

DHANALAKSHMI COLLEGE OF ENGINEERING
COMPUTER SCIENCE AND ENGINEERING
CS6703 GRID AND CLOUD COMPUTING
IV YEAR/ VII SEMESTER
2 MARK QUESTIONS WITH ANSWERS
UNIT I - INTRODUCTION

1. What is Grid Computing?

Grid computing is a processor architecture that combines computer resources from various domains to reach a main objective. In **grid computing**, the **computers** on the network can work on a task together, thus functioning as a supercomputer.

2. What is QOS?

Grid computing system is the ability to provide the quality of service requirements necessary for the end-user community. QOS provided by the grid like performance, availability, management aspects, business value and flexibility in pricing.

3. What are the derivatives of grid computing?

There are 8 derivatives of grid computing. They are as follows:

- a) Compute grid
- b) Data grid
- c) Science grid
- d) Access grid
- e) Knowledge grid
- f) Cluster grid
- g) Terra grid
- h) Commodity grid

4. What are the features of data grids?

The ability to integrate multiple distributed, heterogeneous and independently managed data sources.

The ability to provide data catching and/or replication mechanisms to minimize network traffic.

The ability to provide necessary data discovery mechanisms, which allow the user to find data based on characteristics of the data.

5. Define – Cloud Computing.

Cloud computing, often referred to as simply “the cloud,” is the delivery of on-demand computing resources—everything from applications to data centers—over the Internet on a pay-for-use basis. Storing and accessing data and programs over the Internet instead of your computer's hard drive

6. What is business on demand?

Business On Demand is not just about utility computing as it has a much broader set of ideas about the transformation of business practices, process transformation, and technology implementations.

The essential characteristics of on-demand businesses are responsiveness to the dynamics of business, adapting to variable cost structures, focusing on core business competency, and resiliency for consistent availability.

7. What are the facilities provided by virtual organization?

The formation of virtual task forces, or groups, to solve specific problems associated with the virtual organization.

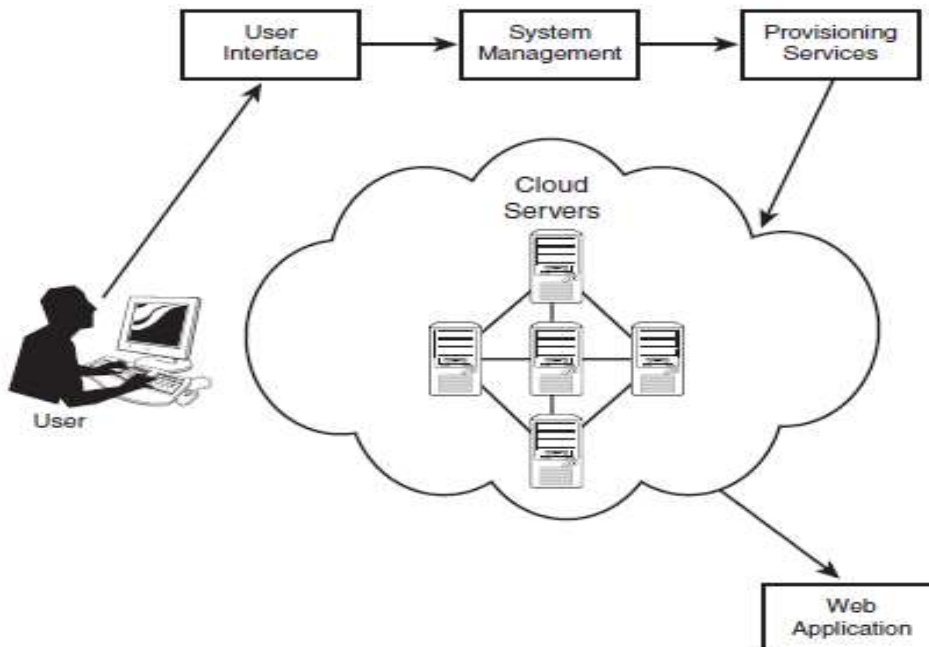
The dynamic provisioning and management capabilities of the resource required meeting the SLA's.

8. What are the properties of Cloud Computing?

There are six key properties of cloud computing: Cloud computing is

- user-centric
- task-centric
- powerful
- accessible
- intelligent
- programmable

9. Sketch the architecture of Cloud.



10. What are the types of Cloud service development?

- Software as a Service
- Platform as a Service
- Web Services
- On-Demand Computing

11. What is meant by scheduler?

Schedulers are types of applications responsible for the management of jobs, such as allocating resources needed for any specific job, partitioning of jobs to schedule parallel execution of tasks, data management, event correlation, and service-level management capabilities.

