Cloud overview and AWS Fundamentals -1

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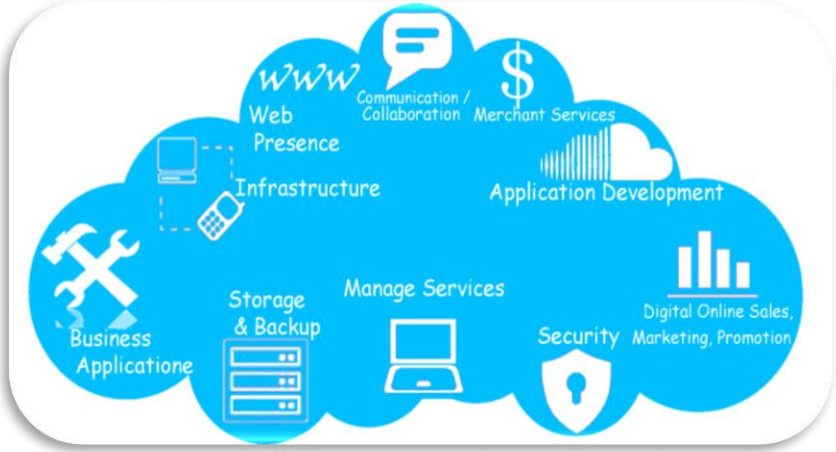
Cloud Computing?

The Cloud in cloud computing refers to virtual services, applications, storage and infrastructure available over the Internet

Cloud computing refers to on demand delivery of IT resources and applications via the internet with pay as you go pricing



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Features of Cloud – as per NIST

- **On-demand self-service** : A consumer can unilaterally provision computing capabilities
- **Broad network access:** Capabilities are available over the network across the world
- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model
- **Rapid elasticity:** Capabilities can be elastically provisioned, released and automatically scale up and down the services
- **Measured service:** Resource usage can be monitored, controlled, and reported, providing transparency for both the provider and consumer of the utilized service.

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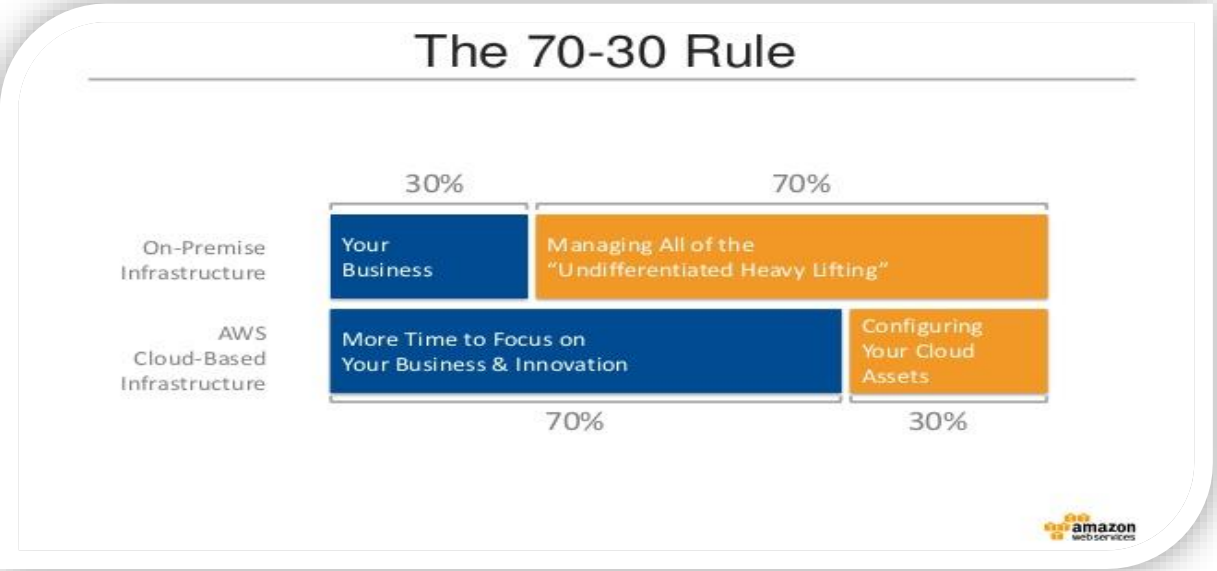
On Premise Vs Cloud (AWS)?

