Distributed System 1

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Internet is a big distributed system.

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1 Definition

1. concurrency

2. absence of a global clock

3. absence of a shared memory

4. independent (and partial) failures

failure probability: n dependent hosts, p probability of failure $\rightarrow$ availability $(1-p)^n$
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2 Security

3 Scalability

1. increase number of users, hosts, or resources

2. tradeoff between scale and performance

4 Transparency

5 Distributed Consensus

synchronization replication and consistency fault tolerance middleware