



A · P · U
ASIA PACIFIC UNIVERSITY
OF TECHNOLOGY & INNOVATION

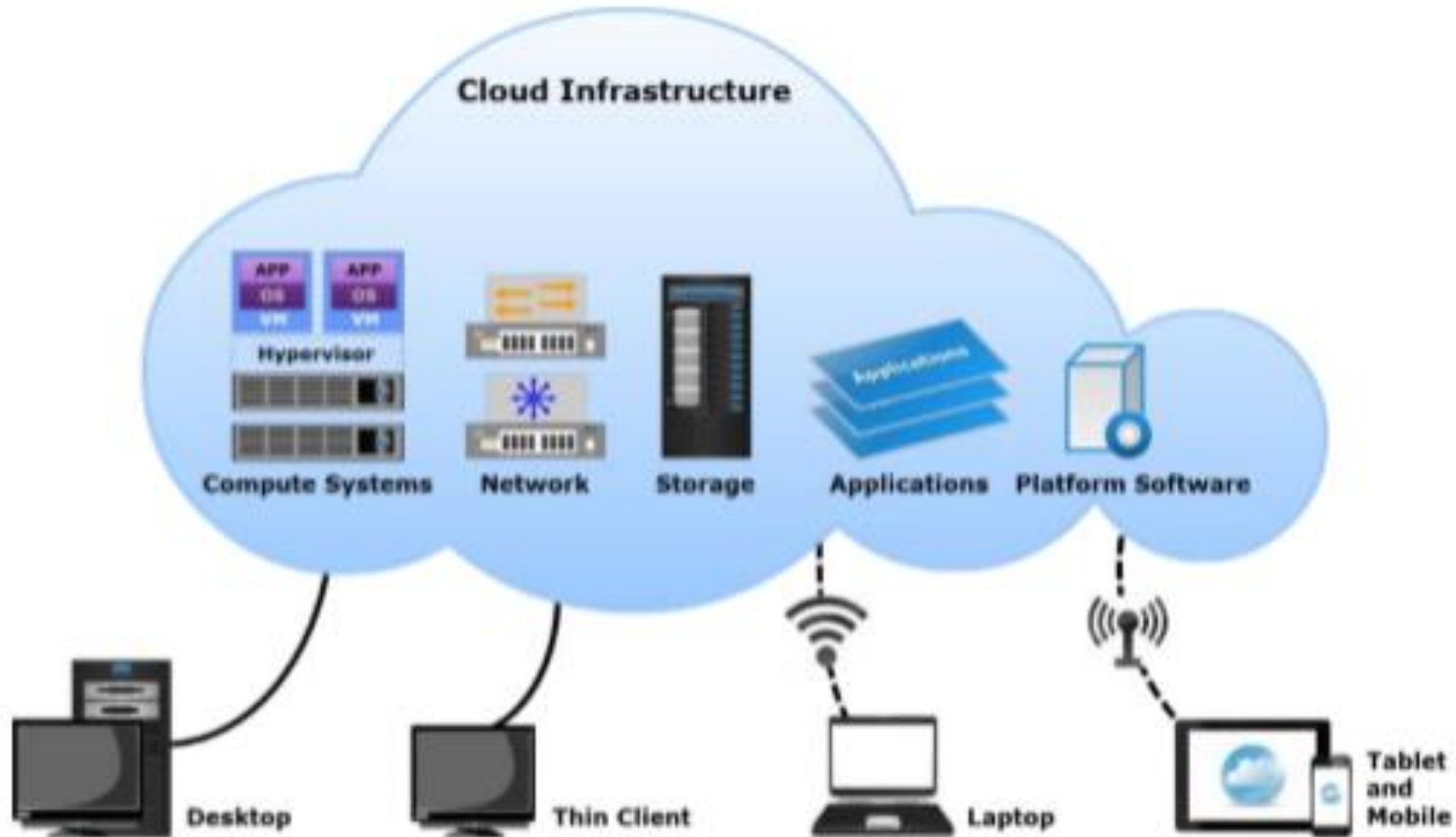
Data Protection and Management

Cloud Based Data Protection

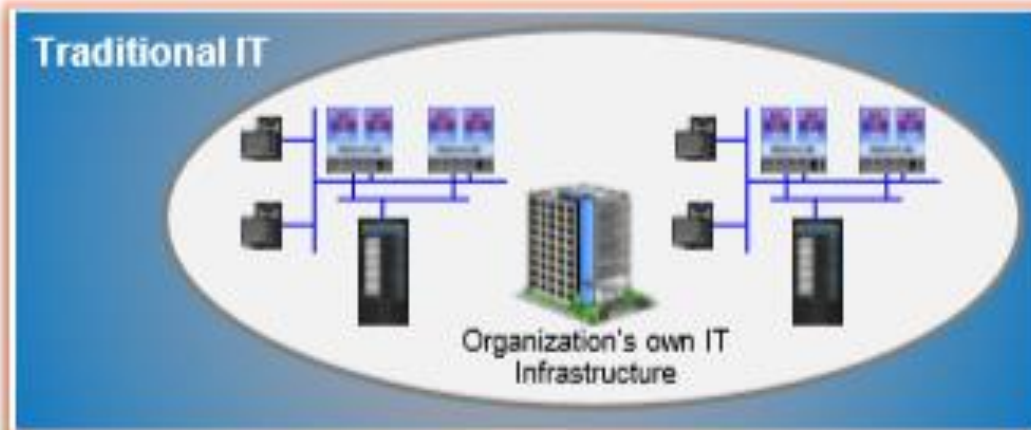
Learning Outcome

- At the end of this lecture you should be able to;
 - Describe cloud computing and its essential characteristics • Describe cloud service models and the cloud deployment models
 - Describe cloud-based backup, replication, archiving, and migration
 - Apply the concept of cloud in a data protection environment to address the organizations challenges and requirements

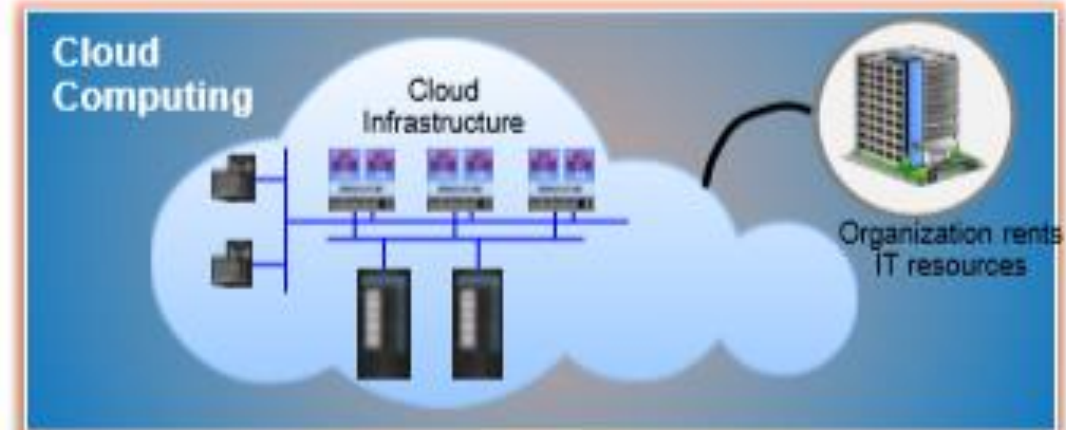
What is Cloud Computing?



