwork for what we’re scopes charting new territory and carefully recording what talking about:

they see. They are, in essence, evaluating a specific set of data (in this case a landscape), and applying an appropriate **Information Architect** 1) the individual who organizes method of organization. They may choose a political view the patterns inherent in data, making the complex of the region, showing boundaries and borders that may not clear; 2) a person who

creates the structure or map of physically exist. They may opt for a topographic representa-information, which allows others to find their per-tion, detailing the rises and drops in elevation. Or, they sonal paths to knowledge.

might show the area based on landmarks, as a tourist map of

The screenshot shows the homepage of CamWorld, updated daily. At the top, there's a navigation bar with links for DailyCam, CamRants, CamList, Fiction, Résumé, and Essays. Below the navigation is a "Choose Color:" section with color swatches and a Facebook icon. A search bar and a help link are also present. On the left, there's a calendar for August 2000 with the 18th highlighted. Below the calendar are fields for "Submit a URL:" and "Who to Credit (URL:)" with a "Share" button. A sidebar titled "Sites I Visit Often" lists various websites like 10.am, Antenna, Axodys, Backup Brain, Barbelith, Barista, Bifurcated Rivets, Bird on a Wire, Boy and His Basement, BradLands, BrainLog, Bump, Captain Cursor, Cardhouse, Dack.com, and Dail... . The main content area features a large headline "Tuesday, August 1, 2000" and a news item about Microsoft's IE 5.5 failing the test. Another news item discusses the Mozilla developer meeting at Netscape's campus. The bottom of the page has a note about the W3's final recommendation for SVG.

UPATED DAILY
camworld

DailyCam CamRants CamList Fiction Résumé Essays

>Last Updated: 08/01/2000 at 09:46 PM EDT Choose Color: pink lightgreen blue white yellow black grey orange red purple cyan magenta lime teal olive brown darkblue darkred darkgreen darkcyan darkmagenta darkolive darkbrown darkdarkblue darkdarkred darkdarkgreen darkdarkcyan darkdarkmagenta darkdarkolive darkdarkbrown f

Search CamWorld for: Search Help

◀ August 2000 ▶

	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Submit a URL:

Who to Credit (URL):

Share

Sites I Visit Often

- 10.am
- Antenna
- Axodys
- Backup Brain
- Barbelith
- Barista
- Bifurcated Rivets
- Bird on a Wire
- Boy and His Basement
- BradLands
- BrainLog
- Bump
- Captain Cursor
- Cardhouse
- Dack.com
- Dail...

Tuesday, August 1, 2000

InformationWeek: Microsoft's IE 5.5 Fails the Test.

On August 18, I'll be running a session about designing skins for Mozilla during the Second Mozilla Developer Meeting at Netscape's campus in Mountain View.

No wonder Microsoft products are always behind schedule. Heh.

So, my Koyaanisqatsi DVD arrived via FedEx today. I'm sadly disappointed. For \$180, I expected that there at least would be a keepcase, and that the keepcase would be signed. Instead, I received a generic square white paper/plastic DVD sleeve signed on the back by the Director, Godfrey Reggio. And to make matters worse, the DVD isn't even a widescreen edition! While I'm ecstatic to finally own this wonderful movie on DVD, I'm very disappointed that the Institute For Regional Education couldn't spend the extra buck or two to get nice plastic keepcases. I'm going to write them a letter to see if they'll rectify this oversight.

Excellent. The W3 has issued a final recommendation to make SVG a standard.

EditThisPage.Com

A growing community of Manila websites.

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Top 100 Most Visited Sites

Rankings compiled on 8/2/2000; 12:00:08 AM Pacific.

	Hits	M	Site	Editor
Manila	1. 236028	36	Jeff's Weblog	Jeff Cheney
Frontier	2. 149696	30	A Curmudgeon Teaches Statistics	John Marden
Stories	3. 135028	45	Infographie-CA	André Vincent
Prefs	4. 94793	722	WAP Today	Dan Garner
Top 100	5. 91428	6	eric1	Eric
Most Read	6. 87743	32	iRights	Jeremy Bowers
Updates	7. 86971	20	partykeller	claudia
Tour	8. 85515	55	The Flounder	Simon
Members	9. 83567	30	Marc's Voice	Marc Canter
	10. 76575	29	McCain's Navy	Stan Krute
	11. 72644	134	SESMA.net: Persatuan Alumni Sekolah Menengah Sains	Ahmad Hadzramin AR
	12. 72600	31	misnomer.	Dru Jay
	13. 72202	11	PapaScott (& MamaMaus)	Scott Hanson
	14. 72058	19	On Deciding... Better	James Vomov
	15. 71065	9	End the War on Freedom	Bill St. Clair
	16. 69933	82	DreamFactory	Chris
	17. 66904	32	View from an Iowa Homestead	John VanDyk
	18. 63432	210	Japan Mobile Information	Andrea Hoffmann
	19. 62875	28	ViewFromTheHeart	Alwin Hawkins

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The Art & Science of Web Design Chapter Three - Structure

a new city realistically depicts cathedrals and museums with or audience-specific. But this simply hints at the architectural detailed drawing set on a simplified grid of streets.

solutions in use on the Web today. Let's look at some examples.

By looking at the art of cartography, you can see the On his personal Web site,

importance of creating different representations of data
www.camworld.com, Cameron Barrett

based on user needs. But there is another way of interpret-keeps an updated list of pointers and

ing this metaphor: Cartography also demonstrates the need commentary on what is happening in

of withholding, de-emphasizing, or obscuring information in the Web design and development

order to, as Wurman suggests, “make the pattern clear.

industry. Since he posts these com-

Architecture, especially on Web sites, is not always about ments every day, his site is organized

shuffling ten things around. Sometimes it’s about emphasiz-chronologically. Headings running

ing three, dropping two, and making the other five less dis-down the page organize each collection

tinct. And sometimes leading folks to “their personal paths of links by the date in which they were

to knowledge” takes a back seat to drawing attention to added. A calendar metaphor allows

overstocked merchandise or high-priced advertisements.

navigation through the archives of his

Regardless of their intent, Information Architects look posts, using a familiar mechanism for for patterns, then create maps or blueprints to help people moving through periods of time.

reach their goals through Web interfaces.

Cameron also includes an extensive

A daily journal of Web design and

list of sites he routinely visits, a sort of *development links on camworld.com*

Matchmakers

bibliography that gives context to his

uses a chronological architecture.

How do Web sites accomplish this? Information Architects perspective. While this list could be

are essentially matchmakers. Their job is to intimately ranked by his preferences (best to understand both a site's content and an audience's goals, worst), Cameron wisely chooses to list

and then find the connections between the two.

them alphabetically. In this case, since

There are a variety of ways to understand and explain a the user is being asked to make a choice

site's content, as well as the intended use by an audience.

from some 99 items, listing them in

Think again about the map example above. A cartographer alphabetical order is easily the most effi-designs a map based on the information available, blended client way to find a desired name.

with how the map's owner will need to use it. A chart of Compare Cameron's list to the one

the San Francisco Bay Area should be designed very differ-on the EditThisPage.com site. Again,

ently for a airplane pilot, the captain of a commercial ocean we're looking at a list of Web sites, but liner, and a windsurfer. All three maps would have essen-in this case they've been organized

tially the same information, but with radically different based on popularity as measured by

views. Take the same geographic region, but add different traffic to the individual site. The possi-data—for example, commuting patterns based on annual bilities for presentation and organiza-Same data, different view. The

income—and you'd have a dramatically different results.

tion are endless; there are as many dif-

EditThisPage.com ranking of top hosted The same process applies to data and users on the Web.

ferent methods of organizing a

sites is similar to the list of links on Some of the most obvious methods that can be used for organiz-particular set of data as there are users *CamWorld.com, yet organized based on*

ing data include chronologically, alphabetically, geographically, of that data. However, the point

a different user need.

The screenshot shows the Netflix homepage. At the top left is the Netflix logo. To its right, a large green banner says "welcome". Below the banner are navigation links: "Home", "Customer Service", "Log Out", and "Your Account". A green button labeled "DVDs" is highlighted. To its right are buttons for "in theaters" and "recommendations". A message at the top right says "You've rated 61 movies! Rate more! Want to upgrade your rental service?".

DVD Spotlight: Comedy

Heard any good jokes lately? No matter what your taste, be it British highbrow or Ace Ventura, you'll find 500 of the best gut-busting movies on disc in our complete [Comedy](#) section.

Browse our 7,500 movie titles by:

- Genre
- Awards
- Type
- Rental Queue (14)
- Reminder List

Fantastic Femmes

- Julia Roberts
- Katharine Hepburn
- Sandra Bullock
- Gwyneth Paltrow
- Reese Witherspoon

Today in DVD

NetFlix premieres its new site! Now it's easier to [find movies you like](#).

Seventeen categories, 10 winners each. For the **absolute best DVDs** in the store, go to [Must-See DVDs](#).

Does anyone care [What Lies Beneath](#) the murky lake, or only **who lies beneath the sheets** with [Harrison Ford](#)? Get the complete scoop and see more movies [in theaters](#)

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remains: The best solution is the one that serves the users'

grasp on the goal of their site—to provide inspiration and needs the most effectively.

support for the users of their digital publishing tools—the Sometimes, there may be more than one appropriate method they use in organizing their content is an excellent architecture for a specific audience or collection of con-case study in developing user-centered architecture.

tent. Web sites have many different segments to their The creators of the Adobe Web site realized that the audience, with

various members of its audience would have a variety of many possible tasks to accomplish. Some may be interested in purchasing goals. One solution software. Others may need technical help with one of their solutions to this tools. Still others may simply be looking for ideas to incorporate into their work. To satisfy these goals, Adobe offers a provide multiple

few different entry points to the library of information on views at once. their site. The home page, for example, offers flashy teasers Take this example into high-profile content, ostensibly with the dual goals of selling software and inspiring existing owners. The site real-NetFlix.com, a ly shines, however, when a user needs a specific bit of information. Using classic techniques from the information sci-DVD rental site. encies, Adobe offers three different methods for digging into The architects at

their content repository: search, site map, and index.

NetFlix.com offers multiple organization schemes for their library NetFlix realize

The search engine works as you would expect. Type a *of movies. Each one is appropriate for a different user task.*

that there are

query, get a list of possible matches from a full text index of many different the site. The site index works much like an index in a book ways to find a movie to rent, and they built an interface would. Individual topics are

carefully selected from the that attempts to satisfy those needs. In the left column of pages of the site, then given descriptive titles and organized navigation, in addition to a direct access search engine, in an alphabetical list. Compare the index page with the there are popup menus with a variety of organizational site map, which takes broad topic areas—in this case schemes: by genre, by awards won, by release date, and Adobe's products—and presents a conceptual overview of even by features of the disc itself.

the entire site.

These examples are easy. All of these sites have simple Finding stuff on Adobe's site becomes a matter of decid-architectures based on well-defined user tasks. The ing just what method of organization you find the most CamWorld Web site provides a snapshot of the happenings appropriate to the task at hand. Think of the different tasks in the Web design industry, while EditThisPage.com offers a associated with, say, getting information on Photoshop's way to find the most popular of its hosted sites. NetFlix Gaussian Blur filter. “Simple,” I might think. “I’ll just create allows users to find a movie by genre, actor, or even mood—

a page on that filter in the site’s Photoshop area. But a good example of offering alternative organizational sys-remember, Information Architecture is not only the discitems to a single set of information.

pline of organizing information, but getting people to that Some sites, however, don’t have the luxury of well-information. And I’d need to be keenly aware of *why* people defined methods of organization. Software publisher Adobe would want information on that particular filter. A site Inc. is a good example. While they certainly have a strong index may lead my users directly from the ‘G’ section to the

Search

[search](#) [sitemap](#) [site index](#)

Search

What to Search:

Entire site
 Product information only
 Technical support documents only
 Extranet documents only (partners.adobe.com)

What to search for:

This does not search the forum messages. If you want to search the forum messages, [go here instead.](#)

Site Index

[search](#) [sitemap](#) [site index](#)

Alphabetical Index

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A

Acrobat
[Access](#)
[Spotlights](#)
[Free Reader Download](#)
[Key Features](#)
[Pricing and Availability](#)
[System Requirements](#)
[Tips & Techniques](#)
Acrobat Business Tools
Acrobat Capture
[Spotlights](#)
[Key Features](#)
[Pricing and Availability](#)

Adobe Authorized Resellers
Adobe Certified Training Provider
Adobe Press
Adobe Solutions Network
[ASN Developer Program](#)
[ASN Service Provider Program](#)
Adobe Ventures
After Effects
[Spotlights](#)
[Key Features](#)
[Pricing and Availability](#)
[System Requirements](#)
[Tips & Techniques](#)



Sitemap

[search](#) [sitemap](#) [site index](#)

► Web Center

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[Tutorials](#)
[Gallery](#)
[Columns](#)
[Events](#)
[Web Center Forums](#)
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[SVG Zone](#)

[Print Center Forums](#)
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page on that filter, but won't allow

ture of their offerings to users, helping them to find other filters that do simi-them feel as comfortable as possible

lar blurring effects. Nor will that archi-with their virtual surroundings.

ecture show which other Adobe prod-

Taxonomy is a bit of librarian jargon
ucts use the same Gaussian blur filter.
for how things are classified. Think of
(In fact, almost all of them do.) And
the Dewey Decimal System or the
none of these systems point to last
subject categories in the Library of
week's press release on the third-party
Congress. Both are vast naming
company partnering with Adobe to do
schemes for information spaces.
a suite of new filters.

Taxonomies help us understand the
Each view has a significantly differ-
world around us by labeling the things
ent perspective on both the available
with which we need to interact. A
content and the reason that content
Web site is no exception. The basic

Guru.com offers a clean distinction

would be valuable to a specific group
architecture of a site starts with a tax-
between the two audience group their
of users. In fact, audience-specific
onomical foundation.

research identified: independent profes-architectures can be the simplest form

*There are many ways in which they
sionals and those who hire them.
of organizing content or features of a
accomplish this. Let's look at three
Web site. Look, for example, at the*

*from some of the largest and most complex sites on the Web.
interface on Guru.com. This site has
content that serves two very specific
groups of people—*independent profes-*
sionals, and the people looking to hire
*them. The site has been organized**

Taxonomy vs. Hierarchy

cleanly down these lines and even

bases its identity on the division. The Discussions and debates of Information Hierarchy, on the other hand, refer-front page is divided into two distinct-Architecture will undoubtedly lead to the ences a top down organizational struc-ly colored areas—one for each audi-use of the terms “taxonomy” and “hierar-ture—imagine your family tree or a corpo-ence group. After following a link on chy.” Both of these words hold an unde-rate org chart. Hierarchical relationships Adobe uses different methods for one side or the other, the resulting niable place in the cannon of the disci-are typical fairly rigid parent/child systems, organizing the content across their Web interface design maintains your “color pline, but all too often they are used and are often valuable for browsing large site. All three interfaces provide access choice,” essentially reaffirming the interchangeably, and therefore incorrectly. amounts of subject-based information. to the same pages on the site, but with architecture through presentation.

To be clear, taxonomy refers to classification systems—typically scientific

Not all taxonomies, therefore, are hierarchical. The names of weekdays, for example, are a taxonomy of sorts—based site map (middle), and alphabeti-

the infinite user tasks and still provide animals, chemicals, elements, etc.

Monday, Tuesday, Wednesday, etc.—but a consistent mental model? Many sites Information Architects use this term to they aren't organized in a top-down typically rely on taxonomy and hierarchy to communicate the overall structure; they are sequential. Likewise

*nomenclature of things like the sections
a train schedule may have a taxonomy
of a Web site, or the various product
of route names, but is organized
groups in an e-commerce system.
chronologically.*

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The Matrix

So let's map out this structure, which I'll call The Matrix Yahoo's original interface had one goal: help users find Web (because I absolutely loved the movie, but in a bigger sense sites. Thus, it helped defined the look and feel of search because it is an accurate description of what's going on engines by providing two key elements, a search interface for here...) The Matrix is made up of the vertical content areas direct input of queries, and a browse interface for disambiguation-bisected by horizontal services. Each intersection is a point of connection and category hunting. While this certainly satisfied of possible integration. The more points that a portal can satisfy many users' goals on some level, it failed to provide Yahoo execute, the more complete their service will be perceived with a substantial business model. Thus the interface evolved by users. It's a network effect—the more destinations you move into what it is today: the same basic user goals surrounded by have on your site, the more opportunities you have to make and peppered with snares designed to keep the audience connections between those destinations. And more connections-within the confines of the portal. Stock quotes, free e-mail,

tions means a more complete user experience, and therefore sports scores, etc., all combined to entice folks to come to the more value for any particular user. And, of course, the more site, stay as long as possible, and come back often.

value you give to the user, the stronger the relationship you To execute quickly, most portals—Yahoo included—

can build with them. More relationships, more traffic, more began to license content rather than create it themselves.

revenue—everybody is happy!

Rather than spend time and money becoming experts at, say, financial news, why not just sign a deal with CBS

Autos

Business

Careers

Computers

Games

Health

Marketwatch and add the services as quickly as possible?

Portals were quickly able to spread their reach across **Directory** numerous vertical content areas.

Services, however, were another story. Free e-mail, or **Community** calendaring, or online address books were guaranteed

“sticky” services that resulted in repeat visits and numerous **Commerce** page views—perfect for getting more page views of the audience they were reaching with the newly licensed content.

News

However, these services, once built, only required a mini-Multimedia mum level of maintenance. This marked a dramatic cost difference from content services, which required large, talented, and expensive staffing. The portals responded by Horizontal services intersect vertical content areas to create the “Matrix” architec-buying the services, or even developing them in-house. The ture used by major portal sites like Yahoo, Go, and Snap. suite of content and services began to feel complete.

But there was a problem. The last thing the portals The chart above illustrates the overall Matrix architec-wanted was a “single dip” user experience in which users ture. Looking down the left column, we find services that come for one reason, fulfill a goal, and leave. Rather, a well-touch all of the content areas. Each portal, for example, has designed site would integrate as much content and as many a subject-based directory of Web site reviews. You can usu-services as possible, providing as many opportunities to ally find these on the site’s home page rendered as a alpha-cross-sell their offerings as possible.

betical list of categories, typically underscored with subcategories. (And, they’re almost all the same—“Arts &

Entertainment,” “Business & Economy,” “Computers & for sale also form a hierarchy. With so many hierarchies, Internet,” etc.) These directories are almost always organ-how can these sites explain the sheer quantity of stuff avail-ized hierarchically; as a user clicks from page to page, they able, let alone add a layer of understanding to it all?

*move deeper into more specific subjects. Thus, the front doors are simply showing the top level of a categorical tree **Yahoo’s Impulse Buying***

of subjects. You can see these categories on the chart in the Each portal that we’ll look at has its own method of expos-first row across the top.

ing The Matrix. Yahoo, for example, uses what I’ll call the Under Directory in the Matrix is Community. I’m using

*“Impulse Buy” method. Yahoo.com is massive in both its this term to refer to Web applications that allow users to breadth and depth. They’ve been successful at responding participate either by using chat rooms, message boards, or to nearly every trend that has blown through the Web, be it other interactive features. These areas are popular with portals because of the “stickiness” they create—an awful industry jargon for features which attract users to a site and **Directory***

Community

*keep them there—conjuring images of a Roach Motel or flypaper. Regardless, these features can also be categorized hierarchically. People chat or post messages about subjects, and these subjects can be matched to the ones we just looked at in the Directory. Those same subjects can be cross-referenced to appropriate news headlines aggregated **Commerce***

News

from a variety of sources. And there always seems to be room for e-commerce in sites like this; a catalog of potential products can map to those same subject areas. We can start to see a model for integration.

In aggregate, these services could ostensibly create a simple yet robust architecture. But that assumes a lot. Will an architecture like this scale with a growing site? Will users The “Impulse Buy” architecture takes multiple hierarchies and integrates them case understand it? Is hierarchy even the appropriate foundation?

by case, one opportunity at a time.

Hierarchies seem to come naturally to portals. While debate continues as to the ultimate effectiveness of a top-virtual greeting cards, fantasy sports leagues, or content for down Information Architecture, this strategy has proven kids. What Yahoo has also excelled at has been its ability to best of the worst, as it were. As we look at the horizontal integrate disparate content and services. As we’ve seen in services, or methods for organizing information and explain-our Matrix, each intersection of horizontal services with ing that to users, we can see multiple hierarchies at work.

vertical content is an opportunity, and by examining Each portal has a directory of Web site reviews. Each portal Yahoo’s integration strategy, we can see them taking full has community space for users to interact with one anoth-advantage of this.

er—also sorted by category. Each portal has had to respond In this screenshot from Yahoo’s sports vertical, we can to the pressures of generating revenue by adding e-com-see a number of successful integration points. Each one, merce functionality to their sites, and the products available you’ll notice, is targeted specifically at an assumed user task

YAHOO! SPORTS		Help - Sports Home - Yahoo!																																					
 DON'T MISS THE FRAM Autolite® NATIONALS!		August 4-6																																					
Sports	Golf	Worldwide	Fantasy																																				
Thursday, July 21, 2000																																							
Tee	NFL	NBA	NHL	MLB	NBAA	MLS	NASCAR	Golf	Tennis	Cycling	more...																												
Coverage of San Francisco Giants																																							
Front • News • Calendar • Log • Dating • Pitching • Batter • Tickets																																							
 INSPIRE. ENHANCE. REACH.																																							
ML West WNL PCT OB Astros 34-41 .500 San Francisco 31-41 .204 14 Los Angeles 40-45 .516 Colorado 47-45 .511 .514 San Diego 42-32 .467 11.94 Complete Standings																																							
Multimedia Video Team Report (last updated 7/15/2000) Win: 401:201:156:203 Win: 40:100:1:156:203 More video reports...																																							
Daily Notes Jed 20 The Giants lost for just the second time in 13 games at Pacific Bell Park and third on 16 consecutive days. Wednesday's loss to San Diego has a crowd of over 40,000, they become the second team to surpass the 2 million. audience mark in Cleveland. OF Barry Bonds provided of Barry Bonds' only offensive hit. San Francisco's only offense with a three-run home run on the final day of the month ended in McCovey Cove. It was his 30th at a home and 30th of the year, putting him one behind Gary Sheffield. He has now tied the record for most home runs in a season by a San Francisco player on the all-time list with his 14th home run. OF Barry Bonds pinch hit on Wednesday despite being held out of the game because of his eight hits and double. He entered last hitting .360 to 11 games... BB Rich Austin went 2-for-4 with a double and a triple for his 26th multi-hit game since June 20 and 13 BBs since June 20. Austin has hit safely in 14 of the 15 contests in July.																																							
Probable Rotation: July 20 vs. SEO - Kurt Warner (6-5) vs. Wade Boggs (4-2) July 21 at LOS - Ron Gant (8-3) vs. Barry Bonds (-5) July 22 at LOS - Lynn Harrell (3-7) vs. Barry Bonds (0-7) July 23 at LOS - Mike Mussina (7-4) vs. Mike Matheny (3-7)																																							
Transactions																																							
Giants Community Giants Message Boards Yahoo! Chat My B-Chat																																							
Last Game: Jul 19, San Diego, 13-4 Next Game: Jul 20, San Diego, 7:05pm																																							
Latest News																																							
Jul 19 Bonds has historic home run (AP) Jul 19 Quixley has the look of a champion (SportsWrittenDirect) Jul 19 East ID. at south reverse Quixley (at San Jose Mercury News - extended news news...) Jul 19 Tough break for Bushem (at San Jose Mercury News - extended news news...)																																							
Team Report - 31/00																																							
<i>By Henry Schulman, San Francisco Chronicle</i>																																							
SpringNews																																							
Things are not always as they appear.																																							
First baseman Tim Raines may be the all-time all-star league 331 long, with 69, but not because he happens to hit American League pitching better. Raines has become a notorious record-hitting batter who usually gets going around June, when interleague play happens to begin. Once the American League teams leave town, Raines continues to prosper at the plate.																																							
His latest escapades included three homers in two nights against the Seattle Mariners the week. Raines also has finally answered all questions about his ability to hit left-handed pitching, 1.52 seasons after he abandoned switch-hitting and now bats from the left side only. more																																							
Let him in TBM Radio! See the Giants team report at your local Tata for your favorite place!																																							
Schedule																																							
<table border="1"> <thead> <tr> <th>SUN</th> <th>MON</th> <th>TUE</th> <th>WED</th> <th>THU</th> <th>FRIDAY</th> <th>SAT</th> </tr> </thead> <tbody> <tr> <td>Jul 16</td> <td>17</td> <td>18</td> <td>19</td> <td>20</td> <td>21</td> <td>22</td> </tr> <tr> <td>SEO</td> <td>LOS</td> <td>SEA</td> <td>SEA</td> <td>SEA</td> <td>at LOS</td> <td>at SEA</td> </tr> <tr> <td>W-F-S</td> <td>W-F-S</td> <td>W-F-S</td> <td>W-F-S</td> <td>W-F-S</td> <td>10:30pm</td> <td>10:30pm</td> </tr> </tbody> </table> Complete Schedule All Times Eastern												SUN	MON	TUE	WED	THU	FRIDAY	SAT	Jul 16	17	18	19	20	21	22	SEO	LOS	SEA	SEA	SEA	at LOS	at SEA	W-F-S	W-F-S	W-F-S	W-F-S	W-F-S	10:30pm	10:30pm
SUN	MON	TUE	WED	THU	FRIDAY	SAT																																	
Jul 16	17	18	19	20	21	22																																	
SEO	LOS	SEA	SEA	SEA	at LOS	at SEA																																	
W-F-S	W-F-S	W-F-S	W-F-S	W-F-S	10:30pm	10:30pm																																	
Resources																																							
Yahoo! <ul style="list-style-type: none"> • My Yahoo! Personalized sports info for your home page • Calendar Add your favorite team's schedule to your calendar. • Messenger Follow the scores for your favorite team. • Alerts Get updated with the latest scores. • Games Review of hockey games for your computer. 																																							
Other Web Sites <ul style="list-style-type: none"> • Official web site • The Sporting News • Barbender.com • baseballgameball.com • Press Democrat • SF Gate • SF Mercury News • ESPN.com • Eastbay.com • USA Today • Get Local, San Francisco • Major League affiliate • Yahoo! category 																																							

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at a specific moment in the user expe-

asked to describe the service, call it, “A search engine rience. Just as you’ll see bottles of

with... uh... other stuff too.”

Caesar Dressing by the Romaine let-

Would it be possible to offer this level of task and sub-tuce in the supermarket, links to “San

ject integration and still give users a sense of how it all fits Francisco Giants Message Boards” are

together? It’s a daunting task, but some have tried.

linked prominently. This connection is

obvious. But think of the scale here.

Snap’s “Uber-Tree”

Yahoo has countless pages across thou-

Snap.com takes a different approach. Snap is one thing and sands of subjects. The size of its Matrix one thing alone: a hierarchy. Everything on the site fits in is phenomenal. Plus, we’re not just

to this Uber-Tree in some way, no matter what. The portal talking about one to one links. This

is aggressive and rigorous in its organization. Whereas Sports page, for example, also links to

Yahoo had offered links between relevant chunks of the its online calendar application by giv-site, Snap mushes them all together. Clicking through into ing readers the ability to add the

the “Health” branch of the hierarchy, we’re presented with Giants’ games to their daily schedule.

a list of subcategories to further disambiguate what we’re There are links into the appropriate

places in Yahoo’s directory. And yet

they are able to manage the integra-

tion in every place that makes sense

across its gigantic site.

What Yahoo sacrifices, though, is

an overall structure. Look at its home

page. Sure, the directory of mini-

reviews appears well structured. It’s a

cohesive grouping of categorical links,

all arranged alphabetically. But this is

a subject-based taxonomy, not a task-

Snap merges everything—absolutely everything—into one grand hierarchical struc-based integration. The tasks, along

ture... whether it fits or not

with content features, and other serv-

ices are merely listed across the top,

after. So far, the experience is identical to every other direct-and are ordered, I'm guessing, by

tory on the Web. We have the topic path navigation, the Yahoo offers a suite of integrated services either user popularity or by revenue-

columns of links ... but then things start to look a little less interesting from nearly every page. Here, a

generating capacity. Regardless, it's not familiar. Rather than the obligatory collection of Web site report on a baseball team also points a system that quickly communicates

reviews, we're instead offered links into targeted Lifestyle to an online calendar, community service—what the heck this Yahoo thing is. It's

content. Feature stories are followed by news headlines and links, a directory of Web sites, and

not surprising that new users, when

e-commerce opportunities, as well as peeks into the offer-more—all contextually.

ings of “premier partners.” Only then do we see pointers to

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the external Web. Snap has effectively integrated a slew of a tab-based interface metaphor to expose an interesting content and services together into a seamless whole.

“Stack of Taxonomies”—or Stackonomy—structure. Here, So why is Snap successful at bringing this integration multiple hierarchies are laid on top of one another, with together while Yahoo isn’t? Part of the reason probably connections attempted where they match.

stems from Snap’s original strategy, which was to bluntly At the top level, we’re given a fairly standard portal copy Yahoo a number of years ago. Since Snap could start interface: a search box perched above a directory. But from scratch, they were able to apply a much more prominent structure to their growth than Yahoo was ever able to.

Go.com’s site. We’ve entered the portal through the Yet, despite all the benefits of consistency and struc-

“Home” tab, but we can also access the “Community” area, Snap often suffers under its own rigor. Navigating as well as the obligatory “Shopping” link and a “Search”

through the site, you’ll find loops and weird “diagonal”

tab. Go.com is attempting to tell us just how much stuff navigation shifts as the taxonomists at Snap attempt to they’ve got, and exactly how it’s organized. Think of the shoehorn another feature or service into their pre-portal as a cube, with different views of its content on each imposed tree. One of the most important axioms in the face—clicking a tab is like spinning the cube around. But discipline of Information Architecture states that design-enough with the mixed metaphors.

ers are the ones who uncover patterns inherent in data, Drill down into Sports, and we see Sports content; click and expose them in an interface. Snap, on the other on Baseball and the content gets more specific. Here’s the hand, does exactly the opposite: applying data to pre-really interesting part: now that we’ve drilled down into existing and artificial patterns.

*Baseball, the tabs across the top of the page now take us to contextually relevant parts of the site. Thus, the Community **Go’s Stackonomy***

tab now points to chat rooms and message boards pertaining Finally, Go.com attempts to blend both of these strategies.

to—that's right—Baseball. The Commerce tab offers memo-Their interface incorporates countless Impulse Buys with an rabilia and souvenirs for your favorite team, Search offers a rigorous structure. They even go a step further, attempting Web site directory. Could this be the ultimate in integration we've been searching for? Might we be looking at a true representation of The Matrix?

Unfortunately, no. While Go.com is certainly on the right theoretical track, they fail to really pull it off. Our baseball example is a good one; but it is, I'm afraid, a rare example where Go actually has relevant content in all the horizontal services. In most cases, users are unceremoniously dumped “up” a few levels in the hierarchy when the appropriate content for that subcategory isn't available.

Go attempts to line up their multiple taxonomies, but finds too many holes.

Click down on the Computers link, and follow it down into Software, then Utilities, then Fonts. You should to create an interface to explain it all to its audience.

assume that all the tabs on this page are somehow related Unlike Snap, which relies on the conventions of a directory to Typography in some way. You should, but you'd be disapto expose structure, or Yahoo which doesn't bother, Go uses pointed. There are no message boards on Fonts or

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Typography, so clicking the Communities tab sends you tent, these Web portals do deals with folks who actually have diagonally to boards

discussing Computers. The Commerce stuff: Yahoo republishes Reuters news feeds; Go points to tab merely links you to Software in general. And on and ESPN for sports scores and statistics. And as we've seen, they on through out Go.com—the intent is there, but the exe-try to stitch it all together with different structural strategies.

cution is lacking.

*But even if you could fill the entire portal structure with content you still wouldn't create a product that satisfied the **And the winner is...***

goal. You would simply have one partner for each content Has anybody done it right? Not yet. While Go makes the area, and you'd have effectively and seamlessly integrated most ambitious attempt at explaining the level of integra-them all together. But what about the rest of the Web?

tion, they also have failed at executing. Conversely, Yahoo What about the hundreds of millions of other content has done an excellent job of integrating its various services, sources mingling out in the real world?

but never actually communicates the over all integration But, as we've seen when deconstructing the architecture structure to their audience.

of the leading portals, there's no way for them to keep up.

Just as a good classification system will spawn prediction No one site can give me as deep an experience of researchin information retrieval, a good integration structure will do ing Beck that I described above. Nor can one site ever hope the same with services. If a user can imagine how pieces of to offer the breadth of subjects and services that would the puzzle will fit together, they will seek out integration allow me to find any information on any subject and let me that they assume exists. This is an excellent way of building act on it with as many possible choices.

a strong relationship between a user's goals and a site's offer-A global repository of human knowledge may be a ings, and therefore increasing the

level of trust your users admirable goal and the large commercial portal sites may commit to you. And that's good.

valiantly struggle to achieve this, but few of us are working on Taking the best practices from all three strategies will such a scale. For most Web sites, simple integration can play a ultimately be the answer: Smart integration at a user's deci-role in providing a complete and compelling user experience.

sion-making point, coupled with a strong sense of hierarchy, For example, my marathon-obsessed wife recently point-communicated by exposing a simple, overall structure.

ed out a frustration with an e-commerce site offering run-These sites are trying—with various levels of success—to ning shoes for sale. The site had an extensive selection of shape and order the chaotic world of the Net. But they can shoes and good prices, but more importantly, had a well ultimately never hold back the avalanche of information con-maintained and vibrant message board system used by fel-stantly tumbling down the slopes of the Web. Why? Look for low runners. The site was rich in first-hand reports from dif-the answer where it always seems to be: Follow the money.

ferent levels of runners on what shoes worked for what Yahoo, Lycos, Go, and all the others share a common types of feet, running styles, and terrain. Yet, surprisingly, trait—they are all trying to provide a proprietary experience on the individual message boards were not linked to the indi-top of a free resource. It's an admirable goal, but one destined vidual shoes. In fact, a potential buyer of a pair of Nikes was to come up short as soon as money starts to change hands.

offered no indication that there were dozens of postings in See, in order for a deep structure to be exposed in a consis-the message boards about those exact shoes. Similarly, a tent interface, there needs to be content available. This is user who happened to stumble across the community area of architecture, after all. We need raw materials to create our the site wouldn't see an offer to buy the shoes being dis-building once the blueprints have

been drawn. So to get con-cussed. An obvious opportunity of integration squandered.

	A	B	C	D	E
1		Product ID	Product Pages	Message Boards	Reviews
2	Gel Cumulus II Spring '00	ASC-440	/products/cumulus00.html	/boards/cumulus00.html	/review/cumulus00.html
3	Gel DS Racer Spring '00	ASC-456	/products/DSrace00.html	/boards/DSrace00.html	/review/DSrace00.html
4	Gel DS Trainer VI Spring '00	ASC-442	/products/DStrainer00.html	/boards/DStrainer00.html	/review/DStrainer00.html
5	Gel Foundation II Spring '00	ASC-434	/products/FoundationI00.html	/boards/FoundationI00.html	/review/FoundationI00.html
6	Gel Kayano Summer '00	ASC-436	/products/Kayano00.html	/boards/Kayano00.html	/review/Kayano00.html
7	Gel Magic Spring '00	ASC-410	/products/magic00.html	/boards/magic00.html	/review/magic00.html
8	Gel Nandi DS Spring '00	ASC-406	/products/NandiDS00.html	/boards/NandiDS00.html	/review/NandiDS00.html
9	Gel Nimbus II Spring '00	ASC-448	/products/NimbusI00.html	/boards/NimbusI00.html	/review/NimbusI00.html
10	Gel Status Summer '00	ASC-438	/products/Status00.html	/boards/Status00.html	/review>Status00.html
11	Gel Tiger Paw	ASC-012	/products/TigerPaw00.html	/boards/TigerPaw00.html	/review/TigerPaw00.html
12	Gel-Lyte Summer '00	ASC-444	/products/Lyte00.html	/boards/Lyte00.html	/review/Lyte00.html
13	Gel-MC Plus Summer '00	ASC-432	/products/MT00.html	/boards/MT00.html	/review/MT00.html
14	Gel-Trabuco III Summer '00	ASC-452	/products/Trabuc00.html	/boards/Trabuc00.html	/review/Trabuc00.html
15	GT 2050 Summer '00	ASC-428	/products/205000.html	/boards/205000.html	/review/205000.html
16					


RoadRunnerSports

[!\[\]\(18752e87d423ce12ac2eedcb1a44bfb2_img.jpg\) shoe dog](#)
[!\[\]\(ff85ce821a432361186bde8b217dcb84_img.jpg\) shoe critic](#)
[!\[\]\(d42dd1fdb6948f000563ff4c58fb5fee_img.jpg\) online store](#)
[!\[\]\(68fd4784dc5d730c2328f40a9d1a4fa4_img.jpg\) register to win](#)
[!\[\]\(564c0db92d33c5b4d9aa8556f4ec5bf4_img.jpg\) contact us](#)
[!\[\]\(0bf97f5627e008b541c815be1667cb55_img.jpg\) free catalog](#)
[!\[\]\(553a72e6780c4c1395fa198e4989e60c_img.jpg\) Run America Club](#)
[!\[\]\(23f08be2715b38a6365ce24750c52170_img.jpg\) your basket](#)

Running:

- [Adidas](#)
- [Asics](#)
- [Avia](#)
- [Brooks](#)
- [Etonic](#)
- [Fila](#)
- [Mizuno](#)
- [Montrall](#)
- [New Balance](#)
- [Puma](#)
- [Reebok](#)
- [Ryka](#)
- [Saucony](#)
- [The North Face](#)

Walking

- [X-Training](#)
- [Sandals](#)
- [Casual](#)
- [Kids](#)

Sale shoes

 **ASICS** - The best out of the box feel

FITSIZE
We recommend buying 1 full size larger than your street shoe size.

