WEB DEVELOPMENT

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ABSTRACT

The web-technology is going through major changes these years, both with respect to types of systems based on web-technology, organization of the development work, required approaches and competencies, etc. We must rethink the organization of the development work. This requires a deeper and coherent understanding of the nature of web-development. This paper presents findings from a field study undertaken in a web-development company. ***Web development*** *is a broad term for the work involved in developing a web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing the simplest static single page of plain text to the most complex web-based internet applications, electronic businesses, and social network services. A more comprehensive list of tasks to which web development commonly refers, may include web design, web content development, client liaison, client-side/server-side scripting,web server and network security configuration, and e-commerce development. Among web professionals, "web development" usually refers to the main non-design aspects of building web sites: writing markup and coding.This paper focuses on web devlelpoment areas of web development future scope of web development*

KEYWORDS:-

Web development, client side coding, server side coding ,web design and challenges and its future scope

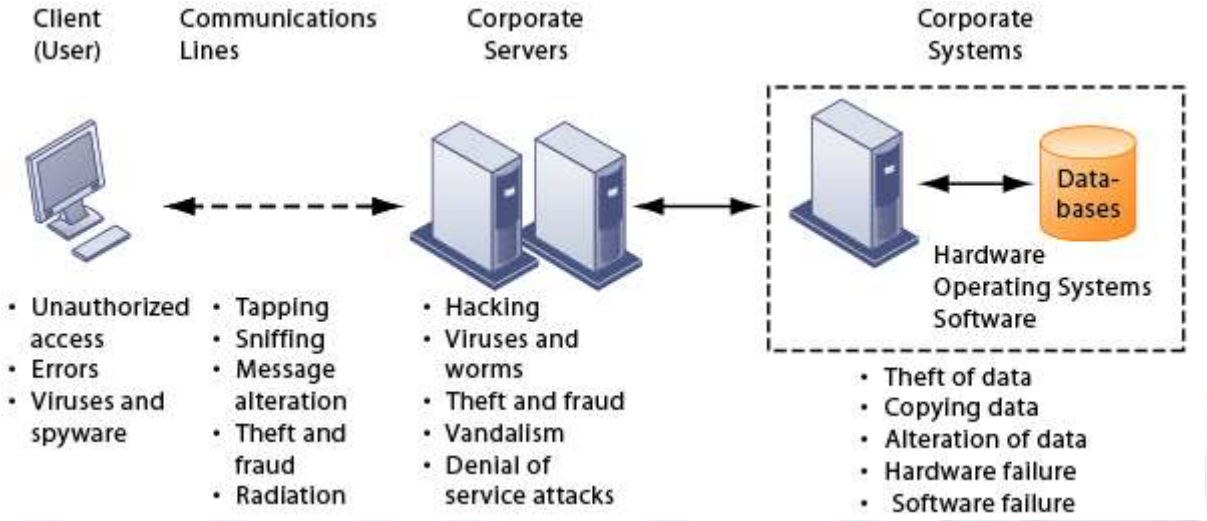
INTRODUCTION

Web development is a broad term for the work involved in developing a web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing the simplest static single page of plain text to the most complex web-based internet applications, electronic businesses, and social network services. A more comprehensive list of tasks to which web development commonly refers, may include web design, web content development, client liaison, client-side/server-side scripting,web server and network security configuration, and e-commerce development. Among web professionals, "web development" usually refers to the main non-design aspects of building web sites: writing markup and coding. Most recently Web development has come to mean the creation of content management systems or CMS. These CMS can be made from scratch, proprietary (such as Open Text) or open source (such as Drupal). In broad terms the CMS acts as middleware between the database and the user through the browser. A principle

benefit of a CMS is that it allows non-technical people to make changes to their Web site without having technical knowledge.

For larger organizations and businesses, web development teams can consist of hundreds of people (web developers) and follow standard methods like Agile methodologies while developing websites. Smaller organizations may only require a single permanent or contracting developer, or secondary assignment to related job positions such as agraphic designer and/or information systems technician. Web development may be a collaborative effort between departments rather than the domain of a designated department.

