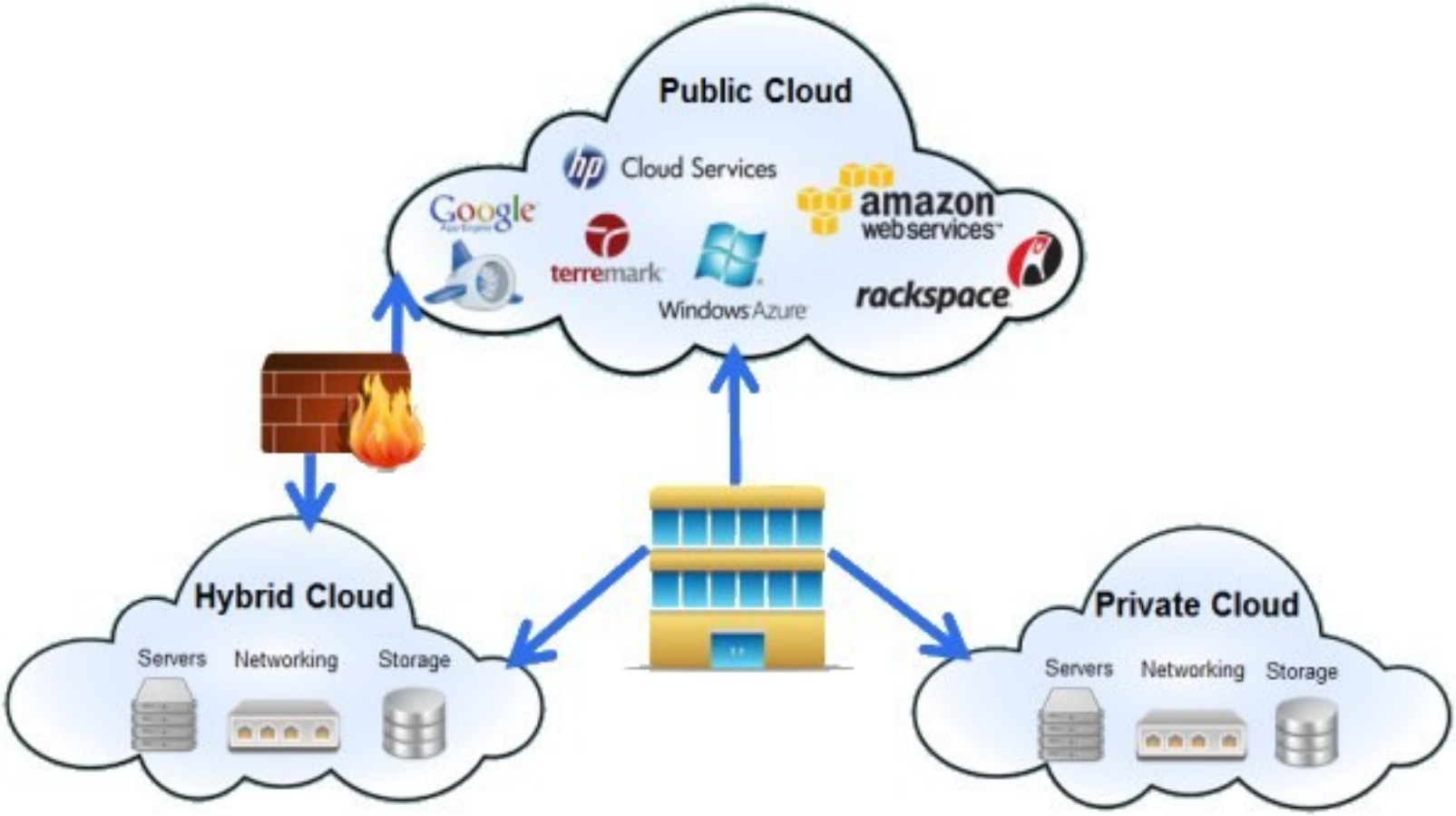
