NETWORKING & SYSTEM ADMINISTRATION LAB

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Aim

Prepare a comparative study of specification of desktop and server class computers.

Procedure

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 vs Desktop

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

Over the past few years, there has been a lot of discussion of server and desktop 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.

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.

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.

Learning Curve

System administrators, server administrators, network admins, IT administrators are those folks who work on their organization servers. They need to have a good background in hardware and software, which includes operating systems and networking. Working with servers is not easy. Once the number of servers increases, the complexity of managing it also increases. Whereas learning to work on a desktop is very easy. Even a newbie can learn how to work on a desktop in just a few days.

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
The hardware parts are costly	The hardware parts are not costly
It offers higher processing power, memory and storage	It has lower processing power, memory and storage