A COMPARATIVE ANALYSIS OF MINIMUM-PROCESS COORDINATED CHECKPOINTING ALGORITHMS FOR MOBILE DISTRIBUTED SYSTEMS

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ABSTRACT
Fault Tolerance Techniques enable systems to perform tasks in the presence of faults. A checkpoint is a local state of a process saved on stable storage. While dealing with Mobile Distributed systems, we come across some issues like: mobility, low bandwidth of wireless channels and lack of stable storage on mobile nodes, disconnections, limited battery power and high failure rate of mobile nodes. These issues make traditional checkpointing techniques designed for Distributed systems unsuitable for Mobile environments. To take a checkpoint, an MH has to transfer a large amount of checkpoint data to its local MSS over the wireless network. Since the wireless network has low bandwidth and MHs have low computation power, all-process checkpointing will waste the scarce resources of the mobile system on every checkpoint. Minimum-process coordinated checkpointing is a preferred approach for mobile distributed systems. In this paper, we discuss various existing minimum-process checkpointing protocols for mobile distributed systems.

Keywords: Checkpointing algorithms; parallel & distributed computing; rollback recovery; fault-tolerant systems