

What is **CL^{cloud}UD** **COMPUTING**



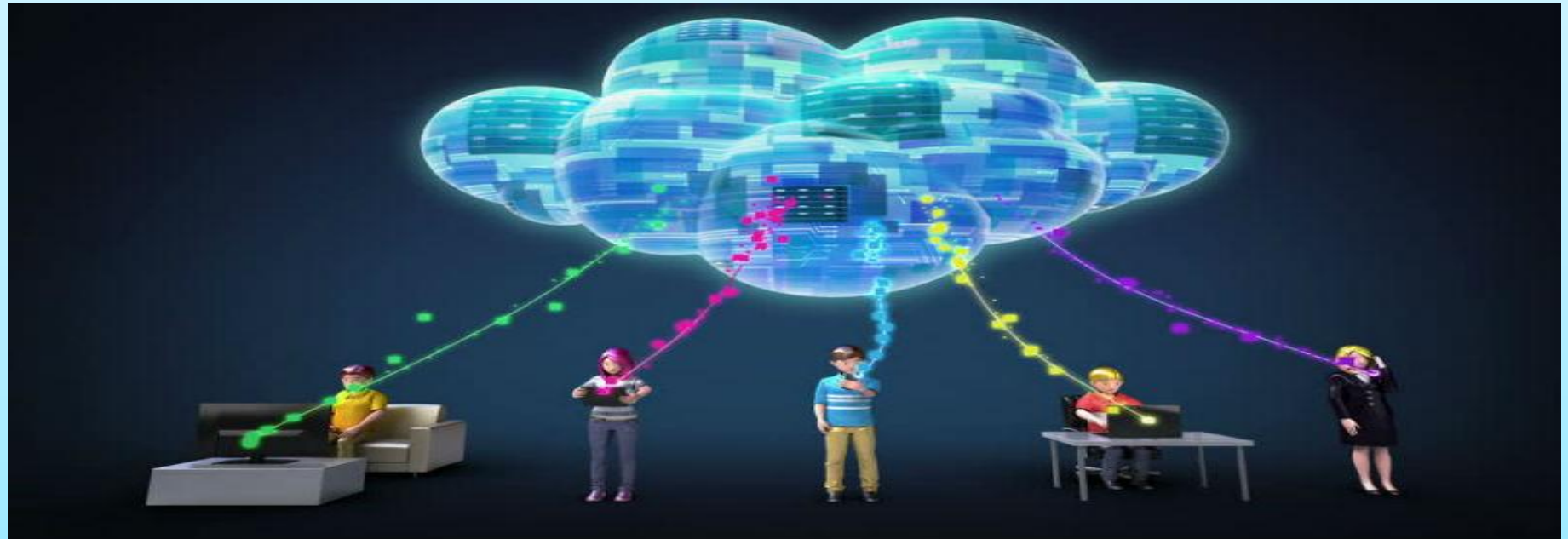
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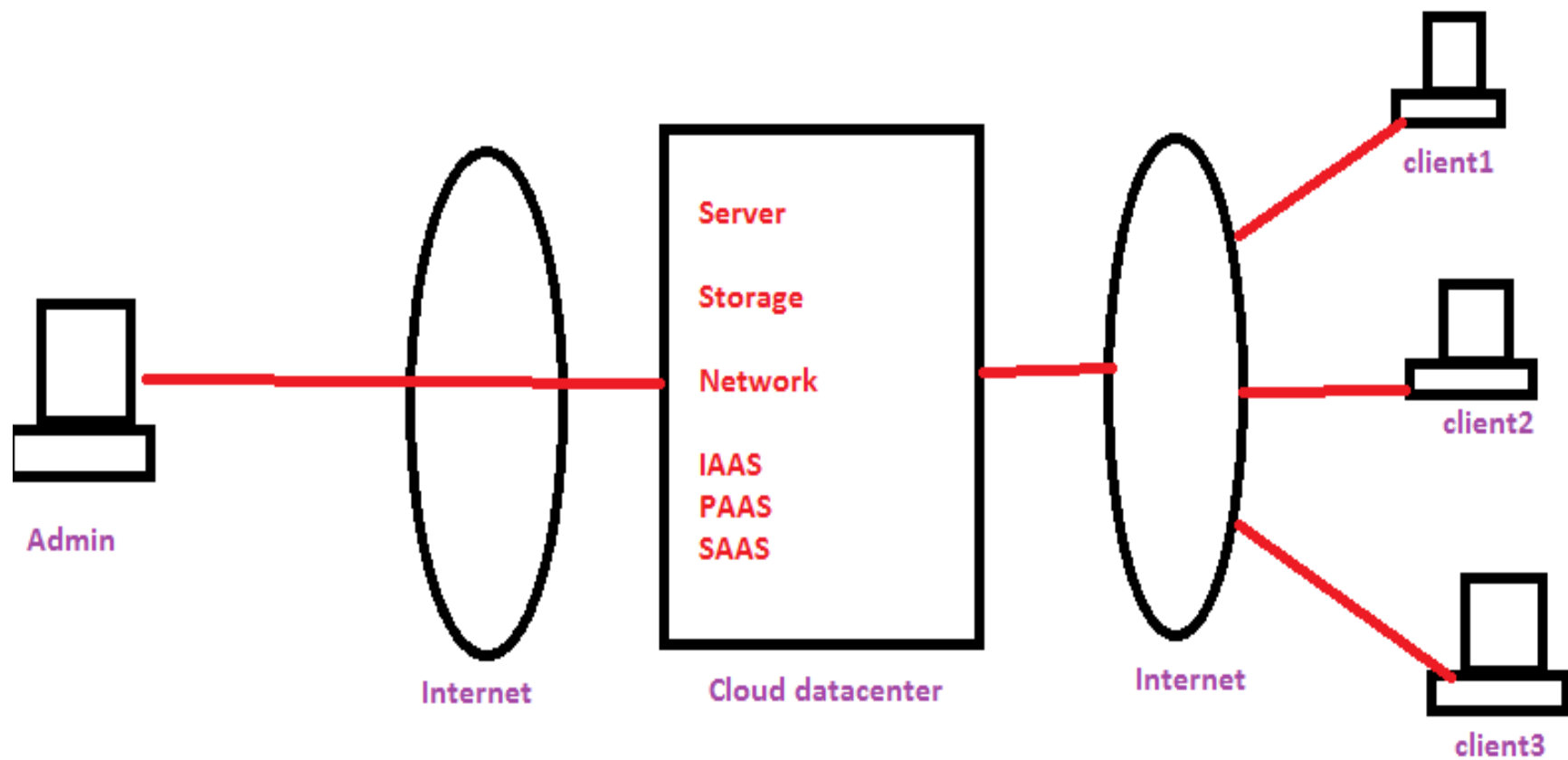
What is Cloud Computing

