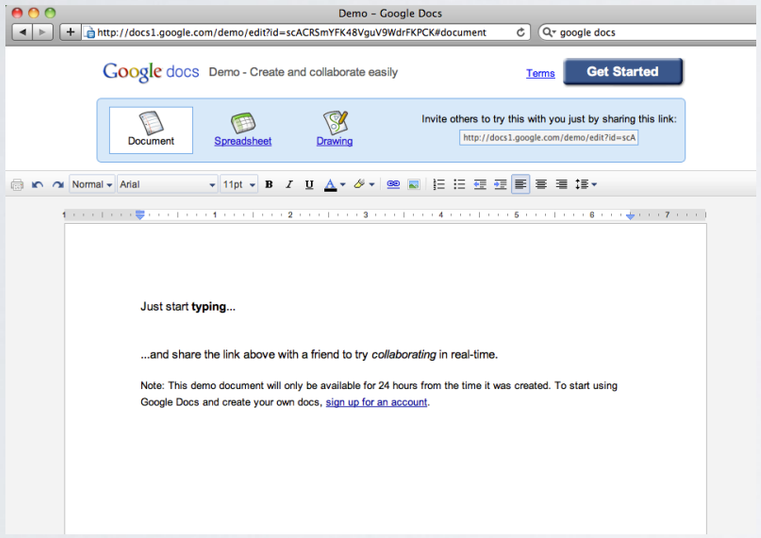
CSCC09
Programming on the Web

Thierry Sans

Architecture of a Web Application

Client Side

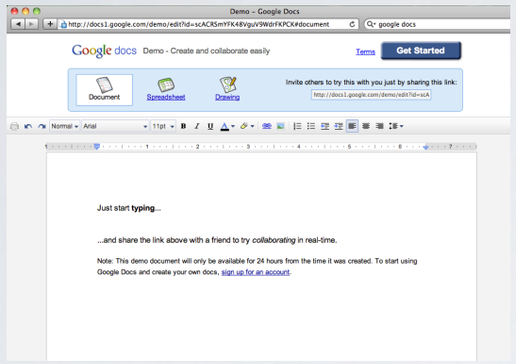


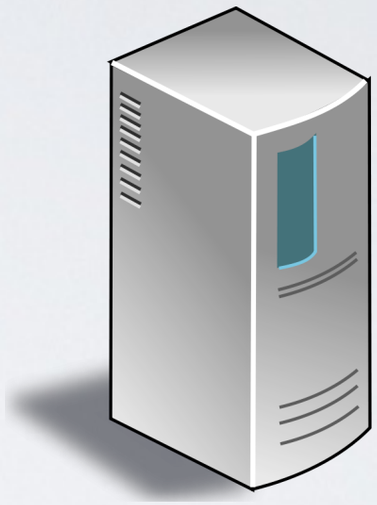
Web Browser

Server Side

Web Server

Web Technologies

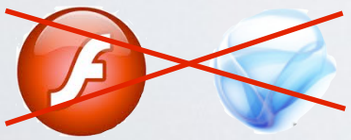




Content

Presentation

Client Side Processing



Multimedia

Resources management

