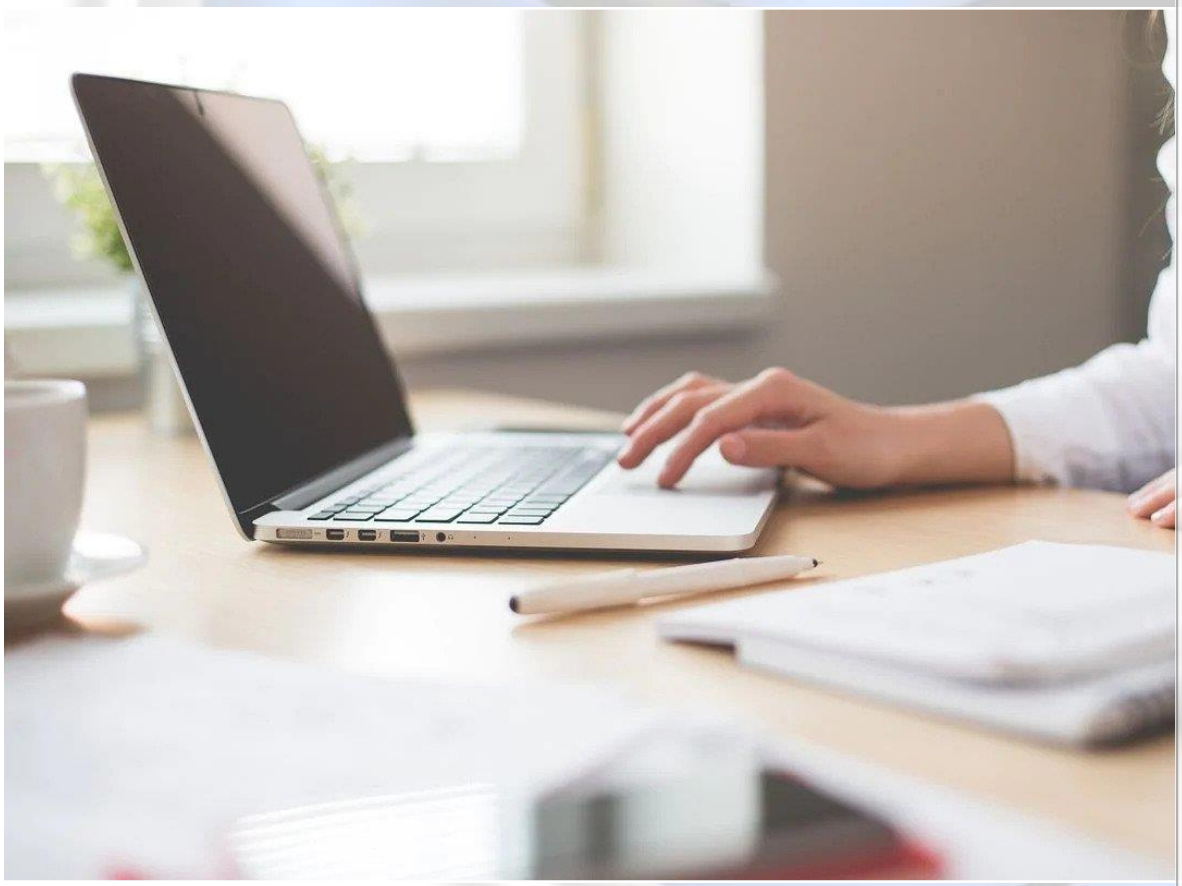
CRYPTUS CYBER SECURITY PVT. LTD.

Module :- Understanding Cloud



Understanding cloud

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale. You typically pay only for cloud services you use, helping lower your operating costs, run your infrastructure more efficiently and scale as your business needs change.

It refers to sharing resources, software and information through a network. In this case, via 'the Internet' or more correctly, an Internet connection. Information and data is stored on physical or virtual servers, which are maintained and controlled by a cloud computing provider, such as Amazon and their AWS product

Rather than owning their own computing infrastructure or data centers, companies can rent access to anything from applications to storage from a cloud service provider.