Cloud Computing is a technology that provides access to various computing resources over the internet.

The practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.







Types of Server Machines

Tower Server



Rack Server



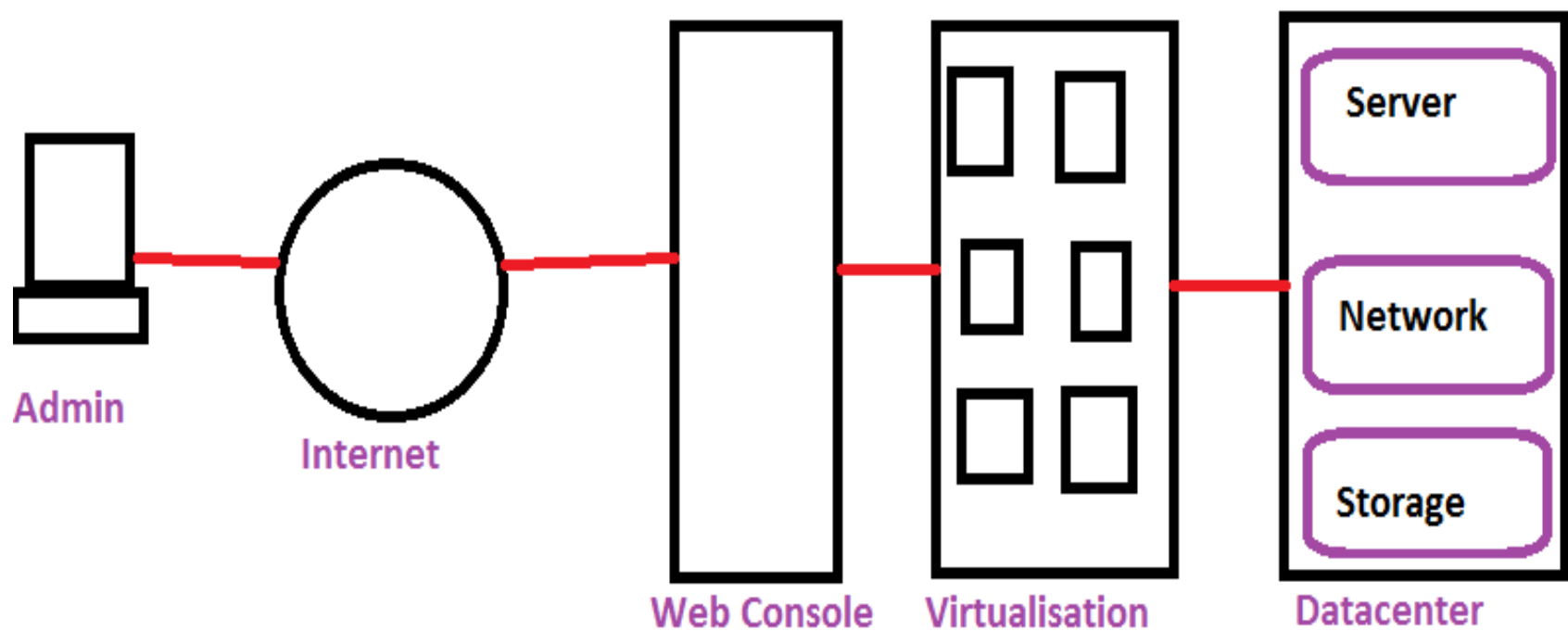
Blade Server



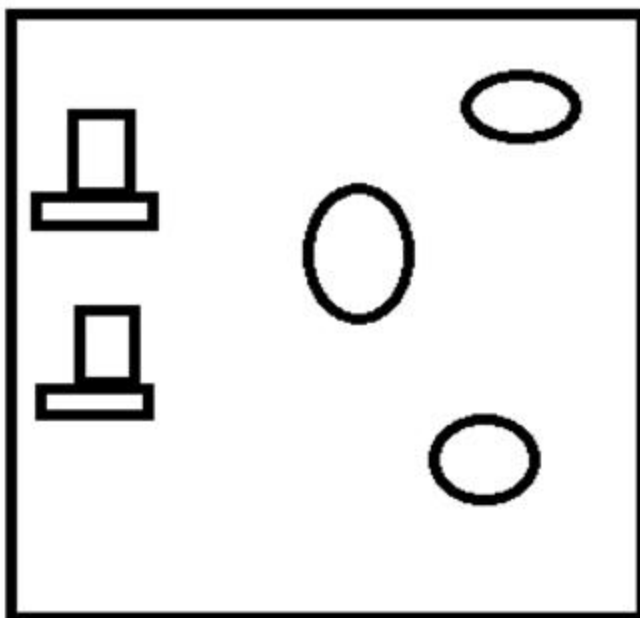
Storage



Accessing Cloud Datacenter as an admin



ON PREMISE DATACENTER



On premise datacenter

- 1) Space
- 2) server machine
- 3) Backup server
- 4) Power -Dual
- 5) Power Backup
- 6) Network-Router, Switches, Cables
