

Instructor Notes:

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Instructor Notes:

This lesson is to give an Introduction on Java Server Pages

Lesson Objectives



In this lesson, you will learn:

- What is and Why Cloud?
- Why Cloud Computing
- Key characteristics of Cloud
- Cloud Computing Architecture
- Cloud Deployment and Service Model Selection criteria
- Cloud APIs
- Cloud benefits and Challenges
- Different Cloud implementer
- Latest trend

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What is and Why Cloud
Why Cloud Computing
Key characteristics of Cloud
Cloud Computing Architecture
Cloud Model Selection criteria
Different types of Cloud(Public , Private , Hybrid)
Cloud APIs
Cloud benefits
Different Cloud implementer
Latest trend

Instructor Notes:

1.1: What and why Cloud



Why Cloud

Why Cloud?

"Our journey to the cloud at Netflix began in August of 2008, when we experienced a major database corruption and for three days could not ship DVDs to our members.

That is when we realized that we had to move away from **vertically scaled single points of failure**, like relational databases in our datacenter, towards **highly reliable, horizontally scalable, distributed systems in the cloud.**"

Yury Isailevsky
VP Cloud, Netflix



Instructor Notes:

Explain role of JSP in web applications and “big picture”

1.1: What and why Cloud



What is Cloud?



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Cloud has a different meaning depends on the role of each person

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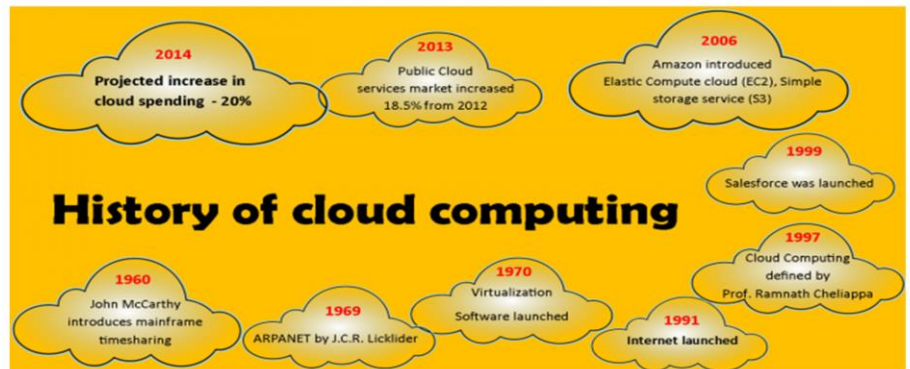
Explain role of JSP in web applications and “big picture”

1.1: What and why Cloud

History ?

Concept evolved in 1950(IBM) was called RJE(Remote Job entry process)

In 2006 , Amazon provides the first public cloud AWS(Amazon Web Service)



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Cloud for Programmers Views :--

It is automated - I don't need to depend upon System engineer anymore.

It is **fast** - It is faster than any thing

It is reliable - It is high availability in itself without changing my code.

It is less cost than any other solution . Buying Server only , if you have more money.

(If one has Money , pay for Cloud and Use it .)

Instructor Notes:

Explain role of JSP in web applications and “big picture”

1.1: What and why Cloud

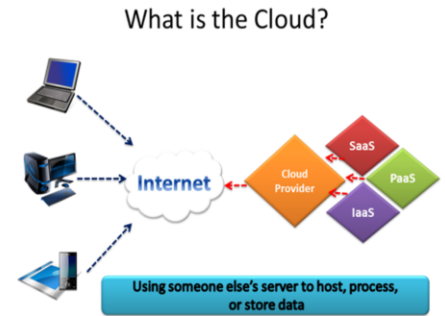
What is Cloud ?

The term Cloud refers to a Network or Internet.
Cloud is something which present in remote location.
Cloud can provide services over network.

- Private network
- Public network

Application all runs in Cloud

- email ,
- web conferencing
- CRM



Instructor Notes:

1.1: What and why Cloud Traditional Data Center



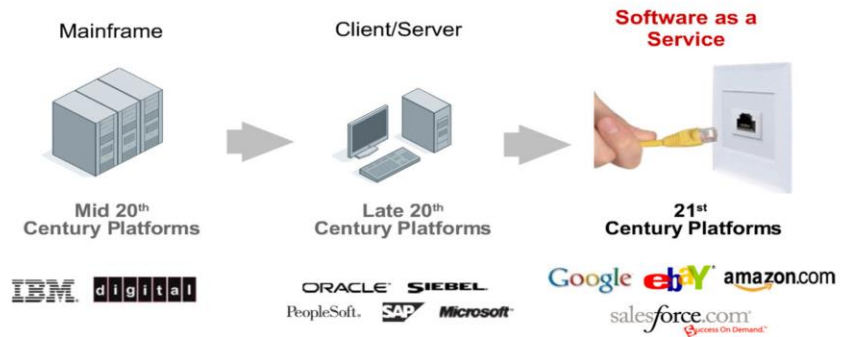
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Instructor Notes:

1.1: What and why Cloud IT Platform Evolution over the last 40 years



- Now moving towards Plug-and-Play software and IT services
- This is where Cloud is an enabler

Instructor Notes:

2.1 Cloud technology
Enterprise Servers vs Cloud Servers

TRADITIONAL PC

All data is stored on an internal hard drive.

Equipment failure or theft usually means the loss of all or part of the data.

VS

CLOUD COMPUTER

All data is stored in the cloud, or an external server.

Data is stored safely in the cloud; equipment failure or theft does not result in loss of data.

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Instructor Notes:

2.1 Cloud technology

Enterprise Servers vs Cloud Servers

TRADITIONAL PC VS **CLOUD COMPUTER**

Each additional program requires installation and often expanded IT knowledge.

