Cloud Computing

Shelley M. Latreille

Salt Lake Community College

Professor Jourdan McCall

CSIS 1070 Section 501: Living in a Digital World

Fall 2019

September 21, 2019

Individuals and businesses typically seek ways to save money and perform tasks efficiently while also utilizing the best and most up-to-date software. For these reasons, many have chosen to use cloud computing services. Users rely upon this technology for work and personal use. All this popularity and usage has made cloud computing evolve. Users are adapting to all the advanced technology that it has to offer. As time moves forward, this technology will only continue to increase in popularity and continue to evolve to meet the needs of users. Cloud computing offers advantages, such as cost-effectiveness, unlimited storage, backup and recovery, automatic software integration, fast deployment, and easy information access (Viswanathan, 2019).

Cloud computing refers to on demand web-based computing services that are housed on the Internet in "the Cloud." Cloud computing services are accessed through the Internet by users. Services such as these are typically paid for by its users either on a monthly or yearly basis. Examples of types of cloud computing services include storage, processing power, programs, and applications (Ranger, 2018). Cloud computing services are not stored locally on a user's computer hard drive or local network. They are accessed using the Internet. They can also be synced to the user's computer or to other programs on the Internet. When a user connects to the Internet using their computer, smartphone, tablet, or any other device capable of connecting to the Internet, cloud computing can be performed anywhere in the World and at any time (Griffith, 2016). The cloud provider keeps all software updated and maintained. Unnecessary software is not purchased because the user only pays for what is used. Users can increase or decrease the number of resources they are using. They can also add and subtract users from their account. New accounts can be set up with providers simply by completing a form on the provider's website (Ranger, 2018).

Cloud computing can be public, private, or hybrid. The public version is equivalent to the Internet whereas the private version is equivalent to an Intranet. Examples of public cloud computing services include Google's services, Apple's services, and web-based email services. Amazon is the biggest cloud computing provider in the World. Amazon calls their cloud computing service Amazon Web Services (AWS). Examples of private cloud computing include accessing resources through secure network connections, such as Intranets, secure private clouds called Virtual Private Clouds (VPCs), and virtual private networks (VPNs) (Woodford, 2019). Examples of hybrid cloud computing include the creation of a parallel environment where applications can move between private and public clouds. Another example would be a database that remains in the user's data center and at the same time will integrate with public cloud applications (Knorr, 2018).

Cloud computing services fall into four main categories, which are SaaS (Software as a Service), IaaS (Infrastructure as a Service), PaaS (Platform as a Service), and FaaS (Functions as a Service). SaaS provides users with applications over the Internet via web browsers. Users can configure options and development environments, which allow them to make additions and code modifications. Examples include Google G Suite and Microsoft Office 365. IaaS offers users storage and computing services on a pay per use basis. Computing services include scalable databases,

VPNs, data analytics, tools for developers, machine learning, and application monitoring services. Examples include AWS, IBM Cloud, Microsoft Azure, and Google Cloud Platform. PaaS provides workflow and services for developers. Developers can use shared tools, processes, and application program interfaces (APIs) that will allow them to speed up the development, testing, and deployment of applications. Examples include Salesforce's Heroku and Force.com. FaaS consists of serverless computing and adds an additional layer of abstraction to PaaS. This allows developers to be isolated from everything in the stack below their code. Developers can upload functional blocks of code and set them to be triggered by an event, such as a form submission or uploaded file. FaaS applications will not consume any IaaS resources until an event occurs, which reduces the pay per use fees. All the major cloud service providers offer FaaS on top of IaaS, which include AWS Lambda, Azure Functions, Google Cloud Functions, and IBM OpenWhisk (Knorr, 2018).

All content stored inside the Cloud can only be accessed by users through the provider's interface. The interface contains all the features and programs that a user can utilize. It dictates which laws are followed and how users interact with those laws. Cloud computing could interfere with copyright laws, including the fair use doctrine and the private use exception, making them difficult to enforce or rendering them ineffective. Copyright law provides a compromise between the authors' rights to share their work without it being plagiarized and the public's right to enjoy the authors' works. The user interface has not been constructed to account for copyright exemptions or fair use. The provider will dictate whether users can download their stored content onto their devices, causing the interface to upset the balance of copyright law. All activities and communications must go through the cloud application. Users are unable to access, utilize, or reuse information or content unless the provider allows it. Users' data and information are stored in data centers owned and controlled by providers, making the provider the true holder and regulator of all content. Providers can dictate how content is accessed, which is done via contractual or technical methods. Providers typically will require users to provide them with a universal, perpetual, and unconditional license to control all the data and information transferred to the Cloud (De Filippi, 2013).

Cloud computing will continue to evolve and increase its user base. However, this should be a well-thought out decision. Users must research the pros and cons before committing to a provider. Cloud computing will reduce infrastructure costs, have lower upfront costs, assist with application growth, and help to lower carbon emissions due to many users sharing one system. Cloud applications can be scaled up or down quickly. Users only pay for what they use. All applications and content are managed using Service Level Agreements (SLAs). The ongoing costs of operation will be higher. Users will be dependent upon providers. Users must rely on providers to fix problems. Users must research how quickly they can move to another provider, or risk being permanently locked into a system. The provider could cease supporting their products or systems. Users place their private personal information, data, and content onto the provider's system. Users must ensure that they always have access to a reliable Internet connection. If an informed decision is made, cloud computing can be a wonderful asset to any individual or business. (Woodford, 2019).

