### (1) FEATURE EXPECTATIONS [5 min]

1. Use cases
2. Scenarios that will not be covered
3. Who will use
4. How many will use
5. Usage patterns

### (2) ESTIMATIONS [5 min]

1. Throughput (QPS for read and write queries)
2. Latency expected from the system (for read and write queries)
3. Read/Write ratio
4. Traffic estimates

* Write (QPS, Volume of data)
* Read (QPS, Volume of data)

1. Storage estimates
2. Memory estimates

* If we are using a cache, what is the kind of data we want to store in cache
* How much RAM and how many machines do we need for us to achieve this?
* Amount of data you want to store in disk/ssd

### (3) DESIGN GOALS [5 min]

1. Latency and Throughput requirements
2. Consistency vs Availability [Weak/strong/eventual => consistency | Failover/replication => availability]

### (4) HIGH LEVEL DESIGN [5-10 min]

1. APIs for Read/Write scenarios for crucial components
2. Database schema
3. Basic algorithm
4. High level design for Read/Write scenario

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### (5) DEEP DIVE [15-20 min]

1. Scaling the algorithm
2. Scaling individual components:
   * Availability, Consistency and Scale story for each component
   * Consistency and availability patterns
3. Think about the following components, how they would fit in and how it would help
4. DNS
5. CDN [Push vs Pull]
6. Load Balancers [Active-Passive, Active-Active, Layer 4, Layer 7]
7. Reverse Proxy
8. Application layer scaling [Microservices, Service Discovery]
9. DB [RDBMS, NoSQL]
   * RDBMS
     + Master-slave, Master-master, Federation, Sharding, Denormalization, SQL Tuning
   * NoSQL
     + Key-Value, Wide-Column, Graph, Document
     + Fast-lookups:
       - RAM [Bounded size] => Redis, Memcached
       - AP [Unbounded size] => Cassandra, RIAK,Voldemort
       - CP [Unbounded size] => HBase, MongoDB,Couchbase, DynamoDB
10. Caches
    * Client caching, CDN caching, Web server caching, Database caching, Application caching, Cache @Query level, Cache @Object level
    * Eviction policies:
      + Least Recently Used(LRU)
      + Least Frequently Used(LFU)
      + First in First Out (FIFO)
    * Cache Loading Policies
      + Cache aside
      + Write through
      + Write behind
      + Refresh ahead
11. Asynchronism
    * Message queues
    * Task queues
    * Backpressure
12. Communication
    * TCP
    * UDP
    * REST
    * RPC
    * Thrift
    * GraphQL

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### (6) JUSTIFY [5 min]

1. Throughput of each layer
2. Latency caused between each layer
3. Overall latency justification