You are forced to bear the costs of hardware and operating system; you also have to pay for almost any additional application you wish to install.

Efficiency and speed of your computer depends on its parameters and computing power; if your equipment is old and inefficient, some applications may not work properly.

The operating system and software are inextricably linked to a specific device - if you do not have access to the device, you cannot connect to its resources.

You only need to install one application, which is a "gateway" to our resources in the cloud, where a set of verified applications is already waiting for you.

One subscription fee gives you access to a computer with an operating system and an application package; performance parameters of the service, such as disk space, may be increased at any time.

Operation of the computer in the cloud is completely independent of parameters and computing power of the equipment you use.

You can access your resources from anywhere, using any device with Internet access.

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Explain role of JSP in web applications and “big picture”

1.1: What and why Cloud

Cloud in Marketer's Eyes ?

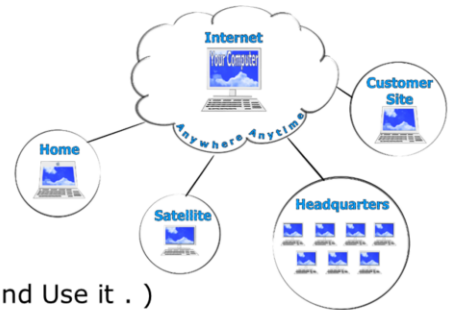
It is in the Internet.

It is easy to use .

It is new .

It is better **than** Non cloud .

(If one has Money , pay for Cloud and Use it .)



Cloud Marketer's Eyes View :-

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Instructor Notes:

Explain role of JSP in web applications and “big picture”

1.1: What and why Cloud



Cloud for Programmers

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Cloud for Programmers Views :--

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Instructor Notes:

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1.1: What and why Cloud

Cloud for System engineers

It is automated.

It is not **fast** .

It is reliable .

It is not flexible.



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Cloud for System engineers :--

It is automated - I don't need to do hard work anymore.

It is not **fast** - Speed comes with Cost

It is reliable - I am free , I can say , I can sleep along night

It is not flexible – One can't configure or tune it.

Instructor Notes:

This lesson is to give an Introduction on Java Server Pages

1.1: What and why Cloud Cloud for Manager



Cloud is Cheap and few said Cloud is costly

It is Flexible .

It is reliable / unreliable .

Business can be competitive with Cloud

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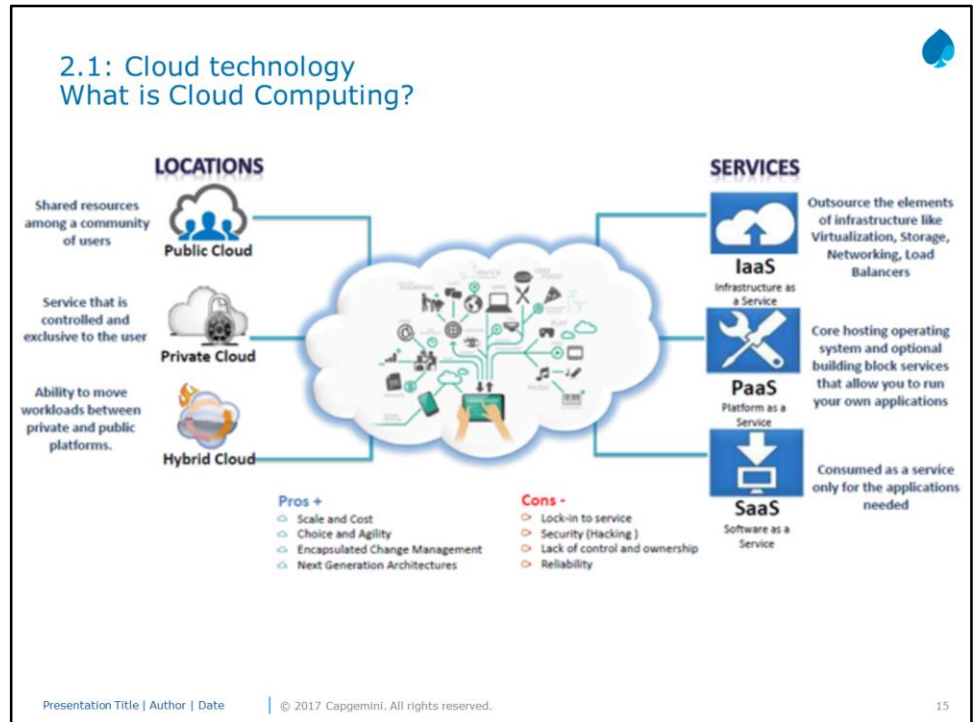
Cloud for Manager :--

Cloud is Cheap and few said Cloud is costly - Manager doesn't have to hire System engineer

It is Flexible .- one can buy anything in 1 minute

It is reliable / unreliable – What will be happened if Cloud company bankrupt

Business can be competitive with Cloud

Instructor Notes:

In simple terms it means the customer is charged based on the amount of computing service they use

Distributed computing on Internet or delivery of Computing service over the Internet.

Instead of running an e-mail program on your computer, you log in to a Web e-mail account remotely.

The software and storage for your account doesn't exist on your computer -- it's on the service's computer Cloud.

Instructor Notes:

1.2: Cloud computing

What is Cloud Computing?



