System Design Interview Prep Master Doc
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[pooja biswas | LinkedIn](#)

All system design youtube channels
1. https://www.youtube.com/user/dimakorolev/videos
2. https://www.youtube.com/c/ByteByByte/videos
3. https://www.youtube.com/channel/UC_n-A84J0UcU5uq4sEh2CnQ
4. https://www.youtube.com/c/DefogTech/videos
5. https://www.youtube.com/c/HusseinNasser-software-engineering/videos
6. https://www.youtube.com/c/SystemDesignInterview/videos
7. https://www.youtube.com/c/sudoCODE/videos
8. https://www.youtube.com/c/codeKarle/videos
9. https://www.youtube.com/c/CMUDatabaseGroup/videos
10. https://www.youtube.com/c/interviewingio/videos
11. https://www.youtube.com/c/GauravSensei/videos
12. https://www.youtube.com/c/EngineeringwithUtsav/videos
13. https://www.youtube.com/channel/UClB4KPy5LkJj1t3SgYVtMOQ/videos
14. https://www.youtube.com/c/ExponentTV/videos
15. https://www.youtube.com/watch?v=cQP8WApzIQQ&list=PLrw6a1wE39_tb2fErI4-WkMbsvGQk9_UB
16. https://www.youtube.com/c/TheInterviewSage/videos
17. https://www.youtube.com/c/ThinkSoftware/videos
18. https://www.youtube.com/c/SuccessinTech/videos
19. https://www.youtube.com/c/TechDummiesNarendraL/videos
20. https://www.youtube.com/c/OktaDev/videos

Important Books :
1. [Amazon.com: System Design Interview – An Insider's Guide eBook: Xu, Alex: Kindle Store](#)
2. [Amazon.com: Operating Systems: Three Easy Pieces eBook: Arpaci-Dusseau, Remzi, Arpaci-Dusseau, Andrea: Kindle Store](#)
3. [Web Scalability for Startup Engineers: Ejsmont, Artur: 9780071843652: Amazon.com: Books](#)
4. [Understanding Distributed Systems: What every developer should know about large distributed applications: Vitillo, Roberto: 9781838430207: Amazon.com: Books](#)
5. [Designing Data-Intensive Applications: The Big Ideas Behind Reliable, Scalable, and Maintainable Systems: Kleppmann, Martin: 9781449373320: Amazon.com: Books](#)
6. [Kafka: The Definitive Guide: Real-Time Data and Stream Processing at Scale: 9781491936160: Computer Science Books @ Amazon.com](#)
7. [Buy Distributed Algorithms – An Intuitive Approach 2e (The MIT Press) Book Online at Low Prices in India | Distributed Algorithms – An Intuitive Approach 2e (The MIT Press) Reviews & Ratings - Amazon.in](#)
8. [Elasticsearch: The Definitive Guide: A Distributed Real-Time Search and Analytics Engine eBook: Gormley, Clinton, Tong, Zachary: Amazon.in: Kindle Store](#)

9. [Buy Cassandra – The Definitive Guide, 3e: Distributed Data at Web Scale Book Online at Low Prices in India | Cassandra – The Definitive Guide, 3e: Distributed Data at Web Scale Reviews & Ratings - Amazon.in](#)

Imp keywords

1. Write ahead logging
2. SSL passthrough / termination on load balancers
3. Clock vectors
4. Hinted handoff
5. Bloom filters
6. Gossip protocols
7. Merkle trees
8. Two phase commit
9. Two phase locking
10. Consistent hashing
11. Data replication
12. Total order broadcast
13. Isolation levels (read uncomitted, read comitted, repeatable read, serializable)
14. Quad trees (GeoHashin)
15. Inverse indexing - Google search/any search indexing
16. Gaming ranking - rank players based on score and faster.
17. Word search in trie - auto suggestions system design
18. Sort 5gb data in 1gb memory - merge sort
19. Paxos algo
20. Merkle Tree
21. Backpressure
22. Circuit breaker
23. Raft
24. Service discovery
25. Saga
26. Hyperloglog

Important algorithms
https://github.com/resumejob/system-design-algorithms
● Frugal Streaming
● Geohash / S2 Geometry
● Leaky bucket / Token bucket
● Loosy Counting
● Operational transformation
● Quadtree / Rtree
● Ray casting
● Reverse index
● Rsync algorithm
● Trie algorithm
● Consistent Hashing
● Count-Min Sketch
● Bloom Filters