12. What is meant by resource broker?

Resource broker provides pairing services between the service requester and the service provider. This pairing enables the selection of best available resources from the service provider for the execution of a specific task.

13. What is load balancing?

Load balancing is concerned with the integrating the system in order to avoid processing delays and over-commitment of resources. It involves partitioning of jobs, identifying the resources and queuing the jobs.

14. What is grid infrastructure?

Grid infrastructure forms the core foundation for successful grid applications. This infrastructure is a complex combination of number of capabilities and resources identified for the specific problem and environment being addressed.

15. Define – Distributed Computing.

Distributed computing is a field of **computer** science that studies **distributed** systems. A **distributed** system is a software system in which components located on networked **computers** communicate and coordinate their actions by passing messages. The components interact with each other in order to achieve a common goal.

UNIT II - GRID SERVICES

1. Define – OSGI.

Open Grid Services Architecture (OGSA) is a set of standards defining the way in which information is shared among diverse components of large, heterogeneous grid systems. In this context, a grid system is a scalable wide area network (WAN) that supports resource sharing and distribution. OGSA is a trademark of the Open Grid Forum.

2. Define – OSGA.

The **Open Grid Services Infrastructure** (OGSI) was published by the Global Grid Forum (GGF) as a proposed recommendation in June 2003.^[1] It was intended to provide an infrastructure layer for the Open Grid Services Architecture (OGSA). OGSI takes the statelessness issues (along with others) into account by essentially extending Web services to accommodate grid computing resources that are both transient and stateful.

3. Define – Peer to Peer Computing.

Peer to Peer computing is a relatively new computing discipline in the realm of distributed computing. P2P system defines collaboration among a larger number of individuals and/or organizations, with a limited set of security requirements and a less complex resource-sharing topology.

4. What is Dynamic Accounting System?

DAS provides the following enhanced categories of accounting functionality to the IPG community:

- Allows a grid user to request access to a local resource via the presentation of grid credentials
- Determines and grants the appropriate authorizations for a user to access a local resource without requiring a preexisting account on the resource to govern local authorizations.

5. Define – SOA.

A service-oriented architecture is intended to define loosely coupled and interoperable services/applications, and to define a process for integrating these interoperable components.

6. What are the major goals of OSGA?

- Identify the use cases that can drive the OSGA platform components.
- Identify and define the core OSGA platform components.
- Define hosting and platform specific bindings.
- Define resource models and resource profiles with interoperable solutions.

7. What are the layers available in OSGA architectural organizations?

- Native platform services and transport mechanisms.
- OSGA hosting environment.
- OSGA transport and security.
- OSGA infrastructure (OGSI).
- OSGA basic services (meta-OS and domain services)

8. What is meant by grid infrastructure?

Grid infrastructure is a complex combination of a number of capabilities and resources identified for the specific problem and environment being addressed. It forms the core foundations for successful grid applications.

9. List some grid computing toolkits and frameworks?

- Globus Toolkit
- Globus Resource Allocation Manager(GRAM)
- Grid Security Infrastructure(GSI)
- Information Services
- Legion
- Condor and Condor-G
- NIMROD
- UNICORE
- NMI

10. Define - GRAM.

GRAM provides resource allocation, process creation, monitoring, and management services. The most common use of GRAM is the remote job submission and control facility. GRAM simplifies the use of remote systems.

11. What is the role of the grid computing organization?

- Organizations developing grid standards and best practices guidelines.
- Organizations developing grid computing toolkits, frameworks and middleware solutions.
- Organizations building and using grid - based solutions to solve their computing, data, and network requirements.
- Organizations working to adopt grid concepts into commercial products, via utility computing and business on demand computing.

12. What are the different layers of grid architecture?

- Fabric Layer: Interface to local resources
- Connectivity Layer: Manages Communications
- Collective Layer: Coordinating Multiple Resources
- Application Layer: User Defined Application.

13. What are the fundamental components of SOAP specification?

- An envelope that defines a framework for describing message structure.
- A set of encoding rules for expressing instances of application defined data types
- A convention for representing remote procedure (RPC) and responses.
- A set of rules for using SOAP with HTTP.
- Message exchange patterns (MEP) such as request-response, one-way and peer-to-peer conversations.

14. Define - SOAP.

SOAP is a simple and lightweight XML-based mechanism for creating structured data packages that can be exchanged between network applications. SOAP provides a simple enveloping mechanism and is proven in being able to work with existing networking services technologies such as HTTP. SOAP is also flexible and extensible. SOAP is based on the fact that it builds upon the XML info set.

