

Building an E-business Presence: Websites, Mobile Sites, and Apps

This unit examines important **factors** and related **managerial and business decisions** that need to be made when considering to build an e-business presence

The unit also examines proliferation of **mobile devices** and **social networks** and the **complexity** organizations have to negotiate in trying to **build a presence on three platforms: the Web, mobile, and social networks**

Objectives

After reading this chapter, you will be able to:

- Understand the **questions you must ask and answer**, and the steps you should take, in developing an e-business presence.
- Explain the **process that should be followed** in building an e-business presence.
- Identify and understand the **major considerations** involved in **choosing web server** and **e-commerce merchant server software**.
- Understand the **issues involved in choosing the most appropriate hardware** for an e-commerce site.
- Identify additional tools that can **improve website performance**.
- Understand the **important considerations** involved in **developing a mobile website** and **building mobile applications**

FIRST THINGS FIRST

Important questions to consider

Important factors to consider

Questions you must ask and answer when developing an e-business presence include:

- *Visioning Process*: What is your vision and how do you hope to accomplish it?
- What is your *business and revenue model*?
- Who and where is the *target audience*?
- What are the *characteristics of the marketplace*?
- Where is the *content* coming from?
- Conduct a *SWOT* analysis.
- Develop an *e-commerce presence map*.
- Develop a *timeline*.
- Develop a detailed *budget*.

Visioning Process

- The vision
- Statement of mission
- Target audience,
- Characterization of the market space
- Strategic analysis
- Marketing matrix
- Development timeline

*Starts with a dream of **what's possible**, and concludes with a **timeline** and **preliminary budget for development**.*

Mission, vision and values

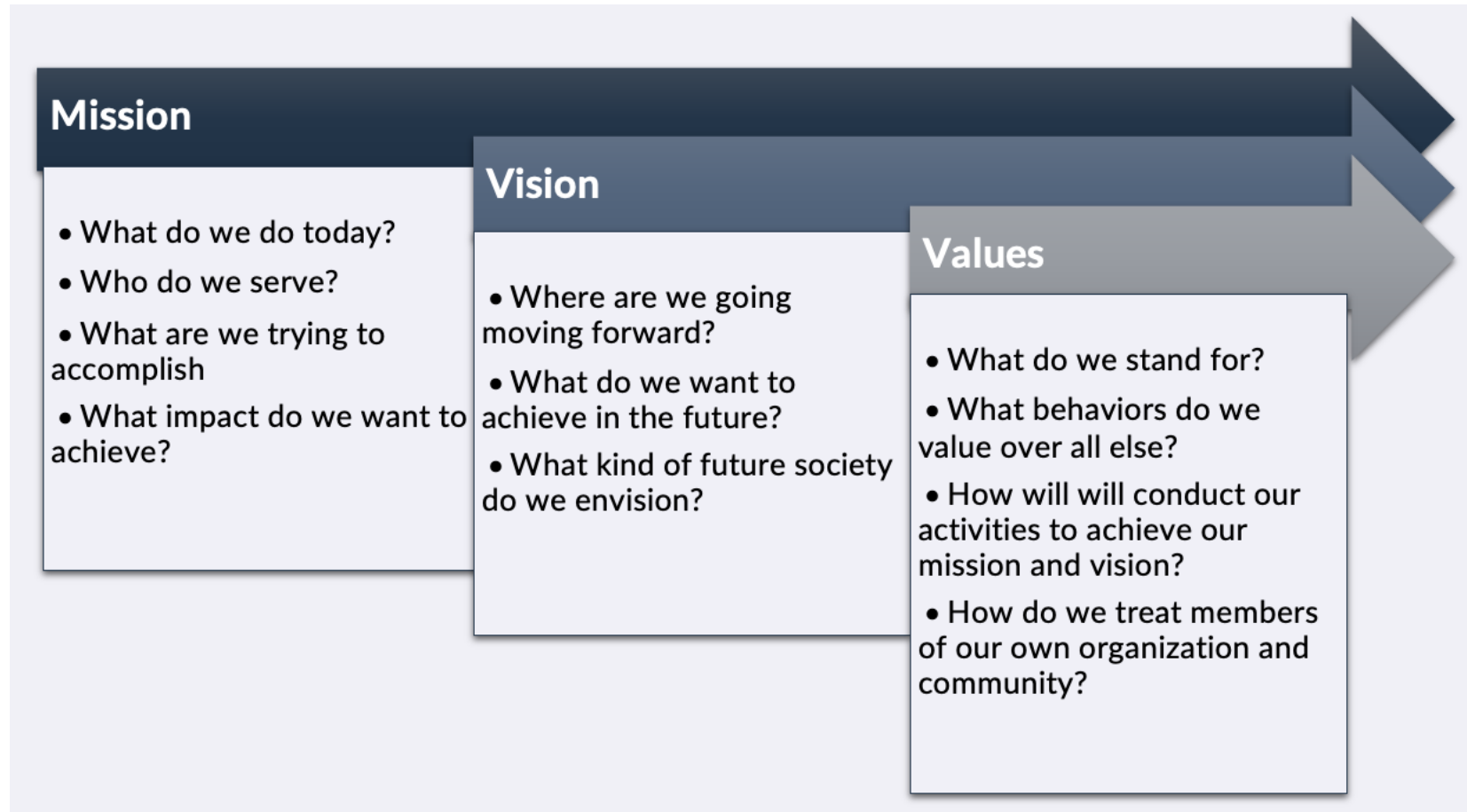
- Mission, vision and values statements serve as the foundation for an organization's strategic plan.
 - They convey the purpose, direction and underlying values of the organization
- **The mission statement:**
 - defines an organization's purpose or reason for being
 - paints a picture of who the company is and what the company does
- **The vision statement:**
 - describes the future of the organization.
 - reveals what the company aspires to be or hopes to achieve in the long-term

ref: <https://www.batonglobal.com/post/how-to-write-mission-vision-and-values-statements-with-examples>

Mission, vision and values

- The values statement:
 - highlights an organization's core principles and philosophical ideals
 - used to both inform and guide the decisions and behaviors of the people inside the organization and signal to external stakeholders what's important to the company
- ref: <https://www.batonglobal.com/post/how-to-write-mission-vision-and-values-statements-with-examples>

Mission, vision and values



What Business and Revenue models?

