

Web Technologies and User-Centered Interfaces

Richard Scroggins¹

¹ Walden University

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Abstract

Introduction-The internet is a vast interconnected network that facilitates, not only the connecting of many people and devices, but also the use of many protocols and technologies. Many people confuse the concept of the internet and that of the World Wide Web. Technically speaking, the internet is the infrastructure that support multiple communication technologies, ports and protocols, while the World Wide Web is a specific subset of those technologies, ports, and protocols that facilitate one overarching function. In other words, the SMTP or Simple Mail Transfer Protocol has no direct relationship to the functioning of World Wide Web, but rather it runs parallel on the same hardware. Wagstaff (2014), defines the internet as "a network of networks." It is the infrastructure that connects networks across the world, including both the hardware (computers, servers, cables and more) and the software." (p. 1). He, Wagstaff (2014), also defines the World Wide Web as "another avenue for transmitting data over the Internet, in this case by entering a string of characters called a uniform resource locator (URL) into a browser." (p. 1).

Index terms—

1 Introduction

he internet is a vast interconnected network that facilitates, not only the connecting of many people and devices, but also the use of many protocols and technologies. Many people confuse the concept of the internet and that of the World Wide Web. Technically speaking, the internet is the infrastructure that support multiple communication technologies, ports and protocols, while the World Wide Web is a specific subset of those technologies, ports, and protocols that facilitate one overarching function. In other words, the SMTP or Simple Mail Transfer Protocol has no direct relationship to the functioning of World Wide Web, but rather it runs parallel on the same hardware. Wagstaff (2014), defines the internet as "a network of networks." It is the infrastructure that connects networks across the world, including both the hardware (computers, servers, cables and more) and the software." (p. 1). He, Wagstaff (2014), also defines the World Wide Web as "another avenue for transmitting data over the Internet, in this case by entering a string of characters called a uniform resource locator (URL) into a browser." (p. 1).

So the first task in assessing Web technologies is to either make the assumption that the term web is a misnomer used in place of the word internet, or to assume that the analysis should be limited to only those technologies that pertain to the World Wide information space and the limited set of technologies, ports, and protocols that directly relate to it. This falls to the researcher to make this choice and define terms and the scope of the research. As the researcher and given that the discussion instructions make reference to the internet multiple time, I am making my own assumptions about the topic and choosing to include all technologies, ports, and protocols associated with the internet and not just the information space of the World Wide Web. To ensure that the topic is research deeply enough, three technologies will be evaluated in this literature review. These technologies are: software as a service, cloud storage, and web based CRM software.

2 II.

3 Software as a Service

Software as a service, or SAAS, is a popular trend right now and represents a business strategy far more than an actual technology. Software as a service has many benefits for companies that lack the resources to host their own solution. The resources that they lack could be money, time, staff, etc. Finch (2006) writes, "SAAS is where one rents Web-based software hosted at the provider's site. For many companies large and small, SAAS is the best way to rollout new technology." (p. 25). With software as a service, it is the same software, just hosted or offered with an update service. My company uses the cloud version of the Adobe suit, because it is required to get the new version of the software. However, the product is not any different, they just use the cloud to host your licensing info so that they can disable the software if you do not renew every year. So in reality it is a way to take a product that you used to own outright and turn it into a lease. In other words it is really a scam, although it is very lucrative as a business strategy. Now this is completely different from selling a hosted service to an organization that is too small to have their own environment. But even in this scenario the software is the same, it is the service of hosting that you are paying for. Adobe is not the only large software company that is moving to the software as a service model. Microsoft is moving office customers to Office 365, a cloud or subscription based alternative to the traditional office software suit. This theoretically reduces administrative overhead, but also forces small companies to spend extra money to stay licensed and able to use the software, even if they do not need or want the new versions or features. Microsoft is also moving the Windows operating system to a subscription based service. Windows 10, which was initially a free upgrade will soon cost \$10 per month per computer. Kelly (2015) writes, "Windows 10 will be the last numbered version of the OS and going forward it will simply become a 'Windows' subscription service." (p. 1).