References

De Filippi, P. (2013). Law of the cloud: on the supremacy of the user interface over copyright law. *Internet Policy Review*, 2(3). DOI: 10.14763/2013.3.175. Retrieved from *Internet Policy Review*: https://policyreview.info/articles/analysis/law-cloud-supremacy-user-interface-over-copyright-law

Griffith, E. (2016, May 03). *What is Cloud Computing?* Retrieved from PC Mag: https://www.pcmag.com/article/256563/what-is-cloud-computing

Knorr, E. (2018, October 02). *What is Cloud Computing? Everything You Need to Know Now.* Retrieved from Info World: https://www.infoworld.com/article/2683784/what-is-cloud-computing.html

Ranger, S. (2018, December 13). *What is Cloud Computing? Everything You Need to Know About the Cloud Explained.* Retrieved from ZD Net: https://www.zdnet.com/article/what-is-cloud-computing-everything-you-need-to-know-from-public-and-private-cloud-to-software-as-a/

Viswanathan, P. (2019, June 24). *Pros and Cons of Cloud Computing.* Retrieved from Lifewire: https://www.lifewire.com/cloud-computing-explained-2373125

Woodford, C. (2019, May 11). *Cloud Computing.* Retrieved from Explain That Stuff!: https://www.explainthatstuff.com/cloud-computing-introduction.html

Reflection

I wrote a research paper on Cloud Computing for CSIS 1070: Living in a Digital World. The paper has one-inch margins, is double spaced, has an 11-point font size, and uses Arabic Typesetting as the font. The Word Processor used was Microsoft Word 2016. The paper is six pages long and consists of one title page, two pages discussing cloud computing, one reference list page, and one reflection page that is slightly over one page long. I used six references for this research paper. The search engines I used were Google, Yahoo, and Bing. Two references came from Google. They were "What is Cloud Computing?" by Eric Griffith from PC Mag and "What is cloud computing? Everything You Need to Know About the Cloud, Explained" by Steve Ranger from ZD Net. Two references came from Yahoo. They were "Cloud Computing" by Chris Woodford from Explain That Stuff! and "Pros and Cons of Cloud Computing" by Priya Viswanathan from Lifewire. One reference came from Bing, which was "What is Cloud Computing? Everything You Need to Know Now" by Eric Knorr from Info World. *Law of the Cloud: on the Supremacy of the User Interface Over Copyright Law* by Primavera De Filippi is a peer reviewed journal article. This article is from the *Internet Policy Review* journal. I found this article on DOAJ (Directory of Open Access Journals) (www.doaj.org). I found DOAJ using Google's search engine.

I used a reference management process. I used Google Chrome as my web browser. I used Google's Search Engine by going to www.google.com. The search criteria I used was "cloud computing." I reviewed the list of websites on pages one and two of the search listings and compared their relevance to my topic. On page one of the search listings, the two references that I used were listed. I bookmarked both websites and I opened each website in a separate browser tab. Next, I used Yahoo's Search Engine by going to www.yahoo.com. The search criteria I used was "cloud computing." I reviewed the list of websites on pages one through seven of the search listings and compared their relevance to my topic. On page five of the search listings, the two references that I used were listed. I bookmarked both websites and I opened each website in a separate browser tab. Lastly, I used Bing's Search Engine by going to www.bing.com. The search criteria I used was "cloud computing." I reviewed the list of websites on pages one and two of the search listings and compared their relevance to my topic. On page one of the search listings, the reference that I used was listed. I bookmarked the website and I opened it in a separate browser tab. Using Google's Search Engine, I found the peer reviewed journal article. I used "peer reviewed journal articles" as my search criteria. On page one of the search listings, in the box under Academic Research Databases, I saw DOAJ listed. I went to DOAJ's website and used "cloud computing" as my search criteria. I bookmarked the journal article and I opened it in a separate browser tab. I also stored all reference information in Microsoft Word's Reference Management Tool. I did not use Diigo because I used Google Chrome and Word to keep my reference information organized.

The only tool I used that I liked was Google's Search Engine. It is very quick and easy to use. I have access to it on my computer (Windows 10) and my phone (Google Pixel 3 XL). I can type search criteria directly into the browser's address bar without having to type a website address. If I close a page by mistake or decide that I need to revisit a page, I can view History and review the websites that I have closed. I have found that Google typically has the most relevant searches on page one of the search listing. I can easily bookmark websites and save searches. I can sync all the information between my phone and computer. For large research projects that I have been assigned at school and at work, I have solely used Google's Search Engine and it worked extremely well. I find other search engines and websites to be inferior to Google. If I had not used Google Chrome and Word to organize my reference information, I would have used Diigo. I really like Google's tools and all my devices are synced to Google for easy access. Word's Reference Management Tool works well. It stores all reference information and provides information on how to cite sources. Word will even insert the reference list into a research paper. Word is an excellent word processor. It's very powerful, easy to use, and has many features. Its Reference Management Tool, spell check, and, grammar check work very well. Word is widely used among individuals and businesses. It can be used on Microsoft, Android, Windows, and Apple devices.