This graph shows the percentage of time spent on meeting the business requirements Vs arranging infrastructure to meet the requirements



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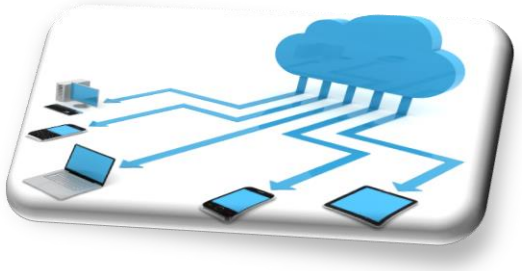
Why Cloud ?



- **Increased Agility :** Entrepreneurs can focus on core strengths
- **High availability :** Services are durable and operates continuously without failure for a long time and launch a replica within 10-30 sec automatically
- **Ease accessibility :** can access your data from all your devices
- **Convenience :** Cloud provider manages most of services, you don’t own risks
- **Costs/ Affordability:** low prices of cloud services come in handy. Scale up/down the services
- **Ample storage space :** storage space in the cloud is elastic
- **Automatic software updates :** Cloud provider takes care of regular software updates – including security updates

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Cloud Services

- **Infrastructure : IaaS :**

Delivers a computing infrastructure where you can save costs on purchasing servers, software, data center space etc (e.g: VM's, file based storage, firewalls, IP addresses, Virtual LAN)

- **Application : SaaS:**

Delivers the software as a service by eliminating the need to install and run the application, simplifies maintenance and support (e.g: Email, Cisco webex, Games, Virtual Desktop)

- **Platform : PaaS**

Delivers a computing platform, facilitates deployment of applications without the cost and complexity of buying and managing the underlying hardware and software layers (e.g., OS, Prog lang. execution, database, webserver ,Provisioning, security, monitoring)