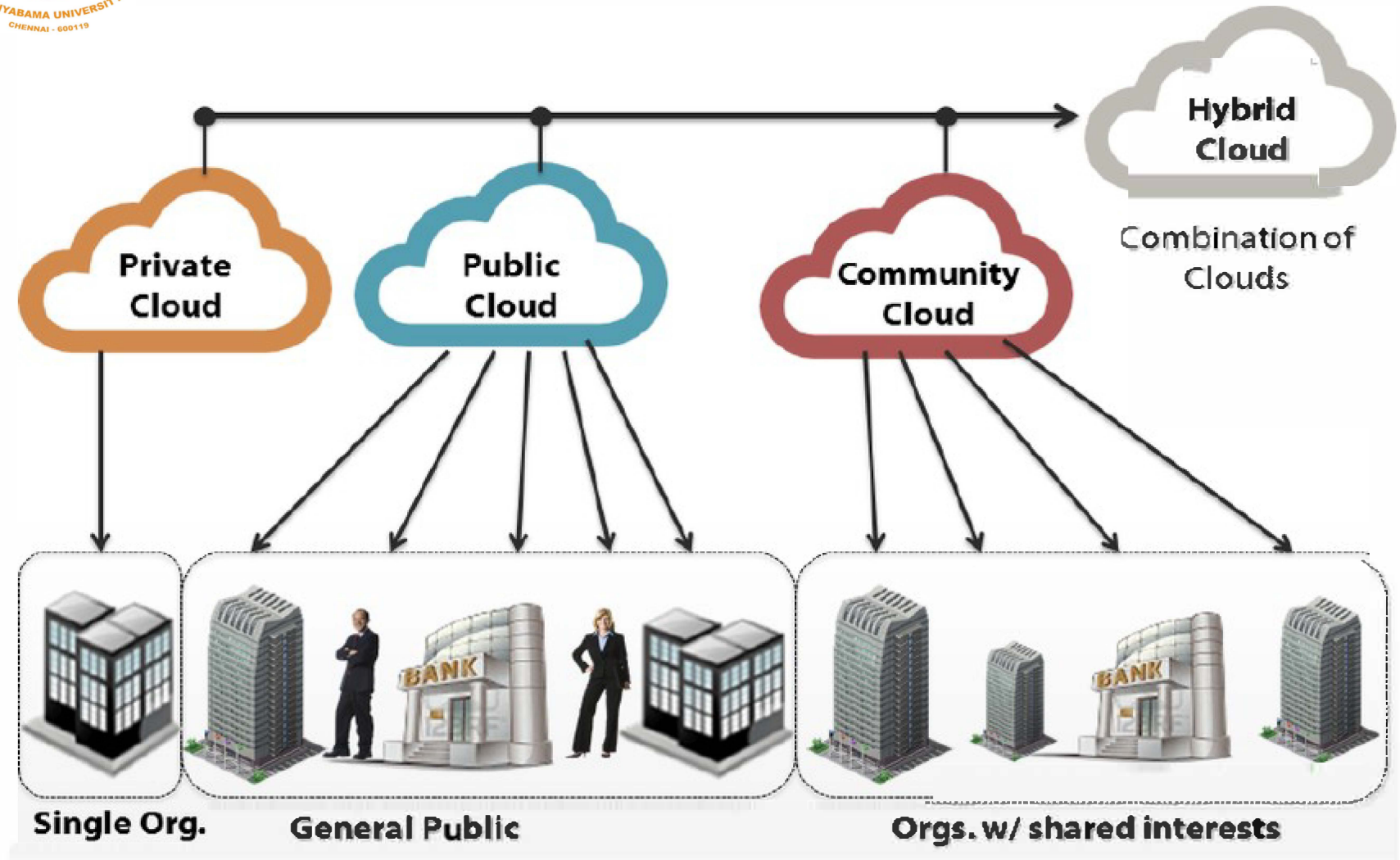