SIZES AVAILABLE

Men's Size:

[Add to Basket](#) [Product Details](#)

You can delete this shoe later if you change your mind before checkout.

CHECK IT OUT!

Based on your selection, you'll surely enjoy this great item to go with your Gel Nimbus II Spring '00





Catalog item# ASC-448

Gel Nimbus II Spring '00

For the high-mileage, neutral runner looking for maximum cushioning.

MSRP:	\$110.00
Your Price:	\$104.99
RAC Member Price:	\$99.74

[Back](#)

ASICS GEL NIMBUS II

Name

Email (optional)

Enter Your Comments

Road Runner Sports reserves the right to remove comments we deem inappropriate. If you have a product question you would like our expert staff to address, you can either call us at 1 (800) 636-2560 or [Email Us](#)

Ken kcooper@adinc.com 10/23/00 11:28:17 AM
I just got a pair 30 miles ago after years of using the 150.00 pair AirMax that last 350 miles, too expensive. These NimbusII are so different, I find that adding a small cushion in the heel will stop the numbing that I think is caused by a too deep heel pocket. I had to try another shoe, Nike is just too unpredictable in their products.

Betsy rj@netdex.com 10/21/00 9:25:43 AM
I run about 20 miles per week, I've been running for 20 years and need lots of cushioning due to old knees. The nimbus I was great, but I'm having a lot of trouble with the top of my feet. I've tried lacing them differently, but the top of my feet are numb, swelling and have a pressure point at the highest point of my foot. AGONY. The tongue is always sliding to the outer portion of my foot and I don't know if this is related to the pain or not. Can anyone recommend a VERY cushioned shoe? Used to run in Saucony but liked ASICS better until now. Help!

Lou 10/20/00 4:39:38 PM
Sorry, I forgot to sign my name to the post below.....

anonymous 10/20/00 4:38:41 PM
Bill.....I like your sense of humor old man. hehe.....I'm happy the Nimbus II is working for you. Rotating shoes is a good practice.....shoes last longer and your feet will appreciate it.....I'm 43 and I feel so old today!

Bill From Portland, Oregon billaben@teleport.com 10/18/00 9:15:33 PM
Lou -- Denial is not just a river in Egypt, ya know.....After chatting with RSS dudes, I now have my first pair of Nimbus II -- so far so good...it doesn't feel like there is less padding than nimbus I...if anything, may be a little more. We'll see.....I think my close personal friend Dave is right: Heavy neutral runners just need to keep rotating shoes. It's expensive, but heck--I'm not going to screw up a knee to save fifty bucks....Dallas Pat's comments are helpful(especially the one about being 39), but RRS does not have AER I in large sizes...D'OH! & god bless daisy for suggesting sore joints may be from over training (instead of getting old). That's an even better lie than blaming the shoes!

Lou 10/18/00 8:39:18 PM
ALA.....I'm not sure what the burning and falling asleep syndrome is about. I really doubt it's the shoes. Daisy, you sound like you have some good sense about shoes. I can't believe how much runner's blame ALL of their problems on shoes. Granted you need the correct shoe for your foot type and your training regime. That's point about being less cushioned might be a fair point about the Nimbus II.

Daisy 10/17/00 9:06:11 AM
I run about 30-40 miles/week. I have gone through 3 pairs of Nimbus I's

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The Art & Science of Web Design Chapter Three - Structure 97

Remember, architecture must meet

user needs.

The running shoe site is a good example of the Matrix at a much smaller scale. In fact, the theoretical Matrix I've been talking about can be used as an actual tool for accomplishing the integration between message boards and products for sale in this scenario.

Imagine an Excel spreadsheet with

A hypothetical example of using an Excel spreadsheet to services across the top row of cells:

record and manage integration of products, services, and con-Product, Message board, Professional

tent on an e-commerce Web site.

Review, etc., and a column of model

numbers from the shoes running down

Extending the Web

the left side. The seemingly daunting

Of course, it would be a lot easier to manage content integra-task of integration becomes a matter of

tion and architectures like the one I've described if content filling in the intersecting cells of the

was richer. In the first chapter, I described the difference spreadsheets with URLs. For example,

between presentational tags like and purely structural the intersection of “Asics Gel Kayano”

tags like, say, <COMPANY>. I showed how, when rich semantic and “Message boards” would be a spe-information is added to content, it becomes a lot easier to cific address. As would the point where

manipulate that content and add interesting features.

“Brooks Radius 257” and “Professional

The Extensible Markup Language (XML) works this Review” intersects. The site architect

way. Developed by the W3C, XML takes some of the rules would then fill in the rest of the spread-of HTML and generalizes them. Rules like surrounding ele-sheet with the resulting connections,

ments with angle brackets (< >) and ending tags with a and then get to work adding the links

backward slash (/) have been compiled and standardized.

to every page—that is, if he or she was

What this means is that now anyone can create a set of doing this by hand. The spreadsheet in

tags, and anyone else can use them with relative ease.

this example could very well be a table

Lots of people have been creating their own collections in a database that was used to automat-of tags for a while now. Markup languages created as XML

*RoadRunnerShoes.com may have an
ically generate the correct links on the
vocabularies have proliferated for things as diverse as ship-incredible
selection of gear for runners, correct pages. We'll talk more about
ping invoices to musical notation to voicemail applications.
but the site misses a key integration this kind of dynamic content manage-
And once a group has agreed on a set of common tags, shar-opportunity.
On the left, a page offers a ment in Chapter Eight, "Object-ing data
becomes so much easier. In the past, this sort of pair of shoes for sale. On
the right, a Oriented Publishing."*

*data exchange was a daunting task. Say, for example, a lengthy page of
postings from actual run-manufacturer wanted to be able to track inventory
with one ners about the merits of these shoes. Yet of its partners. The two
companies would have to agree on the site offers no link between the two.*

a format of the data, how to check if it was valid, how to

The XML Industry Portal

OASIS XML Cover Pages CGM Open ebXML

About XML.ORG New & News XML Catalog XML Resources XML.ORG Registry Get Involved About OASIS

Submit Schemas Now!

First Phase of XML.ORG Registry Goes Live

On June 20, 2000, the [XML.ORG Registry](#) began accepting submissions for XML specifications, schemas and vocabularies. Industry groups and others that have developed XML specifications are invited to freely register their work at the OASIS-hosted XML.ORG Registry.

The XML.ORG Registry is a community resource for accessing the fast-growing body of XML specifications, schemas and vocabularies being developed for vertical industries and horizontal applications. It is designed to foster collaboration and enhance communication within industries adopting XML, preventing unnecessary overlap, duplication and confusion. It's a place where developers can promote their XML work to the community at large and where users can locate up-to-date versions of the schemas and vocabularies they need.

NOTE: This first phase of the XML.ORG Registry concentrates on populating the site with XML schemas, vocabularies and related information. Soon, users will be invited to search the XML.ORG Registry for schemas of interest.

[Full Story](#)

IBM

SoftQuad

DataChannel

documentum

Sun microsystems

mercator

Brought to you by:
OASIS

Chapter Three - Structure 99

Schema Repository

read and write that data, how send the data back and forth in a secure way, and on and on. Now, with XML, the two With so many different types of data the XML is structured, and do what it

parties can simply agree on a set of tags. Web servers, freely from so many different groups, how can

needs to do—all on its own.

available XML parsers, and lots of other common pieces of we possibly keep track of them all? One

And, as is almost always the case

infrastructure are already in place.

proposal has been to create a reposito-

when something this big is at stake,

With this in mind, let's look again at our running shoe ry of schemas—in essence a library cat—there are two groups developing

Web site example. One way the company could add value alog of all the standard vocabularies in

schema vocabularies—a sort of open

to the e-commerce experience of its customers would be to the world. The idea is simple: as industry consortium under the

include reviews from some professional editorial source. But try organizations and standards bodies

guise of XML.org, and an alternative

again, keeping track of the relationships between all of that decide on a common format for, say,

commercial version spearheaded by

content could easily scale out of control—especially consider newspaper advertising or music nota-

none other than Microsoft at biztalk.org.

ering the other points of integration that are possible.

tion, the resulting schema would be

But where schemas ultimately live

The running shoes could be organized with an XML

placed in a repository and given a

isn't nearly as interesting as what they

vocabulary—or “schema” as they’re commonly called—that unique address. That way, if I use a certain vocabulary, I can ultimately do. As we’ve seen in this

would look something like this:

tain vocabulary in a document, I can

chapter, global repositories of data structures simply include a link to the appropriate

tures aren't just exciting for librarians and

<product>

schema. When you visit my page, your

scientists, but can radically change the

<id>401K8-H</id>

browser can follow the link, see how

way we think about our own Web sites.

<manufacturer>Asics</manufacturer>

<name>Kayano Gel</name>

<price type="retail" currency="US">89.95</price>

</product>

The company could have one, simple, text document for each product, stored on a Web server with a unique URL.

As could any potential partner. A magazine with reviews of running shoes, for example, could have a similar collection of XML documents, each formatted something like this:

<content type="review">

<headline>Getting the Lead Out</headline>

<subhead>Asics speeds up its line for 2000</subhead>

<date format="dd/mm/yyyy">11/16/1999</date>

<author>Sarah Conner</author>

<product>Asics Kayano Gel</product>

<para>It wasn't long ago that I first noticed a change in the way Asics shoes felt...</para> One of the schema repositories being developed on the Web. XML.org hosts hun-

</content>

dreds of different XML vocabularies for describing everything from musical notation to molecular compounds.

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The Art & Science of Web Design Chapter Three - Structure 101

Now, with well structured and described content, both applications, word processors and spreadsheets. Business companies will have a much easier time integrating with may stop worrying about integrating their inventory systems each other. With each offering content based on well with their shipping schedules and suppliers. And Web sites defined industry standards, the process would be straightfor-will find it easier and easier to offer the full services their ward. The shoe company can download a free, open source audience expects.

software tool called a parser, which is designed specifically for XML data. It will work with their Web server, and what-Fitting It Together

ever standard scripting languages their engineers are comI hope you'll take away from this discussion a sense of how fortale with. And they will write a simple script that will important structure really is. Information

Architecture is search through the magazine's XML looking for each only one leg in our overall model of Structure, Presentation instance of a "product" tag contained within a "content" tag and Behavior, but it's dramatic in how it connects us. It that is of type "review". When it finds a match, this script encompasses not only the most basic organization of a Web will build a link on the appropriate page. Maybe the e-com-site, but the integration of your content. And it has as much merce site's architect will suggest this be displayed with a to do with Web design as pixels, colors, and typography.

tab-based interface like Go.com's Stackconomy. Maybe they'll use a Uber-Tree like Snap.

If you have much experience with building Web sites, you may be thinking, "Well, sure they could do that. But we've always been able to do that with databases or even comma-separated text files!" And you'd be right. But the point of XML is not that it opens uncharted technological capabilities. Rather, the promise of XML is much like the promise of HTML—it makes something that was fairly challenging and complicated much, much easier. Before XML, engineers would have to decide on a data format, how to check for validity of that data, a communication protocol, a security mechanism, and much more. Now, they can simply trade schemas and get back to work.

Early on in the development of the Web, it became clear that HTML—despite all of its limitations—solved the very real problem. With a few simple tags, it was suddenly possible to distribute content to anyone with a connection to the network in a standard way. The seemingly impenetrable maze of the Internet gained a consistency that paved the way for a whole new economy.

Now, with XML, the same starts to become true for all data. In the very near future, we may forget entirely about arcane file formats for things like our address book, e-mail

OceanofPDF.com

Chapter Four

[4]

Behavior

Much like a print designer’s knowledge of inks The Web is a medium of constraint—designers new to the Web are shocked at on paper and the mechanics of printing presses, the limitations they must face to practice their craft. However, the technology is a Web designer will need a deep understanding changing, and thus the approach to how we put Web interfaces together is of the inner workings of Web technologies.

changing. This chapter delves into the biggest issue facing designers today: the shift from “pixel-based” design to “rule-based” design. No longer can designers simply pass off a Photoshop sketch to production assistants and ask them to make the page. Now, designers have to exploit the very nature of the Web—that there is no such thing as a controlled user environment—and make their designs react accordingly. Designers are creating rules for their pages, building in constraints and behaviors, so that their creations mold to the environment in which they’re displayed. This relates directly to the discussion in the first chapter: Without a fundamental understanding of how presentational aspects of a solid Web product interact with the behavioral, there is no hope for success.

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The Art & Science of Web Design Chapter Four - Behavior 105

I have had the good fortune to work with some incredible advantage—automobile design is a pure blend of form and function throughout the past few years. I’ve been form-function married with inherent

appreciation for current tently awed by how a good designer can create normalcy style and marketing. Those skills would apply well to what out of chaos; how they can clearly communicate ideas we do on the Web. But that would only be a head start, not through the organizing and manipulating of words and pic-the unquestioned assumption that he would succeed at creatures. I've also been amazed at how often those outside the ating interfaces for the Web product.

discipline of design assume that what designers do is decora-The same theory applies to print designers. Recently, a tion—likely because so much bad design simply is decora-colleague posted to a design mailing list expressing frustration. Good design isn't. Good design is problem solving.

tion with a designer with whom he was working. This It is easy to say that the Web has been revolutionary—

designer had a strong print background, and was skilled in that the Web has changed everything and that we're living visual communication and graphic art. Yet she refused to in a new networked world, with a new networked economy,

"limit" herself with an understanding of HTML. Her rea-that traditional thinking is bad, and that just because some-soning was interesting: She felt that by tying her hands thing is different it is good. That, I'm afraid, isn't true.

with the technology of the Web, she would be unable to Rather, the Web is a lens that magnifies and modifies every-create innovative designs. She felt that knowing the medi-thing we see. Shopping is different when viewed through um would limit her creativity.

this lens. But it is still shopping. E-mail has fundamentally I call this approach to Web design "Burying Your Head changed how we communicate with one another and how in the Sand." When I first started working at Wired maga-businesses get their work done. But it is still communication zine, I remember having a long talk with the creative and business.

directors about their process. They were doing amazing. The same goes for design. Viewed through the lens of things with print design back then—eight-color printing, the Web, the nature of design is very different, and in this metallic and florescent inks. You know how they were able chapter we'll talk about how. But it is still design. We to get such amazing results? A deep knowledge of the tech-have hundreds of years of tradition to fall back on when nology behind print design. They could go on and on talk-uncovering the foundations of communication through a ing about dot gain with ink X on paper stock Y and how visual medium. We don't need to reinvent the basic rela-this would work in natural light but not through the moni-tionships between ideas and layout, between communica-tors we had available at the time. They could relate the tion and visual representation. These rules developed over results of countless tests they'd run on the press that print-countless years, and continue to evolve. We need to ed the magazine. I couldn't imagine them saying, "Oh, I understand them. It is one of the crucial steps to becoming don't need to know anything about printing. That will just a good designer.

limit my creativity."

Yet, just because a designer may be proficient at creating Can we imagine the same thinking on the Web? It's a magazine spreads doesn't mean that designer can draw blue-complicated and tenuous balance. On one hand, one of the prints for a skyscraper. A friend of mine designs cars for reasons many early Web sites were successful can be traced Chrysler. He can tell me more detail about the human facto a rebellion of sorts. HTML was exceedingly limited, espe-tors of dashboard instrumentation than I thought possible.

cially when compared to the rich graphic tools available to Does that make him a good Web designer as well? Probably designers accustomed to print work. As a result, early Web not. If he chose to change his career path, he may have an designers pushed back hard on the basic limitations of the

a jaundiced eye - the weblog - Netscape

File Edit View Search Go Bookmarks Tasks Help

Bookmarks Home My Netscape Net2Phone Customize...

http://a.jaundicedeye.com/weblog/ SEARCH N

what i'm thinking 6/20/2000
For some reason, I seem to have contracted the achy feverish dizzy blahs. So, I see a lot of liquids and rest in my immediate future.

posted 5:41 PM

obligatory fake webcam pic 6/21/2000


the soundtrack 6/18/2000
Joe Henry
Murder of Crows

A wreck out on the highway was what woke me from my sleep
was I wrong and is it just my turn to wonder why
I could stumble as I've stumbled
set it down in stone
may not seem to you any stronger
nor would I
just to stand beside you
like I think I was just dreaming

Went on a late night cigarette run, and there was a guy standing in front of the window (with one of those drawers where they take your cash) playing a didgeridoo. The woman behind the drawer didn't understand what I meant when I asked for a carton, so I got three packs. The didgeridoo guy kept pointing at his face and saying 'beautiful', over and over again, between blasts on the didgeridoo. Finally, he says "check out her cheeks, man, she's from Africa. Ritual..tribal..scamification. Just beautiful, man." And sure enough, she had starburst scars on her

where i'm writing 6/13/2000
Web Techniques:
[Building a High-Volume Newsletter Server](#)
[the Mailman followup](#)

Webmonkey:
[XSS, Trust, and Banney](#)
[RTFM!](#)

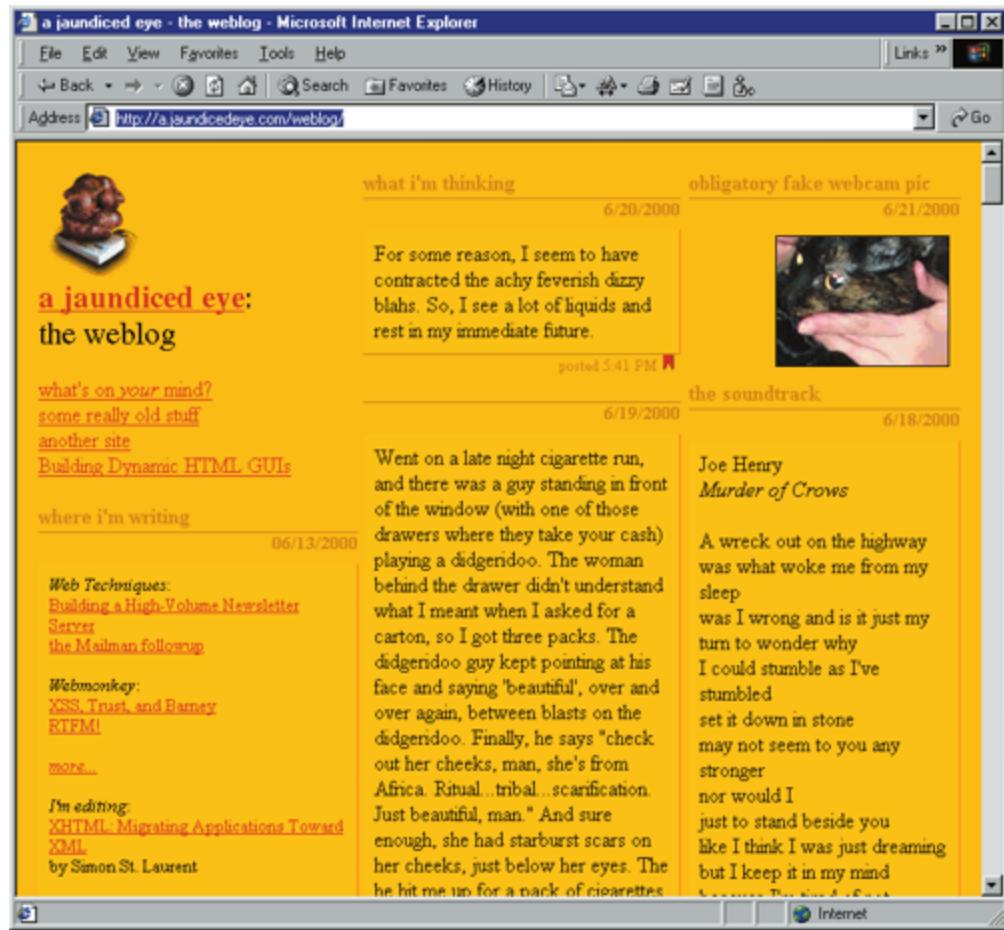
more...

I'm editing:
[XHTML: Migrating Applications Toward XML](#)
by Simon St. Laurent

Document: Done (3.29 secs)

Channels Tools Business Free Time Shopping Go To Window

Build ID: 2000032306



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The Art & Science of Web Design Chapter Four - Behavior

Web. While some bemoaned the “decoration” of a “rich to their audience. They know exactly what is going out.

hypertext system,” others demanded a Web that would Conversely, Web designers send the source code—they send accommodate art and science. The results were often stun—the words and pictures and scripts and structure. Their audi-ning examples of visual design created as pure hacks to the ence then uses a computer with a browser to assemble the end original intentions of HTML and the Web.

product and display it. Nothing physical ships from producer But like I said, it's more complicated than that. It would to consumer. Hence the variables. When the Web page is be easy to continue to bury our heads in the sand and reassembled on the user's end of the wire, all manner of ignore the limitations of even today's Web. But effective change can happen. The user will have

Web designers will also have a deep knowledge of the tech-a different size monitor with different

nology behind the products they are creating. They will resolution, color representation, and

understand the fundamental possibilities and limitations of gamma settings. The user may or may

the Web. In the first chapter, we looked at the interaction not have the same fonts installed. There

between presentation, structure, and behavior in Web prod-may even be a different browser or oper-

ucts and Web teams. I suggested that the best designers ating system waiting for the page, intro-were the ones that mastered their particular discipline, but duing a thousand other variables.

were also multidisciplinary enough to comprehend what To illustrate this discrepancy, let's

each other corner of the triangle was capable of.

take a look at the visual appearance of

It's time to turn our attention to behavior—the dynamic a Web site in a series of browsers - we'll nature of the Web and how it works.

leave out the different devices for now.

Steve Champeon's "A Jaundiced Eye"

*Steve Champeon's "A Jaundiced Eye" in **Rule-Based Design***

at <http://a.jaundicedeye.com/> is a good

Netscape Navigator 6.0 rendering cor-

You cannot tell how your Web site will look on other people's screens, since Champeon designed

rectly with support for CSS.

ple's screens.

the interface to degrade across different browsers. There. I said it. And it's true. No matter how much conversions of different browsers. Below,

trol you are used to when designing for other media, you're the page is shown in a browser with

going to have to give up some of it if you want to be successful on the Web. Compare that to designing for print.

things like the Cascading Stylesheet

Designers of traditional printed material have complete control over virtually every aspect of their output. They can choose inks, paper stock, printing method, image resolution, color values, type treatments, and alignment down to the subtle details in this version of the design. The dashed borders

a hundredth of a point.

around the individual items, and the

Web sites, on the other hand, have variables where print spacing between the paragraphs. Now

has absolutes. When Web designers finish a page, the repre-look at the design in a different browser: sentation of that design on their screen is only one possible Microsoft's Internet Explorer 5.0.

variation of millions that are possible. The difference, of Notice the differences? Internet

The same Web site in a slightly less

course, is in the distribution. Print designers create a physical Explorer doesn't support all of CSS, so

standards-compliant browser, Internet object—a book or magazine or catalog—and send that object effects like the dashed border don't show Explorer 5.0.

a jaundiced eye - the weblog - Netscape

File Edit View Go Window Help

Back Forward Reload Home Search Netscape Print Security Stop

Bookmarks Location: <http://a.jaundicedeye.com/weblog/> What's Related



what i'm thinking obligatory fake webcam pic

6/20/2000 6/21/2000

a jaundiced eye:
the weblog

[what's on your mind?](#)
[some really old stuff](#)
[another site](#)
[Building Dynamic HTML GUIs](#)

posted 5:41 PM □



the soundtrack

6/19/2000 6/18/2000

where i'm writing

06/13/2000

Web Techniques:
[Building a High-Volume Newsletter Server](#)
[the Madman followup](#)

Webmonkey:
[XSS, Trust, and Barney RTFM!](#)

[more...](#)

Went on a late night cigarette run, and there was a guy standing in front of the window (with one of those drawers where they take your cash) playing a didgeridoo. The woman behind the drawer didn't understand what I meant when I asked for a carton, so I got three packs. The didgeridoo guy kept pointing at his face and saying 'beautiful', over and over again, between blasts on the didgeridoo. Finally, he says 'check out her cheeks, man, she's from Africa.'

Joe Henry
Murder of Crows

A wreck out on the highway was what woke me from my sleep
was I wrong and is it just my turn to wonder why
I could stumble as I've stumbled set it down in stone
may not seem to you any stronger nor would I

Document: Done

[toc.icon.gif]
a jaundiced eye:
the weblog
what's on your mind?
some really old stuff
another site
Building Dynamic HTML GUIs
where i'm writing

06/13/2000

Web Techniques:
Building a High-Volume Newsletter Server
the Mailman followup
Webmonkey:
KSS, Trust, and Barney
RTFM!
more...
I'm editing:
XHTML: Migrating Applications Toward XML
by Simon St. Laurent
The Art and Science of Web Design
by Jeff Veen
what i'm reading

6/21/2000

sabai! sabai!, in Renaissance Online, a story written by my brother Ken.
An Apologia for Old Books, again as above,
Wait No More for Nuclear War, Featured in The Opinion,
The Fat Wart on the Economy's Smiling Face, again, as above.
posted 2:07 PM [bookmark.gif]

6/19/2000

Len Bullard posted this fascinating look at the evolution of the computer industry to
xml-dev. Long, but very interesting discussion of how IBM achieved dominance in the
computer industry. posted 7:13 PM [bookmark.gif]

6/18/2000

A book I'd love to read: a study of the arbitrary and its relationship to fervor. Look at
-- press space for next page --
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.
H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list

Ready ssh1: 3DES | 47,101 | 47 Rows, 101 Cols | VT100 | NUM

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The Art & Science of Web Design Chapter Four - Behavior

up in this interface. It's still workable—in fact, it's probably This all boils down to one simple axiom: You must assume that most users wouldn't notice the difference at design for variables.

all. But it's not what Champeon had

Postmodern thinker Derrida suggested that there were specified in his code. The browser did a

no absolutes—that all truths were based on interpretation good job at trying to get close to the

and therefore all perception was relative. Derrida would intended rendering, but since it couldn't, have loved the Web. Your fonts won't work. Your colors will the design now looks different for differ-look different. Your scripts may break. Your design may not ent visitors to this Web site. Let's see the even show up. Nothing you see on your screen is absolute.

page in an even less sophisticated brows-

How do we cope with this postmodern nightmare?

er: Netscape Navigator 4.08.

Embrace the technology, don't fight it.

Here the page really starts to look

different. Navigator 4.08 just barely

The Black Magic of Web Typography

attempts to support Cascading

Even the simplest tag reveals this maxim. The tag Stylesheets, and implements much of it

allows for rudimentary control over the typography of a The page with even fewer supported

incorrectly. The result is a page that

document, allowing control over what typeface is selected, features as shown in Navigator 4.08.

misses out on many of the design ele-

at what size it should be rendered, and in what color the ments Champeon intended. The bor-type should appear. Simple enough—especially considering ders are gone now, and many of the items are misaligned.

HTML’s bizarre limitation of only seven type sizes. Yet even Compare this to the first screenshot of the page, and think this deceptively simple addition to our Web design toolkit back to our print design analogy. If a designer had intended gets us into trouble.

for the first, but seen the second coming You probably already know that selecting what typeface off the press, would that be acceptable?

should be used to display some text is accomplished by the I’d guess probably not. But is this lack of following:

consistency appropriate on the Web?

Only if you are anticipating the results.

**

Finally, let’s look at the page in a

text-only browser, in this case Lynx on

But what you enter for “typeface” depends on what your a machine running the Linux operat-users have installed on their systems. In other words, some-ing system. The page looks nothing

thing as fundamental to design as selecting a typeface is like it did in the graphical browsers,

completely variable and dependent on an external. Stated yet but to Champeon’s credit, it is still

again: You have no control.

quite usable. The content can be read,

So, for the following to work on your Web page: The page as rendered in the text-only and something of the overall structure

browser, Lynx.

is noticeable. The more vain Web

**

designers among us may shudder to

think of their pages being displayed so coarsely, but this may means that your users will need to have the typeface very well be the only way some users can get to the con-Verdana installed on their systems. And what if they don't?

tent. At least they can see something.

Then your page will be rendered in the default typeface for

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the user's browser, usually some variant of Times Roman.

version N on a 800 by 600 or higher resolution screen set to But if they do, then all is fine. How can you know for sure thousands of colors."

that your pages are appearing the way you intended? The This "Best Viewed With" mentality is thankfully becom-answer again: You can't be sure.

ing a thing of the past, albeit slowly. Most commercial Web The developers who came up with the tag saw sites have finally realized that the

best way to serve their this basic limitation and offered a bit of relief. They allowed audience is to get out of the way and let them accomplish for a series of font families to be specified, and they pro-what they came to do. Still, there is a vestige of designers grammed the browsers to use the first one the user's system who continue to demand that users conform to their whims.

had available. So instead of pinning all your hopes on your This is a holdover from the old method of design, which I users' having Verdana installed, you can provide a sort of talked about earlier—the notion of designing physical objects safety net with this code:

that get distributed to users. They are, in essence, attempting to package a pixel-perfect picture of their Web site and ship

* it off to their audience—again, a control issue.*

The “Best Viewed With” design approach leads to other Now, when a user views your page, they will see the text hacks as well. These sites are filled with text set in graphic inside this tag as Verdana if it's installed. If not, the browser files—another attempt to exert control over typography. And will look for Arial. Still not there? On to Helvetica. And if while the control may appear to work in the short term, the none of these faces are present on the user's computer system, result is a Web site that cannot be searched, indexed, trans-then the browser will find any san-serif typeface and simply lated, or otherwise manipulated. It's a losing battle.

use that. The browser continues from the most specific to the As we saw in the example above, we can start to most general, progressively searching for a typeface—any type-abandon the absolutes of traditional design and move face—that will come close to what you actually intended.

towards a more rule-based approach. Rather than spending HTML is filled with little fallbacks like this. It's all part countless hours sweating over individual pixels, we should of a basic philosophy of degrading gracefully across all plat-turn our attention to how page elements behave. Designers

forms and browsers. We'll talk more about this in Chapter who embrace the technology of the Web are creating interFive, "Browsers."

faces that respond to the environment in which they are I bring this up now for an entirely different reason. This displayed. These rules take the form of visual suggestions bit of haggling we're forced to do with typography is a great rather than maxims. "This headline should be set in example of the control we give up as Web designers. And it Verdana if it is available, but can scale through these other points to the first major lesson when dealing with the choices if that face is not available. In fact, use a sans-serif behavior of Web pages: the shift from pixel-based design to face if nothing else is installed on my users' machines."

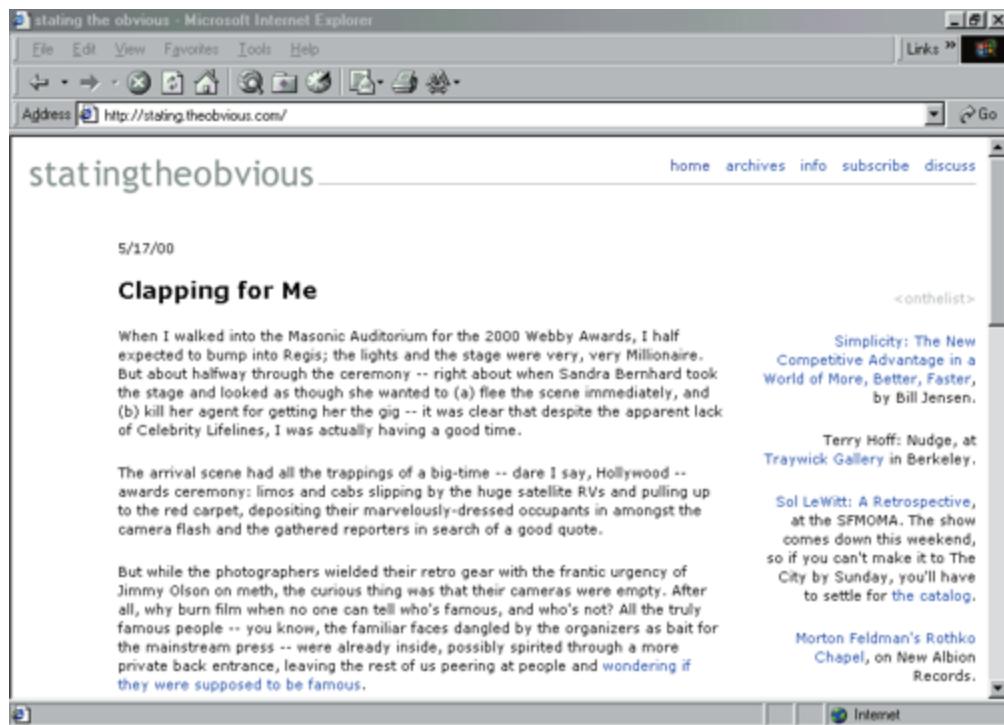
rule-based design.

Page layout is another good example of absolutes versus variables. I'm often asked what size screen we design for.

Getting Liquid

"All of them," I say with only a hint of self-righteousness.

You can see designers struggling with the lack of control It's true, though. Just as with the variability of typography, every where you look online. How many times have you the resolution of my users' screens can be frustratingly come to a Web site only to be confronted with a screen of unpredictable. Even if I could anticipate every monitor size instructions. "This Web site is best viewed with Browser X



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in existence, how do I deal with the infinite possibilities for a column of navigational links taking up 20 percent of the sizing their actual browser window?

left side of the page, and paragraphs of content filling up How I cope with this dilemma is telling. I could demand the other 80 percent on the right.

users yank their window out to the size I require for my layout, It's a simple example, but one that gives us a glimpse of or I could build layouts that respond to any size. One way to a whole system of rules that could be put in place for a accomplish this is by simply using relative values when defining particular page layout. The navigation, for example, could define my layout, creating "liquid pages." Let me explain.

be locked to a specific width, while the content area could Web pages are often designed using HTML tables for be flexible. If this were being developed for a commercial layout. While this may not have been the intent of the site, ad units could float to the right moving with the edge architects of the language, there are certain advantages to of the browser. Margins could be created around a docu-using tables to position elements on the page. Tables follow ment and dynamically scaled with the size of the window, a set of heuristics for how they take up screen real estate and on and on.

when displaying your page. The individual cells of a table On Stating The Obvious (stating.theobvious.com), will expand to accommodate their contents. By doing so, Michael Sippey uses a similar technique to create a liq-the effect is one of dependencies—each cell is constrained uid layout. His interface is one of minimalist elegance.

by both its contents, and also by the contents of the adjoin-An unobtrusive brand logo coupled with a careful eye for ing cells in the same row and column. Add to this the abili-type leads to an inviting and intelligent page layout.

ty for cells to span multiple rows or columns, and you get a This layout is also a great example of the ease at which sophisticated method of developing page layouts. Especially pages can become liquid with a few simple tweaks to the when you consider this key fact: cells can take a percentage underlying code.

value for their width.

