

CSCI 251: Concepts of Parallel and Distributed Systems

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Global States

A cut is nothing more than a snapshot of a distributed system. For a cut to be consistent, the events and messages must be in a state such that there is no state that depends on a state not inside the cut.

Monitor Process

Assumptions:

- During the snapshot operation, there are no faults.
- There is a finite time for messages to flow from one process to another.
- Any process can start the monitoring process.

Chandy & Lamport Algorithm for Monitoring

Marker Process (initiating process):

1. Marker message is sent by the initiating process.
2. The marker process records its state and sends a marker message m on every outgoing channel before it sends to any other process.

Receiving Process p_j :

1. If p_j has not recorded its state, p_j records its state now and starts recording messages arriving on all the other incoming channels.
2. If p_j has already recorded its state, it records the state of each channel (recording of messages received since it saved its state).

Coordination and Agreement

- Mutual Exclusion
- Multicasting
- Consensus
- Performance: Latency, bandwidth consumption, energy consumption

With a mutual exclusion, only one process has access to a resource at any given time.

Reminders

Check MyCourses for details on Project 2.

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You can find all my notes at <http://omgimanerd.tech/notes>. If you have any questions, comments, or concerns, please contact me at alvin@omgimanerd.tech