- Where will the money come from?
- Develop preliminary business models
 - portal, e-tailer, content provider, transaction broker, service provider, and community provider (social network).
- Develop preliminary revenue models
 - advertising, subscriptions, transaction fees, sales, and affiliate revenue

Who and where is the target audience?

- Two key questions: **who is your target audience** and **where can you best reach them?**
- Target audience can be described in a number of ways:
 - demographics
 - behavior patterns (lifestyle)
 - current consumption patterns (online vs. offline purchasing)
 - digital usage patterns
 - content creation preferences (blogs, social networks, sites like Pinterest)
 - buyer personas (profiles of your typical customer)
- For each profile for your website you will need to develop a detailed description.

What are the characteristics of the marketplace?

“The chances of your success will depend greatly on the characteristics of the market you are about to enter, and not just on your entrepreneurial brilliance”

What are the characteristics of the marketplace?

Consider:

1. Features of the marketplace:
 - demographics of the market
 - how an e-business presence fits into the market
2. The structure of the market
 - competitors
 - substitute products.

What are the characteristics of the marketplace?

- **Features of the marketplace:**

- What are the features of the marketplace you are about to enter?
- Is the market growing, or receding in size? If it's growing, among which age and income groups?
- Is the marketplace shifting from offline to online delivery? If so, is the market moving toward traditional websites, mobile, and/or tablets?
- Is there a special role for a mobile presence in this market?
- What percentage of your target audience uses a website, smartphone, or tablet?
- What about social networks?
- What's the buzz on products like yours?
- Are your potential customers talking about the products and services you want to offer on Facebook, Twitter, Instagram, TikTok, or blogs?
- How many blogs focus on products like yours?
- How many social media posts mention similar offerings?
- How many social media Likes (signs of customer engagement) are attached to products you want to offer?

What are the characteristics of the marketplace?

- Structure of the market:
 - described in terms of your **direct competitors, suppliers, and substitute products**.
 - Who are your **top five or ten competitors**, what is their **market share**, and what are their **distinguishing characteristics**?
 - What's the market buzz on your competitors?
 - How many unique monthly visitors (UMVs) do they have?
 - How many social media (Facebook Likes, Twitter followers, and/or Pinterest, etc.) followers do they have?
 - How are your competitors using social sites and mobile devices as a part of their online presence?
 - Is there something special you could do with social networks that your competitors do not?
 - What are customer reviews of competitors' products?
 - What online tools can u use to determine this?
 - Do your competitors have a special relationship with their suppliers that you may not have access to?
 - Are there substitutes for your products and services?

Where is the content coming from?

- Content is why your customers visit your site and either purchase things or look at ads that generate revenue for you
- Content is the single most important foundation for your revenue and ultimate success
- **What is your content strategy!!?**
 - Dynamic vs static content
 - Content sources
 - Content management

SWOT Analysis




- SWOT analysis describes a firm's strengths, weaknesses, opportunities, and threats
- <- Source (Eberly, 2017).

SWOT Analysis Example

Jaha in India: Case Study on a Tech Startup


SWOT Analysis Example

[Clip slide](#)


The Product

A startup, Jaha has acquired 7000 active users in Hong Kong and the United States, since launching in May 2015. It formed out of a partnership with Soul Electronics.


creators




Gary So - former VP of marketing at Soul Electronics, specializes in product design, international operations and celebrity endorsements




Patrick Tang - successful tech entrepreneur, founded Timeless Elements, an ecommerce furniture company




features




Location Based Social discovery - Swipe to find potential fitness buddies in your area - think tinder



In App Messaging - Chat with friends in application



Challenge - Challenge friends at different exercises, using the in app leaderboards and smackboards



Activity Tracker - Track progress through Jaha's distance and step counting systems as well as heart rate monitor

SWOT Analysis Example



SWOT Analysis



Strengths

- Small and Flexible
- Experience branching out into foreign markets
- Experience in partnerships
- Experience with celebrity endorsements
- Multiple language support

Weaknesses

- Small staff
- Still in development stage
- technology supports running only
- Lack of capital
- Lacks android support



Opportunities

- Growing smart phone usage
- Proliferation of gymnasiums and other workout facilities
- Developing fitness culture
- strong location-based social discover dating culture

Threats

- Saturated app market
- Slow internet speeds in certain areas
- smart usage is concentrated in urban areas
- India has multiple mutually unintelligible languages



SWOT Analysis

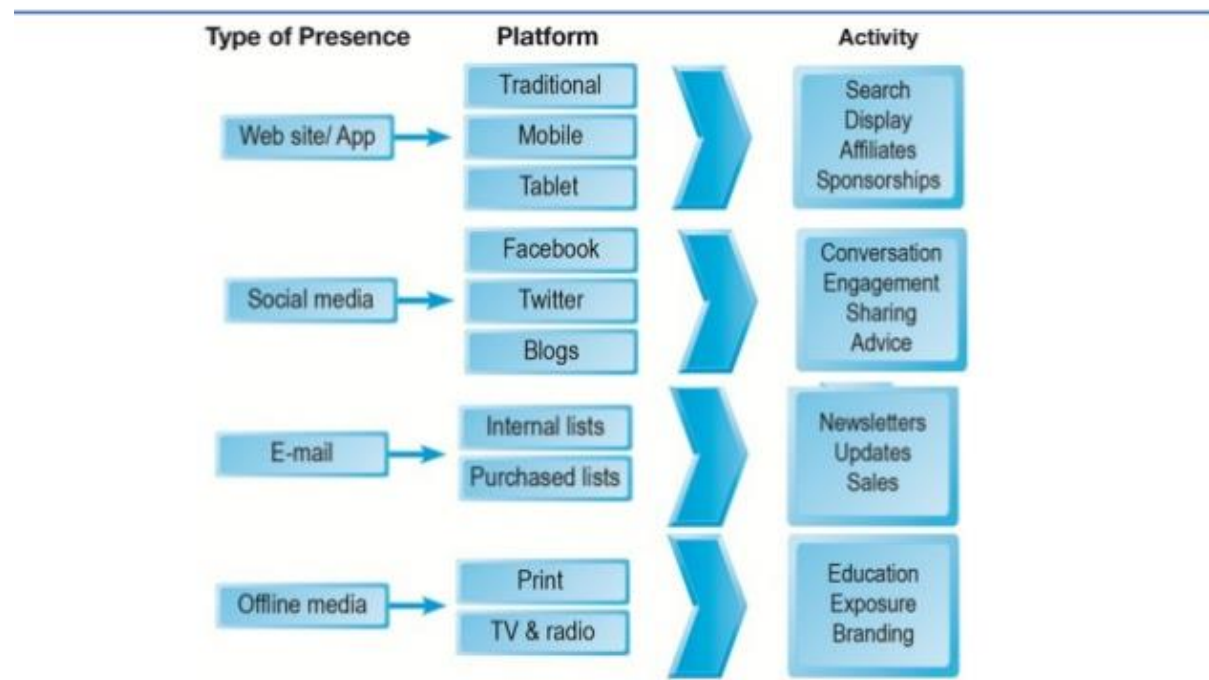
- Once you have conducted a SWOT analysis, you can consider ways to overcome your weaknesses and build on your strengths:
 - partnering to obtain technical and managerial expertise
 - looking for financing opportunities