The evolution of web applications

The Virtuous Circle

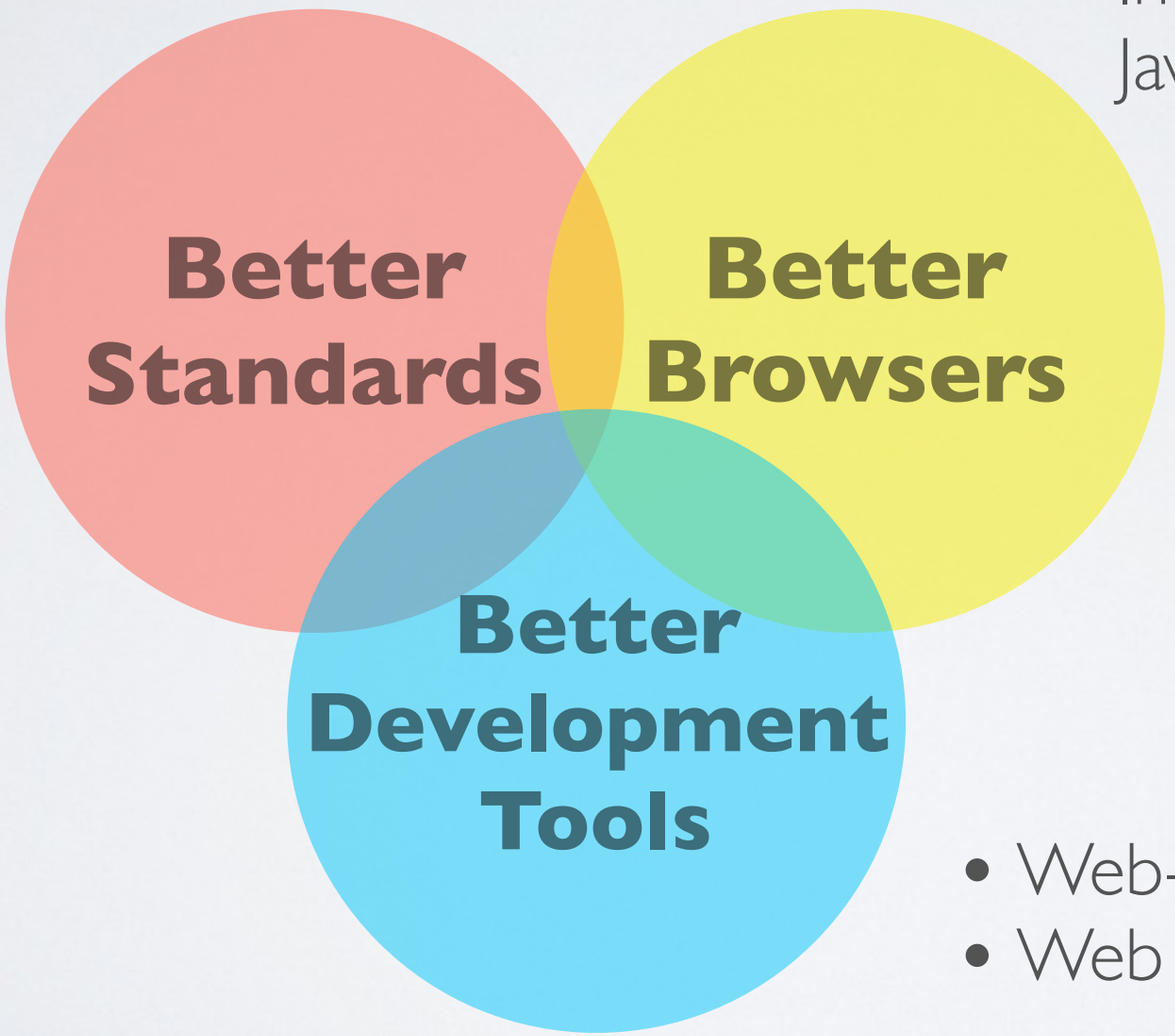
faster, better technology

new usage

How web technologies have changed?

- Ajax (interactivity)
- HTML 5 (multimedia)

- Homogeneous implementation of the standards
- Increasing speed of rendering and Javascript engines



- Web-oriented languages
- Web frameworks

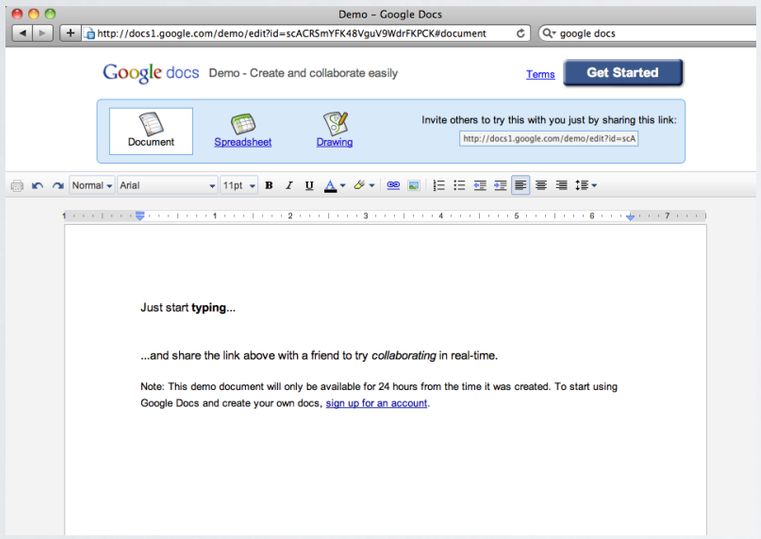
Consequence 1 (of 2)

