In this paper, we present an optimal-bandwidth, min-process coordinated check pointing algorithm suitable for network failure prone applications in distributed systems. In the developed algorithm, during normal computation message transmission, dependency information among clusters is recorded in the corresponding cluster head processes. When a check pointing
procedure begins, the initiator from a cluster concurrently sends composite message to all the 
cluster head processes which after extracting individual messages from it, further multicasts 
individual messages to the corresponding currently active receiving processes in their 
corresponding clusters thus resulting in reduced transmission delay and communication cost, 
better bandwidth utilization and faster speed of execution. Quantitative analysis shows that 
proposed algorithm works efficiently in terms of better response time and maximum bandwidth 
utilization for applications running under critical conditions such as low bandwidth availability 
and thereby resulting in frequent disconnections.

Reference

  Mechanism for Cluster Federation”, International Journal of Computer Science and Network 
- J. Cao, Y. Chen, K. Zhang and Y. He, “Checkpointing in Hybrid Distributed Systems”, 
- S. Monnet, C. Morin and R. Badrinath,”A Hierarchical Checkpointing Protocol for Parallel 
  vol. 6, no. 5, May 2006.
  1035-1048, October 1996.
- G. Cao, and M. Singhal, “Mutable checkpoints: a new checkpointing approach for mobile 
- K.M. Chandy, and L. Lamport, "Distributed Snapshots: Determining Global States of 
  1985.
- P. Kumar, L. Kumar, R.K. Chauhan, and V.K. Gupta, “A non-intrusive minimum process 
  synchronous checkpointing protocol for mobile distributed systems,” ICPWC 2005, IEEE 
- L. M. Silva, and J.G. Silva, “Global checkpointing for Distributed Programs,” Proceedings 
- B. Gupta, S. Rahimi, and Z. Liu, “A New Non-Blocking Synchronous Checkpointing 
  Scheme for Distributed Systems,” Proceeding of 20th International Conference on Computers 
  Timestamps,” Journal of Parallel and Distributed Computing, vol. 62, no. 12, pp. 1695-1728, 

**Index Terms**

Computer Science  
Distributed Systems

**Key words**

Optimal bandwidth cluster fed check point  
non-blocking