The National Institute of Standards and Technology in the U.S. has formalized the definition of Cloud Computing:

Cloud Computing is a pay-per-use model for enabling available, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

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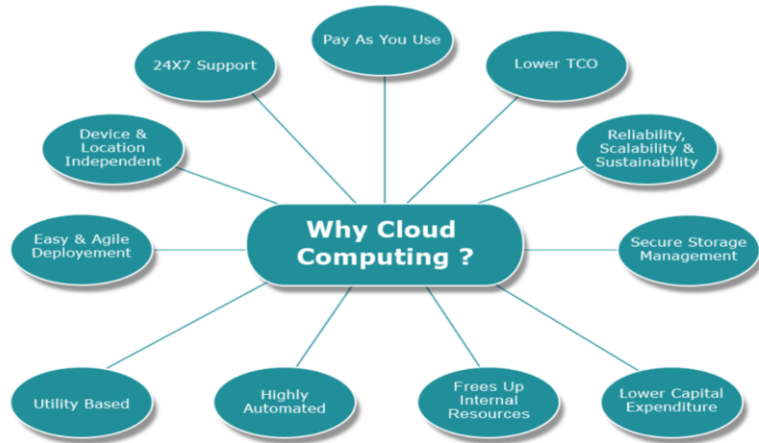
Instructor Notes:

Explain role of JSP
in web applications
and “big picture”

2.1: Cloud technology

Why Cloud Computing?

Cloud computing is a style of Computing in which scalable and elastic IT-enabled capabilities are delivered as a Service using Internet technology .

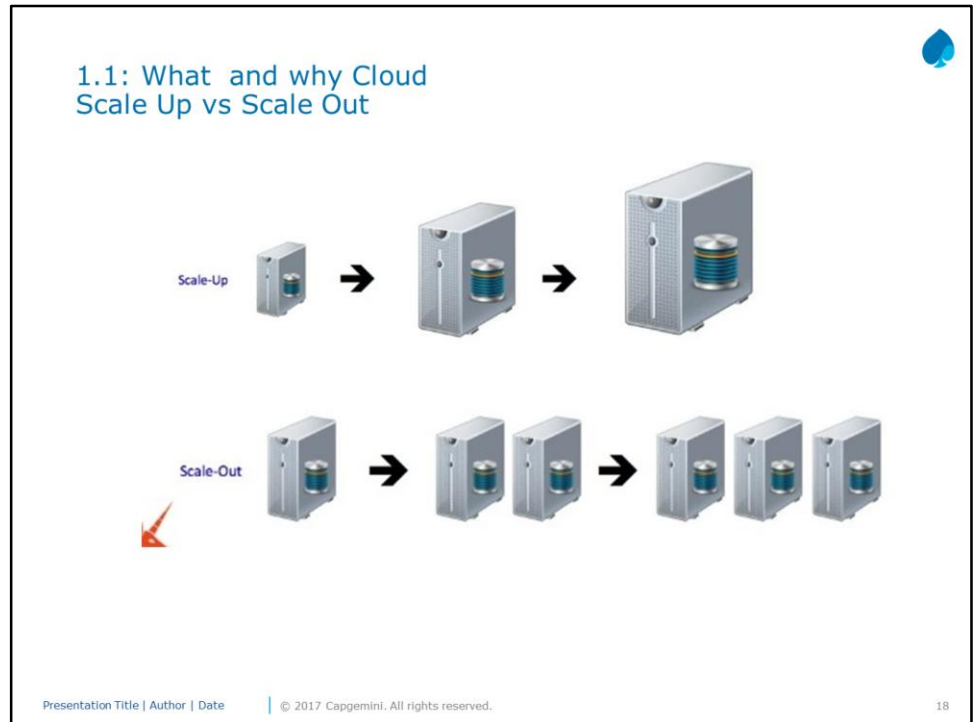


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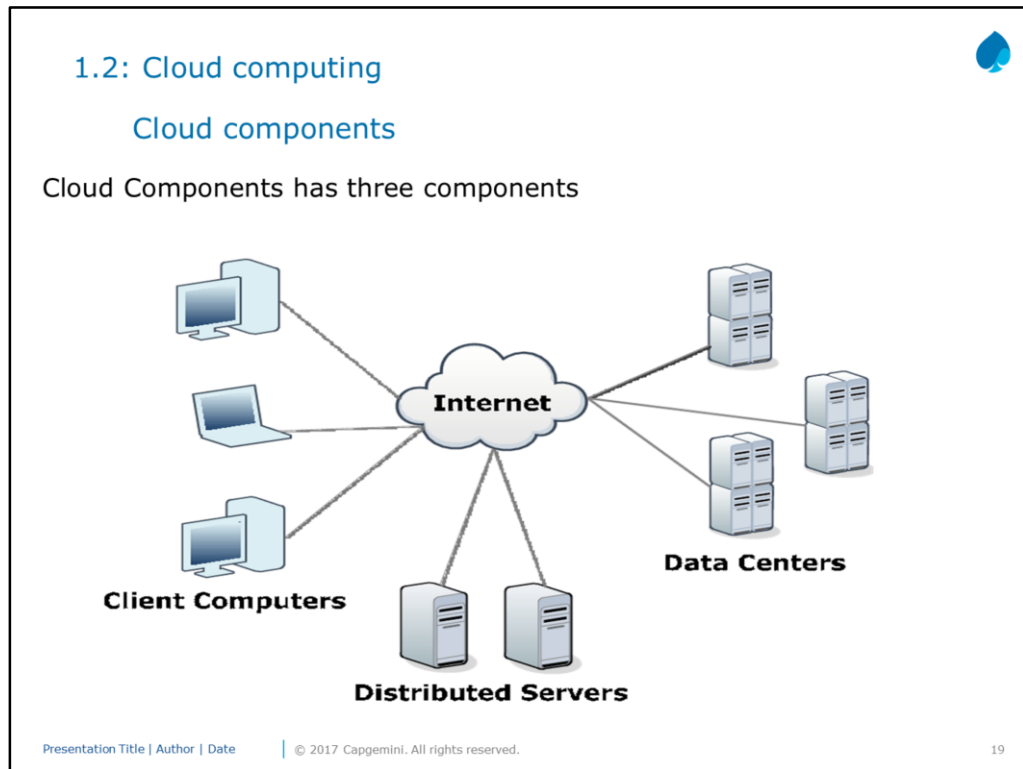
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Cloud computing is a style of Computing in which scalable and elastic IT-enabled capabilities are delivered as a Service using Internet technology

Instructor Notes:

Instructor Notes:

Explain role of JSP in web applications and “big picture”



Client Computers : -- Client are the devices used to interact with cloud . i.,e. Mobile , Desktop machine

Distributed Servers :--- Servers are available in different geographically places but act as they are present in very close by.

