

## The Private Cloud – Your Controlled Access Infrastructure

Cloud technology provides the flexibility to implement a highly distributed and flexible infrastructure to meet unique business application needs. With the Internet as the primary pathway, users can connect their systems from all over the world, not really caring where the server is located that is processing their transaction.

According to the **Gartner Group**, the definition of Cloud Computing is: “A style of computing where scalable and elastic IT-enabled capabilities are delivered as a service to customers using Internet technologies.” The advantages of Cloud Computing for many organizations are compelling: flexibility, scalability, cost and agility.

In this definition, two of the key words, **scalable and elastic**, define the purpose and structure of the cloud architecture as deployed in a **Public Cloud**. The architecture is often tied to another term, **utility computing**, which models the practices of utilities (think electricity, gas, water, etc.) that apportion serviced based on the need of its customers. In other words, customers are only billed for what they use. Scalable therefore refers to the ability for the infrastructure to scale both larger and smaller in response to need. For example, a seasonal ecommerce enterprise will consider the

ability to scale its infrastructure for high and low seasons to be invaluable as a way to control operating expenses. Instead of building and maintaining a robust infrastructure year-round, an organization only pays for what it uses.

The genesis of **Private Clouds** began with Internet capable applications. The Internet became the pathway that enabled Private Clouds to be possible. No longer was the physical location of the server critical to user access.

A Private Cloud, though, is much more than an Internet capable application. A Private Cloud is a cloud infrastructure

that is dedicated to an organization. It combines the infrastructure capabilities of resource pooling, scalability and elasticity whether managed internally or by a third and hosted internally or externally.

A Private Cloud has many of the same features as a Public Cloud but supports the unique needs of an individual enterprise. While your company website is probably open to ubiquitous access across the Internet, your Private Cloud is secured for access only by authorized users. Users might include employees, customers, contractors, suppliers, bankers, etc. What’s key here is that you control and monitor the access. Your Private Cloud is not meant to be ubiquitous.

- **Public Cloud:** a virtual infrastructure providing ubiquitous user access on an elastic infrastructure that allows you to pay as resources are used (utility computing).
  - Examples: Amazon EC2, Google Compute Engine

*The ongoing debate on the differences between a Public and Private Cloud are broad and often loud. The bottom line is that it’s really about how the resource, or computing power, is allocated and how it is accessed by your user community. Viewed in this way, we see the differences between Public and Private as primarily the infrastructure access requirements.*

- **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.

The table below highlights infrastructure characteristics of a Private Cloud:

Private Cloud Characteristics	Description
<b>Computing Infrastructure</b>	Infrastructure is dedicated and unique to a single organization. May combine hosted and on-premise.
<b>Controlled Access</b>	Only authorized users can access the Private Cloud.
<b>Delivery Platform</b>	Resource pooling on 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.
<b>Scalable</b>	The infrastructure should be scalable with the ability to expand easily as business grows.
<b>Virtualization</b>	The infrastructure should be virtualized with highly automated management for quick deployment of new virtual servers, capacity or performance characteristics.
<b>Self-Service</b>	On demand self-service allows users to obtain, configure and deploy cloud services. This feature depends on the sophistication of the organization and its users.

In the area of self-service tools, key enterprise users would be application development staff who are constantly adjusting development environments and spinning up new systems to meet their development needs.

While not all of the above characteristics are required to create a Private Cloud, certain attributes are critical: ***the environment must be unique to the organization, provide secure access to authorized users and deploy resource pooling via virtualization.***

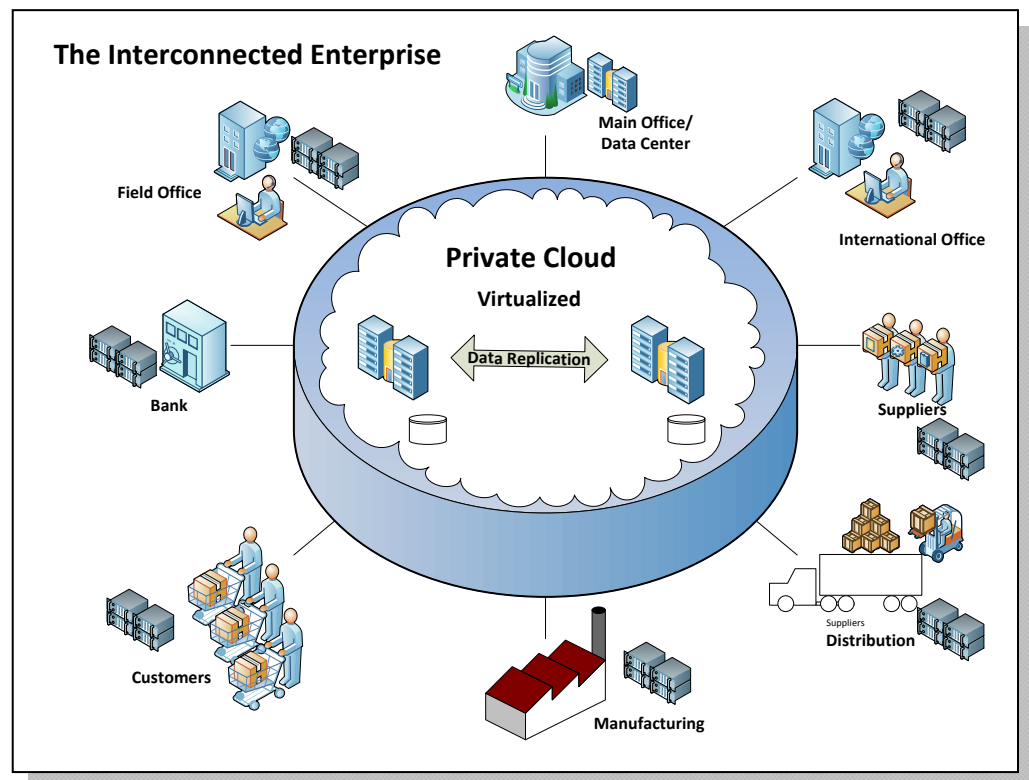
### **Private Cloud – The Interconnected Enterprise**