- HyperLogLog
- Skip Lists
- LRU
- B tree
- Hierarchical Timing Wheels
  https://blog.acolyer.org/2015/11/23/hashed-and-hierarchical-timing-wheels/
- Merkle trees
- Fenwick Tree
  - http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=2FDD6F53D3DC3BB91FA42E7277B6765B?doi=10.1.1.14.8917&rep=rep1&type=pdf
- AMS (Alon Matias Szegedy) algorithm

Cloud design patterns

https://docs.microsoft.com/en-us/azure/architecture/patterns/index-patterns
Cloud arch pattern

Ambassador	Create helper services that send network requests on behalf of a consumer service or application.	Design and Implementation, Operational Excellence
Anti-Corruption Layer	Implement a façade or adapter layer between a modern application and a legacy system.	Design and Implementation, Operational Excellence
Asynchronous Request-Reply	Decouple backend processing from a frontend host, where backend processing needs to be asynchronous, but the frontend still needs a clear response.	Messaging

Backends for Frontends	Create separate backend services to be consumed by specific frontend applications or interfaces.	Design and Implementation
Bulkhead	Isolate elements of an application into pools so that if one fails, the others will continue to function.	Reliability
Cache-Aside	Load data on demand into a cache from a data store	Data Management, Performance Efficiency
Choreography	Let each service decide when and how a business operation is processed, instead of depending on a central orchestrator.	Messaging, Performance Efficiency
Circuit Breaker	Handle faults that might take a variable amount of time to fix when connecting to a remote service or resource.	Reliability
Claim Check	Split a large message into a claim check and a payload to avoid overwhelming a message bus.	Messaging
Compensating Transaction	Undo the work performed by a series of steps, which together define an eventually consistent operation.	Reliability
Competing Consumers	Enable multiple concurrent consumers to process messages received on the same messaging channel.	Messaging
Compute Resource Consolidation	Consolidate multiple tasks or operations into a single computational unit	Design and Implementation
CQRS	Segregate operations that read data from operations that update data by using separate interfaces.	Data Management, Design and Implementation, Performance Efficiency
Deployment Stamps	Deploy multiple independent copies of application components, including data stores.	Reliability, Performance Efficiency
Event Sourcing	Use an append-only store to record the full series of events that describe actions taken on data in a domain.	Data Management, Performance Efficiency

External Configuration Store	Move configuration information out of the application deployment package to a centralized location.	Design and Implementation, Operational Excellence
Federated Identity	Delegate authentication to an external identity provider.	Security
Gatekeeper	Protect applications and services by using a dedicated host instance that acts as a broker between clients and the application or service, validates and sanitizes requests, and passes requests and data between them.	Security
Gateway Aggregation	Use a gateway to aggregate multiple individual requests into a single request.	Design and Implementation, Operational Excellence
Gateway Offloading	Offload shared or specialized service functionality to a gateway proxy.	Design and Implementation, Operational Excellence
Gateway Routing	Route requests to multiple services using a single endpoint.	Design and Implementation, Operational Excellence
Geodes	Deploy backend services into a set of geographical nodes, each of which can service any client request in any region.	Reliability, Operational Excellence
Health Endpoint Monitoring	Implement functional checks in an application that external tools can access through exposed endpoints at regular intervals.	Reliability, Operational Excellence
Index Table	Create indexes over the fields in data stores that are frequently referenced by queries.	Data Management, Performance Efficiency
Leader Election	Coordinate the actions performed by a collection of collaborating task instances in a distributed application by electing one instance as the leader that assumes responsibility for managing the other instances.	Design and Implementation, Reliability

Materialized View	Generate prepopulated views over the data in one or more data stores when the data isn't ideally formatted for required query operations.	Data Management, Operational Excellence
Pipes and Filters	Break down a task that performs complex processing into a series of separate elements that can be reused.	Design and Implementation, Messaging
Priority Queue	Prioritize requests sent to services so that requests with a higher priority are received and processed more quickly than those with a lower priority.	Messaging, Performance Efficiency
Publisher/Subscriber	Enable an application to announce events to multiple interested consumers asynchronously, without coupling the senders to the receivers.	Messaging
Queue-Based Load Leveling	Use a queue that acts as a buffer between a task and a service that it invokes in order to smooth intermittent heavy loads.	Reliability, Messaging, Resiliency, Performance Efficiency
Retry	Enable an application to handle anticipated, temporary failures when it tries to connect to a service or network resource by transparently retrying an operation that's previously failed.	Reliability
Scheduler Agent Supervisor	Coordinate a set of actions across a distributed set of services and other remote resources.	Messaging, Reliability
Sequential Convoy	Process a set of related messages in a defined order, without blocking processing of other groups of messages.	Messaging
Sharding	Divide a data store into a set of horizontal partitions or shards.	Data Management, Performance Efficiency
Sidecar	Deploy components of an application into a separate process or container to provide isolation and encapsulation.	Design and Implementation, Operational Excellence

