TechLift

KICKSTART YOUR CAREER

Cloud Computing Basics
What, why, & how

P@SHA
Pakistan Software Houses Association for IT & ITES

PAKISTAN
PSEB
SOFTWARE EXPORT BOARD

S. No.	Topics
1	What's in it for you? Before Cloud Computing About Hypervisors and virtualization
2	What is cloud computing? Types of Cloud Computing Public Cloud Private Cloud Hybrid Cloud IP Addressing with Types
3	**Cloud Architecture** **Benefits** **IaaS, PaaS, SaaS**
4	Benefits Of Cloud Computing
5	Cloud Management
6	Microservices Architecture How MicroServices Works? Benefits Microservices Challenges of MicroServices Characteristics of MicroServices MicroServices in Cloud Benefits of using Microservices in cloud

S. No.	Topics
7	Cloud VS on-prem Security Introduction On-prem Security Benefits Cost of On-prem Security Benefits of Cloud Security Cons of Cloud Security
8	Cloud Computing Security Deep Dive What is Cloud Security Principal of Cloud Computing Security Cloud Computing Security Best practice
9	Module Review AWS Certification Road Map Azure Certification Road Map

Cloud Architecture

Cloud Computing Architecture:

Cloud architecture is the way technology components combine to build a cloud, in which resources are pooled through virtualization technology and shared across a network.

The components of a cloud architecture include:

- A front-end platform (the client or device used to access the cloud)
- A back-end platform (servers and storage)
- A cloud-based delivery model (SaaS, PaaS, IaaS)
- A network (IP addresses ,routing etc)

Together, these technologies create a cloud computing architecture on which applications can run, providing end-users with the ability to leverage the power of cloud resources.

Benefits Of Cloud Architecture:

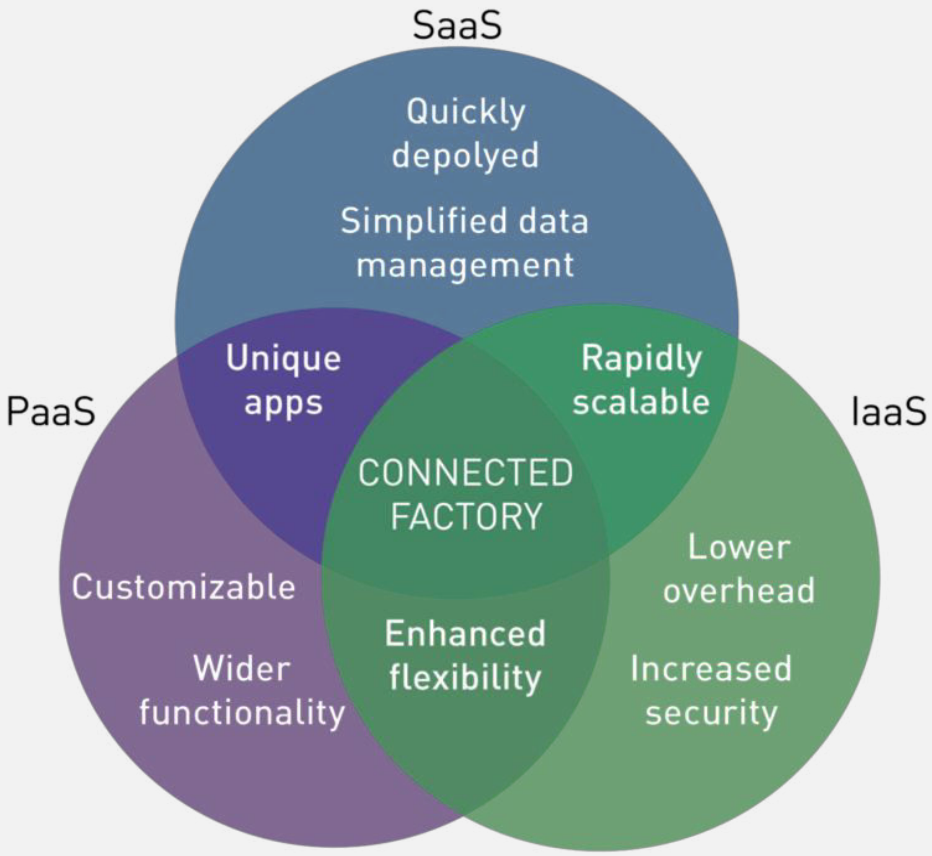
- It reduces or eliminate their reliance on on-premises server, storage, and networking infrastructure.
- Organizations adopting cloud architecture often shift IT resources to the public cloud, **eliminating the need for on-premises servers and storage, and reducing the need for IT data center real estate, cooling, and power, and replacing them with a monthly IT expenditure.**
- This shift from capital expenditure to operating expense is a major reason for the popularity of cloud computing today.

