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(57) Abstract :

The present invention presents a System and Method for Efficient Task Scheduling in Heterogeneous, Distributed Compute Infrastructures via Pervasive Diagnosis. This innovative system integrates an intelligent task scheduling unit with a pervasive diagnosis framework to address the challenges of task scheduling in complex, distributed computing environments. The unit considers task requirements, resource capabilities, and system load to make optimal scheduling decisions, while the pervasive diagnosis framework continuously monitors and collects real-time performance metrics from various system components. The centralized analysis module processes this data using statistical techniques, machine learning units, and pattern recognition methods to detect anomalies and predict potential system failures. The system adapts dynamically to changing workload patterns, optimizing resource allocation, and task execution time. Proactive measures, such as load balancing and task migration, ensure efficient resolution of performance issues. This invention holds significant potential for enhancing the efficiency and effectiveness of distributed computing infrastructures across various applications.

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