[Static Content Hosting](#)	Deploy static content to a cloud-based storage service that can deliver them directly to the client.	[Design and Implementation](#), [Data Management](#), [Performance Efficiency](#)
[Strangler Fig](#)	Incrementally migrate a legacy system by gradually replacing specific pieces of functionality with new applications and services.	[Design and Implementation](#), [Operational Excellence](#)
[Throttling](#)	Control the consumption of resources used by an instance of an application, an individual tenant, or an entire service.	[Reliability](#), [Performance Efficiency](#)
[Valet Key](#)	Use a token or key that provides clients with restricted direct access to a specific resource or service.	[Data Management](#), [Security](#)

Data Management patterns

- 06/23/2017
- +3

Data management is the key element of cloud applications, and influences most of the quality attributes. Data is typically hosted in different locations and across multiple servers for reasons such as performance, scalability or availability, and this can present a range of challenges. For example, data consistency must be maintained, and data will typically need to be synchronized across different locations.

Additionally data should be protected at rest, in transit, and via authorized access mechanisms to maintain security assurances of confidentiality, integrity, and availability. Refer to the Azure Security Benchmark [Data Protection Control](#) for more information.

Pattern	Summary
[Cache-Aside](#)	Load data on demand into a cache from a data store
[CQRS](#)	Segregate operations that read data from operations that update data by using separate interfaces.
[Event Sourcing](#)	Use an append-only store to record the full series of events that describe actions taken on data in a domain.

Index Table	Create indexes over the fields in data stores that are frequently referenced by queries.
Materialized View	Generate prepopulated views over the data in one or more data stores when the data isn't ideally formatted for required query operations.
Sharding	Divide a data store into a set of horizontal partitions or shards.
Static Content Hosting	Deploy static content to a cloud-based storage service that can deliver them directly to the client.
Valet Key	Use a token or key that provides clients with restricted direct access to a specific resource or service.

DATA MANAGEMENT PATTERNS

Design and Implementation patterns

- 06/23/2017
- 2 minutes to read

Good design encompasses factors such as consistency and coherence in component design and deployment, maintainability to simplify administration and development, and reusability to allow components and subsystems to be used in other applications and in other scenarios. Decisions made during the design and implementation phase have a huge impact on the quality and the total cost of ownership of cloud hosted applications and services.

Pattern	Summary
Ambassador	Create helper services that send network requests on behalf of a consumer service or application.
Anti-Corruption Layer	Implement a façade or adapter layer between a modern application and a legacy system.
Backends for Frontends	Create separate backend services to be consumed by specific frontend applications or interfaces.
CQRS	Segregate operations that read data from operations that update data by using separate interfaces.
Compute Resource Consolidation	Consolidate multiple tasks or operations into a single computational unit
External Configuration Store	Move configuration information out of the application deployment package to a centralized location.
Gateway Aggregation	Use a gateway to aggregate multiple individual requests into a single request.
Gateway Offloading	Offload shared or specialized service functionality to a gateway proxy.

Gateway Routing	Route requests to multiple services using a single endpoint.
Leader Election	Coordinate the actions performed by a collection of collaborating task instances in a distributed application by electing one instance as the leader that assumes responsibility for managing the other instances.
Pipes and Filters	Break down a task that performs complex processing into a series of separate elements that can be reused.
Sidecar	Deploy components of an application into a separate process or container to provide isolation and encapsulation.
Static Content Hosting	Deploy static content to a cloud-based storage service that can deliver them directly to the client.
Strangler Fig	Incrementally migrate a legacy system by gradually replacing specific pieces of functionality with new applications and services.

DESIGN AND IMPLEMENTATION PATTERNS

Messaging patterns

+4

The distributed nature of cloud applications requires a messaging infrastructure that connects the components and services, ideally in a loosely coupled manner in order to maximize scalability. Asynchronous messaging is widely used, and provides many benefits, but also brings challenges such as the ordering of messages, poison message management, idempotency, and more.