OBSERVATION



Development of web-information systems of today One of our basic assumptions was that web-applications are becoming increasingly business critical, and that this would be reflected in the organization of the development work. The Zyme project was an example of a web-application that was considered strategically important for the customer. It was a very large project and the customer required a thorough pre-analysis resulting in tender documents to ensure that different web-development companies could bet on the implementation. Furthermore, the deadline for version one was considered vital to the customer, and the site was considered the most important public relation activity. Thinking of IT as essential for public relation is new to most developers. The term 'branding' became important in the Zyme project. The designers and developers were informed that the sites should signal the attitude of the organization and high quality. These requirements must still be combined with the traditional requirements, such as informative, easy to use, quick to glance, etc. This was new to the actors, and obviously they had a very abstract and uncertain understanding of what it meant for their application. As one of the information architects phrased it: "One of the ideas is that the site should contain something with 'a kick' - you know - some energy! It is important for them [the customers] that this brand is pushed in the head of the user. One of our solutions will thus be that beside the main navigation there must be room for the system to present interesting stuff from one of the sub-sites on the portal entry and thereby push information into the face of the users"

AREAS OF WEB DEVELOPMENT

Web development as an industry

Since the commercialization of the web, web development has been a growing industry. The growth of this industry is being pushed especially by businesses wishing to sell products and services to online customers[1]

For tools and platforms, the public can use many open source systems to aid in web development. A popular example, the LAMP (Linux, Apache, MySQL, PHP) stack is available for download online free of charge. This has kept the cost of learning web development to a minimum. Another contributing factor to the growth of the industry has been the rise of easy-to-use WYSIWYG web-development software, most prominently Adobe Dreamweaver, WebDev, and Microsoft Expression Studio. Using such software, virtually anyone can relatively quickly learn to develop a very basic web page. Knowledge of HyperText Markup Language (HTML) or of programming languages is still required to use such software, but the basics can be learned and implemented quickly with the help of help files, technical books, internet tutorials, or face-to-face training.

An ever growing set of tools and technologies have helped developers build more dynamic and interactive websites. Web developers now help to deliver applications as web services which were traditionally only available as applications on a desk-based computer.

Instead of running executable code on a local computer, users can interact with online applications to create new content. This has created new methods in communication[*citation needed*] and allowed for many opportunities to decentralize information and media distribution. Users can interact with applications from many locations, instead of being tied to a specific workstation for their application environment.

Examples of dramatic transformation in communication and commerce led by web development include e-commerce. Online auction-sites such as eBay have changed the way consumers find and purchase goods and services. Online retailers such as Amazon.com and Buy.com (among many others) have transformed the shopping and bargain-hunting experience for many consumers. Another good example of transformative communication led by web development is the blog. Web applications such as WordPress and Movable Type have created easily implemented blog-environments for individual web sites. The popularity of open-source content management systems such as Joomla!, Drupal,XOOPS, and TYPO3 and enterprise content management systems such as Alfresco and eXo Platform have extended web development's impact at online interaction and communication.

Web development has also impacted personal networking and marketing. Websites are no longer simply tools for work or for commerce, but serve more broadly for communication and social networking. Websites such as Facebook and Twitter provide users with a platform

to communicate and organizations with a more personal and interactive way to engage the public.

Typical areas

Web Development can be split into many areas and a typical and basic web development hierarchy might consist of:

Client-side coding

- Ajax Asynchronous JavaScript provides new methods of using JavaScript, and other languages to improve the user experience.
- Flash Adobe Flash Player is a ubiquitous browser plugin ready for RIAs. Flex 2 is also deployed to the Flash Player (version 9+).
- JavaScript JavaScript is a ubiquitous client side platform for creating and delivering rich web applications that can also run across a wide variety of devices. It is a dialect of the scripting language ECMAScript.
- jQuery Cross-browser JavaScript library designed to simplify and speed up the client-side scripting of HTML.
- AngularJS, Backbone.js, Ember.js and React are client-side MVC technologies introduced for building single page application and offline applications for both desktop and mobile. They make the application more modular and also help dramatically increase development speed.
- Microsoft Silverlight Microsoft's browser plugin that enables animation, vector graphics and high-definition video playback, programmed using XAML and .NET programming languages.
- HTML5 and CSS3 Latest HTML proposed standard combined with the latest proposed standard for CSS natively supports much of the client-side functionality provided by other frameworks such as Flash and Silverlight
- Scalable Vector Graphics (SVG), WebGL and Canvas deliver 2D and 3D capabilities, often used through JavaScript libraries; D3js (2D datavisualisations) and threeJS (3D) are popular examples.

