Table 14.1 Distributed Deadlock Detection Strategies

Centralized Algorithms		Hierarchical Algorithms		Distributed Algorithms	
Strengths	Weaknesses	Strengths	Weaknesses	Strengths	Weaknesses
•Algorithms are conceptually simple and easy to implement •Central site has complete information and can optimally resolve deadlocks	•Considerable communications overhead; every node must send state information to central node •Vulnerable to failure of central node	•Not vulnerable to single point of failure •Deadlock resolution activity is limited if most potential deadlocks are relatively localized	•May be difficult to configure system so that most potential deadlocks are localized; otherwise there may actually be more overhead than in a distributed approach	•Not vulnerable to single point of failure •No node is swamped with deadlock detection activity	•Deadlock resolution is cumbersome because several sites may detect the same deadlock and may not be aware of other nodes involved in the deadlock •Algorithms are difficult to design because of timing considerations