|  |  |
| --- | --- |
| Distributed System | |
| **SOURCE: 01** | **Distributed Computing** | |
| 01 | [Introduction to Distributed Systems | Introduction to Distributed Computing](https://www.youtube.com/watch?v=klUH2wqxzyw&list=PLPIwNooIb9vhYroMrNpoBYiBUFzTwEZot&index=1&pp=iAQB) | |
| 02 | Characteristics of Distributed Systems | |
| 03 | Challenges of Distributed System | |
| 04 | Goals of Distributed System | |
| 05 | Types of Distributed System | |
| 06 | Distributed System Models | |
|  | Software Concepts | |
|  | Hardware Concepts | |
|  | Differentiation Between Distributed OS, Network OS and Middleware OS | |
|  | Client Server Model | |
|  | Open System Interconnect on Reference Model in Distributed Computing | |
|  | Inter-process Communication in Distributed Computing | |
|  | Remote Procedure Call in Distributed Computing | |
|  | Differentiate Between Message Oriented Communication and Stream Oriented Communication | |
|  | Stream Oriented Communication | |
|  | Message Oriented Communication | |
|  | Group Communication | |
|  | Middleware Services in Distributed Computing | |
|  | Introduction to Synchronization in Distributed Computing | |
|  | Cristian Algorithm | |
|  | Berkeley Algorithm | |
|  | Network Time Protocol | |
|  | Logical Clocks | |
|  | Lamport Logical Clock | |
|  | Vector Clock | |
|  | Bully Algorithm | |
|  | Ring Algorithm | |
|  | Mutual Exclusion | |
|  | Centralized Algorithm for Mutual Exclusion in Distributed Computing | |
|  | Lamport Algorithm and Mutual Exclusion | |
|  | Ricart Agrawala Algorithm for Mutual Exclusion | |
|  | Maekawa’s Algorithm | |
|  | Resource Management in Distributed Computing | |
|  | Features of Global Scheduling Algorithm | |
|  | Task Assignment Approach | |
|  | Load Balancing Approach | |
|  | Issues of Designing Load Balancing Algorithms | |
|  | Load Sharing Approach in Distributed Computing | |
|  | Introduction to Process Management in Distributed Computing | |
|  | Process Migration in Distributed Computing | |
|  | Threads in Distributed Computing | |
|  | Process vs Threads in Distributed Computing | |
|  | Code Migration in Distributed Computing | |
|  | Consistency and Replication in Distributed Computing | |
|  | Replication Management in Distributed Computing | |
|  | Fault Tolerance in Distributed Computing | |
|  | Distributed File System in Distributed Computing | |
|  | Desirable Features of Distributed File System in Distributed Computing | |
| **SOURCE: 01** | **Distributed System** | |
|  | Distributed System Introduction | DS Architecture | Example | |
|  | Distributed System Resource Sharing and Web Challenges | Data Migration | Computational Migration | |
|  | System Model | Architecture Model | Fundamental Model | |
|  | Limitations | Absence of Global Clock | Absence of Shared Memory | |
|  | Distributed System | Lamport’s Logic Clock | Limitation | |
|  | Distributed System | Vector Clock | Vector Clock Solved Example | |
|  | Causal Ordering of Messages in Distributed System | Birman Schiper Stephenson Protocol | |
|  | Global State in Distributed System | Chandy Lamport Global State Recording Algorithm | |
|  | Distributed System | Termination Detection Algorithm | Huang’s Termination Detection Algorithm | |
|  | Distributed Mutual Execution Classification, Requirements of Mutual Exclusion Theorem | |
|  | Distributed System | Distributed Mutual Exclusion | Token Based and Non-Token Based Algorithm | |
|  | Distributed Mutual Exclusion | Non-Token Based Algorithm | Lamport Non-Token Based Algorithm | |
|  | Distributed Mutual Exclusion | Non-Token Based Algorithm | Ricart-Agrawala Algorithm | |
|  | Distributed Mutual Exclusion | Non-Token Based Algorithm | Maekawa’s Algorithm | |
|  | Distributed Mutual Exclusion | Token Based Algorithm | Suzuki Kasami Broadcast Algorithm Example | |
|  | Distributed Mutual Exclusion | Token Based Algorithm | Singhal Heuristic Algorithm | |
|  | Distributed Mutual Exclusion | Token Based Algorithm | Raymond Tree Algorithm | |
|  | Performance Metric for Distributed Mutual Exclusion Algorithm | |
|  | Distributed Deadlock Detection | Resource vs Communication Deadlocks Distributed System | |
|  | Centralized Deadlock Detection | Completely Centralize Algorithm | Ho Ramamurthy Algorithm | |
|  | Distributed Deadlock Detection | Path Pushing Algorithm with Example | |
|  | Distributed Deadlock Detection | Edge Chasing Algorithm with Example | |
|  | Agreement Protocols | Distributed System | Classification of Agreement Problem | Byzantine | |
|  | Classification of Agreement Problem | Byzantine | Consensus Problem | Interactive Consistency | |
|  | Application of Agreement Problem | Atomic Commit in Distributed System | |
|  | Distributed File Systems | Architecture of Distributed File | Distributed Resource Management | |
|  | Mechanism for Building Distributed File Systems | Building DFS | |
|  | Distributed Shared Memory | Algorithm for Implementation Shared Memory | Central-Server Algo | |
|  | Backward and Forward Error Recovery in Distributed System | Recovery in Concurrent System | |
|  | Transaction in Distributed System | ACID Properties Distributed Transaction | |
|  | Consistent Set of Checkpoints in Distributed System | Recovery in Distributed System | |
|  | Issues in Fault Tolerance | Voting Protocol n Distributed System | |
|  | Transactions and Concurrency Control: Transaction and Nested Transaction | |
|  | Locks and Types of Lock | Distributed Transactional Lock | |
|  | Timestamp Ordering Protocol for Concurrency Control | |
|  | Comparison of Methods for Concurrency Control | Optimistic Concurrency Control, Timestamp | |
|  | Distributed Transaction: Flat and Nested Distributed Transactions | |
|  | Distributed Transaction: Atomic Commit Protocols | Two Phase Commit | |
|  | Concurrency Control in Distributed Transactions | Optimistic Concurrency Control, Timestamp | |
|  | Distributed Deadlocks, Transaction Recovery in Distributed System | |
|  | Replication: System Model and Group Communication, Fault-Tolerance Service | |
|  | High Available Service | Transaction with Replicated Data in Distributed System | |