

COMMON MANAGEMENT MODEL (CMM)

The Open Grid System Architecture (OGSA) Common Management Model (CMM) is an abstract representation of real IT resources such as disks, file systems, operating systems, network ports, and IP addresses. The CMM can also be an abstract representation of logical IT resources, which can be a composition of the physical IT resources to build services and complete business applications.

Some of the most important and commonly utilized terms in the management of resources are "manageable resource," "manageability," and resource "management."

Key Terms to Understand

Manageable resource is any IT entity that has some state to which the management operations can be applied. A manageable resource can be any entity, hardware (hard drives), software components (a database), complete applications (help desk system), and even transient things such as print jobs.

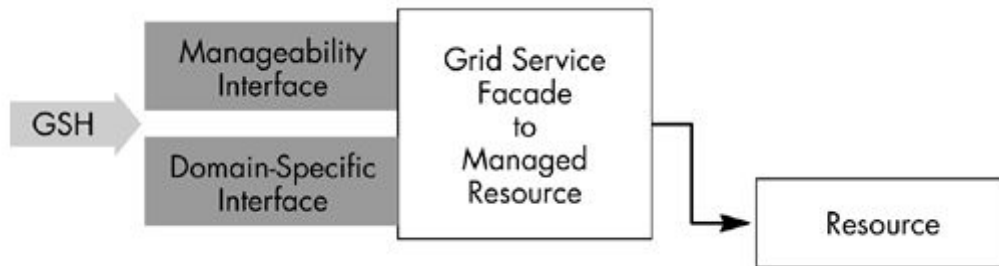
Manageability is a concept whereby a resource defines information that can be utilized to manage the resource. Manageability details all the aspects of a resource that support management, including interaction with a resource from the management applications.

Management is the process of monitoring, modifying, and making decisions about a resource, including the capabilities that use manageability information, to perform activities or tasks associated with managing IT resources.

The CMM is a "single" model for management that can be utilized with, and extended for, multiple grid resource models; however, it does not define a resource information model (e.g., CIM, SNMP, JMX), which is the job of the other standards organizations (e.g., DMTF, JCP). The CMM defines a set of common management interfaces by which these manageable resources are exposed to the external management applications for the sole purposes of managing these resources.

In CMM, every management resource is represented as a grid service instance that possesses a state, a unique instance identifier, and operational interfaces. Figure 7.1 depicts the grid services facade.

Figure 7.1 The manageable resource grid services facade.



shows a manageable resource and its facade grid service that provides CMM-specific manageability interfaces and domain-specific interfaces. One must be certain on the difference between manageability interfaces and domain-specific interfaces.

Manageability Interfaces

Every resource represented by CMM has a grid service facade that represents the underlying resource, and exposes a set of canonical interfaces and behaviors common to all the CMM services. This grid service has a state that corresponds to the resource state and a managed lifecycle model.

Domain-Specific Interfaces

Every CMM resource exposes a number of domain-specific interfaces, in addition to the canonical manageability interfaces for its management applications. These domain-specific interfaces are tightly coupled to the domain in which these resources are defined. As an example, we can consider the case of a resource instrumented in CIM. This resource exposes a standard CMM manageability interface and, in addition, exposes some CIM-specific interfaces (e.g., a CIM Operating System interface) to deal with the resources. These interfaces provide access to the resources but do not represent the CMM-managed resource behavior.

The OGSA CMM specification defines three aspects of manageability:

1. An XML schema (XSD) for modeling the resource manageability information
2. A collection of manageability portTypes
3. Guidelines for modeling resource

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