Pattern	Summary
Asynchronous Request-Reply	Decouple backend processing from a frontend host, where backend processing needs to be asynchronous, but the frontend still needs a clear response.
Claim Check	Split a large message into a claim check and a payload to avoid overwhelming a message bus.
Choreography	Have each component of the system participate in the decision-making process about the workflow of a business transaction, instead of relying on a central point of control.
Competing Consumers	Enable multiple concurrent consumers to process messages received on the same messaging channel.
Pipes and Filters	Break down a task that performs complex processing into a series of separate elements that can be reused.
Priority Queue	Prioritize requests sent to services so that requests with a higher priority are received and processed more quickly than those with a lower priority.
Publisher-Subscriber	Enable an application to announce events to multiple interested consumers asynchronously, without coupling the senders to the receivers.
Queue-Based Load Leveling	Use a queue that acts as a buffer between a task and a service that it invokes in order to smooth intermittent heavy loads.

Scheduler Agent Supervisor	Coordinate a set of actions across a distributed set of services and other remote resources.
Sequential Convoy	Process a set of related messages in a defined order, without blocking processing of other groups of messages.

MESSAGING PATTERNS

Book https://learning.oreilly.com/library/view/cloud-architecture-patterns/9781449357979/

LEETCODE all system design problems

1. Web Crawler']

https://leetcode.com/discuss/interview-question/system-design/124657/Facebook-or-System-Design-or-A-web-crawler-that-will-crawl-Wikipedia

2. Detect web crawler
https://leetcode.com/discuss/interview-question/system-design/548816/Amazon-or-System-Design-or-Web-Crawler-Detector

3. Yelp
4. Distributed file system
5. URL shortening and Pastebin
https://leetcode.com/discuss/interview-question/system-design/124804/Design-Pastebin

https://leetcode.com/discuss/interview-question/system-design/124658/Design-URL-Shortening-service-like-TinyURL

6. Instagram
https://leetcode.com/discuss/interview-question/system-design/124802/Design-Instagram
https://leetcode.com/discuss/interview-question/system-design/586749/design-Instagram
https://leetcode.com/discuss/interview-question/system-design/719253/Design-Facebook-%3A-System-Design-Interview

7. Dropbox.
8. Twitter
https://leetcode.com/discuss/interview-question/system-design/124689/Design-twitter

9. Redis
https://leetcode.com/discuss/interview-question/system-design/125751/Design-a-distributed-cache-system

10. Youtube or Netflix
https://leetcode.com/discuss/interview-question/system-design/733520/Design-YouTube-Very-detailed-design-with-diagrams

https://leetcode.com/discuss/interview-question/system-design/144287/Design-Recommendation-System-for-Amazon-Videos
https://leetcode.com/discuss/interview-question/system-design/600861/System-Design-Youtube-add-click-counts
https://leetcode.com/discuss/interview-question/system-design/557250/Design-a-video-streaming-service-to-support-playback-video-from-different-devices
https://leetcode.com/discuss/interview-question/system-design/496042/Design-video-sharing-platform-like-Youtube

https://leetcode.com/discuss/interview-question/system-design/158698/Distributed-database%3A-Netflix

https://leetcode.com/discuss/interview-question/system-design/124565/Design-Netflix-recommendation-engine

https://leetcode.com/discuss/interview-question/system-design/150607/Design-youtube

11. Ticketmaster

https://leetcode.com/discuss/interview-question/system-design/124803/Design-BookMyShow

https://leetcode.com/discuss/interview-question/system-design/315763/System-Design-or-Seat-reservation-application-like-Ticket-Master-or-BookMyShow

12. Facebook Messenger or WhatsApp

https://leetcode.com/discuss/interview-question/system-design/585930/Amazon-or-System-Design-or-Design-a-Chat-Service

https://leetcode.com/discuss/interview-question/system-design/220073/How-would-you-design-WhatsApp

https://leetcode.com/discuss/interview-question/system-design/124613/Amazon-or-System-Design-or-A-scalable-chat-application-on-phone-browsing

13. Typeahead suggesions.
14. Twitter search.
15. Newsfeed ranking

https://leetcode.com/discuss/interview-question/system-design/349627/How-do-you-design-a-meta-data-for-a-news-feed

https://leetcode.com/discuss/interview-question/system-design/153871/Design-a-News-Feed-system-(like-Facebook-Linkedin-etc.)

16. Web search.
17. LinkedIn "you may know ...".,

https://leetcode.com/discuss/interview-question/system-design/1036762/Google-Onsite-System-Design-How-to-do-it

https://leetcode.com/discuss/interview-question/system-design/153941/Design-the-%22People-You-May-Know%22-feature-on-LinkedIn-or-Facebook.

