

WHAT IS CLOUD
COMPUTING?

Understanding Virtualization



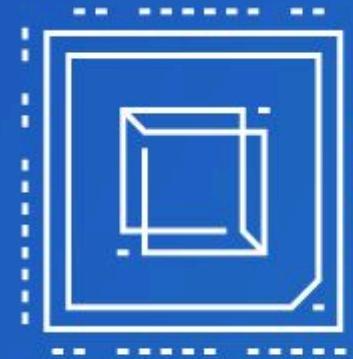
Understanding Virtualization

The benefits of virtualization include:

- **Reduced capital expenditure:** less hardware is required as you have the ability to provision multiple VMs on 1 host
- **Reduced operating costs:** There is less hardware, less space, power, and cooling required within your Datacenter
- **Smaller footprint:** Less space is required to house your server hardware
- **Optimization of resources:** In a cloud environment everyone can benefit from virtualization, from the cloud vendor to the consumer



When discussing resources within Cloud Computing, it won't be long before you come across the terms such as:



Compute



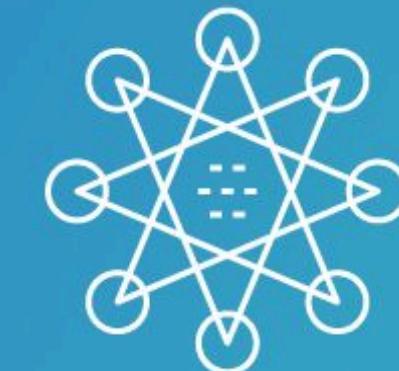
Database



Network



Storage



Machine Learning



Artificial Intelligence

Compute, Storage, Database and Network Resources

‘Cloud Computing’ is a remote virtual pool of on-demand shared resources offering Compute, Storage, Database and Network services that can be rapidly deployed at scale’

Cloud Deployment Models

Cloud Deployment Models



Public Cloud



Private Cloud



Hybrid Cloud

	Public	Private	Hybrid
Security	Adopts a shared responsibility model between the Vendor and the consumer. The Vendor will manage physical security of the datacenter both internally and externally adhering to a range of Security audit controls. The consumer is responsible for the Security within the Cloud utilizing available tools, services and configurations	Security becomes the sole responsibility of the enterprise adopting the Private cloud. Strict governance can be applied at every point throughout the infrastructure stack to the standards that are desired.	Combination of Public and Private allowing enterprises to have stricter controls over security for data hosted in their private cloud, while taking advantage of the benefits of the public cloud.
Data Location	Consumers specify a geographic location to deploy their services and data, but never know the exact physical location of where that data physically resides	Organizations have full knowledge on the location of their data as it is self managed and held on-premise	Combination of Public and Private
Capital Expenditure	None required - All hardware and maintenance of resources are provisioned by the vendor	High - As hardware is housed and maintained on-premise equipment needs to be procured	Combination of Public and Private
Operational Expenditure	Variable - Simply pay for the resources that you use only when you are using them	High - Additional resources required to maintain and run the hardware, along with the ongoing costs of space, power and cooling within the Data Centre	Combination of Public and Private
Tenancy	Resources can be shared between multiple tenants, in addition to dedicated resources for dedicated tenants	Resources are privately shared for single tenant use	Combination of Public and Private

Key Cloud Concepts

Cloud Computing has a number of key characteristics that allow it to be the **powerful service** that it is today



