



# VMware and Cloud Computing

An Evolutionary Approach to  
an IT Revolution



# A New Era in IT

During the past 40 years, information technology has undergone many revolutions in how applications and data have been delivered to users. Mainframes provided a centralized computation facility where end users consumed resources on a shared basis. Client-server architectures offered flexibility and lowered computing costs while bringing more power to the desktop. Mobile computing introduced the notion of anytime, anywhere application access from a laptop or handheld device. Now cloud computing offers a new approach that will enable you to deliver IT services on demand.

Yet the challenges with IT revolutions and the technology vendors leading them are always the same. They require you to throw away working infrastructure to pursue new initiatives—until now. Until VMware.

## **Why Cloud Computing? Why Now?**

Business stakeholder demands on IT are increasing. Every business decision impacts IT, and accelerating market forces reward first movers. Yet most enterprise applications and services are built on top of tightly coupled technology stacks that are challenging to change and costly to manage. Provisioning a new email server or business intelligence engine, for example, can require months of waiting just for hardware purchases and system image configurations.

Caught between shrinking resources and growing business needs, organizations are looking to cloud computing to provide a more efficient, flexible and cost-effective model for computing—one that allows IT to operate much more efficiently and respond faster to business opportunities. The goal is to enable IT as a Service, and cloud computing provides the technical architecture to deliver it.

## **Why VMware?**

VMware is the global leader in virtualization and cloud infrastructure. Today, more than 190,000 customers and 25,000 partners rely on VMware solutions to achieve their business goals. VMware offers a unique, evolutionary path to cloud computing that reduces IT complexity, significantly lowers costs and enables more flexible, agile service delivery.



## Proven

VMware customer-proven virtualization and cloud infrastructure solutions ensure efficiency through utilization and automation, agility with control, and freedom of choice.

# The VMware Approach to the Cloud

VMware enables you to energize your business, while saving energy—financial, human and the Earth's. Our customer-proven solutions ensure the following:

### Efficiency Through Utilization and Automation

VMware solutions help you achieve lower total cost of ownership (TCO) while minimizing unnecessary IT infrastructure investments, management and maintenance resources, and system lock-in. With VMware solutions, you adopt a more cost-effective, self-managed, dynamically optimized environment for the most efficient delivery of IT services.

You gain additional flexibility by developing and deploying applications that can run in your datacenter or at a cloud service provider. You move toward an infrastructure that uses policy-driven

management and automation to monitor itself, self-optimizing for load and demand on the applications, based on usage.

### Agility with Control

VMware solutions provide easy, self-service access to dramatically simplify IT services provisioning and deployment, so you can respond more quickly to business needs. At the same time, they allow you to put policies in place that implement business and governance requirements, giving IT staff the control it needs to minimize business and regulatory risk. VMware also leads the way in security for virtualization, so your policies are always applied to a secure virtual container for your virtual machines, wherever they run. This eliminates having to constantly reconfigure static security infrastructure for your dynamic computing environment.

### Energize and Save with VMware

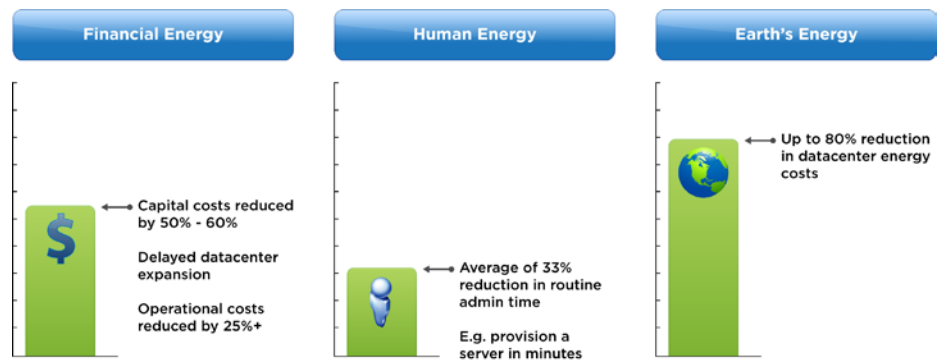


Figure 1: VMware solutions energize business, while saving energy—financial, human and the Earth's.

In addition to serving as a secure foundation, VMware core virtualization solutions ensure portability between internal datacenters and external hosting and service provider clouds from VMware vCloud™ partners, enabling your applications to run with little or no modification internally or externally. Beyond infrastructure, the VMware cloud application platform allows your developers to create portable cloud applications that further enhance your ability to respond to change. You can extend this agility to end users by leveraging VMware solutions to dynamically provision and manage cloud-ready IT services securely across any device. The benefit: on-demand access for an on-demand workforce.