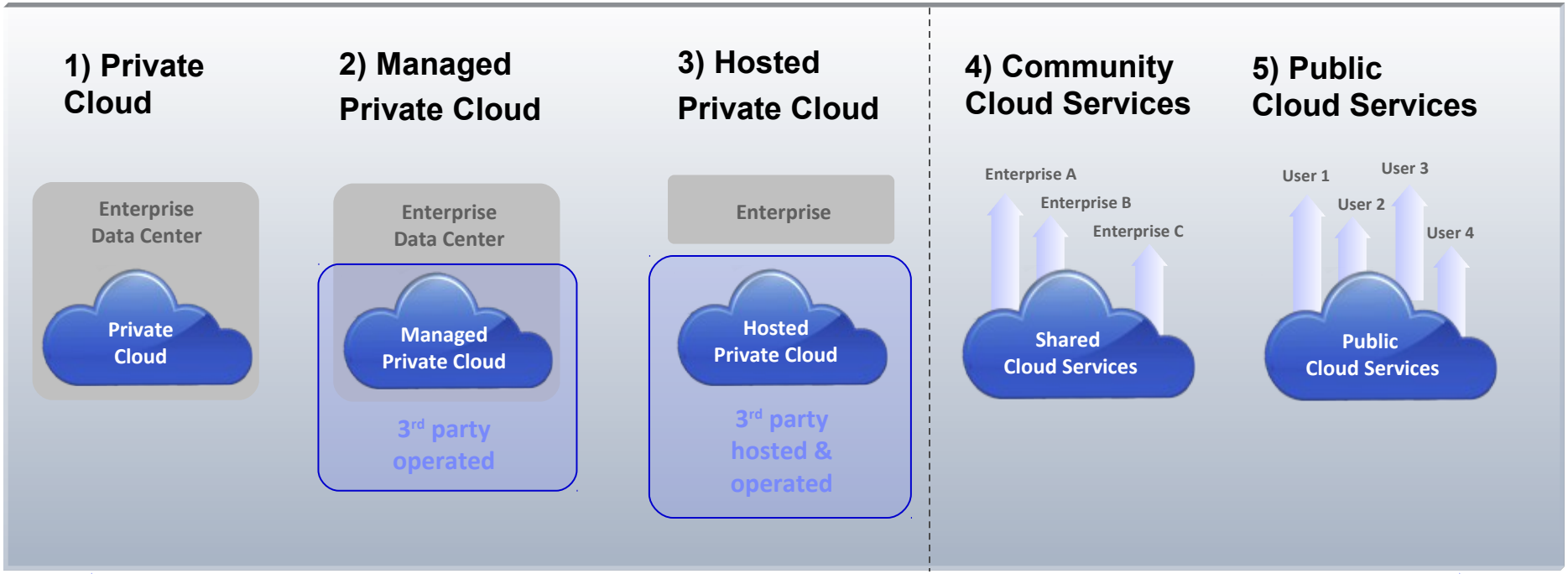
Cloud Deployment Models