How does this relate to rule-based design? Easy. I've already talked about how we're going to let the user's environment determine the layout of a page. So by creating a table that contains percentage values, you are essentially letting the user set the layout of the page to be whatever fits the browser window the most efficiently. Look at this example:

<TABLE>

```

<TR>

<TD WIDTH="20%">Page Navigation</TD>

<TD WIDTH="80%">Page Contents</TD>

</TR>

</TABLE>

```

Type that into an HTML page and view it in a browser, and you'll see a two-column page-layout that expands and Michael Sippey's "Stating the Obvious" uses a very simple contracts as you resize the window—a liquid page. Imagine table structure to accomplish a liquid design.

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By looking at the source, we can see the overall structure

<table width="100%" border=0 cellpadding=0 cellspacing=0> of the page is made up of two simple tables, one with the

<tr>

logo and navigation, another with the contents of the page.

<td width=75 valign=top align=right></td> Both tables are set to a relative value, in this case they both

<td valign=top align=left>

ask for 100 percent of the width of the page. The top table

<!-- page content -->

uses this code to accomplish its goal:

</td>

<td width=30 valign=top align=right></td>

<table width="100%" border=0 cellpadding=0 cellspacing=0>

<td width=170 valign=top align=right>

<tr>

<!-- commerce links -->

<td valign=top align=left width="1%">

</td>

<!-- logo image -->

</tr>

</td>

</table>

<td valign=bottom align=right>

<!-- Navigation links -->

The page is made up of two content cells: one contain-

<hr color="#COCOCO" size=1 noshade> ing the page's content, the other with a few links to recom-

</td>

mended media items. Yet, the actual table structure has two

</tr>

additional cells, one with a width of 75, the other with a

</table>

width of 130. These two cells, while devoid of any actual content, are essentially acting as margins for the content.

While far from complicated, the code does include a They are a fixed width, as is the commerce cell, giving a couple of interesting tricks. The table cells (defined with fairly rigid construction to the page. The center cell—the the <td> tags) have no absolute size set for them. However, one with the actual content in it—has no width set. Rather, the left cell is essentially fixed to the width of the graphic it like the navigation in the table above, this cell is left to contains. By giving that cell a width of one percent, the cell take the rest of the browser window's available real estate.

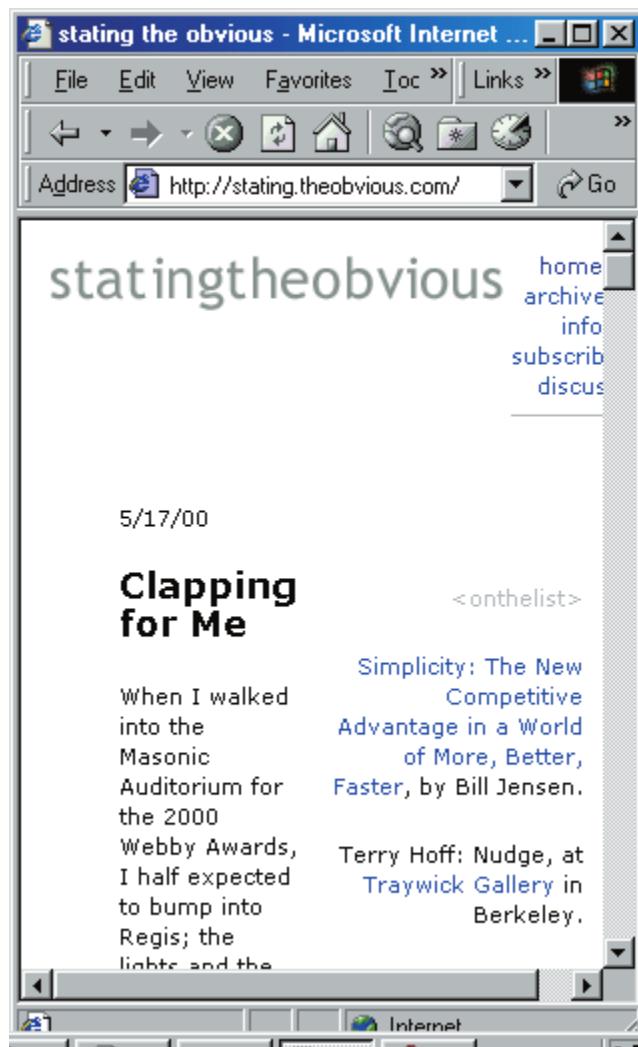
will try to be as small as it can possibly get. Yet, the browser The effect is nice: The page feels sized correctly no mat-can't make the cell any smaller than the image file within, ter how big or small your browser window is... to a point.

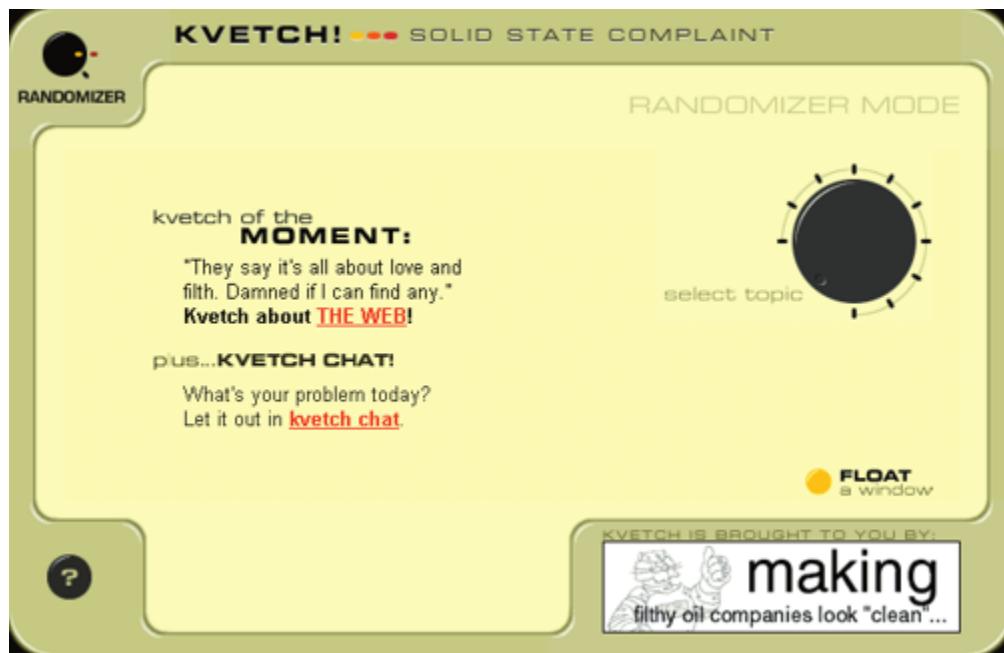
so that part of the table gets what is essentially a fixed Scaling down the window too far creates an incredibly nar-width. The other cell has no width at all, and therefore row column for the text of the page. One way to deal with takes the rest of the available page. Under the navigation this is to add a physical constraint to the relatively sized links, Sippey has added a Horizontal Rule (<hr>), which is column. Much like the logo graphic in the top table of this set to render in a specific gray that matches the logo page, we could insert an image into the content column of ("#C0C0C0"), and without any shadow effects (noshade).

the lower table and give it a width that would define how Again, no width is specified for this element, with the result small we would allow the column

to get. Since this page is being a visual element that figures its width on its own.

working just fine without the addition of another visual element, we could just use a transparent GIF image no bigger than a single pixel, and stretch it using height and width plishes a liquid layout again using this code: tags to the desired size. The code we used before would now look like this:





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```
<table width="100%" border=0 cellpadding=0 cellspacing=0>
<FRAMESET cols="100,* ,100" >
<tr>
<FRAME src="myNavigation.html">
<td width=75 valign=top align=right></td>
<FRAME src="myDocument.html">
<td valign=top align=left>
<FRAME src="thirdColumn.html">
```

``

`alt="spacer">`

`
`

simply means that the browser should draw three frames—

`<!-- page content -->`

two 100 pixel columns fixed at the edges of the page, and etc.

one that takes up however many pixels are left in the center of the browser window—again, a liquid design.

Now, when the browser is resized to the point where The examples above, however, are only glimpses into the center column would be smaller than 250 pixels, the what is possible within the context of liquid design. Let's cell bumps against the invisible spacer image, and is con-look at a real world example.

strained to that size. There are drawbacks to this strategy, Kvetch.com is fun. It also, from time to time, can be a though. The image may be negligibly small, but it little troubling.

requires a request to the server. That

The site was designed as a virtual outlet for folks to let can slow things down a bit. It may

off a little steam. Anonymous users can post just about any-also be considered bad form to con-

thing they're angry about to the site. Interested voyeurs can strain any part of the user experience, peek into any of a half dozen subject areas to see the outra-especially with a hack like a single-

geous postings. It's interesting, in a twisted sort of way.

pixel image. I find it a fair compro-

mise. Users get a flexible representa-

tion of the interface, while designers

can maintain a certain level of visual

control over how their pages are ren-

dered.

A Liquid Application

This functionality need not be limited

to tables, either. Page layouts using

frames can also take relative values for

the height or width of certain regions.

Frames can be sized either with per-

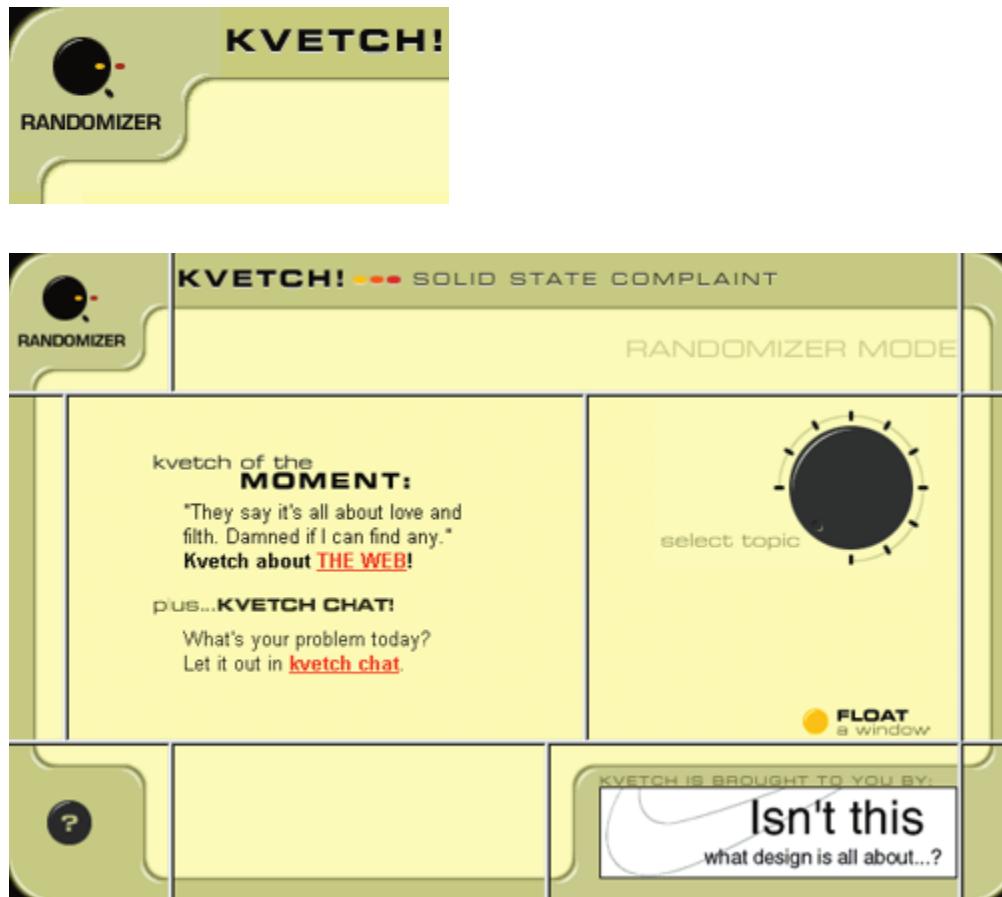
centage values like tables, or with the

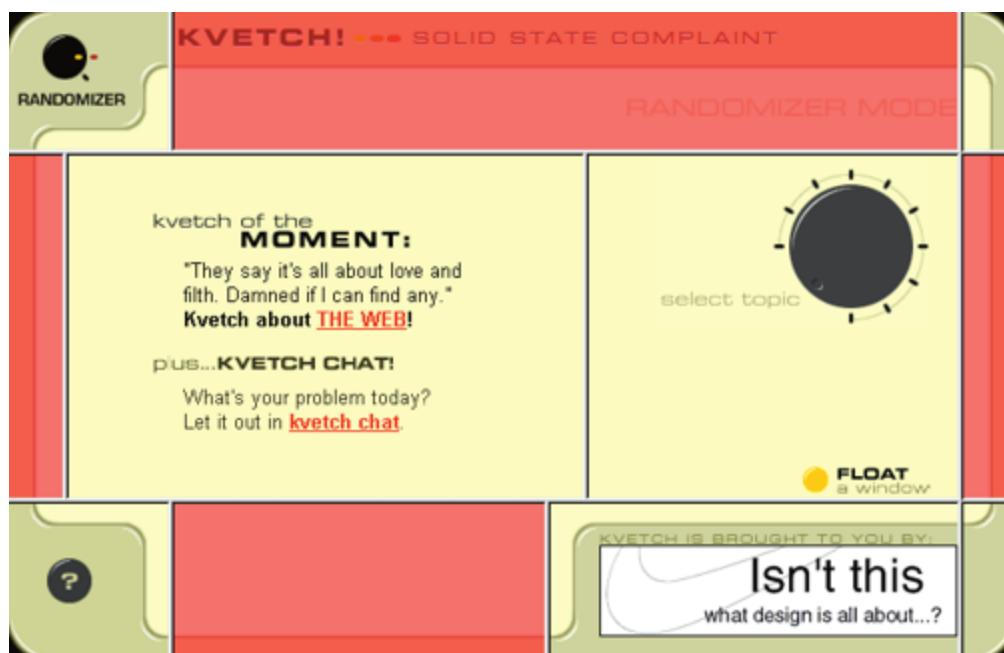
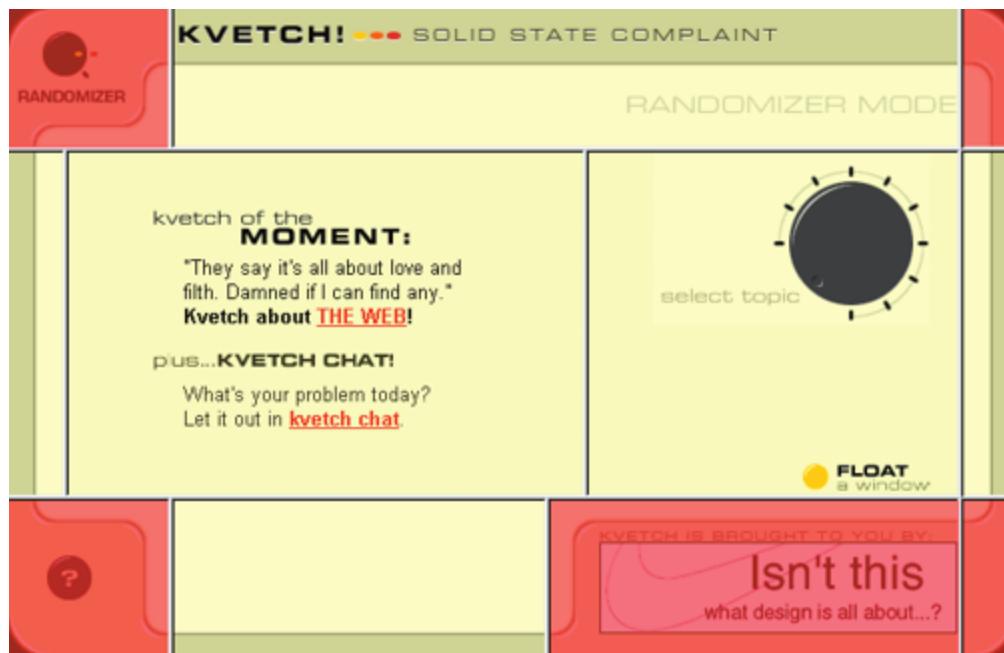
Designer Derek Powazek built an interface to his use of an asterisk. This syntax tells the kvetch.com project that would approximate a sort of “com-Without any sort of constraint, a liquid browser to simply use whatever real

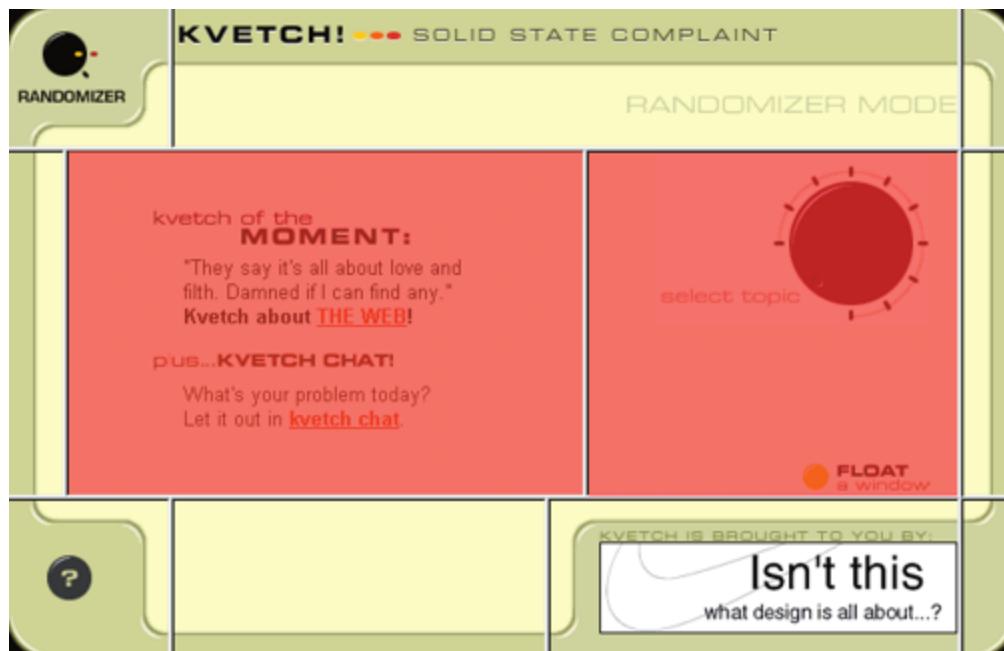
plaint application.” The site looks as if it is a control panel interface can get too wide or narrow.

estate is left over. So...

that would exist in the real world—the edges of the interface are curved and lit by a distinctive light source.







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Controls for the site are rendered as buttons that are given absolute dimensions. They stay locked down, ground-turned by clicking, with an indicator that rotates as a selecting the interface to the corners of the browser windows.

tion is made.

Then, each row in the interface includes relatively sized Where the interface departs from real world physics is its pieces to allow the design to scale in the correct direction.

ability to resize itself to the current browser window.

The top and bottom rows include horizontally scaling Kvetch.com uses a fairly complicated

frames, while the middle row contains set of nested frames to allow liquidity vertically scaling pieces. The overall both horizontally and vertically. By effect is a sort of dynamic picture setting some frames with absolute values and others with percentages, tent no matter what size the browser. Powazek can determine just what Finally, the center of the page contains should expand and collapse, while tains a frame that scales in both directions, with a relatively sized table give the Kvetch.com interface the illusion-Naturally, to achieve this effect, inside that expands and contracts to fit sion of reality. Rendered with a consistent light source, the edges of the the space left by the surrounding The corners of the interface stay rigidly tent light source, the edges of the

set to ‘0’. However, let’s turn them on frame. The result is a perfectly scaled sized.

screen give off a gleaming appearance for a second to see just how the inter-interface no matter what size the

while spinning indicator knobs show off face is being composed. We should be

browser window.

the site’s functionality.

able to get a glimpse of how a liquid

These rules, as interesting as they

page actually comes together.

may be to play with, are still very sim-

Kvetch is made up of a frameset containing three rows.

ple. All we’re doing is addressing cer-

Each row is then cut into individual frames. This creates a tain areas of a

page layout, but nothing

grid of interface

more complex.

regions that can

But, we also haven’t added the

be manipulated

elegance of Cascading Stylesheets to

with precision to

this discussion.

Building the scalable picture frame with create a design

relatively sized edge pieces.

that scales appro-

Getting Relative with CSS

priately. Here,

Thinking back to Chapter One, you'll

you can see how

recall our conversation about the

the rows are

structure, presentation, and behavior

divided to make

of Web pages. I bring up the triangle

up the overall

metaphor again because we're going to

page.

see just how flexible it is.

Then, within

Remember how I explained the

The over frameset for the Kvetch.com interface is made up of the top and bottom-multidisciplinary nature of our

three rows. Each row has unique characteristics that in sum form row, the cor-model? Designers, for example, need

Filling the rest of the screen with the make up a liquid page.

ner pieces are

to be experts in the design corner of

center frame and a relatively sized table.

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the triangle. But they also need to branch out and explore (which came up by default in users' browsers) than from the possibilities of other disciplines. Our conversation so anything else they ever did. However, we're attempting to far about behavior has been almost entirely about style.

build pages that serve all of our users, no matter how they And that's fine. The relationship between how something view our pages. I can't tell you how many times I've tried to looks and how something works can and should be read documentation at 3AM after a marathon day of development-blurred. It only makes sense that the functional and aesthetic, and cursed the designer who fixed the point size to the qualities of anything—but especially Web an absolute value. So much for my tired eyes.

designs—be intimately bound.

Anyway, we’re going to start with some text set to 10pt Let’s look at an example of this relationship through for our page copy. To approximate this, I do the math: if 1em developing the behavior of a liquid page by manipulating its

= 12pt, then .8em = 9.6pt, which the browser will round up style. We’ll start with an old typographic axiom: The most for us, keeping our code simpler. I’ll use this as the basis for readable line lengths for a paragraph are “an alphabet and a the entire document by putting this in my stylesheet: half.” This means that for maximum legibility in a chunk of content, each line in a paragraph should be roughly 40

*body {font-size: .8em; font-family: "Times New Roman", characters wide.
Times, serif; }*

How does this interact with our goal of a liquid page?

After all, if we set up a page that behaves by filling the Now, every element on the page I’m creating will inherit screen, we’ll loose control of our line lengths, thereby let-the font size and font family information that I’ve set up for ting go of legibility. Can we have both? Possibly.

the <BODY>. By setting up my style this way, I can simply First, we’ll start by abandoning the notion of a fixed font change the individual characteristics for each element as size. CSS gives us lots of typographic control, as we saw in they relate to the overall document. Every part of the page Chapter Two. But it also gives us some new units of meas-can and should be related to one base unit—a base unit urement, most notably the em unit.

that is set based on my users’ preferences.

Unlike points or pixels, which represent an absolute size Let’s move on. To incorporate our design axiom of an for elements defined by them, the em is

based on the font—

alphabet and a half, we'll set up our content. Since 1em is technically, 1em is meant to represent the width of the low-essentially one character, setting the width of my para-ercase “m” character in whatever font you're using. Most graphs to 40em will give me the ideal line length.

browsers aren't this sophisticated, though, and actually just define 1em as the “default” size. Thus, in Internet Explorer P {width: 40em; }

version 4 and higher, the typeface Verdana set to 1em would render as 12pt. However, this isn't a rigid 12pt, but I'd like to lighten up the visual weight of each paragraph rather the base of whatever the user has set as the default.

as well, so I'll increase the leading by setting the line-length So if I increase my font size in the browser (using the pref-property to a comfortable value. And, I'd like to start with erences) to 16pt as the default, then 1em becomes 16pt and about a one inch left margin, so with 1em as 12 points, and everything will scale accordingly.

knowing that there are roughly 72 points in an inch, I can Now, you may argue that the majority of users never set the margins to 72 divided by 12, or 6em.

change their preferences. And you'd be right. Netscape made more money selling advertising on their home page P {width: 40 em; line-length: 1.4em; margin-left: 6em }

Inheritance is working for us now. The paragraph is condings and city council meetings—with a staff of five. So, tainted within the body, and therefore inherits all the typ—besides being managing editor, I also reported and wrote graphic settings. So our paragraphs will be set in Verdana stories, took the occasional photograph and laid out all the (or whatever else is available) and will be rendered at 10pt.

pages of the paper. Laying out newspapers can be fun, until No need to stop with text. I can set the height and you get to the headlines. Writing and sizing headlines can width of images to similar values. I'd like a 3-inch by 1-be as invigorating as writing haiku all day long—interesting inch logo at the top of the page, so I'll define it through a for a while, but eventually degrading into tedium. The class in my stylesheet.

words of the headlines, you see, had to match the width of the columns in the stories. With fairly narrow columns and IMG.logo {height: 6em; width: 18em; }

typically constrained headlines, the job became one of constant word play. Wouldn't it be wonderful, I would dream, if You can probably guess by now what the effect will be I could have a machine that did this for me?

on my page. In a browser with default preferences, my logo In the CSS example above, I've developed a series of will be 3-inch by 1-inch in the corner of the page. It will dependencies on the typographic characteristics of the look balanced against the surrounding type and white space

<BODY> tag—essentially a series of absolute rules that can be that I've carefully designed. However, if a user decides to modified through preferences by my users. But what if the bump up the font size, my entire page will react to that set-values set on the <BODY> tag were truly relative. What if I ting now. Paragraphs will not only have bigger text, but get didn't even know what they were? Could I create a script wider as well. The margins and leading will readjust to an that effectively encapsulated the dreary work I used to do at appropriately scaled size to match the new font size. And the newspaper?

my images will stay in the proper proportion, since they've We're about to modify the example above to create a been set to relative values as well. The entire page is design that should feel right no matter what environmental responding to both my desires as the designer, but also to variables are at play. So far, we've accounted for the width the unique and individual preferences of my myriad users.

of the browser window when scaling table cells, and the Contrast this to the "best viewed with" method of design user preferences for setting font size. Now I'll put them we talked about earlier. Rather than demand that everyone together and add scripting to dynamically size page ele-who views my page conform to my screen resolution or ments based on a slew of variable factors.

browser width or type standards, I'm creating pages that The more you explore the behavior of Web pages, the meet my users half way. It's compromise without adversely more you'll have to occasionally dip into scripting to effecting the visual communication inherent in the design achieve the effects you're after. As I said in Chapter One, process. My pages have been imbued with behavior—they

"Foundations," the interdisciplinary nature of the Web can almost act autonomously, while still under my control.

requires us to branch out as far as we can towards the other It's Web design the way it was intended to be.

domains. We're going to be using JavaScript to manipulate the visual appearance of our pages.

From Scripts to Screenplays

One of the wonderful features of Web scripting lan-In what now seems like a past life, I used to be the manag-guages like JavaScript is the ability to peer into our users'

ing editor of a series of small community newspapers. We worlds. Thus, I can gain access to things like the default did stories on car crashes and Little League scores and wed-values of many things: what browser they are using, what



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plugins are installed, and even useful data like the screen resolution and browser window width. The latter are particularly interesting. If I can tell what size the screen is and how wide the browser is on that screen, I should be able to lay out pages based on that knowledge.

To get the window width to lay out our page, we're going to have to ask using the native language of the browser.

This language—the vocabulary used to address each and every aspect and element of a particular page—is called the Document Object Model, or DOM. The DOM is really just a shorthand notation for asking the browser questions like,

“Hey, what color is the fourth paragraph on this page?” Or, in my example, “I need to know the current width of the browser window in pixels.” Here’s how I ask that question using JavaScript:

```
var mySize = document.body.offsetWidth;
```

and a collection of narrow advertising units. The two outer columns are locked to an absolute width, while the story This little bit of code sets up a variable for us named fills the remaining space. Thus, the layout is responding to mySize, into which we dump the width of the current the variable width of the user’s browser.

browser window. More specifically, we’ll get the width of The headline, however, is what we’re going to change.

the canvas, or the number of visible horizontal pixels dis-The text itself is rendered with this structural code: played in the user’s current window.

Now, we can do some simple calculations to derive a

<H1 id="headline">Riffage Buys SF Concert Hall</H1> font size. In the example below, a typical news story from the Wired News Web site, I’ve used this algorithm to set and this style code:

the size of the headline:

```
<style>
```

```
<script>
```

```
body {font-size: .8em; font-family: Verdana, Arial, var mySize =  
document.body.offsetWidth/29; Geneva, sans-serif}
```

```

headline.style.fontSize = mySize;

H1 {font-family: Verdana, Arial, Helvetica, sans-serif;

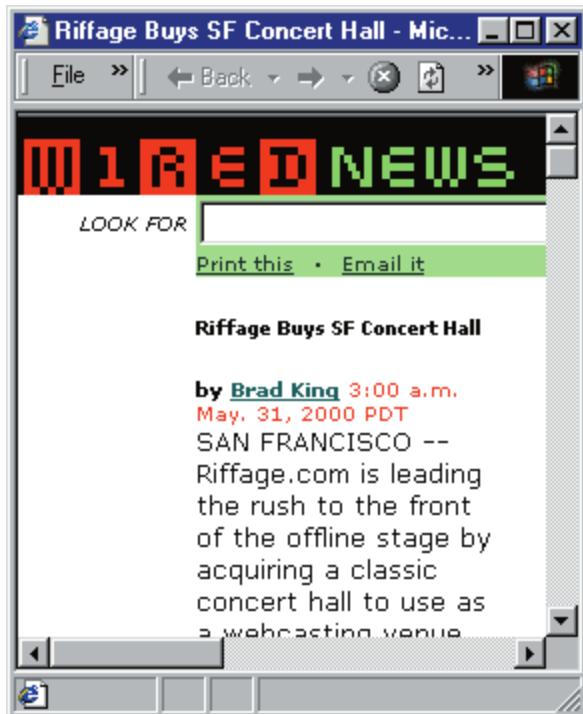
</script>

font-weight: bold; }

</style>

```

Let's look at what's going on here. First, we're dealing with a page that's been set up with a liquid structure. The Combining the structure, style, and behavior, we get a logo and header are locked to the top of the screen, and dynamically sized headline. The JavaScript code takes the sized at 100%, to fill up the entire window. Then, the story width of the canvas by asking the browser for it by way of sits in a table cell between two columns—an empty margin the document.body.offsetWidth node in the DOM. But



*before I assign it to a variable, I need to massage it a bit. If **Constraining Myself***

we simply set the size of the headline to the width of the Of course, we still want to exert some amount of design browser window, it would be enormous. So to scale it down control over our presentation. Once you start playing a bit, I'm dividing this particular headline, "Riffage Buys SF

around with dynamically sized ele-

Concert Hall," by 29 to get it roughly the right size to fit ments like our headline example

the width of the column of text. So when the browser is set above, you quickly realize how ridicu-to, say, 750 pixels wide, that number gets divided by 29 and lous the extremes are. For example,

I'm left with 26 pixels after rounding. In the last line of the scaling the window down very small,

script, I simply tell the browser to look for an element with and suddenly the headline is com-the ID of "headline" (which I had already applied to my pletely illegible. And you can see why:

<H1>), and set its font-size attribute to whatever is in the If the window gets below, say, 100 pix-mySize variable. In one fell swoop, I've grabbed the window els, our math begins to fall apart. 100

width, scaled it down, and applied it to my headline. At divided by 29 is just over 3. Three-that size, the headline fits atop the story just fine. All we pixel type is, to say the least, not the

need to do is find an event to trigger the script.

easiest to read on the screen. We need

Since I want this resizing event to happen instantly some constraints.

when the page loads, I'll create a function, and call that To set limits on the scaling of type,

function with an onLoad event on the body tag. Since I I'm going to add a bit of a reality

also want the script to resize my headline as the browser check to the script that sizes the head-resizes, I'll fire the function from that event, as well: line. Before actually applying my

derived value to the font-size of the headline, I'm going to

<script>

see if it is either too small or too big. I'll do this with a cou-function
change_size() {

ple of if...else statements—a common programming tech-var mySize =
document.body.offsetWidth/29; nique for adding logic to code.

headline.style.fontSize = mySize;

}

<script>

</script>

function change_size() {

...

var mySize = document.body.offsetWidth/29;

```
<body onLoad="change_size()" onResize="change_size()> if (mySize < 14) {
```

```
mySize = 14;
```

Here's where it starts to get really interesting. If I were to

```
} else (mySize > 50) {
```

resize the browser window, not only would the column of mysize = 50;

text get narrower, but the headline would resize itself pro-

```
}
```

portionately to fit. Likewise, as the browser gets larger, the headline.style.fontSize = mySize;

column widens, and the headline grows bigger and bigger.

```
}
```

```
</script>
```

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***T h e A r t & S c i e n c e o f W e b D e s i g n C h a p t e r F o u r - B e h a v
i o r*** 129

While this may seem to be getting complicated, it really some manner of consistency. But ultimately, the hundreds isn't. The new lines above simply tell the browser, "If the of stories that flow through the newsroom and onto the site value you're about to use to set the headline's font-size is are going to do so automatically. They are going to come less than 14 pixels, then set the value to 14. If it's bigger barreling out of a database and into a template, but it will than 50 pixels, then just use 50." Now I can rest

assured happen at the speed of light and without so much as a quick that my headline will never get too small to read or ridicu-glance from a designer. I therefore need to set up a system lously big. I've set up a dynamic—yet constrained—system that will deal not only with the constraints my users will for displaying a nicely fitting headline on my story.

place on the design, but also with content I've never seen.

How do I account for this?

Knowing Even Less

Time to add a couple more lines of code to my script.

I'm getting close to my goal now—a machine that will for-I've already set the size dynamically, and added my con-mat my headlines for me. There is still one variable left to straints. Now, I'll do what I used to do at the newspaper: I'll deal with, and it's a big one. While the script we've been tweak the size based on the available headline.

developing so far has accounted for screen width column Once the text comes out of the database and is married size, as well as set up constraints for big and small extremes, to the template, my script will be able to ask the computer we still need to tackle one fundamental unknown: the for one final and crucial piece of information: Just how long headline itself.

is that headline? I'll ask this question with these two simple Wired News, like most other content-heavy Web sites, lines of code:

doesn't actually server HTML files when you visit its pages.

Rather, all the content for all the stories is stored in a large var myHead = headline.innerHTML;

and fairly complicated database. These stories are pulled out var targetSize = myHead.length;

of this database, and then pushed through a publishing system that almost magically creates the pages you see in your I'm adding a couple of new variables to the script here.

browser. We'll get into the nuts and bolts of this process in The first, myHead, uses a bit of the Document Object Chapter Eight, "Object-Oriented Publishing" because now Model to look for that element with the ID of headline, I'm still focused on formatting that headline.

and grab its contents. So, in our example from earlier, the You see, all of the powerful behind-the-scenes technolo-value for myHead would be set to "Riffage to Buy SF Music gy puts designers in a unique predicament. I've been talking Venue." So now even though I don't know what the head-about how everything we've dealt with thus far has been line will be when the page is finally rendered at least my relative. Just how little we know about the environment to script will. The next line sets a variable named targetSize to which we send our designs is turning out to be a sort of the length of the string; or, in English, the total number of postmodern nightmare free of any absolute truths whatsoev-letters and spaces in the headline. With this information, er. And now for the ultimate—after accounting for the wide we can modify the algorithm that sets the font-size property variety of user systems and complex preferences, the sad of the headline to look like this:

truth: I don't even know what my headline will be.

*That's right. I have no idea how many words or charac-mySize = (document.body.offsetWidth/targetSize) * 1.35; ters will be in that string of text. Sure, we can put constraints on our editors and ensure they write headlines with*

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San Francisco Venue Sold to Dot Com

by Brad King 3:00 a.m. May 31, 2000 PDT

SAN FRANCISCO -- Riffage.com is leading the rush to the front of the offline stage by acquiring a classic concert hall to use as a webcasting venue.

The acquisition of San Francisco's Great American Music Hall, scheduled to be announced Wednesday, is part of the company's overall strategy to meld the online and offline music worlds.

"We think we're going to get synergy out of this deal in both directions," said [Riffage](#) CEO Ken Wirt. "We think that most of the bigger-name artists are going to want to webcast their concerts when they come to the hall."



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Startup Buys Historic San Francisco Music Venue

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Music Hall Sold

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Now the final size of the headline will be calculated by And you can see how it works in these screenshots of taking the number of pixels in the current browser win-our story with a variety of headlines:

dow, and dividing by the number of characters in my headline. You'll remember that earlier I was simply dividing by 27. Again, we're replacing an absolute value with a relative one. So with a browser window at, say, 750 pixels and the headline from our earlier example coming in at 29

characters, we're left with a font-size of 25.8 pixels. To get the font-size to match the specific column in this layout, I need it to be about 135 percent of what this math gives me, so I've added the multiplication at the end. I take my 25.8px value and run it up to 34.9px and now, as if by magic, my headline fits atop the column of text as if I'd designed it from scratch to look just right. If our headline happened to be 23 characters and the window was scaled out to 825 pixels wide, we'd end up with 825 divided by 23, then multiplied by 1.35 to give me a size of 48.2 pixels, which also fits just fine. And all the while, if my users scale their browsers too big or too small, I can keep that headline between 16 and 50 pixels using the if... then constraints I added earlier.

Here now is the completed script:

```
<script>

function change_size() {

var myHead = headline.innerHTML;

var targetSize = myHead.length;

var mySize = (document.body.offsetWidth/targetSize) *1.35; if (mySize <
14) {

mySize = 14;
```

The script is resizing each headline based not only on the

```
} else if (mySize > 50) {
```

available space, but according to how many characters is in mySize = 50;

each one. Now, any headline will fit with any column width—

```
}
```

a truly liquid page.