With VMware solutions, you maintain full control over the availability, reliability, scalability, security and service level agreements (SLAs) for all workloads, from enterprise to desktop applications, from the most mission-critical applications to the most basic.

### Freedom of Choice

VMware solutions provide you with the flexibility to retain your existing operating system and application stack, yet deploy it internally or externally with any vCloud service provider. Using VMware solutions, you can continue to support traditional systems, while removing many of the headaches associated with them—system porting, security patches and more. You also gain more predictable performance.

You have the freedom to select how much you virtualize, and how

and when you move to a cloud deployment model. VMware solutions ensure application mobility and portability between clouds within a common management and security model. They are based on open standards, including the Open Virtualization Format (OVF), which has been adopted as an American National Standards Institute (ANSI) standard. They also extend to a large ecosystem of more than 2,600 service providers.

VMware continues to invest in a broad, global ecosystem of hardware and software providers to maintain compatibility with your existing investments. This ensures that thousands of x86 applications and workloads, as well as dozens of different operating systems, run on VMware solutions. Moreover, because of this investment, most if not all of your existing applications are cloud-ready today.

You can also deliver more freedom to users without sacrificing yours. VMware solutions enable end users to consume IT services from traditional applications, onsite cloud applications and vCloud offerings from external service providers, and provide rapid access to their data anytime, anywhere. Meanwhile, there is freedom for you to manage by service level and policies across platforms and devices.

With cloud computing's promise of making IT services available on demand, you may no longer wonder why you should move to the cloud but rather how you can achieve its benefits. With VMware, the way is clear.

## FICO

“With capabilities like VMware virtualization and cloud computing in our toolbox, we’re improving performance for both client and staff and building a stronger IT infrastructure for the future.”

Tom Grahek, Sr. Director of Technology Delivery, FICO



## M&T Bank

“First, we focused on substantial cost and efficiency gains through server consolidation. Now we’re focusing on business enablement through the private cloud.”

Wm. Bryan Clements,  
Administrative Vice President,  
M&T Bank



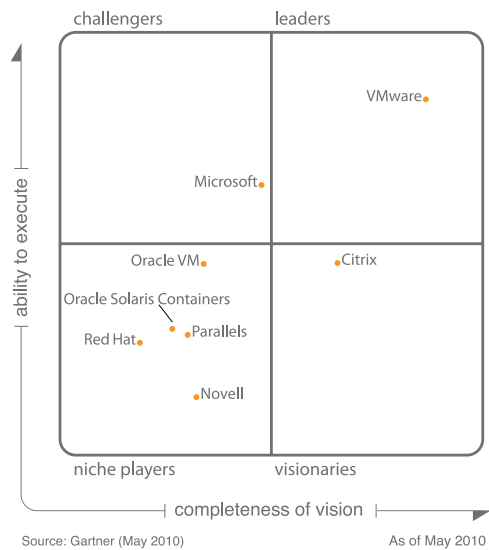
# Evolving to the Cloud with VMware

Virtualization is the essential catalyst for enabling the transition to cloud computing. VMware, the fastest growing enterprise software company and virtualization industry leader, builds on virtualization to deliver cloud infrastructure and management solutions that significantly reduce IT complexity. As of August 2009, approximately 85 percent of installed virtual machines in enterprises were VMware based.<sup>1</sup>

In the most recent Gartner, Inc. Magic Quadrant for x86 Server Virtualization Infrastructure, VMware was placed in the leaders quadrant.<sup>2</sup> As the pioneer in x86 virtualization, VMware continues to redefine the scope of virtualization for the new era of cloud computing.

As an architectural approach, cloud computing leverages the abstraction provided by virtualization of the

## Gartner, Inc.'s x86 Server Virtualization Infrastructure Magic Quadrant



This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The Gartner report is available upon request from VMware.

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**Figure 2:** VMware placed in the leaders quadrant of Gartner, Inc.'s x86 Server Virtualization Infrastructure Magic Quadrant.

1 Bittman, Thomas J. "Server Virtualization: From Emerging to Mainstream at Light Speed." Gartner Presentation, December 2009.

2 Bittman, Thomas J., Dawson, Philip, and Weiss, George J. "Magic Quadrant for x86 Server Virtualization Infrastructure." Gartner, May 2010.

application or service layer from the underlying infrastructure or resource layer to provide a much more scalable, efficient and elastic model for delivering IT services. You can dramatically reduce costs in the infrastructure or resource layer by aggregating the resource needs of the entire organization and using the shared infrastructure to drive capacity utilization higher than ever. At the application or service layer, cloud computing offers a new service consumption approach that applies standardization and automation to enable rapid service provisioning. Instead of waiting for manual IT procurement and provisioning processes, lines of business are able to consume services exactly when they need them. Meanwhile, IT retains control over policies and billing that govern service usage.