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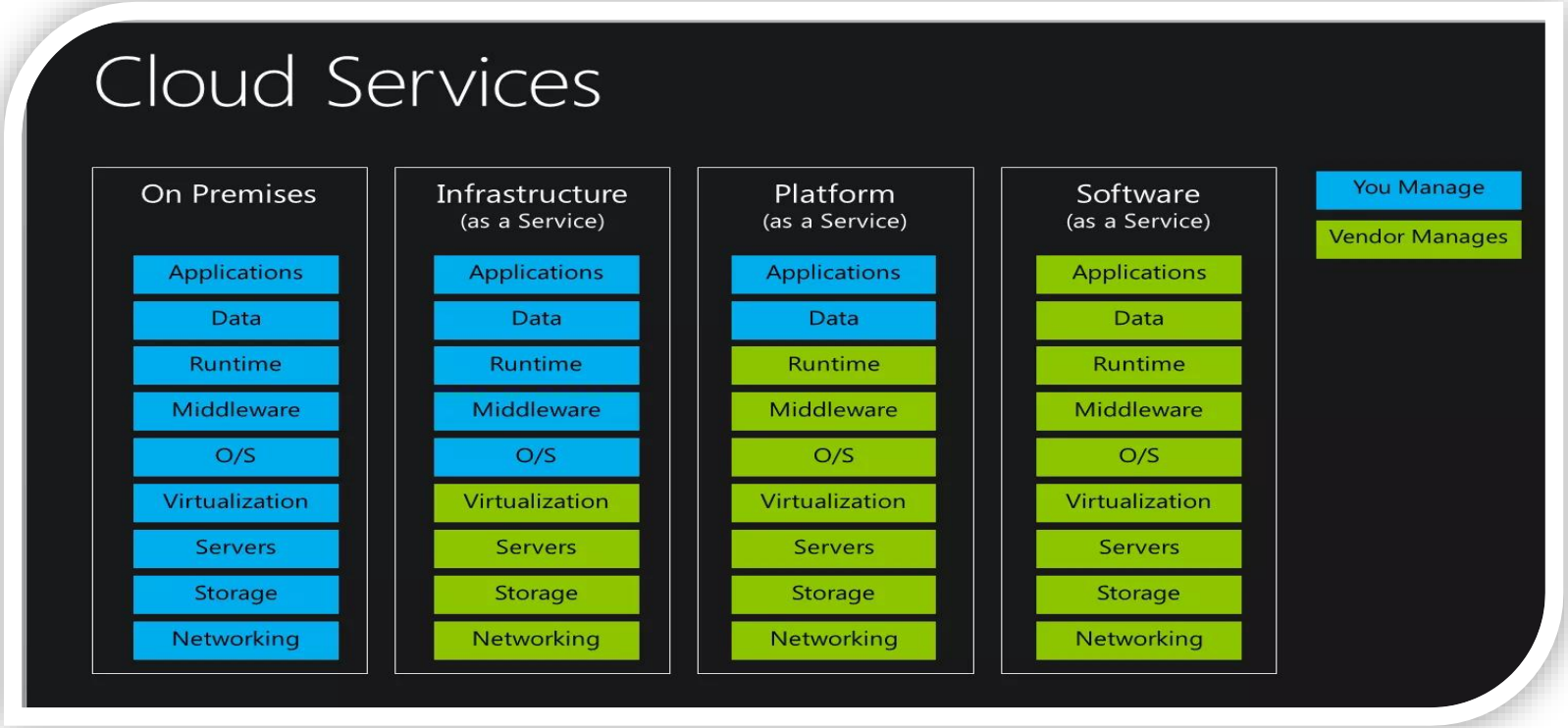
Cloud services(Contd…)



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Cloud Models

- **Private Cloud :**

A private cloud resides inside the organization and must be behind a firewall, so only the organization has access to it and can manage it

- **Public cloud :**

Public cloud services are exposed to the public and can be used by anyone. Virtualization is typically used to build the cloud services

- **Hybrid Cloud :**

Hybrid cloud services can be distributed among public and private clouds

- **Community Cloud :**

Community cloud shares infrastructure between several organizations from a specific community with common concerns (security, compliance, jurisdiction, etc.)

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Cloud Models(Contd…)

Private Cloud	Public Cloud	Hybrid Cloud
Owner : Enterprise || Host : Enterprise (Third Party)	Owner/Host : service provider	Owner : Enterprise || Host : Enterprise (Third Party)
Single Tenancy	Multi-tenancy	Single & Multi-tenancy
Private network (VPN, Intranet)	Public network (Internet)	Public network (Internet) Private network (VPN, Intranet)
Own by organization; own admin and risks	CSP manages the services	Own private by organization Own public by CSP
Buy Hardware Components	CSP provides all the hardware and ensures it's working at all times.	Organization must provides hardware for the private cloud Hardware of CSP is used for public cloud services.
Expensive compared to Public or other clouds	Less compared to Private cloud as CSP provides hardware and setup	Bare as per the needs for private and public cloud

