1. Tell us about the features of client/server.

In a client/server architecture, client computers provide an interface to allow a computer user to request services of the server and to display the results the server returns. Servers wait for requests to arrive from clients and then respond to them.

1. What is a Web server in a client server environment?

A Web server is software that uses [HTTP](https://whatis.techtarget.com/definition/HTTP-Hypertext-Transfer-Protocol) (Hypertext Transfer Protocol) and other protocols to respond to client requests made over the World Wide Web (WWW).

1. What is the role of the presentation layer

Presentation layer is the front-end layer of the application and the interface with which end-users will interact through a web-based application. It is also used to present data to the application layer in an accurate way

1. They say this architecture is secure, how is it done in your opinion?

I believe that in a 3-tier architecture, the presence of an extra layer in between makes this architecture more secure from hacking activities. Also, more the layers, more will be the number of firewalls present which makes it again more secure.

1. What is a Database Server in a client server environment?

The term database server may refer to both hardware and software used to run a database, according to the context. As software, a database server is the back-end portion of a database application, following the traditional client-server model. This back-end portion is sometimes called the instance. It may also refer to the physical computer used to host the database. When mentioned in this context, the database server is typically a dedicated higher-end computer that hosts the database.

1. What are Super servers in client server environments?

To my understanding super server controls the use of other servers. It monitors the arrival of a client request and starts the appropriate server service.

1. Explain 2-Tier and 3-Tier architecture

In 2 tier architecture, direct communication takes place between client and server. It is divided into client tier and database tier. The main problem of two tier architecture is the server cannot respond multiple request same time, as a result it cause a data integrity issue.

In 3 tier architecture, it is divided into 3: presentation layer, application layer and database layer. The application layer acts as an interface between Client layer and Data Access Layer.

1. What is a File server?

A file server is a [server](https://techterms.com/definition/server) that provides access to [files](https://techterms.com/definition/file). It acts as a central file storage location that can be accessed by multiple systems. File servers can be configured in multiple ways. For example, in a home setting, a file server may be set to automatically allow access to all computers on the local network ([LAN](https://techterms.com/definition/lan)). In a business setting where security is important, a file server may require all [client](https://techterms.com/definition/client) systems to log in before accessing the server. Others may only grant access to a specific list of machines, which can be defined by [MAC address](https://techterms.com/definition/macaddress) or [IP address](https://techterms.com/definition/ip_address).

**SOA & MicroServices**

1. What are the main benefits of SOA?

* Loose Coupling
* Flexibility
* Easier Testing and Debugging
* Scalability
* Reusability

1. How can you achieve loose coupling in SOA

Being on a SOA stack means that your infrastructure and architecture are split up into various services. As a consequence, you write software that tends to be loosely coupled

1. Are web services and SOA the same?

They are related, but not the same.  Web services are a form of SOA implementation. SOA doesn't require Web services. Web services are a set of implementation standards designed for service-oriented architectures.

1. What is a reusable service?

The service reusability is to create services that can be reused across a business. These reusable services are designed so that their solution logic is independent of any particular business process or technology.

1. What are the disadvantages of SOA?

* In SOA, all inputs are validated before it is sent to the service. If you are using multiple services then it will overload your system with extra computation.
* SOA is costly in terms of human resource, development, and technology
* As some web service sends and receives messages and information frequently so it easily reaches a million requests per day. So it involves a high-speed server with a lot of data bandwidth to run a web service.

1. What is ESB and where does it fit in?

The Enterprise Service Bus connects all the services together over a bus like infrastructure. It acts as communication center in the SOA by allowing linking multiple systems, applications and data

1. In SOA do we need to build a system from scratch?

No, we can also implement SOA by exposing existing services

1. What is the most important skill needed to adopt SOA ?technical or cultural?

Cultural, SOA requires people to think in terms of business functions or services for eg: “my company does these functions, how can I set up my IT?” should be the way of thinking rather “if I implement this technology, how will it benefit my company?”.

1. List down the advantages of Microservices Architecture.

Scalability and reusability, as well as efficiency. Easy to scale and integrate with third-party services. Components can be spread across multiple servers

1. What are the best practices to design Microservices?

* Domain-Driven Design
* Database per Microservice
* Micro Front ends
* Continuous Delivery
* Observability
* Unified Tech Stack
* Asynchronous Communication
* Infrastructure over Libraries
* Organizational Considerations

1. What are the pros and cons of Microservice Architecture?

PROS

* Greater agility
* Faster time to market
* Faster development cycles
* Platform and language independent services

CONS

* harder to test and monitor due to the complexity
* Security issues
* Needs more collaboration
* Poorer performance due to network latency and message processing

1. What is the difference between Monolithic, SOA and Microservices Architecture?

Monolithic apps consist of interdependent, indivisible units and feature very low development speed. SOA is broken into smaller, moderately coupled services, andfeatures slow development. Microservices are very small, loosely coupled independent services and feature rapid continuous development.

In a service-oriented architecture, they communicate through a piece of specialized software called an enterprise storage bus*.* Microservices communicate via more lightweight protocols. It is worth noting that microservices arose out of the SOA, and are sometimes considered a kind of SOA, or successor to the concept.

1. What are the challenges you face while working Microservice Architectures?

* Managing Microservices
* **Monitoring**
* **Embracing DevOps Culture**
* **Fault Tolerance**
* **Testing**
* **Cyclic Dependencies**

1. What are the characteristics of Microservices?

* Services are built around business capabilities , independently deployable and packaged, each running in its own process.
* Each Service should have separate database layer
* Each Service can have independent codebase, CI/CD tooling sets
* Each Service can be tested in isolation without dependent on other services.
* Each Service should have monitoring and troubleshooting capabilities for operation team
* Each Service can implement independent security mechanism
* Services can use HTTP(Rest) or messaging for communication or any other lightweight communication protocol.
* Each Service can be run without waiting for other service to go online
* Service can use different language,framework and technologies
* Maintain Independent Revisions and Build Environments to maintains compatibility with other services.