```
headline.style.fontSize = mySize;
```

```
}
```

Building the Virtual Designer

```
</script>
```

I didn't include this script in this chapter to give you a working example of how to create scalable headlines. In fact, this script uses some proprietary additions to the DOM

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included by Microsoft in their Internet Explorer browser.

that what the script was doing is much more interesting Using it in other browsers like Netscape Navigator will that how it accomplished the task. And that's what I want cause an obtuse error message to appear. I included it you to focus on. Can you communicate the functionality of here—and spent the time deconstructing every last detail—

a particular design goal with the developers on your team?

to show you how designers are going to have to evolve to Or will you dig into the syntax and fundamentals of the embrace the behavior of Web pages as well as the techno-various Web technologies and produce the behavior of Web logy behind those behaviors. A good eye will remain pages yourself? The answer will be different for every design mandatory in the discipline. A designer's deep understand-and every designer, but each will be somewhere on that ing of the fundamentals of visual communication will never technical continuum.

go away. But much like a magazine designer's knowledge of Regardless, at least we'll all know how to get our hands inks on paper and the mechanics of printing presses, a Web dirty and our heads out of the sand.

designer will need a deep understanding of the inner workings of Web technologies.

This script, then, is an example of a much bigger idea.

Throughout this chapter, we've been looking at examples of rule-based design, and how the traditional notion of pixel-based design is rapidly being left behind. But here's the big picture: Good designers are harnessing the technology available to them and using it to encode the process they use to do good design. A pixel-based designer spends time sizing a headline perfectly to an absolute column and page width. A rule-based designer spends time converting that task to a browser-based script.

In our example, I converted one design process for sizing headlines into one script that does it for me. Now imagine the myriad other design decisions that a news story page may need. I've only scratched the surface of page layout, branding, advertising, internal and external navigation, and everything else that falls into that particular page. Extrapo-late even further to different pages on the site, and then to the many different types of sites—what rules would need to be encoded for a search engine, or an e-commerce shopping cart, or a stock portfolio tracking application, or an artist's portfolio, or anything else?

Go Build It

I just walked you through a very detailed description of a fairly simple bit of JavaScript. It's important to remember

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Chapter Five

[5]

Browsers

Just as your watch keeps time, your telephone has taken their toll. Not only is the installed base of can call other phones, and your stereo accepts clients completely fractured between old versions and competing vendors, but all compact discs, so too should all browsers each browser has its own bugs and peculiarities. For the hapless Web designer, show all Web pages.

the outlook is bleak. Do I have to make multiple versions of my site? How can I afford to do that? Am I resigned to a lowest-common-denominator version of my brilliant design ideas? This chapter digs into the reasons why the browsers are so different, how Web developers can form a strategy for dealing with this mess, and what basic techniques they can use to develop around the lack of support for basic standards. Finally, we'll look at what we can do to help fix this, and how the browser makers are responding.

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Isn't it amazing that the Internet works? It's easy to forget Let's take a look at the historic foundations on which that sometimes. We sit at our computers using our browsers the browsers were built, the sorry state of affairs for today's with e-mail applications in the background, communicating Web developers, and what we can do sort to things out.

*effortlessly with computers around the world. We take for granted that we can fire off a message to virtually anyone **Innovation and Legacy***

and they will be able to read it. Yet, that works only Interoperability is a long tradition throughout the Internet because of the protocols beneath the surface, all glued community. As long as there have been computers talking together in a fantastic network of connectivity.

to one another, there have been engineers arguing about Thankfully, most of us don't have to muck around with the best way to accomplish this.

the underlying code that makes the Internet function; we The unspoken rule worked something like this: A prob-can keep all that complexity abstract by using our windows lem would arise (“We need to be able to read e-mail on any and wizards. In fact, we’re so far removed from the underly-system”), someone would make a proposal (“E-mail headers ing protocols that we can completely forget that the should be formatted this way”), and then someone would Internet isn’t really a physical thing, but simply a collec-hack out code proving it worked. The developers involved tion of standards to which everyone has agreed. Without in this conversation would look at the code, discuss the standards, though, there would be no Internet. The spec, and then revise it a few times until they were satisfied.

Internet is standards.

Then someone would type the whole thing up and release it Why, then, are we having such a difficult time with to the public. Generally, a Request for Comments (RFC) the Web? The arguments and politics of Web standards would be posted on a universally accessible server for any-have raged behind the scenes almost since the birth of one to use as a guide for developing interoperable software.

the first browsers.

Then came the Web. The outlandish growth we’ve Recently, there has been an increased focus on the stan-experienced over the past few years not only made the standards—or, rather, the lack of compliance with standards—

dards process difficult, but changed the rules entirely.

that have helped popularize the Web and make it a commodity of daily life. From a grassroots level, developers have begun to air their frustrations with the lack of basic competitive advantage—and fictional stock prices), forgoing interoperability between browsers—or even versions of the same browser. “Why is this so hard?” they ask. “Why do I spend so much time getting my pages to work on

“Internet Time.”

every browser?”

The result of this shift is painfully obvious. Poorly planned “enhancements” to the defined standards are impregnated in millions of copies of rushed software. Look at what happened to browser developers, Microsoft and Netscape, for example. Responding to marketing hype for the next customer demand for visual control in HTML, Netscape versions of their client software. “New features! New additions to the W3C standards!” the browser vendors shout. “Buggy code! Incomplete implementations! New technologies! New rendering!” we shout back.

standards process and took the easy route, permanently

*hurting the Web. Sure, designers could style their text in **Should we just give up?***

any of seven predefined sizes, but the semantic meaning of The reality is that there are as many different views of your headlines, captions, and subheads were gone forever.

site as there are users. Depressing thought, isn't it? (The Need more proof? Look at the plethora of ways you can very notion of having your content, your brand, your very add other media types to your page. Along with the now online identity being "interpreted" in millions of ways can standard <OBJECT> tag, we also have <EMBED>, <INSERT>, <APP>, strike fear in the most competent creative director or dili-

<APPLET>, and , all of which do the exact same thing.

gent production assistant. So what can we do?

The frenzied pace of innovation and new-feature devel-First, it may help to know that you are not alone. In opment started almost from the beginning. The leap from fact, Jupiter Communications recently released a report that Netscape's first release to version 2.0 was dramatic, with surveyed the top 100 commercial Web sites. Jupiter found engineers adding new features (font tags, frames) as fast as some disturbing statistics: Nearly two-thirds of these sites they could code them. When Microsoft jumped in with were building multiple versions of their Web sites. Those Internet Explorer, the race was on. With each new browser sites spend up to 40 percent of their development resources release, Netscape and Microsoft upped the ante. Both on building those versions. And very few of the companies scrambled to offer major new features with each version, polled had any intention of using "new browser technology"

hoping to prove to the world once and for all which brows-on their sites in the near future.

er was better.

The implications are even worse. How much is it costing What's the problem? Web developers, Web users, and the Web industry to make up for the fact that browsers Web browser marketing managers all have their own defini-can't get even the most basic standards implemented cor-tions of better, which makes for quite a few spectacular mis-rectly? How much stifling of innovation is taking place takes. And, the browser companies have promised to sup-because companies are unwilling to experiment with new port all their blunders.

technology at the expense of legacy browsers?

Over and over again, the browser companies tell us that It's easy to complain—and trust me, we'll complain in they're committed to supporting their content providers and this chapter. It's much more difficult to do something about application developers. This, they smugly tell us, is an indi-it. Let's take a look at how to deal with legacy browsers, cation of the high level of support they'll provide for devel-inconsistent standards support, and the tremendous developers who have invested in the browser's cutting-edge tech-opmental overhead it takes to deal with the dizzying array nologies. But really it just means that the browser of browsers that are out there.

companies are locked into supporting every mistake they've ever made.

Understanding the Dysfunction

Rather than weed out poorly realized technology, the In order to cope with the fractured world of browsers, you'll browser companies have resorted to bulky workarounds and need an understanding of how broken things really are.

add-ons. And the result? We have the bug-ridden, 16-MB-We'll start broadly by looking at the industry as a whole, download behemoths we're stuck with today.

and then narrow the focus to your site in particular. You'll After suffering through the side-effects of the browser need to dig through a lot of information to make the right companies' misguided attempts at "support," developers are choices for your content and your audience—then we'll now stepping in and asking the most important question: move from trends to specifics in order to accomplish that.

"What should we support?"

Here are the questions you will need to ask:

SAN FRANCISCO COUNTY-SAN MATEO COUNTY-SANTA CRUZ COUNTY-
400 PM PDT MON APR 10 2000

TONIGHT...PATCHY FOG AND LOW CLOUDS...OTHERWISE CLEAR. LOWS
45 TO 50. EVENING SEABREEZE 10 TO 20 MPH.
TUESDAY...PATCHY MORNING FOG AND LOW CLOUDS...OTHERWISE MOSTLY SUNNY.
HIGHS FROM THE MID 60S AT THE OCEAN NORTH OF SANTA CRUZ TO THE MID 70S
INLAND. NORTHWEST WIND 10 TO 20 MPH ALL DAY AT THE OCEAN NORTH OF
SANTA CRUZ...AFTERNOON SEABREEZE 10 TO 20 MPH ELSEWHERE.
TUESDAY NIGHT...PATCHY COASTAL LOW CLOUDS AND FOG...OTHERWISE FAIR.
LOWS MID 40S TO LOWER 50S.
WEDNESDAY...PARTLY CLOUDY. HIGH 60S TO LOWER 70S.

<	TEMPERATURE	/ PRECIPITATION
SAN FRANCISCO	46 65 48 60 / 00 00 00 00	
SFO AIRPORT	48 68 50 64 / 00 00 00 00	
REDWOOD CITY	46 71 48 67 / 00 00 00 00	
SANTA CRUZ	46 72 48 69 / 00 00 00 00	

EXTENDED FORECAST...
THURSDAY THROUGH SATURDAY...VARIABLE CLOUDINESS AND COOLER WITH A
CHANCE OF SHOWERS. LOWS MID 40S TO LOWER 50S. HIGH 60S TO
MID 60S.

Press Return to continue, M to return to menu, X to exit:

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- *What browsers are out there?*

Before There Were Browsers

- *What browsers support which tags and technologies?*
- *How many in my audience are using each browser?*

Despite its current ubiquity, we didn't before the Web, the few services that always have the Web. We take for granted did exist often made use of Telnet. And

After you are armed with this information, you should expect the instant access to information, though if you look hard enough, you can still

be able to make informed choices about your development single application with which we can find a couple of these relics still surviving strategy. In particular, we will be looking at ways to find out some of that information, and the navigation today.

which features you should be incorporating in your designs, traditional shortcuts that get us there.

A good example of how the Net used and how to get the right features for the right browsers.

But there was a time before search to work can be found at the University engines, bookmarks, and the “click-of Michigan’s Weather Underground,

Why so many?

here” access that we have today. In fact, available by pointing a Telnet client at

If you’ve done any amount of development on the Web, it wasn’t all that long ago that the only um-weather.sprl.umich.edu. Try navigating you’ve

probably wished that there was a world with only way we could do file transfers was by

ing through the hierarchy of weather

one browser. “If only I didn’t have to deal with all of this typing IP numbers into an FTP client,

data. See how long it takes to move up

complexity. Wouldn’t that be wonderful!”

and many resources on the Net were

and down the menu system. Marvel at

No, actually. It would be the worst possible outcome for only accessible through something

how our Web interfaces work today

our Web.

called Telnet.

compared to the terminal-based systems

The Web’s very popularity can be attributed in part to its In the multi-user, command-line

of yesteryear.

diversity. One of the basic design goals of the nascent World world of Unix, gaining access to another

Beyond the nostalgia of Telnet

Wide Web was that anyone with any type of computer could machine was done with Telnet. You'd

applications, you can find basic

access at least some view of your information. To accomplish type in the address, log in, and you'd

Information Architectures still in use

that, the command-line Internet needed three converging be connected as if you were sitting at

today with bare-bones interfaces.

factors in order to succeed: A uniform way to address not that machine. Since there were very few

Things may be easier today, but they

only computers connected to the Net, but the individual ways to offer interactive information

are by no means new.

resources that were on them, a method for transmitting those resources, and a method for displaying them.

The first came in the form of Uniform Resource Locators, known affectionately as URLs. Without them, Net surfers would need to remember not only domain names or IP addresses, but they also would have to decode the applications running on those servers. Today, Web browsers give us a consistent interface to all Net resources, freeing us from the peculiarities of Telnet log-ins and menu navigation.

We won't spend much time on the second necessity.

Suffice it to say that the Hypertext Transfer Protocol, more commonly known as HTTP, is saving everybody a lot of grief, despite its many shortcomings. Having all browsers The University of Michigan's Weather Underground system is still available via a tel-net interface—interesting if only from a historical perspective.

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The Art & Science of Web Design Chapter Five - Browsers 143

and all servers speak the same language behind the scenes you're pretty much set. Your site will look remarkably like may very well be the most important reason we're all using an academic paper, but it will work everywhere and you'll the Web today.

be able to sleep at night knowing your site is rendering with But what concerns us here is the final converging factor: perfection across the Web.

A standard way of displaying Web resources.

Most of us, however, would rather build a site that com-The Hypertext Markup Language was designed to be municates visually as well as structurally—a site with an simple, forgivable, and viewable on any type of computer.

appropriate amount of branding and identity. This means And that was supposed to mean everyone—from dumb ter-taking chances—calculated risks, actually—with the tags minals wired to mainframes to the fastest, highest-resolu-and technologies you incorporate into your design. It also tion, multimedia-capable desktop machines and even wire-means much more work for you, since you'll not only have less cell phones.

to build multiple versions of your site to ensure compatibili-While this may sound like an admirable goal, the harsh ty, you'll need to discover who

needs to get what too.

reality played out significantly differently. Browsers got pop-Don't worry, it's not as hard as it sounds. Quite a few ular in a hurry, and those making browsers responded to people have done this before, and many of them now share their customers' demands by adding tags and technologies as the tools they've developed to help keep track of all of this.

quickly as they could. Soon, the world was filled with hun-Let's dig in.

dreds of browsers—as was the intent of HTML all along—

We're going to start by looking very broadly at the but those browsers were rendering content in hundreds of industry as a whole, both by analyzing a bit of historical different ways. And while the Web should scale to accom-data, and then seeing how that data is at work in today's modate any surfer, the fact is that most document authors browser statistics. That should give us a good idea how want to maintain at least a modicum of control over the many people are using which browsers across the Web.

appearance of their documents. Today, we're left with a More importantly, though, is what your audience is using on diverse yet fractioned medium on which to base our prod-your site. To get at that information, we'll dig into some ucts. With so little consistency across browsers, you may lightweight server-log analyses tools. With that knowledge find yourself ready to throw up your hands and surrender.

in mind, you can start to make decisions about which fea-Why bother?

tures you should incorporate into your Web site. Finally, I'll tell you why. The solution isn't all that hard.

we'll dig into how to serve multiple interfaces to multiple browsers, allowing you to explore some cutting-edge tech-Understanding the Problem

nology while still providing a usable experience for your As I mentioned before, there is a confusing variety of entire audience.

browsers, versions, computer platforms, and other variables that conspire to make your site look broken somewhere, Scouting the Industry

somehow. Factor into all of that the reality that no browser Brace yourself: I'm going to throw a very disturbing statistic is bug free. You may actually be doing the right thing and still at you. At the time of this writing, the Yahoo category your site looks broken. What to do?

"Home > Computers and Internet > Software > Internet > You could bury your head in the sand and simply build World Wide Web > Browsers" contained 148 distinct and sites that make use of the tiny subset of tags that work in all separate browser listings. And that doesn't take into browsers. If you're comfortable with `<H1>` and `<P>`, then account the scores of versions each individual browser may



BrowserWatch Stats Station																																															
Before you read these stats, it's very important that you know where these numbers came from... First things first, this is a representation of browser usage for people who visit BrowserWatch, nothing more, nothing less. But let me tell you a little bit more about the users who frequent BrowserWatch, we have some of the top software developers, web site designers, magazine and newspaper editors and writers and a catch all group I like to call browser.nuts =) these are the folks that feel the need to be using the latest and greatest browsers available - period, end of sentence.																																															
Don't forget to stop on by the newest area of BrowserWatch BrowserWatch Chat Corner!																																															
Computer Platform Data Is No Longer Being Reported																																															
Notice: All web browsers start off with ZERO on the first of each month.																																															
<table border="1"><thead><tr><th>Browser</th><th>Value</th><th>Percent</th></tr></thead><tbody><tr><td>Microsoft Internet Explorer</td><td>28936</td><td>62.6%</td></tr><tr><td>Netscape Navigator</td><td>10035</td><td>21.7%</td></tr><tr><td>Science Traveller International IX</td><td>2077</td><td>4.49%</td></tr><tr><td>Opera</td><td>645</td><td>1.39%</td></tr><tr><td>iBrowse</td><td>557</td><td>1.20%</td></tr><tr><td>AvantGo 3.2 (compatible, AvantGo 3.2)</td><td>482</td><td>1.04%</td></tr><tr><td>Powermarks-3.5 (compatible, Powermarks)</td><td>431</td><td>0.93%</td></tr><tr><td>Lynx</td><td>252</td><td>0.54%</td></tr><tr><td>index-erpt</td><td>228</td><td>0.49%</td></tr><tr><td>4.72 (X11)</td><td>192</td><td>0.41%</td></tr><tr><td>AOL</td><td>133</td><td>0.28%</td></tr><tr><td>InternetLink.Agent</td><td>131</td><td>0.28%</td></tr><tr><td>Powermarks-3.0 (compatible, Powermarks)</td><td>123</td><td>0.26%</td></tr><tr><td>DiIbot</td><td>118</td><td>0.25%</td></tr></tbody></table>			Browser	Value	Percent	Microsoft Internet Explorer	28936	62.6%	Netscape Navigator	10035	21.7%	Science Traveller International IX	2077	4.49%	Opera	645	1.39%	iBrowse	557	1.20%	AvantGo 3.2 (compatible, AvantGo 3.2)	482	1.04%	Powermarks-3.5 (compatible, Powermarks)	431	0.93%	Lynx	252	0.54%	index-erpt	228	0.49%	4.72 (X11)	192	0.41%	AOL	133	0.28%	InternetLink.Agent	131	0.28%	Powermarks-3.0 (compatible, Powermarks)	123	0.26%	DiIbot	118	0.25%
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BrowserWatch was founded and still maintained by [Dave Gacella](#) for [internet.com Corp](#), the leading source for Internet news and resources.



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<http://www.iworld.com>

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have. Netscape's Navigator, for example, has released What does this mean for your site? Well, despite the fact browsers both for 16-bit and 32-bit

machines running that industry browser reports show browsers for the Windows, the Macintosh, and a variety of Unix flavors. For Commodore Amiga and early beta versions of Navigator in each one of those platforms, there were dozens of versions circulation, the reality is that they make up an infinitely over the years, from early betas to the differences between small percentage of total page views

“standard” and “gold” releases. And it doesn’t stop at “tra-and user sessions across the Web. So

ditional” releases for mainstream desktop computers.

you should ignore them, right? Wrong.

People have developed browsers for the handheld Palm Our pages should accommodate every-Pilot crowd, Braille readers for seeing impaired users, one, but we’ll get to that.

clients for those Internet terminals in airports. Have you What are most people using then?

ever seen a gas pump with a monitor on it as you’re filling It’s safe to say that they are, in general, your car? Yup, there’s an old version of Mosaic for it. It’s a sticking to either Netscape Navigator

fractal problem: The more browsers you look for, the more or Microsoft’s Internet Explorer. Let’s

you’ll find.

look at how the numbers are stacking

Thankfully, we can pare that number down a bit. Our up at the moment. On the popular

basic strategy, which we’ll get to in more detail later, is to developer site BrowserWatch

divide and conquer. We'll determine how many versions of (www.browserwatch.com), the site's care-our sites we can manage, and create

taker Dave Garaffa maintains a page

"buckets" into which we can group

detailing the browsers that visit his

particular browsers. In its easiest form, site. As of this writing, Internet

our strategy will call for a high-end

Explorer was being used by 62.6 per-

USERS

version and a low-end version, with

cent of his audience, while Netscape

the thousands of browser combinations

was holding with 21.7 percent. Thus,

neatly organized into those two buck-

over 86 percent of this particular audi-

ets, with the appropriate interfaces

ence is using one of the two leading

being served to each.

commercial browsers, with the remain-

So, back to the task at hand—get-

*ing 14 percent trailing off across
ting a handle on the vast number of
dozens of others.*

BROWSERS IN USE

different browsers. It's probably not a

*But remember, the BrowserWatch
surprise that, while there are lots of
audience is skewed towards developers*

*Who's surfing with what? The fact is, browsers, only a few are being used
by*

who are looking for information on

Dave Garaffa's BrowserWatch Web site

most people use the most popular

a substantial percentage of your audi-

browsers—a very specific group of peo-

*not only collects browser usage statistics—browsers, but the trail of browsers in
ence. In fact, browser usage follows a*

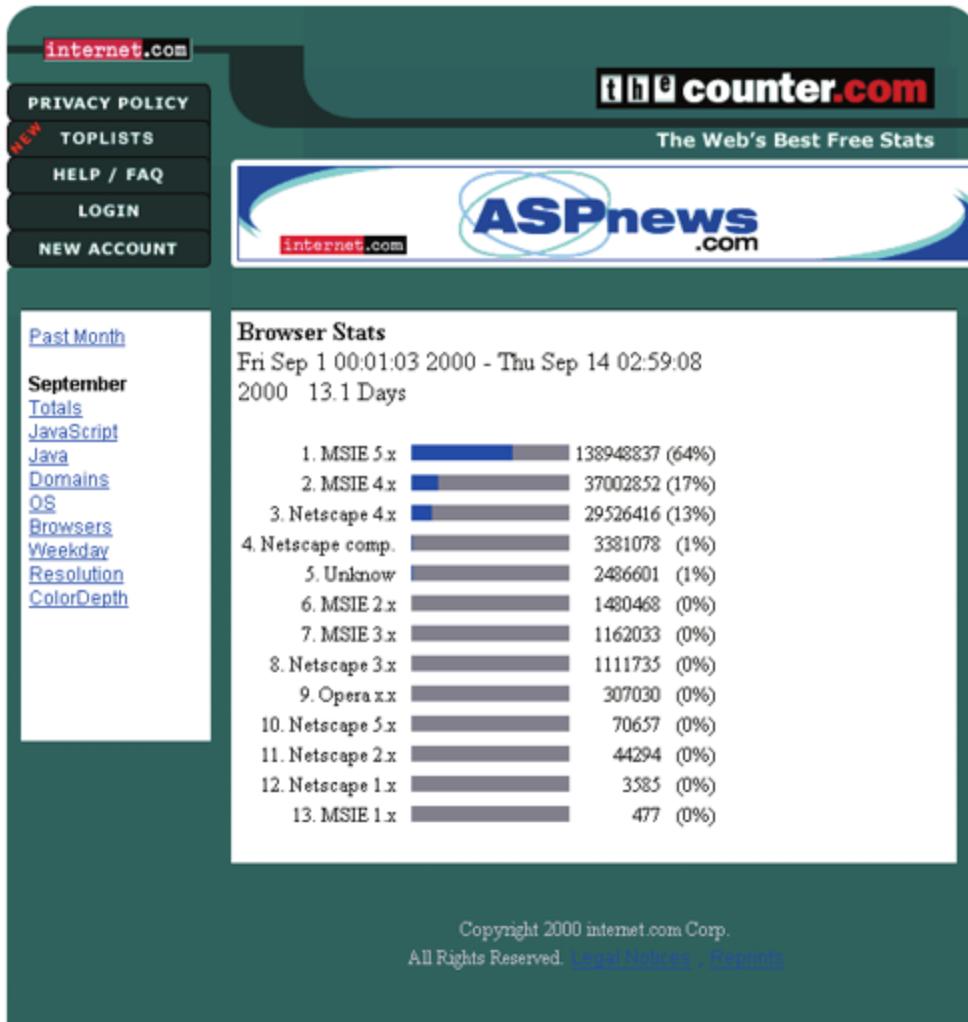
ple who may have significantly differ-

tics, but is a good source of up-to-the-use is incredibly long.

Zipf curve pretty closely. A Zipf curve

ent tastes in software adoption than

*minute industry news on what Web
merely shows data that cluster around
your audience. To get an even more
client software is being released.
a few popular choices, even though the data being displayed accurate
picture of the rest of the
have many, many possible selections.
Web, we can look to The Counter (www.thecounter.com).
This site offers a typical free service: The page counter pop-*



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percent of the browsing public—a radically different number than BrowserWatch, and probably a more accurate snapshot of what is really happening on the Web. I'm showing you this discrepancy for a reason, though. Your site can also be dramatically different from industry numbers—your audience is your own.

We're now equipped to follow the industry numbers for browser usage. But gathering data on Web-wide usage is only half the equation—we also need to look at new versions, old versions, and the rate at which browsers are upgraded. There are few things more tantalizing to a Web designer than the promise of new browsers and new features. And there is nothing more disheartening than the inability to use them. Why? If your users don't have supporting browsers, then nobody will see what you've done.

So again we ask, “What to do?”

Old Browsers Never Die

Never has a piece of software seen such rapid adoption as the first version of the free Netscape browser. It was Fall of Free statistics, offered for the good of the industry—and the 1994 and the Web was young. The dominant browser at the associated publicity, of course. The Counter shows just how time, was a graduate project from the National Center for dramatically audience plays into browser usage numbers.

Super Computing Applications at the University of Illinois, Here, with a sample from the broader Web, we see Microsoft Champaign-Urbana. “NCSA Mosaic” was exceedingly pop-in the clear majority of Web clients.

ular, since it was the first browser capable of showing inline images. But when Netscape Communication’s “Mozilla”

ular with so many amateur Web sites that are willing to dis-browser hit the Web, everything changed. Nearly play to the world how much (or, more often, how little) overnight, the new browser commandeered a tremendous traffic they are getting. You've probably seen the little user base. Everyone who was online at the time, it seemed, images that look like odometers proclaiming “This site has switched to Netscape.

been visited 0012 times!” What The Counter does differ-That overnight conversion didn't quite keep up, howev-ently, though, is keep track of who is viewing what across er. New versions of the browser were released almost the millions of counters they've distributed. They then monthly. It seemed

like a full-time job just downloading aggregate that information and offer it publicly as a free and installing new versions of the Netscape software. Then, service to Web developers. Their statistics show even finer a year or so later, Microsoft joined the fray with its Internet grain detail than BrowserWatch. As of this writing, Explorer browser. They, too, iterated with gusto. A couple Microsoft is leading. If we add up the IE numbers, we see of years into the so-called “browser wars” and it was impos-that the Microsoft browser is being used by a whopping 81

sible to keep the myriad of versions straight.

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To gain any sort of historical perspective on browser percentile nearly overnight. But the same certainly didn't adoption by a general Web audience, we need to look at happen with the second version. What we saw instead was years rather than versions. The chart below shows how the a steady 5 to 10 percent attrition to new versions per statistics have played out over the last 5 years. Note that month. So when a new, major release of the browser hit, it these are aggregate numbers based on features roughly could take nearly 16 months for the old version to finally go assigned to version numbers. That is, Netscape's second ver-away. Except that it didn't. Let me explain.

sion was roughly equivalent to Microsoft's. Netscape 4 and Not everyone, unfortunately, has a choice when it comes IE4, likewise, held similarly equal feature sets (with wildly to browsers. While most of the readers of a book like this divergent quality, but more on that later). So it's fair to look install and delete new software with impunity, there are at how the numbered versions waxed and waned in usage scores of users who don't have the same desktop freedom.

throughout the last decade.

Many users are at the whim of their “technology managers.”

*As we’ve seen, the popularity of the first version of These are the folks who do the remarkable job of keeping Netscape’s browser back in 1994 skyrocketed into the 90th corporate information systems running efficiently. Thus, they have the power to decide which software will be rolled out across their networks, and when. So, just because Netscape or Microsoft touts the features of its brand new browser doesn’t mean these managers will upgrade. And **Browser Upgrades Through the Years***

when these folks are making decisions for tens of thousands of desktops in the world’s largest corporations, the numbers As new versions of browsers are

sion of time. See how each previous

can drag on for what seems like an eternity.

released, users upgrade rapidly. But

version of a browser trails on through

The slow upgrade effect was compounded by the 1997

they don’t all upgrade, as this chart

the years? Since not every one can or

release of the version 4 browsers. The battle for Web shows. On the left is the percentage of

will upgrade, no browser will ever fully

supremacy was raging between Netscape and Microsoft. The Web users surfing with any particular

eclipse the others. The result is a fractured user base.

claimed that their browsers would support nearly complete integration into your computer's operating system. When they both finally released their shiny new browsers, the 100% result was a resounding thud from users across the Web.

6.0

Suddenly upgrading your simple Web browser meant 80% 5.0 upgrading your entire operating system—something most people (and almost all companies) don't take very lightly at 60%

all. The conversion rate slowed down considerably; so slow 4.0 that we've only recently caught up.

40%

3.0

And don't forget home users. Without the support of a 2.0 corporate helpdesk, many home users are rightly hesitant to 1.0 mess with a tenuous computer system that happens to be 20% working just fine right now, thank you very much. We often make the false assumption that our amazing, dynamic inter-0%

1995

1996

1997

1998

1999

2000

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faces are worth an upgrade; but users, frankly, often could and it's a gold mine once you've got the appropriate tools care less. In fact, many users don't even realize they can for uncovering its wealth.

install a new browser. Upgrades only occur, then, when they For our discussion, however, we're going to ignore the get a new machine with a new browser pre-installed—once majority of this data and focus just on what browsers are every 5 or so years. Finally, don't forget about the users out being identified by your server. Each line in a server log there who simply can't use a new browser. Old computers contains information like what file is being requested, the run old software, and no matter how emphatically the hard-time and date, and much more—including the nugget we're ware companies urge us to ditch the tired, old systems, after: the User Agent String.

many don't or can't. The result: The old browsers persist.

"User Agent" is merely a bit of jargon that means the Looking back at the browser adoption chart, we can see piece of software doing the requesting

from the server; these factors at play. Each new version of the browsers peaks

“String” is the stamp left in the log with the identifying pretty quickly as eager and technologically sophisticated characteristics. The majority of the time this is a recognizable-users upgrade. But the trails left by the older versions per-ble browser, but occasionally it’s not. Search engine spiders, sist. And notice that each peak is a little lower than the proxy servers, and other devices suck down Web pages too, last. The situation gets messier with each release, as more so hence the incredibly accurate jargon ... engineers like and more old browsers mix in with the new.

this sort of thing.

But let’s be optimistic. Looking back at The Counter’s Here’s a fairly typical User Agent String: charts, we can see that the vast majority of users are currently using a browser with a version number of 4.0 or higher-Mozilla/4.0 (compatible; MSIE 4.01; Windows 98) er. In fact the number is higher than 90 percent, which means we can start thinking of version numbers much like Here’s what this all means: The “Mozilla” in there is browser versions —we can generalize.

legacy, pure and simple. It comes from the early days when Netscape first released their browser under that moniker.

Discover Your Numbers

Since Webmasters of the time were eager to make use of the Great, we’ve got a general understanding of which browsers new capabilities of this browser, they would target their and which versions are being used out there on the great pages (much as we’re about to learn to do) to Mozilla.

big Web. But what about your site? Do your audience numbers-When competing browsers came about, most notably deviate from the general numbers? How can you tell?

Internet Explorer from Microsoft, they too carried these There are a number of increasingly sophisticated tools capabilities, and wanted pages highlighting these capabili-that you can use to get this information. All of them work ties to display correctly. So they also put the string on the same basic premise: Every time someone visits a

“Mozilla” in their User Agent identification. Thus, over page on your site, his or her browser requests the page and time, identifying yourself as Mozilla became a sort of infor-associated images, plus whatever else is linked to that mal standard. Everyone did it, so the only way to distin-page —be it stylesheets or multimedia objects. As the server guish your browser from the rest was to include a parenthet-does its job and sends this stuff over to your user, it also ical comment that actually labeled your client. In the makes a record of its activity. This server log file is an example above, we can distinguish this browser as Internet incredibly detailed account of all activity across your site, Explorer, version 4.01, running on Windows 98.



Web Server Statistics for veen.com

Browser Summary

([Go To](#): [Top](#): [General Summary](#): [Monthly Report](#): [Daily Summary](#): [Hourly Summary](#): [Domain Report](#): [Organisation Report](#): [Directory Report](#): [File Type Report](#): [File Size Report](#): [Status Code Report](#): [Search Word Report](#): [Browser Summary](#): [Browser Report](#): [Operating System Report](#))

Listing the first 20 browsers by the number of requests, sorted by the number of requests.

```
reqs: browser
-----:
48711: MSIE
22974: Netscape
1805: ExtractorPro
1324: Gulliver
849: Netscape (compatible)
574: WebTV
522: Slurp.so
458: Googlebot
308: WhizBang! Lab
281: ArchitextSpider
246: Mercator-1.0
244: Scooter
204: libwww-perl
168: DIIbot
166: MSProxy
156: MSIE_4.01
142: eCatch
109: InfoSeek Sidewinder
80: geckobot
```



Web Server Statistics for veen.com

Browser Report

([Go To](#): [Top](#); [General Summary](#); [Monthly Report](#); [Daily Summary](#); [Hourly Summary](#); [Domain Report](#); [Organisation Report](#); [Directory Report](#); [File Type Report](#); [File Size Report](#); [Status Code Report](#); [Search Word Report](#); [Browser Summary](#); [Browser Report](#); [Operating System Report](#))

Listing the first 40 browsers by the number of requests, sorted by the number of requests.

