**web server**

A web server is a crucial component of the internet infrastructure, responsible for storing, processing, and delivering web content to clients, typically through web browsers

**Definition and Functionality**

A web server is both hardware and software that accepts requests from clients via the Hypertext Transfer Protocol (HTTP) or its secure variant, HTTPS.

When a client, such as a web browser, requests a webpage, the web server processes this request and returns the appropriate content, which can be static (like HTML files) or dynamic (generated by server-side scripts).

**Key Functions of a Web Server:**

**Content Delivery:** Serves static files (HTML, images) and dynamic content generated by applications.

**Request Handling:** Processes incoming requests from clients and sends back responses.

**Logging:** Maintains logs of requests and responses for monitoring and analysis.

**Security:** Implements security measures to protect data and manage access.

**Components of a Web Server**

**1. Hardware**: This includes the physical machine that hosts the server software. It typically has a powerful processor, ample RAM, storage capacity for files, and network interface cards for internet connectivity.

**2. Software:** The software side includes:

Web Server Software: Programs like Apache HTTP Server or Microsoft Internet Information Services (IIS) that handle HTTP requests.

**Types of Web Servers**

**1. Static Web Servers(web pages)**

These servers deliver fixed content to clients. The content does not change unless manually updated on the server. They are efficient for serving simple websites where the same information is displayed to all users.

**2. Dynamic Web Servers(web pages)**

Dynamic servers generate content on-the-fly based on user interactions or other factors. They often work in conjunction with application servers to pull data from databases and create customized responses for users.

**Common Web Server Software**

Some widely used web server software includes:

**Apache HTTP Server:** An open-source server known for its flexibility and wide adoption.

**Microsoft IIS**: A proprietary server designed for Windows environments.

**Conclusion**

Web servers are fundamental to the functioning of the internet, facilitating communication between users and websites.