Cache - Discussion Topics

Architecture & Design

1. **When to use cache-aside vs read-through vs write-through?**
   - Trade-offs between consistency and performance
   - Use cases for each pattern
2. **How do you handle cache invalidation in a distributed system?**
   - Event-driven invalidation
   - TTL strategies
   - Cache coherence protocols
3. **What are the risks of over-caching?**
   - Memory pressure
   - Stale data issues
   - Complexity in debugging

Real-World Scenarios

1. **Design a caching strategy for a social media feed**
   - User-specific vs global cache
   - Freshness requirements
   - Cache warming strategies
2. **How would you prevent cache stampede during high traffic?**
   - Request coalescing
   - Probabilistic early expiration
   - Lock-based approaches

Performance & Optimization

1. **How do you measure cache effectiveness?**
   - Hit rate vs miss rate
   - Latency improvements
   - Cost-benefit analysis
2. **What's your approach to cache sizing?**
   - Working set estimation
   - Memory vs performance trade-offs
   - Monitoring and adjustment strategies

Advanced Topics

1. **Multi-level caching: When and how?**
   - L1 (local) vs L2 (distributed) cache
   - Consistency challenges
   - Eviction coordination
2. **How do you handle cache in a multi-region deployment?**
   - Regional vs global cache
   - Replication strategies
   - Consistency models