

Cloud Service Models

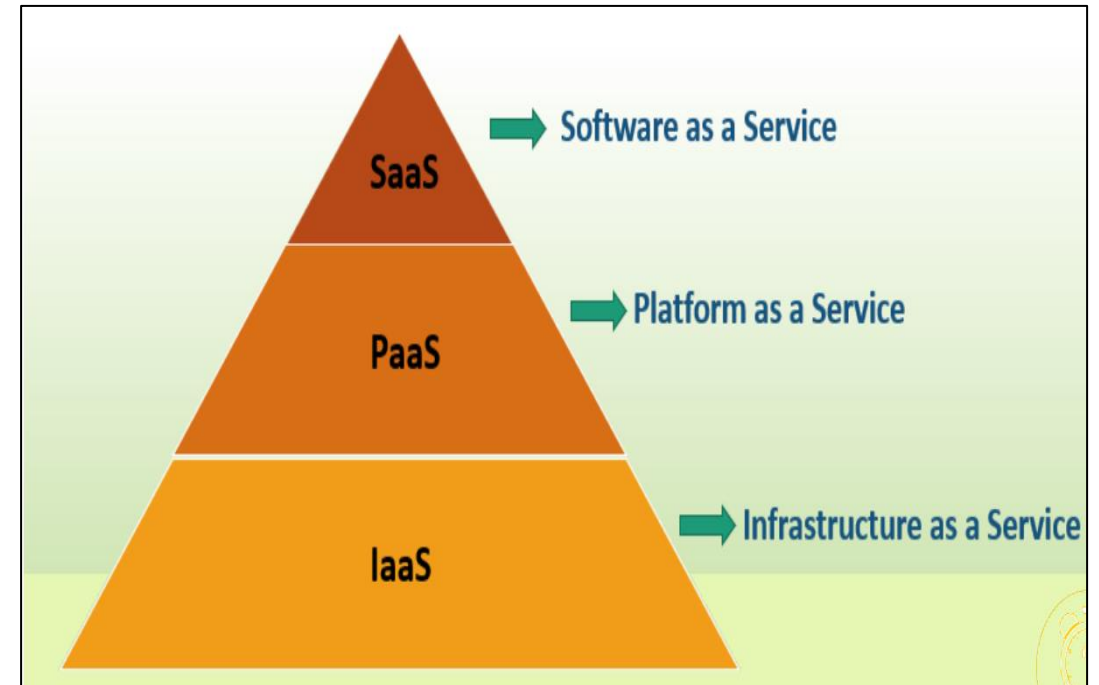
-Computer Science and Engineering

TIET

Introduction

Cloud computing offers three different service models based on different business requirements.

1. Software as a service
2. Platform as a service
3. Infrastructure as a service



Software as a service (SaaS)

- It is used by end users
- We have very less control
- Users just access the available service
- The services are delivered over internet
- We do not need to think about the maintenance of software and hardware
- We do not need to install software in our machine.
- We do not need to know whether the server is located.

Characteristics of SaaS

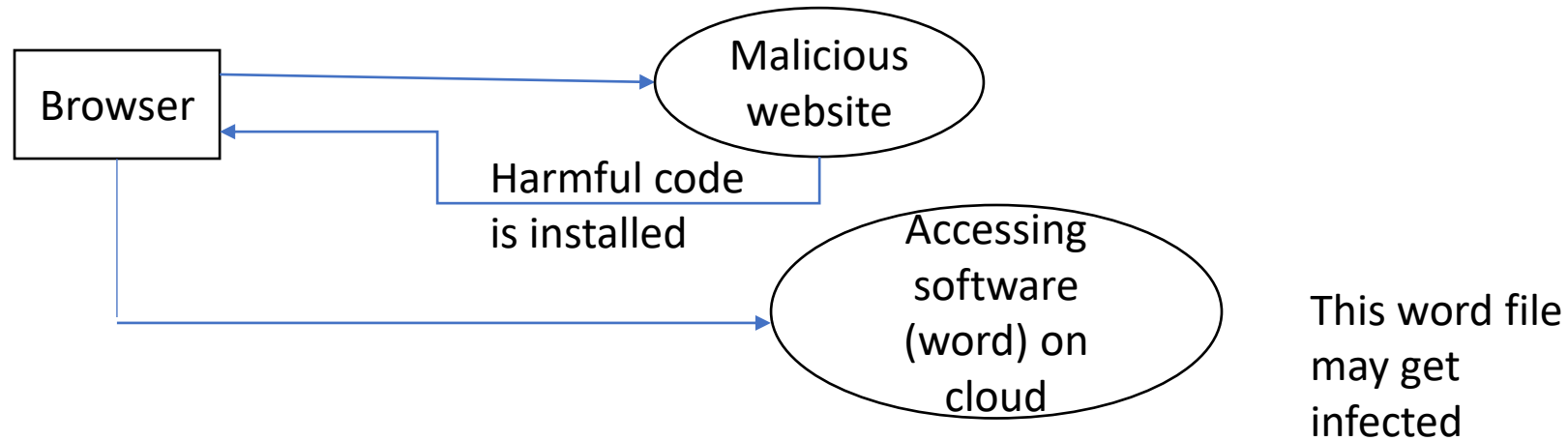
- It makes the software available over internet
- Software application is maintained by the vendor
- Cost effective
- It is available on demand
- It can be scaled up or scaled down anytime as per our need.
- Works on shared model
- Software are automatically upgraded
- Efficient use of software licenses.