Looking at these items from an "umbrella approach", client side coding such as XHTML is executed and stored on a local client (in a web browser) whereas server side code is not available to a client and is executed on a web server which generates the appropriate XHTML which is then sent to the client. The nature of client side coding allows one to alter the HTML on a local client and refresh the pages with updated content (locally), web designers must bear in mind the importance and relevance to security with their server side scripts. If a server side script accepts content from a locally modified client side script, the web development of that page is poorly sanitized with relation to security. In many companies, developers who are responsible for the client side coding and user interface codes are called Front-end Developer.

Server-side coding[edit]

- ASP (Microsoft proprietary)
- ASP.NET and ASP.NET MVC Frameworks (Microsoft proprietary)
- CFML (Adobe proprietary, formerly Macromedia, formerly Allaire) (Open source on Railo, Luccee or Open Blue Dragon)
- CGI
- Erlang, with Linux, Yaws, Mnesia, Erlang (LYME) solution stack
- Groovy, using the Grails framework
- Java, e.g. Java Servlets, JSP or WebObjects
- Lotus Domino
- Perl, e.g. Catalyst, Dancer or Mojolicious (all open source)
- PHP (open source)
- Python, e.g. Django (web framework) (open source)
- Ruby, e.g. Ruby on Rails (open source)
- Scala, e.g. Play Framework, Lift Framework (open source)
- SSJS Server-Side JavaScript, e.g. Aptana Jaxer, Mozilla Rhino
- V8 (JavaScript Engine) - Node.js or io.js

Client side + server side[edit]

- Google Web Toolkit provides tools to create and maintain complex JavaScript front-end applications in Java.
- Dart provides tools to create and maintain complex JavaScript front-end applications as well as supporting server-side code in Dart (programming language).
- Opa is a high-level language in which both the client and the server parts are implemented. The compiler then decides which parts run on the client (and are translated automatically to JavaScript) and which parts run on the server. The developer can tune those decisions with simple directives. (open source)
- Pyjamas is a tool and framework for developing Ajax applications and Rich Internet Applications in Python.
- Tersus is a platform for the development of rich web applications by visually defining user interface, client side behavior and server side processing. (open source)

However languages like Ruby and Python are often paired with database servers other than MySQL (the M in LAMP).

SECURITY CONSIDERATION

Web development takes into account many security considerations, such as data entry error checking through forms, filtering output, and encryption. Malicious practices such as SQL injection can be executed by users with ill intent yet with only primitive knowledge of web development as a whole. Scripts can be used to exploit websites by granting unauthorized access to malicious users that try to collect information such as email addresses, passwords and protected content like credit card numbers.

Some of this is dependent on the server environment (most commonly Apache or Microsoft IIS) on which the scripting language, such as PHP, Ruby, Python, Perl or ASP is running, and therefore is not necessarily down to the web developer themselves to maintain. However, stringent testing of web applications before public release is encouraged to prevent such exploits from occurring. If some contact form is provided in a website it should include a captcha field in it which prevents computer programs from automatically filling forms and also mail spamming.

Keeping a web server safe from intrusion is often called *Server Port Hardening*. Many technologies come into play to keep information on the internet safe when it is transmitted from one location to another. For instance Secure Socket Layer Encryption (SSL) Certificates are issued by certificate authorities to help prevent internet fraud. Many developers often employ different forms of encryption when transmitting and storing sensitive information. A basic understanding of information technology security concerns is often part of a web developer's knowledge.

Because new security holes are found in web applications even after testing and launch, security patch updates are frequent for widely used applications. It is often the job of web developers to keep applications up to date as security patches are released and new security concerns are discovered.

PRACTICAL WEB DEVELOPMENT

Basic

In practice, many web developers will have basic **interdisciplinary** skills / roles, including:

- Graphic design / web design
- Information architecture and copywriting/copyediting with web usability, accessibility and search engine optimization in mind

The above list is a simple website development hierarchy and can be extended to include all client side and server side aspects. It is still important to remember that web development is generally split up into client side coding, covering aspects such as the layout and design, and server side coding, which covers the website's functionality and back-end systems.

Testing

Organizations that build websites typically have a test site (a.k.a. staging site) where a new website is tested to make sure everything works correctly before it goes live on the WWW. After a staging site has been tested and found to be working properly it can be launched on the WWW. A production site, also called a live site, is usually run a separate server from the staging site. Running the production site and staging site on separate servers allows developers to make changes to their site and test changes before applying them in real time. When a site goes live, it does not mean that the site is 100% perfect and will require no service - on the contrary, maintenance is required to keep the site running properly and meet visitor/user needs.