18. Uber / Luxe (anti-uber)?
19. Freight / delivery orchestration? (edited)
20. Botnet/decentralized web crawler/torrent

https://leetcode.com/discuss/interview-question/system-design/594844/System-design-question-Help-needed

https://leetcode.com/discuss/interview-question/system-design/464997/Design-a-P2P-file-sharing-application-like-BitTorrent

21. Coupon redeeming system

https://leetcode.com/discuss/interview-question/system-design/353302/Design-a-couponvoucher-management-system-or-DellEMC

https://leetcode.com/discuss/interview-question/system-design/459593/Facebook-or-System-Design-or-E-commerce-Apply-discount-on-every-nth-order

22. Message queue kafka, service bus

https://leetcode.com/discuss/interview-question/system-design/124761/Deciding-which-queue-to-send-a-post-to

https://leetcode.com/discuss/interview-question/system-design/206134/Amazon-or-System-Design-or-Design-a-Distributed-Message-queue

https://leetcode.com/discuss/interview-question/system-design/734303/Microsoftor-Design-an-Enterprise-Service-Bus

23. Rate limiter

https://leetcode.com/discuss/interview-question/system-design/637402/Design-a-efficient-client-side-rate-limit-handler

https://leetcode.com/discuss/interview-question/system-design/124558/Uber-or-Rate-Limiter

24. Design leetcode - asked in amazon and fb.
    https://leetcode.com/discuss/interview-question/system-design/649021/Design-Leetcode

25. https://leetcode.com/discuss/interview-question/system-design/409736/Facebook-or-System-Design-or-Hacker-Rank-LeetCode-Contest-Leadership-Board-System

https://leetcode.com/discuss/interview-question/system-design/308452/System-Design-or-Programming-contest-platform-like-LeetCode

26. Large log data collection and processing system

https://leetcode.com/discuss/interview-question/system-design/124603/Amazon-or-Phone-screen-or-How-to-handle-large-log-data

https://leetcode.com/discuss/interview-question/system-design/128037/How-would-you-parse-a-huge-log-file

https://leetcode.com/discuss/interview-question/system-design/189030/Design-a-system-which-can-report-frequently-occurring-exceptions-on-a-dashboard

https://leetcode.com/discuss/interview-question/system-design/196142/Copy-coredump-files-from-millions-of-system-to-single-Storage-server-like-S3

https://leetcode.com/discuss/interview-question/system-design/431023/Google-or-Onsite-or-Get-all-logs-between-times

https://leetcode.com/discuss/interview-question/system-design/440546/Facebook-or-System-Design-Onsite-or-Compute-Percentile-Metrics-Over-Time-Series

https://leetcode.com/discuss/interview-question/system-design/124603/Amazon-or-Phone-screen-or-How-to-handle-large-log-data

https://leetcode.com/discuss/interview-question/system-design/1133962/Service-which-will-download-data-from-multiple-sources-and-ingests-it-in-the-system

https://leetcode.com/discuss/interview-question/system-design/942087/System-Design%3A-Design-a-system-to-process-data-in-different-formats-from-different-sources

https://leetcode.com/discuss/interview-question/system-design/852238/Need-help-with-System-Design-problem-asked-in-a-real-interview

https://leetcode.com/discuss/interview-question/system-design/820877/Bloomberg-System-Design

https://leetcode.com/discuss/interview-question/system-design/778868/Facebook-oror-Onsite-oror-System-Design-Aggregation-click-events

https://leetcode.com/discuss/interview-question/system-design/725364/System-Design-or-IOT-sensor-data-aggregator

https://leetcode.com/discuss/interview-question/system-design/202946/Design-a-system-to-aggregate-metrics-from-large-cluster(800%2B)-of-web-servers

27. Realtime stock price monitoring system/ live score update cricbuzz, realtime gaming score

https://leetcode.com/discuss/interview-question/system-design/625918/Amazon-or-System-Design-or-Design-a-real-time-gaming-ranking-system

https://leetcode.com/discuss/interview-question/system-design/431712/Bloomberg-or-Design-a-system-to-give-prices-of-a-stock

28. Stock trading system
    https://medium.com/@narengowda/stock-exchange-system-design-answered-ad4be1345851

https://leetcode.com/discuss/interview-question/system-design/820877/Bloomberg-System-Design

https://leetcode.com/discuss/interview-question/system-design/124794/Design-a-Multicurrency-trading-system

https://leetcode.com/discuss/interview-question/system-design/490034/FAANG-or-Onsite-or-Intern-or-System-Design-Stock