- 7) Cooling system
- 8) Maintenance
- 9) Security

etc

Cloud Computing Advantages

Advantages

- 1) Anytime, Anywhere access
- 2) Cost Saving –No initial investment
Pay based on usage –time and resource
- 3) Flexibility in Capacity
- 4) Automated Updates on Software
- 5) Security - Recovery
- 6) Easily Manageable

Cloud Computing Service Providers

Amazon Web Service (AWS)

Microsoft **Azure**.

Google Cloud Platform.

IBM Cloud Services.

Salesforce.

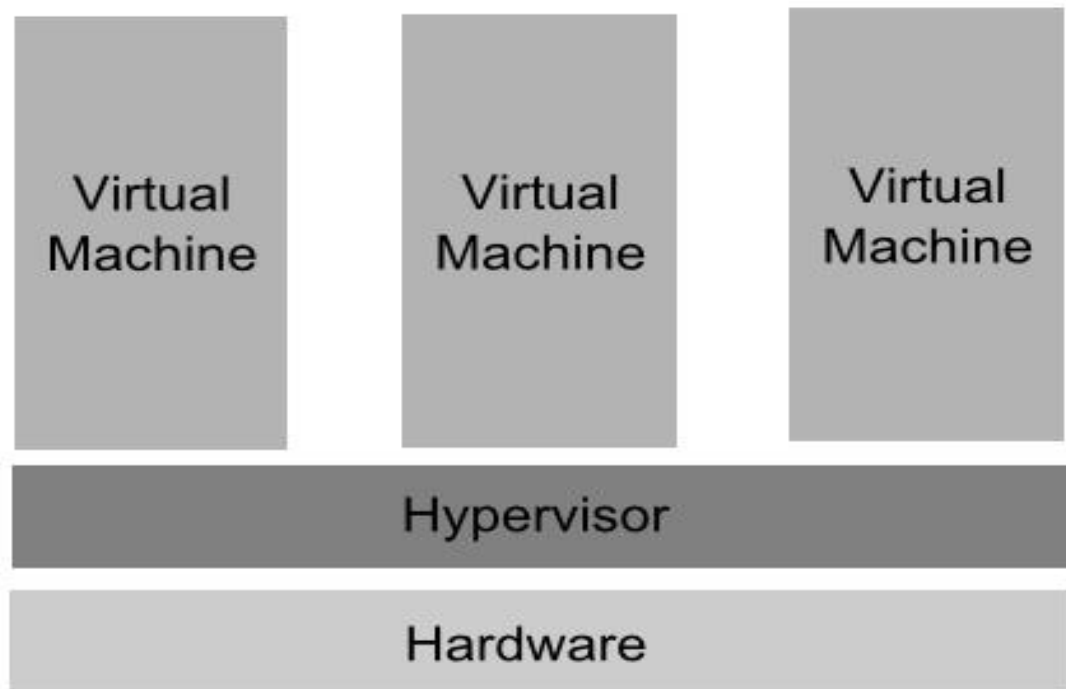
Red Hat

VMware.

