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Evaluation of Concurrent Pools

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Abstract

In a parallel environment, requests for allocation and deallocation of resources or assignment of tasks should be served in a fashion that helps to balance the load and minimize the total parallel runtime. It is important to perform this allocation in a manner that preserves locality and by avoiding remote references (and hence interference with other processes). Concurrent pools, as described by Manber, provide an appropriate data structure for addressing these goals. This paper eveluates the effectiveness of the pool structure under a variety of stressful workloads. It was found that the simpler algorithm than that described by Manber may actually provide better performance.

Please note that this technical report, still available on hardcopy from Duke University, has been published as [KE89].

For more information, write to

Errata: Note that there is a typographic error in [KE89], in Figure 7: the labels on the two curves should be interchanged, so that "balanced" labels the top curve, and "unbalanced" labels the bottom curve.

References

[KE89] David Kotz and Carla Ellis. Evaluation of concurrent pools. In *Proceedings of the Ninth International Conference on Distributed Computer Systems*, pages 378–385, 1989.