FEX Web 前端研发部

如何成为一名优秀的前端工程师

How To Be A Frontend Web Developer

Shared By Shenhongshun
@walterShen

FEX

FEX 是百度「Web 前端研发部」的内部名称，其中 FE 是 Front End 的缩写，X 代表我们不仅关注前端技术，还更重视全端及全栈的能力：

- 我们致力于提升百度各个产品线的研发效率及页面体验
- 我们是百度内部最具影响力的前端团队，我们的工具及平台推广到了绝大多数产品线
- 我们喜欢开发通用的解决方案，然后同多个产品线合作来创造出成倍的收益
- 我们是百度最早的开源实践者，并先后推出了 Tangram、UEditor、FIS、GMU、webuploader、kityminder 等库和工具

Brief About Front-End web developer   **15min**

Front-End Development Architecture   **30min**

How To Keep Up To Date On   **15min**

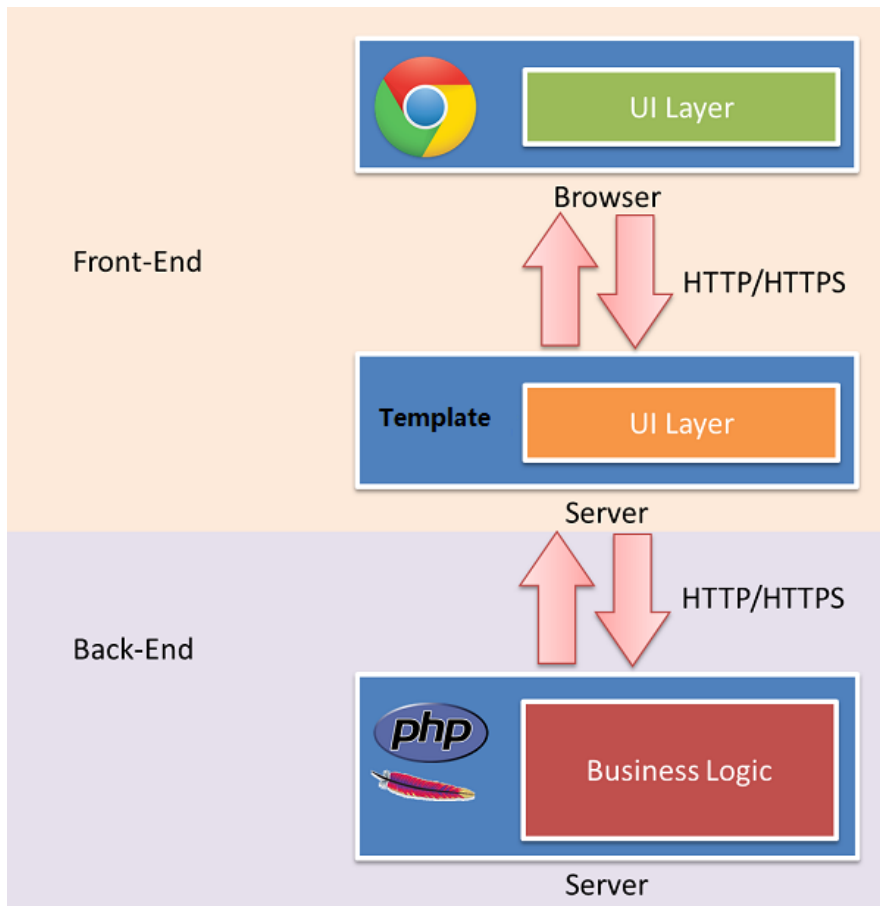**Front-end Developer Interview Questions**   **10min**

Agenda

Why to be a front-end web developer?

What is Front-End Development？

- a mix of programming and layout that powers the **visuals** and **interactions** of the web.

- usually consists of three parts: a **server**, **business logic**, and a **database**
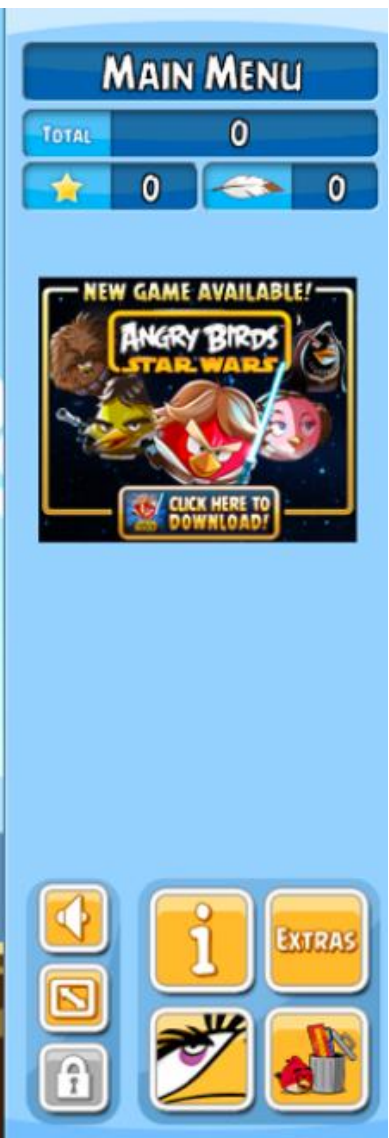
FEX 技术分享
http://fex.baidu.com

CONTROLS

Button	Player 1	Player 2
Left	Left	Num-4
Right	Right	Num-6
Up	Up	Num-8
Down	Down	Num-2
A	X	Num-7
B	Z	Num-9
Start	Enter	Num-1
Select	Ctrl	Num-3

Super Mario Bros.

JSNES is a port of vNES to JavaScript, inspired by Matt Westcott's JSSpeccy. The The source is available on GitHub.

http://chrome.angrybirds.com/

```
TCP: Hash tables configured (established 1024 bind 512)
TCP reno registered
Total HugeTLB memory allocated, 0
io scheduler noop registered
io scheduler anticipatory registered
io scheduler deadline registered
io scheduler cfq registered (default)
Real Time Clock Driver v1.12ac
JS clipboard: I/O at 0x03c0
Serial: 8250/16550 driver $Revision: 1.90 $ 4 ports, IRQ sharing disabled
serial8250: ttyS0 at I/O 0x3f8 (irq = 4) is a XScale
RAMDISK driver initialized: 16 RAM disks of 4096K size 1024 blocksize
loop: loaded (max 8 devices)
Uniform Multi-Platform E-IDE driver Revision: 7.00alpha2
ide: Assuming 50MHz system bus speed for PIO modes; override with idebus=xx
hda: JSLinux HARDDISK, ATA DISK drive
ide0 at 0x1f0-0x1f7,0x3f6 on irq 14
hda: max request size: 128KiB
hda: 116736 sectors (59 MB) w/256KiB Cache, CHS=115/16/63
 hda: unknown partition table
TCP cubic registered
NET: Registered protocol family 1
NET: Registered protocol family 17
Using IPI Shortcut mode
Time: pit clocksource has been installed.
VFS: Mounted root (ext2 filesystem) readonly.
Freeing unused kernel memory: 128k freed
Booted in 19.576 s
Welcome to JS/Linux
/var/root #
```
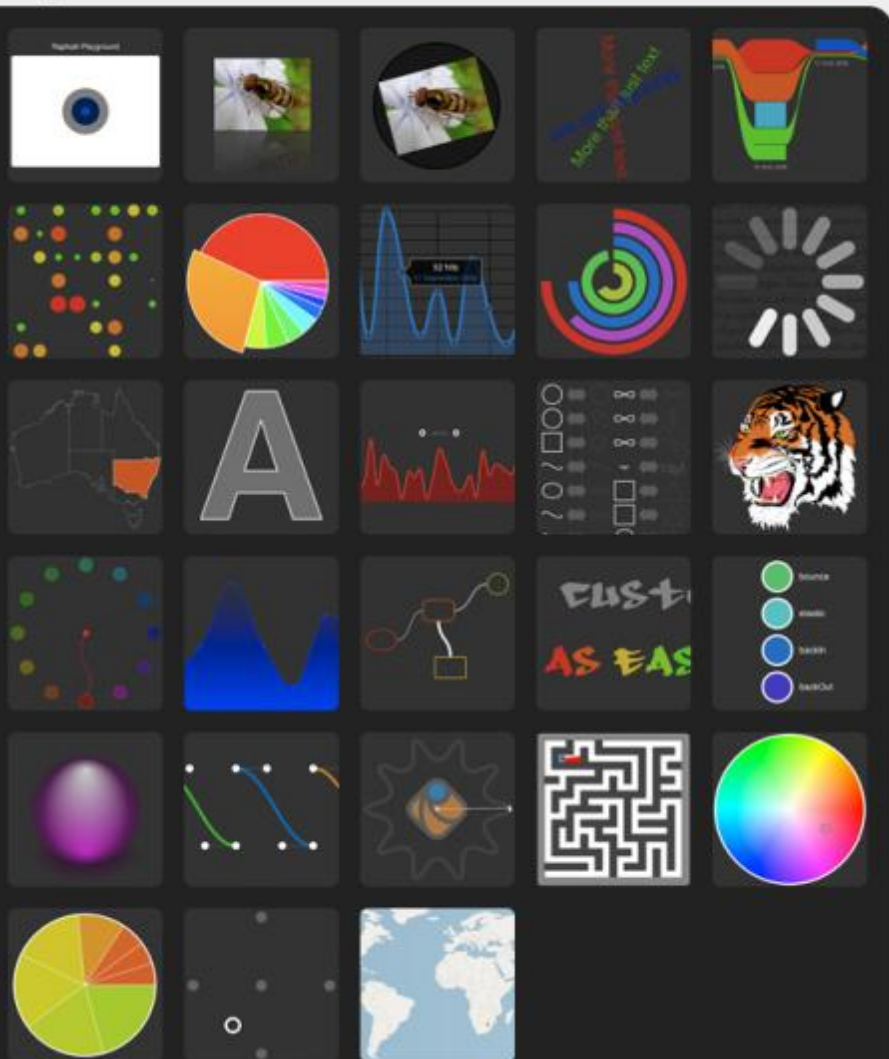
Clear clipboard

