Cloud Deployment Scenarios

Preface

- List the four major cloud deployment types
- Describe the features of private, public, hybrid, and community clouds
- List some additional cloud deployment types
- Select the most appropriate deployment model based on a set of business and technical requirements

Agenda

- Cloud deployment models - public, private, hybrid, community clouds
- Selection criteria for cloud deployment types

Cloud deployment models

- There are 4 cloud deployment model that will be covered during this chapter
    - Public Cloud
    - Private Cloud
    - Community Cloud
    - Hybrid Cloud

Gartner Definition of Public Cloud computing

- Gartner defines **public cloud computing** as a style of computing where scalable and elastic IT-enabled capabilities are provided as a service to external customers using Internet technologies—i.e., public cloud computing uses cloud computing technologies to support customers that are external to the provider's organization.

- Using public cloud services generates the types of economies of scale and sharing of resources that can reduce costs and increase choices of technologies.

Public Cloud

- A *public cloud* is a publicly accessible cloud environment owned by a third-party cloud provider. The IT resources on public clouds are usually provisioned via the previously described cloud delivery models and are generally offered to cloud consumers at a cost or are commercialized via other avenues (such as advertisement).

- The cloud provider is responsible for the creation and on-going maintenance of the public cloud and its IT resources. Many of the scenarios and architectures explored in upcoming chapters involve public clouds and the relationship between the providers and consumers of IT resources via public clouds.

Gartner definition of Private Cloud computing

Private cloud computing is a form of cloud computing that is used by only one organization, or that ensures that an organization is completely isolated from others.
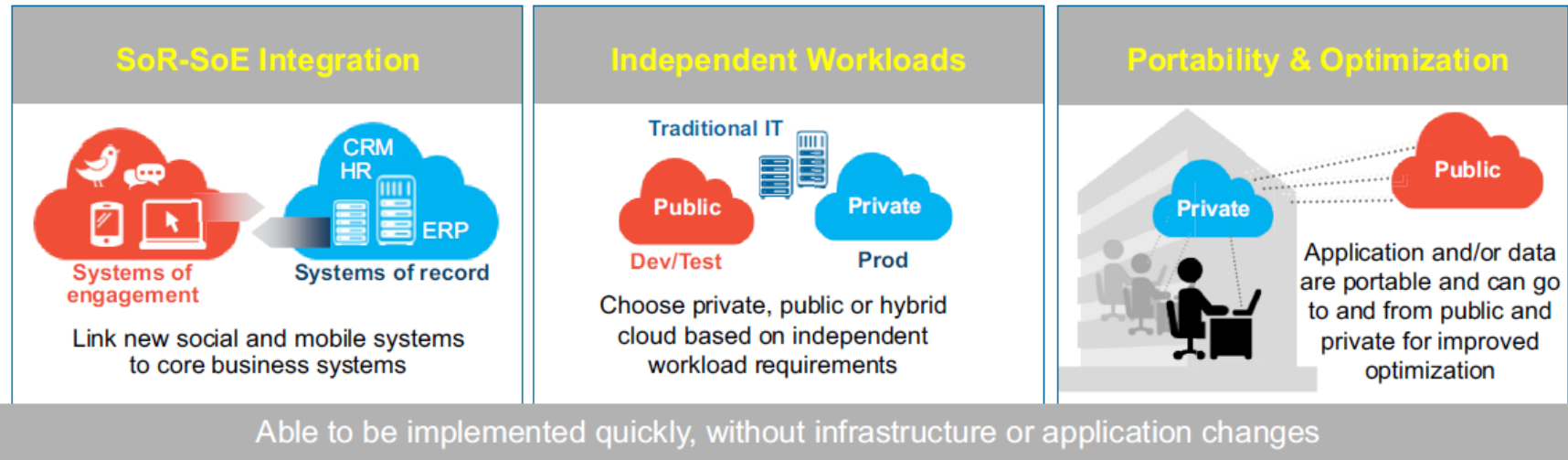
Private Cloud Computing

- 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.

