20 Distributed Systems and Components

to know

before your next

System Design Interview

DesignGurus.org

1. Messaging systems

- These are used to send messages between distributed components of a system.

- Examples include Apache Kafka and RabbitMQ.

2. Distributed file systems

- These are file systems that are designed to store and manage files across a group of servers.
- Examples include HDFS (Hadoop Distributed File System) and Ceph.

3. Load balancers

- These are used to distribute incoming traffic across a group of servers in order to improve performance and availability.

- Examples include HAProxy and NGINX.

4. Distributed databases

- These are databases that are designed to be distributed across multiple servers in order to scale and handle a large amount of data.

- Examples include Google Cloud Spanner and CockroachDB.

5. Distributed cache

- These are in-memory data stores that are used to cache data in order to improve the performance of a distributed system.

- Examples include Memcached and Redis.

6. Distributed coordination systems

- These are used to coordinate the actions of distributed components in a system.

- Examples include Apache ZooKeeper and etcd.

7. Service discovery

- These are used to help components of a distributed system locate and communicate with each other.

- Examples include Consul and Eureka.

8. Monitoring and observability

- These are used to monitor the health and performance of a distributed system and detect and troubleshoot problems.

- Examples include Prometheus and Datadog.

9. Service mesh

- These are used to manage the communication between the various services in a distributed system.

- Examples include Istio and Linkerd.

10. Distributed tracing

- These are used to trace the flow of a request through a distributed system and help identify performance bottlenecks and errors.

- Examples include Zipkin and Jaeger.

11. Distributed locks

- These are used to coordinate access to shared resources in a distributed system.

- Examples include Redlock and DynamoDB.

12. Distributed schedulers

- These are used to schedule tasks to be executed in a distributed system.

- Examples include Kubernetes and Apache Mesos.

13. Distributed storage

- These are used to store and manage data in a distributed system.

- Examples include Google Cloud Storage and Amazon S3.

14. Remote procedure call (RPC)

- These are used to allow components of a distributed system to communicate with each other by making remote procedure calls.

- Examples include gRPC and Apache Thrift.

15. Stream processing

- These are used to process streams of data in real-time in a distributed system.

- Examples include Apache Flink and Apache Spark.

16. Distributed consensus

- These are used to achieve agreement among distributed components in a system.

- Examples include the Paxos and Raft algorithms.

17. Virtualization

- These are used to abstract the underlying hardware in a distributed system and allow multiple operating systems to run on a single physical machine.

- Examples include VMware and VirtualBox.

18. Job queues

- These are used to asynchronously execute tasks in a distributed system.

- Examples include Celery and Resque.

19. Job queues

- These are used to asynchronously execute tasks in a distributed system.

- Examples include Celery and Resque.

20. Network file system (NFS)

- These are used to allow multiple computers to access and share files over a network.
- Examples include NFS and SMB.

➡ Check the following courses from **DesignGurus.org** to learn about these distributed systems and components:

- Grokking the Advanced System Design Interview
- Grokking the System Design Interview

DesignGurus.org