© 2011 Fabrice Bellard - News - FAQ - Technical notes

作者 Fabrice Bellard 使用 JavaScript 编写了一个简单的 PC 模拟器，包含32位 x86 兼容 CPU、8259 可编程中断控制器、8254 可编程中断计时器,实现 16450 UART 串口设备

Raphaël—JavaScript Library


```javascript
// Creates canvas 320 × 200 at 10, 50
var paper = Raphael(10, 50, 320, 200);

// Creates circle at x = 50, y = 40, with radius 10
var circle = paper.circle(50, 40, 10);
// Sets the fill attribute of the circle to red (#f00)
circle.attr("fill", "#f00");

// Sets the stroke attribute of the circle to white
circle.attr("stroke", "#fff");
```

node js

Node.js is a platform built on Chrome's JavaScript runtime for easily building fast, scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.

Current Version: v0.10.26

INSTALL

DOWNLOADS   API DO

npm

Search Packages

Node Packaged Modules

Total Packages: 70 067

    9 816 047   downloads in the last day
   55 373 534   downloads in the last week
  213 460 100   downloads in the last month
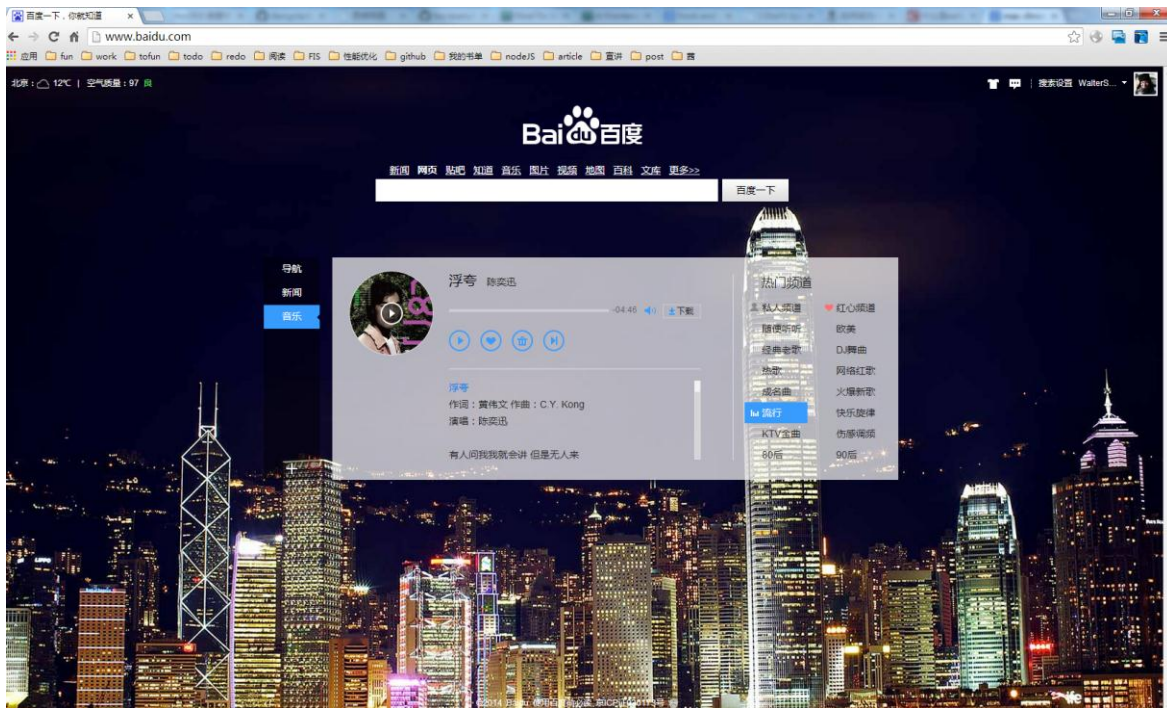
Patches welcome!

Any package can be installed by using npm install.

Add your programs to this index by using npm publish.

"Webview" on Mobile

Yahoo前端架构师Nicholas C. Zakas 认为

：

前端工程师是计算机科学职业领域中**最复杂的一个工种**。绝大多数传统的编程思想已经不适用了，为了在多种平台中使用，多种技术都借鉴了大量软科学的知识和理念。成为优秀前端工程师所要具备的专业技术，**涉及到广阔而复杂的领域**，这些领域又会因为你最终必须服务的各方的介入而变得更加复杂。专业技术可能会引领你进入成为前端工程师的大门，但只有运用该技术创造的应用程序以及你跟他人并肩协同的能力，才会真正让你变得优秀。