FUTURE SCOPE OF WEB DEVELPOMENT

What we do on the Web changes every day. The web development industry is constantly evolving. While we may not be able to tell the day-to-day changes while it's happening, it's easy for us to look back to the past few months and see that a lot of things we do now are much different than what we've been doing before.

Because our work lies in one of the fastest-paced industries, it's important for us to predict and learn about what's coming up or risk being left in the web development dust.

While this may sound daunting at first, it's actually pretty easy to see where we'll be in the next several months/years to come.

Let's look at some of the things **I predict are going to happen in the near future**.

Less Demand for PSD to XHTML/CSS Conversion Services

As a developer who specializes in PSD to CSS/XHTML conversions, I've already seen this trend start to happen. While I'm definitely not losing business, I'm no longer getting as many regular PSD to XHTML/CSS jobs. Most of my jobs currently consist of WordPress

development or specific and specialized server-side scripting (e.g. PHP). In short, web developers are beginning to work more on**niche jobs** such as open source software customization.

As the months go on, developers like me who charge a premium over "PSD to HTML" chop shops are going to need to continue to shift our niche. I believe there will always be a demand for this type of work, but you'll need to differentiate yourself from the $50-per-PSD-conversion companies, especially if you're charging significantly more than the "market price".

More Appreciation for Web Standards

It used to be tough to sell clients on the importance of valid/standards-compliant and semantic code, but now, with so many devices and browsers on the market, standards have become even more important in order to produce flexible and interoperable products.

With more web browsers supporting open web standards and companies chucking out support for proprietary software in favor of open technologies, there is a stronger demand — more than ever — for coders that are able to work with web standards well.

Developers that focus on outputting compliant code will benefit from this trend.

Less Client Work, More Personal Projects

I've noticed that many developers have stopped taking on as much client work and have started working on their own projects.

With the popularity of devices like the iPhone and iPad and public APIs, I think this is going to become more common in the next year.

Personally, I've decided to also go this route too, as working on my own apps is a lot more fun than working on client sites. Plus, the potential for making the next Twitter is always on the horizon, and also more attainable with the tools and knowledge that our maturing industry has accumulated.

Working on your own projects, however, offers another benefit. Since the Web evolves so much, you'll end up **learning new things** that can be incorporated into client work. I'm currently learning both PHP and Cocoa, and soon, I'll be able to offer iPhone app development services to clients as well. Doing your own projects keeps you updated on the newest stuff.

(Read more about the benefits of working on personal projects.)

Internet Explorer Will Actually Be Cool

Yes, I said that. I'm actually excited about the new IE9 for several reasons. The biggest reason being the fact that it's finally going to be a real modern browser with standards-compliant HTML5 and CSS3 support.

Another benefit of IE9 means that IE6 is now going to be three browsers old. While I've been lucky enough to be able to drop support of IE6 due to my client base, I know some of you guys are still stuck supporting it.

The fact that IE6 is now going to be three browser versions old and almost 10 years old means that those big corporations that are hesitant to update their systems might finally be forced to upgrade.

"Thanks" to the identification of several security vulnerabilities in outdated versions of IE, people are also beginning to realize that there is a need to upgrade their browser for safer browsing. And, as far as the UK and the rest of Europe is concerned, Microsoft is going to be forced to offer several browser options, which will in turn (hopefully) curb down the use of IE6 even more.

The Need to Know More Languages and Technologies

It's not uncommon for web developers to know and work in several languages in one page and on one site. I strongly believe that to be one of the best in what you do, you need to have a broad scope of knowledge and specialize /niche yourself into something quite narrow at the same time.

I've been able to do this successfully by specializing in CSS/HTML and offering my services only to other freelancers and web design agencies. Quickly though, I've been getting requests for WordPress work and so I learned the API inside and out by jumping right into it. Now,

WordPress has become one of my specialties and something I enjoy doing for almost every site I make.

This concept is important in a constantly shifting industry like ours and something that's often missed in college education. Many people I went to school with are now without jobs because all they can (and want to) do is print design.

Our markets are shrinking constantly, so it's important that we continue to learn and have other skills in case we need to quickly switch. Knowing other languages and technologies also helps keep things interesting and avoids burnout.

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