Traditional IT vs. Cloud Computing



- IT resources are owned and managed
- Needs considerable time to acquire and provision resources
- Lacks ability to support needed business agility
- IT resources are planned for peak usage
- Underutilized resources
- High up-front CAPEX



- IT resources are rented as services
- On-demand resource provisioning and scalability
- Self service provisioning of resources
- Resource consumption is metered
- Provides business agility and high utilization
- Offers reduced CAPEX

Essential Cloud Characteristics

Rapid elasticity

Measured service

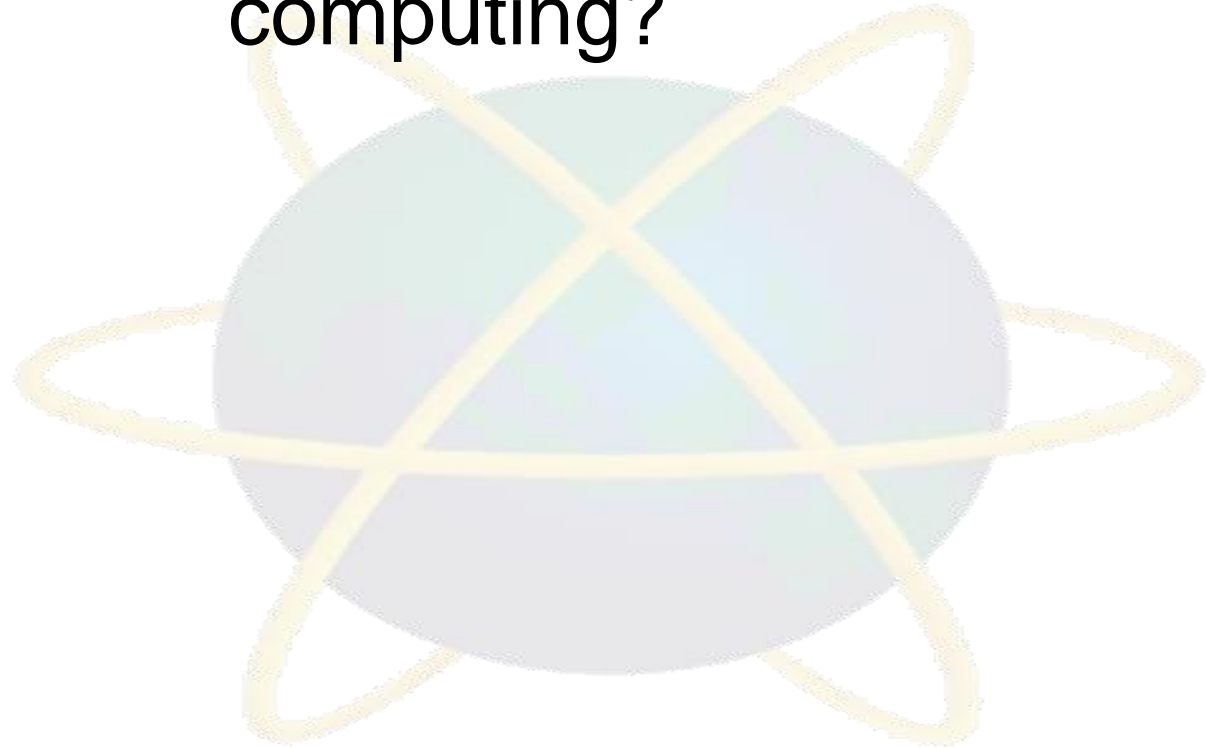
On-demand self service

Broad network access

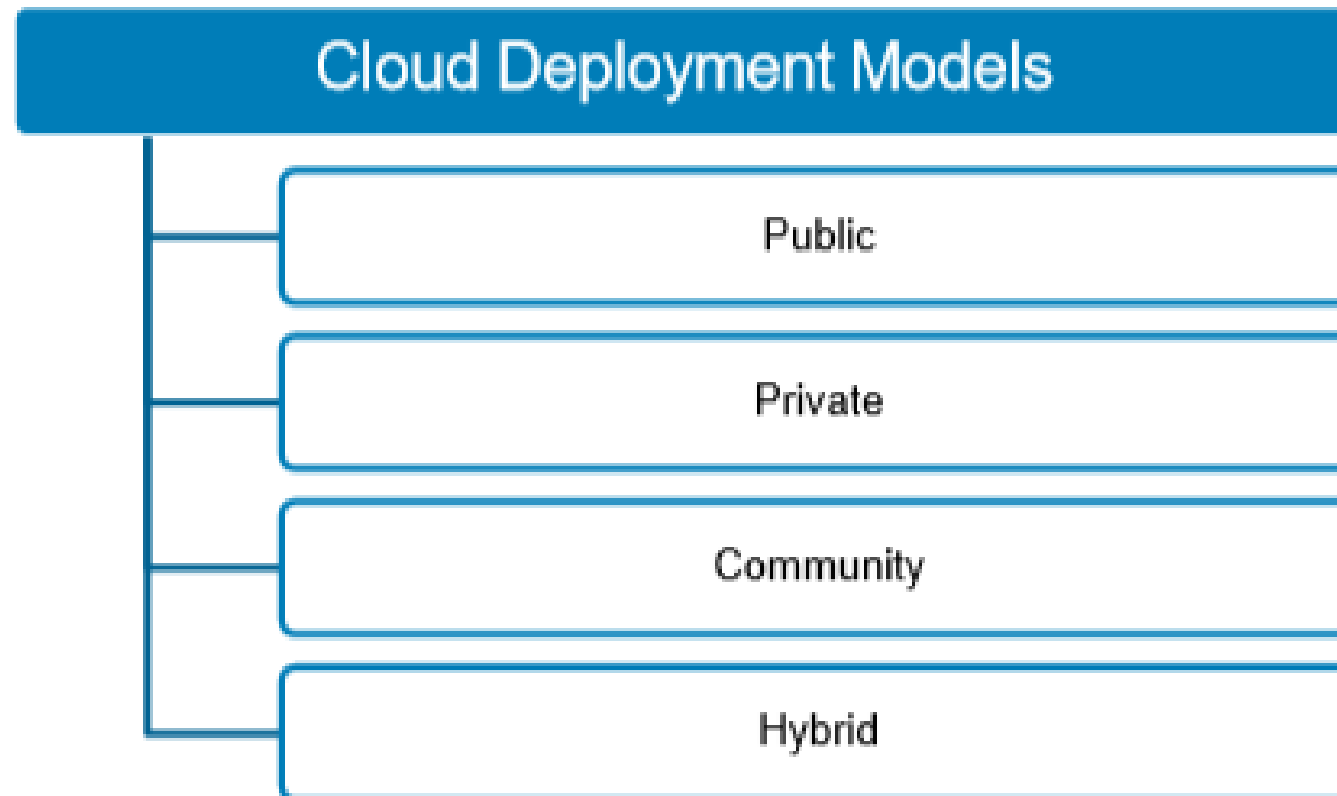
Resource pooling



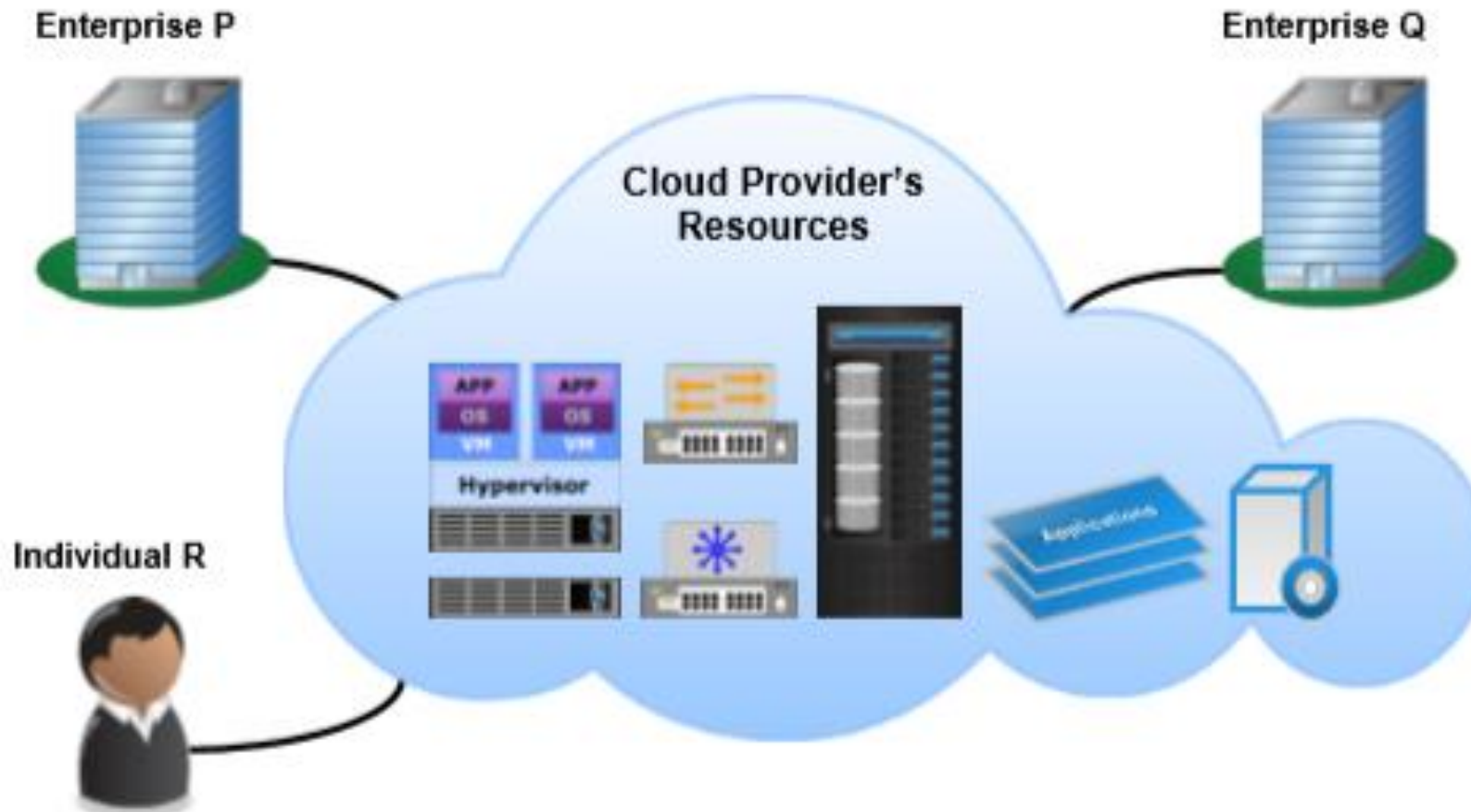
- Define Cloud computing
- What are the difference between traditional IT and cloud computing?



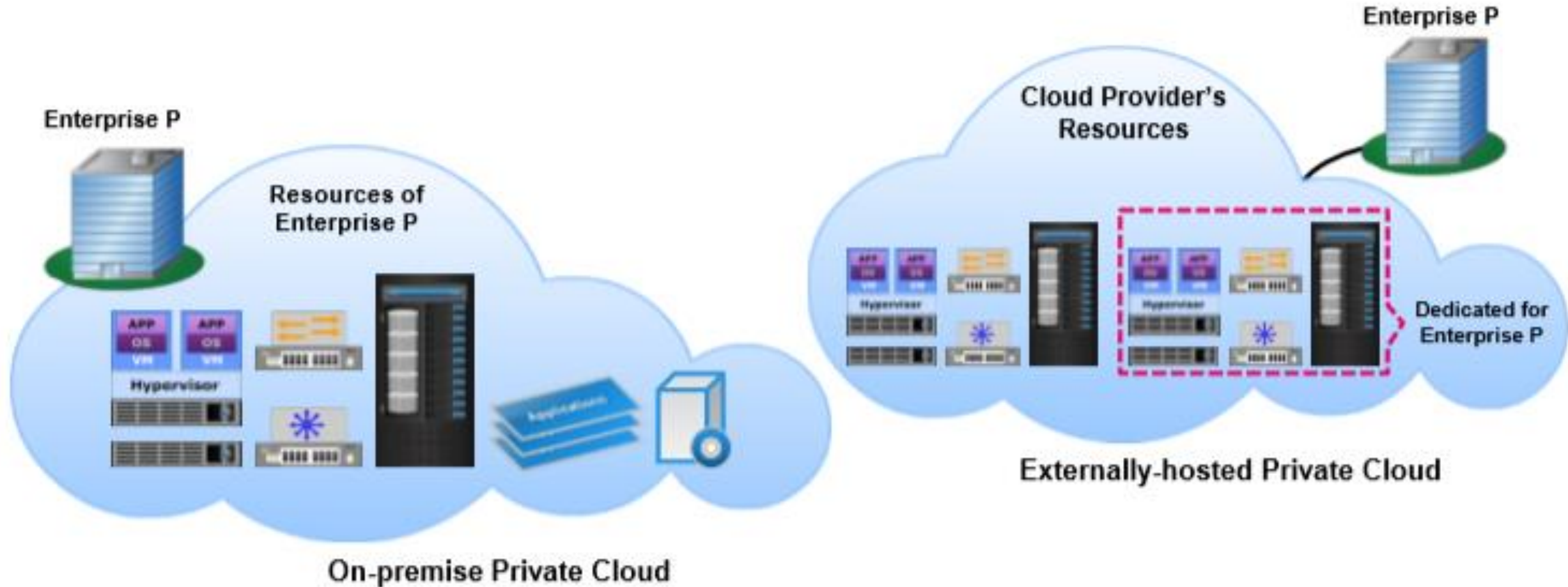
Cloud deployment models provide basis for how cloud infrastructure is built, managed, and accessed



