CLOUD MODELS

MODULE 10

Cloud Models

- Cloud delivery models can be briefly classified into these types:
  - Public:
    - In a public cloud, the service provider makes resources, such as applications, storage, computation and backup available to general public over the internet.
    - Public cloud services may be free or offered on a pay-per-usage model.
    - Also known as a shared cloud, and is owned and maintained by cloud provider.
  - Private:
    - This is infrastructure operated solely for a single organization, whether managed internally or by a third-party.
    - Also called as internal or enterprise cloud
    - A private cloud is owned and operated by user organization.

- Community Cloud:
  - Community Cloud is a public cloud used by trusted organizations or group of sibling companies.
  - It shares infrastructure between several organizations from a specific community with common concerns (security, compliance, jurisdiction).
  - Can be managed internally or by a third party.
- Hybrid Cloud
  - Hybrid Cloud can also be referred as a Private Cloud within Public Cloud.
  - It is a composition of two or more clouds (public, private and community) that remain unique entities and are bound together, offering benefits of multiple models.
  - Hybrid cloud is used when a certain organization is not willing to put its data on Public Cloud but wants to use benefits of Cloud data storage.
  - It is owned and maintained by Cloud Provider.

Benefits of Cloud Computing

- Reduced Cost – saves organization money.
- Increased Storage – more data on private systems.
- Highly Automated – no worry for updating software.
- Flexibility – usage based access
- More Mobility – information can be accessed anywhere.
- Allows IT to Shift Focus – concentration on innovation not hardware.
- Scalability – easily scalable approach
- Automatic Updates – softwares automatically updated.
- Remote Access – access from remote location.
- Disaster Relief – safety from natural disaster.
- Ease of Implementation – easy to implement
- Skilled Vendors – cloud vendors are highly skilled. Eg. Amazon, Google
- Response Time – better than standard server and hardware.
- Even playing field for small firms – smaller or bigger organizations, all use same cloud.

Shared Private Cloud

- This is shared compute capacity with variable usage based pricing to business units that are based on service offerings, accounts data centres and it requires an internal profit centre to take over or buy infrastructure made available through account consolidations.
- A Virtual **Private Cloud** (VPC) is an on demand configurable pool of **shared** computing resources allocated within a public **cloud** environment, providing a certain level of isolation between the different organizations (denoted as users hereafter) using the resources.

Dedicated Private Cloud

- Dedicated private cloud has IT Service Catalogue with dynamic provisioning, it depends on Standardized architectural assets that can be broadly deployed into new and existing accounts and is a lower cost model.
- A dedicated private cloud is your cloud, but it is operated and maintained by an off-site third-party provider. The provider supplies all of the compute resources, carved out from their data centers so those resources are dedicated exclusively for your use but segmented from multi-tenant portions of their environment.

Dynamic Private Cloud

- Dynamic private cloud allows client workloads to dynamically migrate to and from the compute cloud as needed.
- Dynamic cloud allows business to be more agile in how it responds to changes in the market. It allows a business to quickly develop through composing new applications using prebuilt components.
- Dynamic cloud is the ability for software and services to grow with your business. Sometimes that means automatically adjusting itself to adjust to changes in demand or workloads.

What is Software as a Service? (SaaS)

- SaaS is a software delivery methodology that provides licensed multi-tenant access to software and its functions remotely as a Web-based service.
  - Usually billed based on usage
  - Usually multi tenant environment
  - Highly scalable architecture
  - Can be accessed on-demand via a thin client like web browser.

Benefits of SaaS

- Faster time to market business apps
- Any time any where access
- Elimination of licensing risk
- Elimination of version compatibility
- Reduces hardware foot print
- Lower operating and maintenance cost
- Consumption based expenditure

SaaS Examples

salesforce.com
Success On Demand.

NETSUITE
ONE SYSTEM. NO LIMITS.

postini

facebook

Platform as a Service (PaaS)

- PaaS provides all of the facilities required to support the complete life cycle of building and delivering web applications and services entirely from the Internet.
  - Typically applications must be developed with a particular platform in mind
  - Multi tenant environments
  - Highly scalable multi-tier architecture

Benefits of PaaS

- Enables developer to focus on the application code and the business logic
- Natural fit for development, testing and production environments
- Instant provisioning – takes few minutes
- Inherent dynamic scalability
- Eliminates the complexities of hardware and software dependencies

PaaS Examples

Infrastructure as a Service (IaaS)

- IaaS is the delivery of technology infrastructure (servers, storage and networks) as an on demand scalable service
  - Usually billed based on usage
  - Usually multi tenant virtualized environment

Benefits of IaaS

- Effective infrastructure utilization
- Highly automated resulting in faster provisioning of resources
- Can quickly and easily meet the changing dynamic demand for consumption
- Reduces cost due to
  - Less hardware resources
  - Less real estate space on-premise
  - Less power consumption
  - Less manual work and hence lesser administration

IaaS Examples

Probable Questions

- Differentiate between Public and Private Cloud.
- Discuss different types of clouds.
- How can you differentiate between the services in SOA and SaaS.
- Discuss different cloud models with their relative benefits and challenges.
- Compare SaaS, PaaS and IaaS.