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ASSIGNMENT for Day 2 (CLOUDNET WORKSHOP)

THEORY

a. **What are the advantages of using cloud computing?**

a) The advantages of using cloud computing are: -

1. **Scalability-Your business can scale up or scale down your operation and storage needs quickly to suit your situation, allowing flexibility as your needs change.**
2. **Reducing costs- Moving to cloud computing may reduce the cost of maintaining and managing your IT Systems.**
3. **Collaboration - By using cloud computing we can easily communicate and share our business without using traditional ways to share.**
4. **Reliability- Using Cloud Hosting, we can always get instantly updated about any changes.**

b. Mention platforms which are used for large scale cloud computing?

b) The platforms used for large scale Cloud Computing are: -

1. **AWS (Amazon Web Service).**
2. **Microsoft Azure.**
3. **Google Cloud Platform.**
4. **Digital Ocean.**

c. Explain different models for deployment in cloud computing?

c) The different models for deployment in cloud computing are: -

1. **Public Cloud: - Public clouds are available to the general public, and data is created and stored on third-party servers.**
2. **Private Cloud: - It is a type of model in which the single company which is using it does not share with others.**
3. **Community Cloud: - The community Cloud model resembles the Private cloud but the difference is that, several organisation with the similar background share the infrastructure and related resources in the community cloud.**
4. **Hybrid Cloud: - As the name suggests that hybrid cloud is the combination of the above three mentioned deployment models, and it used to meet the requirements of a specific type**

d. What is the difference in cloud computing and computing for mobiles?

d) Cloud Computing - is a method of using a network of servers that are placed at remote locations to deliver hosted services over the internet.

Computing for mobiles- computing uses cloud computing to deliver applications to mobile devices. These mobile apps can be deployed remotely using speed and flexibility and development tools.

e. How user can gain from utility computing?

e) Utility computing allows **users to only pay for what they are using. It is a plug-in managed by an organization which decides what type of services has to be deployed from the cloud.**

f. For a transport in cloud how you can secure your data?

Ans- Here are five data privacy protection tips to help you tackle the issue of cloud privacy:
1. Avoid storing sensitive information in the cloud.
2. Read the user agreement to find out how your cloud service storage works.
3. Be serious about passwords.
4. Encrypt.
5. Use an encrypted cloud service.

g. **What are the security aspects provided with cloud?**

g) Security is one of the major aspects which come with any application and service used by the user. Companies or organizations remain much more concerned with the security provided with the cloud. There are many levels of security which has to be provided within cloud environment such as:

• Identity management: it authorizes the application service or hardware component to be used by authorized users.

• Access control: permissions has to be provided to the users so that they can control the access of other users who are entering the in the cloud environment.

• Authorization and authentication: provision should be made to allow the authorized and authenticated people only to access and change the applications and data.

h. **What are system integrators in Cloud Computing?**

h) An SI or Systems Integrator is an individual or a business that creates computing systems by combining software and hardware components taken from multiple vendors for their clients. In cloud computing, a cloud integrator works like an SI. This is a product or a service that helps their client to negotiate the difficulties of cloud migration. It is also called Integration as a Service. Most organizations of today employ a hybrid cloud model which could be complicated to navigate. This is where cloud computing system integrators would help. They also offer easy and quick deployment and self-provisioning, without needing any coding from the user.

i. List out different layers which define cloud architecture?

i) Cloud computing working on the virtualization and dynamic allocation of resources.
Architecturally, Cloud can be divided as 4 layers:
Physical layer: Contains physical servers, network etc
Infrastructure layer: Virtualized servers, networking and storage resources. Infrastructure as a Service is the hosted delivery of infrastructure services such as servers, networks and other hardware to consumers. IaaS provides consumers access to on-demand, scalable storage and compute power.
Platform layer: which contains components or services like Windows Azure, Google App Engine. A platform for development, deployment. Platform as a Service offers a complete platform and the tools to develop and deploy applications on the platform.
Application Layer: This is the layer end users interact with. This contains software which are delivered as service like Gmail, Salesforce, dropbox etc. Software as a Service is the hosted delivery of Software that consumers can access over the internet. Two features of a SaaS application are scalability and configurability. SaaS applications should be able to quickly scale with demand. In mature SaaS applications, the customer should be able to customize their instance of the software using meta-data.

j)Virtualization is the foundation of cloud computing. It enables creation of an intelligent layer of abstraction to hide the intricacies of the software or hardware that is underlying beneath the layer.
We can list a plethora of platforms such as VMWare that are associated with a technology to provision a private cloud and also to act as a union between private cloud and external cloud. We need to appreciate three vital attributes for creating a private cloud such as management of service level policies, cloud operating system and virtualization. Virtualization separates the back-end level and user level for creation of a seamless environment between the two.
Virtualization is used for deployment of models of cloud hosting services including Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) among others.

j. What is the requirement of virtualization platform in implementing cloud?

j) Following are the three Important Attributes of Virtualization that Signify its Role in Cloud Computing:

- Partitioning can be used for supporting a multitude of operating systems and applications within a single physical system such as a web server.
- Isolation imparts protection to virtual machines from any events such as virus attacks or crashes in other machines. Additionally, encapsulation is also used for protection of every application to prevent it from interfering with other applications.
- Virtual machines can use encapsulation for being represented as well as stored as single files in order to facilitate their identification and presentation to other applications

Different operating systems such as Windows or Linux can be enabled for sharing same hardware with help of virtualization. It is possible to shift operating systems between different hardware even while different applications are running with help of virtualization.
Cloud computing leverages storage virtualization for creating a layer of abstraction between applications and storage platforms that are being used by these applications for storage of the data. Storage virtualization enables providers to offer storage as a commodity.
Companies can leverage virtualization layer for choosing the platform they desire without concerns of getting locked in with a particular provider.
One of the important reasons that make virtualization as a key component of cloud computing is it facilitates delivery of cloud based services. It provisions a platform that optimizes intricate resources of IT in a manner that is scalable and enables cost effectiveness as well.
Virtualization can be used for almost any component including applications, operating systems, hardware, networks, memory, and storage to name a few. Virtualization is important for cloud computing because of its ability of decoupling hardware from software.