Rackspace.....many more

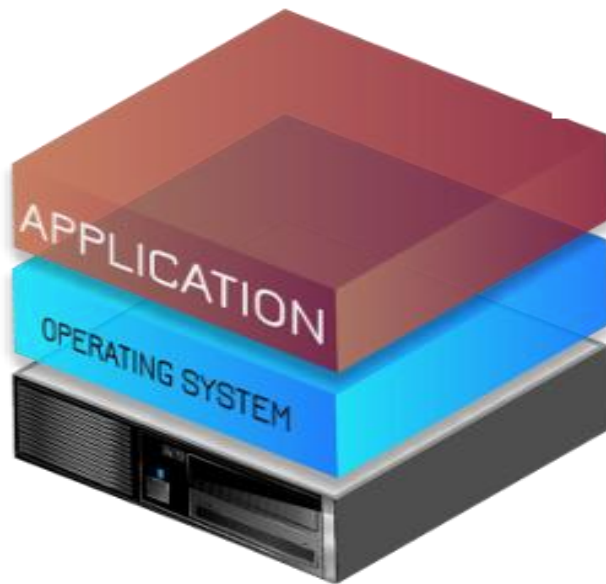
Virtualisation

- Virtualization is the creation of a virtual (rather than physical) version of an IT environment, including an operating system (OS), a storage device, etc.
- Virtualization takes place on the same hardware platform after installing specific software - hypervisor



How Does Virtualization Work?

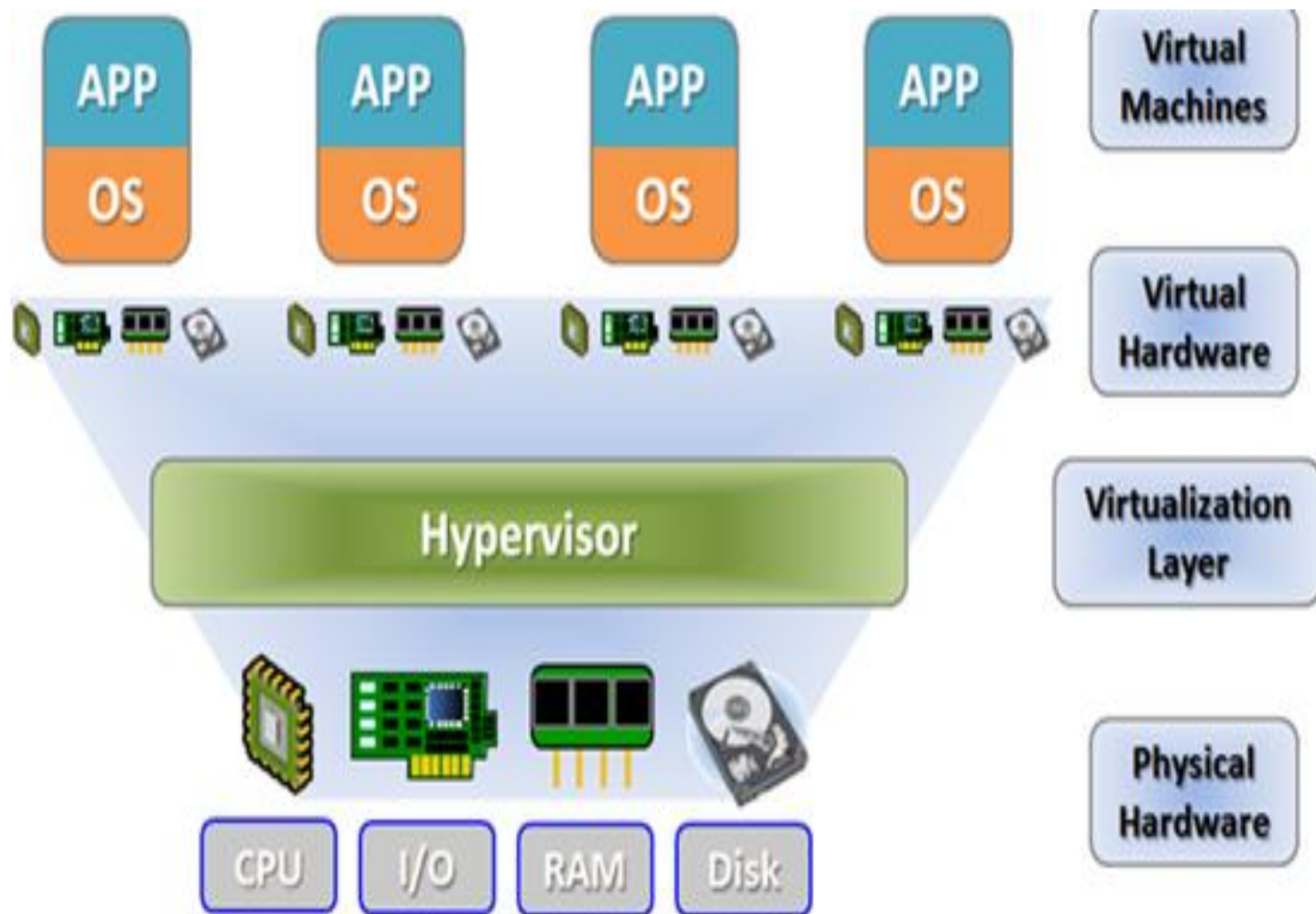
Access to the virtual machine and the host machine or server is facilitated by a software known as Hypervisor. Hypervisor acts as a link between the hardware and the virtual environment and distributes the hardware resources such as CPU usage, memory allotment between the different virtual environments.



