

# A Resource Monitoring & Management Middleware Infrastructure for Semantic Resource Grid

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**Abstract:** The Semantic Grid is an extension of the current Grid in which information will be given well-defined meaning, better enabling computers and resources to work in cooperation and coordination. The architecture of Semantic Grid adopts a service-oriented perspective in which distinct entities are represented as software agents, provide services to one another. Traditionally Grid management frameworks are based upon fixed management functionality and fixed interaction interfaces that cannot easily satisfy the flexibility and complexity that the dynamic Semantic Resource Grid demands. Agent technology is promising in this domain since it facilitates automatic negotiation of services contracts a subsequent configuration of those services, thus enhancing the provisioning for semantic grid services. In this paper we propose an infrastructure for resource monitoring and management in Semantic resource Grid. Our proposed architecture will unify sharing and managing of resources across the Grid. The resources will be able to actively find and advertise services. The resources will be arranged into groups which will enable the resource to have common understanding. We used agents in our architecture which enable the resources to have effective negotiation, support dynamic services and services utilization and advertisement. In this way we can achieve self-controllability and self-coordinability among Grid resource. We argue that semantics is a key to autonomy of the operation and management in emerging complex dynamic systems, such as Semantic Grid. Our architecture could be a part of resource monitoring and management middleware in the Semantic Resource Grid.