15. Define WSDL.

WSDL is an XML Info set based document, which provides a model and XML format for describe web services. This enables services to be described and enables the client to consume these services in a standard way without knowing much on the lower level protocol exchange binding including SOAP and HTTP. This high level abstraction on the service limits human interaction and enables the automatic generation of proxies for web services, and these proxies can be static or dynamic. It allows both document and RPC - oriented messages.

UNIT III - VIRTUALIZATION

1. What is the working principle of Cloud Computing?

The cloud is a collection of computers and servers that are publicly accessible via the This hardware is typically owned and operated by a third party on a consolidated basis in one or more data center locations. The machines can run any combination of operating systems.

2. What is Virtualization?

Virtualization is a foundational element of **cloud computing** and helps deliver on the value of **cloud computing**," Adams said. "**Cloud computing** is the delivery of shared **computing** resources, software or data — as a service and on-demand through the Internet.

3. Define Cloud services with example.

Any web-based application or service offered via cloud computing is called a cloud. Cloud services can include anything from calendar and contact applications to word processing and presentations.

4. What are the types of Cloud service development?

- Software as a Service
- Platform as a Service
- Infrastructure as a Service

5. Explain cloud provider and cloud broker?

Cloud Provider: Is a company that offers some component of cloud computing typically infrastructure as a service, software as a Service or Platform as a Service. It is something referred as CSP.

Cloud Broker: It is a third party individual or business that act as an intermediary between the purchase of cloud computing service and sellers of that service.

6. Define - Private Cloud.

The *private cloud* is built within the domain of an intranet owned by a single organization. Therefore, they are client owned and managed. Their access is limited to the owning clients and their partners. Their deployment was not meant to sell capacity over the Internet through publicly accessible interfaces. Private clouds give local users a flexible and agile private infrastructure to run service workloads within their administrative domains.

7. Define - Public Cloud.

A *public cloud* is built over the Internet, which can be accessed by any user who has paid for the service. Public clouds are owned by service providers. They are accessed by subscription. Many companies have built public clouds, namely Google App Engine, Amazon AWS, Microsoft Azure, IBM Blue Cloud, and Salesforce Force.com. These are commercial providers that offer a publicly accessible remote interface for creating and managing VM instances within their proprietary infrastructure.

8. Define - Hybrid Cloud.

A *hybrid cloud* is built with both public and private clouds; Private clouds can also support a *hybrid cloud* model by supplementing local infrastructure with computing capacity from an external public cloud. For example, the *research compute cloud* (RC2) is a private cloud built by IBM.

9. Define anything-as-a-service?

Providing services to the client on the basis on meeting their demands at some pay per use cost such as data storage as a service, network as a service, communication as a service etc. It is generally denoted as anything as a service (XaaS).

10. What is mean by SaaS?

The software as a service refers to browser initiated application software over thousands of paid customer. The SaaS model applies to business process industry application, consumer relationship management (CRM), Enterprise resource Planning (ERP), Human Resources (HR) and collaborative application.

11. What is mean by IaaS?

The Infrastructure as a Service model puts together the infrastructure demanded by the user namely servers, storage, network and the data center fabric. The user can deploy and run on multiple VM's running guest OS on specific application.

12. Explain PaaS?

The Platform as a Service model enables the user to deploy user built applications onto a virtualized cloud platform. It includes middleware, database, development tools and some runtime support such as web2.0 and java. It includes both hardware and software integrated with specific programming interface.

13. List out the advantages of Cloud Computing.

- Lower IT Infrastructure Costs
- Fewer Maintenance Issues
- Lower Software Costs
- Instant Software Updates
- Increased Computing Power
- Unlimited Storage Capacity
- Increased Data Safety
- Improved Compatibility Between Operating Systems
- Improved Document Format Compatibility
- Easier Group Collaboration
- Universal Access to Documents

- Latest Version Availability
- Removes the Tether to Specific Devices

14. List out the disadvantages of Cloud Computing.

- Requires a Constant Internet Connection
- Doesn't Work Well with Low-Speed Connections
- Can Be Slow
- Features Might Be Limited
- Stored Data Might Not Be Secure
- If the Cloud Loses Your Data, You're Screwed

15. What is Hypervisor?

A **hypervisor** or virtual machine monitor (VMM) is a piece of computer software, firmware or hardware that creates and runs virtual machines. A computer on which a **hypervisor** is running one or more virtual machines is defined as a host machine. Each virtual machine is called a guest machine.