Hybrid Cloud
Combination of Clouds
Private Cloud
Public Cloud
Community Cloud
BANK
BANK
Single Org.
General Public
Orgs. w/ shared interests

There is a spectrum of deployment options for cloud computing



Private — *Hybrid* — **Public**

Key features
- Scalability
- Automatic/rapid provisioning
- Chargeback ability
- Widespread virtualization
- Security

Key features
- Internal & external services integrated
- Functions allocated to based on requirements, business needs, architecture etc

Key features
- Scalability
- Automatic/rapid provisioning
- Standardized offerings
- Consumption-based pricing.
- Multi-tenancy

Cloud delivery models

Customers are choosing a variety of cloud models to meet their unique needs and priorities.

Private Cloud
On or off premises cloud infrastructure operated solely for an organization and managed by the organization or a third party

Public Cloud
Available to the general public or a large industry group and owned by an organization selling cloud services

Hybrid Cloud
Traditional IT and clouds (public and private) that remain separate but are bound together by technology that enables data and application portability

Traditional IT
Appliances, pre-integrated systems and standard hardware, software, and networking

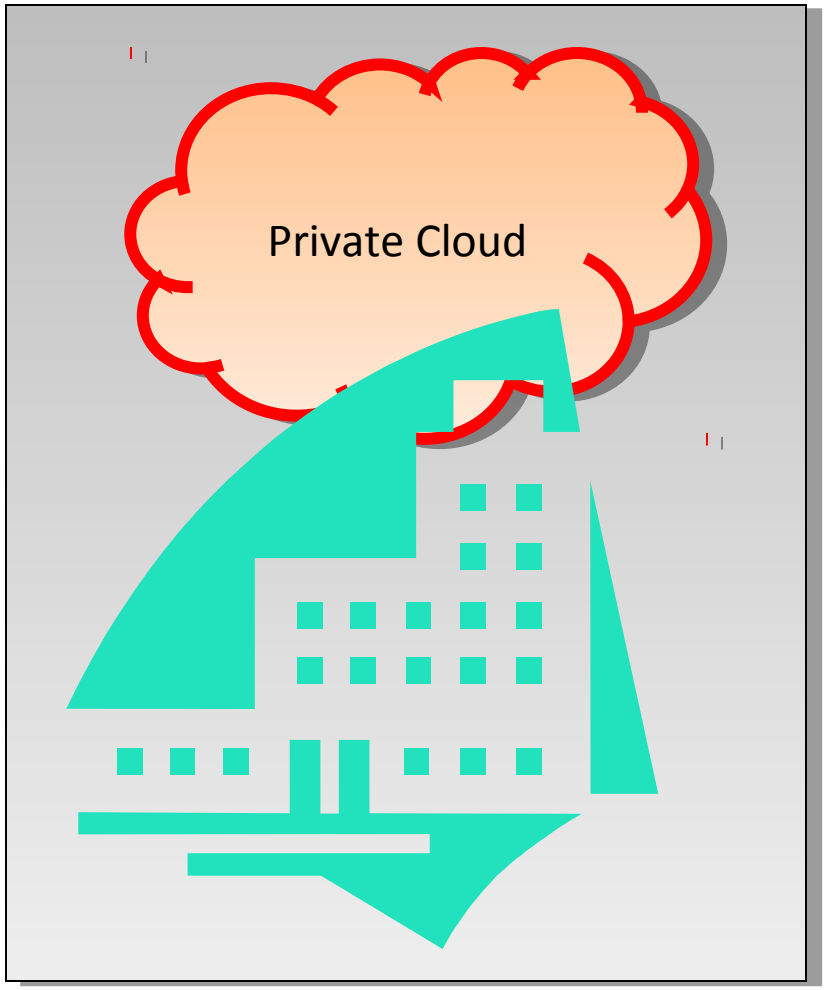
Different delivery models

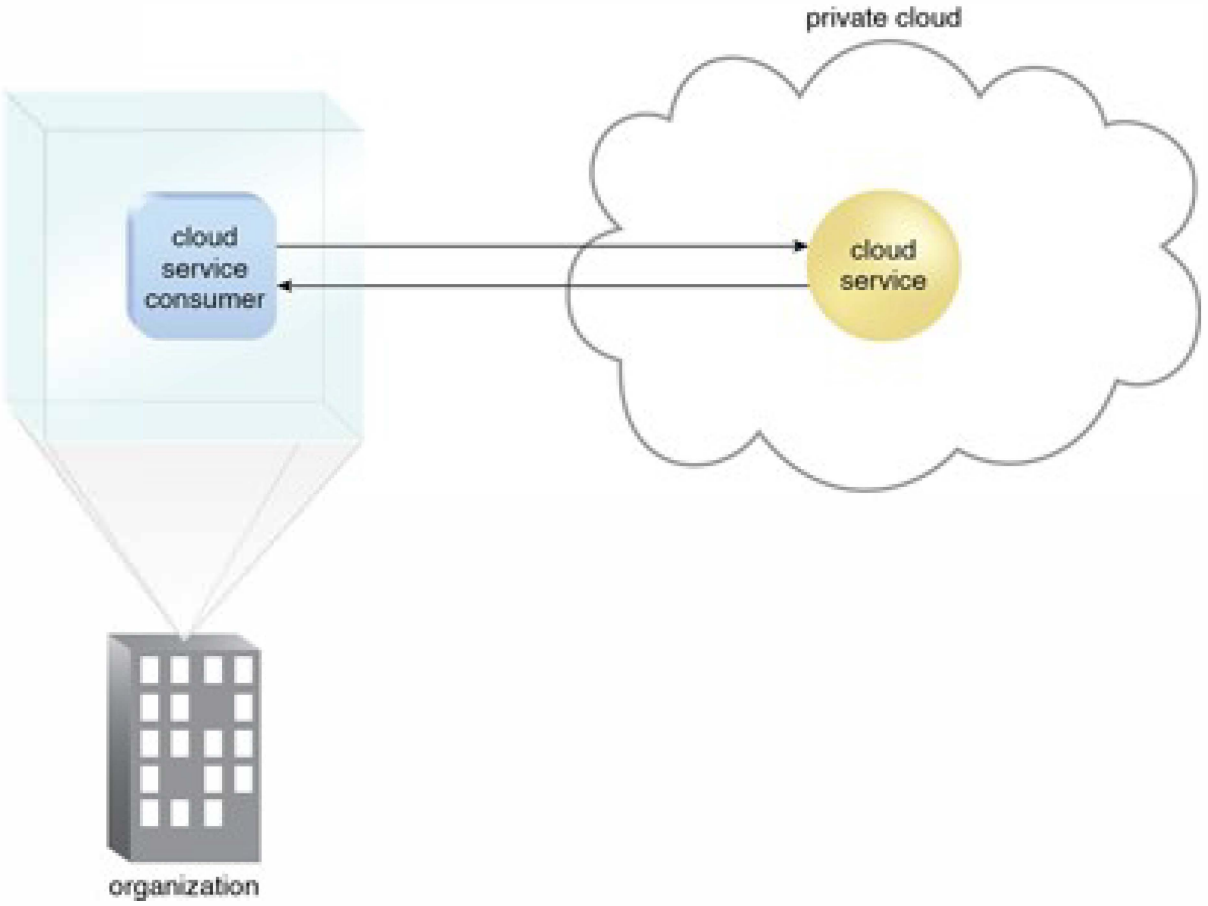