- The use of a private cloud can change how organizational and trust boundaries are defined and applied. The actual administration of a private cloud environment may be carried out by internal or outsourced staff.
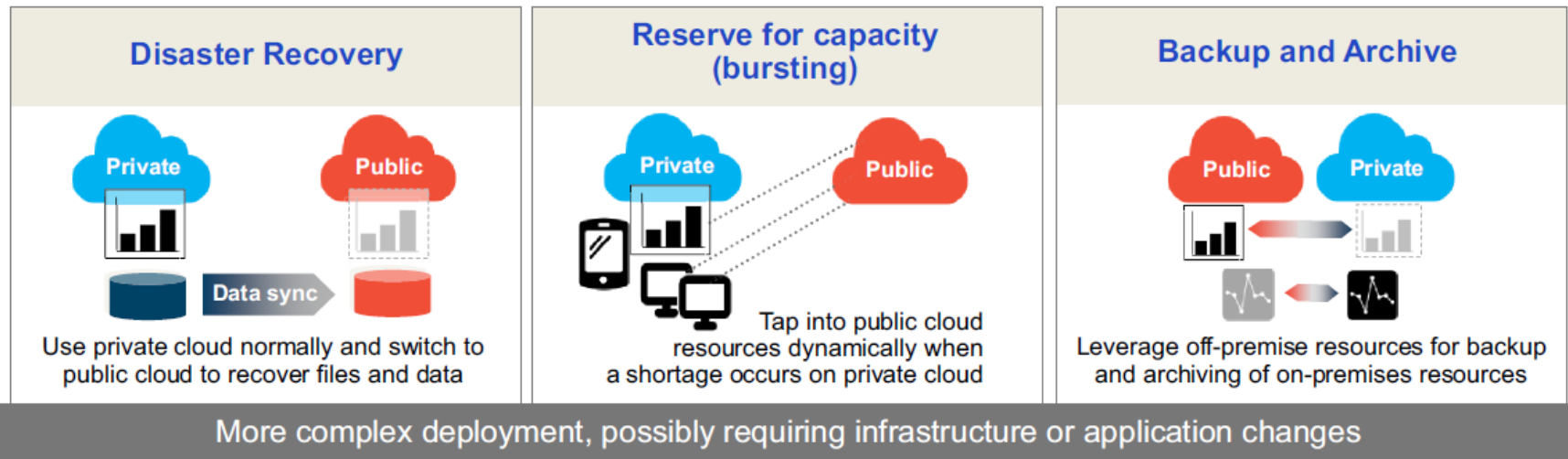
Hybrid Cloud Computing

- A hybrid cloud is a cloud environment comprised of two or more different cloud deployment models. For example, a cloud consumer may choose to deploy cloud services processing sensitive data to a private cloud and other, less sensitive cloud services to a public cloud.

- Typical challenges:
  - Management
  - Workload Balancing,
  - Brokerage / Integration
  - Portability

Hybrid Cloud Use Cases (examples)

SoR-SoE Integration

Systems of engagement — Systems of record

CRM HR ERP

Link new social and mobile systems to core business systems

Independent Workloads

Traditional IT

Public — Dev/Test
Private — Prod

Choose private, public or hybrid cloud based on independent workload requirements

Portability & Optimization

Private — Public

Application and/or data are portable and can go to and from public and private for improved optimization

Able to be implemented quickly, without infrastructure or application changes

Hybrid Cloud Brokerage & Management — Planned or Policy based Management and sourcing across multiple environments (infrastructure, platform & app)

Disaster Recovery

Private — Public

Data sync

Use private cloud normally and switch to public cloud to recover files and data

Reserve for capacity (bursting)

Private — Public

Tap into public cloud resources dynamically when a shortage occurs on private cloud

Backup and Archive

Public — Private

Leverage off-premise resources for backup and archiving of on-premises resources

More complex deployment, possibly requiring infrastructure or application changes

System of records vs system of engagement

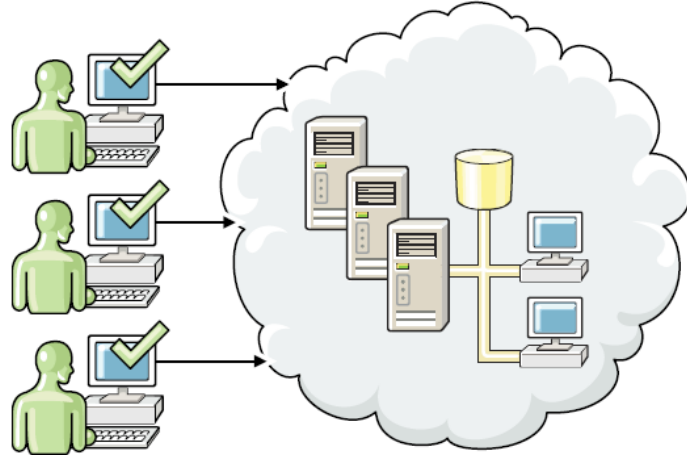| Systems of record	Systems of engagement
Transactional systems	Personalized systems
Designed for record tracking: facts, dates	Designed for sense and response
Push one-way communication	Foster two-way conversation
Machine-based interfaces	Multimedia, social user experience
Just-in-time communication delivery	Real-time alerts and notifications
Focus on department-level or corporate networks	Multi-channel work/personal networks
Focus on highly structured data/records	Embrace loosely structured knowledge