How to Be A Front-End Web Developer?
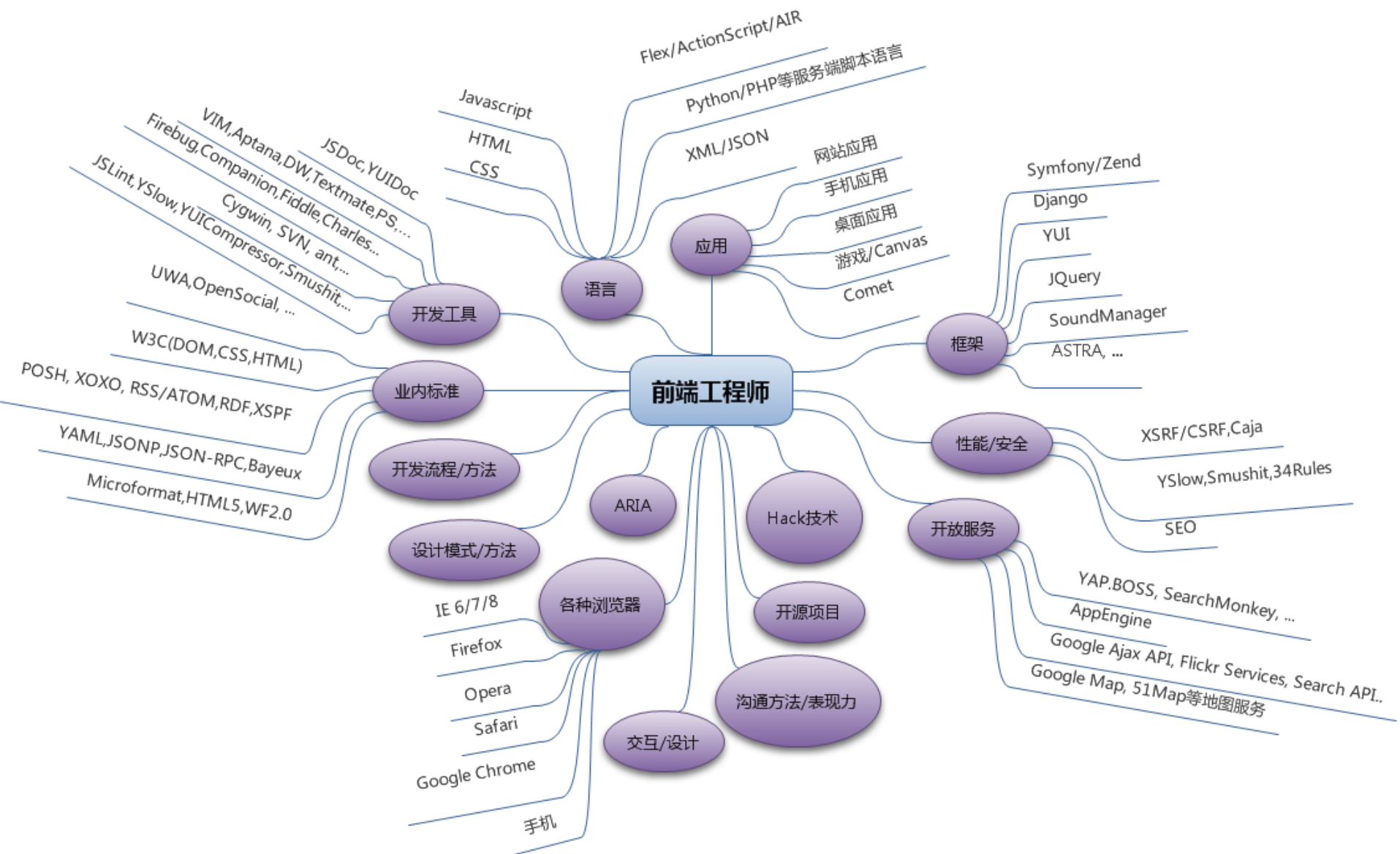
Are You Ready?

Frontend Knowledge Structure

- Cross Browser ★

- Programming & Markup Languages ★

- Frameworks ★

- Performance ★★

- HTML5 & Mobile ★★

- Workflow★★★

★入门，基础知识，必须掌握；★★进阶，核心知识，需要掌握；★★★高阶，重要知识，建议掌握

Cross Browser

CJ Pellerin

Browsers Scripting Languages

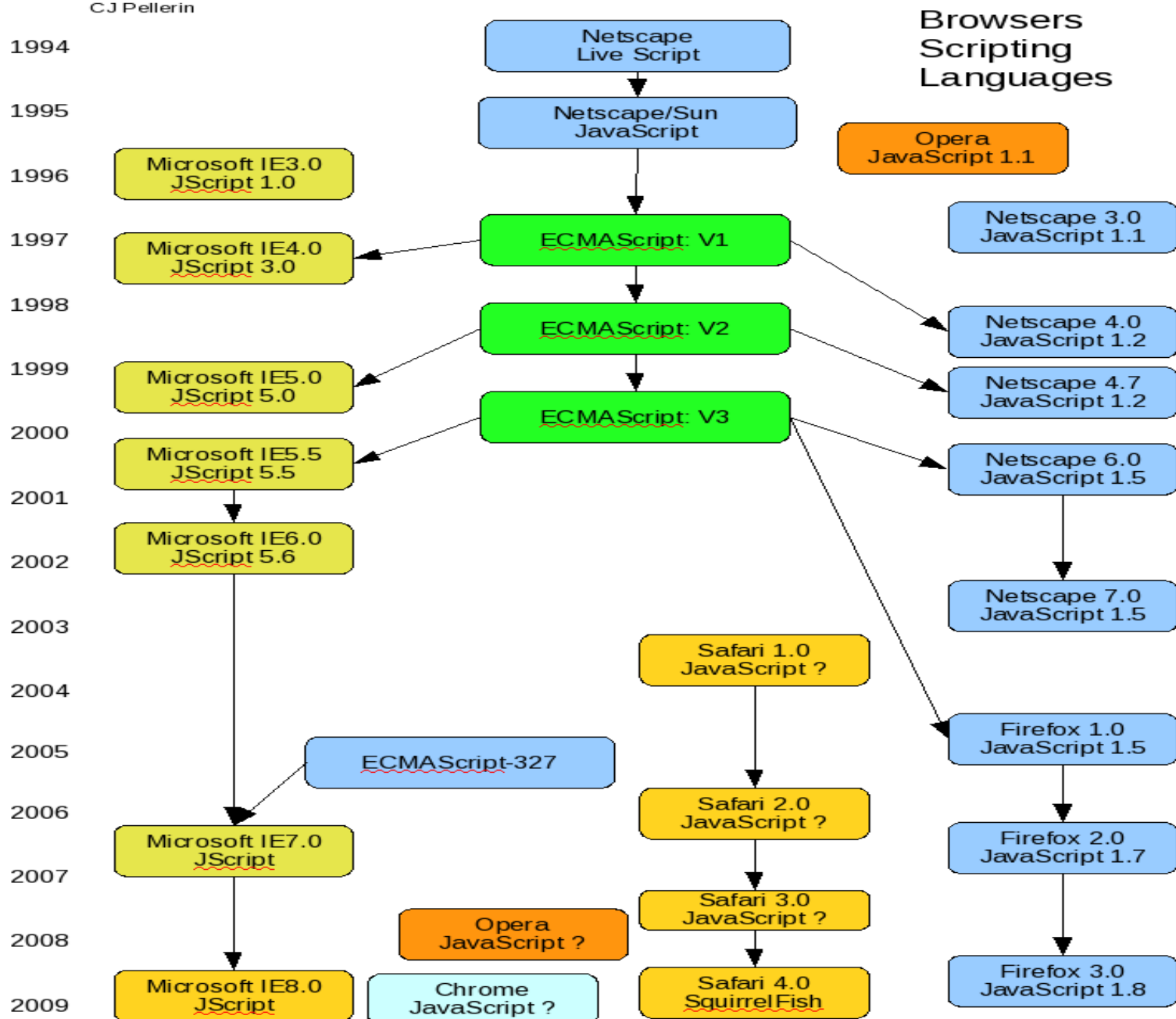| Year			
1994		Netscape Live Script	
1995		Netscape/Sun JavaScript	
1996	Microsoft IE3.0 JScript 1.0		Opera JavaScript 1.1
1997	Microsoft IE4.0 JScript 3.0	ECMAScript: V1	Netscape 3.0 JavaScript 1.1
1998		ECMAScript: V2	Netscape 4.0 JavaScript 1.2
1999	Microsoft IE5.0 JScript 5.0		Netscape 4.7 JavaScript 1.2
2000	Microsoft IE5.5 JScript 5.5	ECMAScript: V3	Netscape 6.0 JavaScript 1.5
2001			
2002	Microsoft IE6.0 JScript 5.6		Netscape 7.0 JavaScript 1.5
2003		Safari 1.0 JavaScript ?	
2004			
2005	ECMAScript-327		Firefox 1.0 JavaScript 1.5
2006	Microsoft IE7.0 JScript	Safari 2.0 JavaScript ?	Firefox 2.0 JavaScript 1.7
2007		Safari 3.0 JavaScript ?	
2008	Opera JavaScript ?		
2009	Microsoft IE8.0 JScript / Chrome JavaScript ?	Safari 4.0 SquirrelFish	Firefox 3.0 JavaScript 1.8

