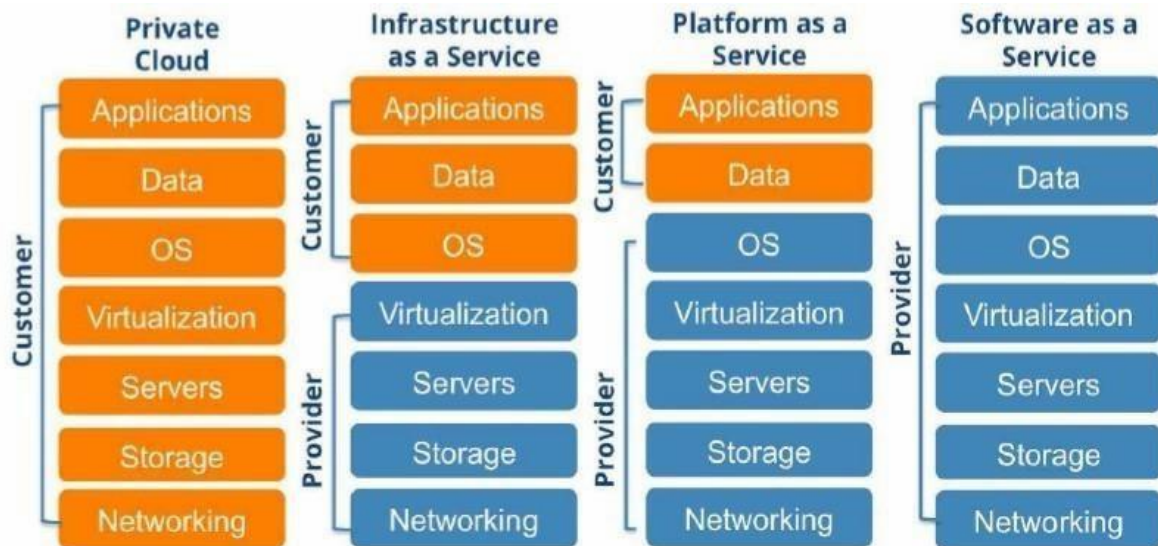## 1.4. Cloud Service Models

- Cloud Software as a Service (SaaS)
- Cloud Platform as a Service (PaaS)
- Cloud Infrastructure as a Service (IaaS)



**Cloud Service Model Architecture**

**Software as a Service (SaaS)**

- SaaS is a licensed software offering on the cloud and pay per use
- SaaS is a software delivery methodology that provides licensed multi-tenant access to software and its functions remotely as a Web-based service.
- Customers do not invest on software application programs
- The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure.
- The applications are accessible from various client devices through a thin client interface such as a web browser (e.g., web-based email).
- The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, data or even individual application capabilities, with the possible exception of limited user specific application configuration settings.

**Characteristics of SaaS**

- Managed from a central location
- Hosted on a remote server

- Accessible over the internet
- Users are not responsible for hardware and software updates. Updates are applied automatically.
- The services are purchased on the pay-as-per-use basis

### SaaS providers

- Google Apps, Gmail ,Docs, Talk ,etc
- Microsoft's Hotmail, Share point
- Sales Force
- Yahoo,facebook

### Platform as a Service (PaaS)

- PaaS provides all of the facilities required to support the complete life cycle of building, delivering and deploying web applications and services entirely from the Internet.
- Typically, applications must be developed with a particular platform in mind
  - Multi-tenant environments
- The capability provided to the consumer is to deploy onto the cloud infrastructure consumer created or acquired applications created using programming languages and tools supported by the provider.
- The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly application hosting environment configurations.

### Characteristics of PaaS

- Accessible to various users via the same development application.
- Integrates with web services and databases.
- Builds on virtualization technology, so resources can easily be scaled up or down asper the organization's need.
- Support multiple languages and frame works.
- Provides an ability to Auto-scale.

### PaaS providers

- GoogleApp Engine-Python, Java, Eclipse
- Microsoft Azure-.Net, VisualStudio
- Sales Force-Apex , Webwizard
- TIBCO,
- VMware,
- Zoho

**Infrastructure as a Service (IaaS)**

- IaaS is the delivery of technology infrastructure (mostly hardware) as a non-demand, scalable service
    - Usually billed based on usage
    - Usually, multi-tenant virtualized environment
    - Can be coupled with Managed Services for OS and application support
    - User can choose his OS, storage, deployed app, networking components
- The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources.
- Consumer is able to deploy and run arbitrary software, which may include operating systems and applications.
- The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, deployed applications, and possibly limited control of select networking components (e.g., host firewalls).

**Characteristics of IaaS**

- Resources are available as a service
- Services are highly scalable
- Dynamic and flexible
- GUI and API-based access
- Automated administrative tasks

**IaaS providers**

- Amazon Elastic Compute Cloud (EC2)- Each instance provides 1-20processors, up to 16 GB RAM, 1.69TB storage
- Rack Space Hosting- Each instance provides 4 core CPU, upto8 GB RAM, 480 GB storage.
- Joyent Cloud-Each instance provides 8 CPUs, up to32GBRAM,48GB storage
- Go Grid-Each instance provides1-6 processors, upto15GBRAM,1.69TB storage.