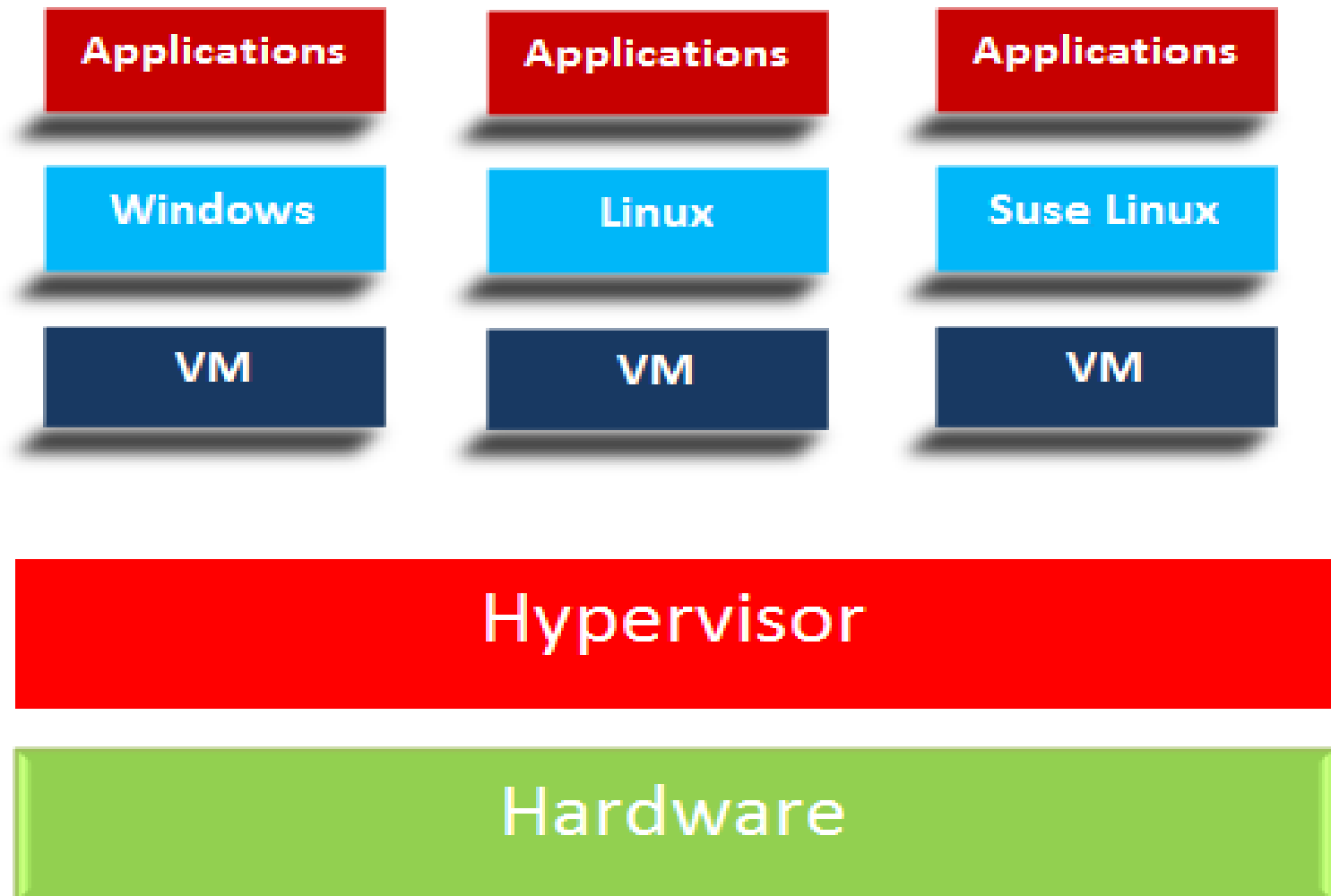
Traditional Server Architecture



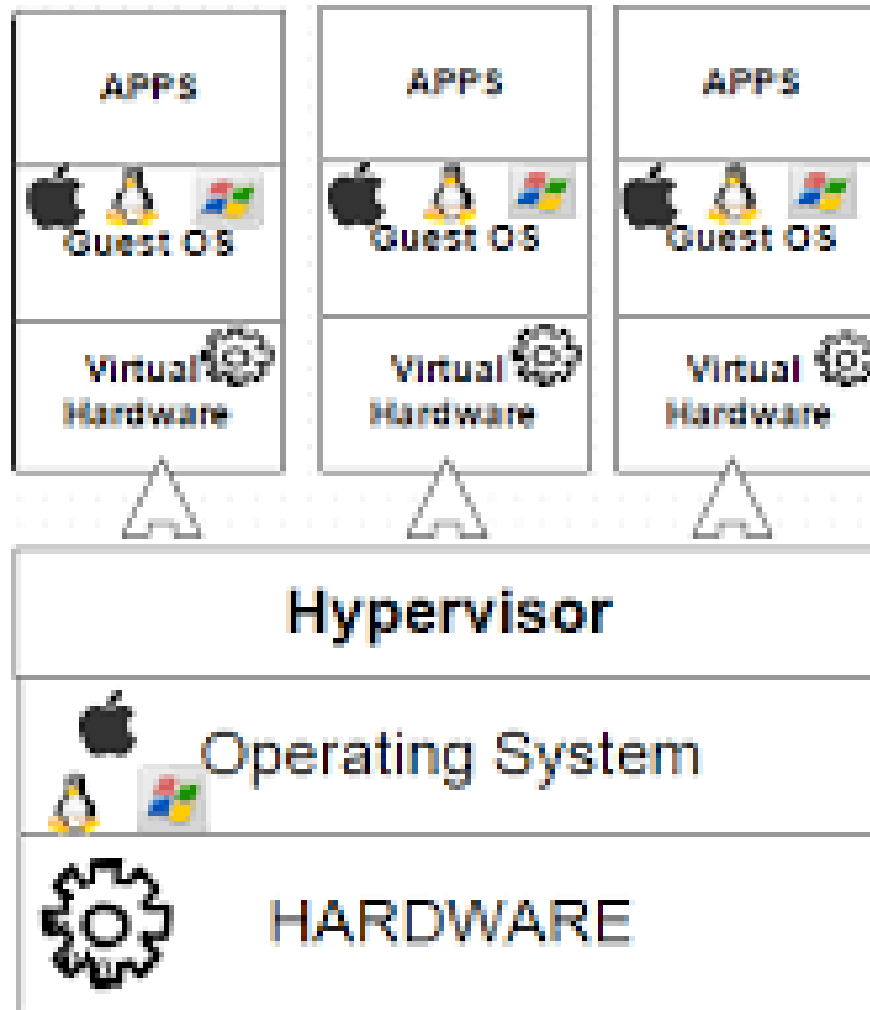
Virtualized Server Architecture



Hypervisor types: Bare metal Hypervisor(Type 1)



Hypervisor types: Host Based Hypervisor(Type 2)