```
reqs: browser
-----
9328: Mozilla/4.0 (compatible; MSIE 5.0; Windows 98; DigExt)
3839: Mozilla/4.0 (compatible; MSIE 4.01; Windows 98)
2888: Mozilla/4.0 (compatible; MSIE 4.01; Windows 95)
2812: Mozilla/4.0 (compatible; MSIE 5.0; Windows 95; DigExt)
2624: Mozilla/4.0 (compatible; MSIE 4.01; Windows NT)
2195: Mozilla/4.0 (compatible; MSIE 5.01; Windows 98)
1889: Mozilla/4.0 (compatible; MSIE 5.0; Windows NT; DigExt)
1881: Mozilla/4.0 (compatible; MSIE 5.0; AOL 5.0; Windows 98; DigExt)
1805: ExtractorPro
1605: Mozilla/4.0 (compatible; MSIE 5.0; AOL 5.0; Windows 95; DigExt)
1363: Mozilla/4.0 (compatible; MSIE 4.5; Mac_PowerPC)
1251: Mozilla/4.7 [en] (Win98; I)
1182: Gulliver/1.3
961: Mozilla/4.7 [en] (Win95; I)
819: Mozilla/4.7 [en] (WinNT; I)
768: Mozilla/4.7 [en] (Win98; U)
746: Mozilla/4.61 (Macintosh; I; PPC)
672: Mozilla/4.7 (Macintosh; I; PPC)
656: Mozilla/4.0 (compatible; MSIE 5.01; Windows 95)
201: Mozilla/4.0 (compatible; MSIE 5.0; Windows 95)
```

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*As I mentioned, this chunk of identification gets **Running Reports with Analog***

stamped into your server log and is waiting patiently to be of use in your research. Most log analyses tools will give you It may feel like a relic, but the log-report with new data regularly, and

some measure of control over how this is done, usually how analysis tool Analog is a powerful—and

you'll have all the information you'll

specific you'd like your report to be. You can generally get free—tool for quickly extracting valuable need with a minimal amount of effort—

just browser numbers, just version numbers, or other levels information from the ocean of data in

something we all strive for.

of detail.

your server logs.

You can pick up a copy of Analog at

The Numbers Game

http://www.analog.cx/. Once you've

There are a couple of ways to get at this information, downloaded and installed it, there are a

depending on whether you actually can access your server few simple steps to get it working.

logs. At issue is how much control you have over your serv-Open the configuration file in a text edi-er. If you're the one managing the systems that serve your tor. (Sorry, you'll have to do without

Web pages, then getting those logs is a relatively straight-such comforts as a GUI with preferences

forward task. If, however, your servers are managed by in dialog boxes.) The settings contained

someone else in your organization, or—as is more frequently within allow you a tremendous amount

the case—your site is hosted by a service provider or one of of customization, but we’re going to

the Web’s many free homepage services, then you’ll need to focus on browser statistics for now. Tell use a different method for digging into the wonderful world the application where your server logs

Analog reports may not be pretty to

of server statistics. Regardless, the process isn’t all that diffi-are, either on the network or where you

look at, but they do contain valuable cult. Let’s look at the different approaches.

copied them over to your local machine.

information. The report here shows an We’ll start with those of you fortunate enough to have Then, change the browser report setting

overview of browser usage.

access to your own server logs. For you, the options are to your preference: either detailed or a

more varied and powerful. First, you’ll have to decide quick overview. To do this, you’ll need

whether to install a log analysis tool that looks directly at to set the BROWSER or FULLBROWSER direc-your data, or to pull the logs over to a desktop machine and tives to ON in the analog.cfg file. Now

do the analysis there. Products like Hit List from Accrue set Analog to work, sit back, and wait

Software, Inc. or the variety of tools available from for the goodies.

WebTrends Corporation are examples of tools that look Your report will end up in Analog's

directly at your data. They can be installed on servers and default folder (unless you changed that

generate reports as often as you like, with near infinite cus-when you configured) as report.html. It

tomization options. You can, for example, use tools like this should be in HTML format, which means

to create custom reports on just which browsers are being you can simply open it up in a browser

used and by whom, and then have that report run automati-and have a look. Below all the traffic

cally and e-mail the results to you every Monday morning.

reports, you'll find the exact number of

Traffic reports, right in your browser.

Intelligence delivered to your inbox, as it were.

browsers in use on your site. You can

This detail of browser version usage

If you can't install the software on a server, opt for a free now start to make decisions about your

can be easily dumped into a spread-

log-parsing tool like Analog, or The Webalizer (which is target audience and what technologies

sheet application for manipulation and you can safely use on your site.

chart generation.

Set up a little scheduler to run the

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available from www.mrunix.net/webalizer). These are simple who make different browser decisions than those of the gen-software packages that you can use on your personal com-eral population. Your site may have a similar audience skew, puter. Once installed, you'll need to get access to your serv-and a first look at your statistics may confirm this.

er logs—either point the tool at them on a server some-You might also learn something else: Your site's design where, or download the actual data to your machine and set is a filter. It may seem like an obvious fact—that the tech—the software running. Again, the choices for reporting are nologies you choose will necessarily limit the audience you almost overwhelming.

attract—but it's an important lesson to keep in mind. For Finally, if you don't have access to your logs, don't example, if you make use of technologies only supported worry. You can still find out who is using your site and with in later versions of popular browsers (think dynamic posi-what client—but you won't have the flexibility or cus-tioning with CSS and JavaScript), and don't bother creat-tomization options of dedicated software packages. There ing an alternative interface for users with browsers that are a number of free services on the Web that can track don't support these features, your statistics will be skewed your site's usage for you. You'll generally need to put some toward the high end. For this reason, it's important to gen-sort of “counter” or other bit of code on each page you erate two different traffic reports with your log analysis want watched.

Then, each time your page is loaded, a slew tool: One that shows users per browser, and one that of data will be transmitted via HTTP headers to the third-shows page views per browser. And, the difference may be party site, which will track and store that information for dramatic. A site optimized for high-end browsers may get you. Later, you can visit the service and see your statistics 10 times more traffic with those browsers, even if the (and usually a few ad banners).

number of users is comparable.

The disadvantages to these services are numerous. You'll So great, you've got your numbers together and can see a need to fit their "branding button" into your interface.

fairly clear picture of who is using your site. Now, you need Their code may slow down your page. You'll have to trust to make a big decision: What browser tags and technologies the service with potentially sensitive traffic information.

are you going to use? To make these choices, you'll need to But they are free, and often they are the only alternative if know which browsers and versions support which features, you don't have a dedicated server. We've already looked at and then map that to the number of users for each that you TheCounter.com's global statistics. This is how they get this have. Then, you can make a clear choice, and begin to for-data, and it also is how you can add the tracking service to mulate a strategy for targeting each group.

your site. Hitbox.com is another option, with even more We'll start with tags. As HTML developed, it fractured.

detailed information. A search for "Web counters" on any Some browsers supported tags from published W3C specifi-search engine will turn up dozens more.

*cations, others developed their own proprietary tags. As the browsers iterated, they began to adopt new tags at different **Use Your Numbers***

rates. Thus, a particular 3.0 client may not support a feature Once you've got the data from your Web site, it's time to in a competing 2.0 version. Keeping this all straight is, put it to use. But before you do, it's important to understand frankly, a nightmare.

just what that information means. You might be surprised to Thankfully, there's help. A number of Web sites have find your numbers don't match the rest of the Web. Earlier been created to document this fractured development.

in this chapter, I demonstrated that effect with the One of the best (if you can ignore the awkward inter-BrowserWatch statistics. Their site is aimed at developers face) is Index Dot HTML, at

sections * support * about *												[myBrowser: Win98@MSIEv5.0]											
web.info! home												webmaster.info											
search for:																							
Affiliate Network AOL 5.0 FAQ Glossary												lastmod: 3.1.00@1103 http://webmaster.info.aol.com/index.cfm?article=6											
Browser Info Network Info Security Info																							
Basic Web Info Web Style Guide Netiquette Guide																							
myBrowser web.info compatibility help request acknowledgements																							

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In loving memory of
of Jos Claerbout

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Learn how to make your Web sites look great on television.

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- [WebTV Viewer 2.0](#)
- [More on design ...](#)

How the WebTV browser supports different Internet technologies.

- [JavaScript Guide](#)
- [Forms on WebTV](#)
- [More on authoring ...](#)

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Browser Window

Slashdot
News for Nerds. Stuff that matters.

faq
code
awards
privacy
slashNET
older stuff
rob's page
preferences
andover.net
submit story
advertising
supporters
past polls
topics
about
jobs
hof

DeCSS To Be Broadcast Over Oz TV
Posted by **Hemos** on Monday March 20, @06:51PM from the round-the-world dept. EngrBohn writes: "Just when you thought the DeCSS saga couldn't get more interesting. 2600

Features
The latest installment of Geeks in Space is up at The Sync. Listen to CmdrTaco, Hemos, and Nate talk about the latest events to happen - or not happen in the computer world.

Perhaps you are seeking Jon Katz's series of articles related to recent events in Colorado. These articles include Voices from the Hellmouth, More Stories

Slashdot:News for Nerds. Stuff that Matters.

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www.blooberry.com/indexdot/. The charts on this site show numerous things like JavaScript, Cascading Stylesheets, and each tag and attribute, and how they have been supported across the major browsers, and distinguished over time. There are columns that show when a particular tag was first published in a W3C specification, simply look down a column and see if there are enough and when it was implemented in the browsers with the boxes filled in for your level of support. Again, this is a largest user base. The detail is phenomenal. For example, easy decision-making process.

you can check which browsers support not only frames, Other technologies have whole sites dedicated to them.

but each attribute available to that tag, such as frameborder-Cascading Stylesheets, for example, have great potential border, bordercolor, marginwidth, and on and on. Truly an but an unbelievably spotty implementation in current invaluable resource for making design decisions.

browsers. To track the massive specification across all versions of HTML only deals with tags and attributes, versions of browsers, the WebReview site has created a special however. For a broader perspective, try Webmonkey's section at style.webreview.com. By now, you'll notice the BrowserKit at www.webmonkey.com/browserkit. This page doc-familiar rows and columns of a support table popular with **Alternative Browsers**

Worried about how your site works

including an emulator for their browser.

with the WebTV box? You should be.

You can download and install this appli-

It's true that the browser universe has its audience have upgraded. You can While the usage numbers for WebTV cation and run the WebTV client on your collapsed into two primary competitors: also find documentation on what AOL aren't all that high, they are growing desktop machine. Surfing through your Internet Explorer and Netscape. Yet, does to compress images, how to work and could be a significant portion of pages undoubtedly will be an enlighten- things aren't always so clean cut. For around the caching scheme they use, your audience someday. Like AOL, there ing experience, considering how many example, the world's largest provider of and more. Regardless of whether you is plenty of useful information on the liberties the browser takes with table

Internet service, America Online, uses a target AOL users, it pays to spend some WebTV site at developer.webtv.net/, layout and typography.

special version of Internet Explorer with a time reading through this site. feature set that doesn't quite match that of the one released publicly by Microsoft.

Add to that the folks surfing your site through their televisions. You didn't think you'd get off that easily, did you?

Thankfully, these specific browsers have plenty of documentation to support them (and you). America Online, for example, has compiled a staggering amount of information for developers, available

The WebTV developer site offers tutori-Curious what your site looks like on TV?

online at webmaster.info.aol.com/. Here,

Excruciatingly detailed information on als for television Web design, plus an Download the WebTV emulator and

you'll find extensive charts of which feathe AOL browser features and usage at emulator to test your site.

have at it. And yes, you can even use tures are supported in each version of the America Online Webmaster Info site.

the remote control to experience the full the AOL browsers, and just how many in

user experience.

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sites like this. WebReview gets into very specific detail in out a simple plot of Web frontier and are happily coexisting their table, matching up not only implemented features of with technology from three browser versions ago.

the specification, but making notes of bugs and weird Developers in this first group build the majority of today's behavior in the browsers.

Web sites.

*Many of the research tools we talked about earlier in **Choose a Strategy***

this chapter can feed the sense of security that comes from By now, you have a firm understanding of the research embracing a “don't ask, don't tell” strategy. We're not going tools available to you. We've looked at the historical to bother with advanced (and typically buggy) technologies.

trends in browser adoption. We've analyzed the industry We're not going to worry about the complexity of backend trends for browser usage and compared them to a number scripting engines publishing multiple versions of our sites.

specific to our sites. We've mapped those numbers to the Rather, we'll take the simple route and, by using tools that technologies we wish to incorporate into our sites. Now, show us compatibility like Index Dot HTML, define a very we need to develop a strategy for creating Web interfaces narrow set of tags and technologies. Sites like these proba-that accommodate the audience and technologies we've bly won't win awards for innovation, but they will satisfy decided to target.

the needs of the largest group of users. And isn't that the To develop a methodology for developing our sites, we're point after all?

going to examine three different strategies for dealing with HTML was designed to "degrade gracefully"—meaning multiple browsers:

every version of the HTML specification published by the W3C was guaranteed not to break previous versions. Thus,

- *Don't ask, don't tell*

if a browser doesn't understand a particular new tag, it is

- *Browser-specific exploitations*

required to just keep going as best it can. That way, you can

- *Conditional serving*

use things like the tag to drop images into your pages, but satisfy anybody by including the "ALT=" attribute with None of these strategies can exist in a vacuum. As we rich textual descriptions. HTML is filled with fallbacks like dig into each, we'll look at how they overlap.

this, and it pays to exploit them not only with the simple strategy we're describing here, but even as an ultimate safe-Don't Ask, Don't Tell

ty net on more complex multi-browser strategies.

The easiest possible strategy is really no strategy at all.

Look at the multiple levels of content support in this Rather, you could ignore the problem all together and cre-example:

ate the simplest possible page that works in all browsers.

Well, you could do that, but where do you draw the line?

`<object src="cat.mov">`

One solution is to employ only the simple code the

* browsers managed to get right. This includes basic HTML*

`</object>`

(probably somewhere in the neighborhood of version 3.2), with things like tables, frames, font tags, and maybe even a Here, we have an embedded QuickTime movie of my plug-in or applet. These pages were written by the develop-wonderful cat, Alex. But for users without the ability to dis-ers, authors, and designers who can't afford the resources play inline digital video, I've included a still shot as a JPEG

needed to play the cutting-edge tech game. They've staked image. Older browsers, not understanding the <object> tag,

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will safely ignore it and display the image instead. No of browser and platform combinations. To make things easi-graphics displaying? The alt text degrades even further for er on ourselves, many of us define the high-end and low-search engines or users of devices that read Web pages to end, and then clump browsers into their respective bins.

them. And on and on. Degradability is the best way to Slowly, over time, the collective Web audience upgrades, ensure compatibility.

*and new features trickle down from high to low. For example, in the early days of the Web, I was developing versions **Browser-Specific Exploitations***

of pages for browsers that didn't support tables. I no longer On the other end of the spectrum are the experimenters.

do this. As browser adoption shifts in new ways, we'll con-These are the “early adopters,” the Type-A personalities tinue to adjust who gets what. Netscape’s Cascading who enjoy exploring the cutting-edge of browser capabili-Stylesheets implementation was so bad in Navigator 4.0

ties. These developers jump at the chance to play with the that relegating that browser to the low-end bucket has new toys, constantly reinventing what is possible on the saved me an infinite amount of grief. It took a long time for Web, and defining what's next for the rest of us. The sites enough of my audience to shift over to Microsoft’s browser they create typically don’t scale back to encompass the before I felt comfortable doing that, however. By now, you entire Web audience and are easy to spot. Just look for but-should know where to go for research on your particular tons and warnings proclaiming “best when viewed with...”

audience’s preference for browsers. The same thing will hap-We don’t need to talk again about the strengths and pen in months and years to come with the technologies weaknesses of a strategy that exploits cutting-edge technol-that are emerging today. And you’ll need to continue to ogy. Suffice it to say, though, that making the choice to keep track.

abandon users of older browsers is not just an interface call, Of course, this is bound directly to developer frustration.

it's a business decision as well.

*While the Web appears to be speeding along at an unbelievable clip, most of us are forced to wait for the features **Conditional Serving***

we crave to be embraced by a wide enough audience. And The third group consists of the rest of us, people forced to every day that ticks by with nonstandard browser hacks and deal with the reality of publishing on the Web today.

inconsistent implementations means a decrease in the adoption rate. Whether developing commercially or as hobbyists, we don't want to wait.

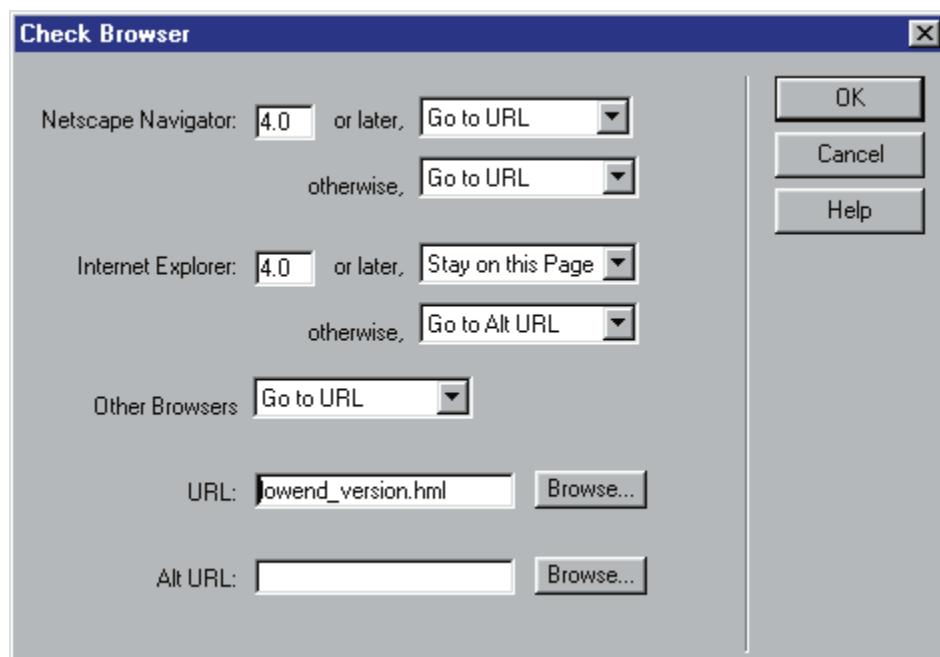
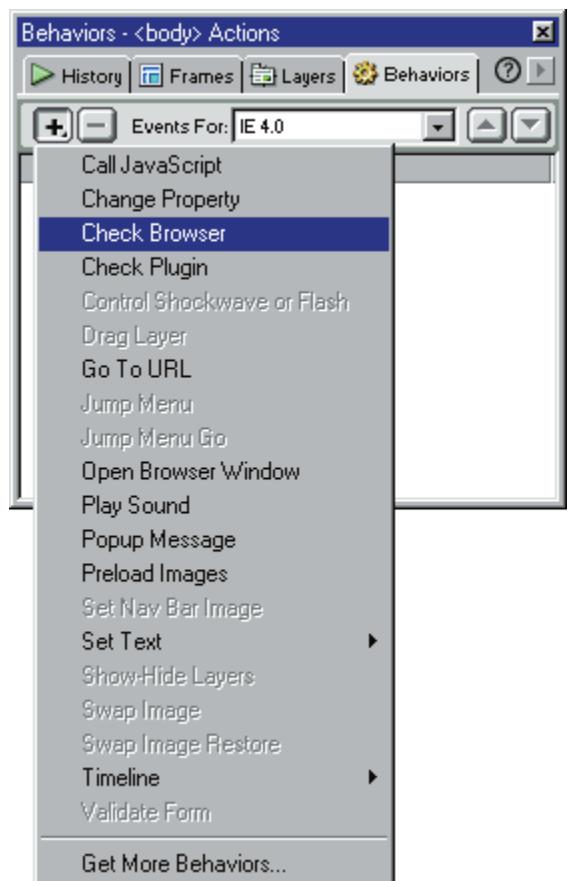
want to turn away a significant percentage of our audience So how do we go about doing this multiple-version simply because they won't (or can't) upgrade their browsers switching? There are two ways: the browser or the server.

as quickly as we'd like. But still, we love the Web, we love Let's look at both.

*what's possible, and we want to move in the direction set by the experimenters I described above. The solution? Multiple **Client-Side Conditional Serving***

versions of content for multiple versions of browsers. Using Regardless of the path you take to conditional serving, the code running on our servers or written as scripts embedded process will require some sort of conditional logic. Some bit in our pages, we sniff out the browser versions and platform of code will have to take a look at the User Agent String, choices of our users and serve handcrafted bits and pieces of parse it into the discernable parts, and make a decision as to our pages.

which chunk of code or alternate page design the browser After doing this multiple-personality work for years, we should get. You need to decide whether or not those scripts know that it's nearly impossible to keep up with the myriad will live and run on your server, or will be embedded in



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your page's source code to be executed by the user's browser.

er's identity, then switch (in the following example) among There are benefits and drawbacks to both.

multiple stylesheets.

Sending JavaScript with your HTML to do the browser detection and code switching can be very simple. The

<SCRIPT> <!--

example on the following page shows just how easy it is to

// Windows IE 4 or later...

use an HTML editor (in this case Macromedia if((document.images) && Dreamweaver) to quickly make the decision as to what (navigator.appName != "Netscape") && code will be going to what browser. Enter a couple of URLs, (navigator.appVersion.indexOf('Mac') == -1)) select a few options, click OK, and you're finished.

{

Even if you're more comfortable writing things by hand, document.writeln("<link rel=\"stylesheet\"

the process is easy. Your code will simply check the brows-type="text/css" href="ie.css">")

};

```
// Navigator 4...

if ((navigator.appName == "Netscape") && Checking Browsers with
Dreamweaver

(parseInt(navigator.appVersion) == 4))

{



Using an HTML editor such as

document.writeln("<link rel=\"stylesheet\""

Macromedia's Dreamweaver can make

type="text/css" href="nav.css">") even complicated tasks a matter of

};

point and click. To include a rudimenta-
-->

ry browser negotiation script in your

</SCRIPT>

pages, for example, takes only a couple

of simple steps. First, select the “Check The code merely checks for the
appropriate “appName”

Browser” option from the pulldown

and “appVersion,” and then adds a <LINK> tag to the docu-menu on the
Behaviors pallet. Then,