SWOT Analysis & Strategy Formulation

- We look at a Malawian organization

Developing an e-commerce presence map

E-commerce Presence Map



Develop a timeline

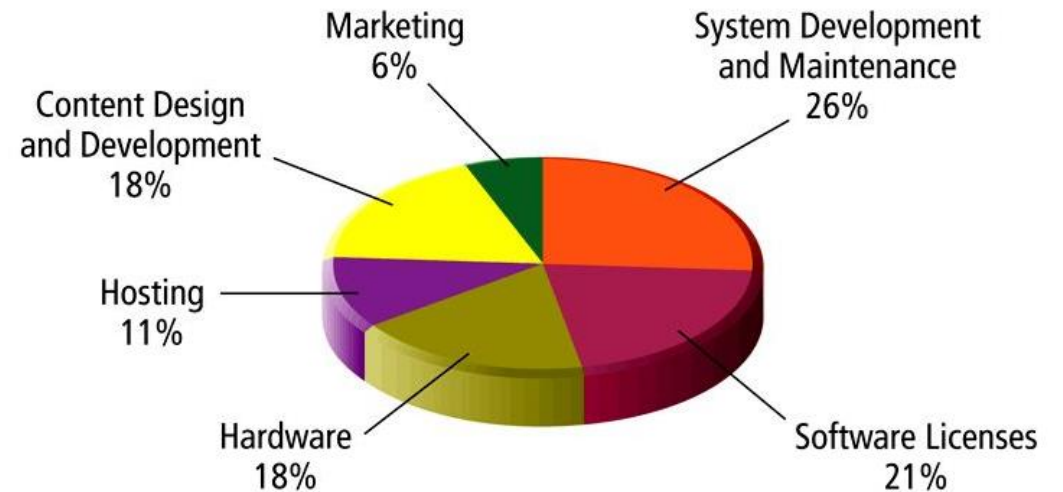
- have a rough idea of the time frame for developing your e-commerce presence when you begin

E-COMMERCE PRESENCE TIMELINE		
PHASE	ACTIVITY	MILESTONE
Phase 1: Planning	Envision e-commerce presence; determine personnel	Mission statement
Phase 2: Website development	Acquire content; develop a site design; arrange for hosting the site	Website plan
Phase 3: Web implementation	Develop keywords and metatags; focus on search engine optimization; identify potential sponsors	A functional website
Phase 4: Social media plan	Identify appropriate social platforms and content for your products and services	A social media plan
Phase 5: Social media implementation	Develop Facebook, Twitter, and Pinterest presence	Functioning social media presence
Phase 6: Mobile plan	Develop a mobile plan; consider options for porting your website to smartphones	A mobile media plan

How much will it cost?

- Develop a preliminary idea of the costs involved
- How much you spend on a website, for instance, depends on what you want it to achieve

Components of a Web Site Budget



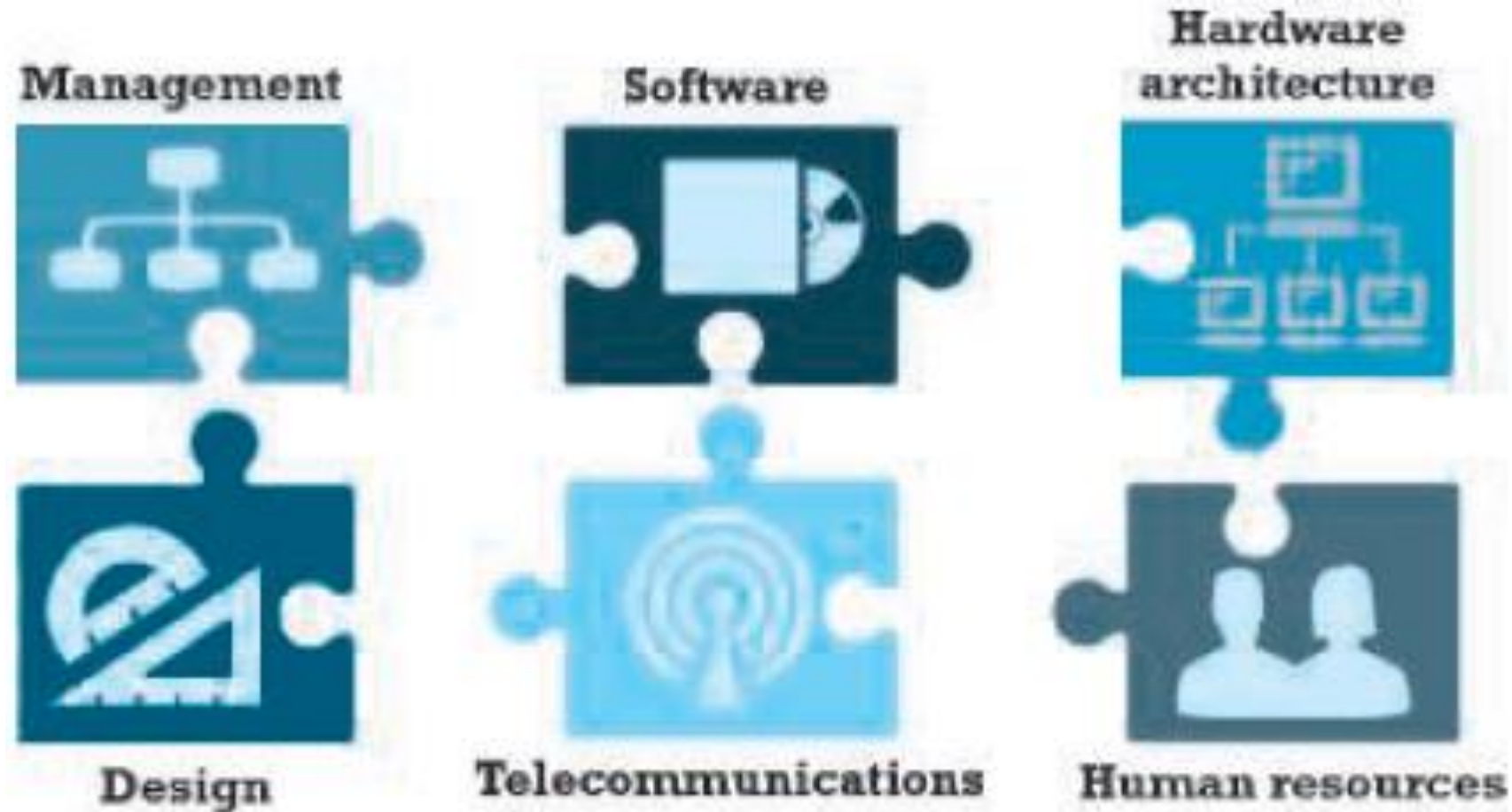
BUILDING AN E-COMMERCE PRESENCE: A SYSTEMATIC APPROACH