	Traditional IT	Dedicated On-Premise	Hybrid	Off-Premise
Description	Dedicated systems in customers data centre. Bespoke and highly customised to application needs.	Dedicated cloud in customers data centre. Highly automated, pattern based, tuned for workloads.	Combined on-premise and off-premise cloud systems. Includes off-premise private Cloud. Highly standardised build, some parts run by service provider.	Public cloud infrastructure run off premise by service provider. Commodity resources defined by the service provider. Catalog based services.
Cost Model	$$$$ Customer owned. Customer operated. High Capex/ High Opex. Long term commitment.	$$$ Customer owned. Customer operated. High Capex/Medium Opex. Mid term commitment.	$$ Partial customer ownership. Mostly service provider operated. Med Capex/Medium Opex. Short term commitment.	$ Provider owned. Provider operated. Full Opex model. No/short term commitment. PAYG.
Service	High SLAs. 99.999 availability. Custom security. Behind customer firewall.	High SLAs. 99.999 availability. Standardised security. Behind customer firewall.	High SLAs. 99+ availability. Standardised security. Requires good network and security.	Medium SLAs. 98+ availability. Relies upon provider security and trust.
Private/Public	Always private	Always Private	Can be private or public	Likely to be public, but can have dedicated private cloud at off-premise service provider.

