Distributed Systems
Brief Overview

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Mobile Computing
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Distributed System Values

- Reliability
- Availability
- Accessibility
- Security
- Performance: response time, throughput, etc
- Scalability: vertical (concurrency) and horizontal (distribution)

Fault-tolerance
Distributed System Values, cont’d

- Consistency
- Up-to-date-ness
- Adaptability
- Reconfigure-ability
- Manageability
- Extensibility
Distributed Systems Intricacies

- **Synchronization**: multiple clocks (difficult to agree on exact time)
- **Failures**: high probability of failures (too many components). Complex failure modes (single, multiple simultaneous, network partition, …)
- **Consensus**: difficult to reach consensus (odds includes failures, lack of synchronization, …)
- **More** …
Distributed Applications

- Client/Server Approach
- Multi-tier Approach
- Peer-to-Peer Approach
- Agent based systems
- Mobile Code (Applets, mobile agents, ..)
- Service-oriented: The Jini Approach