Abstract

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Scheduling Dependent Distributable Real-Time Threads in Dynamic Networked Embedded Systems

We consider scheduling distributable real-time threads with dependen- cies (e.g., due to synchronization) in partially synchronous systems in the pres- ence of node failure. We present a distributed real-time scheduling algorithm called DQBUA. The algorithm uses quorum systems to coordinate nodes' activities when constructing a global schedule. DBQUA detects and resolves distributed deadlock in a timely manner and allows threads to access resources in order of their potential utility to the system. Our main contribution is handling resource dependencies using a distributed scheduling algorithm.