Private Cloud

- A private cloud is owned by a single organization.
- Private clouds enable an organization to use cloud computing technology as a means of centralizing access to IT resources by different parts, locations, or departments of the organization.
- When a private cloud exists as a controlled environment, the problems described in the Risks and Challenges section do not tend to apply.

- Cloud infrastructure built in house
- Retains control of resources
- More security & privacy
- Can conform to regulatory requirement
- Needs capital investment
- Needs expertise to build and maintain

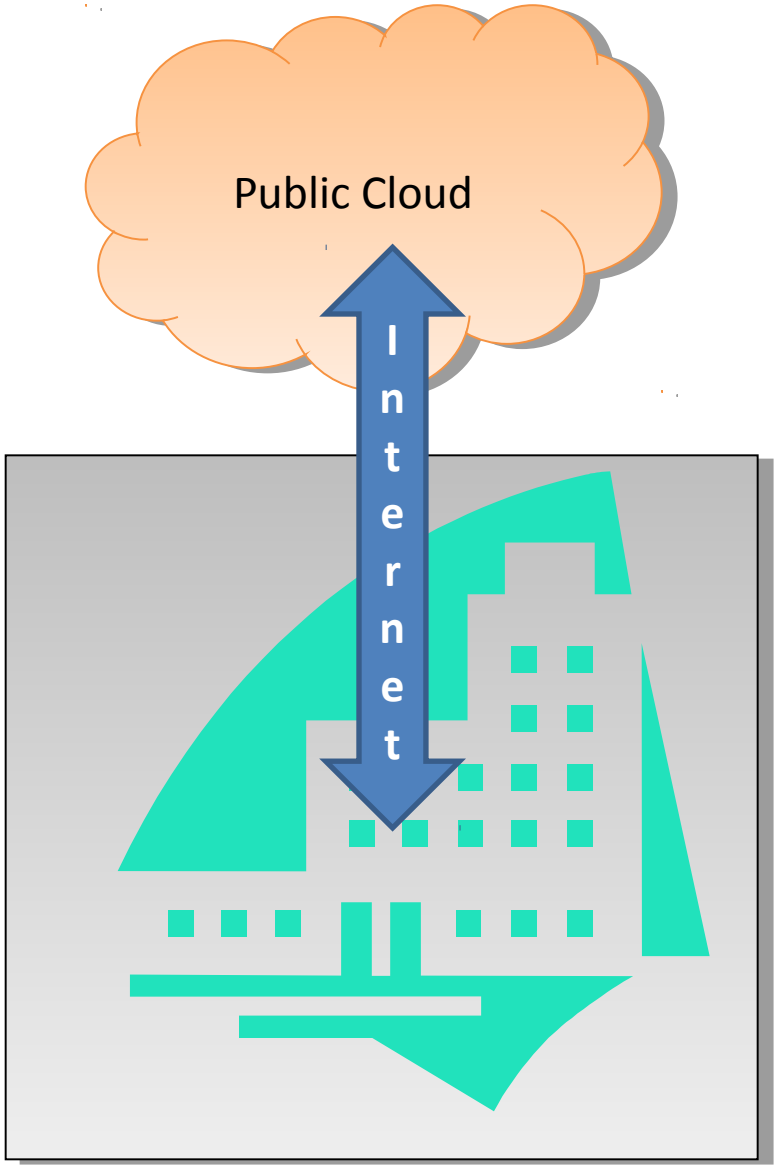



private cloud
cloud service consumer
cloud service
organization

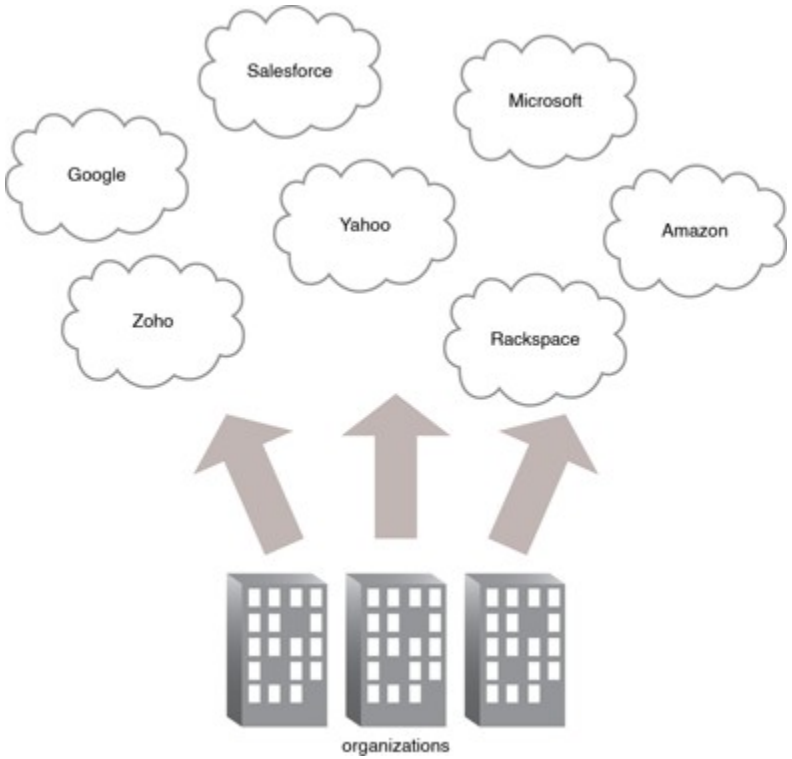
Public Cloud

- A *public cloud* is a publicly accessible cloud environment owned by a third-party cloud provide
- The IT resources on public clouds are usually provisioned via cloud delivery models .
- The cloud provider is responsible for the creation and on-going maintenance of the public cloud and its IT resources.

- Available to everyone.
- Anyone can go and signup for the service.
- Economies of Scale due to Size.
- Some public cloud concerns
  - Ownership
  - Control
  - Regulatory compliance
  - Data/Application security
  - Liability for SLA breaches