SoE: EXAMPLES:

Hong Kong department Stores

A chain of Hong Kong department stores used its Web-based system of engagement to capture the near-real-time activity of each Web visitor and achieved a 250 percent higher conversion rate with customer-generated product reviews.
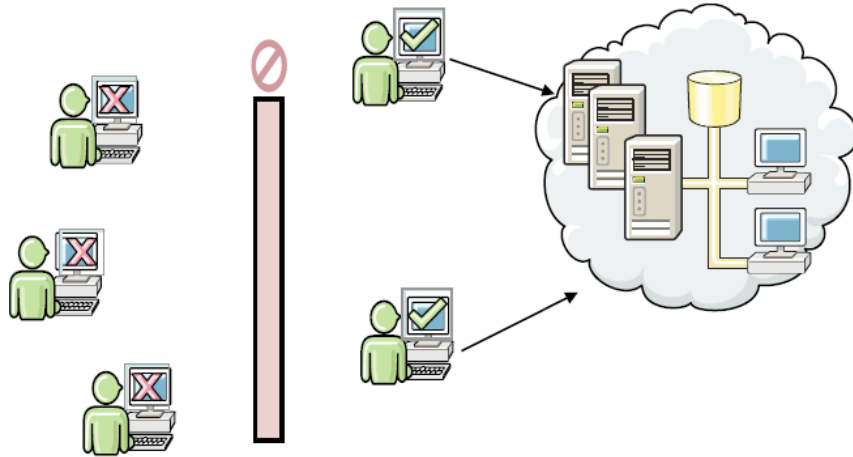
North American airline