Only VMware offers a pragmatic path that lets you encapsulate legacy applications and move them to a modern cloud computing environment with ensured security, manageability, quality of service and compliance. Using VMware solutions, you can evolve to an on-demand, highly available and highly secure cloud computing model—with automated service levels and standardized access—to immediately deliver cost efficiency and business agility.

During the process, you do not need to “rip and replace” existing infrastructure. With VMware, you can leverage current investments to transform an internal datacenter into a private cloud environment. You can build and deploy a private cloud today that yields improved IT efficiency and agility while enhancing security and choice. At the same time, deploying a private cloud on the VMware platform provides a practical path to the highly scalable, high-performance public clouds being built by recognized service providers leveraging the VMware platform.

By adopting the leading platform chosen by the largest number of enterprises and service providers, you have the choice to place any of your workloads in the optimal location (a private or public cloud) while fully retaining the ability to move workloads between or across private and public cloud infrastructure—leveraging a hybrid private-public cloud environment.

### **Aprimo Incorporated**

“VMware makes it incredibly easy to implement a cloud environment and gives us a competitive advantage.”

Tim Sublette, Vice President,  
Software Engineering,  
Aprimo Incorporated

## Australian Bureau of Statistics

“We stopped talking in the old way about servers and started talking about allocation of resources to their work; for the same price as what we’re paying today, you can have unlimited access. Clients don’t even worry about the IT side anymore. It’s done for them.”

Tony Marion,  
Director, Infrastructure,  
Australian Bureau of Statistics

# Are You Ready for Cloud Computing?

The IT organizations that will be most successful in transitioning to the cloud will be those that approach it strategically and methodically. As you think about moving one or more workloads to an internal or external cloud infrastructure, have you

- ✓ Analyzed your portfolio and prioritized the applications that would benefit most from a cloud computing approach?
- ✓ Achieved 100 percent virtualization of the workloads you are targeting for cloud, including virtualizing infrastructure (servers, storage, network)?
- ✓ Considered or defined the standard services you want to offer, with the associated service levels?
- ✓ Outlined, and in some cases redefined, security protocols and compliance requirements?
- ✓ Optimized your architecture, infrastructure and organizational procedures and policies, including governance, to support a service consumption model?

- ✓ Considered how to change your approach to capacity planning, given you will be using a shared pool of managed resources and that end users will have direct access to system resources?
- ✓ Discussed how you will perform chargeback or showback to users and the business?
- ✓ Considered the change management in IT, lines of business, procurement and more that will be required to support the move to cloud computing, including changes in roles, education, training and certification procedures?

Whether you have considered none, accomplished some or completed all of the items on this list, VMware has the solutions and experts to assist you in developing and implementing a strategy that is right for you and your organization.



# Assessing Applications for the Cloud

The VMware approach to cloud computing is not about a single technology purchase or an abrupt disruption to the business. It is a path that you can follow based on your environment today. Before you achieve the full evolution to cloud computing, there are tangible, immediate steps that you can take to start the process, including identifying the different types of workloads currently in your datacenter.

Since virtualization is the foundation for cloud computing and IT as a Service, the first task for any organization transitioning to the cloud is to virtualize the majority of its environment, including business-critical applications. This will allow you to guarantee service levels more easily and economically.

The second step is to turn your IT department into an agile and user-friendly internal service provider. This requires exposing IT services to internal users through Web-based portals as a fully automated, catalog-based service. Whenever internal users need IT services, they should be able to get them as easily as finding and downloading an application from Apple's App Store.

Yet where should you begin enabling fully automated self-service? What are the best initial application

candidates for this approach? The answer is relatively simple: the best candidates are those applications most frequently requested by users, which tend to be the following:

1. **Transient apps** – Applications that will have a rapid rate of provisioning, cloning, reallocation and so on, for example, a staging or preproduction development and test environment.
2. **Elastic apps** – Applications where the demand for resources will vary greatly over time, so users will request adjustments to the application resources, for example, scientific computation or anything with seasonal transactions.
3. **“Long tail” apps** – Applications that never get prioritized by IT organizations, for example, a customized Web farm for an extranet.