4 III.

5 Cloud Storage

Cloud storage, or storage that is hosted and accessible through an internet connection, is a powerful and complicated technology. The uses of cloud based storage range from providing remote and secure storage for organizations, to applications like Dropbox that sync files between locations, to the hosting of pirated movies on sites like the Pirate Bay. As with any technology, there are many uses and applications. Cloud storage is also a technology area that is growing. Marko (2012) writes, "The cloud is where your end users want to back up and share their digital content. They make sense for mobility initiatives and where nonmission-critical data is involved. Cloud storage used to mean simple disk drive replacements like SkyDrive and iDisk, but today there are dozens of product categories." (p. 30). There are many reasons to move to the cloud for storage and hosting. Marko (2012) provides the following list: 1) No capital expense. 2) Good support for mobile workers.

3) Monthly, usage-based pricing. 4) Easily expandable capacity. 5) The ability to off-load hardware and software management. Figure ?? - Marko (2012) Despite the many advantages of cloud storage, there are hurdles in moving to the technology, and many organizations have not moved to the technology yet. As a result of this, many cloud storage vendors are investing their time in education CIO's and IT managers of the various options so that their respective management members can understand the benefits. Cloud storage is not the solution for every scenario, for example block level data storage. It is however very appropriate for large data, data backup, archiving, and disaster recovery. While adoption is slow, it is increasing. (King, 2009)

6 IV. Web Based crm

In defining Customer Relationship Management, or CRM, Venturini and Benito (2015) write, "CRM is a set of business activities supported by both technology and processes that is directed by strategy and is designed to improve business performance in an area of customer management." (p. 856). CRM software is software designed to manage the CRM process. In turn, web based CRM software is CRM software that is simply web based. There are several popular web based CRM software services like Highrise, Pipeline Deals, and Salesforce.com. CRM software represents a broad set of applications that help an organization manage data related to customers, like names, contact info, sales information, or contact notes. Many enterprise level organizations use CRM applications that are part of even larger Enterprise Resource Planning systems like those provided by Oracle or SAP. Web based CRM software is scalable to the point that it is suitable for virtually any size business.

In looking at features, I chose to evaluate Salesforce.com. In defining what Salesforce.com are, their website states, "We're the innovative company behind the world's #1 CRM platform that employees can access entirely over the Internet -there's no infrastructure to buy, set up, or manage -you just log in and get to work. And now our new Lightning Platform gives you the fastest, most complete way to put your customers at the center of everything you do." (Salesforce.com, 2016) Salesforce.com divides the primary web based software features into the following categories: sales, service, marketing, community, analytics, apps, and IoT Cloud. All of the offerings within these categories are web and cloud based, although some web applications within the suites connect with programs like Microsoft Outlook or offline relational databases. Salesforce.com also has several different domains associated with their suite applications like data.com, force.com, and desk.com.

V.

7 Summary

The use of the internet and the World Wide Web for both home and business users greatly adds to the software options available, whether for a single application, or for an entire enterprise operation. There is also the availability to have hosted hardware for any of the same purposes as local hardware would be used for. In reality, the options are only limited by the end user or the technology manager for an organization. From this perspective, the main idea behind web or internet based technologies is scalability. The scalability allows an organization to buy only what they need in terms of hardware and software and are not burdened by large upfront technology investments at a time when the organization is struggling financially to get off the ground and profitable. As an organization grows, they can choose when and how much to invest in expanding their web based footprint. For some organizations, even at the enterprise level, using web based technologies is a type of outsourcing that might be temporary or permanent. Additionally, there should be an investigation into the web technology vendor to make sure that they are using best practices in terms of hardware, software, updates, programming, and staffing. Williams (2009) sums up both the advantage and hesitation of using web based technology in writing, "Use of web-based applications allows for outsourcing of specialized business functions to technological experts without draining an internal resource -giving staff SH&E professionals more time to focus on core competencies. Included in that philosophy is the expectation that the provider employs IT experts who focus on single-application development and associated upgrades and maintenance, resulting in a more sophisticated application than most in-house IT personnel could develop." (p. 20).¹

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