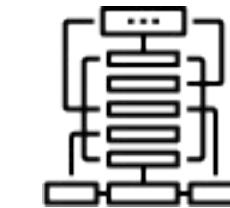
On-Demand Resourcing



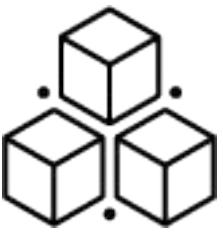
Utility Based Metering



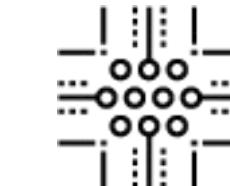
Scalability



Shared Infrastructure



Economy of Scale



Highly Available



Flexibility & Elasticity



Security

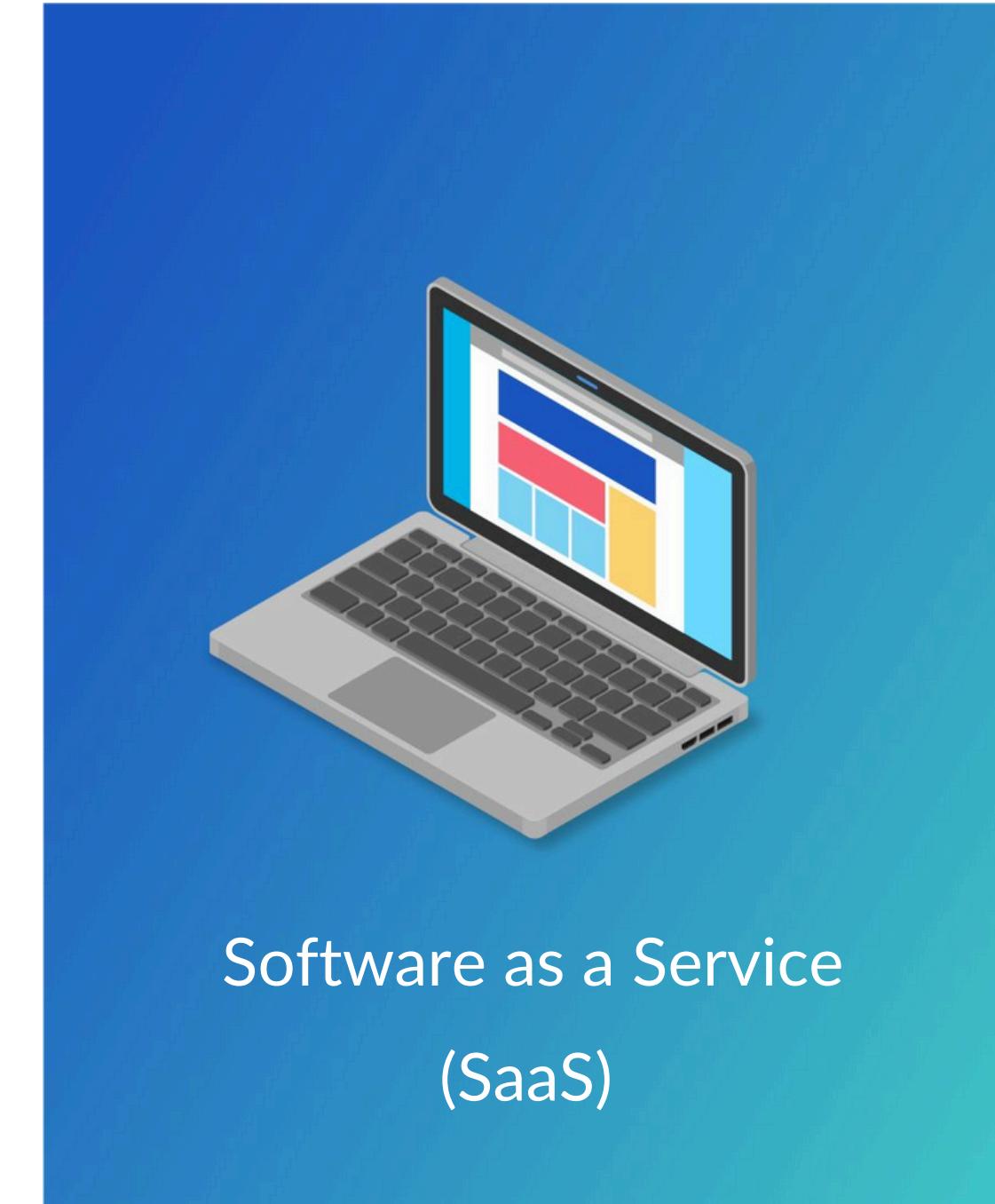
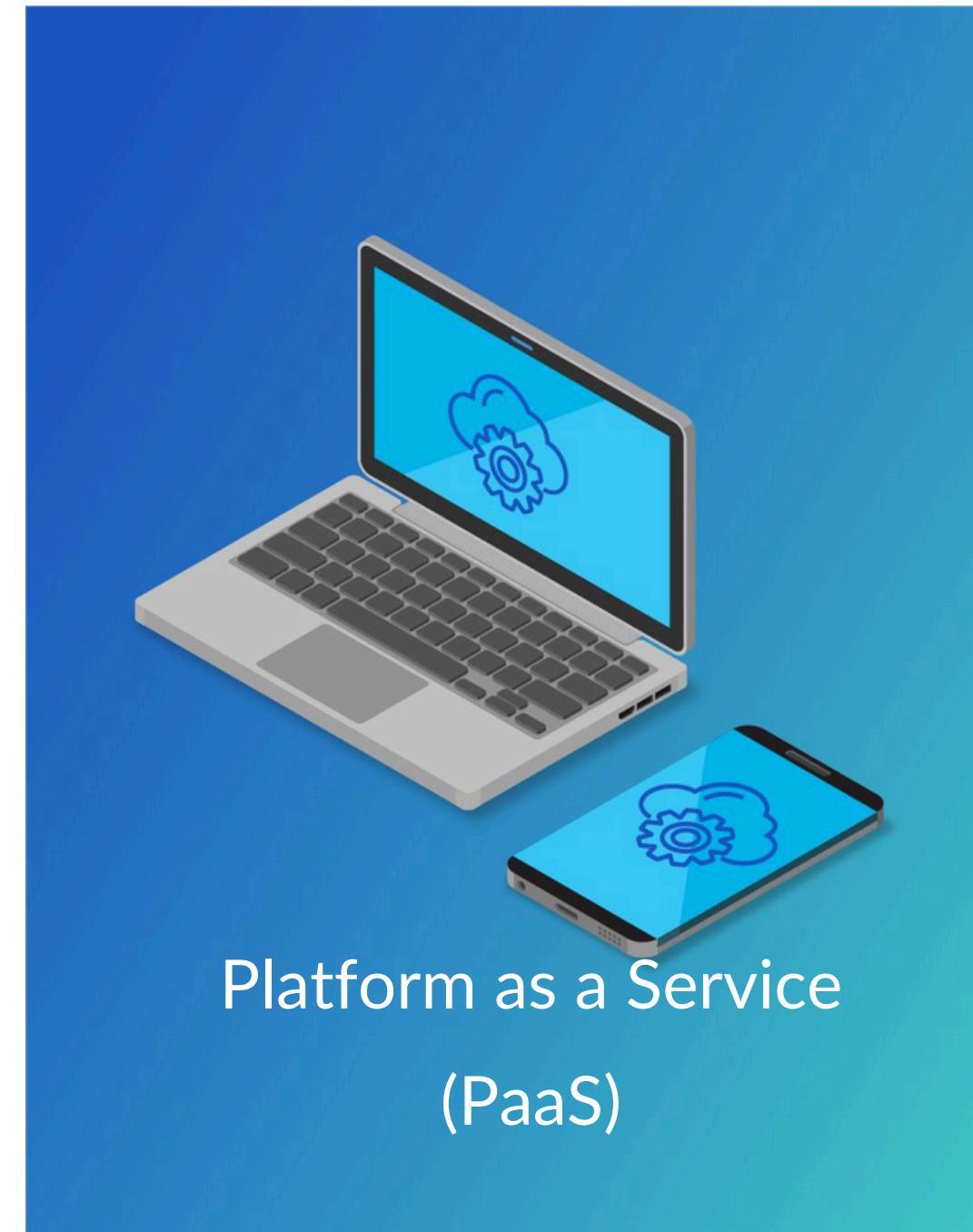