ment pointing to the correct stylesheet.
```

simply use the resulting dialog box to

Things aren't quite this foolproof, however. There have choose which browser should get which

been a number of security issues with browser scripting that version of your interface.

have caused a number of users to disable that browser fea-In this example, I've created a high-

ture. With JavaScript crippled, none of the conditionalizing end page designed for Internet Explorer

we've just explored will work at all. And your users most 4.0 and higher, and a low-end version

likely won't see any errors. Instead, they'll see your pages for every other browser. To accomplish

without the style information, or with broken features this, I simply enter the alternate URL for unsupported in their browsers. Depending on the complexi-the low-end page, and tell the script

ty of your pages, this could render your pages as attractive as which browsers should be redirected

a Physics paper, or a confusing spew of unintelligible code.

there. Other HTML editors like Adobe's

One final drawback to the simplicity of client-side code: GoLive have similar functionality.

Adding a conditional browser script to performance. If you're providing two versions of your pages, your site can be as easy as selecting a Behavior in Dreamweaver.

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with the switch happening in JavaScript, some of your users

- **Many versions of the page:** You can create a tiny most likely will end up downloading both pages, but only script that redirects users from the URL they follow displaying the one intended for them. Users of low-end devices to the appropriate version of the page for browsers, for example, would come to your page, download them. Very simple code, but now you'll have multi-the code, execute the code, then get redirected to the page ple versions of your content.

designed for them. Thus, not only do they download more

- **One version, many switches:** This is a very popular bytes, but they also have to take the time to bounce over to way to make your pages work in many browsers. Just the right page. Not the best user experience.

write one version of the page, then add little The better solution is most likely found on your server.

IF...THEN statements for each piece that's broken in a particular browser.

Server-Side Conditional Serving

- **“Forking” :** A more complicated version of the Rather than risk broken pages and slower user experiences, example above. Think of each part of your page as a we should look to server technology for answers. The ideal separate chunk. Each chunk of the page gets situation would have the server detecting what browser a wrapped in browser-specific code, gets assembled user has, and then sending just the correct code for that into one big page, and then sent to the browser.

configuration. This way, regardless of what the user's security settings are, you can be assured that they're seeing the content and makes both more manageable, but it takes a lot of planning up front.

There are a wide variety of server-based scripting systems. You may have heard of Microsoft's Active Server A brighter future?

Pages, or Allaire's Cold Fusion, or even PHP or Embedded If this seems like an awful lot of work, you're right. It is.

Perl. These are all methods of executing code on your server. Developers and designers are spending countless hours here whenever a user asks for a page. We won't get into the reworking their pages or, worse, giving up entirely and push-details of that now; we'll talk more about dynamic publishing out lowest-common-denominator code, stifling innovation in Chapter Eight, "Object-Oriented Publishing."

tion that could benefit the user experience on their sites.

Conceptually, what you'll be doing on the server is nearly identical to what you would have done on the Internet.

standards for a couple of decades before the Web. Isn't any-In most cases, a few lines of code will access the User Agent body doing anything about this?

String and parse it (in some languages this is done automatically. The World Wide Web Consortium.

ically—you just ask for the result). Then, you can make But first, a bit more history. There's been a longstanding decision by writing conditional logic that separates (and SGML-based) utopian ideal of completely separating switches between different chunks of your code.

rating the presentation of electronic content from its assurance that the scripts will run, you can semantic meaning. I've preached the importance of that in also get much more sophisticated in how you serve different these pages, and it remains the foundation of many Web pieces of HTML. Here are a few different architectures for technologies.

server-based browser detection:

What does this have to do with the standards problem?

In a nutshell, Web developers and designers expect their content to behave in a consistent way. The Hypertext

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Markup Language, however, was never designed to be dis-because it tells better time than the rest? Nobody has, of played in a standard way—a very important premise to course. All watches keep time accurately within a second or remember. From the beginning, HTML was created to react two a day. Rather, you choose a timepiece based on other and adapt to whatever computer, display, or device that was factors: style, alarm features, time zone translations, and so reading it, which means an <H1> element on my computer on. The Web's inventor said it best:

could look completely different from an <H1> element on your PalmPilot.

"Anyone who slaps a 'this page is best viewed with Well, that was the ideal. The reality was that nearly Browser X' label on a Web page appears to be yearning everyone surfing the Web has similar computer systems run-for the bad old days, before the Web, when you had very ning comparable browsers. The result? A de facto standard little chance of reading a

document written on another for the visual display of HTML. When we mark our text computer, another word processor, or another network.”

with tags, we expect those tags to look the same every-

—Tim Berners-Lee in Technology Review, July 1996.

where—even though that rubs against the very grain of HTML. When I lay out a page of text, there had better be This same sort of default assumption needs to apply to the same amount of space between my paragraphs on both our browsers. We need to get to the point where the display browsers. If not, one seems broken. Who wants that?

of Web content is taken for granted, with all browsers sup-The bigger problem, of course, is that this informal ren-porting all tags, style, and scripting at the same level. Just dering standard doesn't scale. More tags kept getting added like your watch keeps time, your telephone can call other to HTML, and with them an implied rendering. At this phones, and your stereo accepts all compact discs. There point, it's just too difficult to keep up with all the little needs to be no such thing as “best viewed with....” Instead, quirks. <p> tags render differently when inside tags.

browser companies must distinguish their products with There's more space in table cells if the </TD> is on a differ-other features: Speed, user interface, desktop integration, or ent line than the content. What a headache.

any of the other decision points that consumers use before making a purchase.

The Browser Solution

Until then, we'll continue to struggle with an incom-But even if the W3C were to develop a perfect standard for patible Web.

presentation-free HTML and a robust style language, the browser companies would still have to implement it. And that's been a problem from

day one, if today's buggy and incomplete browsers are any indication.

Netscape and Microsoft (and everyone competing with them) have some work to do. Most importantly, they have to shift from being end-user software companies and morph into producers of consumer goods.

*In his latest book *The Invisible Computer*, Donald Norman digs into some of the fundamental problems with the computer industry. He starts with an interesting question: How many of you have bought a watch recently*

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OceanofPDF.com

Chapter Six

[6]

Speed

The Web is an amazing expression of

How fast is your Web site? Do pages load in 5 seconds? Ten? Do you even know?

hypermedia, personal storytelling, and the It doesn't matter how cool and exciting that animated logo is, no matter how interconnectedness of everyone on the planet. It's important it is to get that picture of the CEO on the front page, you'll lose more also an incredibly difficult place to make a living.

traffic to the principle of speed than any other. In this chapter, we'll look at ways to make our sites as fast as they possibly can be. We'll start by looking at just how fast your pages need to be, using techniques such as the Stopwatch Analysis, to peeking behind the scenes of your competition to see where they stand. Then, it's time to get your site into shape by scrubbing every last byte from your code, and—borrowing from the magician's practice of sleight of hand—dealing with the perception of speed versus the reality of slow-loading pages.

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If there's one thing you can count on in the Web industry, unexpected things happened: the Internet got very, very popular—it's the fictional future. Ask any

developer or designer ular. And this popularity didn't strike equally across our user what's coming next, and you're bound to hear, "Well, as base. Rather, millions and millions of people came online at soon as we have faster bandwidth..."

once, and all with low-end modems. When America Online, We've heard over and over again—from users, from pun-for example, upgraded their service to include a gateway to dits, and from the scientists in our usability labs—the number the Internet in 1995, they opened a floodgate of users who one plague facing today's Web is speed. Users are frustrated, had no other option than 14.4kbps modem connections.

especially those new to the surfing experience who have Suddenly, the numbers shifted. Now, the vast majority of absolutely no patience for cell after cell of our tables pouring users came to our sites with much slower connections. Our painfully into their browsers. If only the Web were faster.

experimentation into digital video over the Web suddenly Broadband is promised in press release after press release.

became far less interesting. In fact, almost all of our atten-So-and-so has just done a US\$20 billion deal to provide tion shifted to creating new Web interfaces that were as high-speed access to four homes in suburban Atlanta. Cable small and as fast as they possibly could be.

modems are being rolled out as we speak. Bandwidth!

The last couple of years have been better, sure, but in an Bandwidth! Bandwidth!

evolutionary sense. Modem users have more than doubled Fact is, we've been saying the same thing over and over their speeds on average, from 14.4kbps to 33.6kbps. But that again for the 5 years there has been a commercial Web. And, is it for modems. The technology has run its course. The cur-we'll probably keep saying this for at least 5 more years.

*rent maximum speed of 56kbps is quite literally the limit; they simply cannot be made to go faster. And 56kbps isn't quite **Connecting with the Past***

the reality at that. Due to FCC regulations, these modems can We've already discussed Moore's law, in which computer only really achieve a maximum speed of 53kbps, and most technology gets twice as fast and half as expensive in this homes have fairly bad wiring, forcing the upper limit at a pal-industry every 18 months. And while that certainly has try 40kbps. And broadband? Home usage as of this writing is held true for hardware, the same can't be said for connec-only about 6 percent in North America. We certainly haven't tion speeds. In fact, the Web got a lot slower before it start-had any paradigm-shattering leaps en mass to cable modems, ed speeding up. Way back in 1994, the audience coming to DSL, or any other fat-pipe solution to the home.

HotWired.com was split into three groups: a third on Want to know a dirty little secret? I've been surfing for 14.4kbps modems, a third in the 56kbps line/ISDN group, the past few years on a T3 digital leased line from my and another third coming to us on big industrial T1s.

offices. That's about as much bandwidth as anybody could Naturally, we assumed that users would consistently migrate possibly need. Pages load as if from my hard drive. Software to faster and faster connections as more companies upgrad-updates zip down seemingly instantly. MP3 files stream in ed their infrastructure, users ditched their modems, and real-time. And you know what? I never want the Web sites broadband became ubiquitous in homes around the world.

I visit to get any slower. Ever.

After all, if our computers were shooting from 100 mega-Think about using applications on your computer. If you hertz to 1 gigahertz in just a few years, think what connec-have a reasonably fast desktop machine, most functions tion speed would do.

happen in less than a second. Click “Print” and a dialog box comes up before you notice. Drag a file from one place upgrade to faster modems and dedicated connections, and to another and the icons on the screen respond in real time.

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We take this type of interaction for granted. That’s how engine or reserving airline tickets felt more like using a computers are supposed to work—they respond to our com-computer program and less like slogging through a muddy mands. If they don’t, something feels wrong. Did I crash?

network. The pages on those sites should pop up the instant Do I need more memory? Why isn’t anything happening?

I click, just like dialog boxes do on my PC.

The Web is a completely different experience, however.

You know what that means? That means it will be Sites—even those offering Web-based applications—creep years—many years—before we have both the bandwidth and along like an ancient mainframe. But what if using a search infrastructure to do any sort of “broadband” design on the Web. For the near future, we’ll be optimizing our Web sites, squeezing every last byte from our pages, and doing whatever we can to make our sites load as quickly as possible.

Thank goodness, I say.

Express Checkout—E-commerce Style

The Beauty of Being Slow

There has been no shortage of hype and

Customer support people are hard to find

If you've done any amount of design or development on the excitement over the possibility of redefin-and train. Warehouse management is an

Web, you're probably thinking I've lost my mind. Slow ing retail shopping through e-commerce.

acquired skill. And all of those attributes modems are a good thing? Lagging performance is a benefit The reality, however, has been a strange

show up in surveys of Web users who

to the Web?

mix of corporate efficiency and user dis-

have shopped online. But as the chart

Of course it is. Constraint propagates creativity. We're satisfaction. Why? It is true that many

below shows, the top grievance of the

all forced to struggle with the issue of performance on our e-commerce sites have been created by

majority of shoppers can be traced

Web sites, but it is that struggle that breeds perspective on relatively new companies. Order tracking

directly back to page design. If a site is the Web as a medium. I've seen designers face this over-and fulfillment is difficult to get right.

slow, shoppers give up.

whelming roadblock over and over again—with the same result: They do better work. Without a doubt, constraint breeds creativity. I've been amazed at what can be done **TOP CUSTOMER COMPLAINTS**

with two typefaces and colored table cells. You can do great Slow Web site work which virtually no bytes at all.

40%

Where to start? Look to your competition for guidance.

*You know who your audiences is, and you know what other **Out of stock notification***

*Web sites are vying for their attention as well. Do some **31%** analysis. See where the bar is. It's easy.*

*You can use a site like Web Site Garage (www.website-Late delivery garage.com) to get a this information. It, and others like it, **30%** provide powerful tools for analyzing your site, including reports on how your site appears in search engines, how **Can't track order***

*fresh the links are, and the total file size and download **25%** time of your pages. With a tool like this, you can track just how fast or slow your pages are. But it works just as well to This data, from a May 2000 report published by biztalk.com, measures customer point these sites at your competition. Find a few sites you satisfaction with online shopping during the previous year's holiday season. Forty percent of all shoppers were frustrated by long downloads while trying to complete their purchases. In a very plain sense, bandwidth equals money.*

TABLES



CHAIRS

**Dining Table****Price: 999 bytes** | [Add to shopping cart](#)

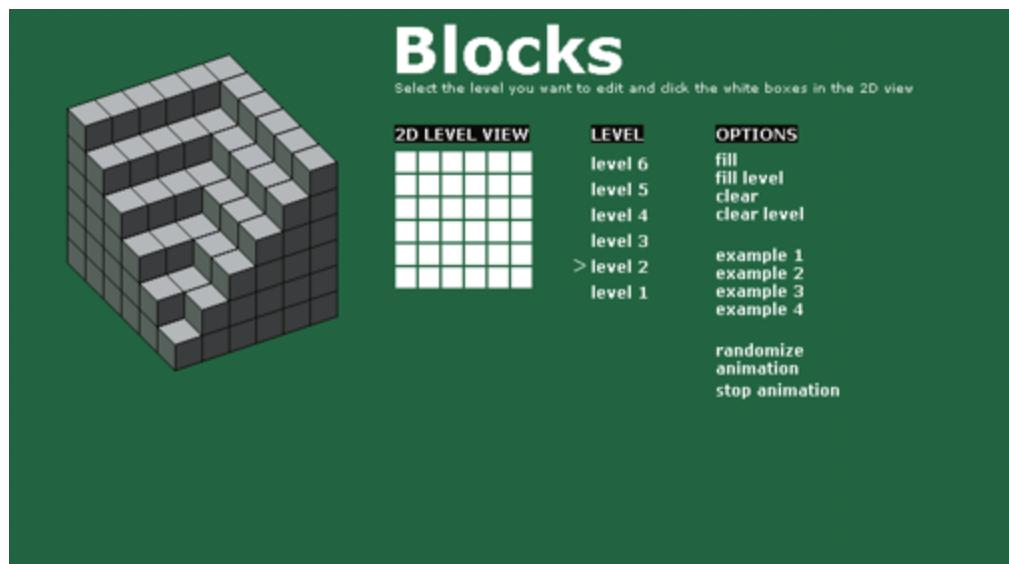
It's great for intimate, family dinners.

Impervious to rust, this Table is suitable for indoor and outdoor use.

Also available with 2 inch Vinyl Strap.

... ask Robust Scalable Internet Online Ecommerce Furnishings Outlet ...

Such as lies along the folded wings



The 5-Kilobyte Interface

consider competitors, dump their URLs in one of these utilities, and see how they stack up. For example, if I were Creating fast Web pages is a lesson in

HTML, script, image, style, and any

responsible for building a music site, I might collect the constraint. Stuffing all the features,

other associated files must collectively

URLs of my competition, run them through the tests, and brand identity, and other requirements

total less than 5 kilobytes in size and

create a chart like this:

into an interface that loads quickly can

be entirely self-contained.” The entries, be a frustrating experience at best.

and in particular the winners, were

COMPETITOR

SIZE

SPEED

Imagine, then, the nightmare of try-

remarkable. From e-commerce function-

(bytes)

(seconds)

ing to fit an entire Web site into an

ability to stunning visual design and even

unbelievable 5k. That was the goal of

playable video games, the contest

www.mp3.com

44,997

11.86

an innovative design contest held in the

proved that constraint breeds creativity, www.allmusic.com

80,380

23.14

spring of 1999, the brainchild of Stewart and that bandwidth can be a crutch.

Butterfield. The rules were simple: “All

Here are some of the winning entries.

music.yahoo.com

87,495

22.50

www.scour.com

165,361

46.41

www.wallofsound.com

97,261

26.62

This chart can serve as a target for my new interface.

Clearly, if I want to compete on a performance basis with The overall winner not only built an

Caching images goes a long way when

these sites, I'll need to build a home page that weighs in at e-commerce interface in under 5k, but playing with blocks.

somewhere around 95K—an average of the numbers above.

included a workable JavaScript shop-

With this exercise, I've set my goals for my home page. I ping cart with a running total. Form

should do similar studies for other key pages. How does my and function blended with a great

typical page of content match up? How about my search sense of humor.

results page? Different functional pages will have different size specifications.

But this is only a guide. I now need to adopt a strategy based on performance. I need to find a way to scrape every byte out of my pages, and make them as fast as I possibly can.

Lighter sites are not just faster for the user, they're easier on the infrastructure, the support team, and the wallet.

Cutting the Fat with CSS

ASCII art to the max, this entry used Remember the Atari 2600 home video

We've talked about the power of Cascading Stylesheets Dynamic HTML animation to create a

game system? This entry evoked memo-

elsewhere in this book, but I'm going to bring that technol-beautifully illustrated poem..

ries of early 1980s state of the art games ogy into this discussion as well.

with fully functional arcade action.

Genres

- [Rock](#)
- [Country](#)
- [Jazz](#)
- [Blues](#)
- [World](#)
- [Folk](#)
- [Bluegrass](#)
- [Rap](#)
- [Reggae](#)
- [Vocal](#)
- [Gospel/CCM](#)
- [Easy Listening](#)
- [New Age](#)

The flexibility of Web technologies is certainly one of the reasons for their success. If you've done any amount of developing with these technologies, you'll soon realize that there seldom is one solution to any problem. Rather, there are typically any number of ways to accomplish something on a Web page, with any equal number of reasons to choose one over another. We can use this elasticity of Web technologies to our advantage when it comes to making our pages faster.

Let's look at a simple interface component from the music site I was talking about earlier. Here, you can see a list of musical genres, designed as a bulleted list with a sub-A simple navigation element from a music site. Easy code ject header. The effect is a clean solution to the site's navi-changes can dramatically reduce the amount of code it takes gational needs.

to generate something as simple as this box.

Take a close look at the title bar of that box. Notice the thin border along the top? It's an elegant ornamental addi-

<TABLE width="100%" cellpadding=0 cellspacing=0 border=0> tion to the interface that helps define the box and give it a

<tr bgcolor="#666666">

certain amount of visual weight. But look at the code it

<td>

takes to design this title bar using just HTML:

**

</td>

</tr>

</TABLE>

<TABLE width="100%" cellpadding=2 cellspacing=0 border=0> **The Economies of Speed**

<tr bgcolor="#CCCCCC">

<td>

For large Web sites with lots of traffic, percent of the fat off the home page

* fast Web pages can mean more than
and you'll save the equivalent of a full*

Browse By Genre

just an effective user experience—it

T1 of bandwidth per day. An opera-

**

also translates directly into a signifi-

tions executive at one of the Web's

</td>

cant expense. A 100k home page may

larger sites once told me that each

</tr>

not sound like all that much band-

byte they included on their pages cost

</TABLE>

width to a company with huge digital

them 16 cents a year. Think about

lines, but when that page is accessed

that the next time you add so much as

Looking through each line of markup, you can see how a million times a day (which isn't

a linebreak to your code.

all of it is necessary. The first table draws the thin border.

uncommon on the bigger portals and

And it's not just the fact that heavily

The table is set to extend the full width of its container, e-commerce destinations), it quickly

used fat pipes are really expensive, but

which in this case is the overall table that lays out the page.

adds up. Look at the math. One mil-

so are server farms, systems administra-

The cellpadding, cellspacing and border are all turned off to lion multiplied by 100k means that just

tors, and network engineers. And you'll

make the table as small as possible. A table row starts next, for the home page, you'd need to

need more and more of them if you're move 1,000 gigabytes of data. Cut 20 running a heavy site with heavy traffic.

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and sets the background to dark gray. Then, a table cell is But the benefits don't stop there. I can take the CSS for filled with a single-pixel, transparent GIF image, because my title-bar class and put it in a separate document, then some browsers will collapse empty cells. I'd rather use a sim-point from my HTML page to my external stylesheet like this: ple space, but the font size, even at the smallest size, will create too much vertical space.

<link rel="stylesheet" type="text/css" href="music.css"> Next, a second table creates the actual title area. This time, the table is given 2 pixels of padding so the text con-Why would I want a whole separate document for my style?

tained within the cell doesn't bump right up against its edges.

Well, primarily because I can now point to it from all of my The row then gets a lighter shade of gray, and the cell is filled other Web pages. And since the stylesheet never changes, with the appropriate title words, and wrapped in a font tag the browser will just use the one from its cache. So once my that takes care of the rudimentary typography. Finally, all the users load one page on my site and get the CSS file, they tags are closed and the title bar is finally done.

can reuse it over and over again as they visit other pages. Now, compare all of this to a version designed using CSS: without incurring any additional downloads or using any more bandwidth. I get style for free!

<H3 class="title-bar">Browse by Genre</H3> Compared to the countless font tags and tables being downloaded over and over again in my old HTML version, Alright, I'll admit to cheating on this one. The HTML is this one is much faster and more efficient. But it doesn't incomplete without the following CSS, located elsewhere: end there. Every piece of code can be rewritten using elegant bits of style rather than blunt old presentation tags.

.title-bar {

Take, for example, the bullets in the navigation box we've font: bold .8em Arial, sans-serif;

been studying. See how they are a specific shape and shade border-top: solid 1px #666666;

of gray? Using HTML, this would be a luxury I'd probably background: #CCCCCC;

do without, considering the code I'd need to do this: padding: 2px; }

<table cellpadding=0 cellspacing=0 border=0> In this example, I've simply used a structural page ele-

<tr>

ment, in this case a heading, and given it a specific class of

<td>

"title-bar," Then, in my stylesheet, I define exactly how I'd

**

The first line of this CSS declaration does my typogra-

</td>

phy, like the font tag in the first example. Next, I ask the

<td>

browser to simply draw a border along the top of the ele-

* ment, effectively throwing away the
whole table plus the*

*Rock invisible image from before. Then, I set the
background and*

**

add the padding. Done. And, it looks identical to the bloat-

</td>

ed HTML version.

</tr>

</table>

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Again, a verbose table sets the stage for the effect I'm Now I can use the standard tag from HTML to gen-after. Instead of simply using the bulleted list available in erate the list, since I will get all the control I need. I still standard HTML with the tag, I opt for more control. I want to use my bullet image, but now I just specify it as the want control over the specifics of the bullet, and HTML

list-style-image in my CSS. This tells the browser to use a won't give it to me. So to get past that limitation, I use an regular bulleted list (formatted with my typographic specifi-image of the bullet I want. Nice and round and gray to cations, of course), but throw out the standard bullets and match my interface. I need to put this image into a separate use my image in their place. I could use anything for a bul-table cell since I want to control the wrapping of any list let now, and it wouldn't cost me any additional code.

items that may get too long. By placing both bullet and text As browsers get more powerful, designers will be able to in separate cells, I can avoid wraps that look like this: do more with less. Early in the Web's history, designers eager for visual control of their pages used images to

- *A list item some times can*

achieve these effects. In essence, they used bandwidth when get too long and wrap

under-powered browsers let them down. No font control?

No problem! Just send your users an image of your headline.

See how the text on the second line wraps under the bullet?

But we want to save bandwidth, not spend it on server con-That looks sloppy and is hard to read. Rather, I use the two nections to move pictures of words around. CSS lets design-cells to achieve a cleaner look:

ers send simple text with brief commands that accomplish the visual design goals while being incredibly fast.

- A list item some times can

And our pages can get even faster. There is a certain get too long and wrap

amount of magic involved here. Small pages can feel slow, while even the fattest pages can hold a user's attention, So much work for such a simple effect. And consider especially if you trick them into staying around.

*that the code above is only for the first element in a list of over a dozen genres, and we start talking about a lot of stuff **The Illusion of Speed***

to download. Switching back to CSS, we throw almost all There's a reason superstar magician David Copperfield fills of the markup away and are left with stripped down and his stage with scantily-clad women. It's not for the pure easy to read HTML:

entertainment value, although I'm certain that's got a bit to do with it. And it's obviously not because they're attracted

**

to the aging, bare-chested master of illusion. No, the answer

Rock is much simpler than that. These young sequin-clad women

**

are there for one reason—so David can trick you into looking at them rather than noticing the rather mundane And the following entry in the stylesheet: mechanics of performing sleight of hand.

It's one of the oldest tricks in the proverbial book: from UL {

street corner Three-Card Monte to the bump-and-pick font: .8em Arial, sans-serif;

techniques that relieve you of your wallet in the subway.

list-style-image: url(images/bullet.gif); }

Distraction leads to illusion. So why not use it to solve one of the most important problems facing Web designers today.

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David knows that the majority of his audience will be seconds tick by until suddenly, in an instant, the entire distracted by the sparkly women while he busily makes an interface blinks onto the screen at once. Ever wonder why elephant disappear from the stage. While you may not be that happens?

able to stomach the blatant sexism of Las Vegas shows, you Turns out that tables are a fairly difficult problem for can still exploit the effect on your pages—with a little work.

browsers. There is a lot of math that needs to happen The goal is to get the most important part of the page when you download a page. A table's cells are all sized on the screen as quickly as possibly, instantly giving your based on their contents, as well as the contents of other users something to look at while you go on to load the rest cells around them. To do this work, a browser needs to of the page.

know everything about the table before it can start to HTML has historically been a very linear language. You draw it on the screen. So it gets all the <TR> and <TD> started writing your page at the top, and continued to add tags, as well as all the stuff inside those tags, and then words, images, and code until you reached the bottom of tries to figure out the most appropriate size for every-your page. Browsers reacted much the same way, displaying thing. When it finally finishes all of those

calculations, it the content on the screen as quickly as the server sent it shows you the table.

down the wire. We've been bound to what's been called the The Three-Panel Layout, however, is typically structured flow model. Pages can only be formatted along with the flow as one large table. There will be a row across the top span-of the source code behind it.

ning the columns below, continuing brand identity and In the very early days of HTML this meant that Web advertising. A second cell will run down the length of the pages could have no columns or really any horizontal page for navigation. Finally, a large cell on the right will relationships between interface elements. Since the house the page's content. The code would look something browser was simply reading code and displaying it on like this:

screen, pages were, by default, long lists of things—be them navigation links, paragraphs, or images. There was

<table>

no way to arrange elements into a basic page layout.

<tr>

With the advent of tables in HTML, designers were at

<td colspan=2>

least able to add a basic sort of layout of these pages with

<!-- Branding and Advertising in this cell --> an admittedly primitive system of rows and columns. If

</td>

you were clever enough to figure out the intricate rows-

</tr>

pans, colspans, padding and spacing, you could achieve

<tr>

almost any layout.

<td>

Many of these table-based page designs are reminiscent

<!-- Navigation in this cell -->

of the Three-Panel Layout we discussed in Chapter Two,

</td>

“Interface Consistency.” But looking at that approach in

<td>

the context of performance, there are some basic problems

<!-- This is the big content cell --> we need to solve. How many times have you visited a Web

</td>

site only to be presented with a blank screen? You may

</tr>

notice that the browser’s status bar is telling you that it is

</table>

still working on getting the page. You sit and wait as the

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And the contents would show up in a browser window

<table>

looking like a simple, standard Web page.

<tr>

To create the specific layout effects, designers will

<td>

often create pages that also include nested tables—mean-

*<!-- Branding and Advertising in this cell --> ing they contain additional
tables*

</td>

within the overall structure. Nested

</tr>

tables slow the browser down even

</table>

more, forcing the software to figure

<table align=left>

out each of the inner layouts before

<tr>

it can draw the overall page. Think

<td><!-- Navigation in this cell --></td> about it—not only does the browser

</tr>

have to figure out what is in each

</table>

cell in a table, now it has to figure

<table align=right>

out a whole separate table before it

<tr>

can get back to the one on which it

<td><!-- This is the big content cell --></td> was working. Of course, this doesn't

</tr>

When a Three-Panel Layout is built with mean you shouldn't nest tables within

</table>

just one surrounding table, all of the each other when trying to lay out

code must be downloaded and

your pages. But consider rethinking

With this simple reworking of the code, the user experience processed before the page renders.

the design approach you're taking if

has been dramatically changed. The resulting code is now a you start approaching three levels

bit larger, and would actually take longer to download. But deep—a table within the cell of a table, which itself is rather than waiting for the whole page to pop up at once, within a table. That's a lot of work for a browser to do, users get to see something on their screens almost instantly.

and your users will notice the delay in rendering speed, if They hit the page, and the branding

not download time.

and advertising table at the top is there Thankfully, a simple addition to the <TABLE> element waiting for them as the navigation

way back in Netscape 2.0 provides a simple solution to this starts to load. Then, as the navigation

problem. Much like images, you can align tables to the left displays, the page content starts to

or right. This allows separate tables to be positioned next load. It's sleight of hand. “Here, look at to each other. So the Three-Panel Layout can throw away this while I do the rest of my trick...”

the surrounding table and create three separate tables for By paying special attention to the

the top, left and right. Then, by aligning the navigation progressive rendering of content, we

table to the left, the content table will nestle up next to it can create a sort of distraction for our

and create a page layout identical to the first version.

users as they wait for their slow connec-

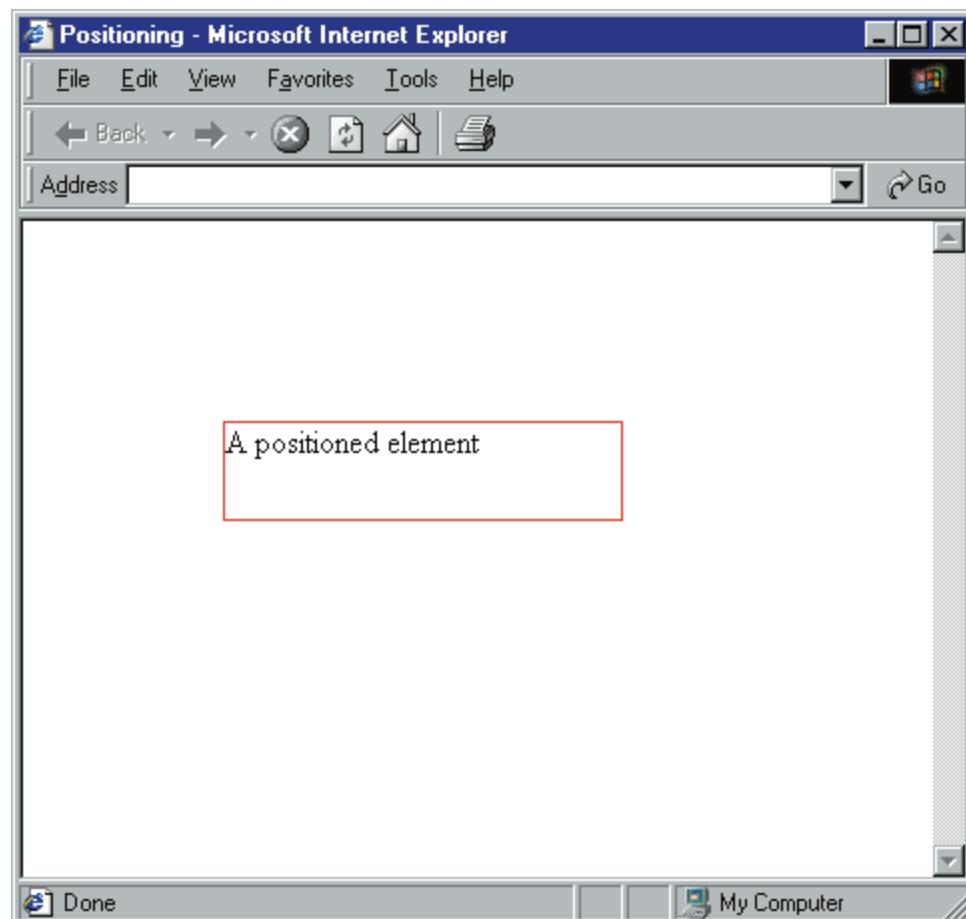
Identical, that is, except for the fact that each table gets tions to suck content down to their

drawn on the screen progressively. This new code would computers. But the example above is

Now, the page appears exactly the same now look like this:

still not ideal. Users of a site, after all, to users, but the experience of progres-are primarily interested in the content

sive loading is much more engaging.



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of that site—whether that content is news stories, search

< p style="position: absolute;
results, items to buy, or whatever. They clicked a link expect-top: 100px;
left: 100px; width: 100px; height: 100px; ing to be rewarded with either
something that would satisfy border: solid 1px red;">A positioned
element</p> their goal, or at least get them a bit closer. Yet the example
above actually seems to be working in reverse. Content is the Since we can
position elements exactly where we want goal, but it is the last thing to
show up on the page. Sure, my them, we can eliminate the aligned tables
from the previous audience now has something to look at while the rest of
the example and simply specify where each element should go.

page loads, but wouldn't it be great if they could look at what So, in our
code, we simply positioned the brand and search they wanted during those
first few moments?

interface at the top of the page, the advertising down the We found
ourselves in a similar situation when designing the Hotbot search engine's
results page. A results page has a lot of jobs to do. Not only must it provide
timely and accurate results to the user's query, but it must also offer a way
of iterating the search, as well as provide relevant advertising to help offset
the cost of providing a free service. Yet, the ultimate goal is to reward

the user as quickly as possible. How,

we asked, could we get the results on

the screen as quickly as possible, while

still maintaining the features and

strong product identity our users

expected from us?

The answer was surprisingly simple.

We solved the problem using a simple yet powerful feature of Cascading Stylesheets—namely the technology's ability to position elements on the page. Positioning was added as part of the second version of the CSS specification, and provides a way to do page layout much in the way desktop publishing programs like QuarkXPress and Adobe Page Maker do: by allowing you to draw a box on a document exactly where you want an item to be, then pouring content into it. The code below illustrates just how simple it is to tell the browser exactly where you'd like a When we designed the results page for the Hotbot search paragraph to be placed: engine, we used CSS positioning to alter the load order of the interface parts.

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righthand column, and the search results in the center area.

the content loads first, and the shell begins to pop in Here's the really interesting part: we put the positioned around it. The elephant appears out of nowhere while the results as the first thing in the page's source code. Now the user dancing girls dance.

experience is exactly what we were after. The page would There are drawbacks to this solution, of course. First off, shoot down to the user's browser and instantly display the this technique makes use of a technology only introduced search results in the right location on the page; then, the in the version 4.0 browsers. That means that your pages will branding and interface would appear above them. And be a jumbled mess when viewed in older browsers. The only finally, after the meat of the page was displayed on the real solution to this problem is to use a browser detection screen, the advertising would appear to the right.

strategy and build multiple versions—something I've dis-You can do the same with your pages. Think of each cussed in detail in Chapter Five, "Browsers." Still, for all element of the page as a discrete chunk of code. Take each the complaining we've been doing about the browsers' CSS

chunk and wrap it with some CSS that positions it exactly implementation, the positioning that I'm advocating here on the page. Now, rearrange each chunk in the source so works nearly perfectly in all major 4.0 browser releases.

that it loads in the order that makes the most sense to your Another stumbling block may be the actual layout of user. The browser is still displaying code in the order it your pages. Sometimes, to get the effect we need from a loads, but the loading order has be changed because you Web-based layout, we resort to such intricate HTML

can position the elements. The user experience is perfect—

hacks that tearing apart our pages just to glue them back together with CSS just isn't a reality. For situations where it does work through, we can start to be creative in our design and give the illusion, at least, that the Web is a lot faster than it actually is.

Speed Metrics

Only after a rigorous study of how your users perceive your site can you be certain it is fast enough.

Part of the problem with fixing slow

theoretical number at best. Rather, a

Web sites is first figuring out how to

more appropriate indicator would be the

Designing for Slow

measure just how fast they are. Total

total number of seconds between a click

When bandwidth isn't an issue, when interfaces have no file size is a good start. If you can get on a link to the user's perception of

constraint, developers and designers lose track of the power your pages within a physical range of

seeing information on the page. And the

of simplicity. Look back at the world of CD-ROM design a kilobytes, you'll be on the way to a

only way to get to that data is with a

few years ago to see what I mean. Every user experience was faster interface. But kilobytes shouldn't stop watch and a modem connection.

different, every cursor was animated, it was a sea of full-be the only measure of performance.

Even better, consider mapping out a

screen color blends, drop shadows, and cyber-looking Especially considering the perception

few user tasks. Pick things appropriate

beveled edges—a mess.

issues I've discussed in this chapter.

to your site, like “completing the regis-

Rather, embrace the constraint of slow connections. Fear The ultimate goal of any perform-tration process” or “finding a song by

big bandwidth. Learn to love the modem.

ance strategy is to keep the users of a

your favorite artist to download.” Then,

site engaged throughout their visit. For

measure in seconds the entire session,

that reason, time may be a better metric

from typing in the URL to finishing the

than size. And by time, I don't just

task. Do this with several users and find mean the math of modem speed divid-an average. Then try to make it faster.

ed by total kilobytes—that will be a

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OceanofPDF.com

Chapter Seven

[7]

Advertising

When bandwidth isn't an issue, when interfaces With ad rates dropping at an alarming pace, and banner clickthrough falling have no constraint, developers and designers even faster, both advertisers and site designers are trying everything they possibly loose track of the power of simplicity.

can to get the hapless user away from his task at hand and into a commercial message. From stretching stories across multiple pages to increase pageviews to ad banners that mimic dialog boxes desperate for clicks, there is a harsh tension between usability and revenue. Does it have to be this way? The Web differs from other media in many ways, but its ability to collect detailed user information and target that data is one way in which we can align the goals of both user and advertiser. This chapter will look at these strategies for making advertising actually compliment a user interface, and we'll explore the practice of building User Profiles—a technique that can apply not only to advertising effectiveness, but to building meaningful sites from a strong publishing strategy as well.

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“You, sir, are an idiot.”

ference. On the Web, advertisers can tell if it's working and, Always a nice way to start the day; but I'm used to it more importantly, when it's not.

now. Those e-mails generally continue with something like, Historically, the metrics of advertising have been struc-

“For someone who claims to know a little about the Web, tured as “impressions” versus “performance.” An easier way you certainly don’t use that knowledge on your dreadful to think of this is how often a particular ad was viewed sites. What were you thinking?”

compared to how often the person viewing it acted in a I can understand the frustration. These flames always measurable way. In the television industry, Nielsen ratings come from the same sort of person—logical, degreed, tech-were compared to sales of a product or calls to a toll-free nologically savvy. They literally cannot understand why number. Print-based messages held up circulation numbers we’ve chosen to make our Web pages less usable just for the to other, simple measures of reader response. The Web, sake of a crummy ad banner. “What were you thinking?”

once again, changes everything.

The Web is amazing. It’s a wonderful expression of hyper-Our Web servers do a great job of spitting out every media, personal storytelling, and the interconnectedness of painful detail of every thing they do. This means we don’t everyone on the planet. It’s also an incredibly difficult place have to rely on the guesswork of other media to see how to make a living. With razor-sharp margins on e-commerce our products are doing. A magazine, for example, may goods, plummeting ad banner performance, and an increas-offer two numbers to their advertisers: the literal number ingly jaded and impatient audience, it’s a wonder anyone of subscriptions, plus a guess at the total reach, or how can make ends meet with a Web business model.

many times each copy is passed along to others to read.

Doing business on the Web—the ability to turn traffic No need for that on the Web. We know exactly who into money—is affecting the very nature of how we design surfed our site and when, with what browser at what Web

pages. And for better or worse, it's happening all address, and exactly what they looked at and for how long.

around us.

We can also tell precisely which advertisements they saw, and which ones they clicked.

Eyeballs = Money

Imagine, for a moment, if television advertisers could The model has been a pretty simple one. For the few tell when you changed the channel during commercial years that the Web has attempted to support a significant breaks, or when you hit the mute button, or got up to get a audience, people have been trying to fund it (and them-snack. Guess what would happen if they could get those sta-selves) through a simple audience-publisher agreement tistics for every household with a television set. The model that goes something like this: We'll give you our goods would collapse. Advertisers would obsess over the massive and services at no cost whatsoever, you look at banner ads decrease in reach. They would petition television manufac-and click on the interesting ones. The publishers pass tures to stop including remote controls with their units.

production costs on to advertisers while users pay per They would do absolutely anything to make you stay glued click, absorbing brand messages in addition to the con-to the set.

tent they came to see.

Obviously, this is playing out today on the Web. The Simple, right? Actually, it is. Advertising has always total number of online advertising impressions is skyrocket-worked this way, whether in a newspaper, roadside bill-ing. There is more Web traffic today than there ever has board, or 30-second television spot. But there's a simple dif-been; AOL and Yahoo page views per day only scratch the surface of the possible inventory a Web advertiser has to

The screenshot shows a web page from ZDNet's AnchorDesk. At the top, there's a banner for "Get Your Free Daily Horoscope!" with fields for "Enter Your Birthday" and "Get My Horoscope!". Below this is the "ANCHORDESK" logo with the tagline "Your source for tech intelligence". On the left sidebar, there's a "BERST IMPRESSIONS" section with links like "AnchorDesk", "Search", "Talk Back", "Company Products", "Briefing Centers", "Get MAD!", "Don't Go There", "Help?", and "Home". Another sidebar on the left lists "Visit ZDNet" links for "Downloads", "News", "Products", "Help Channel", and "NetBuyer". The main content area features a photo of Jesse Berst with the headline "Berst Alert MONDAY, NOVEMBER 30, 1998 Kiss Your Sweet PC Good-Bye". It includes a quote from Jesse Berst and several interactive icons for sharing the story. A "NEXT STORY" link is at the top right. A "RDB JKD ACROMANIA" link is also present.

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choose from. But the news isn't all good. Yield—a statistic turn, can undercut advertising rates. We're left with a derived from the number of impressions divided by the vicious circle that cuts into the price sites can charge for number of clicks to ad units—is falling dramatically.

their advertising. The rest of the Web, and the bulk of the commercial sites, must somehow increase traffic in order to stay alive.

UNIQUE VISITORS PER MONTH

Getting more people to come to your site is expensive, as is getting them to come more often. So how can you AOL Network

60,988,000

*increase traffic? Change your interface. Give them plenty to click on and make them do it. Stretch out your content **Yahoo!***

52,679,000

*over multiple pages. The “Click Here for More” syndrome is running wild across Web interfaces, not because it’s easier **Microsoft Sites***

51,425,000

for users but because it generates more page views, thereby showing more ads. It’s ease of use versus revenue. It’s a tenuous balance.

Lycos

30,780,000

*But don’t forget about yield—that magical number of banner impressions versus clicks. You can triple your page **Excite Network***

26,958,000

views, but if you don’t skim enough of those users off the top and send them to your advertisers, you still won’t be success-Traffic is consolidating across the Web’s largest sites, causing a decrease in adver-ful. Since the creative control of ad

tising prices. As ad revenue drops, interface designs will need to be more creative messages resides with the advertisers

when balancing audience and sponsors. These numbers are from MediaMetrix.com’s and not you, it means your interface

September 2000 report.

once again must be sacrificed. Now,

instead of constructing a visual hierar-

Why is this? Two reasons: Traffic is a commodity, and chy on the page that makes sense to

the ads themselves are just so bad.

the overall architecture of your site,

you must interrupt the flow as often as

“We Interrupt This Message...”

you can with commercial messages.

So that’s the state of the Web: Impressions are going up; Here’s a classic example. Surfing

I’m looking for computer-related commen-yield is going down. The result? Advertising rates are drop-through an otherwise wonderful site, I

tary, but ZDNet wants me to check my

ping (because there’s so much traffic to the big sites) while was struck by the absurdity of untarget-horoscope. Is it any wonder advertising advertisers—still interested in the Web as a vehicle for ed advertising. I came to the page

effectiveness is decreasing on the Web?

brand promotion—are becoming increasingly unsatisfied shown above, an interesting commen-with the keenly measured results of their campaigns. A very tary on the future of the general-purpose personal computer.

bad situation for those of us making a living turning traffic The advertisement, however, implored me to divert from my into dollars.

intended purpose and instead “Get my Horoscope!” Couple You can see Web sites responding everywhere you look.

this with the fact that the ad sports a frustratingly deceptive While traffic may be increasing, it's generally going to the interface—the text box and submit button are part of the massive portal sites like Yahoo, Excite, or Lycos, who, in

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The Art & Science of Web Design Chapter Seven - Advertising

image, and trick users into thinking they can act, when in Know what else? Click-through rates mean nothing.

fact they merely click through to the site.

In user testing, I've seen subjects fall for these deceptive My particular affinity for astrology notwithstanding, it banners again and again. They'll come to our search inter-was immediately apparent to me how easily it was for an ad face, type a query, and are presented with a "dialog box"

banner like this to fail. Distracting and annoying design, that tells them their "Internet connection isn't optimized,"

false interactivity based on deception, and completely inap-or some such nonsense, and then an "enhancement" is sup-propriate targeting: It's no wonder advertising on the Web posedly downloaded. Users go for the Cancel button, but it is proving less and less effective with junk like this proving sends them to the company's homepage. They are confused to be the norm rather than the exception.

and disoriented. They scan the page and suddenly realize what has happened. And then they immediately hit the

"Click Here, You Idiot"

Back button, often with a few choice words about the com-Most of us are often annoyed by advertising. Whether driv-pany. Is this the user experience the advertiser was after? Is ing in our cars with the radio on or trying to get through this what click through is meant to represent?

the last two minutes of a football game, there comes a point Advertising should entice, not deceive. Good advertis-when we've had enough. But commercial messages are as ing is valuable to a targeted audience, and great advertising inevitable as death and taxes.

builds a relationship between customer and client.

The same holds true for advertising on the Web, of Personally, I try not to start relationships with lies.

*course. If our industry's tenuous business models are any proof, reliance on advertising is something that won't be **The Medium Is the (Commercial) Message** disappearing any time soon. So it's not surprising that some Television advertising works so well because it exploits the online advertisers are becoming dismayed with the ever-powerful aesthetics of the medium. TV ads tell us stories; decreasing performance of their banners. We, as users, see they are 30-second narratives that evoke emotion and so many ads that we simply ignore them. And that's not draw us in. Print ads, likewise, succeed by taking advan-something advertisers can afford.*

tage of the information density allowed by that particular Therefore, some advertisers will go to any means neces-technology. So why are Web ads trying so hard to be what sary to get your attention. In fact, some will go as far as they aren't?

deception to gain your click.

How many Web ads have you seen that try to emulate Some advertisers I've spoken with say that consultants the emotion of television, or the depth of print? And how and agencies recommend banners that mimic operating sys-many of those are successful? Few attempts at providing an tem interfaces, because these ads increase clickthrough experience within the constraints

of the banner have even yield. So advertisers blindly submit ads that look like dialog come close.

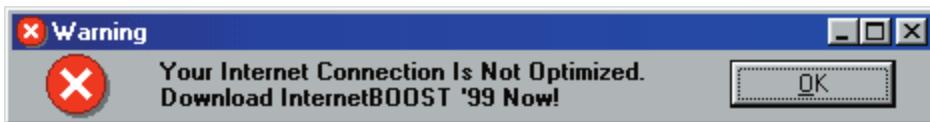
boxes or download-progress indicators, aiming to trick people. Rather, Web ads need to exploit the very things that people into clicking through to their sites.

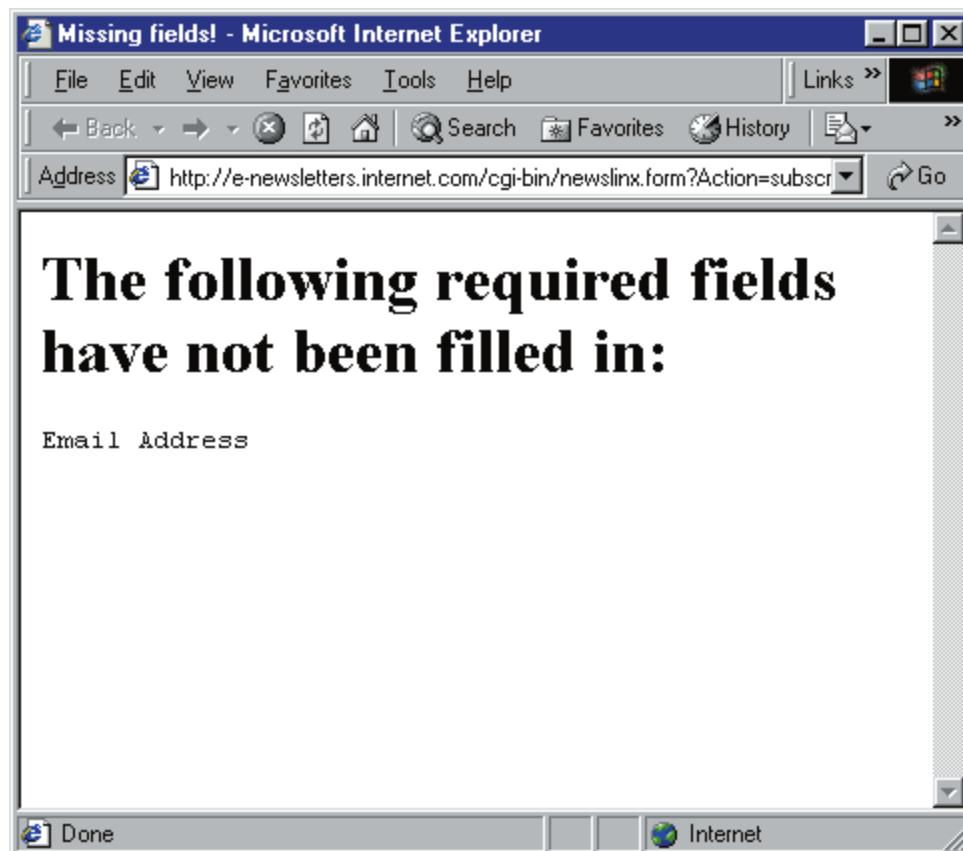
make the Web so interesting. We've already seen how the Know what? In fact, they do work.

accountability of the Web has made advertisers nervous.

I've consistently seen clickthroughs on banners like this. But why aren't they leveraging that massive amount of double or even triple the average yield across our sites. And behind-the-scene data? Ad targeting may be common today, the cycle perpetuates: Agencies continue to promote ads like but it's only in its infancy, and certainly it is not being this to their clients because the numbers prove they work.

exploited by the advertisers complaining the loudest.





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The Ad Banner Hall of Shame

It is an unfortunate fact that short-sight-trick users into thinking something is

ed advertisers continue to pollute Web

being downloaded to their computer,

*sites with banners designed to confuse
causing unsuspecting users to panic into
and deceive users. Below are a collec-
clicking the offending material away.
tion of some of the worse offenders.*

*Ironically, some of these screenshots
These banners have been designed*

*were taken from a Macintosh. Not only
explicitly to mimic computer operating
do these banners attempt to deceive,*

*system interface elements like dialog