The browser's High Level Structure

- **Parser**
- **Browsers error tolerance**
- **Order of processing**
- **Render tree construction**
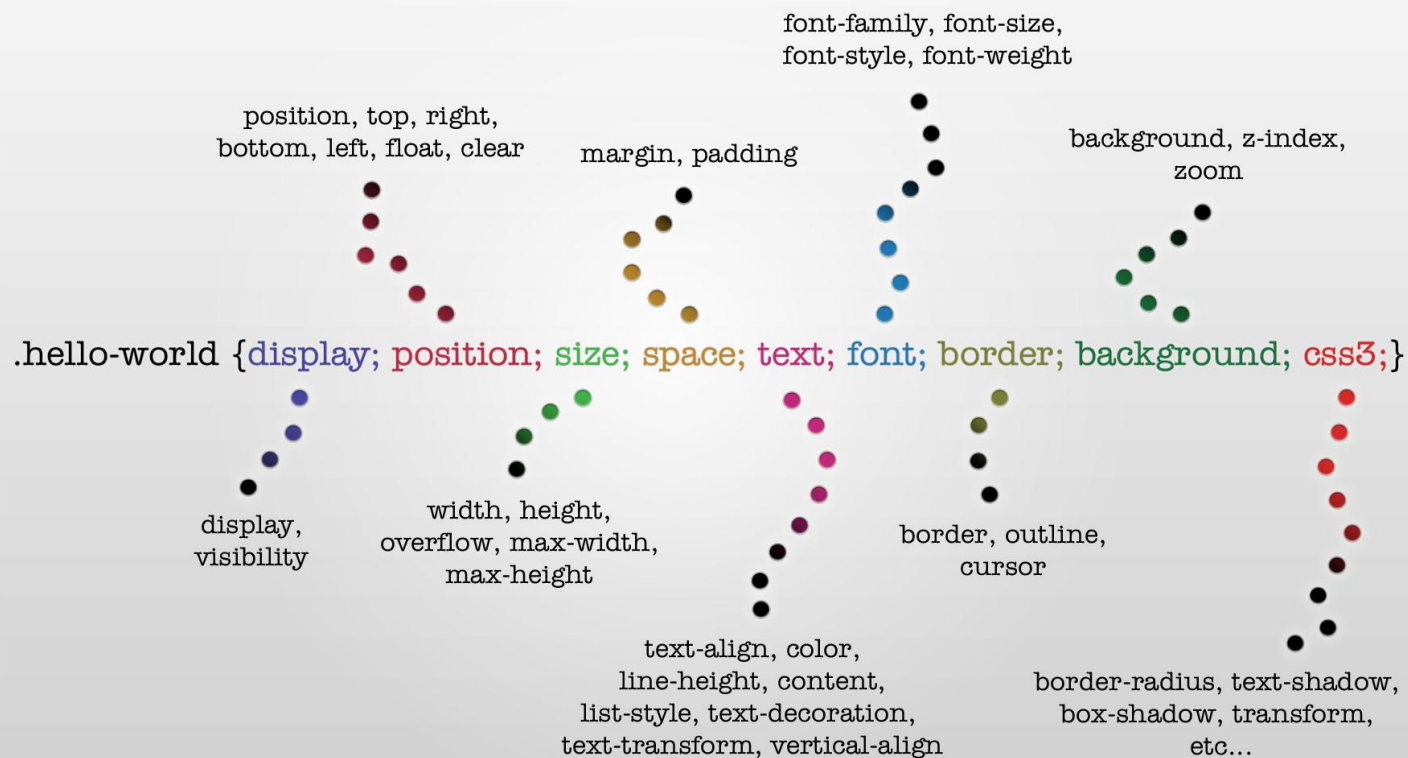- **Painting**
- **Positioning**
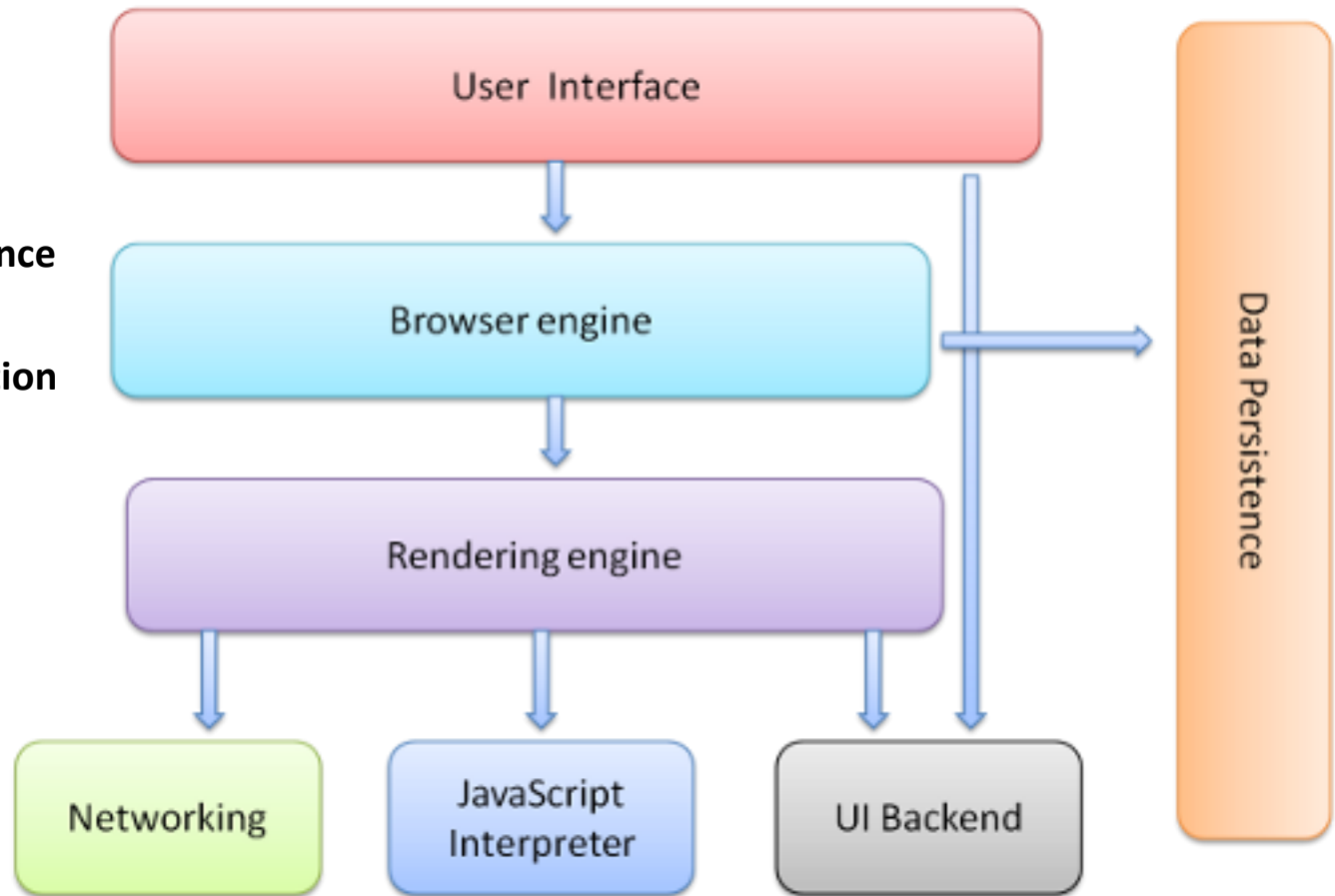
Programming & Markup Languages
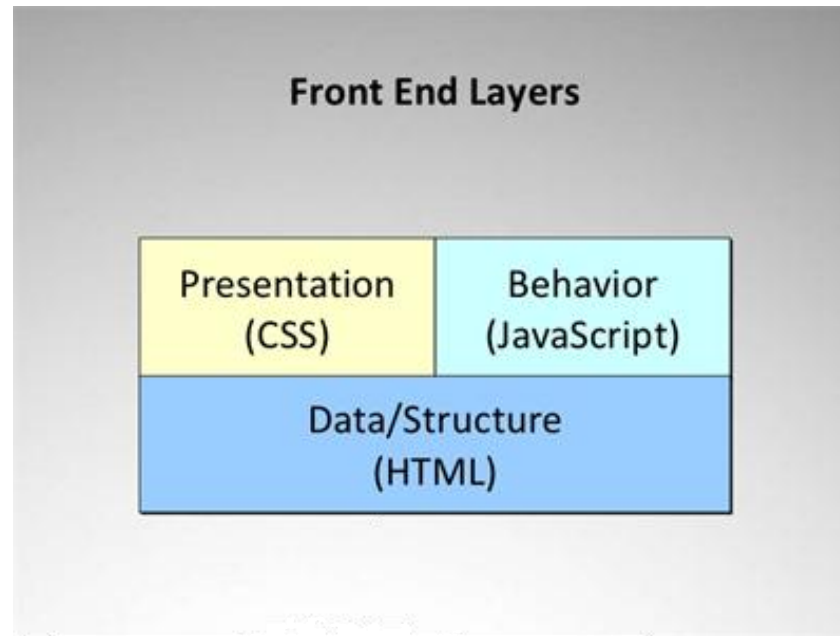
Javascript