Factors to consider

- Building a successful e-commerce presence requires a **systematic approach** and an understanding of **business**, **technology**, and **social issues**,
- E-commerce is just too important to be left totally to technologists and programmers.
- important management challenges to consider:
 1. developing a clear **understanding of your business objectives**
 - be aware of the main areas where you will need to make decisions
 - build a plan for developing your firm's presence
 2. knowing how to choose the **right technology to achieve those objectives**
 - understand elements of e-commerce infrastructure (hardware, software, telecommunications, cost, capability, constraints).

The business should drive the technology!

Factors to consider



PLANNING: THE SYSTEMS DEVELOPMENT LIFE CYCLE

- Systems development life cycle (SDLC):
 - A process for understanding the business objectives of any system and designing an appropriate solution
 - Helps in creating documents that communicate objectives, important milestones, and the uses of resources to management.

five major steps involved in the systems development life cycle

1. Systems analysis/planning
2. Systems design
3. Building the system
4. Testing
5. Implementation

Systems analysis/planning

Identify **business objectives**, system functionality, **information requirements**

- Business objectives:
 - capabilities you want your product to have
- System functionalities
 - types of information systems capabilities you will need to achieve your business objectives
- Information requirements
 - the information elements that the system must produce in order to achieve the business objectives

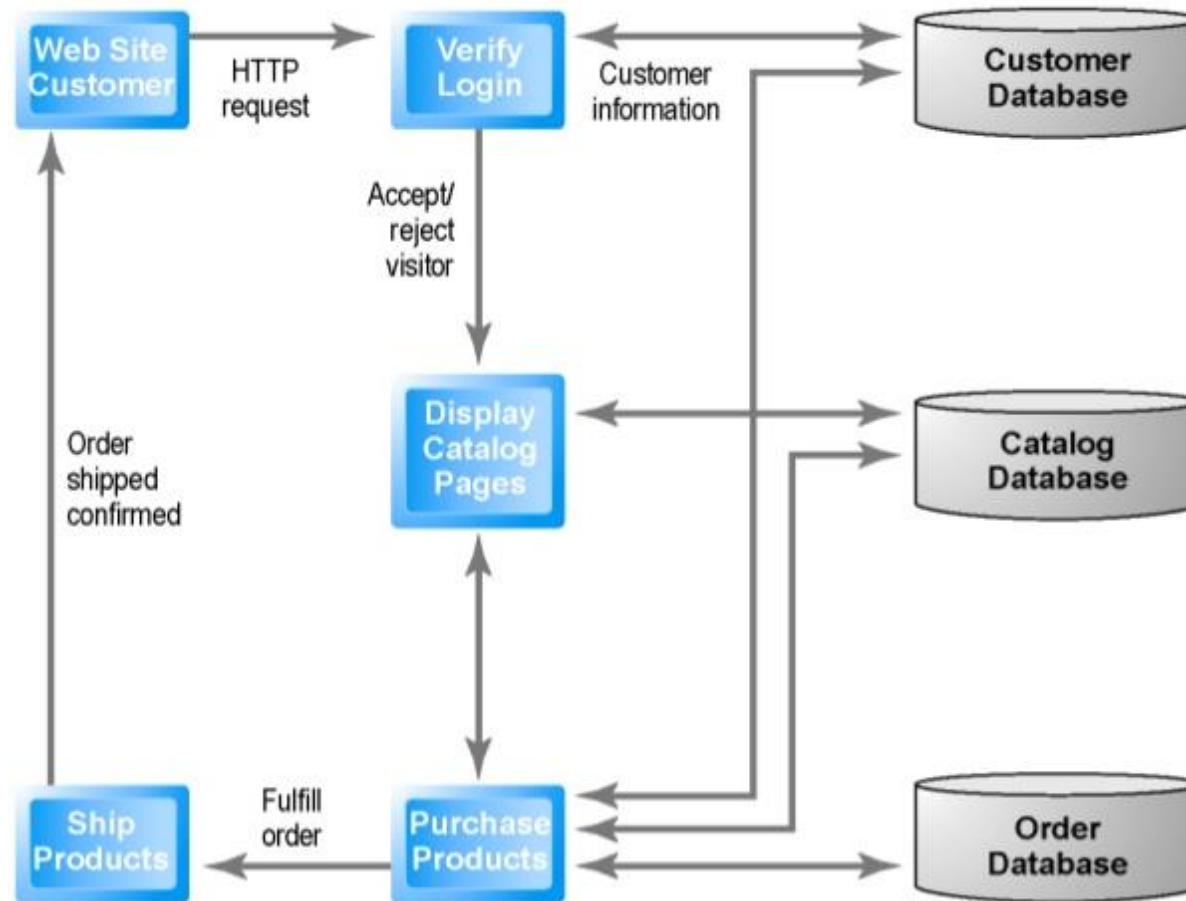
SYSTEM ANALYSIS: BUSINESS OBJECTIVES, SYSTEM FUNCTIONALITIES, AND INFORMATION REQUIREMENTS FOR A TYPICAL E-COMMERCE SITE

