

# Exploiting Dynamic Distributed Load Balance by Neighbor-Matching on P2P Grids

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## Abstract

Recently, more and more researches and applications exploit grid computing systems to deal with high performance computing. However, the mass data transmissions across different grid sites affect overall computing performance. Therefore, grid systems start to integrate with the P2P technology to support the high performance distributed computing. The new distributed computing system is named the P2P Grid computing system. Although the P2P Grid computing system combines the advantages of the grid computing system and the P2P technology, some issues are still needed to be solved. For example, the highly variable resource usage and the heterogeneity of resources could intensely affect the P2P Grid system performance. In this case, the computing performance depends on the resource management policy. Therefore, this study proposes a distributed dynamic load balance policy to manage resources more effectively and to further improve the resource utilization. The prototype is implemented on the sites of the Taiwan UniGrid, and the P2P grid sites exchange information by JXTA advertisements. Experimental results show that the proposed algorithm could efficiently distribute the workload for execution; that is, it not only can minimize the job execution time, but also maximize the resource utilization.

Keyword : P2P; Grid; Distributed; Dynamic