Datacenters : --- It is a collection of Servers , where the application is placed and is accessed via Internet

Instructor Notes:

1.3: Key Characteristics

Key Characteristics of Cloud & some definitions

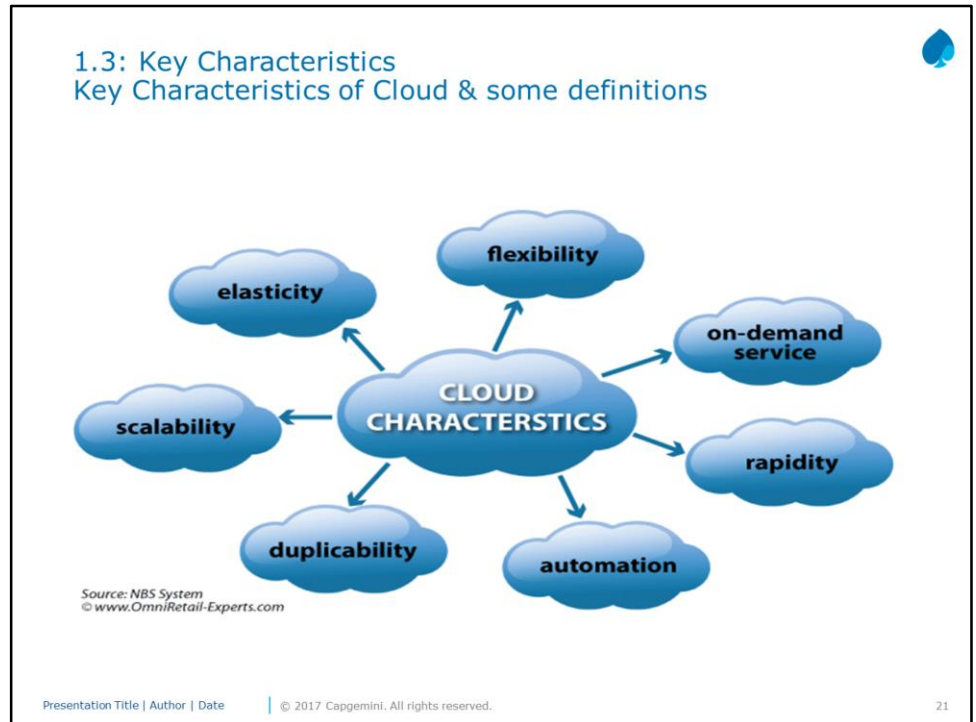


Cost	Agility	Device Location Independence
Multi-Tenancy	Reliability	Scalability
Security	Elasticity	Virtualization

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- Agility – Speed of provisioning and delivering environments and projects
- Elasticity - The ability to add or reduce infrastructure elements within the ecosystem as per actual demand. No capacity planning

Instructor Notes:

Scalability – The ability to add or reduce infrastructure elements within the ecosystem as per actual demand. No capacity planning

Virtualization - Virtualization technology allows cloud providers to convert one server into many virtual machines, thereby eliminating client/server computing with single-purpose systems, maximizing hardware capacity

Multi-Tenancy – Resources are shared across multiple clients and not dedicated infrastructure. This reduces costs and makes use of best practices in data isolation and security.

Instructor Notes:

Explain role of JSP
in web applications
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1.4: Cloud computing Architecture

Cloud Computing Architecture



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Instructor Notes:

1.5: Cloud Deployment Model Selection criteria

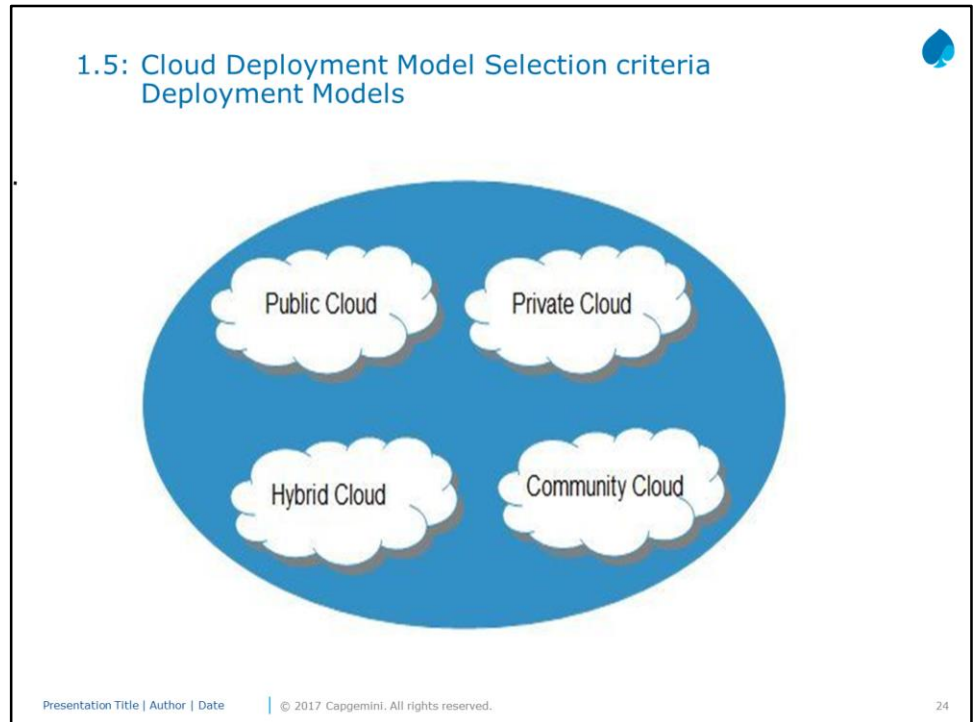
Basic Concepts of cloud computing



There are certain services and models working behind the scene making the cloud computing feasible and accessible to end users .

