Abstract

Transaction Oriented Composite Grid service is a group of sub services to be executed in Grid environment when transaction management is used. Since Grid services are loosely coupled and dynamic in nature, the transaction management becomes tough task in this environment. As the number of services increase, the chances of failures also increase due to different types of faults occurring in the system. Therefore fault tolerant execution of these tasks is required to maintain the reliability, availability, dependability of the system. In this paper we have
implemented coordinated check-pointing approach to tolerate the faults so that resiliency, reliability, availability, and dependability can be enhanced. For recovery of the failed processes we have compared both local node recovery and replicated node recovery by simulating in CPN tool. Here we have considered three types of faults such as hardware faults, communication link faults, and software faults. All the faults have been modelled dynamically in the simulation. The results show that the local node recovery is better than replicated node recovery when the number of services is minimum but in the case of large number of services the replicated node recovery works better. Our results show that using local node recovery we can decrease the failures by 38. 86% and when we use replicated nodes recovery we get that results decreasing by 31. 34%.

References

Chichester.


Index Terms

Computer Science  Distributed Computing

Keywords

Transaction Management  Fault Tolerance  Reliability  Availability  Resiliency  Dependability

Cpn (colored Petri Nets) Tool

Local Recovery

Replicated Recovery.