## NETWORKING & SYSTEM ADMINISTRATION LAB

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## Aim

Prepare a comparative study of specifications of desktops and server class computers.

## Procedure

Many people mistakenly believe that a server is no different from a typical desktop computer. The technologies behind them are engineered for different purposes. A desktop computer system typically runs a user-friendly operating system and desktop applications to facilitate desktop-oriented tasks. In contrast, a server manages all network resources. Servers are often dedicated (meaning it performs no other task besides server tasks). Because a server is engineered to manage, store, send and process data 24-hours a day it has to be more reliable than a desktop computer and offers a variety of features and hardware not typically used in the average desktop computer.

### Server

A server is a piece of infrastructure or a piece of hardware very similar to your standard desktop or laptop computer but a lot more powerful, which will have a lot more RAM, a lot more CPU, a lot more capacity. It is a powerful computer that receives requests from the client computers, processes, and sends back the output. A web server responds to related web requests. There can be other servers, like, application servers, mail servers, FTP servers, etc. You can add additional cards that are not necessarily available on a standard desktop or laptop computer. It will be used primarily in a business environment to serve the customers out in a business. There are different types of physical servers of different brands like Dell, Lenovo, Cisco, they all have multiple servers.

They are used for equipment or resource sharing, such as printers and copiers. The servers also run wireless scanners to detect and remove viruses introduced by any user on any computer. They also backup all user's work frequently to recover in case of emergency. To do all this work, servers are very different from desktop computers that we use. They require a large amount of RAM to work efficiently, they also need huge and fast hard disk servers, like application servers have more processing power with multiple strong CPUs. Most servers also have inbuilt high capacity backup drives to protect against data loss. Servers are also designed to be expandable as network rules on demand.

## Desktop

A Desktop is a personal computer that an individual uses for personal or office work. It typically stays on your office desk at the workplace. It has a combination of physical hardware attached, which makes a desktop computer run. You have a monitor, keyboard, and mouse as input devices. Desktop computers are not only bought and used by an individual, they are also used in enterprise organizations where the desktops are assigned to the employees. Multiple employees cannot work on one Desktop, but one employee can have multiple desktops assigned to him/her depending on the work.

The processor is the most crucial part of a Desktop. It includes the motherboard and the circuit board for the computer to run. A desktop computer processor can be a microtower or a minitower, which can be placed over the work desk or under it.

## Server v/s Desktop

In order to compare, consider the following parameters,

### 1. Operating system

The operating system of a server and a desktop computer is very different. The operating system of a server can handle multiple processes and connections at the same time (depending on the hardware). There are certain features that a server-oriented operating system has, but desktop computers do not. The graphical user interface is not there in the server operating system, or it is optional.

A server operating system has the ability to update software and hardware without even restarting, whereas in a desktop operating system, you need to restart it for the changes to take effect. The operating system of servers has backup facilities to take regular online backups of critical data. The security of a server operating system is far better than a desktop computer operating system. The server also has advance and flexible network capabilities as compared to desktop computers. Linux, Microsoft Windows, Mac OS, BSD are few popular operating systems used on servers and desktops.

### 2. Hardware

The cost of server hardware is a lot more than desktop hardware. The hardware cost of the servers used in enterprise-grade equipment has twice the lifetime of a desktop computer. The core technologies used by servers and desktops are similar, but a server’s performance is much higher than a desktop.

The processors used by a desktop computer are majorly Intel Core series, whereas the processors used by a server is Intel Xeon. The Xeon processors are designed to work with multiple other processers because they need to communicate with many other processers in the server stack. So, the motherboard of a server can have multiple processors, but the motherboard of a desktop computer will have only one processor. A server processor is capable of running far more applications simultaneously than a desktop. Xeon processors support Error Code Correcting (ECC) RAM because the servers need to be up and running all the time, and if there is a memory error, ECC ram detects the issue and prevents the server from shutting down. The Intel Core processor used in desktop computers does not support ECC RAM, but they support AMD processors.

3. Support

Desktop support often happens for office computers. These are very limited support with some technical documentation and guidance. The support offered for desktop computers happens remotely. This support is offered for a software related issue on a company's computer or individual user computer. It can also be hardware repair support, which will be done physically.

The server support is far more proactive than desktop support. In server support, the service provider helps in running, maintaining, and monitoring the servers remotely. They provide 24/7 support, and you also have a dedicated team and a telephone number to reach out for help faster. In the case of a server, you also get support for virus attacks, hacking, malware, etc., from the vendor.

4. Cost

Obviously, the cost of server-grade hardware is much higher than desktop-grade hardware. This is because the server-grade hardware is inter-compatible with other server-grade hardware. The networking capabilities required in the server's case are much higher than a desktop, which eventually results in higher costs. For physical servers, you need to rent a place to keep them, whereas for desktop, there is no extra cost of keeping it, you just need a flat desk. Giant companies like Facebook, Google, Microsoft pay fancy amounts for running, managing, and monitoring their servers.

In short, a desktop is used by an individual or by an organization for their employees. In contrast, big companies use servers to run several applications in parallel over the organization's network. Although both are computers but still very different from each other. If you are an individual, you would be using a desktop at your office or for your

personal use, but if you are an IT administrator professional in an organization, you would be working on servers.