29. Kill switch for stopping stock trading

    https://leetcode.com/discuss/interview-question/system-design/124553/Kill-Switch

30. Design network fail over

https://leetcode.com/discuss/interview-question/system-design/124598/Design-network-fail-over

31. Design AB testing framework

    https://leetcode.com/discuss/interview-question/system-design/124595/AB-Testing

https://leetcode.com/discuss/interview-question/system-design/228661/Design-a-Data-Experimentation-platform

32. Design parking lot system

    https://leetcode.com/discuss/interview-question/system-design/124576/Design-a-parking-lot-system.

https://leetcode.com/discuss/interview-question/system-design/575186/Design-a-Parking-Spot-System

https://leetcode.com/discuss/interview-question/system-design/598634/Microsoft-or-Onsite-or-System-Design-or-SDE-2

https://leetcode.com/discuss/interview-question/system-design/850712/System-Design-Amazon-2020-(SDE-2)

https://leetcode.com/discuss/interview-question/system-design/765686/System-Design-Interview-Question%3A-Parking-Lot-or-Low-Level-Design

https://leetcode.com/discuss/interview-question/system-design/125260/Parking-Lots-Design

33. Reccomendation Engine

    https://leetcode.com/discuss/interview-question/system-design/124565/Design-Netflix-recommendation-engine

34. Smart voice assistant like siri, alexa

https://leetcode.com/discuss/interview-question/system-design/124566/Design-AlexaSiriGoogle-Home-Architecture

https://leetcode.com/discuss/interview-question/system-design/848252/Amazon-System-Design

35. Nearest store location, another variation of topk

    https://leetcode.com/discuss/interview-question/system-design/124567/Nearest-Store-Locators

https://leetcode.com/discuss/interview-question/system-design/533061/How-to-implement-nearest-location-kind-of-functionality-in-a-google-map-type-application

https://leetcode.com/discuss/interview-question/system-design/154172/Design-google-map-database

36. Job scheduling sytem

    https://leetcode.com/discuss/interview-question/system-design/124697/Walmartlabs-onsite

https://leetcode.com/discuss/interview-question/system-design/124786/Google-Scheduling-Job-Involving-both-RAM-and-CPU

https://leetcode.com/discuss/interview-question/system-design/692996/Microsoft-System-Design-Please-help

https://leetcode.com/discuss/interview-question/system-design/553563/Googleor-Distributed-SystemorPerformance

https://leetcode.com/discuss/interview-question/system-design/344524/Amazon-or-Design-a-JobTask-Scheduler

https://leetcode.com/discuss/interview-question/system-design/124672/Implement-a-task-scheduler

37. Elevator system

https://leetcode.com/discuss/interview-question/system-design/149264/Design-an-Elevator-system

38. Malware detection system

https://leetcode.com/discuss/interview-question/system-design/1019028/FB-or-System-Design-or-Multi-Engine-Malware-Analyzer

https://leetcode.com/discuss/interview-question/system-design/150610/Design-a-malware-detection-system

39. Garbage collector
40. Google docs

https://leetcode.com/discuss/interview-question/system-design/148187/System-Design-or-Google-Docs

https://leetcode.com/discuss/interview-question/system-design/148187/System-Design-or-Google-Docs

https://leetcode.com/discuss/interview-question/system-design/208207/Design-a-Google-Sheet-System

https://leetcode.com/discuss/interview-question/system-design/349669/Google-SWE-L5-or-Onsite-or-Design-Google-Docs-Versioning-System

https://leetcode.com/discuss/interview-question/system-design/322448/Content-Management-System-Design

https://leetcode.com/discuss/interview-question/system-design/194402/Design-a-file-sharing-system

41. Ecommerce Price checker system

https://leetcode.com/discuss/interview-question/system-design/140742/E-commerce-(Amazon)Website-looking-into-other-competitor-Website-products-prices-and-update

42. Notification system

https://leetcode.com/discuss/interview-question/system-design/138097/Design-Notification-Service-for-Amazon-Alexa

43. Online ludo game
44. metric monitoring service
45. Ecommerce site ,Shopping cart, product catalog, payment gateway

https://leetcode.com/discuss/interview-question/system-design/211415/Interview-Question-Ecommerce-System-design-(-Eg-%3A-Amazon-)%3A-Concurrency-issues-handling

https://leetcode.com/discuss/interview-question/system-design/589546/Amazon-or-System-Design-or-Amazon-Order-System

https://leetcode.com/discuss/interview-question/system-design/675539/System-Design-question-asked-in-interview