VMware customers have prioritized these types of applications for self-service due to the high rate of change they experience with them. Often, the bulk of requests that consume IT staff time are generated by *ad hoc* workloads rather than business-critical production applications. Plus *ad hoc* workloads cause the biggest cost and administrative headaches for IT. Applications such as these will benefit considerably from being served out of a cloud environment and can drive immediate value to the business.

“Strategically, server virtualization is an IT modernization catalyst that will change how IT is acquired, consumed, managed, sourced and paid for. Virtualization will even change how businesses innovate and grow,” writes Thomas Bittman, VP Distinguished Analyst at Gartner. “Done well, server virtualization makes fundamental changes that can lead an organization down the path of private and public cloud computing.”

Gartner, Inc. “Server Virtualization: One Path That Leads to Cloud Computing.” Thomas Bittman, October 29, 2009.



# Trusted

The industry's most complete virtualization platform, VMware vSphere now forms the foundation for building cloud infrastructures for customers across all industries.



# VMware Solutions for Cloud Computing

VMware delivers cloud infrastructure and management, cloud application platform, and end-user computing solutions that can accelerate your organization's transformation to cloud computing and enable your team to rapidly realize value from this new approach.

For more than a decade, VMware vSphere™ has set the standard as the most robust, reliable and complete virtualization platform. Deployed in the most demanding datacenters around the world, VMware vSphere now forms the foundation for building cloud infrastructures for customers across all industries.

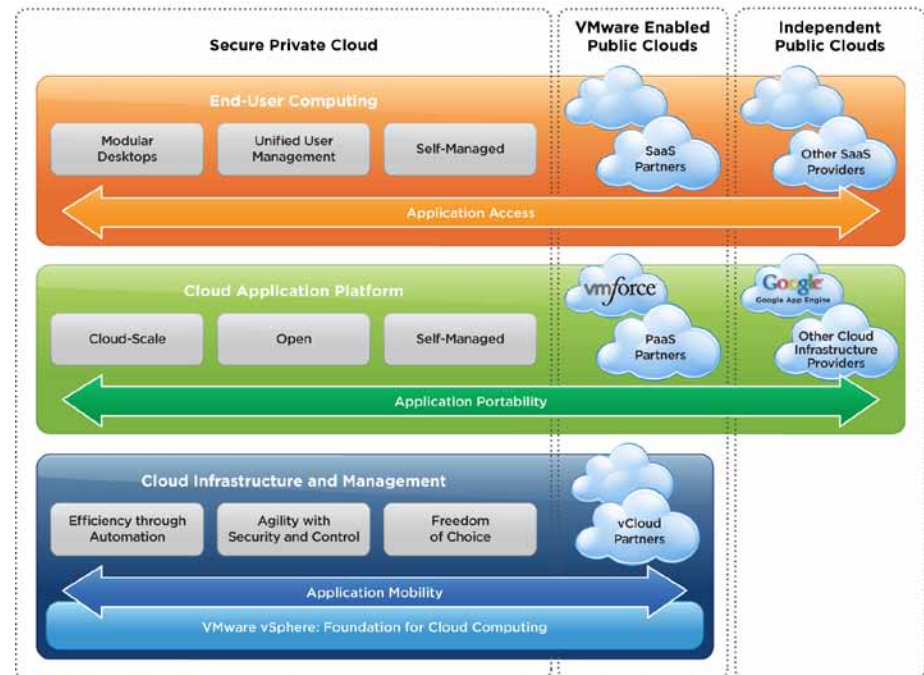
## The Foundation for the Cloud

VMware has saved enterprises billions of dollars by aggregating datacenter resources into large, shared, elastic pools of computing power and driving up infrastructure utilization.

With VMware vSphere, you can:

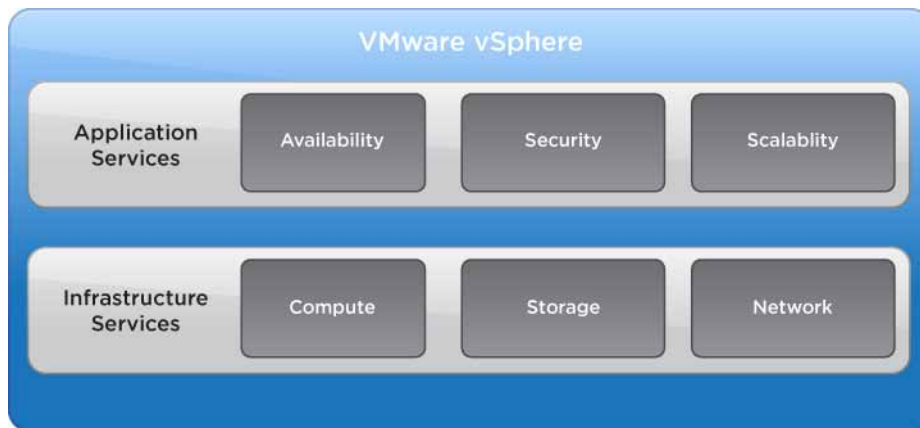
- Virtualize business-critical applications to achieve unprecedented flexibility and reliability with the highest levels of

## VMware Solutions for Cloud Computing



**Figure 3:** VMware delivers customer-proven cloud infrastructure and management, cloud application platform, and end-user computing solutions.

