

System Design Answer Format

Requirements and Goals of the system

- Functional
 - What is the system and why do we need the system - finding use case?
 - Find who is user for the system?
- Non-Functional
 - Availability
 - Scalability
 - Minimum Latency
 - Capacity and constraints of the system
 - Traffic estimates
 - Storage estimates
 - Bandwidth estimates
 - Memory estimates
- Extended Requirement
 - Analytics

High level design

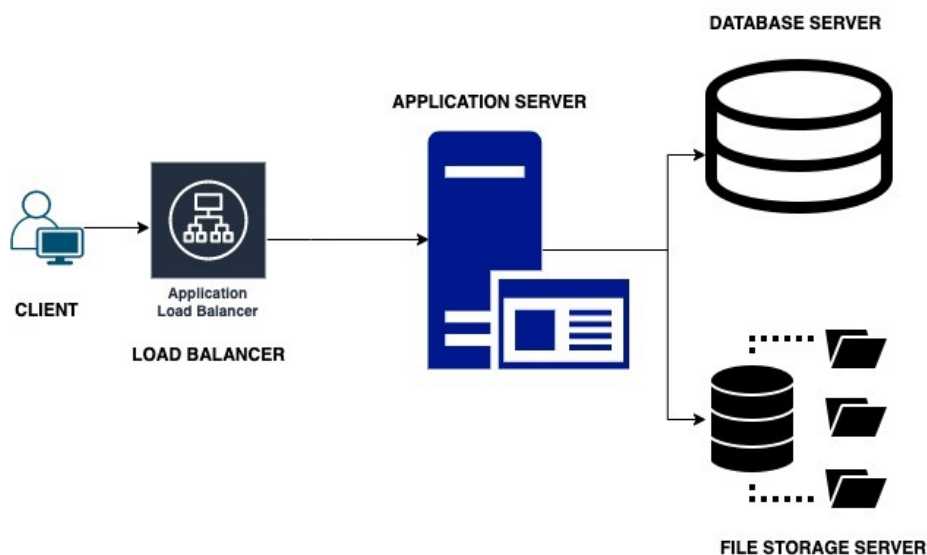
- Backend
 - System API's (The interviewer might not be interested in knowing design for each API so ask clarifying questions)
 - REST -> write basic skeleton of how the rest api definition will look like
 - Talk about security of the API in general (API-Key for security)
 - Database Design (Present a block diagram -> includes entities that are discussed)
 - Schema/Data Model
 - If no relation between entities -> one can use NoSQL (This is not a standard but recommendation)
 - If scalability -> One can think about NoSQL
 - Define data structure/ write an algorithm for use case that interviewer is interested
 - Data partition and replication
 - Purging or DB cleanup
- Caching
 - hint -> caching is needed when system does lot of read operations
 - Talk about one caching technology that can be used
- Load balance (as per requirement and use case)
 - Between client and Application servers
 - Between Application server and database
 - Between Application server and cache server

- Statistical gathering of info. about the system performance and usage
 - Location from where the system is accessed
 - This helps to decide if more application servers are needed from a particular geographical location.
 - The info. also helps to understand scale of business
 - Talk about performance parameters based than can be derived from data gathered
- Security and permission
- Present a high-level design based on points discussed above
- Refine your design based on inputs
- Talk about different technologies that can be used to design front end, backend and middleware of the system

Detailed Design

- Based on above questions and understanding provide a detailed design

Basic reference design



Read: Things to know before you design your first system

<https://www.linkedin.com/pulse/cracking-system-design-interviews-vinit-singh/>