Cloud Service Models

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Can you name some cloud services which you use?

Cloud Services

- There are three types of services offered by cloud service providers
  - Software as a Service (SaaS)
  - Platform as a Service (PaaS)
  - Infrastructure as a Service (IaaS)

Software as a Service

- Provides access to applications running on a cloud infrastructure, including network, servers, OS, storage or individual applications
- Accessible from client devices via a browser or program interface
- Customer does not manage or control underlying infrastructure or applications – limited customization
- Eg: Google Documents, Sharepoint etc.

SaaS Features

- One to Many
- Web Access
- Centralized Management
- Multi-device support
- Scalability
- Availability
- API integration

When to use SaaS?

- You should use SaaS for:
  - On demand software
  - Software for startups
  - Software compatibility
  - Varying loads
- SaaS might not be a good option if:
  - Unreliable network connection
  - Confidential data

SaaS - Pros and Cons

Pros

- No installation
- Cost savings
- Less maintenance
- Ease of Access
- Dynamic scalability
- Disaster Recovery
- Multitenancy

Cons

- Security
- Connectivity
- Loss of Control

Platform as a Service

- Provides ability to create and/or deploy applications on cloud infrastructure
  - Languages, libraries, services and tools are provided by the vendor
- Customer does not manage or control underlying infrastructure but can customize the applications
- Eg: Google App Engine, Microsoft Azure etc.

Features of PaaS

- All-in-one (dev+test+deploy+host+maintain)
- Web Access
- Offline access
- Built in Scalability
- Collaborative
- Diverse tools available

When to use PaaS?

- PaaS is a good option if:
  - Collaborative development
  - Automated testing and deployment
  - Less time to market
- PaaS might not be a good option if:
  - Frequent migration / Vendor Lock-In
  - Infrastructure customization
  - Platform flexibility
  - On-prem integration

PaaS – Pros and Cons

Pros

- Quick development and deployment
- Reduces ownership cost
- Agile software development
- Collaboration
- Ease of use
- Less maintenance
- Scalability

Cons

- Vendor Lock-In
- Security
- Less flexibility
- Depends on network connection

Infrastructure as a Service

- Provides ability to provision processing, storage, networks, and other resources
  - Deploy and run arbitrary software, OS and applications
- Customer does not manage or control underlying infrastructure but can control the OS, storage and deployed applications
- Eg: Amazon Web Services etc.

Features of IaaS

- Web Access to resources
- Centralized management
- Elasticity and dynamic scaling
- Shared infrastructure
- Preconfigured VMs
- Metered Services

IaaS – Pros and Cons

Pros

- Pay as you use
- Reduced operational cost
- Elastic resources
- Better resource utilization
- Green IT

Cons

- Security
- Interoperability / Vendor Lock-In
- Network performance

Comparison of Cloud Services

Traditional Setup	Infrastructure as a Service (IaaS)	Platform as a Service (PaaS)	Software as a Service (SaaS)
Data	Data	Data	Data
Applications	Applications	Applications	Applications
Runtime Environment	Runtime Environment	Runtime Environment	Runtime Environment
Virtualization	Virtualization	Virtualization	Virtualization
Servers	Servers	Servers	Servers
Storage	Storage	Storage	Storage
Network	Network	Network	Network

Under user's control Under common control Under provider's control

Future of Cloud - XaaS

- Network as a Service (NaaS)
- Desktop as a Service (DEaaS)
- Storage as a Service (STaaS)
- DB as a Service (DBaaS)
- Data as a Service (DaaS)
- Security as a Service (SECaaS)
- Identity as a Service (IDaaS)