16. What are the types of hypervisor?

There are two types of hypervisors:

- Type 1 (bare-metal)
- Type 2 (hosted)

Type 1 hypervisors run directly on the system hardware. They are often referred to as a "native" or "bare metal" or "embedded" hypervisors in vendor literature.

Type 2 hypervisors run on a host operating system. When the virtualization movement first began to take off, Type 2 hypervisors were most popular. Administrators could buy the software and install it on a server they already had.

UNIT IV - PROGRAMMING MODEL

1. What is Hadoop development?

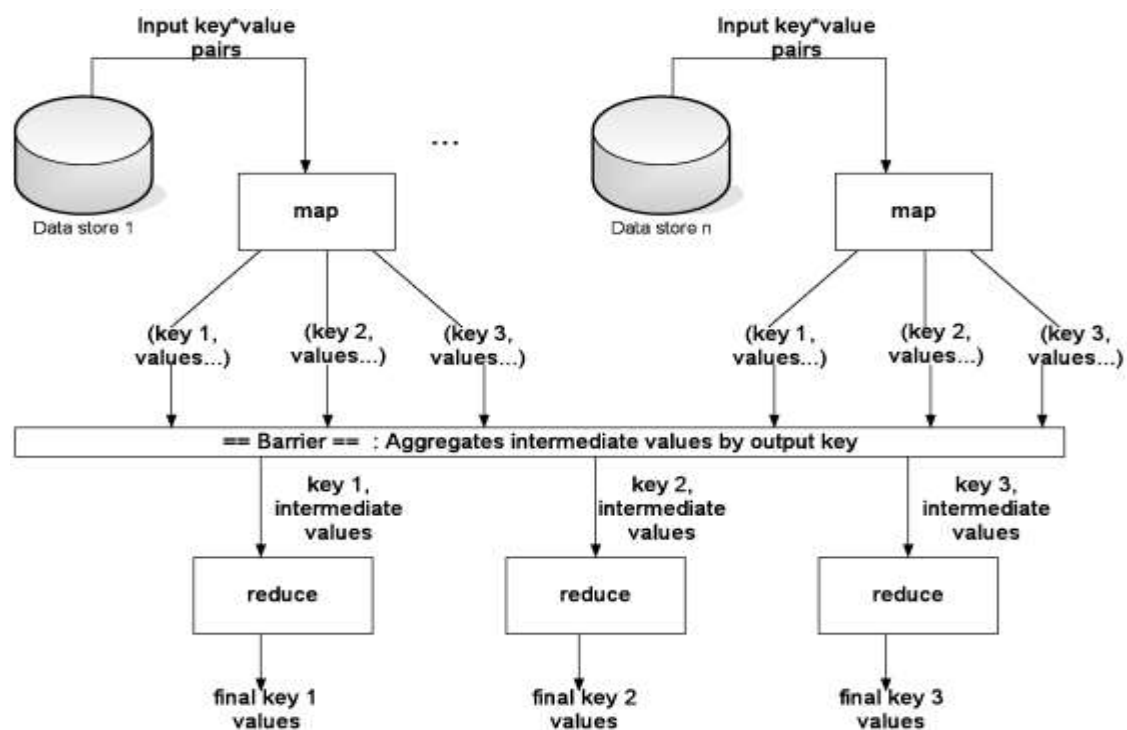
Apache **Hadoop** is an open-source software **framework** written in Java for distributed storage and distributed processing of very large data sets on computer clusters built from commodity hardware.

2. Define- GT4.

Globus Toolkit 4 is an open – source toolkit developed to build grids. It provides full capabilities for sharing computing power and databases. Usage of Globus is extensive throughout the scientific community within NSF, DOE, DARPA, IBM, NASA, and Microsoft projects.

3. Define- Map Reduce Computation.

MapReduce is designed to continue to work in the face of system failures. When a job is running, MapReduce monitors progress of each of the servers participating in the job. If one of them is slow in returning an answer or fails before completing its work, MapReduce automatically starts another instance of that task on another server that has a copy of the data. The complexity of the error handling mechanism is completely hidden from the programmer



4. What are the characteristics of Cloud Programming Model?

- Cost model
- Scalability
- Fault-tolerance
- Support for specific services
- Control model
- Data model
- Synchronization mode

5. What are the phases in MapReduce Programming Model?

Map Phase:

Processes input key/value pair

Produces set of intermediate pair

map (in_key, in_value) -> list(out_key, interm_value)

Reduce Phase:

Combines all intermediate values for a given key

Produces a set of merged output values

reduce(out_key, list(interm_value)) -> list(out_value)