The Working models of Cloud computing:

- Deployment Models
- Service Models

Instructor Notes:**PUBLIC CLOUD : ---**

- The Public Cloud allows systems and services to be easily accessible to the general public.
- Public cloud may be less secure because of its openness, e.g., e-mail.

PRIVATE CLOUD : --

- The Private Cloud allows systems and services to be accessible within an organization.
- It offers increased security because of its private nature.

COMMUNITY CLOUD :---

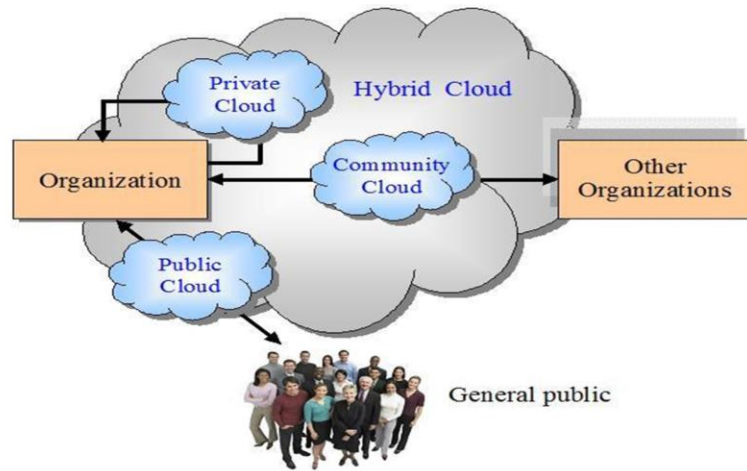
- The Community Cloud allows systems and services to be accessible by group of organizations.

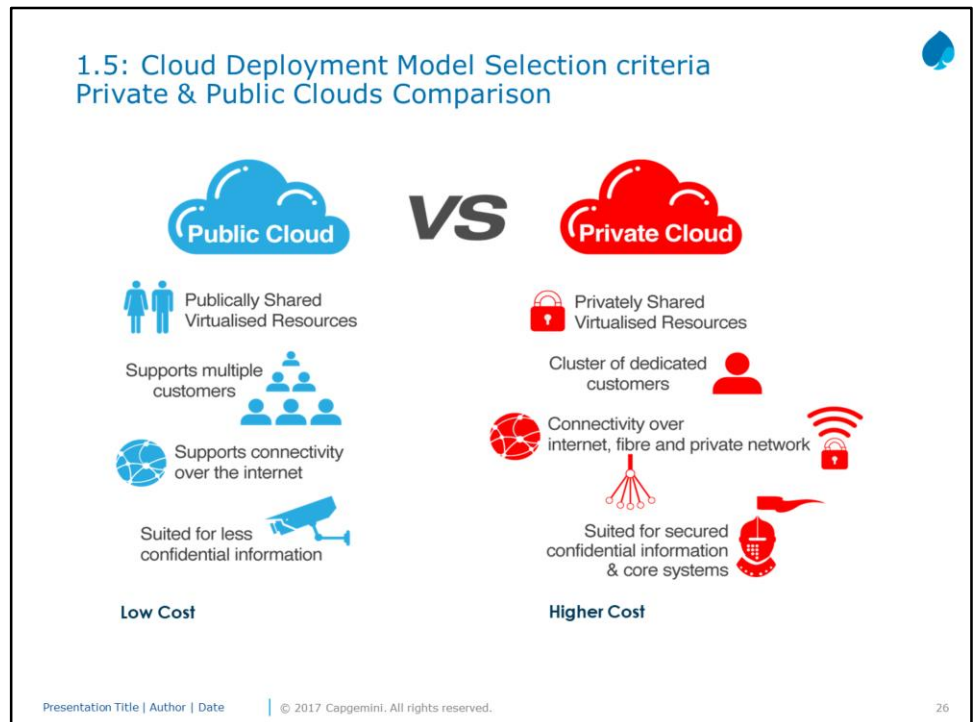
HYBRID CLOUD :---

The Hybrid Cloud is mixture of public and private cloud. However, the critical activities are performed using private cloud while the non-critical activities are performed using public cloud.

Instructor Notes:

1.5: Cloud Deployment Model Selection criteria Deployment Models



Instructor Notes:

Instructor Notes:

1.5: Cloud Deployment Model Selection criteria



What is Hybrid Cloud?

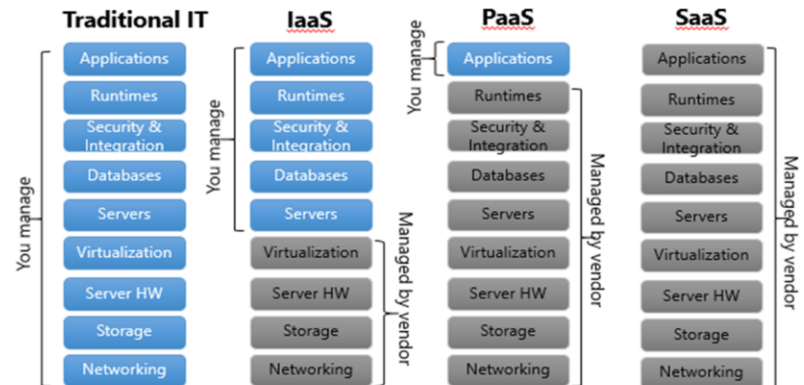
Hybrid cloud
is a cloud computing environment which
uses a mix of
on-premises,
private cloud and
third-party public cloud
services with orchestration between
these platforms.