BUSINESS OBJECTIVE	SYSTEM FUNCTIONALITY	INFORMATION REQUIREMENTS
Display goods	Digital catalog	Dynamic text and graphics catalog
Provide product information (content)	Product database	Product description, stocking numbers, inventory levels
Personalize/customize product	Customer on-site tracking	Site log for every customer visit; data mining capability to identify common customer paths and appropriate responses
Engage customers in conversations	On-site blog; user forums	Software with blogging and community forum functionality
Execute a transaction	Shopping cart/payment system	Secure credit card clearing; multiple payment options
Accumulate customer information	Customer database	Name, address, phone, and e-mail for all customers; online customer registration
Provide after-sale customer support	Sales database	Customer ID, product, date, payment, shipment date
Coordinate marketing/advertising	Ad server, e-mail server, e-mail, campaign manager, ad banner manager	Site behavior log of prospects and customers linked to e-mail and banner ad campaigns
Understand marketing effectiveness	Site tracking and reporting system	Number of unique visitors, pages visited, products purchased, identified by marketing campaign
Provide production and supplier links	Inventory management system	Product and inventory levels, supplier ID and contact, order quantity data by product

Systems Design: Software & Hardware Platforms

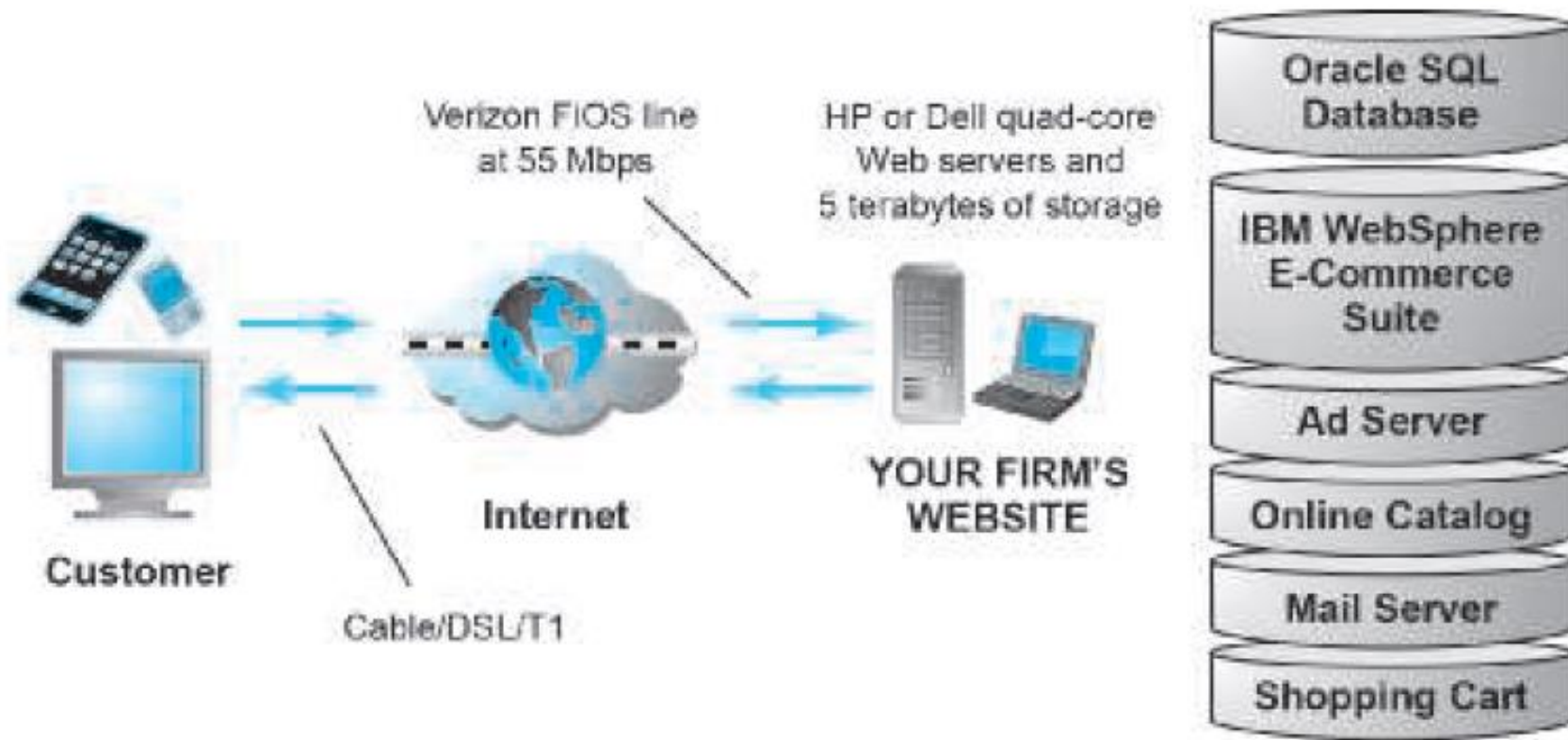
- Begin to consider how desired system functionality will be delivered
- Come up with a system design specification
 - description of the main components in the system and their relationship to one another
 - System components: Logical design and physical design
- Logical design: describes the following
 - **flow of information** at your e-commerce site
 - **processing functions** that must be performed
 - **databases** that will be used
 - **security** and **emergency backup procedures** that will be instituted
 - **controls** that will be used in the system
- Physical design
 - translates the logical design into physical components

Logical design: Data Flow Diagram



This data flow diagram describes the flow of information requests and responses for a simple website.

Physical design



physical design describes the hardware and software needed to realize the logical design.