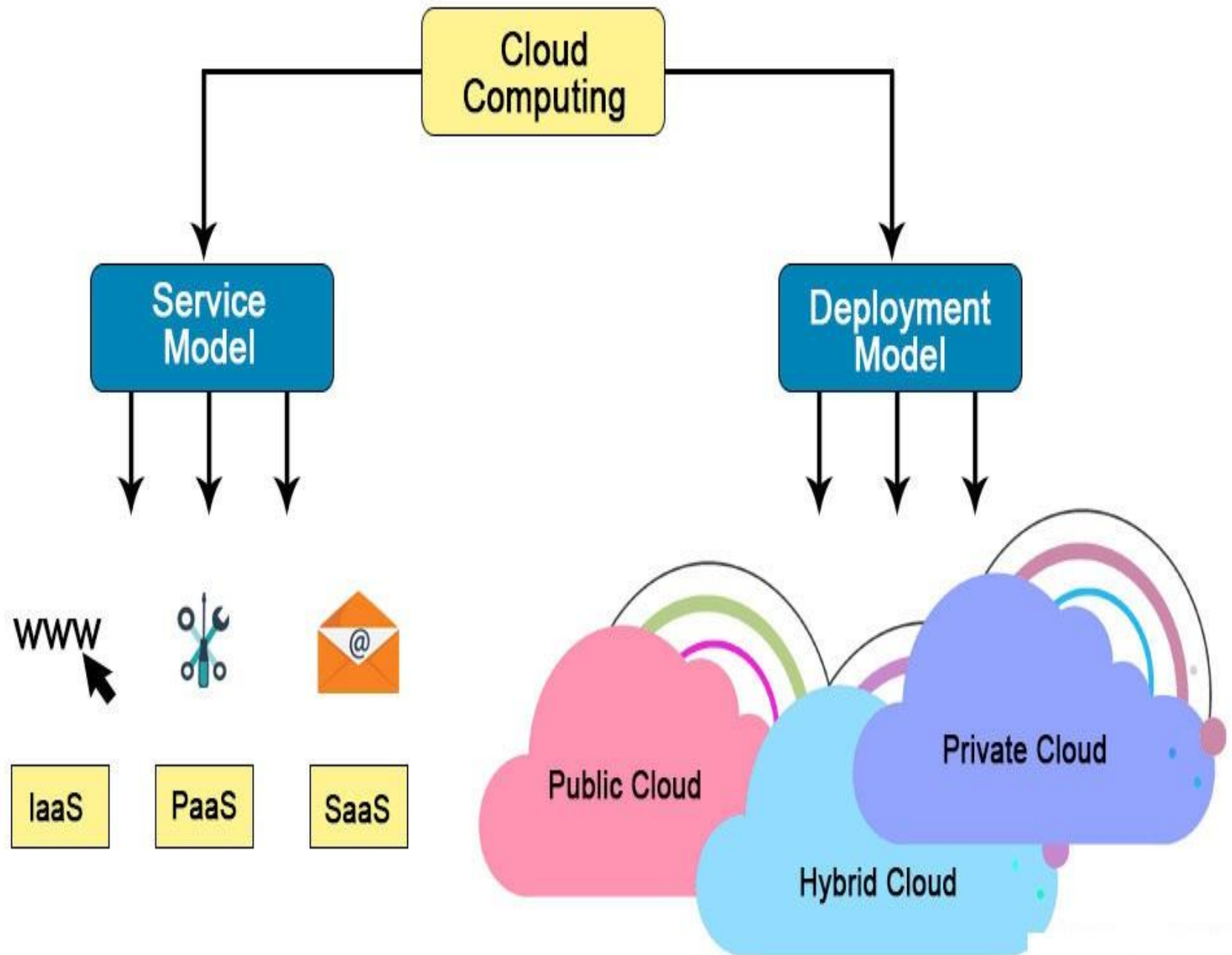


Bare metal Hypervisor Softwares



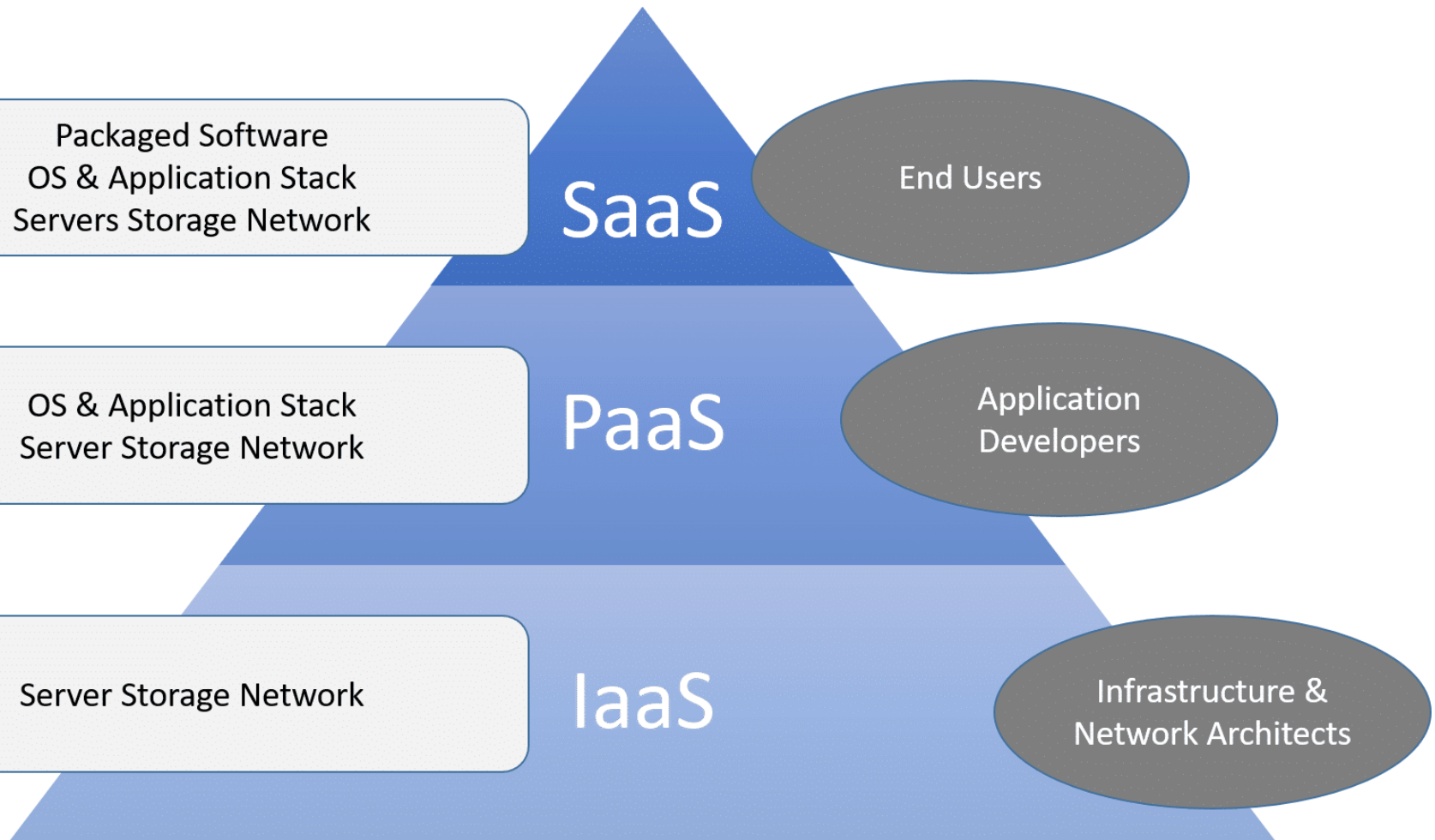
Host Based Hypervisor Softwares





Cloud Services

Cloud Service Models



IaaS

IaaS (Infrastructure as a Service) is the foundational cloud platform layer. This service is used by IT administrators for processing, storage, networks or any other fundamental computer operations. It allows users to run arbitrary software.