6. Define- Hadoop Scheduler.

Job divided into several independent tasks executed in parallel

- The input file is split into chunks of 64 / 128 MB
- Each chunk is assigned to a map task
- Reduce task aggregate the output of the map tasks

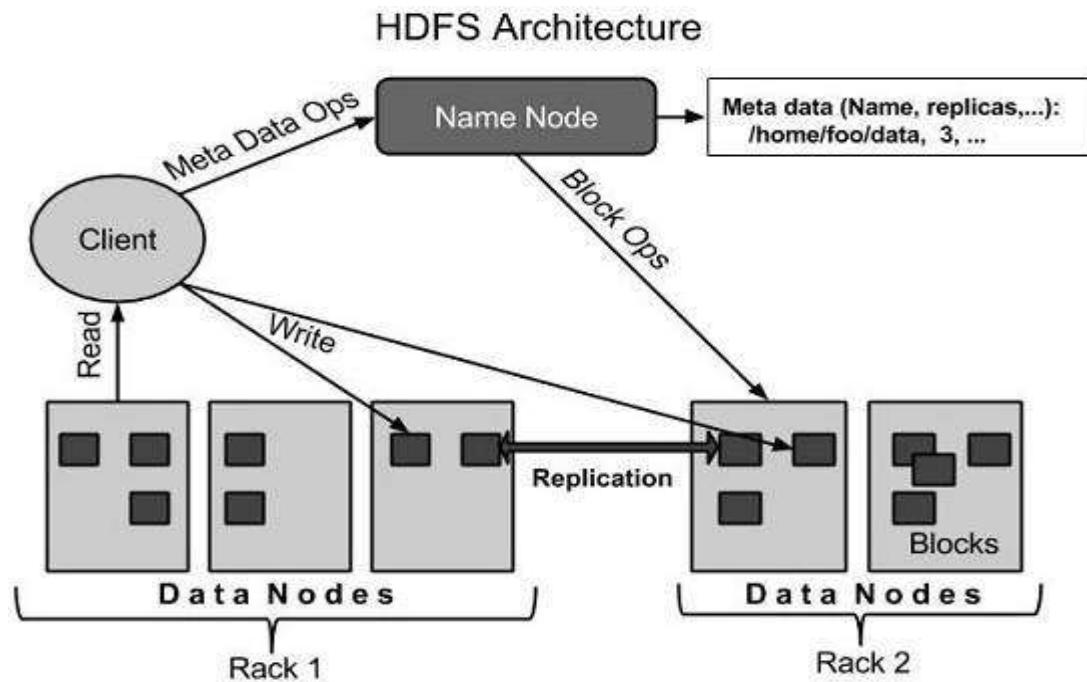
7. Define- HDFS.

Hadoop File System was developed using distributed file system design. It is run on commodity hardware. Unlike other distributed systems, HDFS is highly fault tolerant and designed using low-cost hardware. HDFS holds very large amount of data and provides easier access. To store such huge data, the files are stored across multiple machines.

8. What are the features of HDFS?

- It is suitable for the distributed storage and processing.
- Hadoop provides a command interface to interact with HDFS.
- The built-in servers of name-node and data-node help users to easily check the status of cluster.
- Streaming access to data in the file system.
- HDFS provides file permissions and authentication.

9. Sketch the HDFS Architecture.



10. What is Cloud Dataflow Programming Model?

The Dataflow programming model is designed to simplify the mechanics of large-scale data processing. When you program with a Dataflow SDK, you are essentially creating a data processing job to be executed by one of the Cloud Dataflow runner services. This model lets you concentrate on the logical composition of your data processing job, rather than the physical orchestration of parallel processing. You can focus on what you need your job to do instead of exactly how that job gets executed.

11. What is Java Cloud service?

Oracle Java Cloud Service is a subscription-based, self-service, reliable, scalable, and elastic enterprise-grade cloud platform that enables businesses to securely develop and deploy Java applications.

- Dedicated virtual machines for running your entire WebLogic Server cluster.
- Pre-configured WebLogic Server software, with your choice of the 11g or 12c version.
- Choice of virtual machine size (virtual cores, memory), as well as the size of the WebLogic cluster.
- Self-managed, with fully automated cloud tooling for administrative and lifecycle operations, such as patching, scaling, and backup.
- Fully automated, one-click, point-in-time restore for the entire service.

12. What is AIM?

The most-used instant messaging program is AOL Instant Messenger (www.aim.com), also known as AIM. AIM supports all manner of special features in addition to basic text messaging. The users get file sharing, RSS feeds, group chats, ability to text message to and from mobile phones, voice chat, video chat, and even a mobile client and can also enhance the basic AIM experience with a variety of official and user-created plug-ins.

