

Distributed Systems 2010 - Recapitulation

Introduction

- ☐ What is a Distributed System?
- ☐ Different types of distributed systems
- ☐ Definition(s) of distributed systems
- ☐ Examples of distributed systems
- ☐ Important issues within distributed systems

Communication

- ☐ Computer Networks
- ☐ Flow control
- ☐ Data Communication
- ☐ Open systems
- ☐ Protocol
- ☐ OSI model
- ☐ Saltzer's end-to-end-argument
- ☐ Local Networks

CORBA

- ☐ CORBA — *Common Object request Broker Architecture*

System Architectures

- ☐ Architectural Styles
- ☐ System Architectures

Processes

- ☐ Threads
- ☐ Client-Server Architectures
- ☐ Code Migration

Naming

- ☐ Addresses
- ☐ Identifiers
- ☐ Names
- ☐ Ports

Process-Process Synchronization

- ☐ The Coordinated Attack Problem
- ☐ Partial Ordering of Events in a Distributed System
- ☐ Vector Clocks
- ☐ Logical Clocks
- ☐ Total Ordering of Events in a Distributed System
- ☐ Physical Clock Synchronization
- ☐ Snapshot Algorithm

Distributed Algorithms

- ☐ Complexity Analysis
- ☐ Algorithms for Information Distribution
- ☐ Resource Allocation
- ☐ Election

- Flooding
 - Echo Algorithm
 - Virtual Ring Algorithm
 - Logical Clock Algorithm
 - Voting Algorithm
 - Bully Algorithm
- ☐ Algorithm for Local Networks

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Distributed Transactions

- ☐ Atomic Transactions
- ☐ Two Phase Commit

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Fault-Tolerant Systems

- ☐ Failure Semantics
- ☐ Fault-Tolerant software
- ☐ Fault-Tolerant hardware
- ☐ Fault-Tolerant data storage
 - Pessimistic solution — Stable storage
 - Optimistic solution — Replicated data and network partitioning
- ☐ Physical Clocks
 - MARS algorithm
- ☐ The most unreliable environment
 - Byzantine Generals Problem

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Atomic Broadcast

- ☐ Multicast
- ☐ Asynchronous algorithms
 - ☐ Virtual Ring algorithms
 - Chang-Maxemchuk protocol
 - ☐ ISIS system
 - ABCAST
 - CBCAST
 - GBCAST
- ☐ Fault tolerant Atomic Broadcast Synchronous Algorithm

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Distributed Object-Based Systems

- ☐ Distributed Objects
- ☐ Persistent and Transient Objects
- ☐ Enterprise Java Beans
- ☐ RMI example

Distributed File Systems

- ☐ Network Transparency
- ☐ Network Operating System
- ☐ Distributed Operating System
- ☐ LOCUS
- ☐ ANDREW
- ☐ NFS

Additional

- ☐ Transparency in Distributed Systems
- ☐ Distributed Coordination-Based Systems
- ☐ Security