PaaS

PaaS(Platform as a Service) is a computing platform which includes an operating system, programming language execution environment, database or web services.

As its name suggests, this platform is provided to the client to develop and deploy software. It allows the client to focus on application development instead of worrying about hardware and infrastructure.

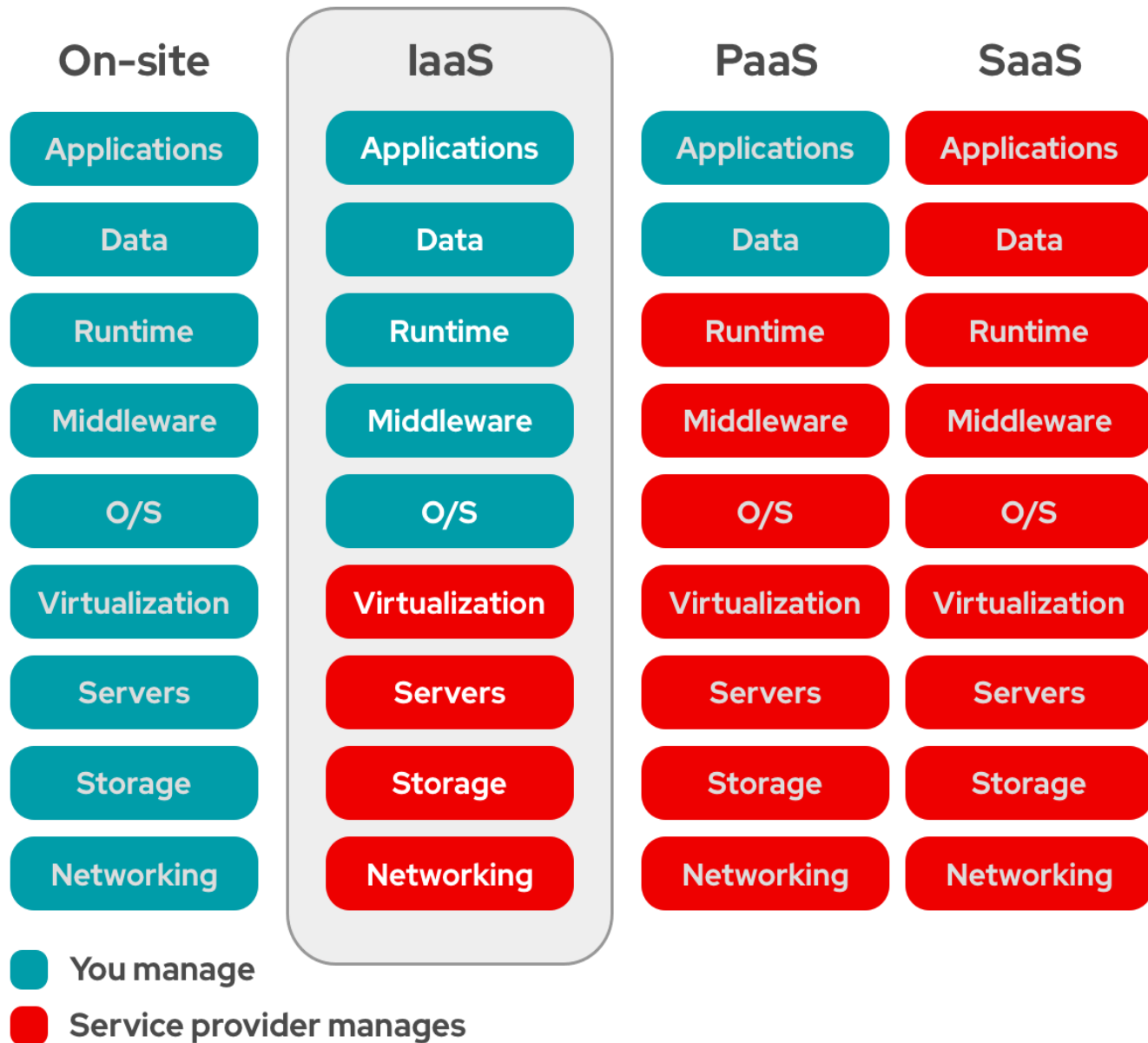


SaaS

SaaS (Software as a Service) is software which is centrally hosted and managed. It is a single version of the application is used for all customers. You can scale out to multiple instances.

This helps you to ensure the best performance in all locations. The software is licensed through a monthly or annual subscription.







Public Cloud

Services are owned and operated by a third party provider.

The maintenance is bared by the service provider.

Pay-as-you-go model. Thus, the setting and operating cost is less.

Lesser security as the platform is shared.

Lesser flexibility & control over the cloud environment.



Hybrid Cloud

Often called as 'the best of both worlds', it combines both public & private cloud.

Greater flexibility & more deployment options.

Cloud bursting is also possible.

Network complexities & compliance issues.

Can be extremely expensive.



Private Cloud

Dedicated to a single organization.

Higher security as the resources are not shared.

Greater flexibility to control the cloud environment.

Purchase and maintenance has to be bared by the organization

Expensive than public cloud.