System Design Interview Survival Guide (2023)

Here is an overview of the **preparation strategies** and **practical tips** for acing a system design interview in 2023.

1. Understand the basic concepts

- Scalability
- Fault tolerance
- Load balancing
- Caching
- Availability
- Consistency
- Latency
- Throughput
- Partition Tolerance
- CAP Theorem
- ACID Properties

2. Understand common design patterns

- Microservices
- Sharding
- Event sourcing
- Circuit Breaker
- Reverse proxy
- Backpressure
- CQRS (Command Query Responsibility Segregation)
- Object Pool

3. Familiarity with different types of databases

- Relational databases
- NoSQL databases
- Distributed key-value stores
- Document databases
- Graph databases
- Time-series databases

4. Familiarity with different types of distributed systems and algorithms

- Merkle Tree
- Consistent Hashing
- Read Repair
- Gossip Protocol
- Bloom Filter
- Heartbeat
- CAP and PACELC Theorems

5. Learn how to communicate your thought process

- Start with the problem statement
- Break down the problem
- Use diagrams and sketches
- Discuss trade-offs and constraints
- Explain your reasoning
- Be prepared to answer questions and provide alternatives
- Be open to feedback

6. How to answer a system design question in an interview

- Step 1: Requirements clarification
- Step 2: Back-of-the-envelope estimation
- Step 3: System interface definition
- Step 4: Defining the data model
- Step 5: High-level design
- Step 6: Detailed design
- Step 7: Identifying and resolving bottlenecks

7. Top System Design Interview Questions

- Design Facebook Messenger
- Design Youtube
- Design Facebook's Newsfeed
- Design an API Rate Limiter
- Design Twitter
- Design Dropbox or Google Drive
- Design a Web Crawler
- Design Twitter Search
- Design Instagram
- Designing Yelp or Nearby Friends
- Design Ticketmaster

➡ **Learn system design, check "Grokking the System Design Interview" and "Grokking the Advanced System Design Interview" from DesignGurus.org**

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