IT Technologies (Clouds, services, servers)

# What does it do?

What is a server? A server is a computer or program on a network that is dedicated to providing services to other computers on the network (also known as clients). Generally, it does this by sending and receiving data to and from clients, or by performing requested calculations that the clients cannot perform on their own. There are many types of servers that can perform a number of tasks depending on the needs of its users. For example, there are “File servers”. If you are connected to its network, you can send it files and folders, then anyone on the network can easily retrieve those files and folders without you having to send them to each individual.

Any computer with the right software can be used as a server, but depending on your purpose, this may not be enough. Which is why organization often use computers specifically designed to be servers. These are made with redundant power sources and multiple hard drives that can be replaced without turning off the server itself.

As these machines are designed with only performance in mind, there are some draw backs that make them hard to manage. They are often as big as people, requiring a lot of room and depending on how many you have, you may need to spend a substantial amount of resources on cooling to prevent overheating.

Depending on its size, an organization may need a significant number of servers. It is also hard to gauge the maximum amount of activity an organization will conduct, making it necessary to have many more servers than it actually needs. As a result, it can cost a considerable amount to pay for the space, cooling and general maintenance to keep your servers up and running.

However, there are common ways to combat these downfalls and reduce these inefficiencies. For example, with virtualization, you can run multiple virtual machines (or VM’s) off of the one server. This makes is easier to make the most out of each server by distributing its resources to multiple purposes.

In more recent years, this has been taken further with cloud computing. Through cloud computing, one can access the resources of a server through the internet. This means that a company can build a data centre with a very large number of servers; cool and maintain them in the most efficient way possible, then they can use virtualization to split up their computing resources and rent out as much as a client needs.

This means that an organization doesn’t need to deal with the physical hardware themselves. This cuts the cost of space, cooling and maintenance and they can easily increase or decrease the amount of resources depending on how much you need at the time.

But this isn’t the end. The IT industry is growing as more and more of the worlds population is connecting to the internet. Companies are tirelessly working on making their data centres more powerful and efficient.

Li-Fi is one such way. Wi-Fi uses radio-waves to transmit data to and from computers, and while it is a relatively power efficient method, Li-Fi is proving itself as the cleaner alternative. Li-Fi uses light to transfer data. Using light as the method of data transport has the potential of being much faster than what Wi-Fi can achieve with radio-waves. Not only that, the data being sent through Li-Fi would be received through a solar panel. Not only will Li-Fi transport data, but it will also transport power, making it much more eco-friendly.

# What is the likely impact?

Right now, Li-Fi is about as fast as Wi-Fi in terms of download speeds, but in the near future it is expected to be much faster. This along with other advancements to increase the power of data centres and the speed they can deliver data means that the cloud will have more and more applications.

This means that there may come a day where you could have access to an entire computer through the cloud. If something like that happens, then companies will no longer be racing to produce the most powerful phones. Every phone will essentially be a window to a computer in another location. After this “window to another computer” has been implemented, the goal of making phones as small as possible will become a clear second priority compared to making them receive data as fast as possible.

This isn’t to say that developing client-side hardware will become completely redundant. It will simply aim to be less powerful and more “flexible”. People will be attracted to a device that they can use in the most situations possible. With features like adjustable screen size and more methods of user interaction. Also, these days, cyber-security is becoming a growing concern and that probably won’t change in the near future. People will be reluctant to have too much on the cloud, so they buy their own hardware with security as more of a priority than the devices power or number of features.

This would obviously shift the industry. There will be a reduced job market in mobile phone technology and the people who are working in or trying to get into it will naturally struggle. However, this also means that as reliance on data centres by the populace grows, so will the job market in that area.

# How will this affect you?

This will only affect me personally in a positive way. As I have no plans on entering the mobile phone industry, these advancements will mainly only affect me as a consumer; and as a consumer I am very excited to see how many practical applications this will have on my day to day life.

We can already connect all of our devices together to make it easier to share data, but if the cloud lives up to our expectations, instead of connecting multiple devices, I could essentially have only one computer and access it through multiple devices. So, while I’ll always have access to it, sensitive data will only be on the one computer in a secure location.

Something else that excites me personally is the advancements in cloud gaming. Cloud gaming is already being implemented in certain countries around the world; however, they can only use it for older games and the Australian internet infrastructure is not effective enough to support it. But as technology advances, it may come to the point where it is not only accessible by everyone but become the standard of the industry. You will not have to buy the next generation of hardware but simply pay a subscription to use hardware somewhere else over the cloud. I won’t have to worry about the cost to maintain hardware and I’ll theoretically be able to play a console on my phone.

Servers and cloud technology are advancing at a very fast pace and it is going to push the limits of the entire technology industry. The future will be an exciting time and I can’t wait to see it.

**References**

Etherton,2011, *Introduction to Servers*, YouTube, 17 Feb, Eli the Computer Guy, viewed 04 April 2019, <<https://www.youtube.com/watch?v=CDxaRfwzFrs>>

Wikipedia, 2019, *Server (computing)*, viewed 04 April 2019, <<https://en.wikipedia.org/wiki/Server_(computing)>>

Global LiFi Congress, 2019, *The international meeting of the LiFi's experts*, viewed 04 April 2019, <<https://www.lificongress.com/Press-release-93-2.html>>

Delia Hernandez, *2019, Li-Fi – Better, Faster, and Greener than Wi-Fi and Fiber Combined*, viewed 04 April 2019, < <https://planetechusa.com/blog/li-fi-better-faster-and-greener-than-wi-fi-and-fiber-combined/>>