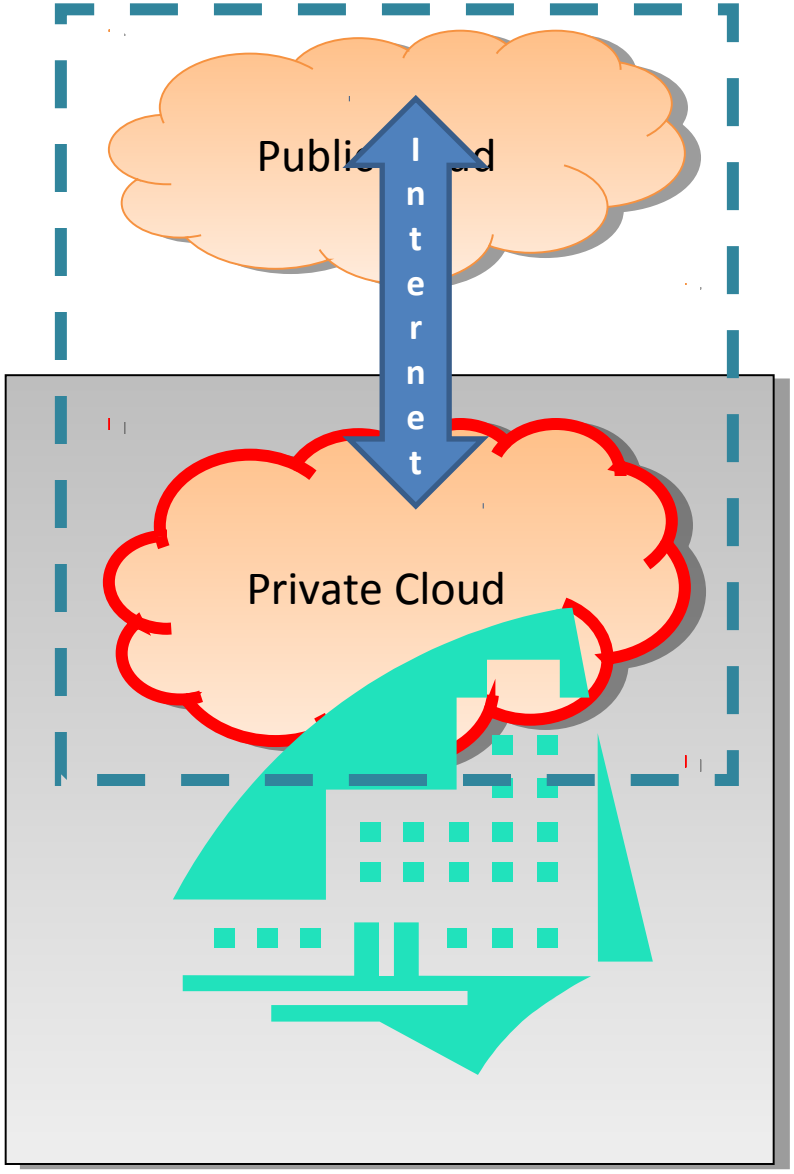


- Many of the scenarios and architectures explored via Public cloud.



Hybrid Clouds

- A hybrid cloud is a cloud environment comprised of two or more different cloud deployment models.
- Best of Both World
- Workload is deployed mostly on private cloud
- Resources can be used from public cloud when there is a surge in peak load (Cloud Burst)



Hybrid delivers benefits beyond only public or private cloud models

Reduce costs and maximise existing IT investments.

- Data centre and infrastructure reused alongside flexible public cloud.

Business agility, scale quickly to respond to business events.

- Move quickly increasing workloads to off-premise Clouds.

Maintain control through application lifecycle.

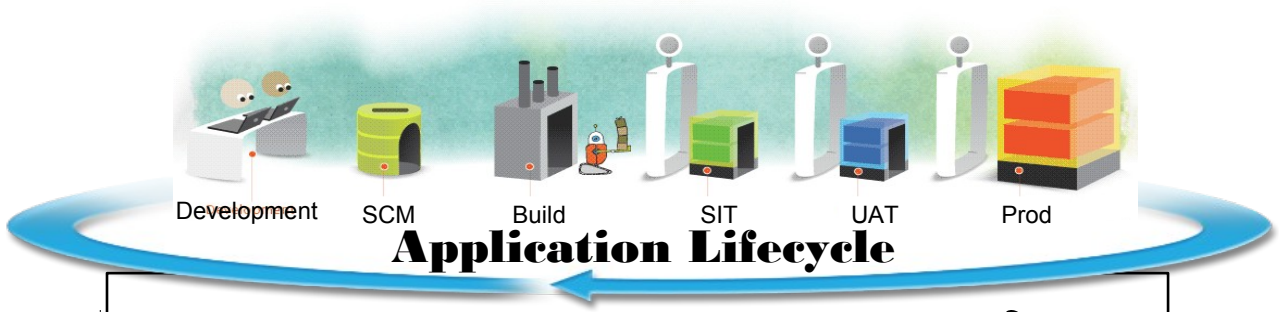
- Single point of control of IT infrastructure resources, consumption and usage

Maintain visibility of important workloads.

