PHASE 1 -Q & A

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

Ans. An important characteristic of client-server systems is scalability. They can be scaled horizontally or vertically. Combination of a client **or** front-end portion that interacts with the user, and a server or back-end portion that interacts with the shared resource

2)**What is a Web server in a client server environment?**

Ans: A web server returns documents when clients ask for them by name. The clients and server communicate using an RPC-like protocol called HTTP.

3) **What is the role of the presentation layer?**

Ans: Presentation layer translates, encrypts and compresses data. presentation layer is primarily responsible for two networking characteristics protocol & architecture. Presentation layer takes care that the data is sent in such a way that the receiver will understand the information(data) and will be able to use the data.

4) **What is a Database Server in a client server environment?**

Ans. With a database server, the client passes SQL requests as messages to the database server. The results of each SQL command are returned over the network. The server uses its own processing power to find the request data instead of passing all the records back to the client and then getting it find its own data.

5) What are Super servers in client server environments?

Ans. These are fully-loaded machines which includes multiprocessors, high-speed disk arrays for intervive I/O and fault tolerant features.

6) **Explain 2-Tier and 3-Tier architecture Client server**?

Ans. 2-tier architecture is useful where a client talks directly to a server. There is no intervening server. It is typically used in small environments. Here, the user interface is placed at user's desktop environment and the DBMS services are usually placed in a server

3-tier architecture: In this kind of client server environment an additional middle-ware is used that means client request goes to server through that middle layer and the response of server is firstly accepted by middle-ware then to client. This architecture overcomes all the drawbacks of 2-tier architecture and gives best performance.

7) **What is a File server?**

Ans. A file server is a computer on a network that is used to provide users on a network with access to files.

8) **What are the main benefits of SOA?**

Ans. Language Neutral Integration, Component Reuse,Data confidentiality and integrity, Organizational flexibility.

- SOA helps create greater alignment between IT and line of business while generating more flexibility – IT flexibility to support greater business flexibility. Your business processes are changing faster and faster and global competition requires the flexibility that SOA can provide.
- SOA can help you get better reuse out of your existing IT investments as well as the new services you're developing today. SOA makes integration of your IT investments easier by making use of well-defined interfaces between services. SOA also provides an architectural model for integrating business partners', customers' and suppliers' services into an enterprise's business processes. This reduces cost and improves customer satisfaction.

9)**How can you achieve loose coupling in SOA?**

Ans. One strategy for achieving loose coupling is to use the service interface (the WSDL for a SOAP Web Service) to limit this dependency, hiding the service implementation from the consumer. Loose coupling can be addressed by encapsulating the service functionalities in a manner that limits the impact of changes to the implementation on the service interface.

10)Are web services and SOA the same?

Ans. SOA is an architectural concept while web services are used to complete them. Web services are the preferred standards that are satisfied to achieve the architectural specifications of SOA

11)What is a reusable service?

Ans: Using existing software modules rather than writing new ones. It is an autonomous, reusable, discoverable, stateless functionality that has the necessary granularity, and can be part of a composite application or a composite service.A reusable service should be identified with a business activity described by the service specifications

12)What are the disadvantages of SOA?

Ans. Trying to solve multiple problems at once, rather than solving small pieces of the problem.

13)What is ESB and where does it fit in?

Ans. ESB stands for Enterprise Service Bus. Unlike other relationships, it provided any to any connectivity between different companies. Also, you may need to consider deployment services, IT services, etc. The ESB is part of this reference architecture and provides the backbone of an SOA.

14)In SOA do we need to build a system from scratch?

Ans. No, if we need to integrate any existing system you just can loosely couple wrappers which help in wrapping all customer services and expose all functionalities in a generic manner.

15)What is the most important skill needed to adopt SOA ?technical or cultural?

Ans. Its cultural. SOA does require people to think of business and technology differently. Instead of thinking of technology first.

16)List down the advantages of Microservices Architecture.

1. All microservices can be easily developed based on their individual functionality
2. Even if one service of the application does not work, the system still continues to function
3. Based on their services, they can be individually deployed in any application

17)What are the best practices to design Microservices?

Ans. Runtime Processes, Team/ Cultural, Data

18)How does Microservice Architecture work?

- **Clients** – Different users from various devices send requests.
- **Identity Providers** – Authenticates user or clients identities and issues security tokens.
- **API Gateway** – Handles client requests.
- **Static Content** – Houses all the content of the system.
- **Management** – Balances services on nodes and identifies failures.
- **Service Discovery** – A guide to find the route of communication between microservices.
- **Content Delivery Networks** – Distributed network of proxy servers and their data centers.
- **Remote Service** – Enables the remote access information that resides on a network of IT devices.

19)What are the pros and cons of Microservice Architecture?

Pros of Microservice Architecture	Cons of Microservice Architecture
Freedom to use different technologies	Increases troubleshooting challenges
Each microservices focuses on single capability	Increases delay due to remote calls
Supports individual deployable units	Increased efforts for configuration and other operations
Allow frequent software releases	Difficult to maintain transaction safety
Ensures security of each service	Tough to track data across various boundaries
Mulitple services are parallelly developed and deployed	Difficult to code between service

20)What is the difference between Monolithic, SOA and Microservices Architecture?

- **Ans. Monolithic Architecture** is similar to a big container wherein all the software components of an application are assembled together and tightly packaged.
- A **Service-Oriented Architecture** is a collection of services which communicate with each other. The communication can involve either simple data passing or it could involve two or more services coordinating some activity.
- **Microservice Architecture** is an architectural style that structures an application as a collection of small autonomous services, modeled around a business domain.

21)What are the challenges you face while working Microservice Architectures?

Ans. Challenges:

- **Automate the Components**: Difficult to automate because there are a number of smaller components. So for each component, we have to follow the stages of Build, Deploy and, Monitor.
- **Perceptibility**: Maintaining a large number of components together becomes difficult to deploy, maintain, monitor and identify problems. It requires great perceptibility around all the components.
- **Configuration Management**: Maintaining the configurations for the components across the various environments becomes tough sometimes.
- **Debugging**: Difficult to find out each and every service for an error. It is essential to maintain centralized logging and dashboards to debug problems.

22)What are the characteristics of Microservices?

Ans. Characteristics:

- Services are split up and organized around business capability
- The team which handles a particular product should own it forever
- Teams are responsible for all aspects of the software they build
- They are completely independently deployable