Grid Formulation and Architecture

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Abstract: A buzz word after web 2.0, dozens of different definitions for cloud computing established grid computing paradigm and utility computing cluster computing and distributed computing in generale computation may someday be organized as a public utilization chart that would speculate grid is coined and describes to technology power on demand. Grid computing is a form of distributed computing whereby a super and virtual computer is composed of a cluster of networked loosely coupled computers, acting in concert to perform large tasks.

Key words: grid computing, cloud computing cluster computing distributed computing

Analogy to the internet architecture is the grid architecture. The key components are coordinating multiple resources are in ubiquitous infrastructure services app specific distributed services. Using grid sim allows modelling of heterogenous types of resources has resourcing capabilities form of millions of instructions per second as in multiprogramming and multiprocessing. Using grid simulator application, they can be CPU or intensive. Multiple users submit tasks for execution simulation in the resources that are time shift and time efficiency is calculated. Network speed between resources is not specified, statistics are for what selected operation recorded analysed using grid sim statistical analysis method operations recorded using statistics analysis methods.
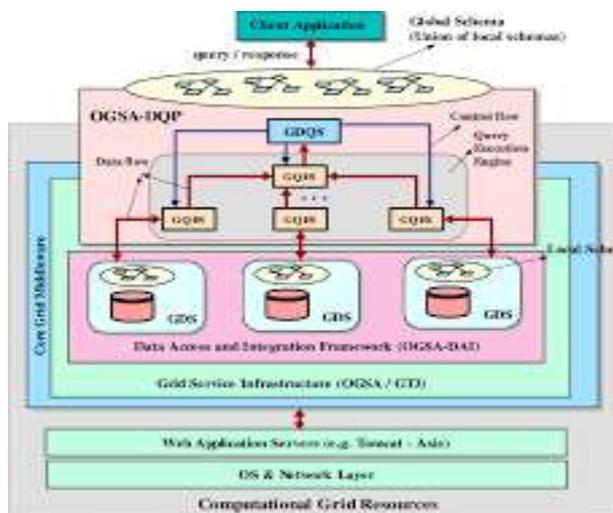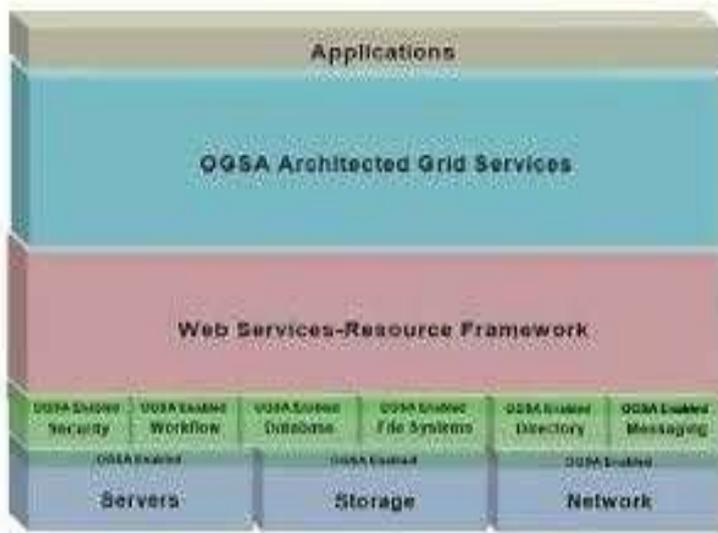

Figure 1 A high level architecture

Ex: TCP and http reserves and connectivity protocol

A high-level architecture depicted shows the applications which are formulated with OGSA architected grid services the third layer provides web services resources framework there after split up into modules The base has the server's storage and network

A high-level architecture

System is scalable area network that supports resource sharing and distribution. The functional requirements of open GRID services architecture are optimisations quality of services essence Data Services secure administration administrative cost reduction scalability availability ease of use and extensibility.

The physical and logical resource layer web service layer ogsa architecture GRID services layer grid application layer networks simulator layer. The OGSA architecture are physical and logical resources layer are server storage and network. Logical resources manage physical resources. Example of logical resources are data base manager's workflow managers. The Ogsa architect Web Services layer are service software available online that could interact with each other using XML. Also consist of five interfaces factory provide way for creation of new grid service life cycles manages grid service states service group collection of indexed grid service.