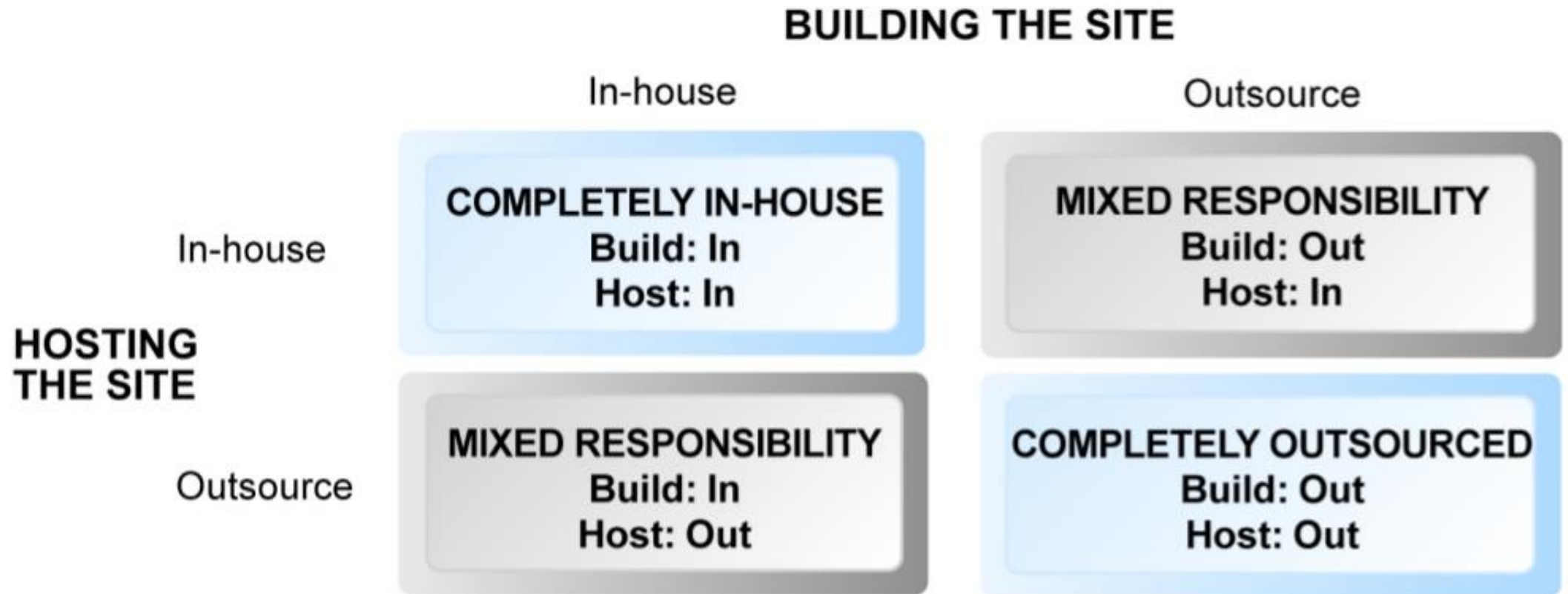
BUILDING THE SYSTEM: IN- HOUSE VERSUS OUTSOURCING

Reading Assignment

- How to choose between in-house development and out-sourcing
- Merits and demerits of each of the approaches

BUILDING THE SYSTEM: IN- HOUSE VERSUS OUTSOURCING

Alternatives to consider



Build Your Own versus Outsourcing

- Advantages of building a solution in-house
 - ability to change and adapt the site quickly as the market demands
 - ability to build a site that does exactly what the company needs.
- Disadvantages of building a solution in-house:
 - higher costs
 - reinventing what other specialized firms have already built
 - greater risks of failure
 - a more time-consuming process
 - a longer staff learning curve that may delay time to market
 - Using design templates cuts development time, but preset templates can also limit functionality.

THE SPECTRUM OF TOOLS FOR BUILDING YOUR OWN E-COMMERCE SITE



Example e-commerce platforms and templates

- Yahoo Aabaco Small Business
 - <https://smallbusiness.yahoo.com/>
- Finding the Best Ecommerce Platform for Your Business Needs
 - <https://www.bigcommerce.com/blog/ecommerce-platforms/>
- 2021's Best Selling eCommerce Website Templates:
 - https://themeforest.net/popular_item/by_category?category=ecommerce

Build Your Own versus Outsourcing

- Outsourcing
 - hiring an outside vendor to provide the services you cannot perform with in-house personnel
- Advantages of outsourcing
 - places the burden of reliability on someone else in return for a monthly hosting fee
 - Development and hosting prices can be lower
- Disadvantages of outsourcing:
 - Need to evaluate different packages, which can be time consuming
 - if the site requires fast upgrades due to heavy traffic, the chosen hosting company may or may not be capable of keeping up
 - Costs rise rapidly as modifications mount.
 - Persistent weaker in-house technical capacity

Host Your Own versus Outsourcing

- co-location
 - a firm purchases or leases a web server (and has total control over its operation) but locates the server in a vendor's physical facility
 - The vendor maintains the facility, communications lines, and the machinery
 - Cloud services are rapidly replacing co-location

TESTING THE SYSTEM

- Unit testing
 - involves testing the site's program modules one at a time
- System testing
 - involves testing the site as a whole, in a way the typical user will use the site
- Acceptance testing
 - verifies that the business objectives of the system as originally conceived are in fact working
- A/B testing (split testing)
 - showing two versions of a web page or website to different users to see which one performs better
- Multivariate testing
 - involves identifying specific elements, creating versions for each element, and then creating a unique combination of each element and version to test