Public Cloud

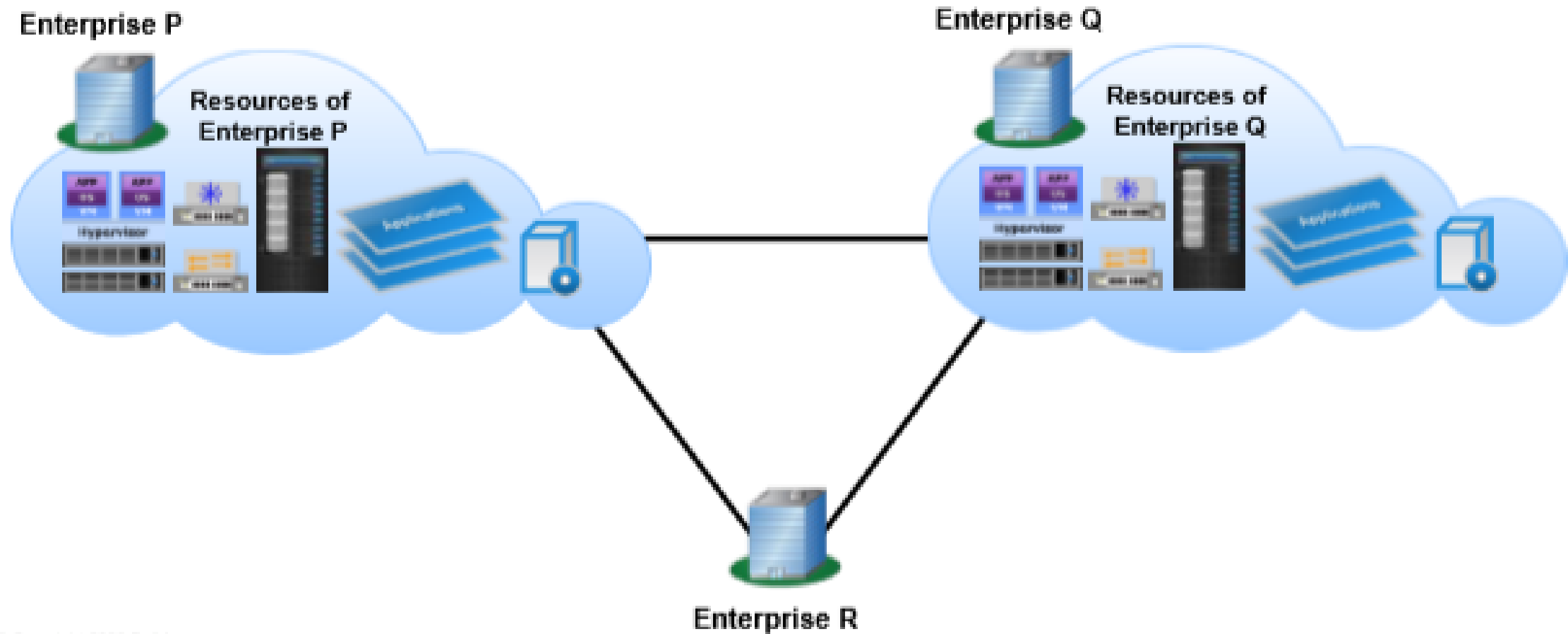


Private Cloud



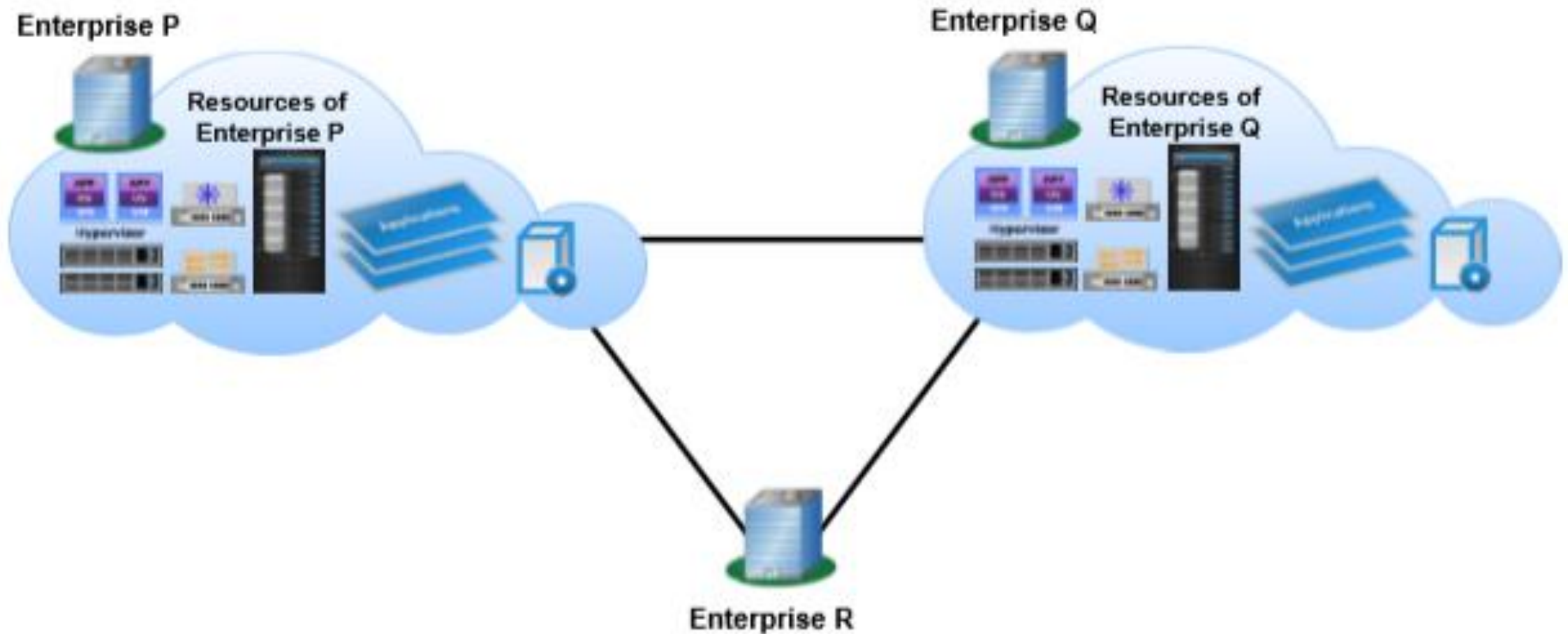
Community Cloud

On-premise Community Cloud

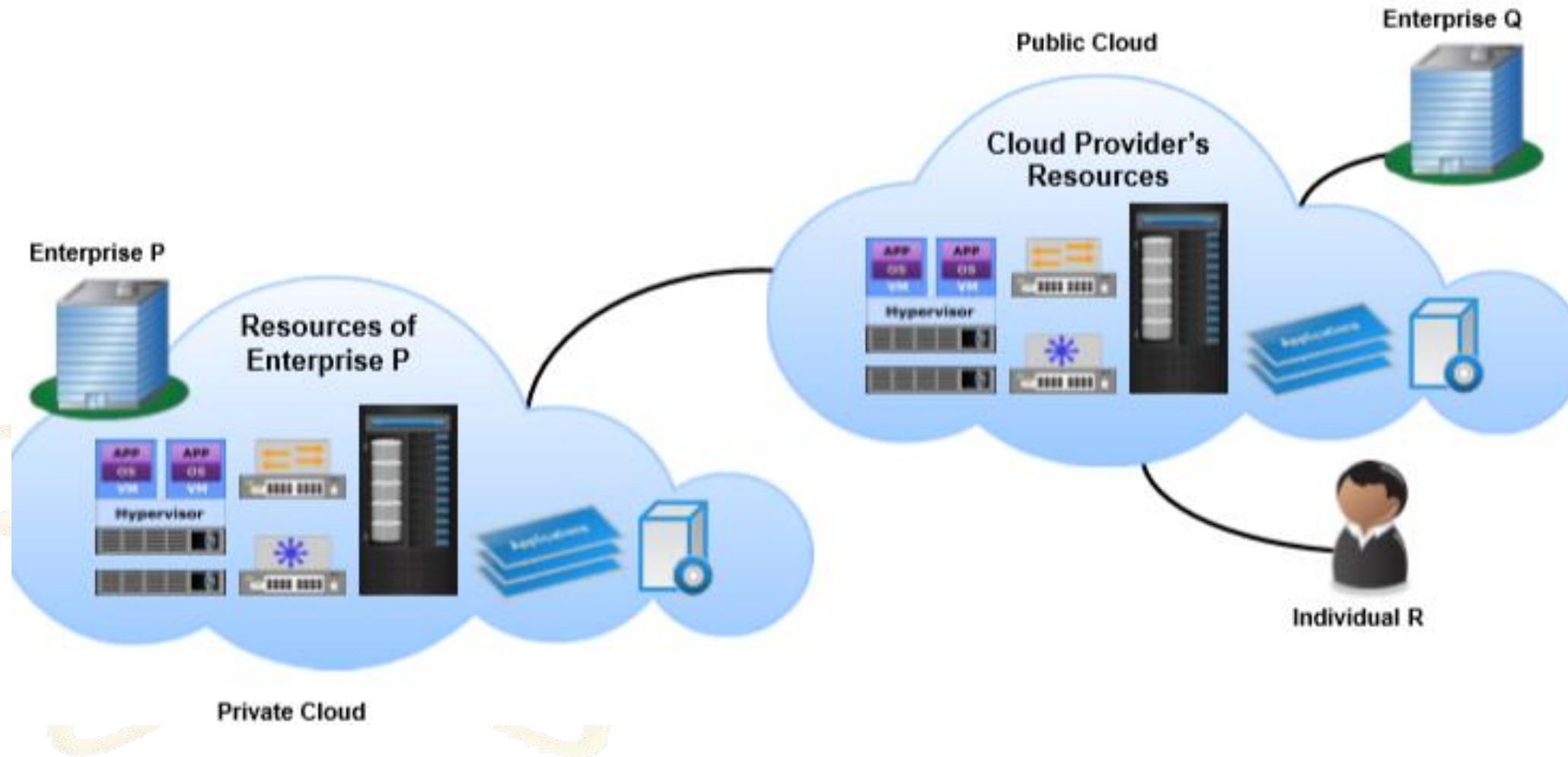


Community Cloud

Externally-hosted Community Cloud