ECMAScript

DOM

BOM

- **Prototypal OOP**
- **Functional**
- **Dynamic**

- **Box Model**
- **Layout**
- **Selector Priority**

- **Doctype**
- **Stand/Quirks mode**
- **HTML5**

```html
<!DOCTYPE HTML>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=utf-8">
    <title></title>
    <!--[if lt IE 9]>
    <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
    <![endif]-->
    <link href="styles/screen.css" rel="stylesheet" type="text/css">
</head>

<body>
    <div class="wrapper">
        <header>
        </header>

        <main>
            <aside>
                <nav>
                    <ul>
                        <li><a href="#">Home</a></li>
                    </ul>
                </nav>
            </aside>

            <article class="content">
            </article>
        </main>

        <footer>
        </footer>
    </div><!-- END .wrapper -->
</body>
</html>
```

Books

CSS
- [Eric Meyer 谈 CSS（卷二）](#) ★★★
- [CSS权威指南（第3版）](#) ★★
- [精通CSS](#) ★★★

JavaScript
- [JavaScript DOM编程艺术（第2版）](#) ★
- [JavaScript高级程序设计（第3版）](#) ★★
- [高性能JavaScript](#) ★★★
- [JavaScript语言精粹](#) ★★★
- [JavaScript权威指南](#) ★★★
- [编写可维护的JavaScript](#) ★★★
- [JAVASCRIPT语言精髓与编程实践](#) ★★★
- [Effective Javascript](#) ★★★
- [Secrets of the JavaScript Ninja](#) ★★★
- [JavaScript模式](#) ★★★
- [JavaScript设计模式](#) ★★★★
- [基于MVC的JavaScript Web富应用开发](#) ★★★

★越少越简单,越适合入门,★多的要么是难度比较高,要么是比较适合在后面看

Frameworks

JSDB.IO

The definitive source of the best
JavaScript libraries, frameworks, and plugins.

Search

All Items	
Animation	
▶ Application Tools	
Audio	
Development Aids	
▶ Dom	
Forms	
Games	
▶ Helpers	
▶ Images	
Data	
Mobile and Touch	
Typography	
User Interface	
Video	
Miscellaneous	

Popular   New   Trending

Search

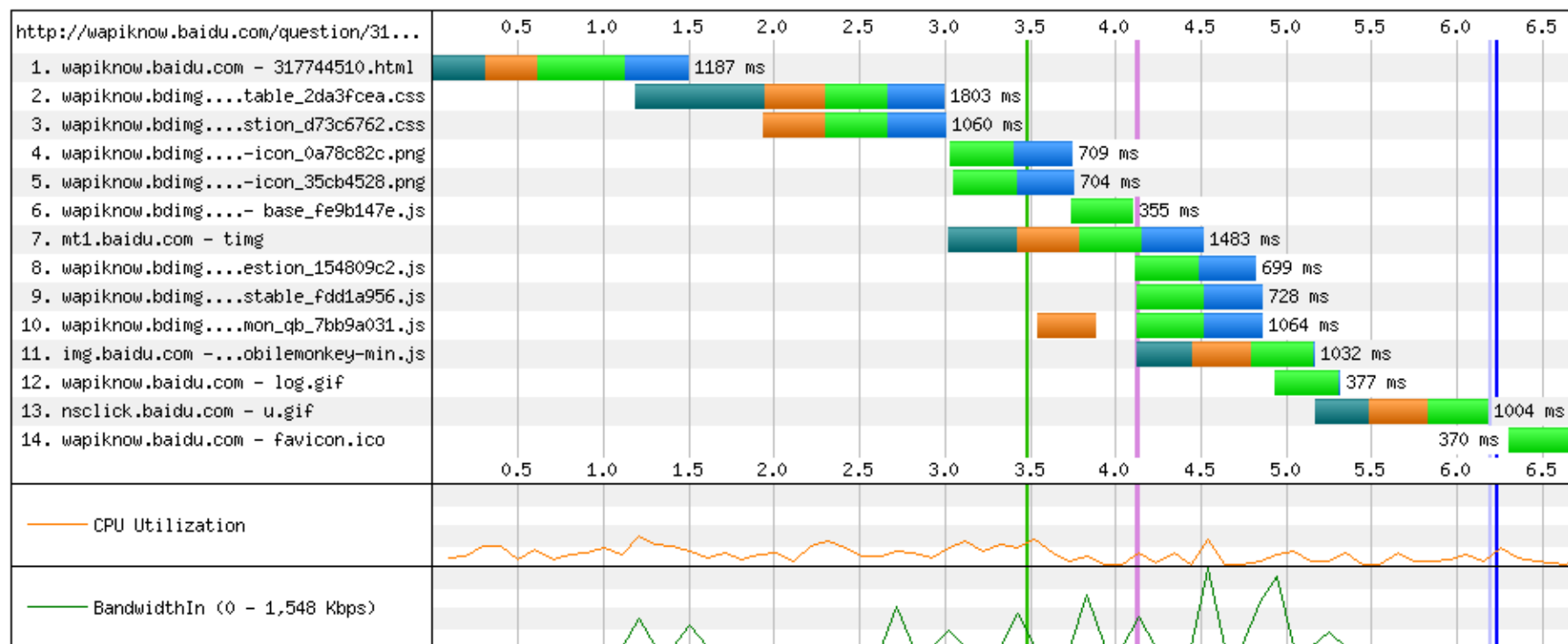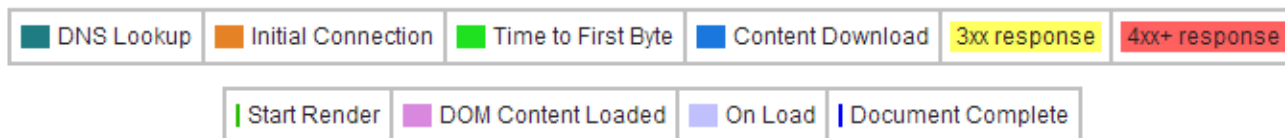|		
Angular.js	AngularJS lets you write client-side web applications as if you had a smarter browser. It ...	100
Ember	Ember.js is a JavaScript framework that does all of the heavy lifting that you'd normally ...	98
Backbone	Give your JS App some Backbone with Models, Views, Collections, and Events	97
jQuery	jQuery JavaScript Library	97
Modernizr	Modernizr is a JavaScript library that detects HTML5 and CSS3 features in the user's bro...	97
Moment	Parse, validate, manipulate, and display dates in javascript.	96
Select2	Select2 is a jQuery based replacement for select boxes. It supports searching, remote d...	96
Underscore	JavaScript's utility _ belt	96
jQuery Mobile	jQuery Mobile Framework	96

Performance

Why Performance/Speed Matters?

