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Farhan Shafiq

37. A Statistical approach for the Assessment of Quality of Service in Grid Computing Environment

Abstract

Grids are the heterogeneous and complex systems composed of larger number of distributed components belonging to diverse domains. Assuring the QoS in this kind of system is a critical job because a number of vendors may offer similar services to the users on the grid. These services providers would have their own costing mechanism and may allocated resources according to a pre-specific criterion. Grid computing enables resource sharing and dynamic allocation of distributed heterogeneous computational resources while minimizing the associated ownership and operating cost. These resources may be geographically distributed over the network or internet and follows heterogeneous protocols made by different vendors. In grid computing there is no matter where data located is or which computer processes a task. QoS (Quality of Service) parameters play a key role in selecting Grid resources and optimizing resources usage efficiently.

A user often uses go for the lowest budget service for the specific task. Lowest budget service however may not give the best QoS or optimum results. Since solution of the problem often require multiple tasks choosing service on the basis of lowest budget criterion would lack optimal, resulting in poor decision making or poor results. We present a statistical approach inspired by statistical ranking and selection schema for best resource selection for optimal results and better decision making and bring about 96.79% prediction accuracy in a grid computing environment.