## VMware vSphere



**Figure 4:** More than 190,000 customers rely on VMware vSphere, the foundation for cloud computing.

availability and responsiveness for all applications and services.

- Create resource pools, so that you can deliver the highest levels of application SLAs with the lowest total cost per application.
- Be assured you can maintain security, control and compliance over your applications and data in the cloud.

### Security for the Cloud

Just as virtualization is indispensable for transitioning legacy applications to new cloud infrastructures, it is also a critical security enabler in a cloud environment.

VMware vSphere works in conjunction with the VMware vShield family of products—the foundation for the next generation of cloud security—to address the challenges related to securing applications and data in the cloud. Together these solutions provide assurance that your applications and data can be properly segmented into trust zones

for compliance and that these can be maintained to meet requirements to keep data in specific jurisdictions.

Specifically, the VMware vSphere platform has unique introspection capabilities that help to identify hard-to-detect problems and enable comprehensive security controls. These capabilities result in better performance, reduced complexity and more comprehensive security protection.

With VMware security solutions, you can:

- Dramatically simplify security and be assured security policies can be rapidly implemented and monitored for IT compliance while maintaining the relevant levels of control and visibility into ownership domains.
- Make security agile, so IT can leverage dynamic capabilities such as live migration, while being assured that the security policies follow the IT service seamlessly.

## Secure

VMware vSphere and the VMware vShield family of products work together to secure applications and data in the cloud.

# Virtual

VMware vCloud Director builds on the VMware vSphere foundation, allowing IT to expose virtual datacenters to users through a Web-based portal and to define and expose a catalog of IT services that can be deployed within the virtual datacenter.

- Deliver a single, cost-effective framework for comprehensive protection of your cloud deployments.

VMware vShield provides a programmable framework for third-party solutions to integrate and extend into monitoring and management services.

For organizations of all sizes, VMware vShield helps unlock cloud benefits by delivering agile, dynamic and cost-effective security to ensure a smooth transition for your cloud deployments.

### Service Catalog and Self-Service for the Cloud

VMware is developing new solutions to further enable cloud computing. VMware vCloud Director builds upon the VMware vSphere foundation and exposes virtualized shared infrastructure as multi-tenant virtual

datacenters that are completely decoupled from the underlying hardware and isolated from one another. VMware vCloud Director also allows IT to expose virtual datacenters to users through a Web-based portal and to define and expose a catalog of IT services that can be deployed within the virtual datacenter.

Using VMware technology, you can now deliver standardized IT services on shared infrastructure through a Web-based catalog. By standardizing service offerings, you can simplify many IT management tasks—from troubleshooting and patching to change management—and eliminate much of the administrative maintenance that burdens your IT team today. You can also automate provisioning through policy-based workflows that empower validated users to deploy preconfigured

