

Cloud Computing Definitions

Public Cloud: combines ubiquitous user access on an elastic infrastructure that allows you to pay as resources are used (utility computing).

Examples: most company websites, ecommerce websites, Amazon EC2 Google Compute Engine, etc.

Private Cloud: cloud technology applied to a single organization, restricted user access, virtualized and dedicated infrastructure, scalable.

Examples: hosted environments, software development environments, centralized business applications such as ERP, SCM, HR, intranets, etc.

Hybrid Cloud: an infrastructure that uses multiple elements of Cloud computing technology. Portions of the infrastructure can be hosted in a Private Cloud, portions managed remotely at the corporate headquarters, and portions using a dedicated infrastructure fully managed in a colocation facility. Examples: any and all applications can run in a Hybrid Cloud.

The Hybrid Cloud – Managing a Distributed Infrastructure

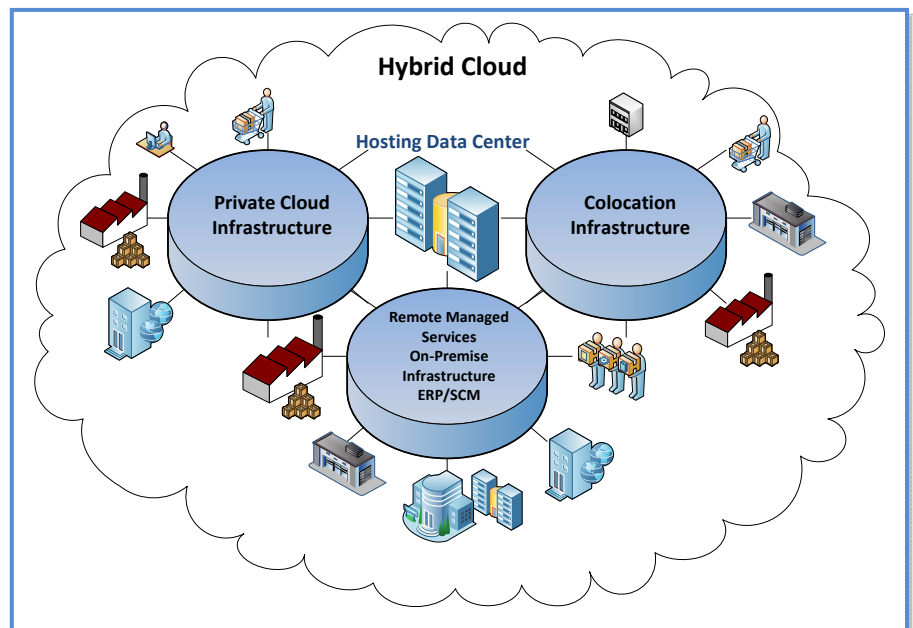
People often think of the Cloud as a virtual data-center-in-the-sky in which hundreds of thousands of interconnected computers are running applications, storing data and connecting users. Some view the Internet as the Cloud, or vice-versa.

The world of Public Clouds and Private Clouds is best defined by how applications running in either environment are accessed. Is there open access such as with an ecommerce site, or controlled access which all enterprises require to conduct business?

One of the key attributes of cloud technology is that it easily encompasses a wide network of interconnected components, each tasked with mission critical roles. Of course, while users could care less where the servers are physically, they demand seamless access and robust security from their infrastructure.

There is an alternative called the **Hybrid Cloud**. A Hybrid Cloud is a private and dispersed infrastructure that is unique to an enterprise that combines use of a Private Cloud, integrated management of on-premise systems and colocation services – all managed as one logical network.

A Hybrid Cloud has many of the attributes of a Private Cloud (please see definitions in sidebar). It is a **controlled access** IT infrastructure that is unique to an organization. Controlled access means that only authorized users can access the capabilities of the Private Cloud.



A Managed Hybrid Cloud views an organization's dispersed infrastructure as one, and manages them as one integrated environment.

The Hybrid Cloud – A Holistic View of Your Dispersed Infrastructure

Managing your organization's infrastructure as a **Hybrid Cloud** provides a holistic view in the design and deployment of a geographically dispersed IT infrastructure. You are able to deploy applications or application development projects using an infrastructure that best suits the application process needs and those of the user community. The user community is defined as the employees, contractors, customers, and vendors that use your applications to conduct business.

Most organizations key off their on-premise IT infrastructure as the starting point for the design of their distributed architecture. Many of these organizations are now extending their infrastructure architecture to embrace the many advantages of cloud technology in which core business applications are deployed across a multiple environments.

So, a Hybrid Cloud can encompass some or all of the following:

By transitioning away from in-house infrastructure, most companies can save money. Deploying legacy applications to a Private Cloud can help reduce in-house infrastructure costs.