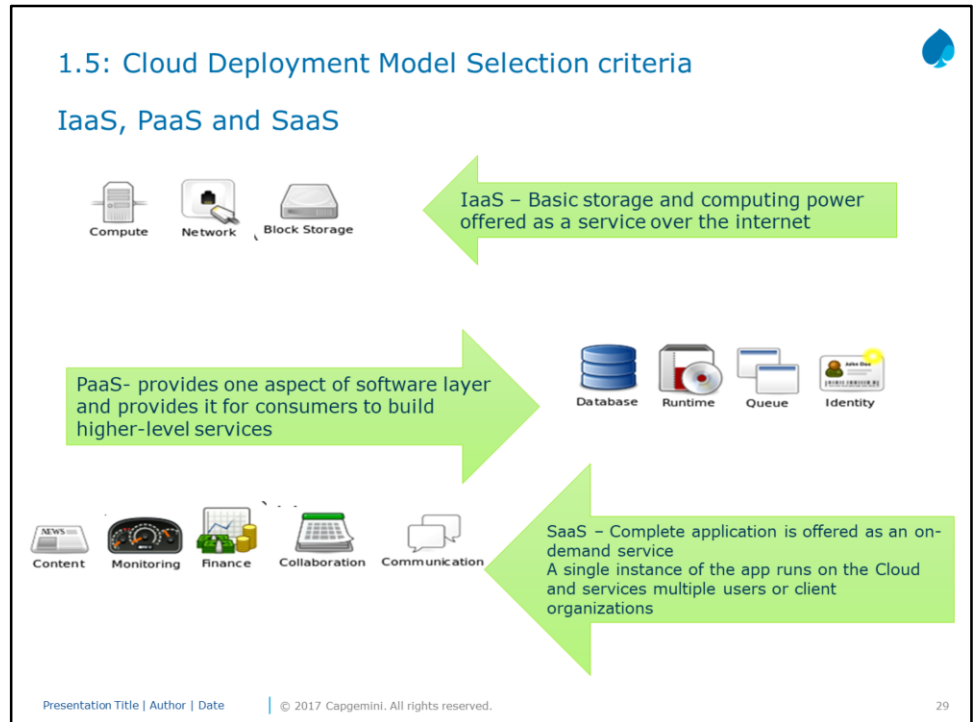
Instructor Notes:

1.5: Cloud Deployment Model Selection criteria Service Models



These are the reference models on which the cloud computing is based.



Instructor Notes:**Infrastructure as a Service (IaaS) :-----**

- Infrastructure as a Service (IaaS) IaaS is the delivery of technology infrastructure as an on demand scalable service.
- IaaS provides access to fundamental resources such as physical machines, virtual machines, virtual storage, etc.
- Usually billed based on usage •
- Usually multi tenant virtualized environment •
- Can be coupled with Managed Services for OS and application support