OGSA architecture service are GRID one services composed of 4 main types of services service management service communication policy services security services. The OGSA (open grid services architecture) A services the core grid services composed of 4 main types of services that is services management assist is installation maintenance troubleshooting tasks in grid system.
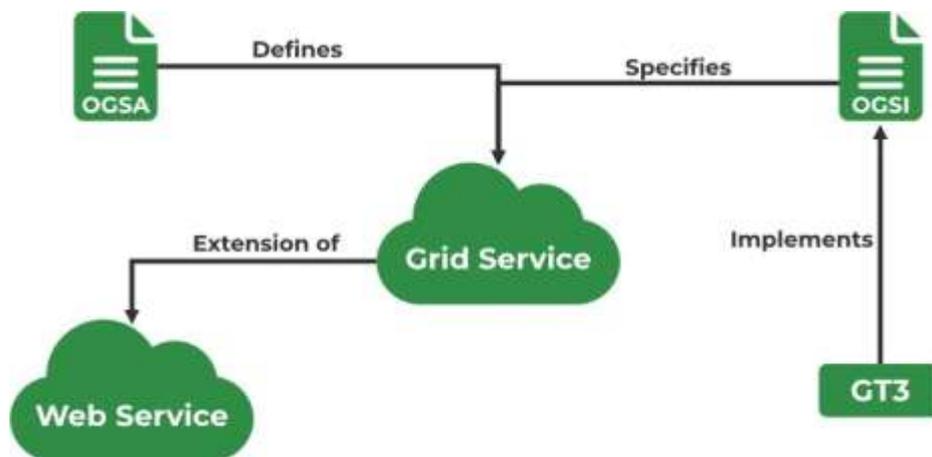

OGSA grid GT3

The service communication includes functions that allow grid services to communicate. They also allow policy services providing framework for creation administration management of policies for system operation. The security services are providing authentication Authorization mechanism to ensure systems interoperate securely. The OGSA architecture services are grid systems in high performance computing collaboration parallelism support virtualization

of resource processing.

OGSa architectured services are grid data services support data virtualization provide mechanism for access to distributed resources such as databases files.
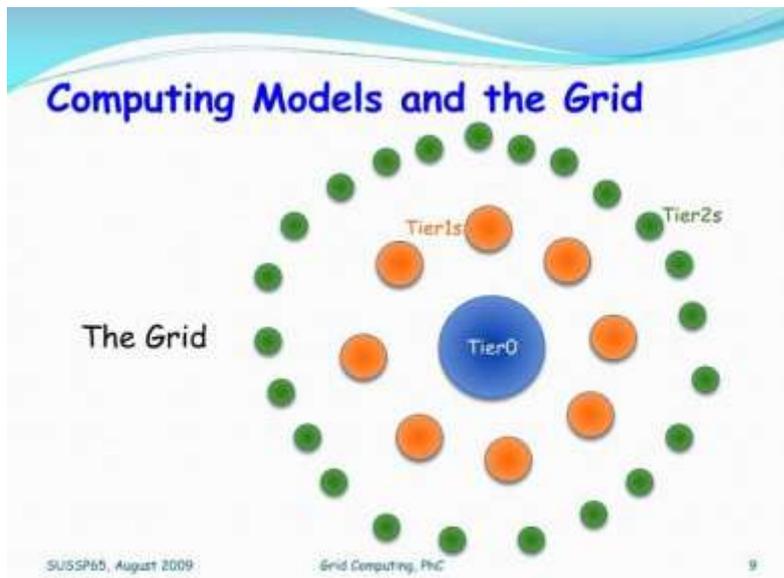
The domain specific services contain the grid program services and grid core services and grid data services. Also has extended web services. The Ogsa architectured consists of the grid application layer. This layer comprises of applications that use the grid archited services. Interoperability and support for dynamic and heterogenous environments. The need to support heterogenous environments systems requirements that include the following

Resource discovery and query

Mechanism is required for discovering resources with desired attributes and for retrieving their properties. Discovery and query should handle a highly highly dynamic and heterogenous system. Standard protocols and schemes are important for interoperability in addition to standard protocols also particularly important as their use can simplify the transition to using grids.

OGSA service gateway architecture - The application bundles services service registry life cycles modules java virtual machine operating system and network. The framework is conceptually divided into the following areas. Bundles are normal for comoponents with extra manefest headers. Services layer connects bundles in a dynamic way by offering a publish find and bind model for plain old java objects. Services registry - The application programming interface for life cycle management install start stop update and uninstall for bundle Modules - The layer that defines encapsulation and declaration of dependicies how a bundle can import and export code.

Security - The layer that address is a security layer. Grid data access models - in general there are 4 access models for organizing a data grid as listed here. 1 - Monadic method - hierarchical model federation model and hybrid model This comes with centralized data repository of data. A user submits requests directly to the central repository. Replication for processing data locality. Working of layers - Fabric the lowest layer job is used to make q common interfaces on all possible kinds of resources available. Access layers promote standardized process Resource and connectivity protocols - The connectivity layer defines the basic communication and authentication protocols which are needed by the grid while the communication allow the exchange of files between different resources connection by the first layer the authentication protocols allow to communicate confidentially and ensure the identity of two partners.

Collective services - The purpose of this layer is coordination of multiple resources. Access to these resources doesn't happen directly but merely via the underlying protocols and interfaces. User applications - To this layer belong all those applications which are operating in the environment of a virtual organisation. The GRID computing benefits the effeciency by improving computational capabilities also bring together. People create flexible resilience operational

infrastructures address rapid fluctuations in customer demands then providing technology benefits provide federate data and distribute it globally. Support large multidisciplinary collaboration across organization and business. Enables recovery and access.

Conclusion: Ability to run large scale application comprising thousands of computers for wide range of applications. Reduces signals latency the delay that builds up as data are transmitted over the internet.

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