The Cloud & Understanding Cloud Computing

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Introduction

Before cloud computing, there was service oriented architecture. This was concerned with the foundation of making it possible to have the cloud. The Cloud maintains information and application delivery options. In the early history of Information Technology, the cloud was used to "express empty space between the end user and the provider" (Foote 2017). The Cloud gained popularity as various types of companies began to gain a better understanding of its services and usefulness. The idea was used in its early days to deliver software programs to end users. When Amazon introduced the "Amazon Web Services" in the early 2000s, cloud computing evolved into services that include "storage, computation, and "human intelligence" "(Foote 2017). The cloud has been able to evolve to a service to where all kinds of data can be stored.

Current Use

Many researchers have researched and have been learning of the many uses of cloud computing. It "facilitates a new variety of applications and services to analyze a large number of data and enable large-scale manufacturing collaboration" (Information Technology Newsweekly 2019). In the early history of Information Technology, server farms were designed to divide the workload among multiple servers so that there are no processing delays. This is the basis of what cloud computing is today. "Cloud computing is an "IT" method that enables access to shared farms of the system resources & services that can be rapidly configured over the Internet" (Steinberg 90). Its most prominent method of use is data storage, eliminating the use of individual software. All resources and data are stored in what is known as the Cloud. The Cloud is what provides availability of computer system resources, data storage, and computing power. It is synonymous with a data center many users via the Internet. "It comes with huge amounts of

storage, the ability to handle multiple projects, and more availability to a variety of users, simultaneously" (Foote 2017). Companies use cloud computing as a method to store personal information of users so they can accordingly tailor information to each person.

Security Aspects

When it comes to cloud computing, many aspects IT topics have their own depth to its security. Cybersecurity is built to protect those who use tech against those individuals or groups of people that attempt to usurp control of sensitive data and information from a large span of platforms. Groups that are most in need of understanding the necessity for security are organizations. There are five key aspects to cloud security. The main aspects mostly consider corporations. The first one begins with "architecture, enforcing compliance, practicing due diligence, monitoring the network, and incorporating solid authentication protocol" (Boyd 2018). Within an organization, the limitations of one's own cloud services must be understood correctly, because it will give them control of how the security itself is setup. Many data privacy regulations have been placed on user's data. It is up to the organizations to regularly research regulations and understand what is best for their own. It is also up to organizations to practice their due diligence when it comes to security breaches. Hackers constantly are discovering new methods of infiltrating the systems and stealing important data. "Investing in performance management tools is another critical step to monitoring the health of the cloud network" (Boyd 2018). The last important thing is authentication. "Enterprises should implement centralized login management systems, cloud access security brokers, encryption key management, tokenization, and two-step authentication" (Boyd 2018). To summarize everything up, cloud security is essential due to attacks increasing. Protecting the cloud starts at a secure architecture,

and organizations needing to practice due diligence, monitoring and visibility into cloud is key to detecting the attacks, and authentication can act as a first defense to potential attack.

Ethical & Social Implications

Ethics is defined as moral principles that govern a person's behavior or the conducting of an activity. As readers, we must be able to define the ethics and social implications of the topics in which we read. Ethics when it deals with cloud computing is very complex. In an article written in November 2011, which considers 'personal data' under the EU Protection Directive. Many are hesitating to use cloud computing due to privacy concerns (Hon, Millard, Walden 2011). The DPD believes in encouraging free movement of data within the European Economic Area by syncing national data protection provisions, as well as protecting the rights and privileges of all individuals (Hon, Millard, Walden 2011). Each nation has differences on how their data protection laws work, so it needs to be specific and concise.

Benefits

With the continuous growth of cloud computing, there has already been a variety of customer benefits for customer benefits. The benefits of cloud computing include a significant reduction in capital expenditures since hardware and software are no longer purchased. There is improved scalability, increased cost control, reduced total costs of ownership and savings on energy steadily increase through sharing and virtualization of servers. "Cloud computing further facilitates updates and the introduction of new services and applications in a large enterprise and deployment of services to new users" (Kanzig, Favre, 2015). Due to an enormous component of the work previously performed by the customers IT department, they will become the sole management of the provider, IT department headcount will be expected to decrease

tremendously. If carefully chosen, cloud computing service providers are generally in a more comfortable position to be offering top notch protection against prohibited access to data, lost data, more availability, and quick disaster recovery mechanisms than enterprises which will usually have a limited IT budget and in-house capacity (Kanzig, Favre, 2015). With cloud computing and its many benefits, there will always be improvements made by developers to improve on the schematics and capabilities and experts are bound to wonder what the future uses will be.