There are also web applications—or web apps—that run in the cloud and do not need to be installed on your computer. Many of the most popular sites on the Internet are actually web apps. You may have even used a web app without realizing it! Let's take a look at some popular web apps.

Why Use the Cloud, Advantages of Cloud Computing?

Saves Disk Space

The main advantage of the cloud is because a vast majority of storage and computing is managed by servers; it helps eliminate the need for computer hard drives and disk space, which helps preserve the memory for greater machine efficiency. It also enables many advanced operations to be carried out on the simplest, most budget-friendly machines, which helps eliminate the need for more upscale devices.

Accessible Any Time and From Any Location

The cloud can be utilized from any location as well as from any device, provided you have an internet connection, which means access to your data is always just a click away. It also means you can begin file work on one computer and then resume your tasks on a different computer, such as an office computer. You can also collaborate with others on the same file.

Store Your Entire Photo Collection

Some cloud drive services enable users to both store and view hundreds of photos, which is undoubtedly what the cloud has become most notorious for these days due to the number of high-profile data breaches involving hacked photos. However, chief evangelist Ian Massingham advises that users can help decrease these risks simply by controlling how their data is protected, which will be discussed in more detail later.

Save On IT Costs

Businesses can shell out big bucks for IT department services, such as maintenance and storage planning, which can cut into their costs and ultimately slow their growth. Furthermore, managing your software applications in-house takes up valuable time that can be used towards other important IT tasks. However, using the cloud enables businesses to leave many IT tasks to outside companies who are also equipped with expert skills in tech services, which saves time and lowers costs that can be passed onto customers.

Software On-Demand

Businesses, as well as consumers, can also purchase many popular versions of software available on-demand, often at lower costs, right from work or home.

Types of Cloud Deployment

Public cloud

This is the most common and all of the players mentioned above (Amazon, Microsoft, Apple & Google) run public clouds accessible anywhere with login credentials and the right web app.

There are the following advantages of Public Cloud -

Public cloud is owned at a lower cost than the private and hybrid cloud.

Public cloud is maintained by the cloud service provider, so do not need to worry about the maintenance.

Public cloud is easier to integrate. Hence it offers a better flexibility approach to consumers.

Public cloud is location independent because its services are delivered through the internet.

Public cloud is highly scalable as per the requirement of computing resources.

It is accessible by the general public, so there is no limit to the number of users.

Private cloud

Individuals/organizations that choose Private Cloud gets dedicated infrastructure that is not shared by any other individual/organization. The security and control level is highest while using a private network. The costs are born by an individual/organization and are not shared with any other individual/organization

There are the following advantages of the Private Cloud -

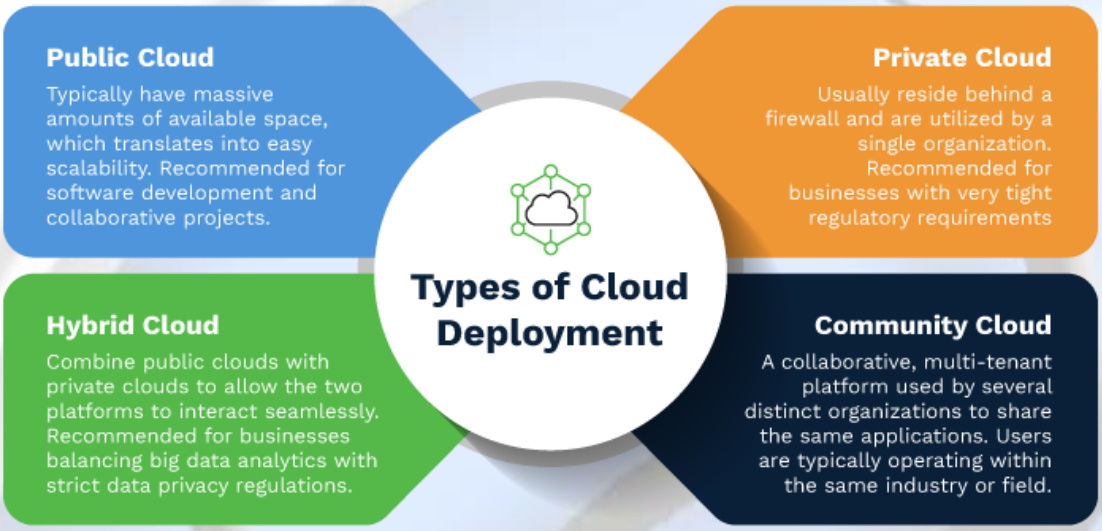
Private cloud provides a high level of security and privacy to the users.

