A New Deadlock Recovery Mechanism For Fully Adaptive Routingalgorithms

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Summary

Routing algorithms used in wormhole switched networks must all provide a solution to the deadlock problem. If the routing algorithm allows deadlock cycles to form, then it must provide a deadlock recovery mechanism. Because deadlocks are anomalies that occur while routing, the deadlock recovery mechanism should not allocate any expensive hardware resources for the sake of handling such a rare event. Rather, it should only dedicate a minimal set of required resources to the recovery process in order to engage most of the hardware resources to the task of routing normal packets. This paper proposes a new deadlock recovery mechanism to be used with the True Fully Adaptive Routing algorithm. The new deadlock recovery mechanism takes advantage of the concept behind wormhole switching. The scheme is efficient in terms of hardware requirements, causes fewer deadlocks and can compete with other expensive deadlock recovery schemes