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46. Seller summary page

https://leetcode.com/discuss/interview-question/system-design/124612/Phone-Interview-Question%3A-Design-an-Seller-Summary-Page

47. Customer who bought this also bought
    https://leetcode.com/discuss/interview-question/system-design/124557/Amazon's-%22Customers-who-bought-this-item-also-bought%22-recommendation-system
48. Distributed key value store,
    https://leetcode.com/discuss/interview-question/system-design/1120468/Design-Assignment-or-Implement-a-distributed-Key-Value-(KV)-store-or-SE-Role-Avalara

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49. Facebook live commenting

https://leetcode.com/discuss/interview-question/system-design/583184/FBInstagram-'Live-Comments'-System-design
50. Facebook status search
51. Image editing (asked in fb 2021)
    https://leetcode.com/discuss/interview-question/system-design/1077411/Facebook-or-Onsite-2021-or-System-Design-or-Design-image-editing
52. File download application system
    https://leetcode.com/discuss/interview-question/system-design/1071562/Design-a-File-Download-Application-System
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    https://leetcode.com/discuss/interview-question/system-design/923677/Facebook-or-System-Design
54. Top N songs, another top k problem

https://leetcode.com/discuss/interview-question/system-design/124702/Design-a-service-to-calculate-the-top-k-listened-songs-in-past-24-hours
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58. News reading feature in alexa
    https://leetcode.com/discuss/interview-question/system-design/1014181/Amazon-or-System-Design-or-SDE2
59. Ads click visualisation system
    https://leetcode.com/discuss/interview-question/system-design/1002923/Facebook-or-Online-or-Real-time-data-visualization-for-ads-clicks
60. IoT devices management system
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61. Timer service
    https://leetcode.com/discuss/interview-question/system-design/973207/System-Design-or-Timer-service
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    https://leetcode.com/discuss/interview-question/system-design/892083/Leaderboard-table-system-design-for-online-game
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    https://leetcode.com/discuss/interview-question/system-design/880581/Event-Booking-for-playarenas-Low-level-design

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67. Food delivery app
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    https://leetcode.com/discuss/interview-question/system-design/896312/Google-system-design
70. Design whatsapp/instagram story

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    https://leetcode.com/discuss/interview-question/system-design/838085/File-sharing-service-with-collaborative-editing-or-Amazon

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76. S3/cloud object store
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77. Celebrity timeline generation
    https://leetcode.com/discuss/interview-question/system-design/810561/Timeline-generation-for-celebrities-or-System-Design-or-Google
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79. Bidding system
    https://leetcode.com/discuss/interview-question/system-design/792060/Bidding-System%3A-System-Design-Interview
80. Billing system - asked in fb interview

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90. Display ads
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91. Add badge to peoples spotify account
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135. Top 10 most liked articles
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https://leetcode.com/discuss/interview-question/system-design/163204/Design-%22How-Many-people-currently-viewing-the-property%22-for-a-E-Commerce-Hotel-Booking-Site
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https://leetcode.com/discuss/interview-question/system-design/680047/How-will-you-store-millions-of-subscribers-list-(assume-it-as-email-id)
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34. https://leetcode.com/discuss/interview-question/system-design/513374/FAANG-system-design-interview-question
35. Sql scalability
https://leetcode.com/discuss/interview-question/system-design/507833/SQL-Scalability

