Analysis of Multi-Cluster Computing Systems with Processor Heterogeneity

This paper addresses the problem of performance modeling of heterogeneous multi-cluster computing systems. We present an analytical model that can be employed to explore the effectiveness of different design approaches so that one can have an intelligent choice during design and evaluation of a cost-effective large-scale heterogeneous distributed computing system. The proposed model considers stochastic quantities as well as processor heterogeneity of the target system. The analysis is based on a parametric fat-tree network, the m-port ntree, and a deterministic routing algorithm. The correctness of the proposed model is validated through comprehensive simulation of different types of clusters.

Keywords: Analytical Modeling, Multi-Cluster, Heterogeneity, Validation

https://www.civilica.com/Paper-ACCSI11-ACCSI11_236.html