## VMware vShield and VMware vCloud Director

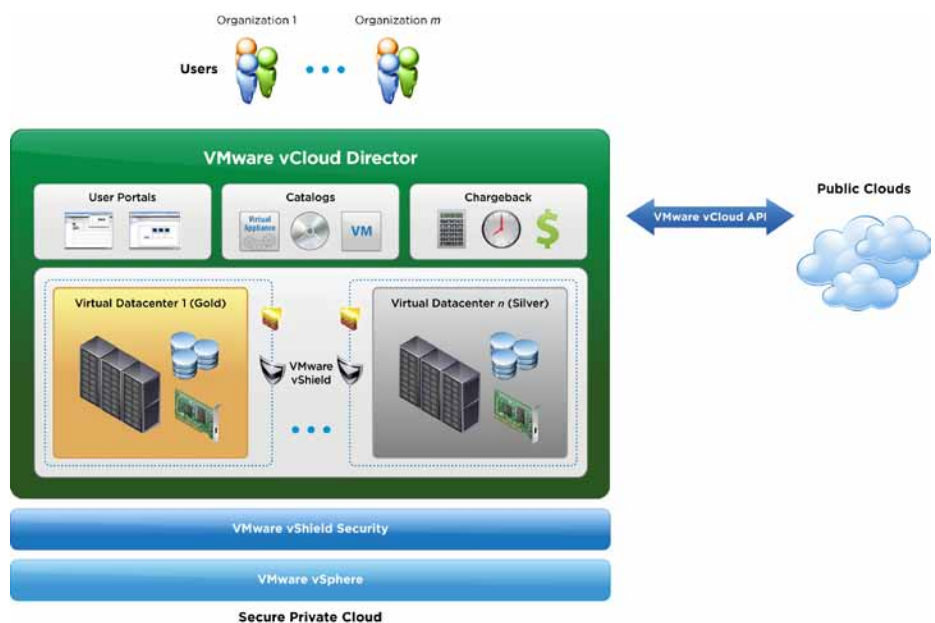


Figure 5: VMware vShield provides unparalleled security, while VMware vCloud Director enables a Web-based catalog for the cloud.

## VMware Virtualization and Cloud Management Solutions



**Figure 6:** VMware virtualization and cloud management solutions fundamentally change how organizations manage IT and deliver services.

services with the click of a button, translating into new opportunities for end users to procure IT resources exactly when they need them.

By standardizing processes, increasing automation and delivering IT as a Service, you will drive additional savings beyond virtualization, while significantly reducing the amount of maintenance required per IT administrator.

A private cloud built on VMware technology will enable your IT department to transform itself into an efficient, agile and user-friendly internal service provider. You can then deliver on the promise of IT as a Service, providing fully automated, catalog-based services to internal users through a Web-based portal.

### Enterprise-Class Management for the Cloud

Virtualization for industry-standard x86 environments has accelerated the delivery of IT services and is a foundation for cloud infrastructure. Yet delivering self-service and managing these dynamic environments requires a new level of automation to minimize cost and ensure control and compliance.

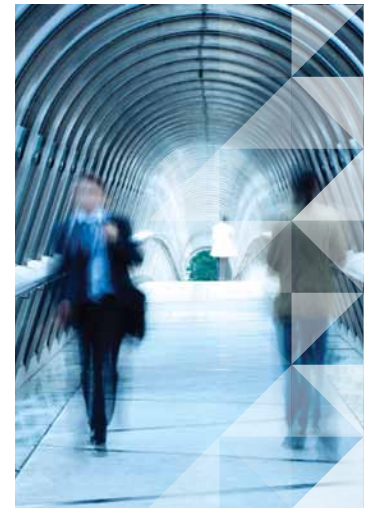
VMware is uniquely positioned to build on this foundation with a new breed of solutions designed specifically for dynamic virtualized and cloud environments. These new solutions replace inefficient, manual processes with policy-driven automation and deliver IT management as an intrinsic part of the system and not as an afterthought. With this more modern approach, your organization can achieve the efficiency, control and compliance needed to move from cost center to service provider.

VMware virtualization and cloud management solutions are purpose-built for dynamic environments to fundamentally change how organizations manage IT and deliver services. These solutions, which include the VMware vCenter™ family of products, work with VMware vSphere to help you do the following:

- Create a zero-touch infrastructure—optimizing operational efficiency with built-in automation to make smarter and better use of virtual and cloud infrastructure.
- Dynamically assure compliance and performance in the face of growing

## Intrinsic

VMware virtualization and cloud management solutions, which include the VMware vCenter family of products, deliver IT management as an intrinsic part of the system and not as an afterthought.



# Compatible

More than 2,600 VMware vCloud hosting and service provider partners deliver compatible enterprise cloud infrastructures based on the extensible VMware vSphere platform.



service level expectations and accelerating change—delivering self-service with control.

- Ensure choice through management interoperability with ecosystem partners and cloud interoperability across service providers using an open, standards-based approach.

## Cloud Interoperability

The extensible VMware vSphere platform also serves as a secure foundation for hosting and service providers to deliver enterprise cloud infrastructures. vCloud powered services are built on VMware vSphere, VMware vCloud Director and VMware vShield. In addition, VMware is working closely with leading cloud providers Bluelock, Colt, SingTel, Terremark and Verizon to deliver VMware vCloud Datacenter Service offerings. vCloud Datacenter Service is a new breed of enterprise-class hybrid cloud services, offering agility coupled with the security, interoperability and control that enterprises demand. vCloud Datacenter Service offerings are built on a VMware-developed architecture and certified by VMware to be compatible and secure, in contrast to commodity public cloud services. Enterprises have to make little or no changes to move existing virtualized workloads to vCloud Datacenter Service clouds. The infrastructure and applications are not just secure, they can also be audited to demonstrate compliance with industry regulations and security standards.

