Technique

1. Determine the use cases and requirements.

At this stage we want to establish the requirements and use cases of the system we are building. We need to establish the functional and non-functional requirements of the system. There is not one correct solution to these kinds of problem, so it is very important to ask enough questions at the requirements stage to scope the solution

2. List assumptions

Agree with your interviewer reasonable assumptions such as number of requests per second.

3. Capacity and Constraints

It is worth considering capacity and constraints. At this state we can interested in several measures that will impact our design.

- Reads per second.
- Writes per second.
- Bandwidth (Reads/Writes per second in bytes)
- Storage Estimates
- Memory/Cache estimates

The results of this section are important later when we need to consider scalability, partitioning, caching and load balancing.

4. Define the System level API.

Defining the system API enables us to clarify with our interviewer that we moving in the correct direction

5. Design the data storage.

At this stage it is worth jotting down some database tables that will hold our data. It is worth considering the type of database technology. Consider when we might use a relational database and why we might use a NoSQL database. By identifying the different data entities and their relationships.

6. Diagram the components (High level design)

Show boxes etc for major components such as servers and data stores. Once this is done show how data and requests flow through the components to satisfy the requests from part 2. It is acceptable at this stage to not worry too much about details such as scalability.

7. Design the components (detailed design)

Often, we will not deep dive into every aspect. Ideally the interviewer would help decide which aspects are most deserving of further consideration Topics that might be relevant include.

- Application Layer
- Database storage
- Data Partitioning and replication
- Caching
- Load Balancing
- Security