Growth

Cloud Service Models

Cloud Service Models

You will need to know which Service model you would like to deploy within it



Cloud Service Models

Other Services

There are a number of other Service models such as **DRaaS (Disaster Recovery as a Service)**, **CaaS Communications as a Service** and **MaaS, Monitoring as a Service**

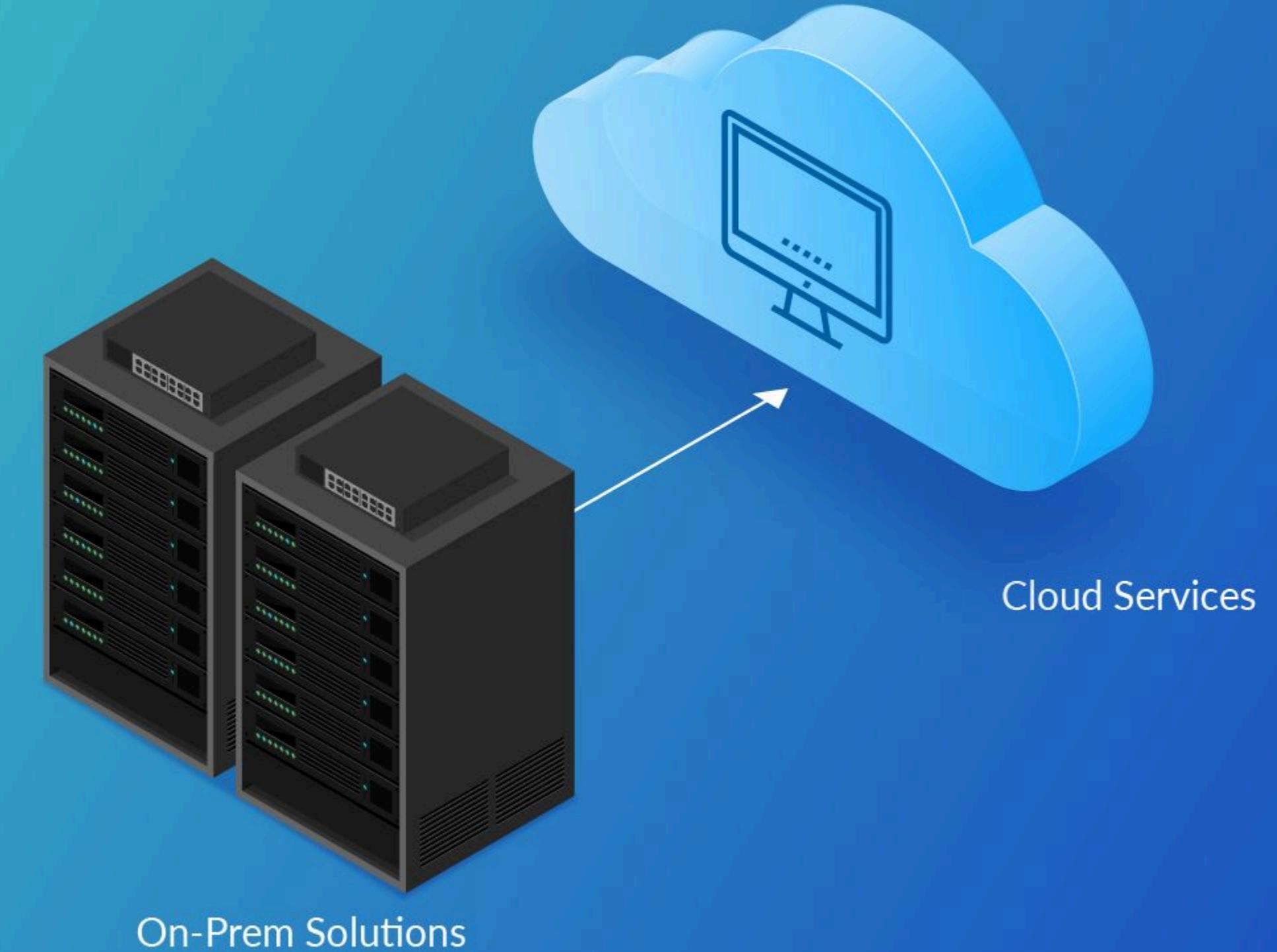
For the purpose of this course, we do not need to delve into these

For now, you simply need to focus and be aware of **SaaS**, **PaaS** and **IaaS** as these are the most common within the industry

Common Use Cases of Cloud Computing

Uses of Cloud Computing

- Migration of Production Services
- Traffic Bursting
- Backup / Disaster Recovery
- Web Hosting
- Test/Dev Environments
- Big Data/Data Manipulation



How Data Center Architecture is Reflected in the Cloud

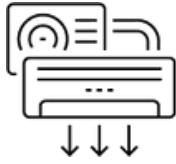
The datacenter and its architecture can be logically broken down as follows:



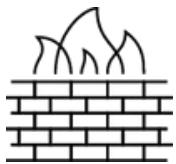
Location (Where it's geographically located)



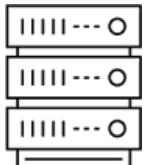
Physical Security (External/Internal)



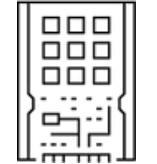
Mechanical & Electrical infrastructure (CRAC (Computer Room Air Conditioning) Units/Generators/UPS/Fire Suppression



Network Infrastructure (Switches/Routers/Firewalls)



Servers (Application/Directory/Database)



Storage (NAS/SAN/Block Storage/Backup)

Any Questions?

- Your feedback is important to us.
-