IMPLEMENTATION AND MAINTENANCE

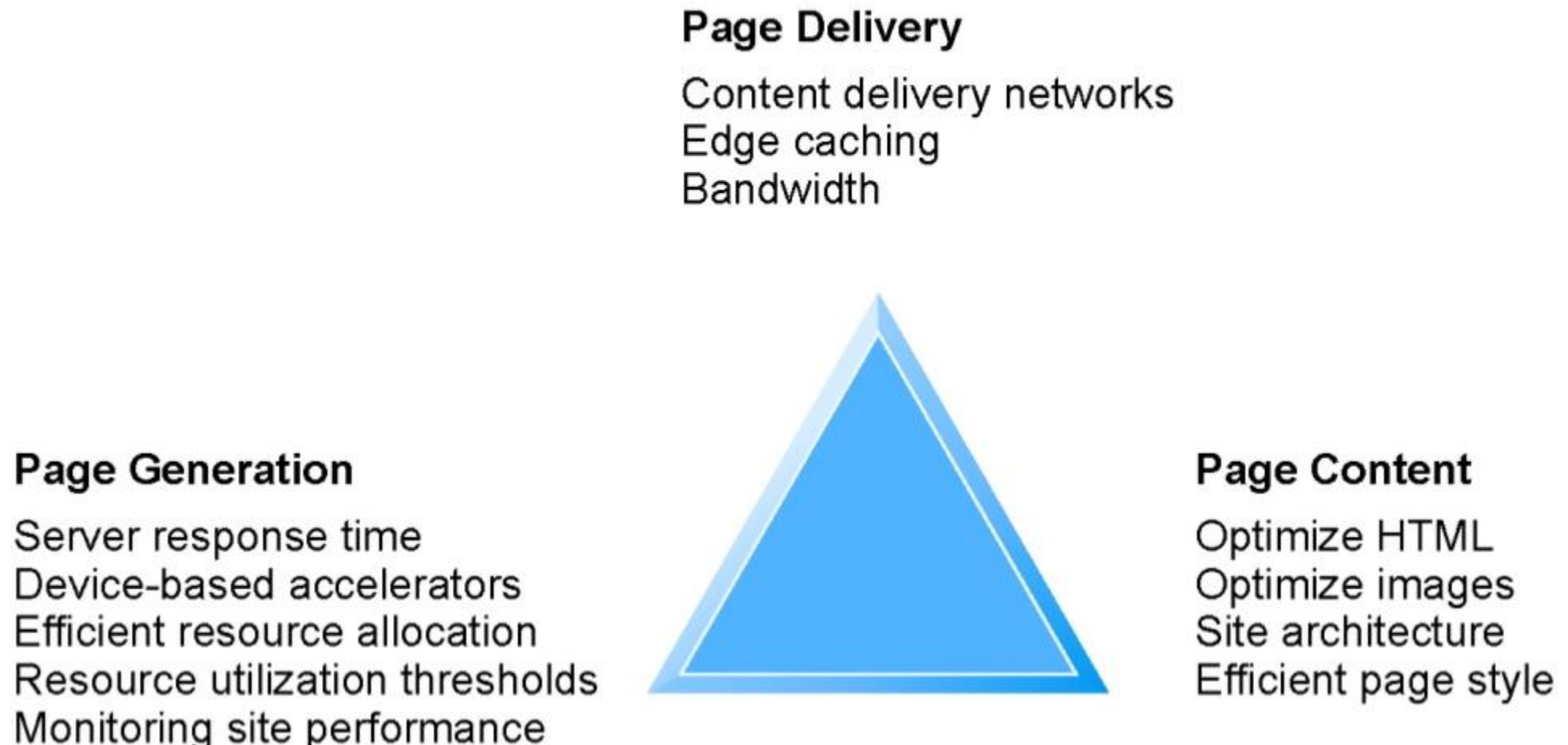
Maintenance

- Continual checking, testing, and repair
- Systems maintenance is vital, but *sometimes not budgeted for*
- In general, the *annual system maintenance cost will roughly parallel the development cost.*
- listen to customers' feedback on the site and respond to that feedback as necessary
- Develop a systematic monitoring and testing plan
- **Benchmarking**
 - a process in which the site is compared with those of competitors in terms of response speed, quality of layout, and design


FACTORS IN OPTIMIZING WEBSITE PERFORMANCE

Optimization of website performance

- Factors: page content, page generation, and page delivery



Web Performance Impacts Conversion Rates

 **You have 5 seconds**
to engage a customer
before they leave your
web site.

46%
of users will
NOT return to a
poorly performing
website.

Just a one second delay in load time
means a loss in conversions:

7%

Loss in
Conversions

11%

Fewer Page
Views

16%

Decrease in
Customer
Satisfaction



1 in 4 People
will abandon a website
if it takes longer than
4 seconds to load

74%
of users will abandon
after waiting 5 seconds
for a mobile site to load

Peak Load Time
for Conversions

2
Seconds

Waiting 500 ms causes
stress and frustration:

26%

Increase
in Frustration

8%

Decrease
in Engagement

For every 1 second
speed improvement to
the Amazon website
conversions increased

+ 2%

Mozilla made pages
2.2 seconds faster. . .

60
Million More
Firefox Downloads
per Year

A \$250 million
presidential fundraising site
increased speed 60% . . .

14%
Increase in Donation
Conversions

<https://employedbylife.online/infographic-web-performance-impacts-conversion-rates/>



HOW WEBSITE PERFORMANCE AFFECTS SHOPPING BEHAVIOR



47% of consumers expect a web page to load in 2 seconds or less.



40% abandon a website that takes more than 3 seconds to load.



79% of shoppers who are dissatisfied with website performance are less likely to buy from the same site again.



52% of online shoppers state that quick page loading is important to their site loyalty.



A 1 second delay (or 3 seconds of waiting) decreases customer satisfaction by about 16%.



44% of online shoppers will tell their friends about a bad experience online.

<https://www.crazyegg.com/blog/speed-up-your-website/>

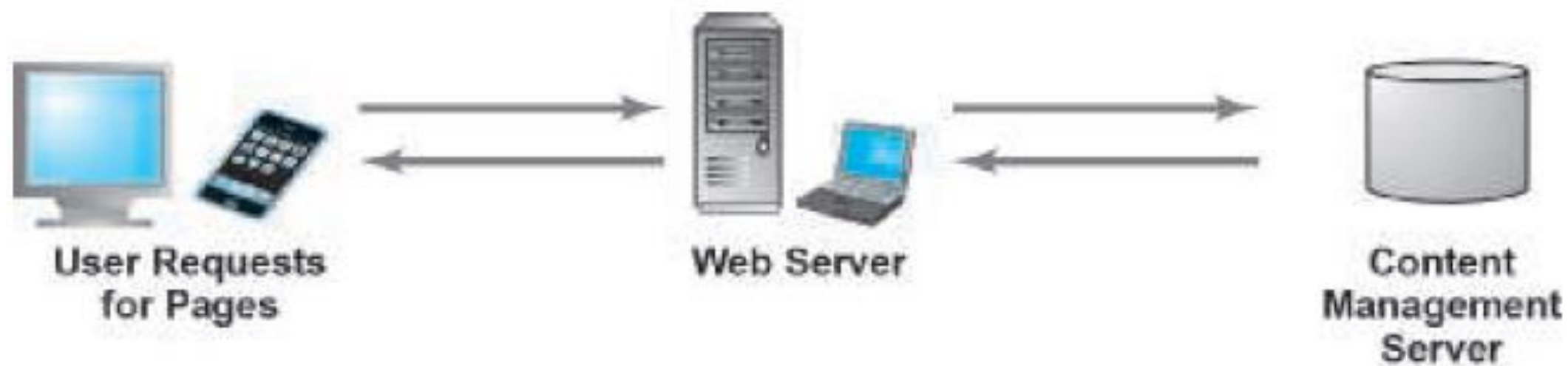
Further reading

- **20 Ways to Speed Up Your Website and Improve Conversion**
 - <https://www.crazyegg.com/blog/speed-up-your-website/>

CHOOSING SOFTWARE

- System architecture
 - the arrangement of software, machinery, and tasks in an information system needed to achieve a specific functionality
- Web application servers:
 - Specialized software programs that perform a wide variety of transaction processing required by e-commerce

SIMPLE VERSUS MULTI-TIERED WEBSITE ARCHITECTURE



(a) Two-tier Architecture

In a two-tier architecture, a web server responds to requests for web pages and a database server provides backend data storage.