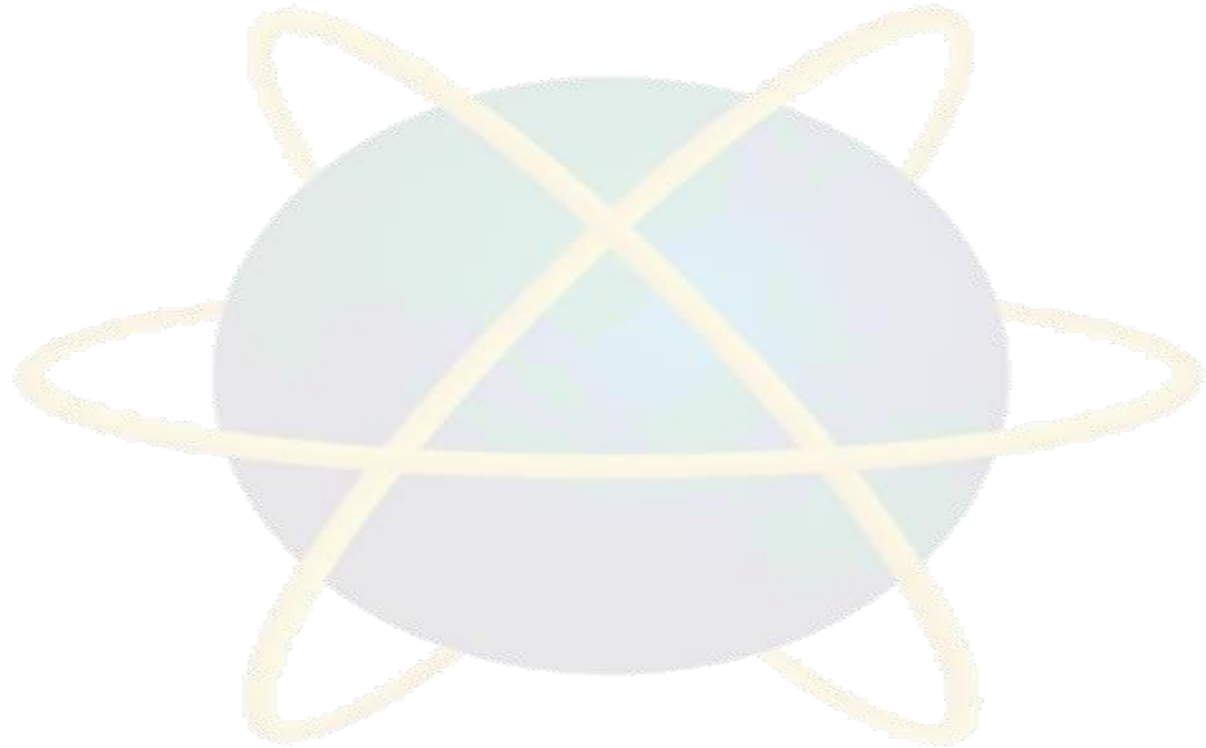


Hybrid Cloud

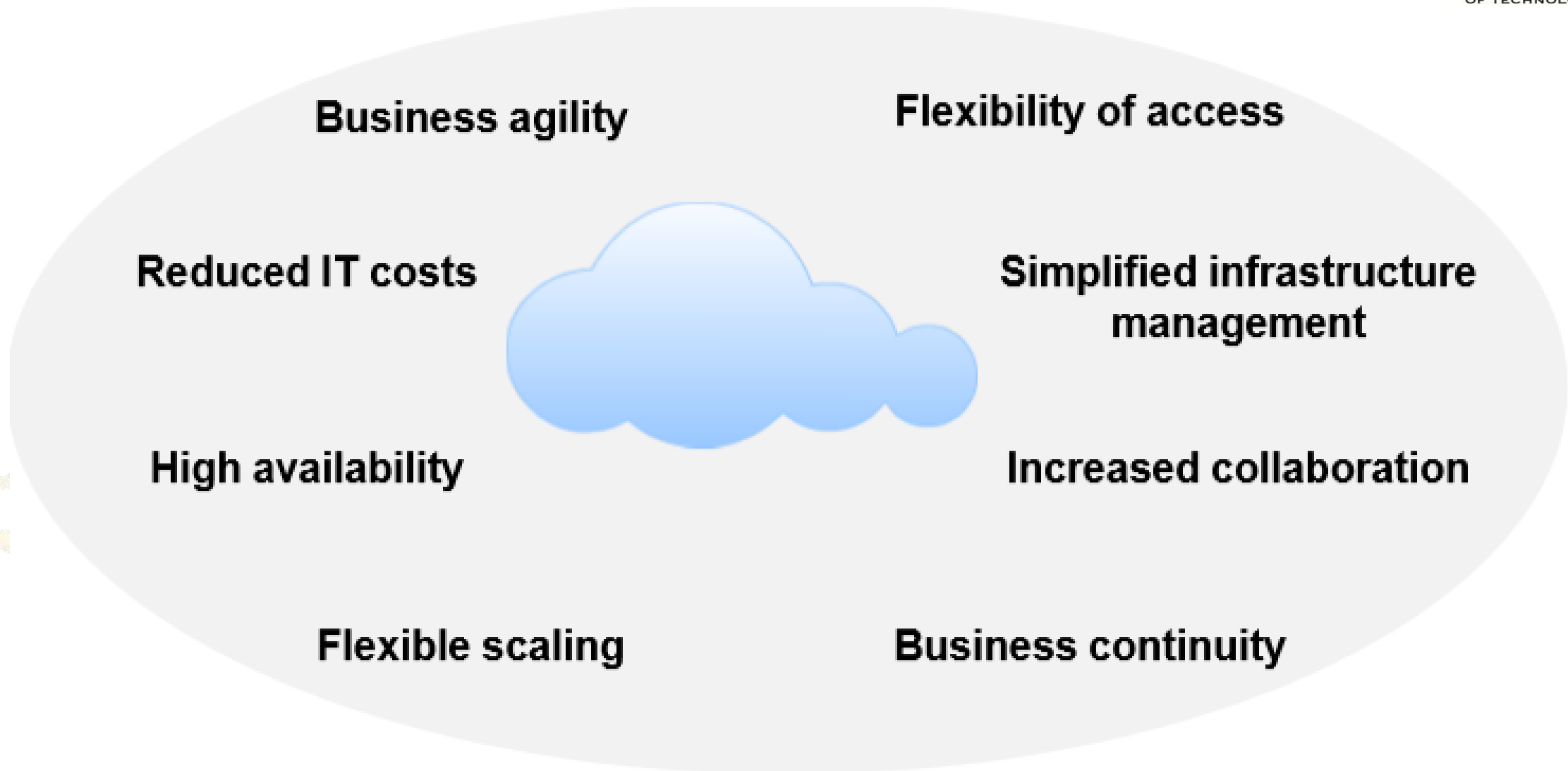


Quick Review

- Explain the important characteristics of cloud computing
- Identify and explain the types cloud deployment models



