

On the Stability of a Distributed Dynamic Load Balancing Algorithm

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Abstract*

We present a new fully distributed dynamic load-balancing algorithm called DASUD (Diffusion Algorithm Searching Unbalanced Domains). Since DASUD is iterative and runs in an asynchronous way, a mathematical model that describes DASUD behaviour has been proposed and has been used to prove DASUD's convergence. DASUD has been evaluated by comparison with another well-known strategy from the literature, namely, the SID (Sender Initiated Diffusion) algorithm. The comparison was carried out by considering a large set of load distributions which were applied to ring, torus and hypercube topologies, and the number of processors ranged from 8 to 128. From these experiment