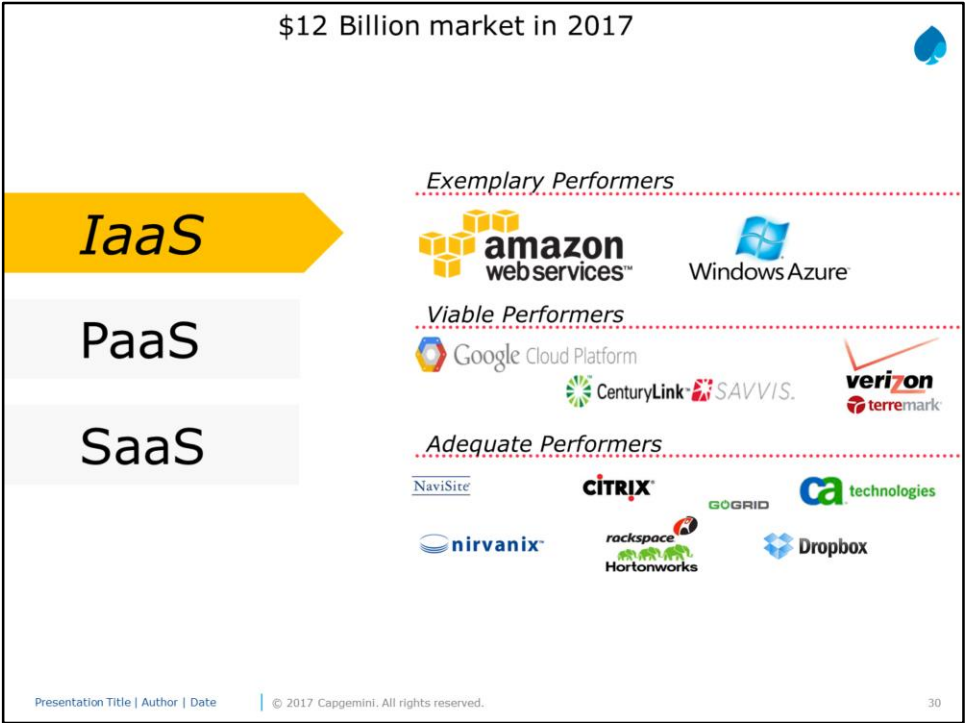
Platform as a Service :---

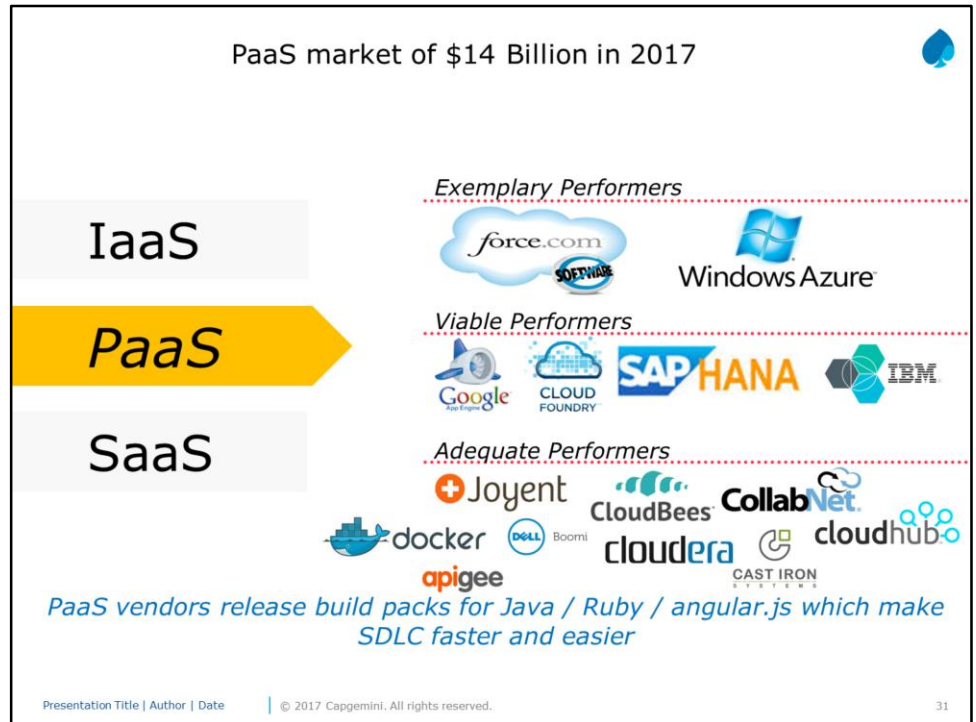
- It provides the runtime environment for applications, development & deployment tools, etc.
- PaaS provides all of the facilities required to support the complete life cycle of building and delivering web applications and services entirely from the Internet.
- Typically applications must be developed with a particular platform in mind •
- Multi tenant environments •
- Highly scalable multi tier architecture

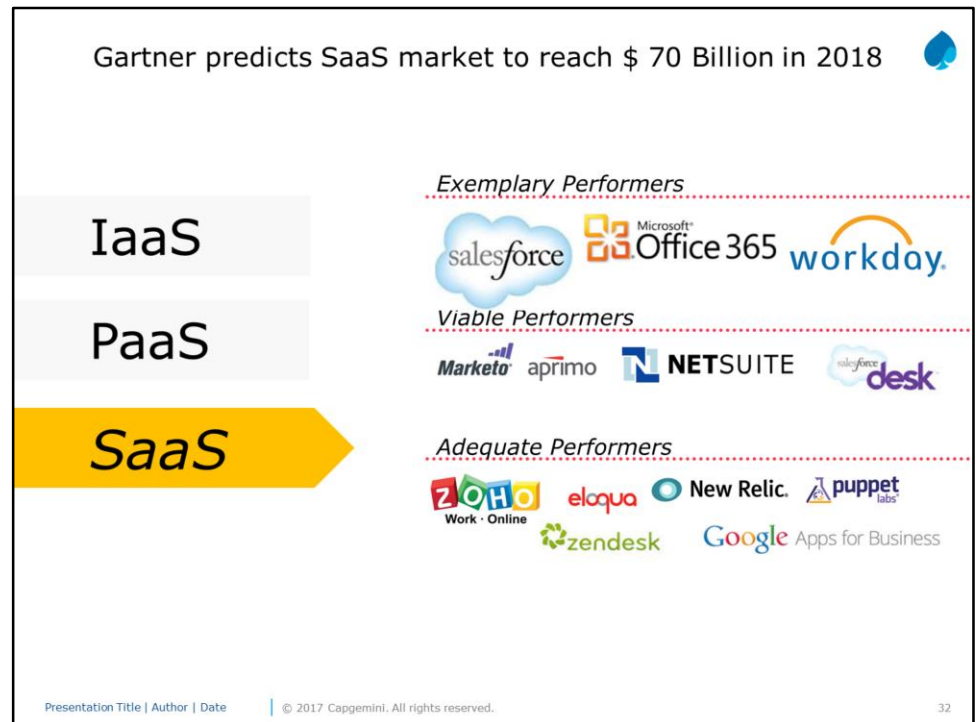
Software as a Service :---

- SaaS model allows to use software applications as a service to end users.
- 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

Instructor Notes:



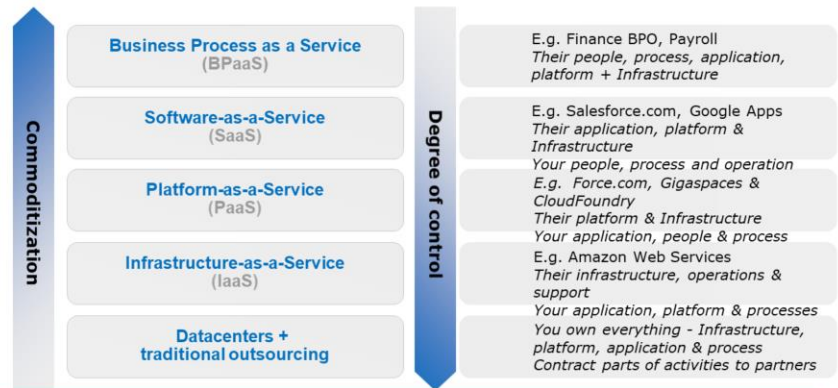
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1.5: Cloud Deployment Model Selection criteria

Cloud Model Selection Criteria



Selecting the Appropriate Location is a Balance of Control and Standardization, and Varies by the Strategic Value of the Process

Instructor Notes:**1.6: Cloud API****Cloud APIs – promoting the role of DevOps**

One of the key characteristics that distinguishes cloud computing from standard enterprise computing is that the **infrastructure itself is programmable**.