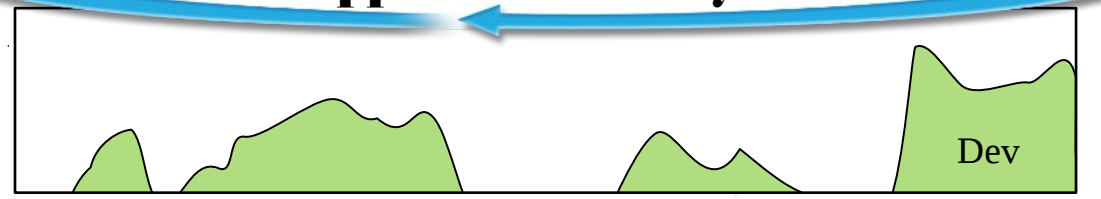
- Workloads placed based on service requirements

Traditional IT	***Dedicated On-Premise***	***Hybrid***	***Shared Off-Premise***
Enterprise class Regulated Workloads	**Flexibility & Resilience Regulated Workloads**	**Performance without commitment**	**Low-cost commodity**
Production User Data	**Production User Data**	**Pre-Production/Test Anonymised Data**	**Test/Dev Anonymised Data**

Adopting hybrid lowers costs while maintaining service levels

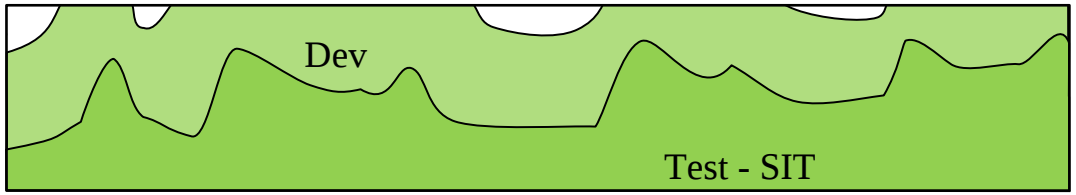


Burst at peak workload to low cost commodity provider



No commitment
Pay as you go - commodity

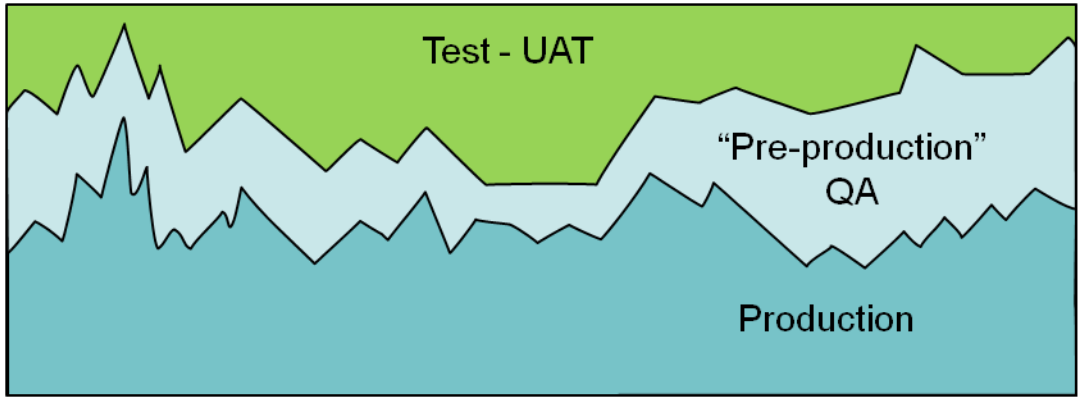
Low priority workloads moved externally



Long term flexibility with external Dedicated Private

Exploit unused production capacity

Data centre prioritised for high-availability production workloads with service mgmt



Lower investment in fixed data centre assets
ITIL managed

Time

Customer Scenario	Service Model	Deployment Model	Benefits
Payroll Processing	IaaS (VMs), cloud storage	Public Cloud	Processing time reduced Hardware requirements reduced Elasticity enabled for future expansion
Astronomic Data Processing	IaaS (VMs), cloud storage	Public Cloud	Hardware expense greatly reduced processing power and storage) Energy costs greatly reduced Administration simplified
Central Government	IaaS, PaaS	Private Cloud	IT expertise consolidated Hardware requirements reduced
Local Government	IaaS, PaaS	Hybrid Cloud	IT expertise consolidated Hardware requirements reduced