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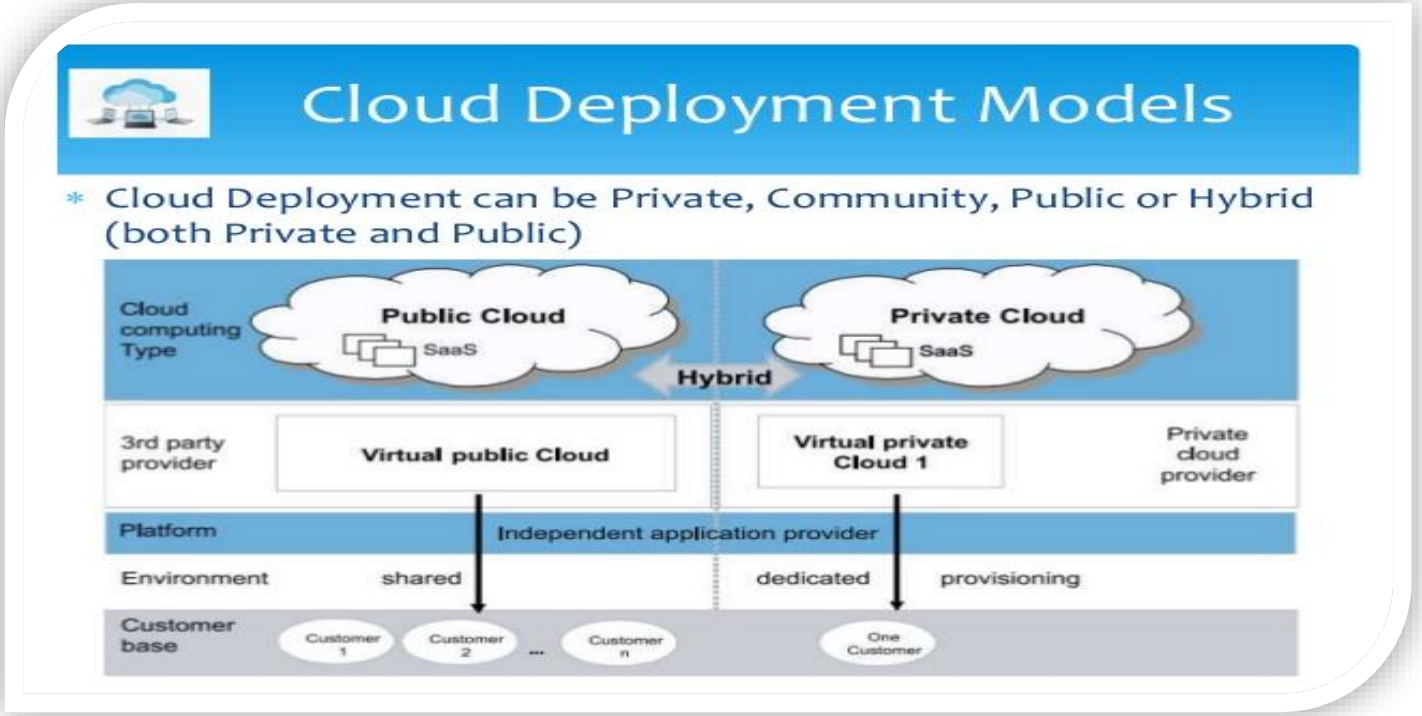
Cloud Models(Contd…)



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What is AWS?

- Amazon Web Services is one of the cloud service provider
- provides bundles of resources and services over the internet like compute power, database, storage, content and delivery services, network services, deployment and management services etc. with pay as you go terms
- to help businesses scale and grow