Experimental impact of 1s additional latency

- **9.4%** decrease in page views
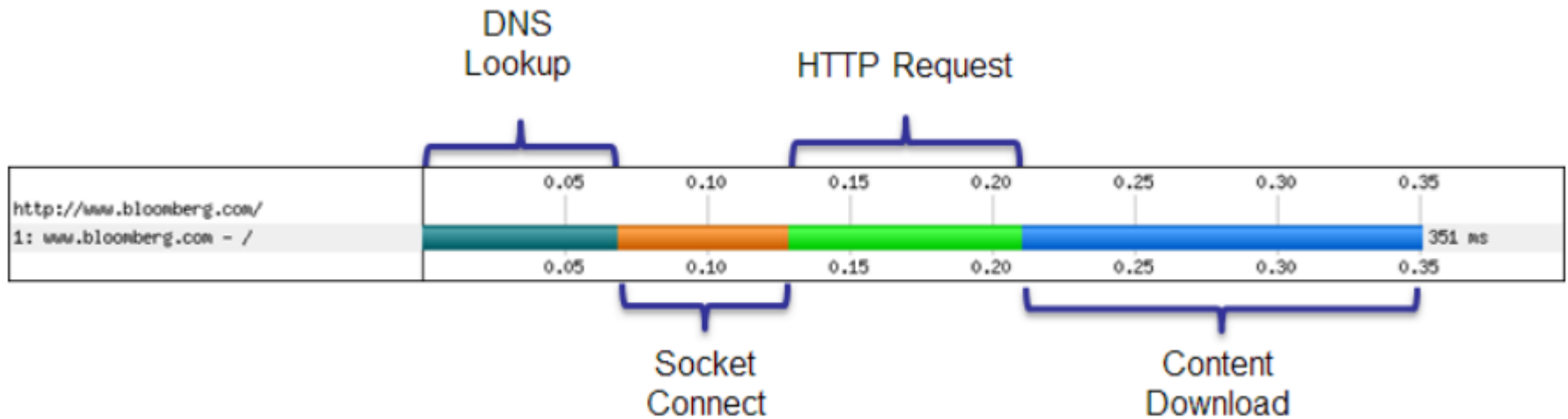- **8.3%** increase in bounce rate
- **3.5%** drop in conversions

Users will learn to avoid slow sites

Waterfall View

	DNS Lookup		Initial Connection		Time to First Byte		Content Download	3xx response	4xx+ response

Start Render		DOM Content Loaded		On Load		Document Complete

http://wapiknow.baidu.com/question/31...

1. wapiknow.baidu.com – 317744510.html		1187 ms
2. wapiknow.bdimg....table_2da3fcea.css		1803 ms
3. wapiknow.bdimg....stion_d73c6762.css		1060 ms
4. wapiknow.bdimg....-icon_0a78c82c.png		709 ms
5. wapiknow.bdimg....-icon_35cb4528.png		704 ms
6. wapiknow.bdimg....- base_fe9b147e.js		355 ms
7. mt1.baidu.com – timg		1483 ms
8. wapiknow.bdimg....estion_154809c2.js		699 ms
9. wapiknow.bdimg....stable_fdd1a956.js		728 ms
10. wapiknow.bdimg....mon_qb_7bb9a031.js		1064 ms
11. img.baidu.com –...obilemonkey-min.js		1032 ms
12. wapiknow.baidu.com – log.gif		377 ms
13. nsclick.baidu.com – u.gif		1004 ms
14. wapiknow.baidu.com – favicon.ico		370 ms

CPU Utilization

BandwidthIn (0 – 1,548 Kbps)
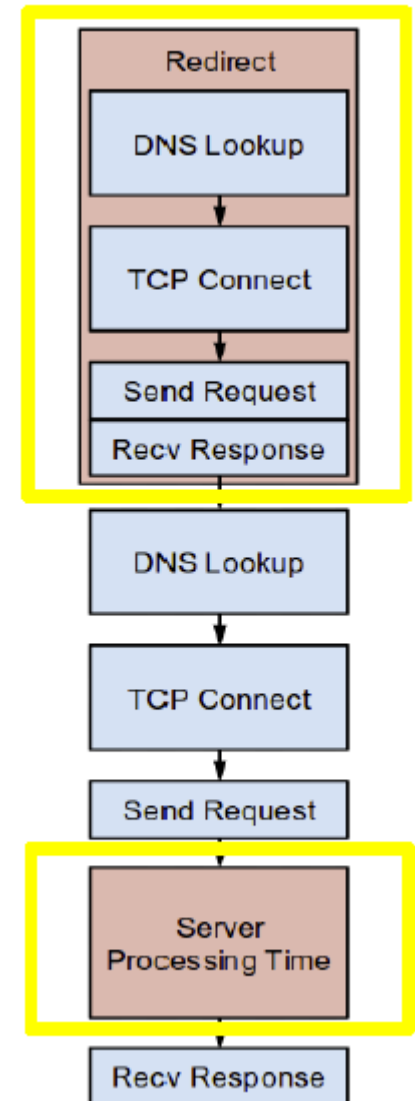
Bandwidth is not the bottleneck for page load

• • •

On 2G/3G, more connections are not always a good idea

• • •

- Each connection pays the cost of the TCP handshake
- Parallel connections can adversely compete for the channel

Avoid landing page redirects

- www.example.com ⇨ m.example.com
- 3 additional round trips (4 over HTTPS)
- 1.2 +seconds total latency

Selected Range - Details

Selected range 838.381 ms–5.95 s (251 frames)
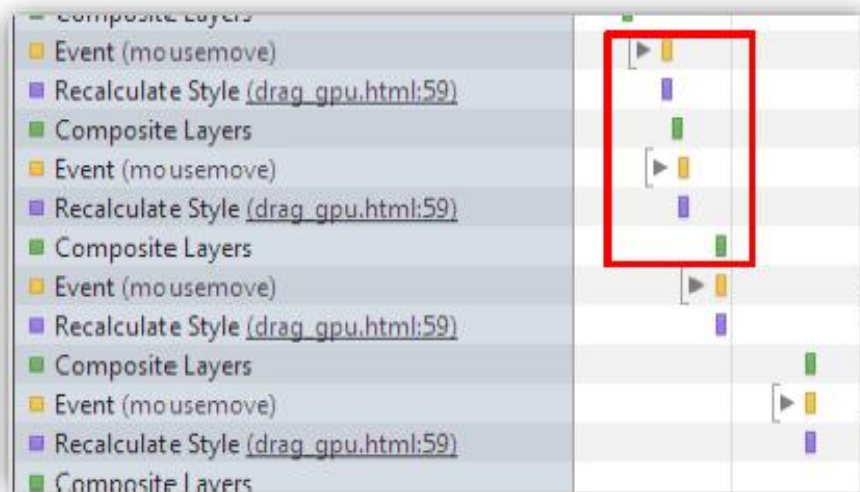Minimum Time 9.771 ms (102 FPS)
Average Time 20.368 ms (49 FPS)
Maximum Time 154.663 ms (6 FPS)
Standard Deviation 16.099 ms
Time by category ▢202.038 ms ▢59.964 ms ▢60.748 ms ▢88.142 ms

Painting | 251 of 251 frames shown (avg: 20.368 ms, σ: 16.099 ms) ⚙

Composite Layers
■ Event (mousemove)
■ Recalculate Style (drag_gpu.html:59)
■ Composite Layers
■ Event (mousemove)
■ Recalculate Style (drag_gpu.html:59)
■ Composite Layers
■ Event (mousemove)
■ Recalculate Style (drag_gpu.html:59)
■ Composite Layers
■ Event (mousemove)
■ Recalculate Style (drag_gpu.html:59)
■ Composite Layers

Selected Range - Details

Selected range 1.04 s–5.35 s (257 frames)
Minimum Time 1.036 ms (965 FPS)
Average Time 16.752 ms (60 FPS)
Maximum Time 49.894 ms (20 FPS)
Standard Deviation 2.464 ms
Time by category ▢221.532 ms ▢82.659 ms ▢95.302 ms ▢46.152 ms

Painting | 257 of 257 frames shown (avg: 16.752 ms, σ: 2.464 ms) ⚙

■ Event × 29
■ Animation Frame Fired (drag_raf.html:52)
■ Recalculate Style (drag_raf.html:53)
■ Composite Layers
■ Event × 6
■ Animation Frame Fired (drag_raf.html:52)
■ Recalculate Style (drag_raf.html:53)
■ Composite Layers
■ Event × 16
■ Animation Frame Fired (drag_raf.html:52)
■ Recalculate Style (drag_raf.html:53)
■ Composite Layers
■ Event × 17
■ Animation Frame Fired (drag_raf.html:52)
■ Recalculate Style (drag_raf.html:53)

Avoid expensive operations

```
function updateTouches(event) { touches = event.touches; }
document.addEventListener('touchmove', updateTouches);
window.requestAnimationFrame(renderEverything);
function renderEverything() {
    // TODO: Render code goes here.
    window.requestAnimationFrame(renderEverything);
}
```

- Store event.touches and use **requestAnimationFrame**

- Do not re-render event.touches array on touchmove.