A Canadian airline carrier increased customer satisfaction and streamlined booking operations by offering a mobile self-service solution that increased mobile check-ins by 13.5 percent. These systems of engagement increased mobile flight pass bookings and reduced the cost of check-in cost by 80% compared to traditional counter check-in process
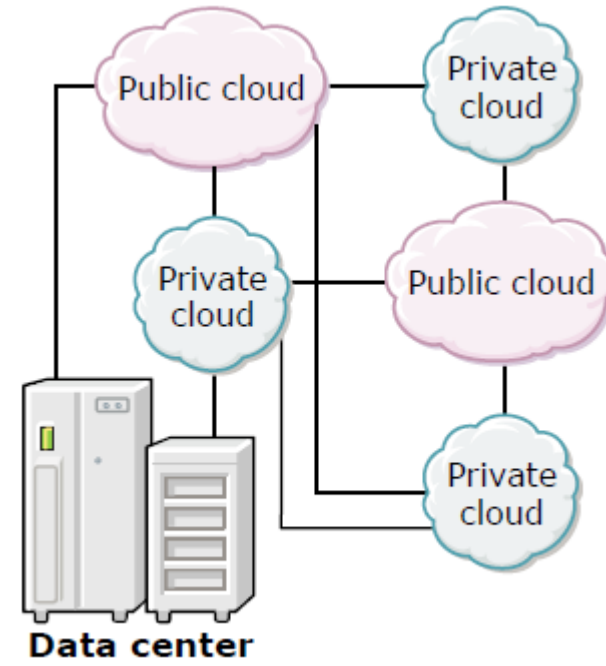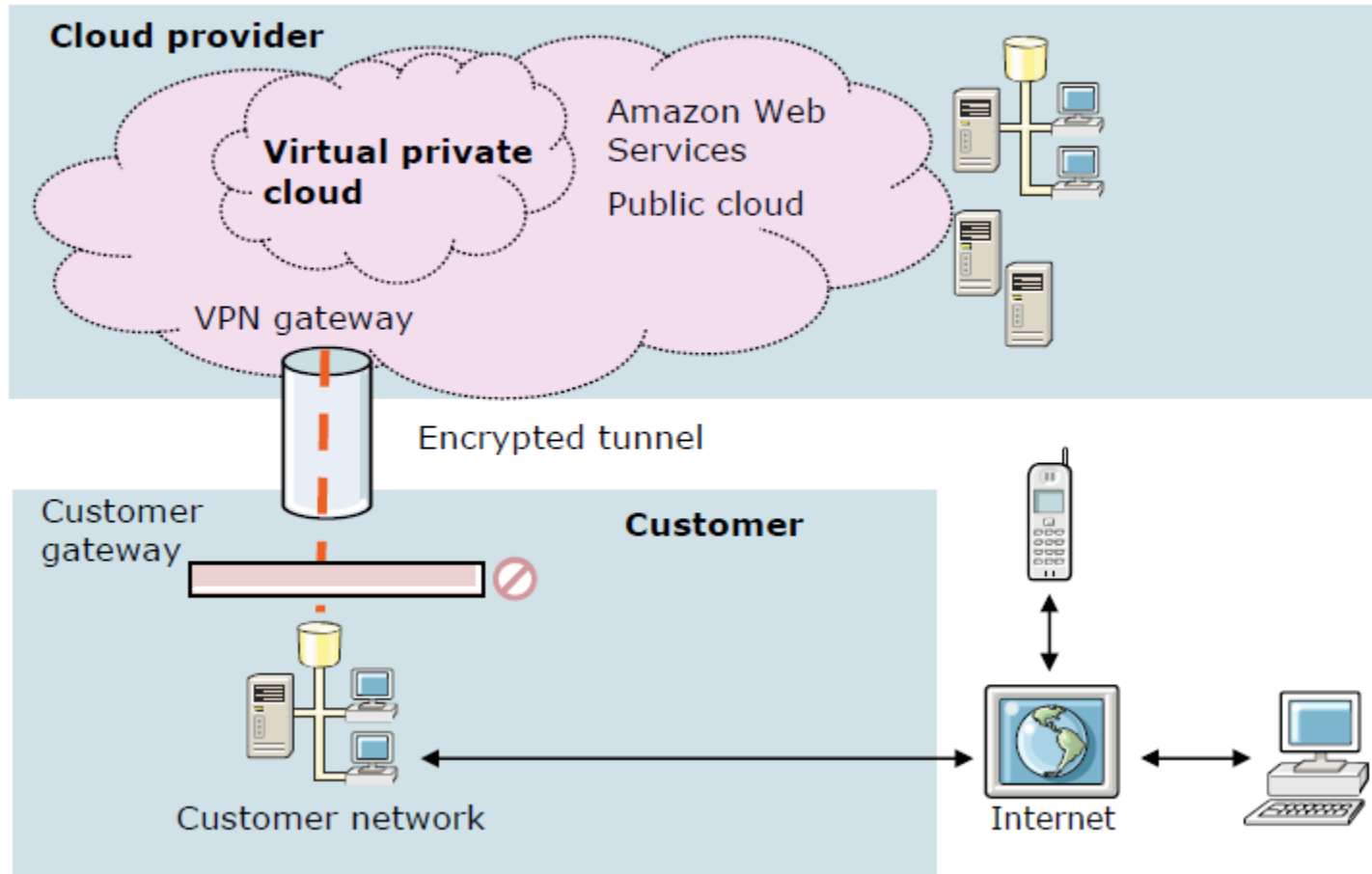
Public Cloud

Private Cloud

Hybrid Cloud

Virtual private clouds

Cloud provider

Virtual private cloud

Amazon Web Services

Public cloud

VPN gateway

Encrypted tunnel

Customer gateway

Customer

Customer network

Internet

A virtual private cloud (VPC) is dedicated to a single user within a public cloud.
The virtual private cloud extends the customer network into the cloud provider's "space", making the additional resources available on demand.

Workload types – cloud suitability (public vs. private)

Private cloud	Public Cloud
Employee information or other **sensitive** data typically restricted to the enterprise	**Test** systems and environments
Workloads composed of multiple, co-dependent services	Pre-production systems and environments
Workloads requiring **customization**	Mature packaged offerings, like e-mail and collaboration
Workloads based on third-party software that does not have a virtualization or cloud-aware licensing strategy	**Storage** solutions (including storage as a service)
High throughput online transaction processing	**Backup** solutions (including backup and restore as a service)
	Batch processing jobs with **limited security requirements**
	Data-intensive workloads if the provider has a cloud storage offering linked to the cloud compute

Community Cloud

- A community cloud is similar to a public cloud except that its access is limited to a specific community of cloud consumers. The community cloud may be jointly owned by the community members or by a third-party cloud provider that provisions a public cloud with limited access. The member cloud consumers of the community typically share the responsibility for defining and evolving the community cloud