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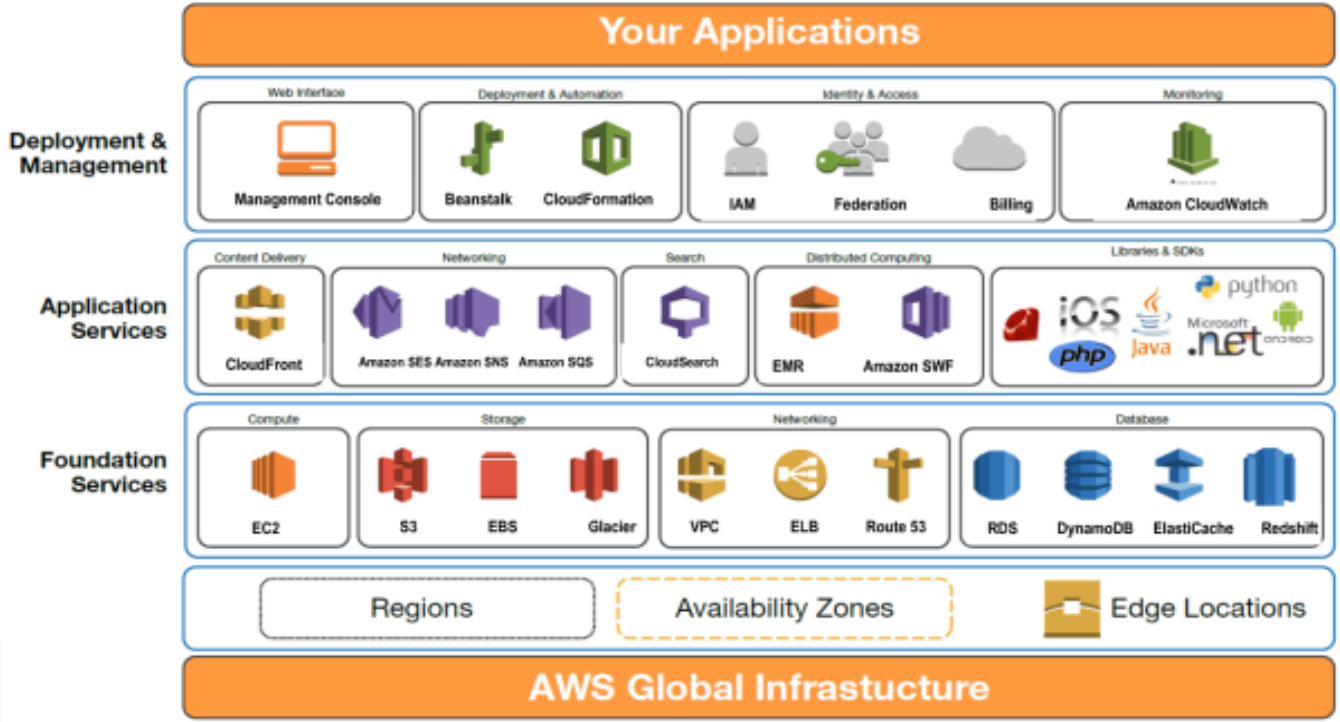
AWS Managed services



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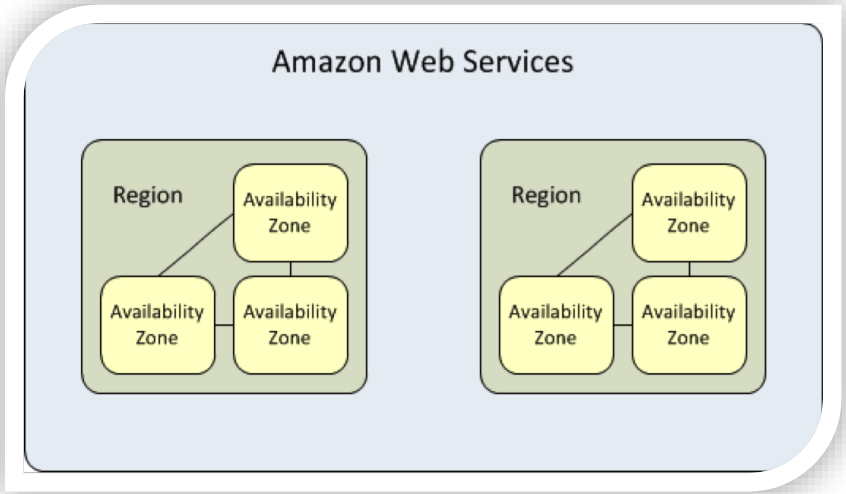
AWS Geographical area

- **Region :** is a logical data center and is a combination of min two AZ or two data centers
- **Availability Zone :** is a physical data center
- **Edge location:** is a Cache location but not data center



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AWS managed services

- Compute service
- Storage service
- Database service
- content delivery service
- Network service
- Application service
- Deploy and management service

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