

Characteristics of a Novel Grid Resource Broker cum Meta-scheduler

Asvija B, Shamjith K.V., Henry Sukumar, Sridharan R, Mohanram N, and Prahlada Rao

{asvijab, shamjithkv, henrys, rsridharan, mohan, prahladab}@cdacb.ernet.in

Abstract

Modern Service Oriented Grids seamlessly integrate huge sets of distributed, heterogeneous resources that are spread across different administrative and business domains. The authors, in this paper bring out the characteristics of a Novel Grid Broker cum Meta-Scheduler that efficiently manages and harnesses resources in the grids. The requirements of this Federated & Autonomous Resource Management System include handling policy enforcements of Resources, Jobs and Users, addressed at Grid / Community / Site / Individual resource levels. It addresses the requirements with respect to Administrative, User, and Community (Virtual Organization) views. It highlights the requirements from an Application / Domain specific perspective, for maximizing the throughput through fine-tuning and optimizing communication and data storage patterns. The requirements are abstracted for various resource types like Compute, Storage, Data, Memory, Network, and Software in a grid. The need of a Descriptive Language (to formulate these requirements in an unambiguous manner), using Request-Response model is also presented. The features of the popular meta-schedulers available today are compared.