

A Desktop Grid Computing Service for Connect6 Applications

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This paper presents a desktop grid computing architecture for the applications related to Connect6. Since Connect6 was introduced by Wu and Huang (<http://www.connect6.org>) in 2005, it has become one of tournaments in Computer Olympiad since 2006. The program NCTU6, which won gold twice in Computer Olympiad, was modified into a verifier, named a NCTU6 verifier to verify whether one player wins, and to generate Connect6 opening moves. Since the Connect6 opening generation system consumes huge amount of computation resources and requires on-demand responses, we design a desktop grid computing architecture that provides users with on-demand computing through dynamic resource provisioning. The underlying desktop grid achieves high throughput computing by harvesting the idle CPU time on desktop computers connected to the Internet. A coordinating system is used to effectively manage the resources and distribute the workloads with fast responses dynamically. Efficient workload scheduling methods are discussed and evaluated in this paper.