
Problem 1 Three problems of distributed systems

- The global state is not accessible. Any received state can (and probably is) already outdated (without great synchronization effort).
- The clocks of multiple autonomous systems are generally not synchronized. This makes it difficult to determine the order in which Events happened.
- Indeterminism: Distributed Systems often suffer from Race Conditions and similar problems.

Problem 2 Abstraction Levels

- **Physical Configuration** The physical configuration describes the direct wiring and configuration of the network.
- **Logical Configuration**
- **Logical Distribution**
- **Distributed Algorithm**

Problem 3 Transparency

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Problem 4 Programming Abstractions

- Distributed operating system approach
- Distributed database approach
- Protocol approach for dedicated Purposes
- Distributed Programming Language approach