

# Cloud Deployment Models



- The NIST define four Cloud Deployment Models:
  - Public Cloud
  - Private Cloud
  - Community Cloud
  - Hybrid Cloud

# Public Cloud



- 'The cloud infrastructure is provisioned for open use by the general public. It may be owned, managed, and operated by a business, academic, or government organization, or some combination of them. It exists on the premises of the cloud provider.' *NIST*

# Public Cloud Examples



- All the Cloud Providers you know about, like:
  - AWS
  - Microsoft Azure
  - IBM Bluemix
  - Salesforce
- This is by far the most common deployment model

# Private Cloud



- ‘The cloud infrastructure is provisioned for exclusive use by a single organization comprising multiple consumers (e.g., business units). It may be owned, managed, and operated by the organization, a third party, or some combination of them, and it may exist on or off premises.’ *NIST*
- Private Cloud works the same way as Public Cloud, but the services are provided to internal business units instead of to external public enterprises.

# How is Private Cloud Different than On Prem?

- Private Cloud fulfils the Cloud 'Essential Characteristics':
  - On-Demand Self-Service
  - Rapid Elasticity
  - Broad Network Access
  - Resource Pooling
  - Measured Service

# How is Private Cloud Different than On Prem?

- With the traditional On Premises model, a business unit orders a new server by raising a ticket with the IT department. The server is then provisioned and configured by the server, network, and storage teams as separate manual processes.
- With Private Cloud, a business unit orders a new server typically through a web portal. The server is then completely automatically provisioned without requiring manual intervention.

# How is Private Cloud Different than On Prem?

- The company will use automation software such as Cisco UCS Director
- The APIC-EM can be used as an SDN controller
- Private Cloud is most suitable for large companies where the long term ROI and efficiency gains can outweigh the initial effort and cost to set up the infrastructure and automated workflows.

# Private Cloud Examples



- Companies with Private Cloud don't usually advertise the fact because it's, well, private.
- A well known example is the US Department of Defense on Private Cloud provided by AWS. This is an example of Private Cloud owned, managed, and operated by a third party.



# Not Really 'Private Cloud'



- Public Cloud IaaS providers will sometimes market Dedicated Servers as Private Cloud because the underlying servers are dedicated for a particular customer
- This is not true Private Cloud however as the supporting network infrastructure is shared with other customers

# Community Cloud



- ‘The cloud infrastructure is provisioned for exclusive use by a specific community of consumers from organizations that have shared concerns (e.g., mission, security requirements, policy, and compliance considerations).’ *NIST*
- This is the least common deployment model. It is sometimes used in government environments

# Hybrid Cloud



- ‘The cloud infrastructure is a composition of two or more distinct cloud infrastructures (private, community, or public) that remain unique entities, but are bound together by standardized or proprietary technology that enables data and application portability (e.g., cloud bursting for load balancing between clouds).’ *NIST*

# Hybrid Cloud



- Companies with limited Private Cloud infrastructure may 'cloud burst' into Public Cloud for additional capacity when required
- A company could also have Private Cloud at their main site and use Public Cloud for their Disaster Recovery location