Future Use

With technology always improving, there will be an improved use of cloud computing and many new components to it being added and expanded. Many employees of companies have stated what they believe the future of cloud computing could result with. For example, Michael Corrado, a Marketing Manager for Hewlett Packard says that "The future of cloud computing will most likely represent a combination of cloud based products to create a hybrid IT solution that balances the scalability and flexibility associated with cloud and the security and control of a private data center" (What's the Future of Cloud Computing 2020). The future with cloud computing is very bright, with the need to be able to make sure it is properly protected so that any data is not taken away.

Conclusion

With the invention of cloud computing, it continuously illustrates the promise and prospects of growing to something even more than anticipated. With so many new additions to the wide scope of Information Technology, it shows the progression of society and shows the

possibilities of where we can end up being. This is if we agree to work together and constantly work together.

References

1. Information Technology-Cloud Computing; Data from Beihang University Advance Knowledge in Cloud Computing (A Smart Manufacturing Service System Based on Edge Computing, Fog Computing and Cloud Computing) Information Technology Newsweekly. August 13, 2019; p.53 Retrieved on September 10th ,2020 from https://search.proquest.com/central/docview/2272760633/64E6B6780B134F99PQ/1?accountid=14541 a) This article is relevant to my research on this topic because it is recent with the data it has acquired on cloud computing. The research provided in this article shows that cloud computing has a cloud-based manufacturing system that facilitates a new variety of applications and services to analyze large amounts of data and enabling collaboration.
2. A Brief History of Cloud Computing Retrieved on September 9, 2020 from https://www.dataversity.net/brief-history-cloud-computing/

   b) This article chosen is relevant to my research because it provides an in depth look into what cloud computing is and its origins. The origins date back to the 90's and 2000's era and talks about which specific groups of people were heavily responsible for planting the ideas and causing the fruition of what it is in the current climate.
3. Five Elements of Cloud Security Retrieved on September 9, 2020 from https://www.sdxcentral.com/cloud/definitions/five-security-aspects-of-cloud-computing/

   c) This article is relevant to my research on cloud computing because it is important to know the correct procedures to protect your data when it is stored in the Internet.
4. What's the Future of Cloud Computing Retrieved on September 9, 2020 from https://www.futureofeverything.io/future-of-cloud-computing/

d) This article is relevant to my research because it delves in deep into the future and talks about as to what cloud computing may become future.

5. Steinberg, Geoffrey (2019) Introduction to Computer Information Systems Kendall/Hunt Publishing Company VitalSource Version Accessed on September 13th,2020, retrieved from https://bookshelf.vitalsource.com/#/books/9781524991821/cfi/2!/4/2@100:0.00

e) This textbook is relevant to my research because it provided basics and examples of what cloud computing is and what it is used for in the current climate of the IT world. It is also the textbook we use in our course as well.

6. Hon WK, Millard C, Walden I. The problem of 'personal data' in cloud computing: What information is regulated?—the cloud of unknowing *. *International Data Privacy Law*. 2011;1(4): 211-228. https://search.proquest.com/docview/1564009521?accountid=14541.doi: Https://dx.doi.org/10/1093/idpl/ipr018. Accessed on September 15, 2020

f) This article on proquest is relevant to my research because it delves into what the ethical and social implications of cloud computing are. Most of the time, personal data is stored on the cloud, leaving it vulnerable for attack and theft. This goes into what can happen, and how to prevent the catastrophe.

7. Favre K., Kanzig, D. Legal aspects of cloud computing (2015, February 3rd). Accessed on September 23rd, 2020 retrieved from https://www.internationallawoffice.com/Newsletters/Tech-Data-Telecoms-Media/Switzerland/Thouvenin-Rechtsanwlte/Legal-aspects-of-cloud-computing

g) This newsletter is relevant to my research because it provides many different aspects of cloud computing. It specifically lists the benefits that cloud computing has provided for its many customers.