- Private Cloud – a dedicated, hosted infrastructure with tightly controlled access.
- Dedicated Infrastructure – some applications require a wholly dedicated infrastructure.
- Colocation Services – dedicated application infrastructure at commercial data center.
- Remote Managed Services – monitoring and management of both cloud and on-premise infrastructure.
- Public Cloud – websites, applications that require elastic computing capabilities.

The deployment of a Hybrid Cloud architecture requires understanding how cloud technology and your on-premise infrastructure can improve the deployment of your key business applications to users. Hosted Private Clouds, for example, may either centralize or extend the capabilities of the core business applications. Overall, the dispersed, distributed infrastructure is managed as one.

Key planning attributes for your Hybrid Cloud include:

- The ability to monitor and proactively manage all components of the infrastructure in diverse locations as if it were one system.
- The infrastructure must be virtualized to ensure the ability to move processing from environment to environment depending on processing requirements.
- A cloud-based network must be able to manage traffic flow across all locations.
- The Hybrid infrastructure should support resource pooling.
- The Hybrid infrastructure should be easily scalable.

The table below depicts examples of how key business applications *might* be deployed by a multi-location manufacturing company using a Hybrid Cloud.

Application	Potential Hybrid Cloud Deployment
ERP System	Hosted in a Private Cloud. Users from multiple locations access the ERP system for production planning, inventory management and core financials.
SCM System	Runs on company owned equipment at a data center colocation site. Users from multiple locations access the SCM system for warehouse management, supplier management and online ordering.
CRM System	Hosted in a Private Cloud servicing sales and marketing teams. Dispersed sales force accesses CRM via encrypted VPN connections, mobile apps, etc.
Business Intelligence	Managers access BI system in the Private Cloud where data warehouses have been configured to support data analytics needs.
Intranet	Intranet is part of Private Cloud and provides HR benefits and employee bulletin boards.
Specialized Manufacturing Applications	Located at specific manufacturing sites for specialized tasks supporting manufacturing and distribution tasks of plant.
Infrastructure Management	System wide monitoring, integrated network, failover redundancy between environments, load balancing, offsite data backup, replication services where appropriate.

Key characteristics of a Hybrid Cloud include:

Characteristics	Description
Computing Infrastructure	Infrastructure is dedicated and unique to a single organization. Combines hosted and on-premise environments.
Controlled Access	Only authorized users can access the Hybrid Cloud and Private Clouds within.
Virtualization	The infrastructure should be virtualized with highly automated management for quick deployment of new virtual servers, capacity or performance characteristics.
Resource Pooling and Delivery Platform	One of the following delivery platforms should be used: IaaS – Infrastructure as a Service; PaaS – Platform as a Service; or, SaaS – Software as a Service. Who owns the hardware is not critical in a Private Cloud.
Scalability	A scalable infrastructure should expand easily as the business grows.

Summary

A Hybrid Cloud combines multiple cloud technology offerings in one integrated system. It is a private infrastructure with controlled access to eligible users.

Using a Hybrid Cloud architecture, organizations have the ability to mix and match the cloud technologies that give them the best application deployment across a wide area network. A Hybrid Cloud also makes sense for smaller organizations that can use the combination of a Private Cloud and on-premise systems to improve efficiencies and cost.

For organizations of all sizes, VMT delivers all of the key components of a Hybrid Cloud environment including:

- Remote Managed Services
- Managed Hosting
- Private Clouds
- Dedicated Infrastructures
- Hybrid Clouds
- Network Design and Deployment Services
- Exchange eMail Hosting

VMT Hybrid Clouds

VMT provides a Consolidated Hosting Environment (CHE) that enables Private Clouds to be configured to the unique requirements of an organization. We also provide remote managed services that enable us to monitor and manage multiple infrastructures as one. It has the following characteristics:

- Virtualized Platform: we use the power of VMware® to deliver a versatile Private Cloud infrastructure with failover redundancy.
- Remote Managed Services: VMT remotely manages IT infrastructures around the globe.
- Controlled Access: our secure network access enables authorized users to access the applications they need. The VMT network is fully redundant for maximum uptime.
- Scalability: the CHE is easily scalable to meet your growth needs.
- Resource pooling: your Private Cloud can call a wide range of resources including servers, load balancers, operating systems, SANs and network configurations to support your requirements.
- Replication: VMT provides replication services between data centers to enable even higher levels of failover redundancy.

For more information on VMT Private Cloud, Hybrid Cloud, Dedicated Infrastructure, and Managed Services, please visit our website at www.vmtech.net.