(b) Multi-tier Architecture

In a multi-tier architecture, a web server is linked to a middle-tier layer that typically includes a series of application servers that perform specific tasks, as well as to a backend layer of existing corporate systems.

Choosing Software

Webserver

- When you choose web server software, you will also be choosing an operating system for your site's computers
 - Apache – works well with Linux
 - Microsoft Internet Information Services (IIS) - Windows

BASIC FUNCTIONALITY PROVIDED BY WEB SERVERS

FUNCTIONALITY	DESCRIPTION
Processing of HTTP requests	Receive and respond to client requests for HTML pages
Security services (Secure Sockets Layer)/ Transport Layer Security	Verify username and password; process certificates and private/public key information required for credit card processing and other secure information
File Transfer Protocol	Permits transfer of very large files from server to server
Search engine	Indexing of site content; keyword search capability
Data capture	Log file of all visits, time, duration, and referral source
E-mail	Ability to send, receive, and store e-mail messages
Site management tools	Calculate and display key site statistics, such as unique visitors, page requests, and origin of requests; check links on pages

Site Management Tools

- verify that links on pages are still valid and also identify orphan files
- can help you understand consumer behaviour on your website
 - effectively monitor customer purchases and marketing campaign effectiveness
 - keep track of standard hit counts and page visit information

E-COMMERCE MERCHANT SERVER SOFTWARE FUNCTIONALITY

e-commerce merchant server software

- software that provides the basic functionality needed for online sales, including an **online catalog**, **order taking** via an **online shopping cart**, and online **credit card processing**
- online catalog
 - list of products available on a website
- shopping cart - allows shoppers to:
 - set aside desired purchases in preparation for checkout
 - review what they have selected
 - edit their selections as necessary
 - make the purchase by clicking a button

- Credit Card Processing

- verifies the shopper's credit card
- puts through the debit to the card and the credit to the company's account at checkout

APPLICATION SERVERS AND THEIR FUNCTION

APPLICATION SERVER	FUNCTIONALITY
Catalog display	Provides a database for product descriptions and prices
Transaction processing (shopping cart)	Accepts orders and clears payments
List server	Creates and serves mailing lists and manages e-mail marketing campaigns
Proxy server	Monitors and controls access to main web server; implements firewall protection
Mail server	Manages Internet e-mail
Audio/video server	Stores and delivers streaming media content
Chat server	Creates an environment for online real-time text and audio interactions with customers
News server	Provides connectivity and displays Internet news feeds
Fax server	Provides fax reception and transmission using a web server
Groupware server	Creates workgroup environments for online collaboration
Database server	Stores customer, product, and price information
Ad server	Maintains web-enabled database of advertising banners that permits customized and personalized display of advertisements based on consumer behavior and characteristics
Auction server	Provides a transaction environment for conducting online auctions
B2B server	Implements buy, sell, and link marketplaces for commercial transactions

MERCHANT SERVER SOFTWARE
PACKAGES (E-COMMERCE
SOFTWARE
PLATFORMS)

merchant server software package (e-commerce software platform)

- offers an integrated environment that provides most or all of the functionality and capabilities needed to develop a sophisticated, customer-centric site
- Cost for options vary
- You can use templates, platforms such as Yahoo Aabaco Small Business, or open source software
- Open Source Software
 - software that is developed by a community of programmers and designers, and is free to use and modify

- **Midrange e-commerce software platforms**
 - IBM WebSphere Commerce Express Edition
 - Sitecore Commerce Server (formerly Microsoft Commerce Server).
- **High-end enterprise solutions for large global firms:**
 - IBM Websphere Professional and Enterprise Editions
 - IBM Commerce on Cloud
 - Oracle ATG Web Commerce
 - Salesforce Commerce Cloud (formerly Demandware)
 - Magento
 - NetSuite,

OPEN SOURCE SOFTWARE OPTIONS

FUNCTIONALITY	OPEN SOURCE SOFTWARE
Web server	Apache (the leading web server for small and medium businesses)
Shopping cart, online catalog	Many providers: osCommerce, Zen Cart, AgoraCart, X-cart, AspDotNetStorefront
Credit card processing	Credit card acceptance is typically provided in shopping cart software but you may need a merchant account from a bank as well.
Database	MySQL (the leading open source SQL database for businesses)
Programming/scripting language	PHP is a scripting language embedded in HTML documents but executed by the server, providing server-side execution with the simplicity of HTML editing. Perl is an alternative language. JavaScript programs are client-side programs that provide user interface components. Ruby on Rails (RoR, Rails) and Django are other popular open source web application frameworks.
Analytics	Analytics keep track of your site's customer activities and the success of your web advertising campaign. You can also use Google Analytics if you advertise on Google, which provides good tracking tools; most hosting services will provide these services as well. Other open source analytic tools include Piwik, CrawlTrack, and Open Web Analytics.

Choosing an E-commerce Software Platform

The following are some of the key factors to consider:

- Functionality, including availability on an SaaS basis
- Support for different business models, including m-commerce
- Business process modeling tools
- Visual site management tools and reporting
- Performance and scalability
- Connectivity to existing business systems
- Compliance with standards
- Global and multicultural capability
- Local sales tax and shipping rules

References

- Eberly, T. (2017). Sharpen Your Brand Strategy with a SWOT Analysis. [Available from]: <https://www.hanloncreative.com/blog/sharpen-your-brand-strategy-with-a-swot-analysis>