

Compare Client server With Distributed architecture

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Course:

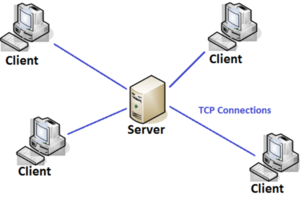
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# Client server Architecture

## The definition of Client Server Architecture

**Client Server Architecture** is a computing model in which the server hosts, delivers and manages most of the resources and services to be consumed by the client. This type of architecture has one or more client computers connected to a central server over a network or internet connection.

client-server architecture is the most common distributed system architecture which decomposes the system into two major subsystems or logical processes −

Client − This is the first process that issues a request to the second process i.e. the server.

Server − This is the second process that receives the request, carries it out, and sends a reply to the client.

In this architecture, the application is modelled as a set of services that are provided by servers and a set of clients that use these services. The servers need not know about clients, but the clients must know the identity of servers, and the mapping of processors to processes is not necessarily 1 : 1

Example:

When a bank customer accesses online banking services with a web browser (the client), the client initiates a request to the bank's web server. The customer's login credentials may be stored in a database, and the web server accesses the database server as a client. An application server interprets the returned data by applying the bank's business logic and provides the output to the web server. Finally, the webserver returns the result to the client web browser for display.

In each step of this sequence of client-server message exchanges, a computer processes a request and returns data. This is the request-response messaging pattern. When all the requests are met, the sequence is complete, and the web browser presents the data to the customer.

1. **Client-server architecture advantages:**

* Centralization:

In Peer to Peer, there is no central administration, but in client server network architecture there is a centralized control. Servers help in administering the whole set-up and also accessing rights and allocating resource is done by Servers.

* Proper Management:

 Since all the files are stored at the same place management of files becomes easy making it easier to find files.

* Back-up and Recovery possible:

 Making a back-up of all the data is easy as the data is stored on server. Suppose there’s some break-down and data is lost, it can be recovered easily and efficiently. While in peer computing we have to take back-up at every workstation.

* Upgradation and Scalability in Client-server set-up:

If you want to make changes you will need to simply upgrade the server. Additionally, you can add new resources and systems by making necessary changes in server.

* Accessibility:

 From various platforms in the network, server can be accessed remotely.

* Security:

 Rules defining security and access rights can be defined at the time of set-up of server.

1. **Client-server architecture disadvantages:**

* Cost:

A dedicated server is required which may expensive because server hard wares, Server operating system and its license are very expensive things because of its features.

* Complexity:

For server management server engineer is required with desired skills, without server knowledge which may risk to work with this network.

* Server Failure:

The entire network resources are belongs to server.some time unluckily server failure cause the entire network down. Some time there is chance for data loss in server. because of sudden failure.

* Server Overload:

All the functions in the configured by server. So the entire network ,load will come to server. Because some over load server may lag

# Distributed Architecture

1. The definition of Distributed Architecture

Distributed Architecture It is a software system consisting of a group of computer devices that communicate with each other through a network connected to each other.

In distributed architecture, components are presented on different platforms and several components can cooperate with one another over a communication network in order to achieve a specific objective or goal.

* In this architecture, information processing is not confined to a single machine rather it is distributed over several independent computers.
* A distributed system can be demonstrated by the client-server architecture which forms the base for multi-tier architectures; alternatives are the broker architecture such as CORBA, and the Service-Oriented Architecture (SOA).
* There are several technology frameworks to support distributed architectures, including .NET, J2EE, CORBA, .NET Web services, AXIS Java Web services, and Globus Grid services.
* Middleware is an infrastructure that appropriately supports the development and execution of distributed applications. It provides a buffer between the applications and the network.
* It sits in the middle of system and manages or supports the different components of a distributed system. Examples are transaction processing monitors, data convertors and communication controllers etc.

1. The basis of a distributed architecture is :
2. Transparency.
3. reliability.
4. availability.

### Distributed Architecture advantages

* **Resource sharing** – Sharing of hardware and software resources.
* **Openness** − Flexibility of using hardware and software of different vendors.
* **Concurrency** − Concurrent processing to enhance performance.
* **Scalability** − Increased throughput by adding new resources.
* **Fault tolerance** − The ability to continue in operation after a fault has occurred.

### Distributed Architecture disadvantages

* **Complexity** − They are more complex than centralized systems.
* **Security** − More susceptible to external attack.
* **Manageability** − More effort required for system management.
* **Unpredictability** − Unpredictable responses depending on the system organization and network load.