➡ The application is moving from the server to the client

✓ Rich Content

Traditional Web Platform

Client Side



Web Browsers

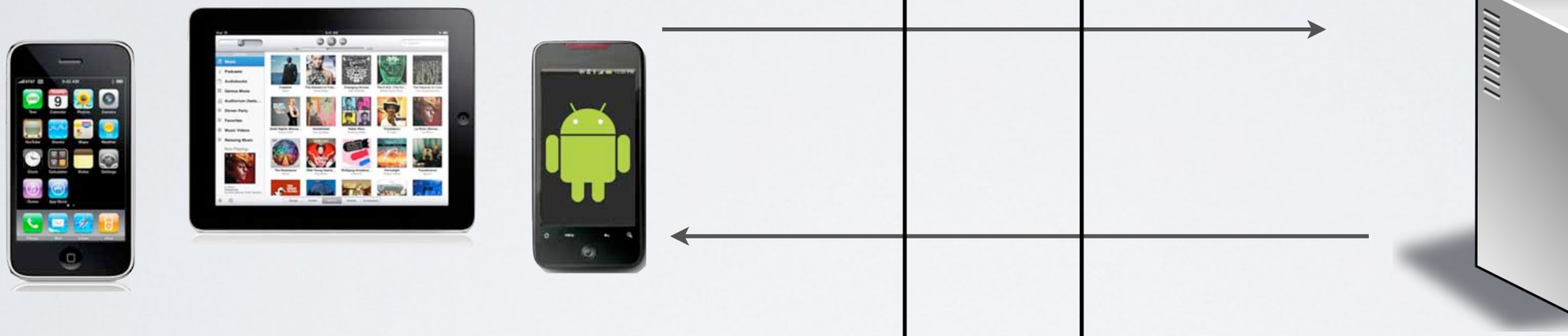
Server Side

Web Server

Modern Web Platform

Client Side

Server Side



Smartphones and Tablets

Web Server

Consequence 2

- ➡ Data storage and data processing are moving from the desktop to the cloud

- ◉ Cloud Computing

Customer Resources Management

Accounting and Billing

Collaboration

E-Learning

Web Portals

Content Management

Planning

E-Health

Where Web Applications are going

Rich Content

+

Cloud Computing

=

A new way to think about software

Web Technologies are **at the heart** of this change

- **Cloud computing**
  and
  Software as a Service (SaaS)

are BOOMING!

"By 2018, 50% of the applications hosted in the public cloud will be considered mission-critical by the organizations that use them"

"By 2020, 24% of the total addressable IT market will be cloud."

source Gartner - *2017 Planning Guide for Cloud Computing*

Emerging Web Platform

Client Side

Web-based Operating System

Server Side

Web Server

Web applications from the developer's perspective

Why are web applications so popular?

- Easy to deploy
- Easy to maintain
- Fast and reliable technology (especially browsers)

What is challenging about web development

- A large collection of languages, framework and dev tools
- Technology evolves fast
- Concurrent programming
- Asynchronous communication
- Debugging

About this course

What you will learn in this course?

