

# Distributed System 1

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DOL Internet is a big distributed system

## Defining features

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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## 1 Security

## 2 Scalability

1. increase number of users, hosts, or resources
2. tradeoff between scale and performance

## 3 Transparency

## 4 Distributed Consensus

synchronization replication and consistency fault tolerance middleware