Private cloud offers better performance with improved speed and space capacity.

It allows the IT team to quickly allocate and deliver on-demand IT resources.

The organization has full control over the cloud because it is managed by the organization itself. So, there is no need for the organization to depends on anybody.

It is suitable for organizations that require a separate cloud for their personal use and data security is the first priority.



Hybrid Cloud

Hybrid Cloud is a combination of the public cloud and the private cloud. we can say:

Hybrid Cloud = Public Cloud + Private Cloud

Hybrid cloud is partially secure because the services which are running on the public cloud can be accessed by anyone, while the services which are running on a private cloud can be accessed only by the organization's users.

There are the following advantages of Hybrid Cloud -

Hybrid cloud is suitable for organizations that require more security than the public cloud.

Hybrid cloud helps you to deliver new products and services more quickly.

Hybrid cloud provides an excellent way to reduce the risk.

Hybrid cloud offers flexible resources because of the public cloud and secure resources because of the private cloud.

Community Cloud

Community cloud allows systems and services to be accessible by a group of several organizations to share the information between the organization and a specific community. It is owned, managed, and operated by one or more organizations in the community, a third party, or a combination of them.

There are the following advantages of Community Cloud -

Community cloud is cost-effective because the whole cloud is being shared by several organizations or communities.

Community cloud is suitable for organizations that want to have a collaborative cloud with more security features than the public cloud.

It provides better security than the public cloud.

It provdes collaborative and distributive environment.

Community cloud allows us to share cloud resources, infrastructure, and other capabilities among various organizations.

Types of cloud services: IaaS, PaaS, serverless and SaaS

IaaS

Infrastructure as a service (IaaS) is a cloud computing offering in which a vendor provides users access to computing resources such as storage, networking, and servers. Organizations use their own platforms and applications within a service provider's infrastructure.

IaaS provides all the infrastructure to support web apps, including storage, web and application servers, and networking resources. Your organization can quickly deploy web apps on IaaS and easily scale infrastructure up and down when demand for the apps is unpredictable

Key features:

Instead of purchasing hardware outright, users pay for IaaS on demand.

Infrastructure is scalable depending on processing and storage needs.

Saves enterprises the costs of buying and maintaining their own hardware.

Because data is on the cloud, there can be no single point of failure.

Enables the virtualization of administrative tasks, freeing up time for other work.

PaaS

Platform as a service (PaaS) is a cloud computing offering that provides users with a cloud environment in which they can develop, manage, and deliver applications. In addition to storage and other computing resources, users are able to use a suite of prebuilt tools to develop, customize, and test their own applications.

Like IaaS, PaaS includes infrastructure—servers, storage and networking—but also middleware, development tools, business intelligence (BI) services, database management systems and more. PaaS is designed to support the complete web application lifecycle: building, testing, deploying, managing and updating.

Key features:

PaaS provides a platform with tools to test, develop, and host applications in the same environment.

Enables organizations to focus on development without having to worry about underlying infrastructure.

Providers manage security, operating systems, server software and backups.

Facilitates collaborative work even if teams work remotely.

SaaS

Software as a service (SaaS) is a cloud computing offering that provides users with access to a vendor's cloud-based software. Users do not install applications on their local devices. Instead, the applications reside on a remote cloud network accessed through the web or an API. Through the application, users can store and analyze data and collaborate on projects.