Cloud Benefits



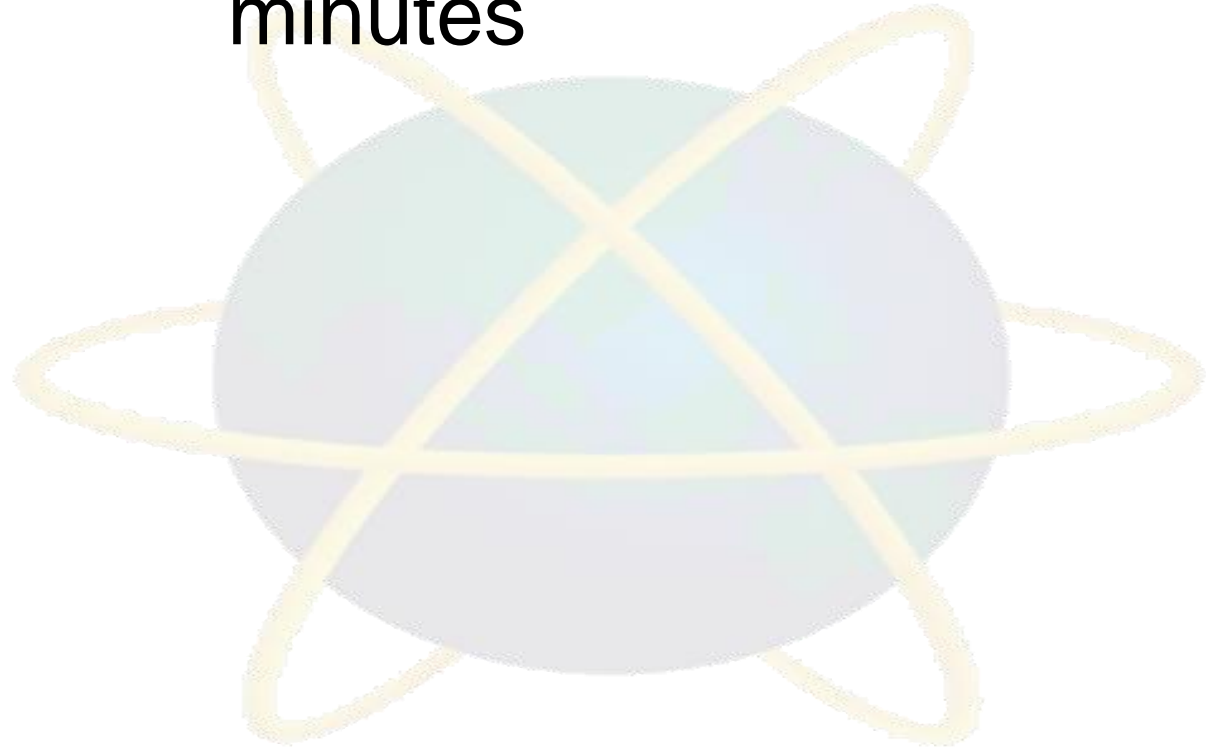
Protecting Data in Cloud

- ✓ Enables consumers to procure backup services on-demand
- ✓ Reduces the backup management overhead
- ✓ Backing up to cloud ensures regular and automated backup of data
- ✓ Gives the consumers the flexibility to select a backup technology based on their current requirements

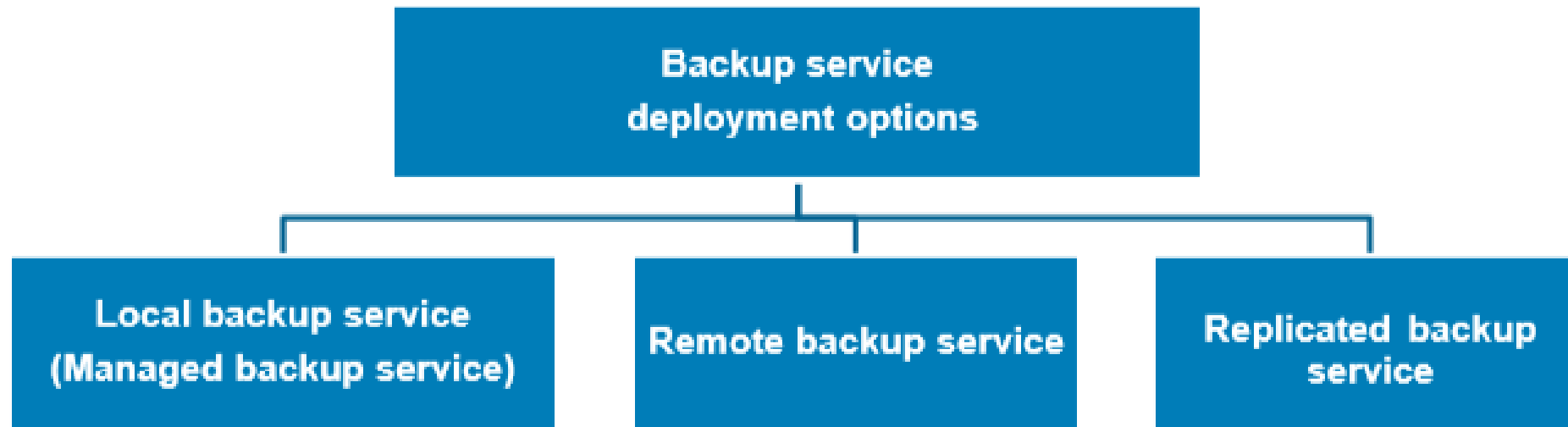


Quick Review

- Using a case explain how do protect data in cloud
- Express your view about the clouds benefits for two minutes