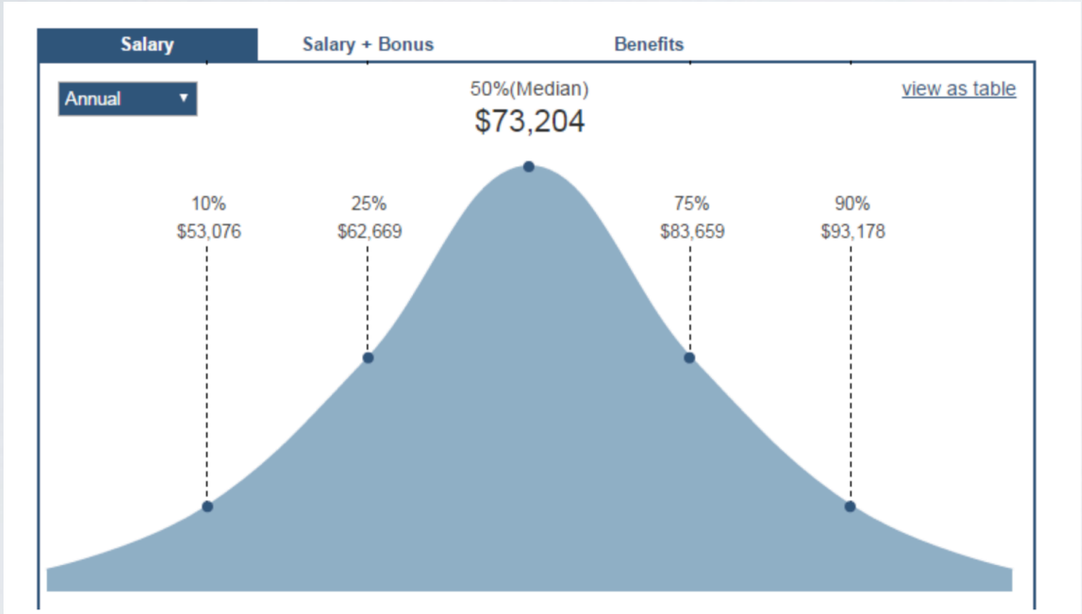
✓ Web development

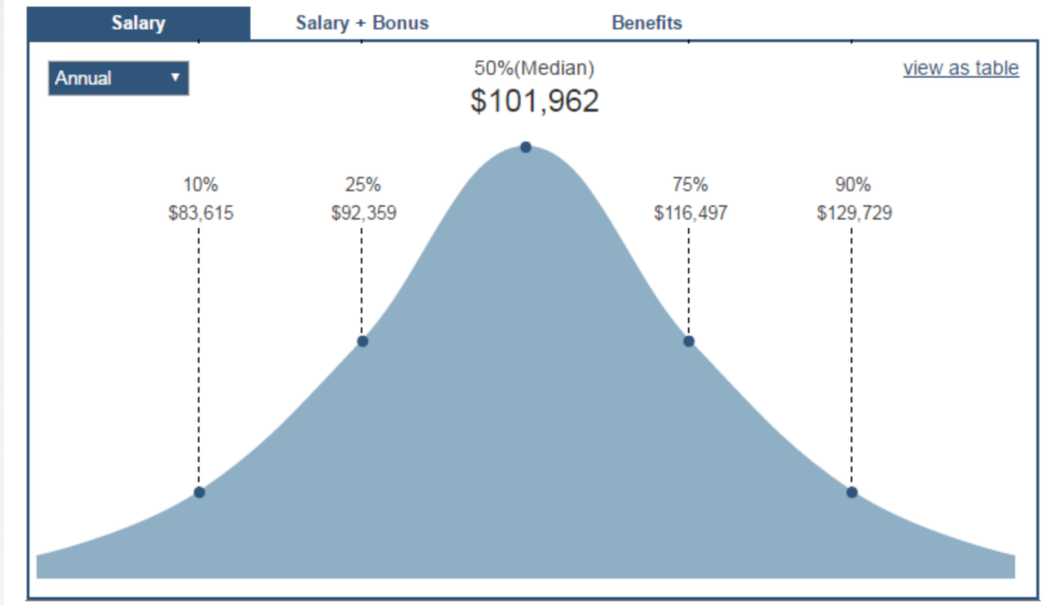
- **The foundations of web programming**
- The new trends in web application development

◉ ~~Web design~~

CSCC10 Human-Computer Interaction by N*aureen Nizam*

Web Designers vs Web Developpers





as of October 30, 2017

source: https://www.mockplus.com/blog/post/web-designer-vs-web-developer

Learning Outcome

- This course will make you ready for the **rapid changes of web technologies**

- This course will provide you with an experience that is **beyond junior web developer**

Course Syllabus

Let's look at the course webpage:

https://thierrysans.github.io/CSCC09/

How to succeed in this class?

- Learn and gain experience by doing labs, homework and project
- Start to work early,
  web applications are hard to develop and hard to debug
- Come to the lectures, do not rely solely on the slides
  or code snippets
- Use resources on the web extensively
- Go beyond, be curious, experiment, get your hands dirty
- Start thinking about your project now

Web Development tools

- **Chrome** (recommended) or Firefox
- **Code editor** with syntax highlighting for HTML, CSS, Javascript
- Web Accounts
  - **Github**
  - **Piazza**
- Command Line Tools
  - **Git**
  - **NodeJS and NPM**