13. Define- Multi-tenancy.

Multi-tenancy can be defined as a principle in software architecture, where a single instance of a vendor's offering runs on the vendor's servers, serving multiple client organizations (tenants). Often these tenants will pay a fee for this.

In practice, multi-tenancy allows a cloud provider to provide a service to organizations that have users of their own. Of course, in certain cases the tenant could have only 1 user; the important point is that the cloud provider has taken the tenant concept into account and provided e.g. access based on the tenant concept, billing based on the tenant concept, etc.

14. Define- GFS.

Google File System (**GFS** or GoogleFS) is a proprietary **distributed file system** developed by Google for its own use. It is designed to provide efficient, reliable access to data using large clusters of commodity hardware. A new version of the Google File System is codenamed Colossus which was released in 2010.

15. Define- OGF.

OGF is an open global community committed to driving the rapid evolution and adoption of modern advanced applied distributed computing, including cloud, grid and associated storage, networking and workflow methods. OGF is focused on developing and promoting innovative scalable techniques, applications and infrastructures to improve productivity in the enterprise and within the international research, science and business communities

UNIT V - SECURITY

1. What are the functions in Grid Security Model?

- Multiple security mechanisms
- Dynamic creation of services

- Dynamic establishment of trust domains

2. What are OGSA security services?

- Credential processing service
- Authorization service
- Credential Conversion service
- Identity Mapping service
- Audit

3. What are the high-level services included in Globus toolkit?

- Globus Resource Allocation Manager(GRAM)
- Grid Security Infrastructure(GSI)
- Information Services

4. What are the most common Gt3 handlers?

- Authentication service Hanlder
- WS Security Handler
- Authorization Handler
- X509 Sing Handler
- GSS Handler

5. Define- GSI.

The **Grid Security** Infrastructure (GSI), formerly called the Globus **Security** Infrastructure, is a specification for secret, tamper-proof, delegatable communication between software in a **grid** computing environment. **Secure**, authenticatable communication is enabled using asymmetric encryption.

6. What are the high level grid security requirement aspects?

- Authentication
- Authorization
- Delegation
- Message integrity
- Single logon
- Confidentiality
- Privacy
- Policy exchange
- Credential life span and renewal

- Secure logging
- Assurance
- Manageability

7. What is CISCO connected grid security principles?

Cisco integrates security as a fundamental building block of any network architecture—whether for the field area network, transmission and substation network, or the intra-control center tier. The primary principles behind Cisco Connected Grid security include:

- Access control
- Data integrity, confidentiality, and privacy
- Threat detection and mitigation
- Device and platform integrity

8. What are the risks of storing data in the Cloud?

- Reliability
- Security
- User error
- Access problems

9. What are the factors to identify the threats in cloud?

- Failures in Provider Security
- Attacks by Other Customers
- Availability and Reliability Issues
- Legal and Regulatory Issues
- Perimeter Security Model Broken
- Integrating Provider and Customer Security Systems

10. What are the phases in data security life cycle?



Create: Creation is the generation of new digital content, or the alteration/updating of existing content.

Store: Storing is the act committing the digital data to some sort of storage repository, and typically occurs nearly simultaneously with creation.

Use: Data is viewed, processed, or otherwise used in some sort of activity.

Share: Information is made accessible to others, such as between users, to customers, and to partners

Archive: Data leaves active use and enters long-term storage.

Destroy: Data is permanently destroyed using physical or digital means (*e.g.*, cryptoshredding).

11. Define- DLP.

Data Loss Prevention (DLP) is defined as: Products that, based on central policies, identify, monitor, and protect data at rest, in motion, and in use, through deep content analysis.

DLP is typically used for content discovery and to monitor data in motion using the following options:

- **Dedicated appliance/server:** Standard hardware placed at a network chokepoint between the cloud environment and the rest of the network/Internet., or within different cloud segments.
- **Virtual appliance**
- **Endpoint agent**
- **Hypervisor-agent:** The DLP agent is embedded or accessed at the hypervisor level, as opposed to running in the instance.

12. What is PaaS Encryption?

Since PaaS is so diverse, the following list may not cover all potential options:

- **Client/application encryption:** Data is encrypted in the PaaS application, or the client accessing the platform.
- **Database encryption:** Data is encrypted in the database using encryption built in and supported by the database platform.
- **Proxy encryption:** Data passes through an encryption proxy before being sent to the platform.

13. Define- Database Activity Monitoring (DAM).

Database Activity Monitors capture and record, at a minimum, all Structured Query Language (SQL) activity in real time or near real time, including database administrator activity, across multiple database platforms; and can generate alerts on policy violations.