36. Backup from dc1 to dc2
https://leetcode.com/discuss/interview-question/system-design/502522/System-design-to-backup-datacenter1-to-datacenter-2
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    https://leetcode.com/discuss/interview-question/system-design/216912/Design-an-app-that-converts-USD-to-another-country-currency.
57. Geohash
    https://leetcode.com/discuss/interview-question/system-design/203364/How-to-retrieve-addresses-based-on-Latitude-and-Longitude
https://leetcode.com/discuss/interview-question/system-design/124568/How-to-design-a-system-to-retrieve-address-information-longitude-and-latitude-information.
58. Strategy to update sattelite firmware
    https://leetcode.com/discuss/interview-question/system-design/198761/Updating-Satellite-Frimware
59. Design card deck
    https://leetcode.com/discuss/interview-question/system-design/194663/Design-a-class-that-represents-a-deck-of-cards
60. Send large files
    https://leetcode.com/discuss/interview-question/system-design/193953/Distribute-binary-file-(daily)-for-thousands-of-servers
61. Extract json from a text file
    https://leetcode.com/discuss/interview-question/system-design/191944/How-to-extract-JSON-object-from-a-text-file-of-size-100-GB
62. https://leetcode.com/discuss/interview-question/system-design/177823/How-to-track-overall-activity-time-of-every-user-efficiently
63. Design video pause functionality
    https://leetcode.com/discuss/interview-question/system-design/177327/Video-pause-functionality-for-multiple-devices
64. https://leetcode.com/discuss/interview-question/system-design/172809/Sync-front-end-with-back-end-in-realtime
65. Push/pull API for producer consumer
    https://leetcode.com/discuss/interview-question/system-design/158701/Design-push-and-pull-APIs-for-a-producer-consumer-system
66. HA for webproxy
    https://leetcode.com/discuss/interview-question/system-design/134797/HA-for-HTTP-proxy
67. Alarm app
    https://leetcode.com/discuss/interview-question/system-design/133426/Microsoft-Mobile-app-for-alarm
68. Snake and ladder
    https://leetcode.com/discuss/interview-question/system-design/132140/Design-online-multiplayer-snakeandladder-game
69. https://leetcode.com/discuss/interview-question/system-design/124858/First-non-repeating-word-in-a-file-File-size-can-be-100GB.
70. Store extremely large parse matrix
    https://leetcode.com/discuss/interview-question/system-design/125306/How-to-store-extremely-large-sparse-matrices
71. Implement mine swipper

OOP design https://github.com/tssovi/grokking-the-object-oriented-design-interview
https://github.com/savitansh/SystemDesignInterview

https://leetcode.com/discuss/interview-question/system-design/943886/Facebook-Product-Design-Questions

https://github.com/checkcheckzz/system-design-interview
GitHub - donnemartin/system-design-primer: Learn how to design large-scale systems. Prep for the system design interview. Includes Anki flashcards.

Drawing tool
https://leetcode.com/discuss/interview-question/system-design/758105/Remote-system-design-diagram-drawing-tool

Other informstive posts

I hope it will be helpful if you have mentioned your overall experience.
If you are looking for interview perspective, You need to gain knowledge about distributed systems.
To start with, to simplify it,
For a Simple Application
Input --> Processing --> DataStore --> Processing/Output
For Distributed Systems [I wrote considering for System Design interview]
Following contains quick overlook about the list that need to have for basic understanding.
1. Input/Output
   Communication[Rest, grpc, WebSocket, tcp/udp, webRTC], API Gateway, Proxy Server, Load Balancing -- [Reverse Proxy]
   Message Queue -- [Queue for sending/receiving information] Kafka/RabitMQ
2. Processing
   Computation -- Micro-service [Python, Springboot/Java, Go...], MapReduce
   Service Discovery/Registry -- [Finding and Redirecting the load, Saga Pattern] -- Eg: Eureka
3. Datastore/Distributed Consensus
   Cache -- [Simple Cache to reduce database hits] -- Eg: Redis
   SQL -- [SQL database for Relational Data -- Transactions based like payments, Horizontal Partition/Vertical Partition, Shading] Eg: MySQL
   NOSQL -- [NOSQL for querying documents like product, product details, CAP] Eg: MongoDB/Apache Cassandra
   Concurrency -- 2 Phase Commit, 3 Phase Commit, Saga Pattern[Choreography saga, Orchestrator Saga], Split Brain problem.
   FileSystem -- Hadoop File System
4. Security
   AAA -- Authentication, Authorisation, Auditing
Misc -- Logging/Notification
Once you have overall picture in your mind, you can start with YouTube videos like Gaurav Sen or Tech Dummies.

Product Design
The product design interview at Facebook will involve designing a product or API to support an end-user experience. Here's a list of concepts that Facebook recommends you review before your interview:
-Scalability
-Design patterns
-Data ownership
-Protocols
-Data formats
-Client-server design
-Designing for long term vs. complexity
-Accommodating possible product changes
Some example questions involve designing a product API or an email server.

System Design
The system design interview at Facebook will ask you to weigh design considerations for complex problems. Here's a list of concepts that Facebook recommends you review before your interview:
-Concurrency (threads, deadlock, starvation, consistency, coherence)
-Caching
-Database partitioning, replication, sharding, CAP Theorem
-Networking (IPC, TCP/IP)
Real-world performance (relative performance RAM, disk, your network, SSD)
-Availability and reliability (types of failures, failure units, how failures may manifest, mitigations, etc.)
-Data storage and data aggregation
-QPS capacity/machine estimation (back of the envelope estimates), byte size estimation
Some example questions involve architecting a video distribution system or designing a mobile image search client.