

Web Server Concepts and Virtualization

What is a Web Server?

A **web server** is both a **hardware** and **software** component that serves content (usually web pages) to users over the Internet via HTTP or HTTPS protocols.

- **Hardware:** A physical computer that stores web server software and website files.
- **Software:** The application (like Apache or Nginx) that handles incoming requests and sends responses.

Different Web Server Applications

Below is a comparison of popular web server software:

Web Server	License Type	Website
Apache HTTPD	Apache License 2.0	httpd.apache.org
Nginx	2-clause BSD	nginx.org
Microsoft IIS	Proprietary (Microsoft)	docs.microsoft.com
LiteSpeed	Proprietary / OpenLiteSpeed (GPLv3)	litespeedtech.com
Caddy	Apache License 2.0	caddyserver.com

What is Virtualization?

Virtualization is the process of creating virtual (rather than physical) versions of hardware platforms, storage devices, and network resources. It allows multiple virtual systems to run on a single physical machine.



What is VirtualBox?

VirtualBox is an open-source virtualization software developed by Oracle. It allows users to run multiple operating systems simultaneously on a single physical machine.

- Supports Windows, macOS, Linux, and Solaris as hosts.
- Can run guests like Ubuntu, Windows, etc.

What is a Virtual Machine (VM)?

A **virtual machine** is a software emulation of a physical computer. It runs an operating system and applications just like a physical computer does.

- Fully isolated
- Can be configured with its own RAM, storage, CPU
- Used for testing, development, and running different OS environments

What is Ubuntu Server?

Ubuntu Server is a server-specific edition of Ubuntu Linux. It comes with server software packages and no graphical user interface (GUI), making it lightweight and ideal for:

- Web hosting
- Cloud environments
- Enterprise networks

What is a Firewall?

A **firewall** is a network security device or software that monitors and filters incoming and outgoing traffic based on predetermined rules. It helps:

- Block unauthorized access
- Protect internal networks from threats
- Allow specific traffic like HTTP or SSH

What is SSH?

SSH (Secure Shell) is a cryptographic network protocol used to securely access and manage devices remotely.

- Encrypts the data during transmission
- Commonly used for remote server management
- Port 22 is the default SSH port