UNIT - III

1. What are the two commonly understood SOA architecture?

The two commonly understood SOA architecture are web and web services.

2. Define SOA.

A service-oriented architecture is intended to define loosely coupled and interoperable services/applications, and to define a process for integrating these interoperable components.

3. Define web service agents.

Providing open standards-based designs for interoperable messaging across Multiple vendors.

4. What are the fundamental components of SOAP specification?

An envelope that defines a framework for describing message structure

A set of encoding rules for expressing instances of application-defined data types
A convention for representing remote procedure calls and responses

A set of rules for using SOAP with HTTP

Message exchange patterns(MEP) such as request-response, one way, and peer-to-peer conversations

5. What are the features of SOAP?

A unique name used to identify the feature and its properties. This enables us to identify whether a SOAP node supports a specific feature.

A set of properties associated with the feature that can be used to control, constrain, or identify a feature.

6. What are the mechanisms available to implement the features of SOAP?

SOAP header blocks
SOAP binding
protocol

7. Write notes on Message exchange pattern.

8.

One special type of SOAP feature is the MEP. A SOAP MEP is a template that establishes a pattern for the exchange of messages between SOAP nodes. Some examples of MEPs include request/response, one-way, peer-to-peer conversation, and so on.

8. What is the vision behind global XML ARCHITECTURE?

Providing standards-based and interoperable protocol definitions

Reducing development efforts by separating infrastructure protocols from applications and transport protocols

Providing open standards-based designs for interoperable messaging across multiple vendors.

9. What are the components available in service model?

Policy

expression

Policy subject

Policy assertion

Policy

attachment

10. Write notes on WS-Trust

The WS-Trust deals with different aspects of secure token services, including how to request a token and issuing of token in a trusted manner. This issuance of tokens must be secure and built on top of WS-Security. The secure token services can be a contact point for secure negotiation through delegation and impersonation.

11. Write notes on WS –Federation

WS-Federation defines mechanisms that are used to enable identity, attribute, authentication, and authorization federation across different trust environments.

12. What are the classifications of service state management?

The classifications of service state management are

i) interaction aware state

ii) application aware state

13. Name some representational use cases from OGSA architecture working group?

Commercial Data Center (Commercial grid)
National Fusion Collaboratory (Science grid)

Online Media and Entertainment (Commercial grid)

14. Who are the actors in CDC?

Grid
Administrator IT
system integrator
IT business
activity

15. Mention the scenarios in CDC?

Multiple in-house systems support within the enterprise. Time-constrained commercial campaign.
Disaster recovery
Global load balancing

16. What are the functional requirements of CDC on OGSA?

Discovery of the available resources.
Scheduling of resources for specific tasks. Provisioning of resources based on need. Use static and dynamic policies.

17. What are the expression evaluators supported in GT3?

Service Data Name Evaluator.
Service Data Name Set Evaluator.
Service Data Name Delete
Evaluator. Service Data XPath
Evaluator.

18. What are the major goals of OGSA?

Identify the use cases that can drive the OGSA platform components. Identify and define the core OGSA platform components.
Define hosting and platform specific bindings.
Define resource models and resource profiles with interoperable solutions.

19. What are the more specific goals of OGSA?

Facilitating distributed resource management across heterogeneous platforms Providing seamless quantity of service delivery.

Providing common infrastructure building blocks to avoid “Stove pipe solutions towers”.

Open and published interfaces and messages.

20. What are the main purposes of use case defined by OGSA?

To identify and define core OGSA platform functionalities.

To define core platform components based on the functionality requirements.

To define the high level requirements on those core components and identify their interrelationship.

21. Name some representational use cases from OGSA architecture working group?

Commercial Data Center (Commercial grid)
National Fusion Collaboratory (Science grid)

Online Media and Entertainment (Commercial grid)

22. Who are the actors in CDC?

Grid
Administrator IT
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Multiple in-house systems support within the enterprise. Time-constrained commercial campaign.

Disaster recovery

Global load balancing

24. What are the functional requirements of CDC on OGSA?

Discovery of the available resources.

Scheduling of resources for specific tasks. Provisioning of resources based on need. Use static and dynamic policies.

25. Who are the actors in NFC?

Scientists

They are the customers of the fusion code provided by the fusion service provider.

26. Mention the scenarios in NFC?

A remote client can run code on a remote site within a time frame.

A monitoring agent starts and watches the submitted job for service-level agreement (SLA) validation.

Integrate with external applications and resources for data and/or code execution and flexible delegation of rights.

