Cloud Computing

Business and IT perspective

- Business want to provide same level of experience to employees, end users, partners and customers.
- This delivers IT services via the internet.
- It provisions standard businesses and computing services
- Services can be processing power, storage, DBs and even networking elements.
- Resources are provisioned similar to electric power grids.

Cloud and Virtualization

- Virtualization, standardization, and automated
- Environment enables self service with ability to quickly get started.
- Less cost and improved service

Measurable business results

- Server storage
  - Storage, network and apps are pooled and virtualized
  - Implementation independent
  - Elastic scaling
    - Scale up and down by large factor on demand
- Automation using:
  - Self service portals
  - Automated provisioning on demand without any resource setup or configurations management

- Standardization through
  - Metered basis
  - Utility pricing
  - Variable payments
  - Pay-by-consumption

Cloud services requirements

- Help deploy dynamic infrastructure
- Must provide visibility, control and automation across services
- Must help companies plan their infrastructure
- Assist in cloud strategy, assessment, design and development of cloud roadmap
- Asses return on investment
- Help identify right mix of public, private and hybrid cloud models

Cloud and dynamic infrastructure

- Provide IT services such as deploying new apps, services or computing resources rapidly without reengineering
- Dynamic infrastructure is based on architecture that combines the following initiatives:
- ***Service management*** to provide visibility, control and automation to deliver value services
- **Asset *management :*** maximise the value of critical business assets over the lifecycle
- Reduce operating costs and utilize resources fully
- Information infrastructure help achieve info compliance ,availability , and security objectives
- Security :risk management

Cloud computing characteristics

- Uses commodity based hardware (affordable and easy to obtain)
- Commodity based s/w system (ability to move from one provider to another with no effect)
- Pay as you go model
- No lock in
- No up front commitment
- elasticity

Barriers to adoption of cloud

- Data security
  - Shared n/w
  - Handled by external entity (so high risk)
  - Do not know where is data physically located
  - Multitenant platform(shared by many so less secure)
  - Limited capability to monitors access to cloud apps

Barriers…

- Governance and regulatory compliance
  - No appropriate data governance model for large enterprises
  - Quality of service (for availability, reliability, and performance) is a major concern.
  - No well defined SLA's that meet corporate standards
  - For ex. Recovery times may be stated as ASAP rather than no. of hrs
  - Risk of poor service is higher for complex services
  - Overall performance depends on factors outside control of both service provider and customer (ex. n/w connections)

Barriers…

- Integration and interoperability
  - Identifying and migrating appropriate applications is complicated because of interdependencies
  - lack of standard interfaces for integrating legacy systems
  - Gets worse if services are from multiple vendors
  - How disparate applications on multiple platforms, deployed in geographically dispersed locations, can interact flawlessly to provide expected levels of service?

Cloud adaption

The types of apps suitable for cloud are:

- Low priority services like business intelligence against very large DBs
- Web applications that require two or more data sources and,
- Services with low availability requirements
- Short life spans like enterprise marketing campaigns needing quick delivery of promotions that can also be quickly removed
- For packaged services like email
- Social networking sites
- Applications based on data analytics
- For modular and loosely coupled
- Apps that scale horizontally on small servers by adding more servers rather than increasing the computational capacity
- Apps that need different types of infrastructures through the day or month, seasonal demand, quarter end or holiday shopping season

Not suitable for:

- Mission critical systems
- TP systems that depend on sensitive data
- For systems that run always with steady demand and apps that require huge memory or in memory caches
- For apps that require high performance file system I/O that needs high bandwidth inter server communication
- For apps that scale vertically on single servers by increasing the servers computational capacity rather than adding more servers