For example, Verizon designed its enterprise-ready cloud computing solution, Computing as a Service (CaaS)—with vSphere as one of the

underlying technologies—to help customers gain flexibility and improve efficiencies while controlling costs. Verizon's CaaS delivers highly resilient infrastructure on demand that enables customers to employ computing resources in the quantities and duration dictated by their businesses. Built on Verizon's Security Management Program-certified, PCI-certified and Statement on Auditing Standards (SAS) No. 70 audited platform, CaaS provides a reliable and secure solution.

Teaming with VMware, Verizon enhances its CaaS offering, enabling the enterprise to create a truly hybrid environment. Customers can extend their internal datacenters, leveraging current investments in infrastructure, and easily port existing virtualized workloads into the Verizon cloud for increased flexibility, scalability and efficiencies. Verizon and VMware provide a secured architecture for improved performance and secure transition to public cloud adoption, while allowing customers to maintain control of their cloud environments.

Similarly, additional leading partners are providing secure, interoperable vCloud services that enterprises can access on demand.

By leveraging the services of vCloud partners, you can:

- Extend the logical boundaries of your datacenter and leverage third-party cloud computing services, based on secure and proven VMware technologies.
- Create an interoperable service delivery model and approach that achieves the full flexibility and benefits of cloud computing while preserving control.

# A New Partnership with Development

VMware provides an opportunity for further dialog between application development and IT infrastructure teams. To accelerate the delivery of both on-premise and cloud applications, VMware offers a next-generation platform—VMware Cloud Application Platform—that is ideally suited to the needs of modern applications. These applications are increasingly data intensive and dynamic, plus they require rapid provisioning to cloud environments.

Today more than 2 million Java developers use the Spring development framework, a core element of the VMware Cloud Application Platform, to more rapidly build modern applications. Spring enables application portability, allowing teams to deploy and run applications on-premise or through partnerships with leading public platforms in external environments such as VMforce, a joint service between VMware and Salesforce, or Google AppEngine.

Our platform allows your developers to leverage existing skills and investments to reduce the time it takes to build and deploy applications in a secure private cloud environment. Your team also gains the ability to move applications between private and public clouds, depending on your needs, allowing you to maintain freedom of choice.

The VMware Cloud Application Platform features the following:

- A lightweight application runtime optimized for Spring applications and VMware vSphere.
- Elastic data management technologies that scale seamlessly as application demand increases.
- Performance monitoring and application management to allow for visibility across physical and virtual environments.
- Advanced Message Queuing Protocol (AMQP)-based messaging, perfect for cloud deployments.

## Modern

As a complement to its trusted virtualization and cloud infrastructure platform, VMware delivers the proven VMware Cloud Application Platform to build, run and manage applications for cloud deployment using technologies that are already familiar to development teams.

### VMware Cloud Application Platform



**Figure 7:** The VMware Cloud Application Platform is optimized to build, run and manage your modern cloud applications.

# Control

VMware end-user computing solutions allow IT to modernize the traditional Windows desktop, move toward user-centric management and embrace cloud-ready services.

# Securing End-User Computing in the Cloud

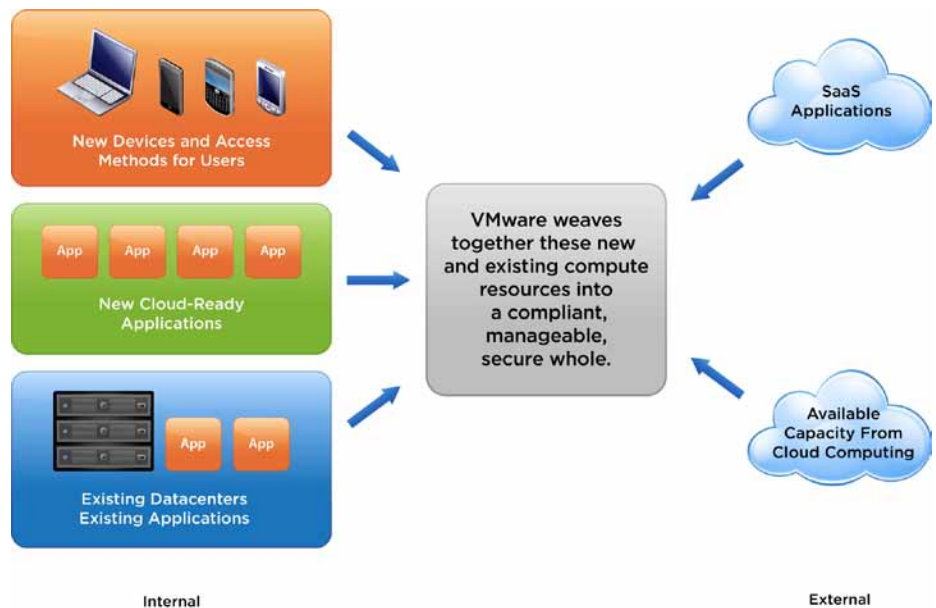
A pragmatic approach to the cloud not only transforms the datacenter and development but also end-user computing.