27. What are the functional requirements of NFC on OGSA?

Discovery of available resources.

Workflow management for job distribution across resources. Scheduling of service tasks.

Load balancing to manage workloads. Network transport management.

28. Who are the actors in Online Media and Environment?

A customer who consumes the entertainment content. A service provider who hosts the entertainment content. A publisher who offers the entertainment content.

A developer who consumes the entertainment content.

29. Mention the scenarios in Online Media and Environment?

A consumer, for example a game player, accesses the game portal and authenticates with the game server and starts the game.

There are several providers that are working in concert to provide the required service for the consumer.

The content provider or media studio provides the content for the customer experience.

30. What are the functional requirements of Online Media and Environment?

Discovering the resources. Instantiating new service.

Monitoring resource usage and availability. Servicing lifecycle and change management.

31. What are the layers available in OGSA architectural organizations?

Native platform services and transport mechanisms. OGSA hosting environment.

OGSA transport and security. OGSA infrastructure (OGSI).

OGSA basic services (meta-OS and domain services)

32. What are the OGSA basic services?

Common Management Model (CMM)

Distributed data access and replication. Policy, security
Provisioning and resource management.

33. What are the two dimensions of stateful nature of web service?

A service is maintaining its state information.
The interaction pattern between the client and service can be stateful.

UNIT - V

34. What are the two aspects involved in GRAM?

Job submission- a user starts the job scheduling with the creation of a managed job service.

Resource management – a client knows about the master host environment and the master managed factory service.

35. What are the two kinds of lifecycle model associated with state data recovery?

Persistent lifecycle
model. Transient
lifecycle model.

36. Write the combination of Globus GT3 toolkit?

GT3 core.
Base services
User- defined services.

37. What is a GT3 core?

It provides a framework to host the high-level services.
The core consists of OGSI reference implementation, security infrastructure, and System level services.

38. What are the major components of default server side framework?

Web service engine provided by Apache AXIS framework. The GT3 software uses the Apache AXIS framework to deal with normal web services.

Globus container framework. The GT3 software provides a container to manage stateful web service through a unique instance handle, instance

repository, and lifecycle management.

39. Write notes on Grid container?

The Globus container model is derived from the J2EE managed container model, where the components are free from complex resource manageability.

Lightweight service introspection and discovery.

Dynamic deployment and soft-state management of stateful grid services.

40. What are the two levels of security available in GT3?

Transport-level security-based on GSI security mechanism.

Message-level security-implemented at the SOAP message level.

41. What are the treatments to the operation involved in service activation?

Activate utilizing the lazy creation mechanism. Activation on service startup.

42. What are the problems with the operation providers?

Due to the unavailability of multiple inheritances in java, service developers utilize the default interface hierarchy, as provided by the framework.

Some of the behaviors implemented by the aforementioned classes are specific to the GT3 container.

Dynamic configurations of service behaviors are not possible.

43. What are the expression evaluators supported in GT3?

Service Data Name Evaluator.

Service Data Name Set Evaluator.

Service Data Name Delete Evaluator. Service Data XPath Evaluator.

44. What are the two different message-level authentication mechanisms provided by GT3 framework?

GSI Secure Conversation- a secure context is established between the client and the service.

GSI XML Signature- a message is signed with a given set of credentials.

45. What are the three ways available to create and add service data to service

dataset?

Gets the service data wrapper class from the service data set using the QName of the service data element as defined in WSDL.

Create the value for that service data element.

Update the service data set with service data wrapper and the new value.

46. What are the steps involved in creating SDE?

Create a new SDE by calling the create method of the service instance's service data set with a unique name or QName.

Set a value for the SDE. The value of the SDE of type My Service Data type. Set the initial value of My Service Data Type.

Add the SDE to the service data set.

47. What are the most common GT3 security handlers?

Authentication Service
Handler WS security Handler
Security Policy
Handler Authorization
Handler X509sign
Handler
GSS Handler

48. What are the client side security handlers?

X509SignHandler
SecContextHandl
er GSSHandler
WSSecurityClientHandler

49. What are the requirements to be fulfilled for information service in the context of GT3?

A basis for configuration and adaptation in heterogeneous environments. Uniform and flexible access to static and dynamic information.

Scalable and efficient access to data.

Access to multiple information sources. Decentralized maintenance capabilities.

50. Define Peer to Peer computing?

Peer to Peer computing is a relatively new computing discipline in the realm of distributed computing.

P2P system defines collaboration among a larger number of individuals and/or organizations, with a limited set of security requirements and a less

complex resource-sharing topology.