Good performance is good design

- more connections are not always a good idea
- Avoid landing page redirects
- HTTP Pipelining is most useful in high latency environment
- Eliminate render blocking resources
- Reduce Client-Side Processing
- Prioritize visible content
- Reduce Image Dimensions
- Leverage browser caching
- Use HTML5 persistent storage for caching
- Reduce the Dom
- Batch and Splitting R/W
- Listen to both mouse and touch events
- use a good fastclick library
- Avoid unnecessary use of touch event handlers

Html5 & Mobile

Do you plan to integrate HTML5 as a component into the mobile apps you plan to build in 2012?

HTML5 Plans for 2012

HTML

79% YES

21% NO

HTML 5

HTML 5
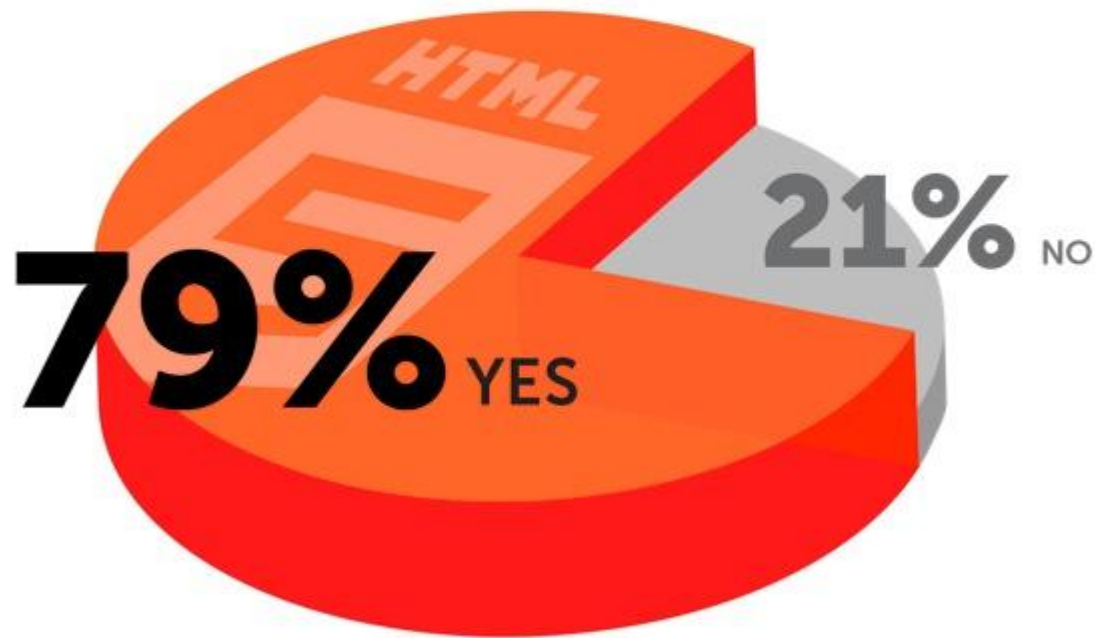
Semantics

CSS3

Multimedia

Graphics & 3D

Device Access

Performance

Offline & Storage

Connectivity

Workflow

Develop & Test

Plan & Measure

Monitor & Optimize

Release & Deploy
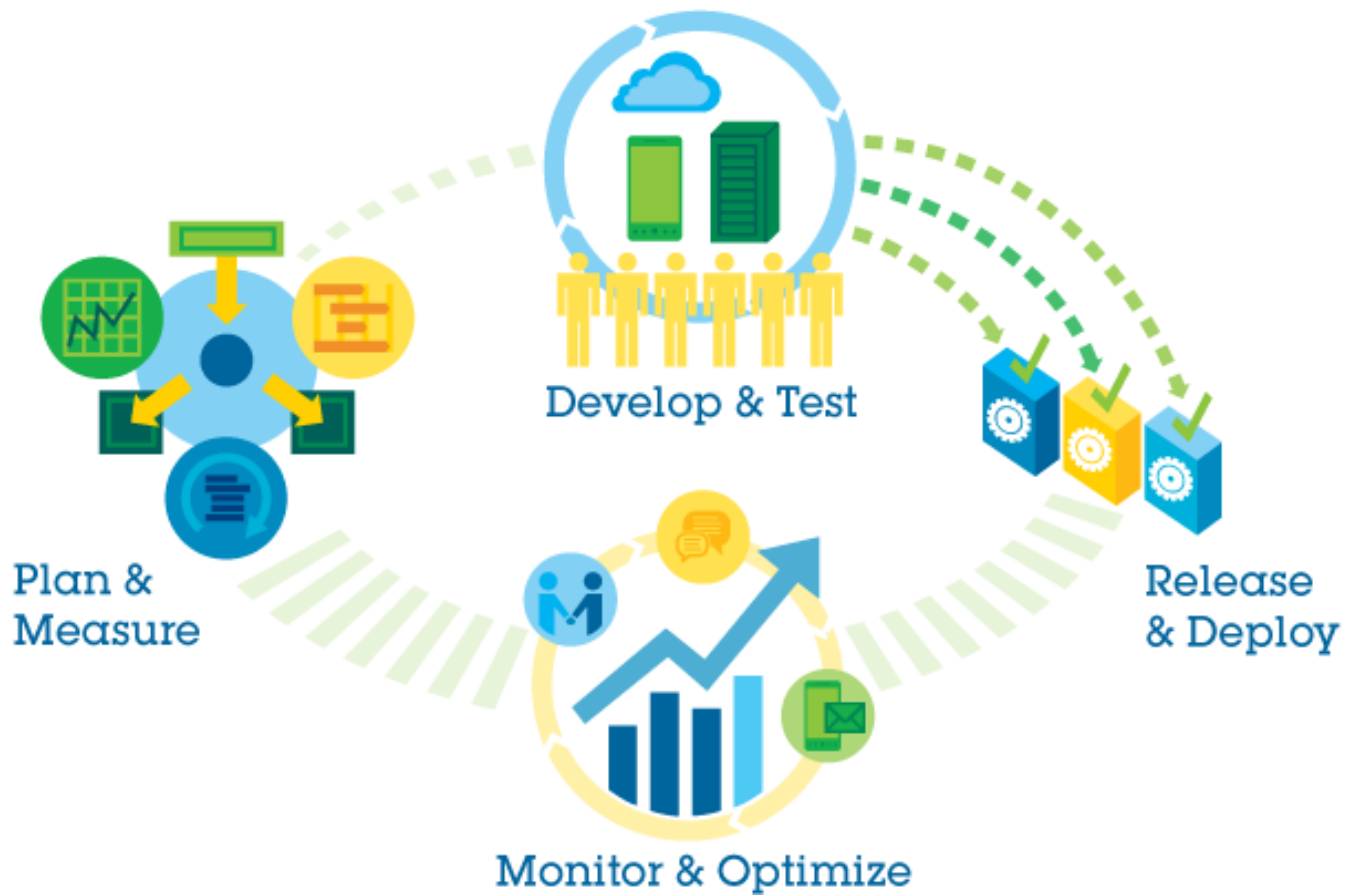
Static Resources Management System