but they also manage to offend users
boxes and search forms. The goal, of
by not even bothering to offer them an*

*Of course, not every banner with an
ple, ran a series of advertisements offer-course, is to trick unsuspecting
users*

*experience appropriate to their operat-
interface is deceptive. Some honestly try ing Linux aficionados the ability to
sign into clicking. Some provide a false
ing system. Why so many advertisers*

to provide a useful service within the up for a free newsletter without ever search interface that users will mistake attempt to fool new customers into their narrow constraints of a Web-based leaving the site they were visiting.

for site functionality, other banners tell sites is a mystery. And considering the advertisement. LinuxCentral, for example, something bad is about to happen. usability nightmare these nonsensical pen, and offer a “cancel” button that banners create, we can only hope this is navigates the poor visitor to the advertiser’s temporary fad.

tiser’s Web site. Some use animation to However, it’s important to remember that even advertisements have usability standards. In the LinuxCentral case, for example, failing to actually type an

address into the banner before submitting results in a less-than-elegant error message. The point remains: Advertising

is often the beginning of a relationship with a new customer. First impressions are everything.

YAHOO! Personalize [Help - Check Email](#)

Search Result Found 6 categories and 567 sites for free email

Send and get email  YAHOO! Mail from anywhere on earth.

[Categories](#) [Web Sites](#) [Web Pages](#) [Related News](#) [Net Events](#)

Inside Yahoo! Matches

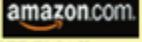
 Email: [Get your own free Yahoo! Email address](#)

Yahoo! Category Matches (1 - 6 of 6)

Business and Economy > Business to Business > Communications and Networking > Internet and World Wide Web > **Email Providers**

• [Free Email](#)

Regional > Countries > India > Business and Economy > Business to Business > Communications and

Search Books! 
[amazon.com.](#)
· [FREE EMAIL](#)
· [Buy Books Here](#)
· [Search Amazon!](#)

The screenshot shows the Excite search interface. At the top, there's a logo with three red exclamation marks above the word "excite". To its right is a "Search" button. Further right are links for "Personalize | Check Email" and "Excite Home". A dropdown menu is open, showing "Excite Home" as the selected option. Next to it is a "Go!" button.

The main search bar contains the query "free email". Below it is a "Search Again" button and links for "Help" and "More Search".

A section titled "Select words to add to your search..." lists several terms with checkboxes: bulk, quill, rocketmail, gospelcom, etn, mailcity, sent, ext, mailings, and listname.

Below this is a yellow banner with the text "Try Audio/Video Search: Simpsons | NSync | Britney Spears | Wrestling | The Matrix".

Underneath the banner is a large red advertisement for "GET A PRICE" from autoweb.com. It features a dropdown menu with options like Acura, Audi, and BMW, and buttons for "Submit" and "Cancel". Below the ad is the tagline "Everything For Autos On The Web".

The search results are displayed in a grid with three columns: "Directory", "Web Results", and "News Articles".

In the "Web Results" column, there's a link to "People & Chat: Chat Rooms: Free Email". A bulleted list follows: "• Recommended Web sites and Excite resources about Free Email".

In the "News Articles" column, there's a box for "Amazon.com" with a "Search for: free_email" input field.

At the bottom left, there's a small "View Details" link.

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There's no excuse for untargeted advertising on the Web page on the shoulder telling me how wonderful the new today. There's no reason I should encounter a solicitation to Toyotas are. Six months later, when buying a car, the ad check my horoscope from a banner on a site offering com-pops into my mind. Can you measure the effectiveness of memory on the future of computing.

the billboard? Doubt it. But you can see why traditional advertisers are befuddled by the lack of response by Web users to their traditional approaches.

Even though I explicitly tell the search engine I'm after free email, the site responds with an advertisement for a car. A wasted ad impression.

Asking another search engine for free e-mail, I get the Do a simple search on any major search engine—try “free response I’m after. It’s no wonder well-targeted advertising e-mail”—and see how the advertising responds. When I can increase yield by an order of magnitude.

tried this on two competing sites, the results almost magically proved this point. I took a screenshot, above, of the first So I tried my “free e-mail” query on another search site I tried. Searching for “free e-mail,” I found that the engine. This time, along with similarly appropriate result results weren’t too bad, although you’ll notice that none of listings, I was presented with the simple, animated message, the results show up on my screen without scrolling. The pictured above. “Send and receive e-mail from anywhere on advertisement in this layout is the center of importance: Earth.” Yes, Yahoo is advertising their own product. But placed dead center on the screen with no distractions near why not? The match is exactly what I’m after.

*it, and surrounded by plenty of whitespace. But then the inconsistency hits. Why would the most prominent part of **Getting Personal***

this interface, obviously designed to help me find resources So if targeted advertising works better, why don’t more sites for free e-mail on the Web (since that’s what I asked for), use it. We’ve already discussed the difficulty small sites have lead me to searching for the price of a car?

in generating revenue from their respectively little traffic. If The only possible corollary to an advertising strategy targeting ads proved twice, three times, or even an order of like this in real-world advertising would be the highway magnitude more effective, then they could charge an approachable billboard. While I’m busy driving to the store, I notice significantly scaled rate for these ads. Small traffic, plus a perfect

The Art & Science of Web Design Chapter Seven - Advertising 203

audience may actually keep the smaller sites (and the bigger

• Historical. As users come back to your site, you ones, for that matter) alive and well. Is it really that hard to remember what they did the last time they start matching a commercial message with a willing audience?

were there, and make it easier to do that.

Of course not. Magazine publishers have long been able to target specific demographics and attract specialized Environmental Issues

advertisers eager to reach those eyeballs. Even television, Every time you type a URL into your browser or click on a especially with the explosion of cable and satellite chan-link, you're acting as a matchmaker. In essence, your telling nels, has been able to find higher-value niche audiences.

your browser—the client—to politely introduce itself to a However, the Web excels at this. Even though surfing particular Web site—the server—and start an intimate con—the Web is a fairly anonymous activity, there is a distinct versation. Information is passed back and forth between the trail of bread crumbs following each user of each site out two until they strike up a friendship, form a relationship, there. Add to that the capability to meld that data with a shake hands, and a page appears on your screen. Think this wealth of past data plus any and every bit of information analogy doesn't really apply? See it all the way to its logical given explicitly by users, and even the smallest Web sites conclusion: uninstalling Internet Explorer from Windows is can provide appropriately functional commercial messages.

not at all unlike a messy divorce. But I digress...

The trick is to know what data you can get, and how to Let's look at what is really happening as you surf the do it.

Web. And, more importantly, what that has to do with this Use your imagination again, and picture in your mind a advertising effectiveness we've been talking about.

big spreadsheet—like a new document in Excel. The rows Since the Web is, as we've seen, basically a collection of of this spreadsheet have names in them. These are the users standards and protocols, it's not surprising that the way data of your Web site. All of them are listed individually down is sent back and forth is done so in a consistent and effi-the first column of your table. Now picture columns across cient way. It's called the Hypertext Transfer Protocol and is the top, each labeled with a different thing that we either shortened to HTTP, which you probably recognize from the know or can figure out about a each user. One might be Web addresses you see over and over again during your labeled “browser version,” another “zip code,” maybe even online travels.

“online stock trader?”

HTTP is just a simple method for sharing information For each of your users you're building a profile. By build-between servers and browsers on the Web. For this discusing this profile, you can provide services that are created for sion, we're not particularly interested in how it really works.

each individual user, not the least of which is advertising There are plenty of specifications and technical documenta-that they actually find useful. Let's take a look at three dif-tion that describes various jargon-filled network voodoo.

ferent types of profiles in use on Web sites today: For us, the really interesting part is what gets passed back and forth.

- **Environmental.** Your site can and should make deci-Getting back to our original introduction analogy, when sions about what to show your audience based on your users first point their browsers at a server, a network what the browsers and servers know about each other.

connection is established. Almost instantly, the browser

- **Preferential.** Users like to customized their surfing tells that server all about itself—it broadcasts what we'll call experience. What they tell you is critical... if the user environment. First of all, it needs to tell the server you're listening.

where it is, via IP address, so it can send the requested page

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to the appropriate place. But there's more to it than that.

Understanding Cookies

The browser identifies itself, sending not only its particular brand name (Netscape Navigator, for example), but also It's funny how something that sounds so

of your privacy; that they allow

which version (4.05), and which operating system it's run-tame can cause so much controversy.

unscrupulous Web servers to wander ad

ning on (Win98). Suddenly, the server—or more impor-But that's exactly the case with the

hoc through the private data on your

tantly, you as developers and designers—know exactly what often-misunderstood HTTP Cookie. The computer. This is false, of course.

software your audience is using to visit your site, and where cookie is simply a little chunk of infor-Cookies can only be read by the sites

exactly they're coming from. Is this starting to sound famil-mation stored on your computer by a

that wrote them, and there is no other

iar? This is the exact process we used in Chapter Four, server when you visit a site. For exam-possible access to information stored on

“Behavior” to determine the screen resolution for sizing ple, when you visit a site that requires

your machine.

headlines. It's also how I suggested building appropriate that you enter a name and password for

The second, more imposing fear,

interfaces for different users in Chapter Five, “Browsers.”

access (like a Web-based e-mail service), comes from large advertising services like You can start to fill in the little boxes in your spread-you'll often see an option to “Remember

the DoubleClick Network. DoubleClick is a sheet for this user. You can look up her IP address, find out me in the future.” Clicking that option

service that allows Web sites to include

that she is surfing from a Fortune 500 company, and put a allows you to skip the login process in

advertising banners without having to

check in that box. You can tell she is using the latest ver-the future. Behind the scenes, the Web

manage the scheduling, serving, and

sion of her browser, and if she is coming to your from the server sets a cookie in your browser,

reporting. For the sites, it's a big

ever-popular Windows operating system. No need to pitch which is then saved on your computer.

win—they can simply outsource all of that Macintosh hardware in the ad banner, but considering their In that cookie might be a unique identi-work by including ads from DoubleClick's

employer, a special offer on business travel may just get that fier for you, so that when you return to

servers in their pages. The trouble comes click. The amount of information that passes between the the site, the server can ask for the cook-from the fact that DoubleClick can then

browser and server can be amazingly deep. More little boxes ie, look up your ID, and log you in. In

set a cookie when you visit a site. Say

to fill in with more interesting statistics about each and the real world, it's very much like leaving you visit a sports site, then a financial every member of your audience.

your car with a valet. You give him your

site, then a software download site. If all It gets really interesting, though. when they start coming keys, he gives you a ticket. That ticket, three sites are DoubleClick users (and

back on a regular basis.

like a cookie, allows you to get your car increasingly, they are), then DoubleClick back when you return. It identifies you

can tell what sites you've been to, and

Building History

and gives you access to your valuables,

what you've looked at. DoubleClick, then,

"Good morning!" says the woman behind the counter at while not associating you with any per-can build profiles of you across all the the café as a wave of recognition sweeps across her face.

sonal information.

surfing you do. And this rightly freaks

"How was your trip to New York?" She reaches for my usual The controversy surrounding cookies

people out.

variety of caffeine and rings up the total all the while I'm has two sources. The first is the mis-Just don't blame the cookies...

blabbering on about this hip little Mexican restaurant in guided fear that cookies are an invasion

the West Village.

Now that's service, and it is the obvious sort of relationship that builds a strong business over time (and one of the reasons San Francisco residents so adamantly fight off national chains in their neighborhoods).

Netscape

Search WebMail My Netscape Help Chat Help Download

Lexmark color printer... just \$29! [click here!](#)

Home My Netscape Saturday - September 2, 2000 - 4:10 PM (EDT) Help Sign In

Welcome! I have already customized my page. Find It Personalize Make This My Homepage Need help? Try the FAQ

Stocks [GAMMA PRICE CHANGES](#) [My Portfolio](#)

Q&A	11,298.70	+27.40
Bearish	4,226.33	+27.40
Sell	1,500.17	+27.40
Buy	517.75	+27.40

Portfolio Total: **Quote** # Symbol C Name Quotes delayed 20 mins * Indicates Hi or Lo movement Disclaimer

Sports [TODAY](#) [Major League Baseball](#)

4:35 PM	Minnesota W	1	2nd
Minnesota W	NY Yankees	1	Q2

NCAA Division I Football

1:00 PM	Texas A&M W	1	3rd
Minnesota W	Boise State	1	Q2

YESTERDAY [Major League Baseball](#)

4:35 PM	Minnesota W	2	E
NY Yankees	2	E	

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Market News by CBS MarketWatch [Market News](#) (September 2, 3:45 PM)

- Another broad rally on Wall Street
- Due Diligence: Harley just keeps on rolling
- Job market slows again in August

Headline News [Top News](#) (Sep. 2 2000 3:35PM) by Reuters

- Jewish Groups Protest Plus IV Beautification
- Republican Governor Lauds Bush's Education Efforts
- U.S. Bus Maker Issues Warning on Brakes

Offbeat News (Sep. 1 2000 10:02AM) by Reuters

- Vince And Ghoos Run Amok
- Young Pistorius Is a Multi
- A Soccer Star?

Entertainment (Sep. 2 2000 2:26PM) by AP

- Scobieberg Imposter May Be Deported
- Andy Williams To Begin New Tour
- Jerry Lewis Remarks

Tech News by CNET [Tech News](#) (September 2, 3:32PM)

- Bloomberg Internet Wins sued over Emails
- The week in review: Intel hits a speed bump
- Discrimination suit against Kozmo thrown out

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Aries You will welcome a renewed drive and ambition today. Your ideas may require direct and immediate action. Be willing to fight for what you want, even if it means competing with another person. You'll do well in any conversation or presentation of ideas. The problem is that you don't want to make waves. If you think a partner or mate is somewhat unreliable or lacking in drive, you may be right. Keep an eye on joint expenses. Copyright 2000, Jeannie Avery for AstroNet, Women.com Networks, LLC

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So why, after visiting the same dozen Web sites day after and feel a sense of ownership. Naturally, it's a wonderful day, do none of them show a similar

interest in my tastes way to get people to invest in your site and build that reten-and interests? Wouldn't it be a Really Smart Thing for them tion so critical in building a traffic base necessary for success to shape and mold themselves progressively as I visit over in the cutthroat business environment

and over again? Well, yes and no.

that we've been talking about. This is

We'll take the "no" part first, which essentially boils preferential profiling: building a relation-down to the fact that it can be really hard to do.

ship with your users based on what

Your Web site will have a lot of users: maybe thousands, they've previously told you.

maybe millions. They all visit you with one goal in mind.

MyNetscape, for example, asked me

What is that goal? Who knows! They're all different and for my zip code when I customized the

they all want some elusive thing from you. If you can keep weather module in their interface.

your Web site simple enough that there's really no choice, Netscape now knows where I live, and

then you're probably off the hook. If not, there's probably can target advertising to my region.

some work you could do here. Think of the difference Add to that, preferences like birth

between a site that simply offers a picture from a camera date for horoscopes, my financial port-pointed at a fish tank versus a highway traffic site with folio, what sports teams I follow, and

dozens of cameras pointed at dozens of roads. You come to what TV channels I'd like listings for,

look at the fish and it's fun and strangely compelling—you and you've got a pretty detailed view

can start to see a lack of geography in the Web and begin to of what advertising will appeal to me.

understand the meaning of interconnected diversity. But But there is something deeper you

that's it. You look, you're amused, you leave. The traffic site can do, often overlooked by those bar-embodies many of those same feelings, but also accomplish-relying ahead to build a customized ver-

es something the Web is exceptionally good at: providing sion of their site. At first glance, it

crucially useful information at the exact time you need it.

may seem like a creepy sort of Big

In other words, it provides appropriate functionality to a Brother approach. I'll call this method

hungry audience.

historical profiling—tracking and But here's our simple theory at work. Every time you hit remembering what a user has done in

the traffic site, you have to follow the same click-through the past and using that to make discuss-path to the particular views you want. Wouldn't it be won-sions about what to do in the future.

derful if you could simply tell the stupid site which views Good e-commerce sites, for example,

you're interested in, have that site remember all of them, will use a customer's past purchasing

then let you return every day for an instant view of just how history to promote merchandise on

MyNetscape is a good example of pref-

dreadful your commute will be?

future visits. A quick look at

erential profiling. Users can customize Well, of course. And this particular strategy has been Amazon.com's home page shows this

virtually anything here, from the color to used ad nauseam across the Web, always designated with theory in practice. My Amazon home

layout to specific details about the con-the prefix "My:" My Travel Agent, My Music Store, My page will be very different from yours,

tent. The result is a tailored Web experi-Financial Portfolio, My Huge Boring Portal. It works.

even though I've not explicitly told

ence for the user, and a detailed under-People love to customize a page, tweak the layout and color, them about my interests. I've simply

standing of the audience for the site.

MAPBLAST!
Everyone needs a little direction in life

Choose your category at
www.mobilecrier.com

Click Here **mobile CRIER**

Save your favorite maps! Already a member? User Name: Password: GO! Find and book **MAPBLAST!** Lodging **PLACES TO STAY**

Maps Directions Yellow Pages GeoSearch BETA Pocket MapBlast! My MapBlast!

Location: Address History

Country: United States Street Address (optional) City, State or Zip Code: 1600 Pacific Ave San Francisco, CA 94109-2518

Airport City: - US Airport Codes - Airport Code:

Show these places on my map:

Food: Domino's Pizza KFC Pizza Hut Taco Bell

Peets Coffee and Tea:

Travel Center
Business Center
REAL ESTATE CENTER
Get \$10.00 Cash Back NOW! FREE with MAPBLAST! Travel Values Plus

1600 Pacific Ave
San Francisco, CA 94109-2518

Weather in Oakland, CA: 64° F Clear
Lat: 37.79535 Lon: -122.420717

Click on brand icon above to display detailed location information.

Click map to move: Map Icon Both Identify Brand

The global economy searches here.

FT.com
FINANCIAL TIMES

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Shopping Services

- Buy or redeem a gift certificate.
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Sell books, music, videos, and more from your Web site. [Start earning today!](#)

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New for You
Jeffrey Veen, here's what's **New For You.**
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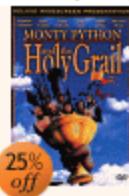
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Quick Picks

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purchased enough books and music

as a comprehensive reference, but within that context is a from them to allow them to infer my

business model that users of the book can respect and appre-taste. Thus, a strange mix of Computer

ciate. Can the same hold true for Web sites?

Interface books, Sea Kayaking Guides,

and Monty Python movies greets me

with each visit to the site.

Designing Good Advertising

Good advertising need not even look like traditional advertisements. There is no question that standard ad banners on standard Web pages can get lost.

After all, users

will only pay

attention to so

much periphery

information on

their way to

accomplishing

Amazon uses historical profiles to suggest their desired task on a site. But what if Mapblast not only shows me where my friend's new apartment is but also other content (in this case merchant) that advertising was an embellishment

ment is, but lets me display where my favorite café is in relation to it (in relation to the desired task) that I might also be interested in.

of those goals? What if sponsors paid

tion. A paid sponsorship is unobtrusively filling the role of a to promote themselves in the context

site feature.

of the functionality of a Web product?

In the print world, there is usually a clear separation of The Mapblast! Web site (www.mapblast.com) provides an editorial content and advertising. Newspapers, magazines, interesting example. Offering an extensive suite of tools for and other printed materials will often go to great lengths to generating maps, the site also integrates a sort of advertising identify what was generated by the publication, and was has as a tool. Drawing a map of, say, a friend's house in San been paid for—but not always. Take as an example the busi-Francisco, I can select a variety of neighborhood business to ness yellow pages in your local phone book. The functionali-be added. Since we've decided to visit a café, I ask Mapblast ty of those pages is perfectly clear: to connect you with busi-to not only show where his house is, but where all the Peet's ness in your area. The architecture is one of alphabetical Coffee & Tea locations are. I could have selected from subjects, and the presentation is generally uniform. Uniform, dozens of businesses to add to the map—from FedEx dropoff that is, except for the merchants who have paid more for locations to RadioShack stores to my particular brand of additional space. The phone book is designed and perceived ATM. Obviously, these companies are sponsors of the

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Mapblast service. But it's interesting to see how brand messages and useful functionality can coexist in Web products.

When the goals of an advertising message match the goals of a user at a specific moment, the advertising will succeed. But Web sites need to move beyond simple key-word targeting, and begin to target based on user environment, history, and even preference. How much would our industry pay for a banner that drew a 50 percent click through? Enough to stop worrying about bulk traffic and sacrificial user experiences.

There are interesting implications for design. Good design comes from not only knowing your subject matter, but from an intimate knowledge of your audience. As it turns out, the same is true for good advertising. On the Web, then, targeted advertising and targeted user interfaces are the same thing. And the same profiling strategies can apply to both. But to fully exploit either, we'll need to think about Web design in a much more dynamic way.

Until then, we're stuck with ugly advertisements that don't work on sites desperate for traffic. Please, enough of the shotgun approach. Market to me!

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OceanofPDF.com

Chapter Eight

Object-Oriented

[8]

Publishing

The distinction between ‘design’ and

There was a time when all Web pages were simply text files on a Web server, for-

‘programming’—or the even more disturbing matted in HTML, and updated by hand. Building effective and manageable Web nomenclature of ‘technical’ and ‘creative’—is sites today requires dynamic, page-generating tools. From simple include files to artificial. They are as intertwined as the art and massive database-driven template systems, we’ll look at how the basic process of science of Web design itself.

design and development is changing. No longer can designers building mere pages. Rather they’re working on creating effective interfaces that expose the power of content “systems.” Design elements can be combined and rearranged in infinite ways, making maintenance a breeze if designed with a deep understanding of system from the beginning. And considering the cost of building and maintaining Web sites, this strategy might not be an advanced theory on the future of publishing online. It may be the only means for survival.

To be honest, Web design isn't all that glamorous. In got tired. They never forgot where they were in the process.

fact, when I started in this business years ago my first job They never made mistakes.

was, in essence, to be a human Perl script. I sat in a dark But why stop there? Wouldn't it be wonderful, I thought, corner of the Wired magazine offices in San Francisco if I could eliminate myself from the process entirely? Even and if you asked someone what I did, they'd likely tell though my files were now error free, I was still sitting in you, "Uh, I think he has something to do with our front of the computer for hours choosing the right macros America Online area."

to run and moving files to the correct servers. Then a guy a Each month, as Wired published their print version of few desks over suggested something interesting. "Why don't the magazine, I would convert their work into something you just dump all that text into a FileMaker Pro database?

appropriate for our fledgling online outlets. I'd take a You could write a few scripts to run through and format SyQuest cartridge (remember those?) full of QuarkXPress everything and you'd be done."

documents and strip the text out and save various copies So we did. I installed FileMaker Pro on my Mac and got into various directories. Then, I'd go through and convert some help setting up a simple database with some scripts for each directory full of content into the correct format. We formatting the stories. The database itself had one "record"

were experimenting with as many forms of electronic pub-for each story, sort of like a recipe file—except that instead listing as we could, trying to see just what would replace of a list of ingredients we had a collection of story parts: print when it died at the hands of the Digital Revolution.

headline, author, date, content paragraphs. The scripts were (Did I mention our zealous conviction that history had pretty simple once we had pasted the stories into the right nothing to teach us?) One version added

commands for locations in the database; they were similar to the macros AOL's publishing system that allowed us to upload files I'd used before. Each script would take all the pieces of a there. Another formatted the stories for our e-mail respon-story and reassemble them into the differently formatted der. And there was even a directory full of files in a strange files I needed. The birth of a publishing system!

new language called HTML.

One day, a few weeks later, something clicked in my I did these translations by hand at first. I would carefully head. I had been running my little database for while and open each file, add the appropriate formatting, and save out had a few hundred stories packed away in it. A few of us the file to the right location. As you can imagine, it was a had been talking in a meeting about changing the way our process rife with error. The more files I would format at a rather primitive Web site worked (this was before time, the more mistakes I would make. I was, I suppose, HotWired.com even existed), and decided to add a few only human. There were a couple of solutions, one of which more links to each page on the site. The links would all entailed finding someone to do the even more mundane point to the same pages, and would be identical for each task of looking through the files scanning for mistakes.

story. It would mean not only changing the template for Rather, I started using macros on my Macintosh to format new stories, but also reformatting all the stories that were the files. I'd open a file with the plain text of a story, then already online. "No problem," I said. "I'll just change the select a macro script called something like FileMaker script and re-run it on all the stories." Later that

"FormatFeatureForAOL," which would add the appropriate afternoon, we had those hundreds of stories updated and codes in the appropriate places, and than resave the file.

posted to the Web site. What would have taken days of Bingo! No more stupid formatting errors. My macros never copy-and-paste monotony was

replaced with a couple hours of script tweaking and file copying.

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Ah, hindsight. Looking back, I scratch my head and standards may be well documented, but implementation of wonder why on earth we used such simple tools on under-these standards is much like the reality I described in powered machines. Wouldn't that be a job for Oracle run-Chapter Five, "Browsers.")

ning on a big Sun server? Maybe we should have given the Operating Systems work that way too. If you're writing magazine editors SGML authoring tools for document struc-an application for the Macintosh OS or Windows, you don't turing and done post-processing to multiple output devices.

need to write elaborate chunks of code to make a dialog box At least we should have been using Perl.

appear on screen. You can simply call the dialog box object Or maybe we had to take a few baby steps toward a and pass to it the things you want to appear on it.

dynamic publishing system with the tools we understood.

I'm oversimplifying a very technical and abstract disci-Many of my friends in this industry have similar stories of pline, of course, but the principles are interestingly analo-days past. One built a template system using HyperCard; gous to publishing systems on a Web site. Much like the another used Lotus Notes. It didn't matter how comfortable simple FileMaker database and scripts that I used to publish we were with scripting or databases. It didn't matter which the early Wired pages, sites

today use databases full of con-computing platform we were accessing. Everyone was trying tent that get pushed through templates to create Web pages.

to solve the same problem: How do you maintain a site that Object-Oriented Publishing is lightweight. Dynamic grows at the speed of the Web?

*Web sites are built using relatively simple scripting languages. Even if you have never attempted to write a line of **Getting Dynamic***

code, you can see results almost instantly. We are not talk-Web sites face the same problems today. Sites continue to ing about compiling code or using debuggers.

grow as fast as they ever did. The owners of these sites still I've spoken to a number of Web designers on all sorts of change them as often as ever.

Web sites, and I've heard a common theme to many of their I call this process Object-Oriented Publishing. In the complaints. They talk about working with publishing sys-world of Computer Science, the term Object-Orient tems or template languages in their organizations, but they Programming (OOP) refers to a way of designing programs feel completely cut off from how they work. "Oh, I can't out of reusable objects in standard ways. For example, in a change that part of my site," they say. "The programmers financial application, you might write an object that repre-take care of that."

sents a check, with routines (called methods) that allow If there is one important thing you should take away you to set the date, the recipient, the amount, and the from this chapter, it is that anyone—anyone—can partici-memo information (which are known as properties). Each pate in the development of dynamic Web sites. The distinc-time you create a new check, it uses the same code to pro-tion between "design" and "programming"—or the even duce itself, to set/access its properties, and so forth. Object-more disturbing nomenclature of "technical" and "cre-Oriented Programming gets exciting when you start to ative"—is artificial. They are

as intertwined as the art and think about just how much you can reuse the objects, not science of Web design itself.

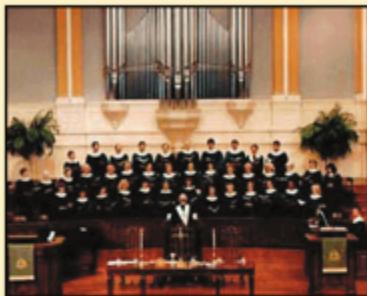
just in your programs but by exchanging objects with oth-For this reason, we're going deconstruct an Object-ers. That way, when you sit down to write your financial Oriented Publishing system behind a relatively simple site. I application and discover you'll need a currency exchange, could have chosen a large-scale commercial content site, or you can simply include one that someone else already has an e-commerce powerhouse with a triple-digit stock price.

written and move on. (Well, in theory, of course. OOP

Instead, we're going to look at a small site from a

Calvary Presbyterian Church

[Home](#) | [Activities](#) | [History](#) | [Staff](#) | [Music](#) | [Sermons](#) |

Welcome to Calvary

Welcome to the Calvary Presbyterian Church Web site. There is information below on finding our church and joining us for worship. You can also browse our [activities](#), [sermon archive](#), or [staff page](#).

Job Opportunities: [Church Information Forms](#) are available for prospective candidates for Pastoral positions at Calvary.

Worship with us

Calvary is located in San Francisco's Pacific Heights neighborhood. The congregation has served San Francisco and the rest of God's world for over 140 years.

The members, friends and visitors of Calvary gather for worship at 8:45 and 11:00 each Sunday morning. Church School and opportunities for adult education are offered between the services. A coffee hour follows each service of worship.

How to find us

Calvary Presbyterian Church is located at the corner of Jackson and Fillmore Streets. Parking is available at the Newcomer School on Fillmore. Muni lines #22 Fillmore, #24 Divisadero and #3 Jackson serve this intersection as well. [View a map](#).

Calvary's Mission Statement
Calvary Presbyterian Church is a community of believers united by faith, scripture, and the constitution of our denomination committed to calling people to Christ and encouraging one another in faith through worship, education, fellowship, and service.

Address:
Calvary Presbyterian Church
2515 Fillmore St.
San Francisco, CA 94115

Phone: 415 346 3832

Fax: 415 346 1436

Email: info@calvarypresbyterian.org



[HOME](#) | [ACTIVITIES](#) | [STAFF](#) | [HISTORY](#) | [SERMONS](#)

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Presbyterian church in San Francisco, California. This site be to get started with a system like this, and what the impli-faces the same problems as many others: With limited staff cations are for good Web design.

and resources, how can this organization maintain a Web To start, we need an understanding of the process.

presence that can expand quickly yet still present a profes-Below, I've outlined the basic steps for creating a Object-sional and organized look?

Oriented Publishing system.

The site is not terribly complex, yet

there are a number of pages that need

1. Strip your content of all formatting.

to be maintained by a staff unfamiliar

2. Figure out what the pieces are.

with the peculiarities of building Web

3. Store those pieces in a database (or something similar).

sites. To accommodate the desire for

4. Design some templates.

an organized look and feel, the site was

5. Wire it all together.

developed using a series of scripts that

run on the site's Web server. This

We're going to follow these steps as we develop a basic ensures consistency across the many

publishing system for Calvary Presbyterian Church's Web pages of the site, while freeing the

site. In the end, we should have a virtually maintenance-church's staff to focus on developing

free site that can be updated by someone with even the the content.

most basic computer skills.

One of the goals of this Web site

was to act as a repository for the ser-

Naked Words

mons delivered during weekly worship

Before we can even think about what the pages are going to A simple Web site for a church in San services. Adding a page or two a week

look like, we need to understand exactly what the content Francisco. Yet it uses the same publish-to a simple Web site may not seem

is. In the case of the sermons, the structure of each piece of ing techniques as some of the largest like a very time consuming task, but

content (or the schema to use database jargon) is pretty well sites on the Web.

there are quite a number of fairly

defined. Each sermon was sent to the site's manager as a technical steps involved—converting

Microsoft Word file with the following information: the Microsoft Word file of the sermon to HTML, ensuring proper navigation and branding exist on each page, trans-

- **Title:** What the sermon was called. Essentially ferring the file to the right place on the Web server, etc.

a headline.

In fact, the church was facing the very publishing prob-

- **Pastor:** Who wrote and delivered the sermon.

lems we faced at Wired magazine years ago—the same

- **SermonDate:** When the sermon was delivered.

problems shared by most any Web site wishing to update

- **Text1:** A passage from the Bible that accompanied with any regularity.

the sermon. Not the actual text, but a pointer con-Looking at how the church solved this problem is an sisting of book, chapter, and verse.

excellent primer to Object-Oriented Publishing. We'll start

- **Text2:** Often, there would be a second passage.

with an introduction to the entire process, then drill down

- **Body:** The paragraphs of content.

into each part, using the church's sermon archive as an example. In the end, it should be clear just how easy it can The process of identifying and labeling each component of a story is critical to the eventual success of a system like

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this. In time, we'll be using these little pieces of each other-Thinking About Architecture

mon to design templates and create navigation. Think It's time to do some technical work now. We're going to about the pages on your Web site and how the content take the schema we just documented and create a database could be broken up into little pieces. For example, if you are to hold the content. But before we do that, it pays to take a responsible for job postings on a corporate site, you might quick overview of how systems like this really work.

develop a schema like this:

You may have heard the term “three-tiered architecture”

thrown around in the past. This is simply more jargon for

- *Job Title*

an overall structure of system design. When applied to the

- *Department*

type of system we're developing here, a three-tiered archi-

- *Description*

tecture means something fairly specific: It refers to the basic

- *Open Date*

components of an Object-Oriented Publishing system. Here

- *Requirements*

are the three tiers:

- *Salary Range*
- *Contact*
- **Backend Database:** *This is where the content is stored. Some popular databases include Microsoft Or, if you're developing an e-commerce site, each prod-SQL Server, Oracle, Sybase, and the open source uct page might have a schema like this:*

MySQL.

- **Middleware:** *A server-based application that processes requests for pages and provides a scripting language for writing templates. Some popular middleware packages include Microsoft Active Server Pages (ASP), Allaire's Cold Fusion, and the open source PHP. We'll talk more about these a bit later.*
- *Item Name*
- *Description*
- *List Price*
- *Price*
- *SKU Number*
- *Shipping Options*
- **Interface:** *This refers to the HTML code that gets*

- *Current Stock*

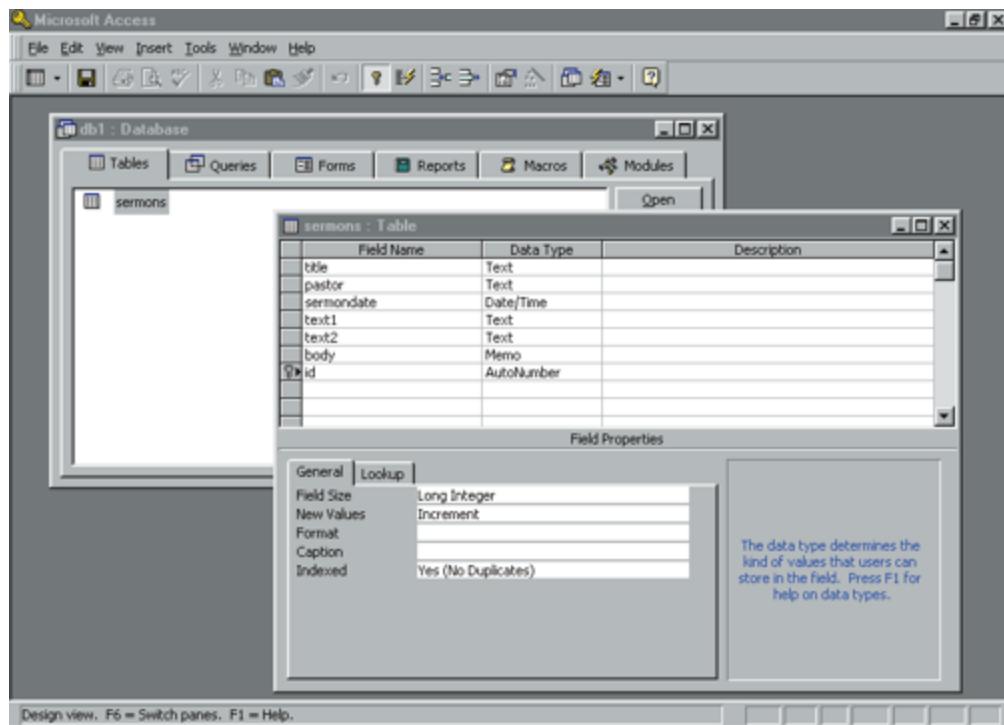
sent to your users' browsers.

You get the idea. This is simply a process of defining the I'm writing this on a relatively standard laptop running content you'll be using at as fine a grain as practical. I suggest the Windows 98 operating system. Also running on this guest being as explicit as possible. Write down all the pieces machine is Microsoft's Personal Web Server (which just like I did above. Think about all the possibilities for the includes the ability to process ASP templates) and the content. In the first example, could a sermon ever have Access database software that ships with Microsoft Office.

more than two Biblical passages associated with it? If so, I'd All of this software is readily available and either free or relatively inexpensive, which is why I chose it for this demonstration clearly as possible, including what type of data it is: Date?

stration. I wanted to provide an example that you could Number? Text?

recreate on a standard PC. Obviously, you would never use Microsoft's Personal Web Server for a site with any amount of traffic—and there are dozens of other choices for each option above. Ultimately, the process for choosing the right



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pieces is complicated and specific to every Web site. It's the each sermon in the sermons table will get a unique number reason why we pay our Chief Technology Officers so much.

assigned to it when the content gets added. That way, when Just remember: Anyone can experiment with dynamic I start to put tem-publishing. This isn't just the domain of engineers, database plates and pages

analysts, or any other IT professional. Getting started is together later, I'll simple. The principles and techniques are easy to under-be able to ask for stand. You can install the tools on your personal computer specific sermons

and appreciate how it works from the inside. It will make by an ID number you a better designer.

that gets auto-

matically

Database Design

assigned by the

Let's get started building the system. Since I have the database.

schema for the sermons defined and documented, I can now Next, I can

create a database that will mimic it. That way, I'll be able to start adding some

store all of this content in a well-structured place and know content. It's very

exactly what to ask for when I want to get it out again.

important to strip

Since I put the effort into the schema, this will be a rela-any and all for-

tively painless process. I start Access and create a new data-matting from the

Adding fields to an Access database.

base, then add a new table (see the sidebar, "Database text at this point. Vocabulary").

All I want in my database is plain text—not Microsoft Word Now, I simply add fields to the table in my database.

formatting, no HTML tags—nothing. All the presentation Like I said, this is pretty easy, since I documented my information will be applied through a template a bit later. For schema first. I add each one and give it the appropriate now, I want the content to live in my database in as pure a properties. One important note: I've added an additional form as possible.

field labeled “sermonid,” given it a type of “AutoNumber,” and made it the table’s Primary Key. This all means that together for lots of power. More on that

Query: To get at the information in **Database Vocabulary** later in this chapter.

tables, you need to ask for it. In the

Fields: Each individual intersection of lingo of databases, this is known as a

Even if you never create your own data-

often misuse the term (just as a word-

a row and column in a table is called a

query. Databases expect very specific

base, you’ll likely find yourself collabo-processing program is not the report you

field. A field can be given properties like instructions on what they should be

rating with someone who will. It’s

write). Specifically, a database is the file how much data it can contain, what

spitting out.

important to know how they are built,

a database program saves out.

type of data is allowed, or if the field

SQL: *Stands for Structured Query*

and what the pieces are called. Here's a

Table: *Databases store their content must be filled in or not.*

Language, which is made up of com-

crash course:

in tables, and there can be many of

Schema: *The names and types of all mands that you can use to ask the*

Database: *Think of this as the con-them. A table looks similar to a spread-*

the tables and fields. More generally,

database for information, or send other

tainer that holds everything. It is not the sheet, rows of information categorized

“schema” refers to the overall structure

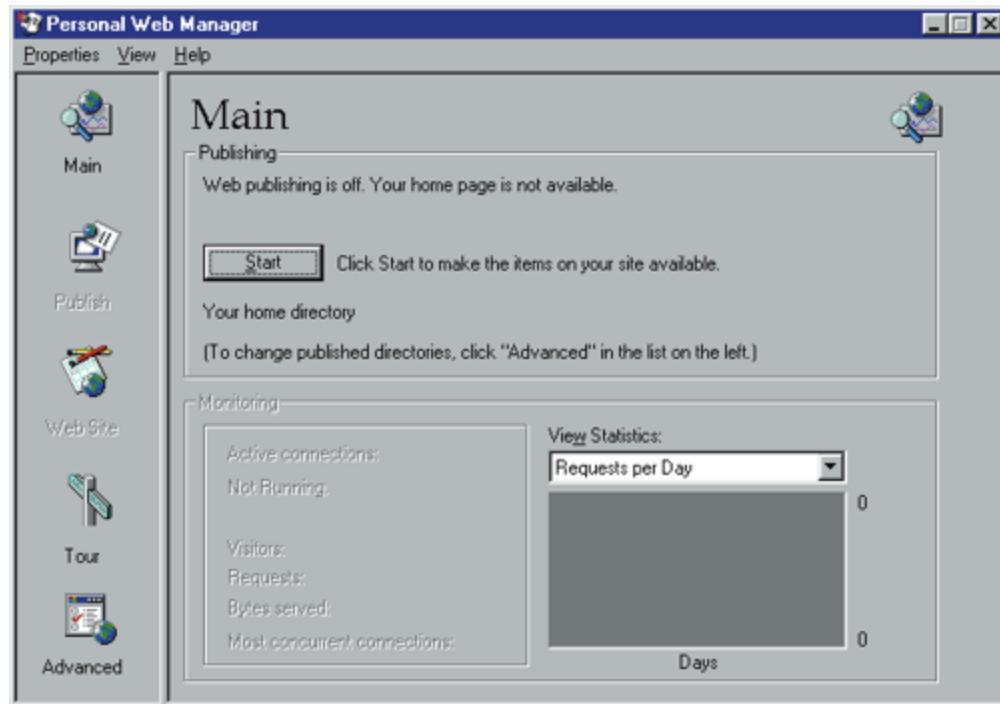
commands to delete data, copy data, or

program you use, even though people

into columns. Tables can be joined

and design of a database.

do a variety of other tasks.



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To get the content into the database, I just copy and edit each and every HTML file to make the simplest paste the appropriate parts of a particular sermon's Word file change to the top of the page while still hoping to maintain into the appropriate fields.

*consistency across all the pages. For example, when the church added a search engine, someone had to copy and **Fragmented Thoughts***

paste the search interface code into the dozen or so pages As I mentioned earlier, I'm running Windows 98. On the that make up this site. Not a big deal for a site this size, but CD-ROM that came with my system, I found the installa-how big is yours? Some of the commercial sites I've worked on have upwards of 100,000 pages. That's a lot of copying Microsoft's option for

and pasting.

Personal Web

The alternative is to create one header and include it in Server. I installed each page. With static HTML pages, this isn't possible. But it on my machine

I'm no longer working with static pages. Rather, I'm going and can now to use one of the simplest functions of any middleware serve Web pages

package: the virtual include. First, I cut out the top of every to the rest of the

page on the site—everything from the beginning of the file world. More through the <BODY> tag—and paste it into a separate file.

importantly, I

I've called this new file “header.inc” and put it in an can write pages “includes” directory. Then, where I cut out the code from embedded with the original files, I add this bit of code: scripts intended to be run on a

<!--#include virtual="/includes/header.inc"--> *Installing a Web server is as easy as clicking “Start.” Now I’m Web server (as*

ready to build a few dynamic pages.

opposed to the

Now, before the server sends the file to a user’s browser, scripts I wrote in

it will notice that line and grab the header from the Chapter Four, “Behavior,” which run in the browser).

includes directory and merge it with the HTML page. The Once the server is installed, using it is a matter of point and click. And once I’ve clicked the “Start” button in the control panel, I can start building the site.

*I’m going to start with a few existing pages for the moment, and leave the database work for later. In the first **Server-Side Includes***

screenshot of the church’s Web site, you may have noticed a navigation area near the top of the page. This navigation Interested in harnessing the power of

example, has the capability to do some

bar points to thing like “Activities,” “History,” and “Staff.”

consistency using “includes,” but with-

interesting and fairly advanced includes

Those pages already exist as plain-old HTML. However, I’m out all the complexity of a full dynamic

and even basic conditional logic simply

going to do a little bit of work to them to ensure they stay publishing system? You’re not alone.

*by turning on “server-parsed pages” in
maintainable. Looking at all those pages, I see that they fol-*Once Web
designers see just how sim-

its configuration files. Ask the adminis-

*low a similar layout: They all share the same header with ple SSI can be,
they jump at the chance*

*trator of your Web server (or consult
navigation and search. Before this project, I would have had to automate
their interfaces.*

*your server’s documentation if you’re
Most Web servers have the ability to
going solo). You may be able to start
do virtual includes right out of the box.
reaping the design benefits of simple
The open-source Apache Web server, for
server code right away.*

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*result to the user will be seamless. Now, if I decide to make doing is almost
irrelevant. What matters most is the overall even the slightest change to the*

header, I simply edit the architecture of this system. I'm going to create something included fragment. The change is automatically reflected in called a Server Object that will let me connect to the every single page on the site.

Access database of sermons, then enable me to build a page with the results.

Creating Templates

Simple pages, simple code. Let's add a bit more complexity

<OBJECT RUNAT=Server ID=Conn

to this project. At this point, I've copied and pasted about a PROGID="ADODB.Connection"></OBJECT> dozen sermons from Word files into the Access database.

Now, I can create a template that grabs the content out of

<%

the database, wraps it in my interface and design, and sends Conn.Open "Calvary"

it off to my users' browsers.

*Set RS = Conn.Execute(SELECT * FROM sermons WHERE*

I start the template just as I did with the previous pages sermonid = 1)

by including my standard header. These pages need to look

%>

like every other page on the site. But that's where the similarity stops. These pages are different because they really The first line simply tells the server to open a connec-don't exist. What I mean is that I'm actually going to be

tion to the database. The <OBJECT> tag is similar to the one creating what appears to my users to be dozens of new you may have used to include video or Flash in your Web pages, but it will actually be just one template pulling con-pages. The exception here is the RUNAT=Server attribute, as tent from the database I created earlier. I'll explain this you would expect, creates the object on the Web server more by example.

rather than in the browser. The next couple of lines start First off, we need to open a connection to the database the communication process with the database. Conn.Open and ask for some content. Each middleware package has its tells Access that we're after the Calvary database, where the own unique way of doing this. In fact, Microsoft's ASP

*sermons are stored. The next line fills a variable with the technology has several ways to accomplish this. Again, it's results of our first query. In this case, we're sending some important to remember here that the syntax for what we're SQL commands to the database, asking for the following, **Code by Any Other Name...***

<? PHP code in here gets executed on

It's worth repeating, though, that

the server ?>

when you get past the different formats

The ASP code in the examples in this

brackets (much like HTML) but with per-

for the various scripting languages, they chapter are mixed right in with the cent symbols between them. Thus:

Cold Fusion uses tags surrounded by

all do the same things. Each one of

HTML that will eventually get sent to angle brackets, mimicking the syntax of these server-side languages have their the browser. For this to work correctly, <% ASP code in here gets executed on HTML, but starts every server-side tag own particular strengths and weaknesses, the server needs to look through the the server %> with the letters CF: but ultimately once you learn one, you'll page before it sends it, and act on any understand how they all work. Keep that scripts that need to be executed. In the The open-source middleware package <CFTags>Get executed on the server in mind the next time someone argues case of ASP, these scripts are set off PHP uses a similar technique, but replaces and can take parameters</CFTag> about the “world’s best language.”

from the HTML by using the angle

the percent symbols with question marks:

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“In the Calvary database, please find (SELECT) all the fields This code is optimized for a browser that supports () from the first row (sermonid=1) in the specified table Cascading Stylesheets. Each of these variables could have (sermons).”*

been surrounded by a <TABLE> and numerous tags.

Now I’ve got the RS variable full of the content I origi-And, since I’m using a dynamic publishing system, I could nally pasted from my Word file into the database. The rest very well create separate versions of this code for separate of the template consists of my HTML with variables where browser versions and simply serve the appropriate one. But I the content should be. So let’s get some of this content wanted to show here the connection between my original onto the page.

architecture, the database structure, my template code, and the interface code. Notice how well all of the different

<h1 class="title"><%= RS("title") %></h1> pieces tie together. Just as the variable names match the database fields, the class names that reference CSS declara-Since the top of the page is already taken care of by tions match as well. Since I was very specific in how my using our included header fragment, I can move directly content was structured at the instigation of the process, the into the guts of the page. Here, I’ve added a headline whole system can grow from a solid foundation. Good (<h1>), and then printed the title that came from the data-design doesn’t start with

page layout. Good design starts at base. Now, when the server processes this page, it will sub-the beginning.

stitute the variable with whatever is in the database field I'm not quite finished with the template, however.

title in the row starting with sermonid=1. Notice how this Since I have a complete scripting language at my com-variable maps exactly to the fields I added when I created mand, I can manipulate a few things to get them exactly the Access database, which in turn maps to the schema I the way I want them. For example, the date coming out of developed at the very beginning. In fact, using ASP, my the database isn't terribly attractive as "11/16/2000." A bit whole schema is available to me:

of code fixes that:

