NETWORKING & SYSTEM ADMINISTRATION LAB

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Aim

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

Procedure

Server

A server is a piece of infrastructure or a piece of hardware very similar to the 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.

Desktop

A Desktop is a personal computer that an individual uses for personal or office work.It has a combination of physical hardware attached, which makes a desktop computer run. While almost any computer that meets the minimum hardware requirements can run a server operating system that alone does not make a desktop computer a true server. Even if the desktop computer had similar processor speeds, memory and storage capacity compared to a server, it still isn't a replacement for a real server.

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.

Operating System

An operating system has multiple programs running in parallel on a computer system to manage various services and hardware resources for executing various applications. It is one of the most essential software present on a desktop or a server. Without an

operating system, server or a desktop computer cannot run. Linux, Microsoft Windows, Mac OS, BSD are few popular operating systems used on servers and desktops.

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.

Hardware

The cost of server hardware is a lot more than desktop hardware. 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.

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

The below table helps in summarising the differences between a server and a desktop.

Server	Desktop
It has multiple processes for faster access	It has a single processor in most cases
The files are stored at a secure location	The files are present at the individual's desktop
It has mirrored hard drives which have the backup of the data on the servers	It has a single hard drive, if it fails you lose the data
It requires more than one power supply	It has only one power supply
It is more secure to viruses, malware and cyber threats	It is vulnerable to viruses, malware and cyber threats