Benefits of SaaS

- Platform independence to the user
- Multitenant solutions
- Scale up and scale down
- It is accessible anytime, anywhere
- It reduces time. We can use application directly from browser
- It is cost effective
- Eg: Dropbox, Cisco Webex, Gmail, Office 365, Google drive

Issues of SaaS

- Browser-based risk



- Network dependence: There should be continuous internet connection.
- Portability issues

Why we need SaaS

- With SaaS, communication, transferring of content, scheduling meeting are made easy.
- It is ideal choice of small-scale business.
- Companies that require frequent collaboration on their projects will find SaaS platform useful.

Examples

- Google Apps
- Office 365
- Email Applications (Gmail/Yahoo/Hotmail etc.)
- Finance Management Applications
- CRM (Customer Relationship Management) applications

Platform as a service (PaaS)

- It is used by **developers**.
- It provides a **platform and environment** to **allow developers to build applications and services** over the internet.
- It offers tools, which are required to develop applications.
- PaaS services are hosted in the cloud and accessed by users via web browser.
- No control over the infrastructure (Network, Server, OS, Storage).

Benefits of PaaS

- **Cost is lower.** Customer do not need to purchase hardware, software.
- Scalability
- Pay as per use.
- **Software managed by provider.**
- Easy deployment of web applications.
- Less admin overhead.

Issues of PaaS

- It is built on virtualized technology.
- We will have less control over the data processing.
- It is less flexible compared to IaaS cloud model.

Why we need PaaS

- We need PaaS, if our project involves **multiple developers and vendors**.
- With PaaS, it is easy to create customized applications as it leases all the essential computing and networking resources
- PaaS simplifies the app development process that minimizes your organizational cost.
- It is flexible and delivers the necessary speed in the . process, which will **rapidly improve your development time**.

Examples

- Google App Engine.
- Force.com
- AWS Beanstalk
- Hero Ku

Infrastructure as a service (IaaS)

- It provides us infrastructure
- System admin or network architect use this.
- It provides the underlying OS, security, networking, and servers for developing the application.
- It provides access to various resources
 1. Virtual machine
 2. Virtual storage
- It offers
 1. Virtual LAN
 2. IP address
 3. Load balances
 4. Disk storage

Benefits of IaaS

- IaaS Cloud model eliminates the need to deploy on-premise hardware that reduces the cost.
- It is the most flexible cloud computing model. It allows to scale up and scale down the computing resources as per demand.
- Users can easily deploy the servers, processing, storage, and networking to make it up and running in no time.

Why IaaS

- IaaS is the **most flexible** cloud models, which give the best option when it comes to IT hardware infrastructure.
- IaaS is the right option, if you **need control over the hardware infrastructure such as managing and customizing according to your requirements**
- IaaS **gives access to computing resources without the need to invest in them separately.**

Examples

- Windows Azure
- Amazon EC2
- Rack Space

Comparisons of different service models

IaaS	PaaS	SaaS
<u>User manages:</u> <ol style="list-style-type: none">1. Application2. Data3. Runtime4. Middleware5. OS	<u>User manages:</u> <ol style="list-style-type: none">1. Application2. Data	<u>Service provider manages:</u> <ol style="list-style-type: none">1. Application2. Data3. Runtime4. Middleware5. OS6. Virtualization7. Servers8. Storage9. Networking
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Thank you