Software as a service (SaaS) is a software distribution model in which a cloud provider hosts applications and makes them available to end users over the internet. In this model, an independent software vendor (ISV) may contract a third-party cloud provider to host the application

Key features:

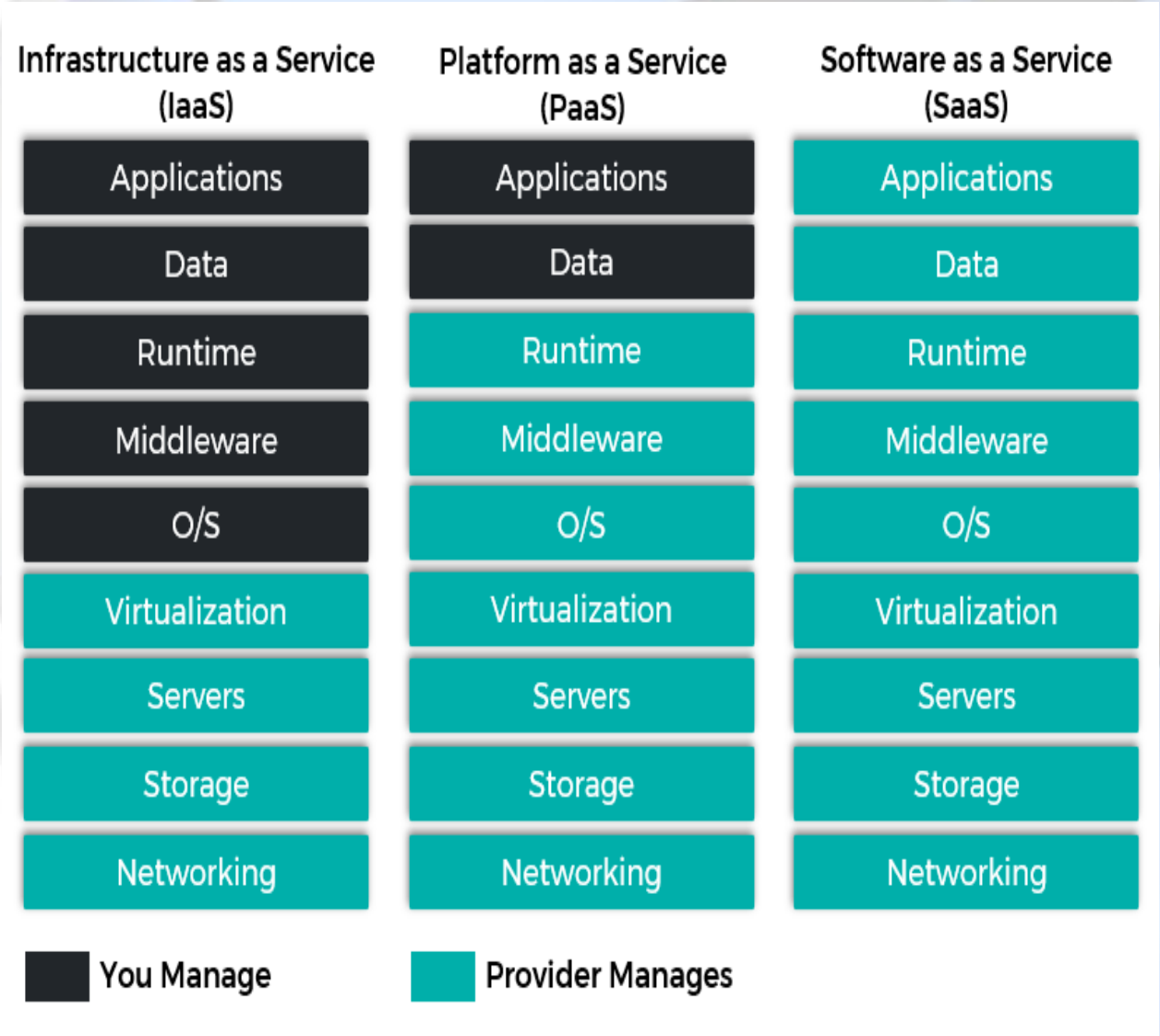
SaaS vendors provide users with software and applications via a subscription model.