Auto package
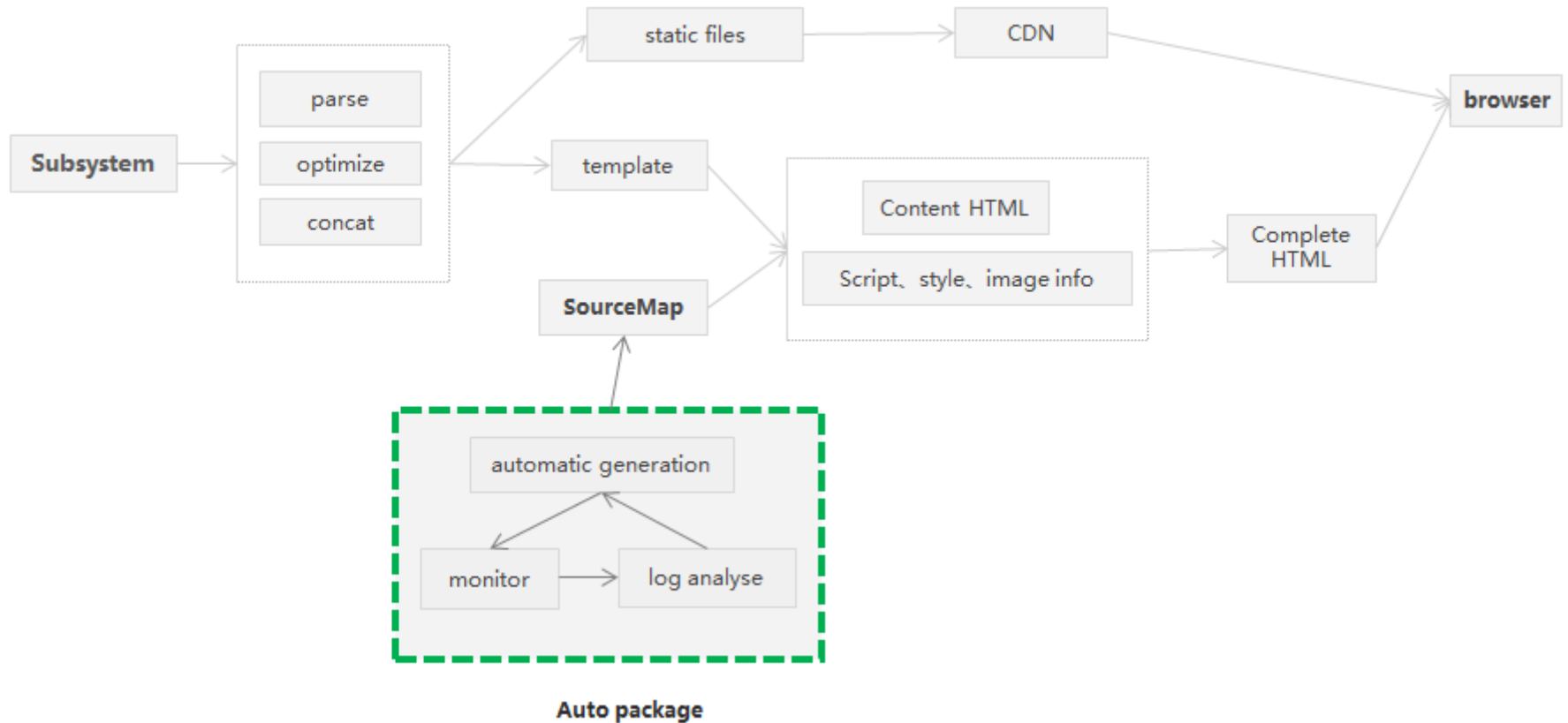
Requirements

- 编译原理

- 计算机网络

- 操作系统

- 算法原理

- 软件工程/软件测试原理

- 数据库

- 面向对象编程

How To Keep Up To Date On?

- Follow cool people

- Find the best sources

- Attend conferences

- Get your own sources

Follow Cool People

Front-end leaders help you to stay on top of relevant news and trends. They are in-the-know and they work on a specific topic. Twitter/weibo can be a great place to find people who are in-the-know.

- JavaScript, @addyosmani @SlexAxton @angelinamagnum @cowboy

- CSS, @chriscoyier @ebidel

- Mobile, @lukew @brad_frost

- Performance, @souders @igrigorik

Find The Best Sources

Around the web there is lots of useful information about front-end news and trends. Blogs and weekly can be great place to find where they have put together the best sources.

- DailyJS, A JavaScript Blog.
- Treehouse Blog, provides valuable content on web development, web design, and startup tips.
- EchoJS, A HackerNews-like site dedicated to JavaScript and Front-end News.
- Web Platform, An open community of developers building resources for a better web.
- HTML5 ROCKS, Posts, tutorials, case study & demos.
- QuirksMode, It is the prime source for browser compatibility information on the Internet.
- CSS-TRICKS, A web design community.
- Smashing Magazine, An online magazine for professional Web designers and developers.
- Web Design Weekly, Pure awesome links to the best news and articles to hit the inter-web during the week.

Attend Conferences

Thousands of developers attend conferences to promote the latest technologies, share ideas, thoughts or experiences and learn from others. They discuss the best practices, standards and trends.

- D2/WebRebuild
- NodeParty/W3CTech/HTML5梦工厂
- JSConf/沪JS(JSConf.cn)
- QCon/Velocity/SDCC
- JSConf/NodeConf
- CSSConf
- YDN/YUIConf
- W3c Tech
- 百度技术沙龙

Get Your Own Sources

It's really important that you find your own, unique way to be up to date.

Everybody knows that Twitter is the best place to find information such as tutorials or blog posts about a new technology. But who writes them? Where do they get their information from?

At some point you need to go right to the core... the mailing lists, specifications and even source code. By getting used to reading the specifications and participating in some mailing list conversations and understanding some of the source code, you will naturally become a better developer and understand it all much more.

Shane Hudson
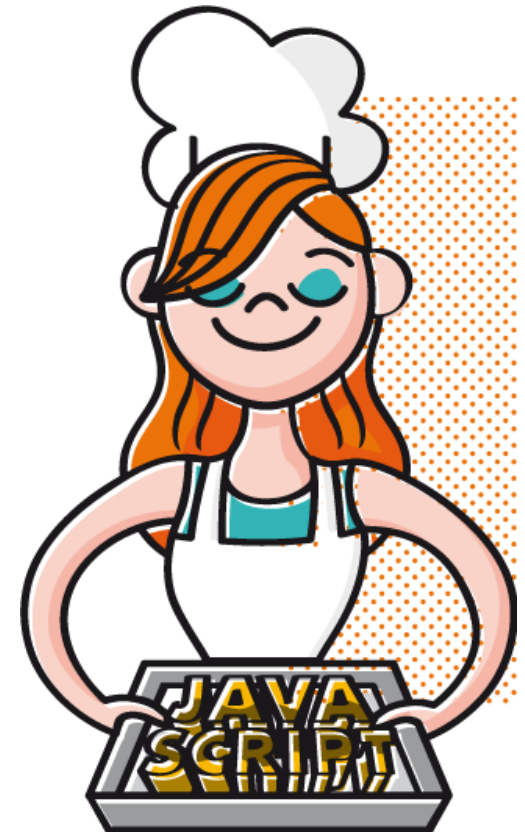
Front-end Developer **Interview** Questions

面试流程

:

我们一般会有 3 轮面试，对于高级别的工程师可能会有 4-5 轮面试，每轮1个小时。

一面：高级工程师负责，考察基础知识、HTML/JavaScript/CSS/Browser、数据结构、算法

二面：资深工程师负责，考察代码设计、技术深度、前端架构

三面：部门leader负责，考察软素质，沟通能力、未来规范、个人意愿

技术相关

- 描述一个你遇到过的技术问题，你是如何解决的？

- 请设计一个 Dialog（弹出层）/ Suggestion（自动完成）/ Slider（图片轮播） 等组件

- 你最擅长的技术是什么？

- 一个页面从输入 URL 到页面加载完的过程中都发生了什么事情？

- 谈一下你所知道的页面性能优化方法？

- 除了前端以外还了解什么其它技术么？

项目相关

- 做过最满意的项目是什么？

  - 项目背景

  - 为什么要做这件事情？

- 最终达到什么效果？

- 你处于什么样的角色，起到了什么方面的作用？

- 在项目中遇到什么技术问题？具体是如何解决的？

- 如果再做这个项目，你会在哪些方面进行改善？

- 在之前做过的项目中，有没有什么功能或改进点是由你提出来的？

- 是否有参与和改进其它开源项目

Q：**公开**面试题不怕面试者精心准备么？

:

如果真的精心准备，在个方面都能答好，那说明做事态度认真且努力，这正是我们需要的品质，因为我们相信一个人不是一成不变的，可以不断学习和进步，只要 ta 肯努力

Thanks

感谢大家的光临！

- FEX官网 http://fex.baidu.com

- FEX招聘邮箱 fex-hr@baidu.com

PPT下载地址