Since Private Clouds are all about secure and encrypted access for approved users, the challenge is being sure users are getting what they need, when they need it – no matter the geographic location or access device used. Most enterprises creating Private Clouds are expanding from their core on-premise IT infrastructure.

In a multi-location business, users from across the country or the globe can access the applications they need, when they need it. For example:

- Remote sales people can access their CRM and customer/prospect information files.
- Purchasing managers can search distributed warehouses across their network to determine availability of raw materials or finished goods.
- Accounting team members can access central applications for payables/receivables.
- Executives can use business intelligence applications to study revenue trends through a central data warehouse.

The most important technological question for any organization is therefore how a Private Cloud best fits the organization's business application deployment strategy. How, when, where will the user access the mission critical applications? Is network security and user authentication properly configured?



*Today's interconnected enterprise has computing power in many locations. The Private Cloud is the integration of these unique user requirements across the business and its partners.*

Private Clouds rely on the use of virtualization technologies. Virtualization enables the following:

- Hardware virtualization: sharing physical resources with guest operating systems.
- Memory virtualization: sharing common memory pages across multiple virtual machines.

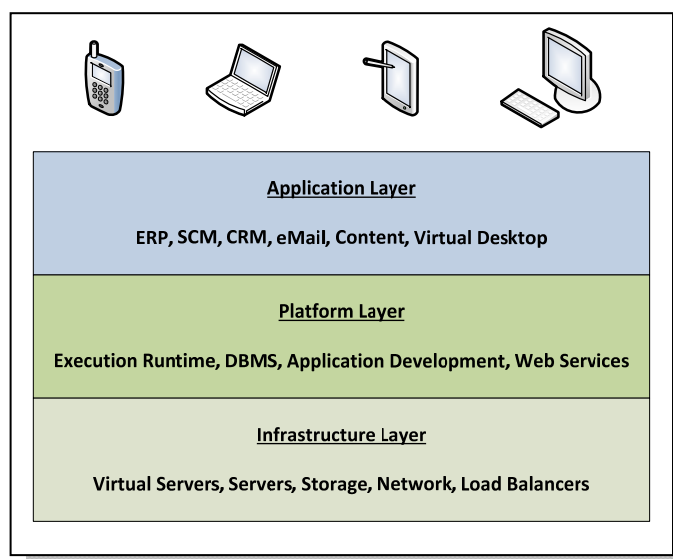
- Software virtualization: virtualized software is installed into its own self-contained unit and is ready for deployment.
- Data virtualization: abstracts the actual location, access method and type of data often used in business intelligence systems.
- Storage virtualization: abstracting data storage such that the actual location of the disk storage is not known to the operating system.
- Network virtualization: the creation of multiple logical systems on a physical environment, again providing a layer of abstraction.

Virtualization provides a wide range of benefits such as failover redundancy, the ability to scale an infrastructure quickly, resource pooling and rich pan-infrastructure management tools that allows administrators to see and manage the infrastructure as one logical unit.

### **The VMT Consolidated Hosting Environment**

VMT provides a Consolidated Hosting Environment (CHE) that enables Private Clouds to be configured to the unique requirements of an organization. It has the following characteristics:

- Virtualized Platform: we use the power of VMware® to deliver a versatile Private Cloud infrastructure with failover redundancy.
- Layered architecture: VMT provides all layers of the Private Cloud framework. See illustration below
- 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.



## Summary

For organizations of all sizes a Private Cloud offers significant advantages in building and supporting a business application portfolio. A Private Cloud provides controlled access to a network infrastructure that may be distributed geographically and support users across a wide geographic area with security, privacy and excellent management controls. Remember, a Private Cloud is always unique to the organization.

Using a Private Cloud hosted infrastructure enables organizations to extend and expand its computing capabilities. The Private Cloud operates in a secure, redundant environment ensuring that variables such as power, cooling, and device failure are backed up for maximum uptime.

For more information on VMT Private Cloud, Hybrid Cloud and Dedicated Infrastructure capabilities, please visit our website at [www.vmtech.net](http://www.vmtech.net).

## VMT Private 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](http://www.vmtech.net).