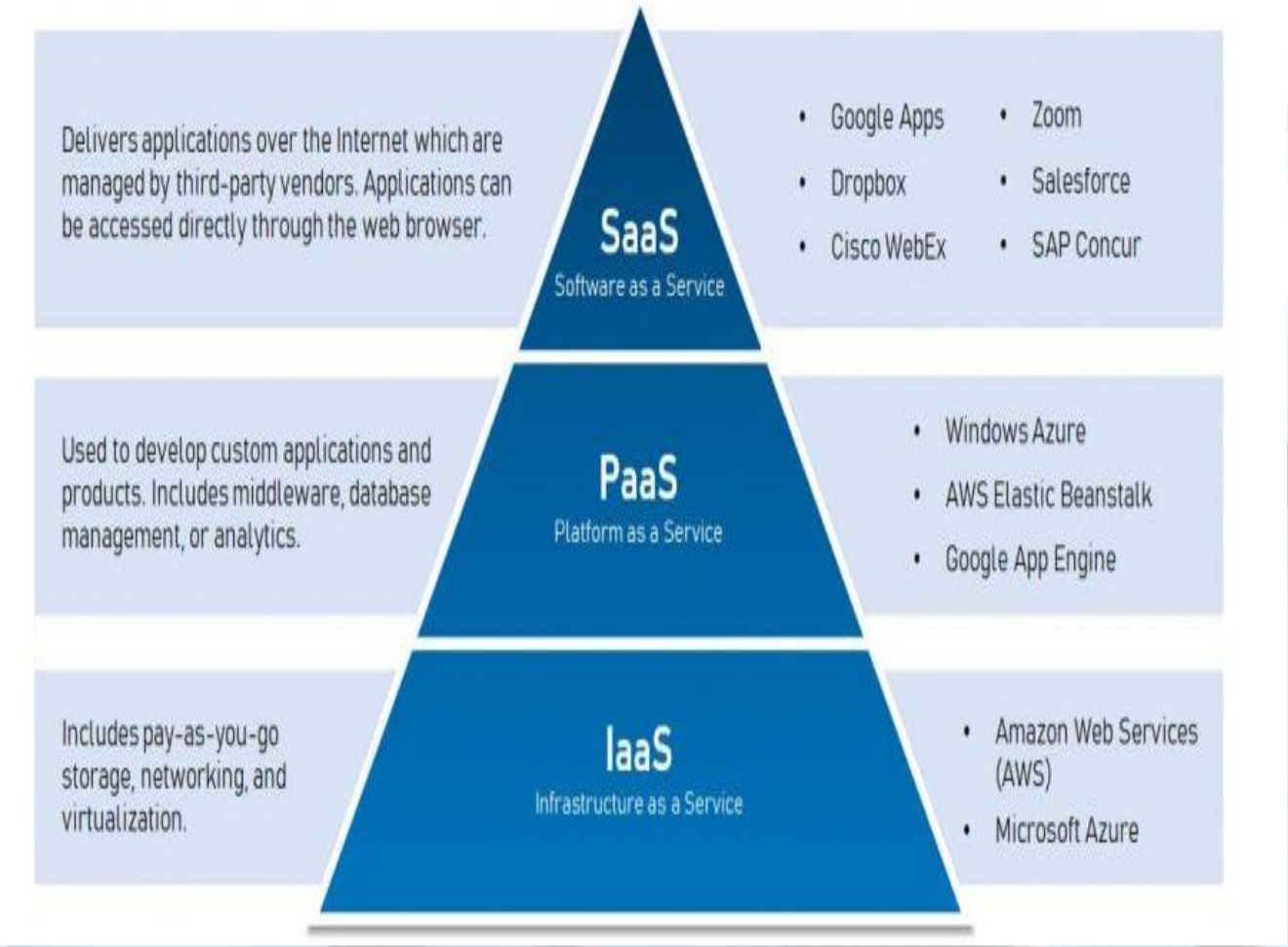
Users do not have to manage, install or upgrade software; SaaS providers manage this.

Data is secure in the cloud; equipment failure does not result in loss of data.

Use of resources can be scaled depending on service needs.

Applications are accessible from almost any internet-connected device, from virtually anywhere in the world.





Some of the companies providing cloud services

1. Amazon Web Services (AWS)
2. Microsoft Azure
3. Google Cloud
4. Alibaba Cloud
5. IBM Cloud
6. Oracle
7. Salesforce
8. SAP
9. Rackspace Cloud
10. VMWare