Instead of physically deploying servers, storage and network within the data center – **developers** can specify how the same components and configured and interconnected.

Including how virtual machines and data are stored and retrieved from the cloud

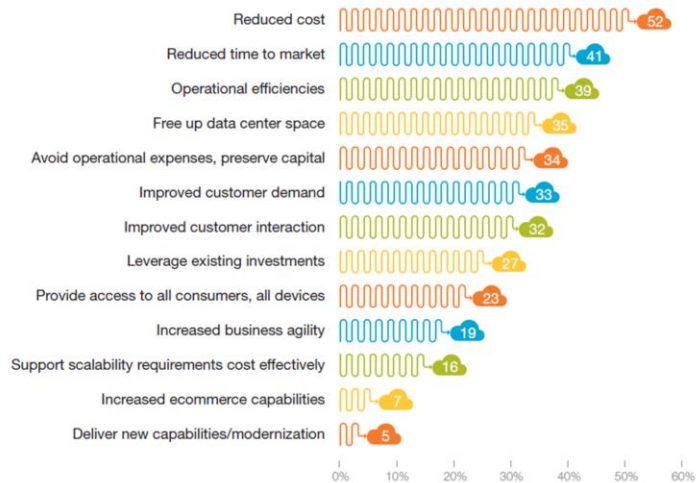
And how and when to deploy infrastructure plus the code on top of it

This is using API provided by each Cloud provider – and now lots of these are even GUI-based

This means **Developers will be performing the roles earlier handled by Infrastructure administrators**

Instructor Notes:**1.7: Cloud benefits and Challenges**

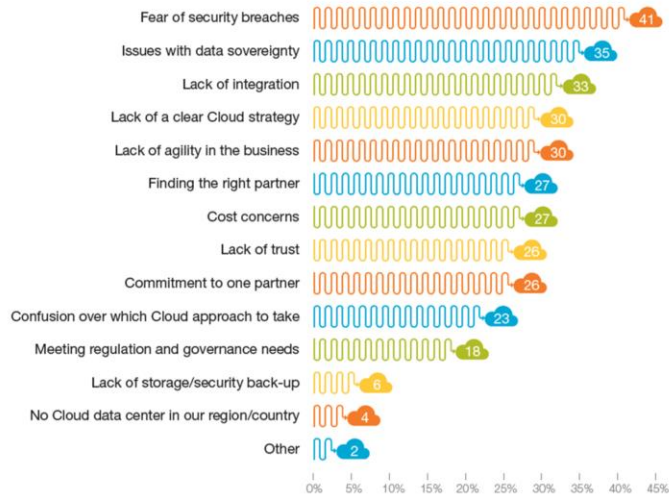
What are the business drivers behind moving to the cloud?



Instructor Notes:

1.7: Cloud benefits and Challenges

And what are the uncertainties?




Instructor Notes:

1.8: Cloud implementer

Cloud implementer?




Instructor Notes:



1.9: Cloud implementer

Current trend

▪Cloud Storage



- Create an Account
User name and password.
- Content lives with the account in the cloud.
- Log onto any computer with Wi-Fi to find your content

▪Download For Storage

- Download a cloud based app to on your
- The app lives on your Computer
- Save files to the app
- When connected to the Internet it will sync with the cloud
- The Cloud can be accessed from any Internet connection

Cloud Storage

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Cloud Storage :---

Create an Account User name and password. •

Content lives with the account in the cloud. •

Log onto any computer with Wi-Fi to find your content

Download For Storage :---

Download a cloud based app to on your computer •

The app lives on your Computer •

Save files to the app •

When connected to the Internet it will sync with the cloud •

The Cloud can be accessed from any Internet connection

Instructor Notes:

Summary



In this lesson, you have learnt:

- What is and Why Cloud?
- Why Cloud Computing
- Key characteristics of Cloud
- Cloud Computing Architecture
- Cloud Deployment Model and Service Model Selection criteria
- Cloud APIs
- Cloud benefits and Challenges
- Different Cloud implementer
- Latest trend

Instructor Notes:**Answers for the
Review Questions:**

Answer 1: Cloud
computing

Answer 2:
Deployment model
and Service model

Review – Questions

Question 1: _____ is a distributed computing on Internet or delivery of Computing service over the Internet.

Question 2: _____ and _____ are The Working models of Cloud computing

Instructor Notes:**Answers for the
Review Questions:**

Answer 3: Public
cloud

Answer 4:
Community Cloud

Answer 5: LAAS

Review – Questions

- Question 3: _____ allows systems and services to be easily accessible to the general public and may be less secure because of its openness.
- Question 4: _____ allows systems and services to be accessible by group of organizations.
- Question 5: Which of the following is not a service model in Cloud

Option 1 : IAAS

Option 2 : PAAS

Option 3 : SAAS

Option 4 : LAAS

Instructor Notes:**Answers for the Review Questions:**

Answer 5: All of the above

Review – Questions



Question 5: Which of the followings are Cloud Implementer

- Oracle
- Amazon
- All of the above