**Clouds, Services and Servers – Corbin Peever**

**What does it do? 600**

Cloud computing is a relatively new term on most people’s lips, but it is something that has been around for a long time now. According to educba.com (2020), the earliest form of cloud computing dates all the way back to 1963 when J.C.R Licklider, an American Psychologist and Computer Scientist, created a computer system that allowed three users to all operate on the same, local, system that ran on magnetic tape. Licklider would then go on to create an early precursor to the internet, called ARPAnet, in 1969.

Since then cloud computing, and computing in general, have come a very long way. Where it was once only possible for three users to operate locally on a primitive computer using magnetic tape and pullies, we can now easily maintain online networks of hundreds-of-thousands of users, all sharing their own personal data, at millions of gigabytes per minute. It is expected that by 2025 the internet will exceed 163 zettabytes in size (Nicole Martin, 2019). That’s the equivalent of 151.7 trillion, studio length, television quality, 1GB movies.

With the rapid expansion and commercialisation of the internet, society has been impelled to revolutionise and improve on how we manage ourselves online. Data storage, security, flexible scalability, technical support and social and environmental impacts are all topics that are important to consider when contemplating how we manage the internet, our data and how we move forward. Cloud computing offers a solution so effective; it’s already becoming our primary solution worldwide. In fact, unless specifically designed not to, almost all current data is in contact with the Cloud – in some form or another.

Traditionally, data storage has always been done locally. Although there were a few upstream data-storage services that have been around for a long time, like data storage on a website, the status-quo has been to store your own files on your own hard-drive, external drive, or local network. Similarly, if you interacted with a website online, or downloaded a file, it would come from, or be stored on, the other party’s local storage in a peer-to-peer format. There are clear benefits to storing your data this way. You, the user, know exactly where your data is stored and who has access to it, own your own equipment outright without risking future expenses, have control over the equipment used – you can fit your needs and can have confidence in the backup procedure in case of data loss.

With huge advancements made in cloud technology, and the ever-increasing requirement to revolutionise our data storage methods in-way for more flexible options, cloud computing is becoming more popular than ever. Companies are now putting a greater focus on offering consumers high quality cloud-based services.

***Services are online based, customer facing solutions utilising cloud software to be used in innumerable applications (Needs revision)***. They come in three main forms; Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS) and Software-as-a-Service.

**Here is a brief explanation on the three:**

1. **Infrastructure-as-a-Service:**  Refers to a physical, data-storage or hosting facility or enterprise. IaaS is mainly used as a data cloud storage solution because it affords customers flexible scalability options, thorough backing up and redundancy and unparalleled security, all without having to buy their own equipment or pay for maintenance and management of their local network. Examples of IaaS are data warehouses/lakes like the Microsoft Data Centre in Iowa, USA.
2. **Platform-as-a-Service:** This is when a company establishes a platform, or suite, in which a user can develop, test and launch their own apps, without having to manage data storage or fluctuations in data requirements. Often, they are developed with built-in SaaS functionality. Although Microsoft Azure is based on IaaS architecture it also offers a PaaS to develop, launch and manage web and mobile apps.
3. **Software-as-a-Service:** Also known as web-based software, hosted software and on-demand software (Josh Fechter, 2020), SaaS refers to when a company offers a user-facing software that is centralized by the company and offers limited usability. Cloud-Based Microsoft Office is an example of SaaS. It allows users to create, edit, share and collaborate on a host of Office 365 applications, purely online.

***There are many other types of services like Security-as-a-Service and Data-as-a-Service, but those three are currently the most established versions (needs revision).***

Even though the Cloud is already such a prolific aspect of the internet, its growth is only expected to increase with the global public cloud computing market set to exceed $620 billion US by 2023 and upwards of 90% of companies already existing on the cloud (hostingtribunal.com, 2020). As you can imagine, there are many different iterations of cloud computing.

**The primary examples of cloud computing are:**

1. **The Internet** - the first and most notable form of cloud computing – a system that allows users to share data between devices over long distances using the Internet Protocol.
2. **Social Networking** is currently the most popular form of cloud computing if you don’t include the internet. Huge amounts of data are stored and shared between users, in real-time, constantly. Examples are Facebook, Instagram and Tik Tok.
3. **Streaming Services** like Netflix, YouTube, Apple Music, Soundcloud and Twitch. These SaaS companies allow users to manage and store their own data and preferences, but only through access to the frond-end of the application.
4. **Chatbots** involve machine learning programs and leverage large cloud-based databases to interact with humans usually in-regards-to customer service queries or technical support. Examples of chatbots are
5. **Communication** SaaS applications like Skype, Microsoft Teams and WhatsApp that enable groups of people to communicate at the same time using video or sound, sometimes with built-in PaaS functions.
6. **Productivity/Collaboration** applications like Google Docs or Slack that users can use to organise groups of people in a professional capacity. Specifically focuses on productivity in a vocational or educational setting.
7. **Storage/Recovery** facilities that offer IaaS solutions to their customers – data centres in particular. Data centres are large facilities whose sole purpose is to offer data storage solutions on a large scale with the highest possible security, back up/redundancy and flexibility. An example of a data centre is the Equinex Data Centre in Sydney.
8. **App Development** PaaS or suites that allow development, management and deployment of web and mobile applications. Examples include Microsoft Azure, Amazon Web Services and Google App Engine.
9. **Application Development Testing** clouds like mobile app testing clouds that are used to test new applications on a variety of devices in life-like situations. Amazon Web Services comes with a Device Farm for testing alongside development.
10. **Cloud Analytics** – a term describing businesses using cloud computing to perform market analytics on massive amounts of customer data from pre-structured data pools like Google BigQuery.

**What is the likely impact? 300**

Cloud computing may have started as a complex system of mechanics in a college laboratory almost sixty years ago, but its progress has come far. There is no shortage of choice in the way of safely storing our personal data, and there are more software development options than ever before. But is there a cost to such a boon? And where are the nay-sayers, if there are any? Well, certainly in some ways there is an impending need to be concerned about the future of the Cloud and what it implies for our privacy and security.

In 2014 Apple’s iCloud was accessed by hackers and thousands of super-famous celebrities’ nude photos were leaked to the public (Susan Noakes, 2014).

* Increase data storage flexibility
* All data moves online, local storage on cloud
* Privacy, data in multiple places
* Further collaborative advancements

**How will this affect you? 300**

As computing moves moreso towards the cloud….

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