Cloud Computing Architecture:

IaaS (Infrastructure as a Service)
Eg: Compute, Storage, Network.

PaaS (Platform as a Service)
Eg: Application development & deployment, Serverless.

SaaS (Software as a Service).
Eg: Email , Docs, App stream



Benefits Of Cloud Architecture:

There are three major models of cloud architecture that are driving organizations to the cloud. Each of these has its own benefits and key features.

Infrastructure as a Service (IaaS):

- In this, cloud at its simplest form, a third-party provider eliminates the need for organizations to purchase servers, networks or storage devices by providing the necessary infrastructure.
- In turn, organizations manage their software and applications, and only pay for the capacity they need at any given time.

Benefits Of Cloud Architecture:

IaaS:

Advantages

- Offers great flexibility of all cloud computing models
- Highly scalable as per business requirements
- Enables easy automation of deploying networking, processing power, servers & storage
- Flexibility to purchase only need-based hardware and other resources
- Clients retain complete infrastructure control

Characteristics

- Cost depends on the consumption
- Scalable services
- Resources are made available as a service
- Multiple users can be included on a single unit of hardware
- Organizations retain full control of infrastructure
- Flexible and dynamic

Benefits Of Cloud Architecture:

Platform as a Service (PaaS):

- In this cloud model, the service provider offers a computing platform and solution stack, often including middleware, as a service. Organizations can build upon that platform to create an application or service.
- The cloud service provider delivers the networks, servers and storage required to host an application while the end user oversees software deployment and configuration settings.

Benefits Of Cloud Architecture:

PaaS:

Advantages

- High availability
- Scalability
- Enabling developers to focus on the creation of custom applications without the responsibility of software maintenance
- Reduced coding time
- Automated business policy
- Enables easy migration to a hybrid model

Characteristics

- Easy scalability
- Offers several services to help in developing, testing and deploying the applications
- The same development app can be accessed by several users
- Integrated databases and web services

Benefits Of Cloud Architecture:

Software as a Service (SaaS):

- SaaS architecture providers deliver and maintain applications and software to organizations over the Internet, thereby eliminating the need for end users to deploy the software on servers.
- SaaS applications are typically accessed via a web interface available from a broad variety of devices and OSes.

Benefits Of Cloud Architecture:

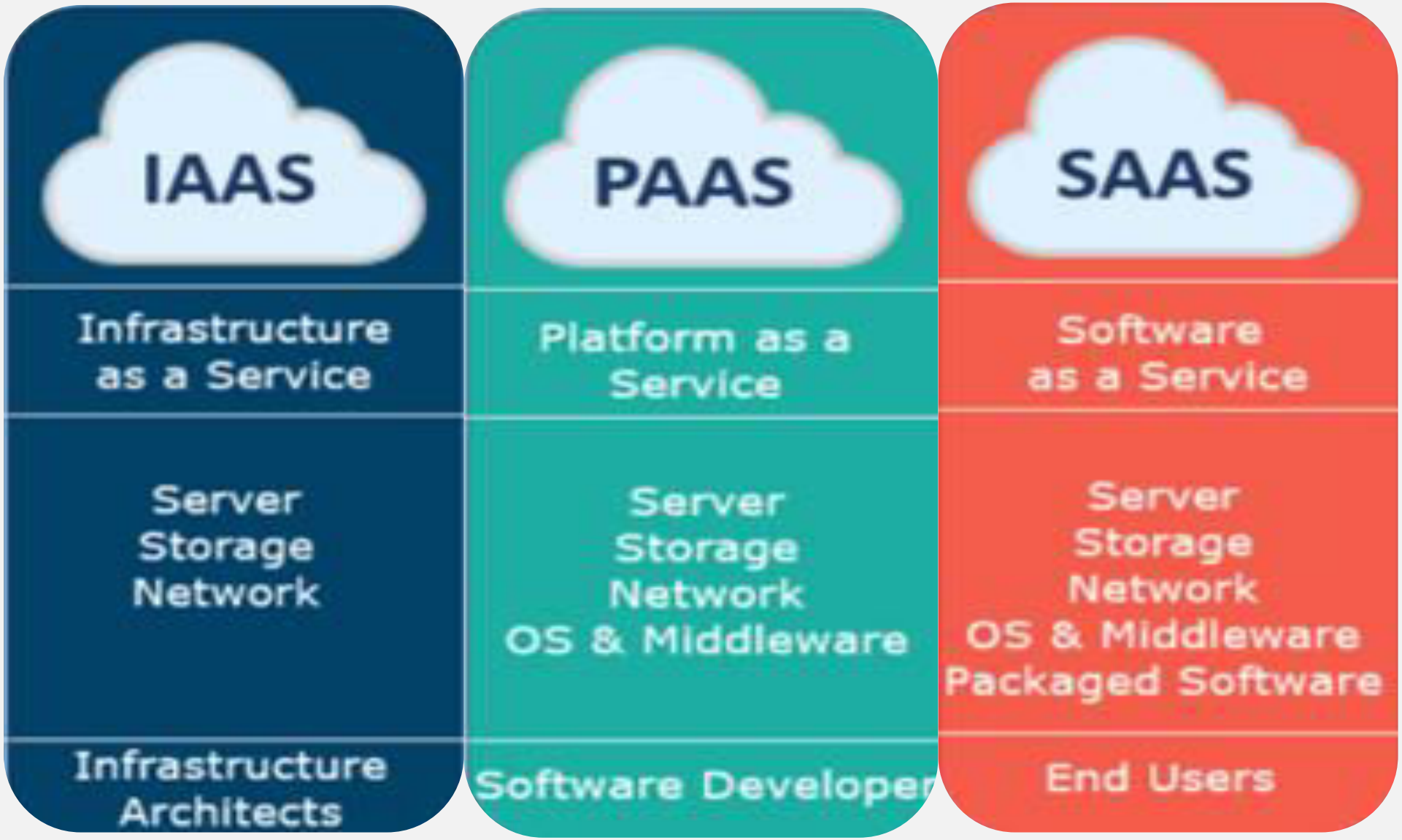
SaaS:

Advantages

SaaS reduces the expenditure and time spent on installation and management of the software.

Characteristics

- Centrally located and managed
- Remote server hosting
- Accessible through the internet
- Hardware and software updates are not the user's responsibility


IAAS
PAAS
SAAS
Infrastructure as a Service
Platform as a Service
Software as a Service
Server
Storage
Network
Server
Storage
Network
OS & Middleware
Server
Storage
Network
OS & Middleware
Packaged Software
Infrastructure Architects
Software Developer
End Users

Why Adopt Cloud Architecture:

Organizations have many reasons for adoption of a cloud architecture, includes:

- Accelerate the **delivery of new apps**
- Take advantage of cloud-native architecture such as **Kubernetes and docker** to modernize applications and accelerate digital transformation.
- Ensure **compliance** with the latest regulations
- Deliver greater transparency into resources to **cut costs and prevent data breaches**
- Enable **faster provisioning of resources.**
- Utilize hybrid cloud architecture to **support real-time scalability** for applications as business needs change.
- Meet **service targets** consistently.
- **Leverage cloud reference architecture** to gain insight into IT spending patterns and cloud utilization


SaaS
PaaS
IaaS
BIGCOMMERCE
salesforce
zendesk
MailChimp
slack
HubSpot
Google Apps
DocuSign
Azure
apache Stratos
force.com
platform as a service
heroku
rackspace

Q&A Session

1. Which delivery model is an example of a cloud computing environment that provides users with a web-based e-mail service?
   a. Software as a Service
   b. Platform as a Service
   c. Computing as a Service
   d. Infrastructure as a Service

2. How can company leverage the Platform as a Service cloud computing delivery model?

   a. A company requires more processing power to perform its financial analysis calculations and acquires additional computational resources.
   b. A company requires a customer relationship management solution and obtains an application that addresses its requirements from a cloud provider.
   c. A company is running out of storage space to store a customer database and dynamically request additional space via the cloud provider web services interface.
   d. A company obtains an environment with a software stack from a cloud provider, develops custom application, and makes that application available to its customers on the Internet.

Q&A Session

3. A cloud provider offers an environment for building applications that will run from the customer's environment. Which cloud computing delivery model are they using?

a. Platform as a Service
b. Software as a Service
c. Development as a Service
d. Infrastructure as a Service

4. A company interested in cloud computing is looking for a provider who offers a set of basic services such as virtual server provisioning and ondemand storage that can be combined into a platform for deploying and running customized applications. What type of cloud computing model fits these requirements?

a. Platform as a Service
b. Software as a Service
c. Application as a Service
d. Infrastructure as a Service

What we achieved?

Introducing the Cloud
Hypervisors
Types Of Cloud
Architecture of Cloud
Microservices
Cloud Security
AWS Certification RoadMap
Azure Certification RoadMap