```
<%= RS("title") %>
```

newdate = FormatDateTime(RS("sermondate"), vbLongDate)

```
<%= RS("pastor") %>
```

```
<%= RS("sermondate") %>
```

This takes the date from the database and passes it to a

```
<%= RS("text1") %>
```

built-in function called FormatDateTime, which does exactly

```
<%= RS("text2") %>
```

what you'd think it does. In this case, I've asked it to set the

```
<%= RS("body") %>
```

date in one of the predefined formats: vbLongDate gives me

“November 16, 2000”.

So the rest of the page is easy:

I need to do a similar transformation on the body content, since it lives in the database without any tags at all.

<div class="pastor"><%= RS("pastor") %></div> Since each paragraph in the body has line breaks between

<div class="sermondate"><%= RS("sermondate") %></div> them, I can replace them (using another eponymous

<div class="text1"><%= RS("text1") %></div> built-in function) with <P> tags to show the paragraphs in

<div class="text2"><%= RS("text2") %></div> the browser:

<div class="body"><%= RS("body") %></div> replace(RS("body"), vbcr, "<p>")

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And on and on. I can change anything I like, or use ask the server to put whatever it finds in the query string logic (if...then...else statements) to make my template into a variable I can use on my page:

even smarter. For example, if a particular sermon only has one Biblical passage associated with it, then we only need showsermon = Request.QueryString("showsermon") to show one in our template. We can check and see if anything is in the text2 variable, and only show the surround-Now my template has a variable named showsermon with ing HTML if something is in there:

a value of “1”. Next, I use it in my SQL statement:

```
<%if RS("text2") = "" then %>  
"SELECT * FROM sermons WHERE sermonid=" & showsermon  
<!-- No code here -->  
<% else %>
```

And from there, I can change the number in the URL

<div class="text2"><%= RS("text2")%></div> and automatically show the corresponding sermon from the

```
<% end if %>
```

database. So if I send users to:

Reusing Chunks

<http://www.calvarypresbyterian.org/sermonDisplay.asp?shows> The example so far only does one thing: it pulls one sermon=2

specified story from the database and runs it through a formatting template. What about all the other sermons? How They'll see a nicely formatted page with the second sermon=2 I get them out of the database?

mon in the database. And:

First, I need to add a way to reuse my template over and over again for each sermon in the database. Remember that

<http://www.calvarypresbyterian.org/sermonDisplay.asp?shows> SQL command I used to ask the database for the content?

sermon=3

*"SELECT * FROM sermons WHERE sermonid= 1"*

will show them the third. One important note: In this example, there are only three sermons in the database. If a I need to replace that sermonid=1 with a way to say, in user were to change the number in the URL above to a “4”

essence, “sermonid can equal anything.” For this, I’ll use the or higher, bad things would happen—most notably they URL, or, more specifically, the query string part of the URL.

would get an ugly error. Well-written, robust code should always include routines that handle errors like this, but I’m <http://www.calvarypresbyterian.org/sermonDisplay.asp?shows> leaving them out for the sake of clarity in this system.

ermon=1

Let’s see what I’ve got so far now:

You may have seen URLs like this before. They point to a server and a specific page, but then they follow that with a question mark and one or more variables with values.

Everything following the question mark is called the query string. Here, I’ve created a URL that sets a variable named showsermon to the value of “1”. Now in my template, I can

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<OBJECT RUNAT=Server ID=Conn

Reviewing my template, I find the following to be happening: I’m instantiating

an object on the server that lets me talk to a database named Calvary. Once I open the con-

<%

nnection, I ask for all the fields in the table sermons from the showsermon = Request.QueryString("showsermon") row that has a sermonid=1. Then I start putting things on the page. I start with my page header, which I include from Conn.Open "Calvary"

*a fragment file. Then comes the headline, pastor's name, Set RS = "Conn.Execute(SELECT * FROM sermons WHERE*

and sermon date (which I've reformatted to my liking).

sermonid=" & showsermon)

After that, I put down the first passage, and then check to

%>

see if there is a second. If not, I show nothing, or else I print the code. Then, I add <P> tags to the body and show

<!--#include virtual="/includes/header.inc" --> that as well. I send two commands to the database object, telling it to close the connection. Finally, I include a second

<h1 class="title"><%= RS("title") %></h1> fragment—the page footer with a copyright notice and other information—at the end of the template.

<div class="pastor"><%= RS("pastor") %></div> That's it. That's how easy it is to start building a basic

<div class="sermondate">

database publishing system.

```
<%= FormatDateTime(RS("sermondate"), vbLongDate) %>
```

```
</div>
```

Building an Index

<div class="text1"><%= RS("text1")%></div> If I were creating this project out of static HTML, I'd now

<%if RS("text2") = "" then %> have to take all the sermon pages and copy and paste rele-

<!-- No code here... -->

vant information from them into an index page. I'd proba-

<% else %>

bly want to show the date, the title, and the author of each

<div class="text2">

one. I'd also need to include the URL in an <A HREF> tag to

<%= RS("text2")%>

provide a pointer. The end result would look something like

</div>

the screenshot on the next page.

<% end if %>

But this isn't a static HTML project. All that information is sitting in the database waiting to be used. Or, in this

<div class="body">

case, reused.

<%= replace(RS("body"), vbcr, "<p>") %> I start with a very similar template as before. I open the

</div>

database connection and send some SQL asking for the appropriate content. Then I include the page header and

<%

display the results. Only this time, the SQL is different: RS.Close

Conn.Close

Set RS = Conn.Execute("SELECT sermonID, title, pastor,

%>

sermonDate FROM sermons ORDER BY sermonDate DESC")

<!--#include virtual="/includes/footer.inc" -->

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Sermon Archive

Date	Sermon	Pastor
7/19/00	Laughter is Serious Medicine	Rev. Joanne Whitt
7/16/00	She Despised Him In Her Heart	Dr. Hugh Burroughs
7/9/00	Strange Angels	Rev. Joanne Whitt
7/2/00	Rocks and Rills	Dr. Hugh Burroughs
6/25/00	The Acceptable Time	Dr. Laird J. Stuart
6/18/00	The Anatomy of God	Dr. Laird J. Stuart
6/11/00	The Gift of the Holy Spirit	Dr. Laird J. Stuart
5/28/00	Conquering the World	Dr. Laird J. Stuart
5/14/00	Commitment	Dr. Laird J. Stuart
5/7/00	The Gonzalez Monkey	Rev. Joanne Whitt
4/30/00	A Generous Community	Dr. Laird J. Stuart
4/23/00	Our Confusion – God's Commitment	Dr. Laird J. Stuart
4/20/00	Anamnesis or Amnesia	Rev. Joanne Whitt
4/16/00	Our Palms – His Flint	Dr. Laird J. Stuart
4/12/00	Looking Intently	Rev. Joanne Whitt
4/9/00	Redefining Life and Death	Rev. Joanne Whitt
4/2/00	Our Responses – God's Words	Dr. Laird J. Stuart
3/19/00	Our Plans – God's Work	Dr. Laird J. Stuart
3/12/00	Our Trials – God's Loyalty	Dr. Laird J. Stuart
3/8/00	Feasting and Fasting	Rev. Joanne Whitt
3/5/00	Transfigured by the Word	Rev. Joanne Whitt
2/27/00	The Hospitality of Christ	Dr. Laird J. Stuart
2/20/00	The Forgiveness of Christ	Dr. Laird J. Stuart
2/16/00	Meeting God at the Heartbreak Hotel	Rev. Joanne Whitt
2/13/00	The Mercy of Christ	Dr. Laird J. Stuart
2/6/00	The Impact of Christ	Dr. Laird J. Stuart
1/30/00	The Authority of Christ	Dr. Laird J. Stuart
1/23/00	Come Along with Me	Dr. Hugh Burroughs
1/16/00	The Call from Christ	Dr. Laird J. Stuart
1/9/00	The Baptism of Christ	Dr. Laird J. Stuart
1/2/00	Seeing the Star – Being A Star	Dr. Laird J. Stuart

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mand. This takes the results of my query, which will come out of the database in no particular order, and rank all the rows by date. The DESC

means descending. I could have otherwise specified ASC to reverse the order.

The RS variable now has a lot of stuff in it. It's holding all the IDs, titles, pastor names, and dates of each sermon in the database. My template needs to arrange this data into a nice interface for my users. To do this, I'll put everything in a table, starting with some headers for each column:

```
<TABLE BORDER=0>
```

```
<tr>
```

```
<th>Date</th>
```

```
<th>Sermon</th>
```

```
<th>Pastor</th>
```

```
</tr>
```

Then I'll start a loop that runs through all the results I get back from my query, printing each variable as it comes to it:

```
<% Do While Not RS.EOF %>
```

```
<tr>
```

```
<td class="sermondate"><%= RS("sermondate") %>
```

```
</td>
```

```
<td class="title">
```

A list of all the pages available, organized as a navigable

```
<a href="sermonDisplay.asp?id=<%= RS("sermonID") %>"> index.
```

```
<%= RS("title") %></a>
```

</td>

You can see that I'm no longer asking the database for

<td class="pastor"><%= RS("pastor") %></td> every field. In my last SQL statement, I told it to SELECT *,

</tr>

which means, “All Fields.” Now, however, I’m asking for

<%

specific fields: sermonid, title, pastor, and sermonDate—still RS.MoveNext

from the table sermons. I could ask for them all, but since I Loop

have no intention of using the body field, and because it’s

%>

such a large field, my page will perform faster by being more specific. There is one other difference between this SQL

There are some interesting things going on here. First, I statement and the previous—that is, the ORDER BY com-add a line of code that tells the template to loop through all

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Sustained Integrity

Dr. Laird J. Stuart

Sunday, October 08, 2000

[Psalm 26, Hebrews 1:1-4](#)

Stephen L. Carter is a professor of Law at Yale University. He has written a number of books, including one entitled (integrity). In the book he tells a story of something that happened to him when he gave a commencement address. He told the people gathered there he was going to speak about integrity. They applauded. They applauded before he had said anything else. I would like know that trick.

Carter suggests the applause indicates there is a great hunger in our society for integrity. But he also points out, while there is an obvious hunger there is also an obvious confusion about what to do about the perceived lack of integrity. "Integrity" he writes, "is like the weather: everybody talks about it but nobody knows what to do about it." The implication is there will always be some people who do not want to do anything about it.

We may not be so sure what integrity is. But I think most of us have a sense of what it is. We think a person of integrity is a person who has some values and standards for his or her life, and that a person of integrity works to apply those standards in their life. A person of integrity is someone who has values and standards and who practices them. A person of integrity is someone who believes in certain values and standards and acts on them.

Sometimes it is easier to see a lack of integrity. During the recent Olympics, we saw a swimmer from this country spitting into the lanes next to hers before her heat. She said it was just a sign of her competitive intensity. To the rest of us it looked like someone totally caught up in herself, so caught up in herself she had no respect for her fellow competitors. During the same Olympics, the members of a spring relay team from our country celebrated their victory by prancing and preening, using our flag as a drape. They said they were just expressing their enthusiasm, as though one person's enthusiasm is an adequate standard for how other people are treated.

Last week it was revealed the Firestone Tire Company had evidence of problems with some of its tires, tires which have been part of an unusual number of accidents lately. The information was present, but it was ignored or stifled. Recent testimony by company officials indicated no such evidence existed. It raises the old questions about who knew what when. Perhaps the person who testified there was no such evidence, knew there was evidence, and was not

Recent Sermons

[The Cat and Our God](#)

Sunday, October 29, 2000

[Why Give?](#)

Sunday, October 22, 2000

[A Well-Prayed Place](#)

Wednesday, October 18, 2000

[Why Obey](#)

Sunday, October 15, 2000

[Sustained Integrity](#)

Sunday, October 08, 2000

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the results until it runs out of results, or While not RS.EOF

On the sermon template, I'm going to create a box on (which stands for the “end of file”). At the end of the the right margin of the page that shows the last five sermons block of code, I tell it to move to the next set of results that have been added to the database.

(RS.MoveNext) and the Loop. This will create row after row of That way, no matter what sermon you

a table, but since I put this loop below the first <TR>, only happen to be looking at, the page will

one header.

always feel like part of a Web site that

I'm still using the same class names for my CSS as is kept up to date. The implications for

before, carefully matching them to the variable names to a sense of history, however, create an

keep everything clear. Each cell in the table now contains interesting design paradox.

the replaced value of each variable. The result is a well for-To start, I'll take my existing tem-

matted table of contents to all the sermons in the database.

plate, and add a simple one column

One final note of interest here. In the second cell of the table aligned to the right of the body

table, I'm displaying the title of the sermon. I'm also using copy. In that table, I'll list the addi-that page element as the navigational link to the actual ser-tions to the site. When we're finished,

mon. To do this, I've included part of the URL in the <A it should look something like the

HREF> tag, and used the sermonid variable from the database screenshot to the right.

to generate the rest of the address. As the template loops The table structure itself is easy to

through all the results of the query, the URLs automatically create, especially since I'm doing all

are assembled to point to the correct sermon in the database: the presentation (fonts, borders, back-Now every sermon in the database—

grounds, etc.) using a stylesheet. Since

no matter how old—can point to the

<a href="sermonDisplay.asp?id=<%=RS("sermonID") %>"> we'll be pulling the content of the

latest content.

table out of the database, I'll leave

The system is essentially complete. All the sermon pages that area blank for now.

are identically formatted, creating a clean and consistent interface to an ever-growing archive of content. That

<table width=200 cellspacing=0 cellpadding=0 align=right> archive is accessible through a nearly automatic index pulled

<tr>

from the same reusable fields of the database I used for dis-

<td valign=top>

playing the sermons. Maintenance is a breeze. Want to

<!--Table content goes here-->

change the design? A quick template edit updates the hun-

</td>

dreds of existing pages on the site. Find an error? Change it

</tr>

in the database and it updates wherever it appears—on a ser-

</table>

mon page, in the index, on the search results page.

*I'd also like the flexibility to use this little interface **Eternally Current***

component elsewhere on the site. It might make a nice I'll add one final

feature to this little system that demon-feature for the site's home page, for

example. To build in strates another aspect of the power of Object-Oriented

that capability, I'll put this code in a separate file to be Publishing: keeping

archives fresh.

included in the template, and then add the include directive in the right

place:

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<!--#include virtual="/includes/recent_sermons.inc" --> I've created a simple object that I can include in any page, but what's more interesting is the effect it has on each Of course, now I can simply add that line of code any-page. The sermon archive on this site spans five years worth where on the site to add the feature. The more features I of content. But now, the content of each page—regardless create, the more flexibility I get for my site, while still mak-of age—is embellished with an up-to-the-minute accurate ing maintenance and consistency realistic goals.

feature. It is as if I was updating every single page in the Now, to get the content out of the box, I'll repurpose the archive every time someone adds a new sermon to the data-SQL commands I used on the index page, but with a slight base. Of course, you could do something like this by hand, difference. I'll still be opening a connection to the database but the labor would be prohibitive. You would literally and requesting content from the sermons table, but this time spend all your time maintaining your site, at the expense of I need even less data than before. I'm also changing the creating new content and features.

name of the variable that stores all that information to Systems like this also have an interesting historical latest from RS so that they don't collide with one another.

effect on the pages they contain. If I decided to, say, change the background color of every page, or use advanced script-

<%

ing for a feature, or whatever, I would be changing every Set latest = Conn.Execute("SELECT sermonID, title, page. The implication, then, is that the pages will cease to sermonDate FROM sermons ORDER BY sermonDate DESC") reflect the visual design and technological advances of the

%>

era in which they were created. For example, when I was studying history in college, I would scour editions of Time So once again, I've got a variable full of data to display on Magazine dating from the late 1800s while doing research.

the page. This time, rather than creating a perpetual loop Much of the value of these sources was not only in the con-that waits for the end of the file, I'll set up a loop that counts tent of the articles, but the context in which they were dis-to five, showing each line of my mini-index, and then stops.

played. Advertisements of the day, typography from the last century, and other tidbits that would add to the overall

<% for y = 1 to 5 %>

impression of the time in which the article existed. Will we lose this value on the Web? Pages created just five years ago

<div class="recent_title"> already fail to render in today's browsers, as old HTML ele-

<a href="sermondisplay.asp?id=<%=latest("sermonID")%>"> ments become deprecated in new standards. The advent of

<%= latest("title") %> Object-Oriented Publishing takes this even further, separat-

</div>

ing not only content from its presentation, but its historical

<div class="recent_date"> context as well. It's a tenuous balance between the efficien-

<%= latest("sermondate") %> cy of dynamic publishing and the value of learning from our

</div>

past mistakes and achievements.

Regardless, be sure to take screenshots of all your work,

<%

which will always depict your designs accurately.

latest.MoveNext

next

%>

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A Changing Process

they were ultimately published on our Web site. If you were It took us a while at Wired to fully embrace a process like to chart how it worked, it would have looked something the one I've described above. Some designers found it like the diagram to the right.

insulting to think that each and every story in a Web site Using this method, an author

should be absolutely identical. Content should be designed would iterate with an editor on the

based on what it says and what it means. Visual design particular story until they were both

Author

communicates as well as the words, they would argue. And satisfied with the content. Then, an

I would agree, but there is a reality on the Web that forces editor would send the finished piece to

Editor

a compromise.

a copyeditor, who would go over the

First, design can and should conform to content, but work in detail, checking grammar,

Copy Edit

tools are tools. We spent an entire chapter in this book dis-spelling, and facts, as well as ensuring

cussing how consistency in user interface leads to building everything was in compliance with our

Production

context. Users learn how interfaces work, and expect those editorial style guidelines. From there,

interfaces to work the same time after time. Developing the story would move into production,

Design

custom design treatments for story after story on a Web site where HTML specialists would add

can lead to a disorientation as users are forced to pick out the basic tags: paragraphs and links,

Q A

the particular useful bits of an interface over and over again plus standard navigation like headers

as they move through a site.

and footers. Production would send

But more importantly, a dynamic publishing system can the story to a designer, who would do a

Post

give commercial Web sites an edge to survival. The Web is complete treatment on the piece—

still young, and business models are evolving as quickly as the much like a feature in a magazine.

technology behind today's Web sites. Yet despite the surge in Illustrations and photography would be commissioned; col-

"dot-com" stock prices and seemingly endless venture capital ors, type and layout would be developed; display copy would being invested in startups, the fact remains that it can be be created. Production and even copyedit steps would often very difficult to provide free content supported with advertis-be repeated here to ensure nothing was changed. Then, to ing. The cost of advertising on a Web site is significantly less the Quality Assurance (QA) people, who would test the than what it costs to run ads in printed publications or on new content in a variety of browsers and ensure that stan-television—two other forms of media that are typically free dards for page performance and server compatibility were to end users, with costs being offset by messages from spon-maintained. Finally, the story would be posted by the sors. Ultimately, successful business models will emerge from Webmaster, the one responsible for the live site. With such the chaos that is

today's adolescent Web. But today, commercial an elaborate process, it won't come as a surprise that we cial sites need every edge they can muster.

weren't able to publish very much. With a dozen sections in The same held true for the evolving content develop-our site, we added only a story or two to each section in a ment process we experimented with at HotWired over the week. Lots of content compared to a print magazine, but first few years of our existence. Since we came from Wired not nearly enough for a Web site.

magazine, we followed a traditional print publishing The Object-Oriented Publishing process changed all of process—it was what we knew. It was a linear process. Step that. The new system essentially split the staff into two by step we worked on individual pieces of content until

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groups: those who developed the system, and those who of control without careful and frequent planning and revi-operated it. Now, the process was organized like this: sion. Still, a dynamic publishing system is a critical tool in Authors and editors continued to collaborate and iterate keeping up with the hyperspeed growth of the Web. It frees the stories, and copyeditors continued their rigorous inspec-designers and developers from the tyranny of mindless tion. But now, after a production manager had created the maintenance and updates, allowing them to focus on creat-basic HTML paragraphs and links, the content was added ing more useful and engaging sites. Think of the process as to the database and was ready for publishing. At the same a design amplifier: It gives you the ability to do more and better work.

*That is not to say that dynamic publishing is without its **OPERATIONS***

DEVELOPMENT

*flaws. I've stated over and over in this book that HTML is simple, and it is. So are the scripting languages behind **Author***

Production

Design

*Object-Oriented Publishing—to a point. The scripts I've shared with you in the preceding examples are far from **Editor***

*robust enough to survive in an actual highly trafficked Web site. They lack the complexity of checking for errors, nor **Copy Edit***

are they optimized for efficiency—they are designed to illustrate the concepts behind dynamic publishing.

Post

Template System

The added complexity of building pages as collections of server-side scripts requires a much more developed level of collaboration among your Web team. Our conceptual trian-time, designers and engineers were collaborating on tem-gle of Structure, Behavior, and Presentation is more at work plate systems similar to the one we looked at previously in now than ever before. Engineers, designers, and editors this chapter. They would blend the interface with the pro-must be completely synchronized. Everyone must under-cedural code applicable to all the content being fed into the stand how the system works and what exactly his or her role database by editors. Designers could focus on macro issues in the process is. Without this understanding, templates, like site architecture, and micro issues like search interfaces interfaces, and content repositories simply cannot function.

and headline rendering and be assured of consistency Another warning: Dynamic publishing systems can make throughout the sites. The content would simply flow into you lazy. Many of the benefits I've outlined here can make the right places and the site would be alive.

the workflow behind a Web site much more efficient. It is Everyone could focus their energies on developing more critical to remember to keep quality checks in place as the and better Web sites. We could keep up with falling adver-pace of publishing increases. When a system is designed to tising rates without resorting to an ever-expanding staff.

let anyone publish anything at any time, the possibility that Dynamic publishing systems can pay off in untold ways.

something can go wrong increases exponentially.

*Take, for example, this excerpt from a page on the **The Dangers of Being Dynamic***

Excite portal. The Daily News page on Excite is a wonder Admittedly, I am ever an optimist. The scenario I've decon-of dynamic publishing. Hundreds of stories a day are aggre-structed in this chapter is a relatively simple one. An ever-gated from dozens of news sources to give readers access to growing commercial Web site would undoubtedly scale out more information than any printed source could ever hope

Ongoing Coverage

[Oddly Enough](#)

[Africa Embassy Bombs](#)

[Apple's New iMac](#)

[Astrology & Horoscopes](#)

[Astronomy News](#)

[Balloonist's Adventure](#)

[Capitol Hill Shooting](#)

[Celebrity Gossip](#)

[Clinton Sex Scandal](#)

[Crime & Criminals](#)

[Litigation & Lawsuits](#)

[Microsoft Fights DOJ](#)

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to do. Personalization tools allow users to create custom mate architecture of the content. In Chapter Three we cov-views of news that interest them. It's a very powerful appli-ered good Information Architecture coming from the pat-cation indeed.

terns already present in content. In this chapter, I made Yet with all this power, it's easy to

explicit use of those patterns by infusing them in database lose sight of the editorial heuristics on structures and logical page templates.

which professional publishers depend.

This chapter offered tools for designers facing the uncer-This example shows a classic problem

tain future of dynamic design. We've left behind the with dynamic publishing. Three head-absolutes of traditional graphic design. We're embracing a lines, probably all edited and chosen

world of variables and uncertainty. The only way to thrive by smart editors, have been aggregated

in such a nebulous environment is to start simply. Look for in a way that borders on the absurd.

patterns. Build with little blocks into complex structures.

Simple copyediting would help here.

Account for the limitations of the Web, the browsers, and The designers could have used bullets

the rich and diverse audience that will soon be flowing on each headline to distinguish them.

through your pages.

The point is that dynamic publishing

Now get busy. We've got a lot of work to do yet.

can lead to unforeseen mistakes if

you're not very careful to keep things

under control.

Design in an Object-Oriented

World

While it certainly would be odd for the What are the implications for design-African Embassy to bomb Apple's

ing within database-driven, dynamic iMac—that's probably not what the edi-Web sites? Think back to our discuss-tors had in mind.

sion of client-side behavior in Chapter Four. It showed how using simple scripts in the browser can make an interface respond to the unknown variables in which our pages can exist. Page columns need to be flexible to accommodate different screen resolutions. Headlines can size themselves based on the width of a browser window. Typography becomes a game of guesswork against an unidentified selection of installed fonts.

Think also of our discussion of structure. If Object-Oriented Publishing teaches us anything, it is that good design comes from good planning. My simple example of a sermon archive would never have been successful had I not taken the time to fully understand the structure and ulti-

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Colophon

I wrote this book using Microsoft Word on a tiny little Sharp Actius laptop. It has a wireless Ethernet card that enables me to write from the back deck of my condo in San Francisco. I kept track of all the various files, images, and links to sites on a Web site using a fantastic little tool called Blogger (www.blogger.com).

We then used QuarkXPress 4.1 on a Macintosh G3

Laptop to lay out all the pages. Body copy is Goudy Old Style, which was designed by Frederic W. Goudy in 1915.

Look closely and you'll see the dots on the lowercase i, j, and punctuation are really elegant little diamonds. The headings and cover type is FF Meta designed in 1984 by Erik Spiekermann for the German Post Office (although they never actually used it). Illustrations were created in Adobe Illustrator 8.0, and screenshots were taken using Snaggit 5.0, which I've honestly been meaning to register.

*The Quark files were then output to Adobe PDF files and sent directly to blah blah blah I don't know how this all works... NEEDS TO BE
COMPLETED*

The bicycle I ride up and down Mt. Tamalpais between chapters was custom built out of titanium 3Al-2.5V tubing by the fine folks at Seven Cycles in Watertown, Mass.

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