Literature Review: Cloud Computing

Cloud computing has become a big part of the modern internet and its services, it allows for data to be better stored and desktop applications to be used on a web browser. There has been a lot of research done into the topic of cloud computing. Since there has been much research into cloud computing and still being researched into, it means we are able to simulate anything using the cloud. This report will evaluate some of the research that has been done into cloud computing.

Cloud computing has been defined by (Mell and Grance, 2011) as “Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model is composed of five essential characteristics, three service models, and four deployment models.” Meaning that cloud computing is defined as having different models and characteristics to it.

There are five essential characteristics when it comes to cloud, (Mell and Grance, 2011) lists these as being On demand self-service, Broad network access, Resource pooling, Rapid elasticity, Measured/metered service. This is the only source that seems to mention these five essential characteristics. All the other sources seem to overlook the fact of there being five essential characteristics of the cloud and hasn’t defined them anywhere in them.

Cloud computing has many different types of service models, (Armbrust et al., 2010) “The services themselves have long been referred to as Software as a Service (SaaS). Some vendors use terms such as IaaS (Infrastructure as a Service) and PaaS (Platform as a Service).” These terms are used to represent different parts of the cloud. However (Srinivasan, n.d.), goes a bit further saying, “In the simplest of terms ‘cloud computing’ has come to embody SaaS”. This means that when people refer to cloud computing they are commonly referring to Software as a Service, such as Microsoft’s Office 365. The same book (Srinivasan, n.d.) also says that “SaaS leaves the full control of the computing system with the provider”, this shows that you have to use a provider when using SaaS which can be bad in some ways. While (Srinivasan, n.d.) only said there was three service models (Furht and Escalante, 2010) says there is one more, “The data Storage as a Service (dSaaS) provides storage that the consumer is used including bandwidth requirements for the storage but (Mell and Grance, 2011) lists SaaS, PaaS and IaaS as being the main ones.

Cloud computing has four deployment models to it, which (Mell and Grance, 2011) mentions are Private cloud, Community cloud, Public cloud, Hybrid cloud. Not only does this source say this but (Srinivasan, n.d.) also says “there are four different deployment models in which the cloud is used”, which the source lists as being the same four as (Mell and Grance, 2011) does. Both the sources have the same definition of all four of the deployments of cloud. (Furht and Escalante, 2010) also has the same definitions but it has gotten its definitions from an older version of (Mell and Grance, 2011), where it defines private cloud as being “operated for a single organization”, community cloud as being “operated for a group of organizations, public cloud as being “available to arbitrary organizations”, or as (Mell and Grance, 2011) defines it “open for use by the general public” which means it can be used by the public, and hybrid cloud which is defined as being a cloud “that combines two or more clouds. These are some good definitions to understand from (Furht and Escalante, 2010).

One main part of cloud computing these days is Virtualization which can be found in a lot of sources as it is very well documented. (Furht and Escalante, 2010) has listed virtualization as an advantage, for example “The advantage to cloud computing is the ability to virtualize and share resources”. (McGough et al., 2014) is a journal on the comparison of using a cluster in the cloud rather than using a cluster of computers on a university campus. The cloud cluster model has been defined by (McGough et al., 2014) as “allowing users to deploy virtual machine images onto servers owned by the provider”, which is an example of IaaS and it is showing that the OS you are using is stored on a cloud server which you access. What (McGough et al., 2014) is suggesting here is that a computer cluster can be stored on servers which handles all the hardware processes and then is streamed to a client’s computer. (Furht and Escalante, 2010) also says that “Virtual machines provide virtualized IT-infrastructures on-demand”, meaning that it also suggests you can use a cloud server for virtual machines. What (McGough et al., 2014) is also suggesting is that because the OS’s will be stored on servers when the server hardware will handle processes, it means that costs will be cheaper for client hardware as its not handling much.

In conclusion, there have been many research journals and other documents on cloud computing and the main components to it. Most of the sources define it as having three service models and four deployment model. They also say that virtualization is a main feature to cloud computing and is a vital part to the way cloud computing is used. Virtualization is used a lot in cloud, with a lot of application running through the cloud, like Microsoft Office 365. Some sources provide more that others into the subject of cloud computing such as (Mell and Grance, 2011) which say that there are five essential characteristics to cloud computing. Altogether the cloud seems to becoming a vital part to the internet and the services that it provides, because you can store documents on a cloud server which can be great for backing up and you can also access applications like Word for free through a web browser and it doesn’t take much of you hardwares resources.

## References

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