Abstract

Grid computing enables resource sharing and dynamic allocation of distributed heterogeneous computational resources while minimizing the associated ownership and operating cost. In grid computing there is no matter where data located is or which computer processes a task. Quality of Service parameters plays a key role in selecting Grid resources and optimizing resources.
usage efficiently. This research study focuses on the best resource selection and allocation for ensuring the QoS in a grid environment. We have presented a new approach inspired by statistical ranking and selection schema for best resource selection to get optimal results and better decision making. For QoS over the grid, we have considered few parameters of each node on the available grid. Based on the values of those parameters, we have developed a ranking and threshold selection criteria for each parameter at each node. The ASS scheme will consider only those nodes for the Next Grid (NGrid) that have at least X% free resources at each node. Using this proposed scheme we prepared a training dataset. Using training dataset, we applied multiple binary logistic regression over the training data and prepared a binary logit model. This data model will work as the predictor for the selection of only those nodes for NGrid that have at least X% free resources. Experiment considered a Grid environment composed of heterogeneous resources. In the data training phase 301 nodes are examined and we get 94.0 % prediction accuracy while prediction accuracy in validation phase is 96.79%. in the validation phase no of nodes are 156. While the Model Error is 3.21% . The main concern for future work is to develop an automated tool which gives the fully support to our mechanism in a grid environment, also we pretend to extend this approach measuring and modeling network quality of service (QoS) parameters.

Reference

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A Statistical Approach for the Assessment of QOS and Performance in Grid Computing Environment


Index Terms

Computer Science

Distributed Systems

Key words

CPU clock

ConeGrid protocol Architecture

Efficiency evaluation

Quality of services

next Grid