Abstract

A distributed system is a collection of independent entities that cooperate to solve a problem that cannot be individually solved. A mobile computing system is a distributed system where some of processes are running on mobile hosts (MHs), whose location in the network changes with time. The number of processes that take checkpoints is minimized to 1) avoid awakening of MHs in doze mode of operation, 2) minimize thrashing of MHs with checkpointing activity, 3) save limited battery life of MHs and low bandwidth of wireless channels. In minimum-process checkpointing protocols, some useless checkpoints are taken or blocking of processes takes place. In this paper, we propose a minimum-process coordinated checkpointing algorithm for non-deterministic mobile distributed systems, where no useless checkpoints are taken. An effort has been made to minimize the blocking of processes and synchronization message overhead. We try to reduce the loss of checkpointing effort when any process fails to take its checkpoint in coordination with others.

Reference

Information Systems, pp. 73-80, September 1994.
- Silva, L.M. and J.G. Silva, “Global checkpointing for distributed programs”, Proc. 11th

Index Terms

Computer Science
Distributed Systems

Key words

Checkpointing algorithms
parallel & distributed computing
rollback recovery
fault-tolerant system
mobile computing