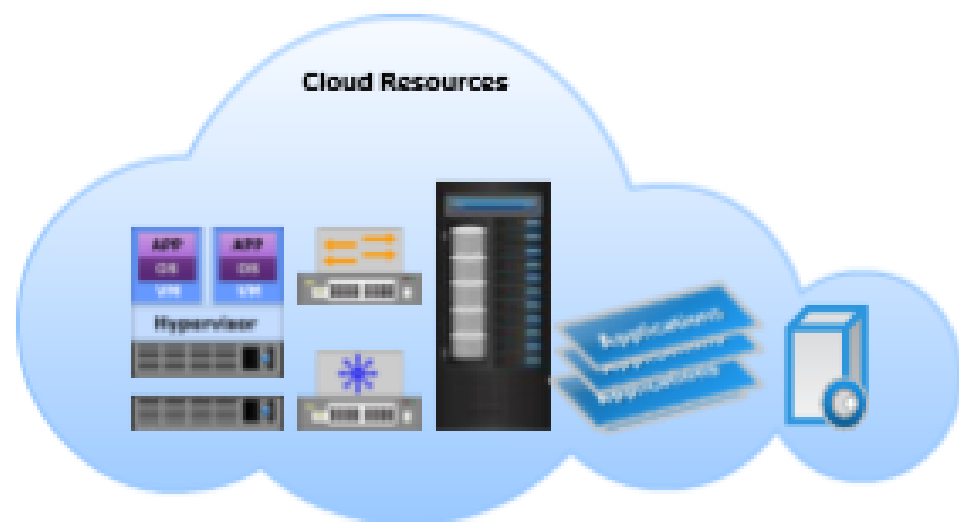


Types of Backup Services



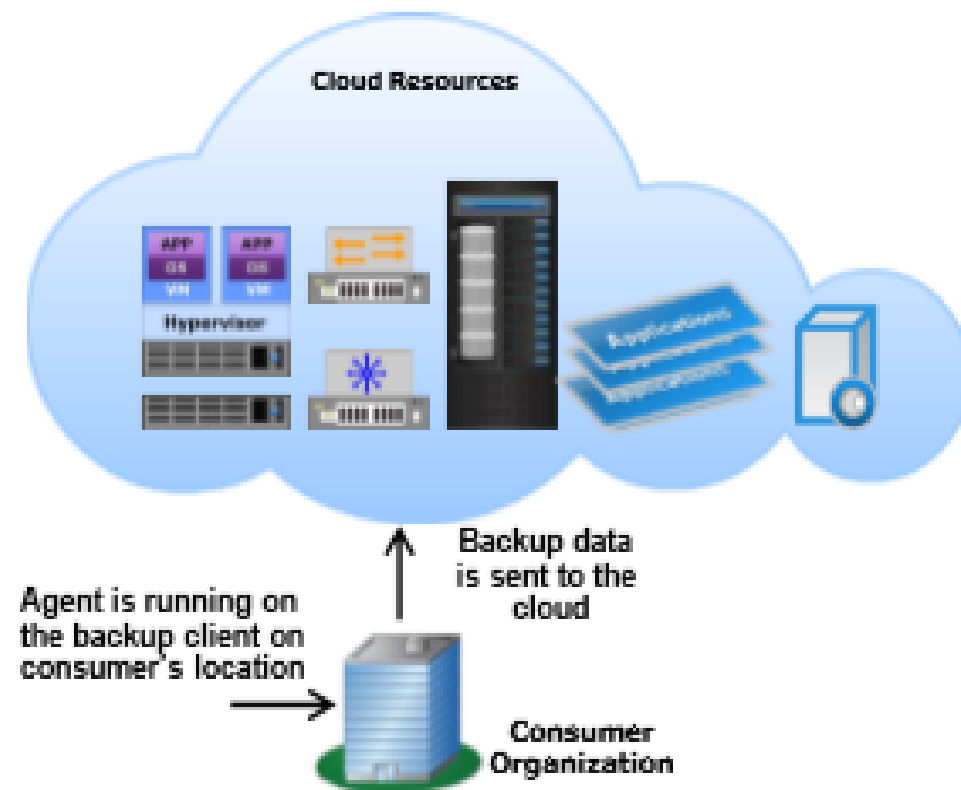
Managed and Remote Backup Services

Managed backup service



- Suitable when a cloud service provider already hosts consumer applications and data
- Backup service is offered by the provider to protect consumer's data
- Backup is managed by the service provider

Remote backup service



- Service provider receives data from consumers
- Backup is managed by the service provider

Replicated Backup Service



- Service provider only manages data replication and IT infrastructure at disaster recovery site
- Local backups are managed by consumers

Cloud-to-cloud Backup

Allows consumers to backup cloud-hosted applications(SaaS) data to other cloud

Consumer organization
accesses cloud-hosted
applications (SaaS-based
application)

Cloud Service
Provider 1

Cloud Resources

Backup data to the third
party cloud

Cloud Resources

Cloud Service
Provider 2

This service provider is backing
up data from the location of
service provider 1 to their data
center

Consumer
Organization

9 / 10

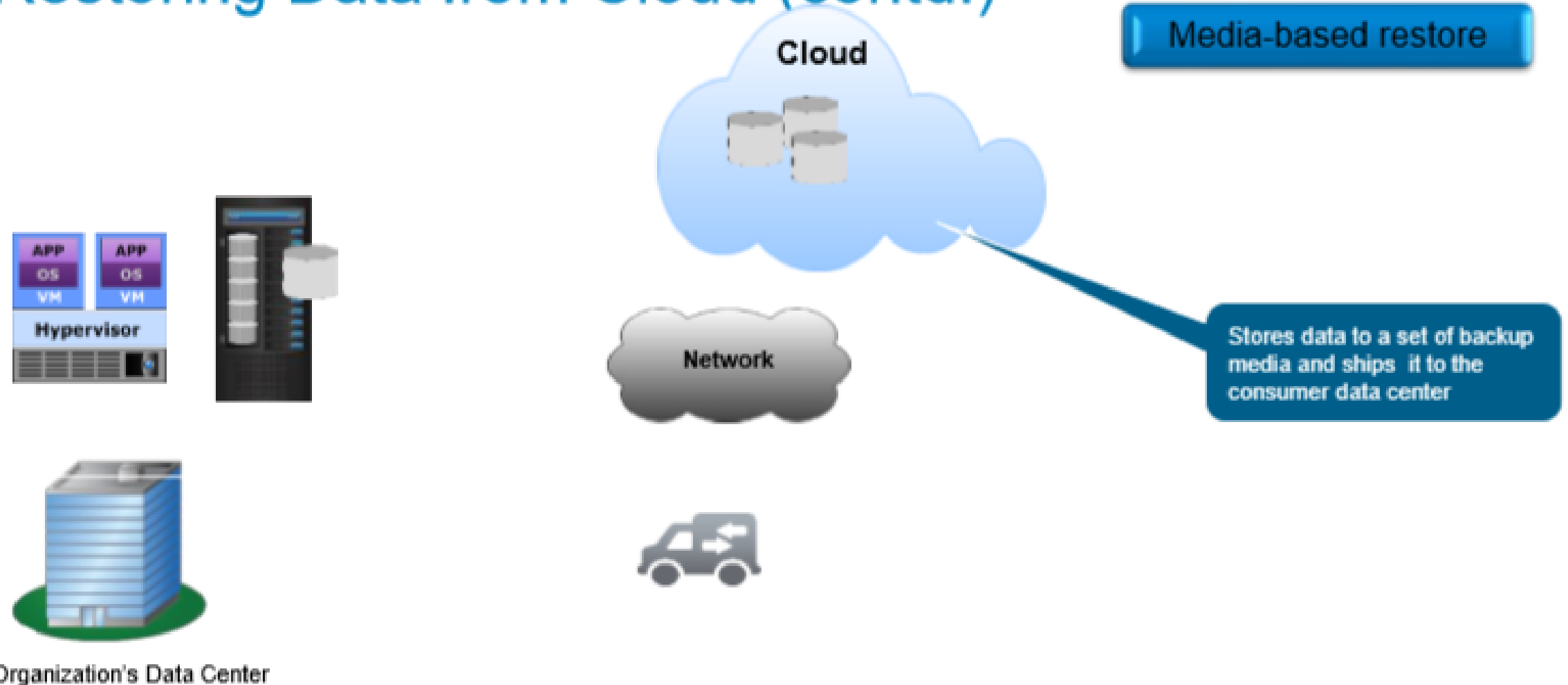
Restoring Data from Cloud

Web-based restore



Restoring Data from Cloud (contd.)

