What Does it Do?

Cloud computing is the act of accessing another computer system over the internet and using this remote computers resources for you own purpose. This a simple thing, but the scale it which it is now do allows the cloud to do so much.

For a home user, a common cloud service would be a simple file storage repository. This appeals for the everyday user because it can be accessed from anywhere, for example Microsoft OneDrive or Dropbox. By uploading files to the OneDrive or Dropbox ‘cloud’, you can access these files from any other computer (so long as you logged onto your cloud service account). The cloud is acting as an extra hard drive in this case.

For a small business, a common cloud service could be an email/file server. Instead of having a local server that stores email and files, these services are provided by the cloud. One advantage of this is cost reduction, especially for a small business. A small business server running in an office requires equipment, maintenance, a cold server room, backup management and procedures for physical tapes. On top of this, a staff member to maintain all this bulky IT infrastructure. The cloud in this circumstance act as a sub-contract for traditional small business IT work.

For small business, in addition to the reduced operational costs, there is scaling and responsiveness advantages to cloud technology. Say for instance, a small company has 350 staff members but suddenly merges with another company that has 200 staff members, in which they will all move into the same building. What the cloud service will do is allow the available computer capacity to expand also instantaneously to the sudden higher demand. If handled inhouse, expensive IT infrastructure changes may possibly be required to accommodate the larger company.

A full-stack developer may have other uses for cloud computing services. A developer can make use of virtual online servers. Instead of requiring a server at home to run a web application the developer can rent servers from online. This can be incredibly useful to the lone full-stack developer, and, as for small business, especially scaling. Cloud services scale to the demand. Cloud based websites don’t crash because of sudden traffic increases like they did in the past. The cost of providing the service reflects the usage of the service. A developer can scale their web application platform back down to a reasonable cost if the user count suddenly drops off again.

Systems administrators also use the cloud. They might use it to clone Linux servers to quickly mass produce new web applications with minor changes, alongside easy backup and built in security. Yet another use cloud services have for the full-stack developer is cloud services providing public IP’s to use, so straight away they can have their web applications ready and available on the internet without having to register expensive public IP services from their local internet service provider.

Cloud computing is often broken down into three categories, those being:

Infrastructure as a Service (IaaS),

Platform as a Service (PaaS) and

Software as a Service (SaaS).

Infrastructure as a Service (IaaS) is the cloud service company providing basic servers as the product. Platform as a Service (PaaS) gives a more basic sever setup where patching, networking and other basic server tasks are managed by the cloud company itself. Software as a Service (SaaS) is where the cloud company provides a front facing software package where all behind the scenes maintenance is managed by the cloud service company.

What is the likely impact?

Six billion people are predicted to be living in cities by the year 2045 (un.org. 2020). Cloud will be to a vital utility within the future cities, as important as roads, water, power and sewage. The smart cities will have embedded technology supporting this mega urbanization (Forbes.com. 2020).

Cloud technology will have a great impact on healthcare. Many hospitals relying on cloud services to process larger amounts of patients. Cloud supported machine learning AI will help diagnose patients and larger data storage capacities to keep up with the ever-growing data needs of hospitals and clinics (Cloud Standards Customer Council 2017).

Computers themselves with change. It has been predicted that at the end of 2020, work will generally no longer be done on standalone workstations or personal computers. Instead all work will be done using web cloud apps such as Microsoft Office Online and google docs. The idea of installing software on a local machine is also going to be a thing of the past, as most major software suites move onto the cloud as their preferred method of distribution (The Future of Cloud Computing 2010).

Another impact of cloud computing will be the increased use and acceptance of open source software. Most of the cloud now is fuelled with open source software, and it looks like the current trend of cloud technology is that it will continue to drive open source software into the mainstream as cloud technology grows (TechRepublic.com. 2020)

How this will Affect you? (300)

The effect is already being felt. Most of us now no longer purchase software and install it on our local machines, but rather use software that is hosted on the cloud. Alongside this is the day to day use of the cloud for file sharing, photo sharing, music sharing and the use of social media which relies heavily on cloud technology.

We are all aware of the privacy concerns and ownership rights. It is common for people to store their entire personal lives on the cloud, from important documents to baby photos. How companies will use our personal cloud data will have a huge impact and effect on our lives.

As developers, cloud technology gives us incredibly easy, cheap and flexible options. We can start creating and hosting web apps, which previously would not have been possible to start without huge personal investment. As cloud technology matures, more and more easily accessible server configurations are available to the everyday user. These include the ability to quickly start web applications with pre-built ‘snapshots’ of common Linux configurations, considerably cutting down work time.

Microsoft and Amazon both offer an incredible amount of easy to use libraries, modules and prebuilt servers to build any kind of application you would want and be able to scale it to your needs for very low start-up costs. Some advanced modules such as artificial intelligence will allow the everyday website entrepreneur to create world class web applications without the need for huge budgets and dedicated research. As these advanced cloud artificial intelligence modules grow in both size and complexity, complicated projects will be much easier for myself and other developers to use.

Un.org. (2020). *World’s population increasingly urban with more than half living in urban areas | UN DESA | United Nations Department of Economic and Social Affairs*. [online] Available at: https://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html [Accessed 6 Jan. 2020].

Forbes.com. (2020). *Cloud Computing Is Crucial To The Future Of Our Societies -- Here's Why*. [online] Available at: https://www.forbes.com/sites/joytan/2018/02/25/cloud-computing-is-the-foundation-of-tomorrows-intelligent-world/#2ffab2a54073 [Accessed 6 Jan. 2020].

Cloud Standards Customer Council. (2017). [ebook] Available at: https://www.omg.org/cloud/deliverables/CSCC-Impact-of-Cloud-Computing-on-Healthcare.pdf [Accessed 10 Jan. 2020].

The Future of Cloud Computing. (2010). [ebook] Pew Research Center. Available at: http://www.elon.edu/docs/e-web/predictions/expertsurveys/2010survey/PIP\_Future\_of\_internet\_2010\_cloud.pdf [Accessed 6 Jan. 2020].

TechRepublic. (2020). *Cloud computing in 2020: Predictions about security, AI, Kubernetes, more*. [online] Available at: https://www.techrepublic.com/article/cloud-computing-in-2020-predictions-about-security-ai-kubernetes-more/ [Accessed 6 Jan. 2020].