# BackEnd
Client-Server Architecture

Introduction

Client-Server Architecture is a system that hosts, provides and manages most of the resources and services that the client requests, it involves the delivery of all requests and services across a network.

This type of Architecture divides workloads and tasks between clients and servers housed on the same system or connected via a computer network.

For example : The PCs that we use everyday are connected to a central server through the Internet.

As a Client requests data a Server responds to the client's request for data by accommodating it and returning the requested data packets to the user.
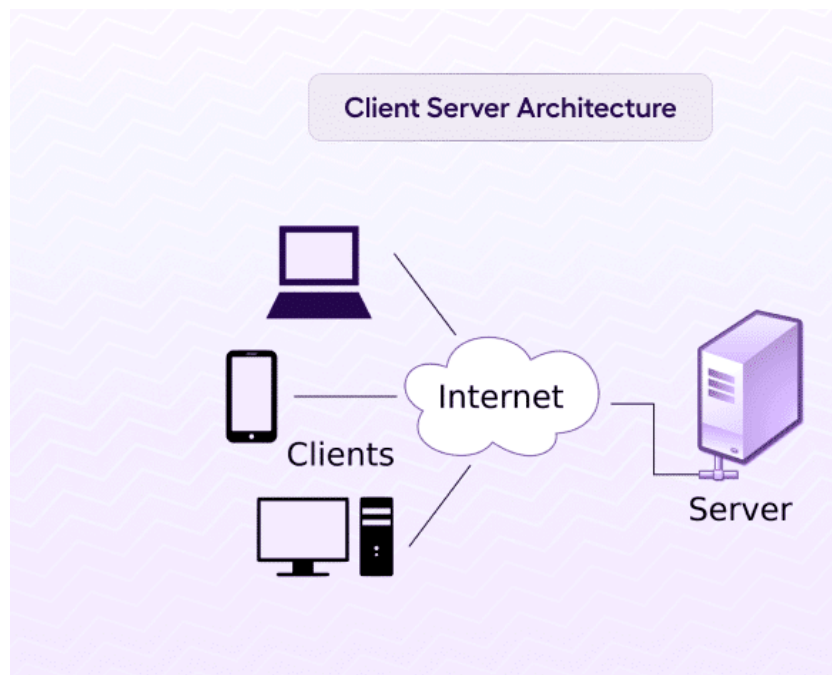
Key Components of a Client-Server Model

There a three main components of this model:

Workstations

Workstation OS, Windows 2000, Windows XP, Vista and Windows 7 are all examples of a workstation. A Workstation is mainly a personal computer that requests access to a network and receives services from a central server.

Servers

A server is a remote computer that provides access to data services, and resources to multiple clients. It is a powerful machine that handles various processes, like Email hosting, Application hosting, Internet Connections, printing etc.

Clients

A client is any machine that sends a request to the server. Like how we request a page from a website's domain when we visit it. We are the client in this scenario.

IT professionals use thin, thick and hybrid clients to describe clients or server requesters. For many of a device's fundamental Operations, thin clients require a server's resources and computing power.

Devices known as Thick clients can do numerous jobs and process with vast volumes of data without the assistance of the server. Hybrid clients can analyze data independently but depend on a server to retain the data for more involved or repetitive processing operations.

Working of Client-Server Model

The client and server are the first two evident participants in client server communication.

We need to have a basic understanding of the following subjects to comprehend how these two couples communicate.

Requests: Requests are sent from the client to the server to inform it of events, such as a user logging in using his credentials or to ask the server for data.

Responses: A server's response to a client request is sent to the client as a message. This Might, for Instance, be the outcome of an authentication.

Service: The task that the server does for the client, such as downloading a .JPEG file.

Role of Protocols in Communications

TCP/IP is the protocol suite most often used by clients to connect to the Servers. Because TCP is a connection-Oriented Protocol, it Establishes and maintains connections until the application programs at either end have exchanged messages. THe Following are made Easier by the TCP protocols:

- Determines the Packetization of the application data.
- Sends Packets to the network layer and receives packets from it.
- Oversees traffic flow of management.
- Retransmits dropped off jumbled packets as needed.
- Acknowledges each and every packet that enters the network
- TCP covers a portion of layer 4, the transport layer, and a portion of layer 5, the session layer, in the OSI model.