Media-based restore



Use Case: ROBO Backup in Cloud

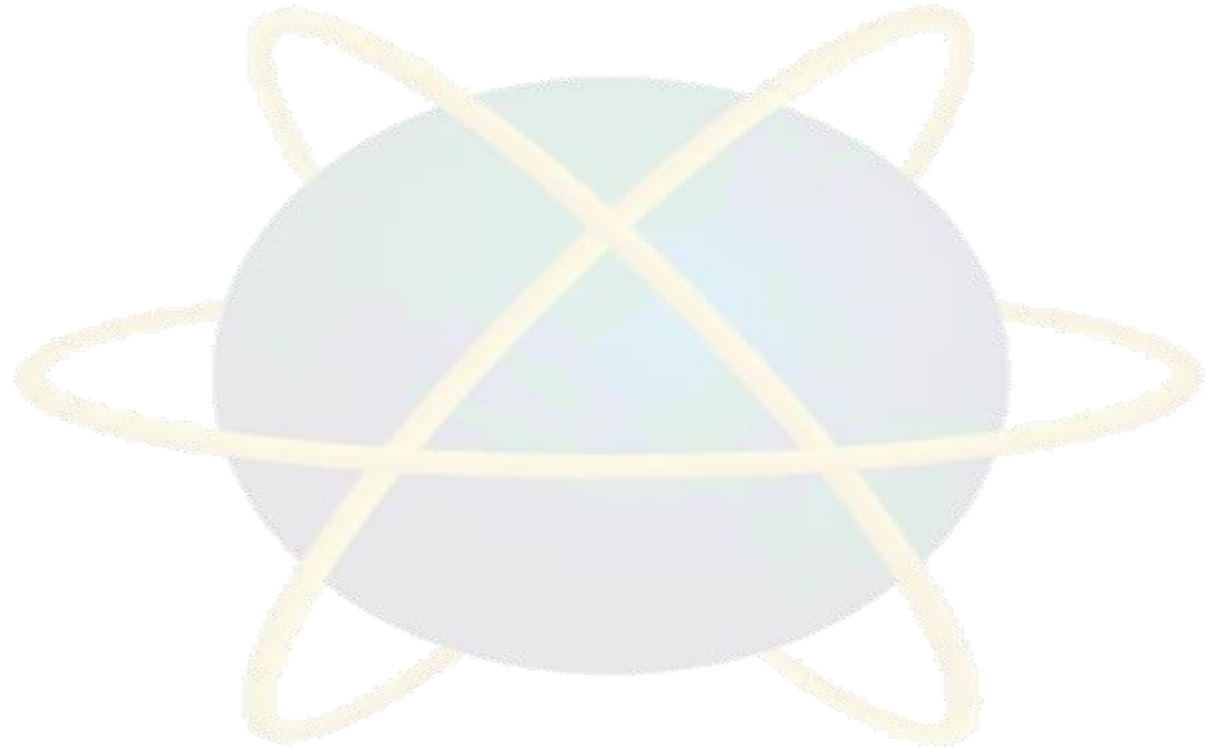
Challenges associated with ROBO backup

- 
-  Lack of qualified IT staff with backup skills
 -  Less IT infrastructure to manage the backup copies
 -  Huge volume of redundant content
 -  Silos of data repository leads to security threat
 -  High cost to manage backup across remote offices

Backing up ROBO data to Cloud addresses these challenges

Quick Review

- Explain the type of cloud backup services



Use Case: ROBO Backup in Cloud (contd.)



- Cloud backup service typically deploy disk-based backup solutions along with source-based deduplication to eliminate the challenges associated with centrally backing up remote-office data
- Performing backup to the cloud, reduces the cost of managing the organization's ROBO backup environment

Activity

- Data Migration to Cloud
- Cloud base-Archiving
- Disaster Recovery as a Service

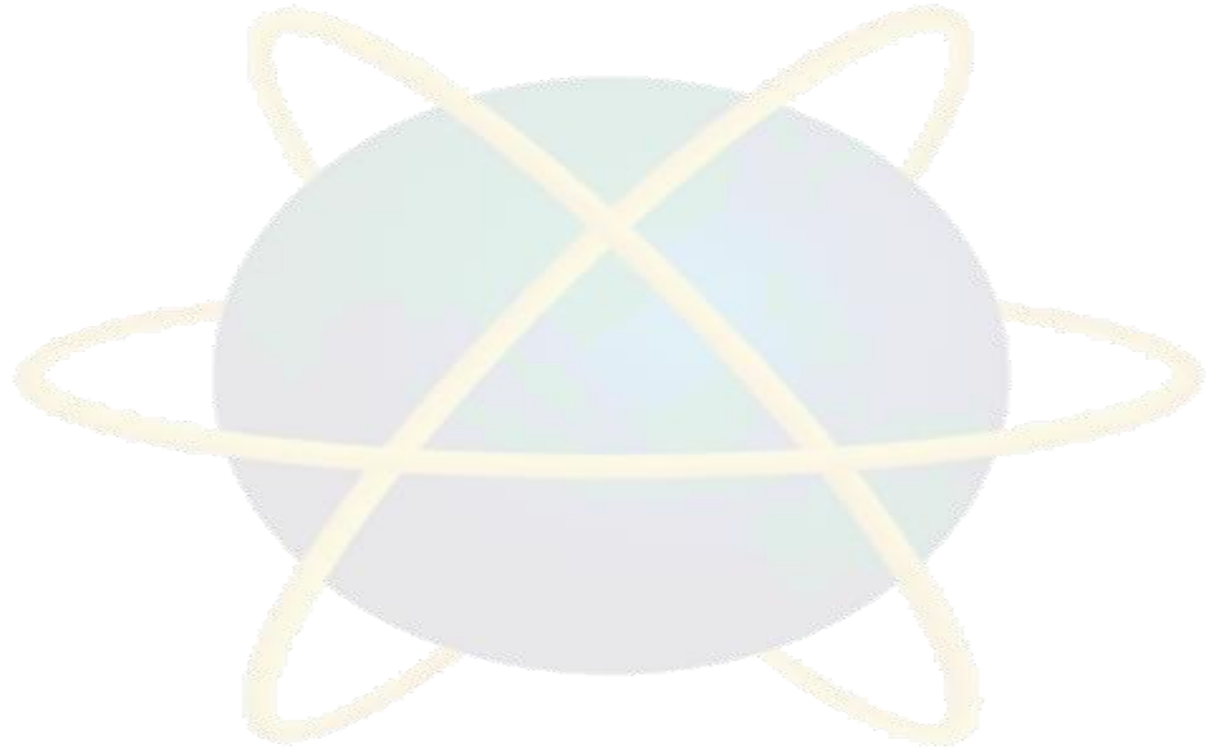


Concepts in practice

- Find a solution that can provide a secure cloud-based online backup and recovery through Software as a Service. it provides protection against risks like file corruption, unintended deletion, and hardware failure for compute and mobile systems.
- What is DRaaS?
 - Disaster recovery as a service(DRaaS) is a cloud computing service model that allows an organization to back up its data and IT infrastructure in a third party cloud computing environment and provide all the DR orchestration, all through a SaaS solution, to regain access and functionality to IT infrastructure after a disaster. The as-a-service model means that the organization itself doesn't have to own all the resources or handle all the management for disaster recovery, instead relying on the service provider

Quick Review

- What are the challenges associated with ROBO backups



Q & A