End-user computing has traditionally followed a rigid and complex device-centric model. With the increasing consumerization of IT, end-users are becoming more demanding. Their requirements for anytime, anywhere access and different types of applications and devices are often in direct conflict with the security and compliance requirements of IT. Add to that the exploding heterogeneity of devices and form factors and

you have an increasingly complex infrastructure to control and manage.

While users want a richer technology experience, you strive to maintain already delicate IT stacks without impacting SLAs, without introducing new compliance and security risks and without increasing help desk calls—which ultimately drive up costs. This “desktop dilemma” is driving many enterprises to leverage disruptive events, such as an operating system migration (e.g., Windows 7) or PC refresh, to rethink their end-user computing model.

## VMware Delivers Comprehensive Solutions



**Figure 8:** VMware offers a pragmatic approach to the cloud that transforms the datacenter, application development and end-user computing.



VMware end-user computing solutions allow you to modernize the traditional Windows desktop, move toward user-centric management and embrace cloud-ready services to deliver the right content, in the right context, in a secure, policy-driven manner.

For example, you can modernize the desktop with VMware View™ and VMware ThinApp™. Both offerings allow you to better manage traditional desktop layers (operating system, applications and persona) and increase the security and compliance around these components while providing the freedom and flexibility of access across a variety of end-user devices. This is possible because desktops, applications and data are secure in the datacenter and delivered as a managed service.

With VMware View, you can:

- Gain all of the flexibility, cost efficiency, scalability, manageability and control of cloud computing with the richness and end-user productivity appropriate for each user's needs.
- Lower TCO, enabling you to reduce management and administrative costs by as much as 50 percent.
- Increase security and compliance and improve service quality.

While VMware View modernizes the traditional desktop, true user-centric computing means changing the way you think about your desktop IT practices. User-centric practices mean all applications, data and persona converge through policy in the cloud. From there, end users can securely access their applications and collaborate with customers, partners and colleagues wherever they are, using whatever device.

An example of this new category of user-centric applications is the VMware Zimbra Collaboration Suite. More than just another email client, Zimbra focuses on users, taking the best of traditional and online email clients to provide a richer, personalized experience through an interface that easily integrates with other relevant content.

VMware end-user computing solutions bridge legacy and cloud-ready desktop and application paradigms, empowering you to better manage and control users, applications and data. You can extend corporate policy and security beyond your traditional walls to manage software-as-a-service applications and data in the cloud.

With VMware solutions, you gain flexibility for the entire enterprise. IT staff gains flexibility in service delivery, responsiveness and availability while end users gain flexible access and service levels.

### Graydon, Head and Ritchey LLP

“By using VMware View, we can not only save management time but also have much better control over the user experience. We'll be able to support old legacy apps such as WordPerfect and older versions of Windows that are needed for specialized applications. In addition, we can provide better security for the entire environment.”

Robert Gunyon,  
IT Manager,  
Graydon, Head and Ritchey LLP





# Team with VMware to Journey to the Cloud

IT revolutions have been costly and painful—until now. Until VMware.

The VMware transformation journey can help your organization transition to cloud computing in three phases—moving from IT production to business production before advancing to the final stage, IT as a Service.

In the IT production phase, VMware helps you focus on cost efficiency by moving from underutilized physical infrastructure to efficient, shared pools of virtualized infrastructure, critical for cloud computing. During the next phase—business production—we help you improve quality of service by increasing control and ensuring policy-based levels of security, compliance, fault tolerance and availability in an automated way.

In the final phase—IT as a Service—VMware helps you achieve the benefits of cloud computing, including greater business agility, while further reducing capital and operating costs.

Virtualization is essential for enabling the journey to cloud computing. VMware provides cloud infrastructure to both businesses and service providers that enables secure interoperability between private and public clouds. With our solutions, you can begin to reduce IT complexity and enable IT as a Service without throwing away working infrastructure.

With VMware, you get an evolutionary approach to the cloud computing revolution.

The VMware Transformation Journey to Cloud Computing

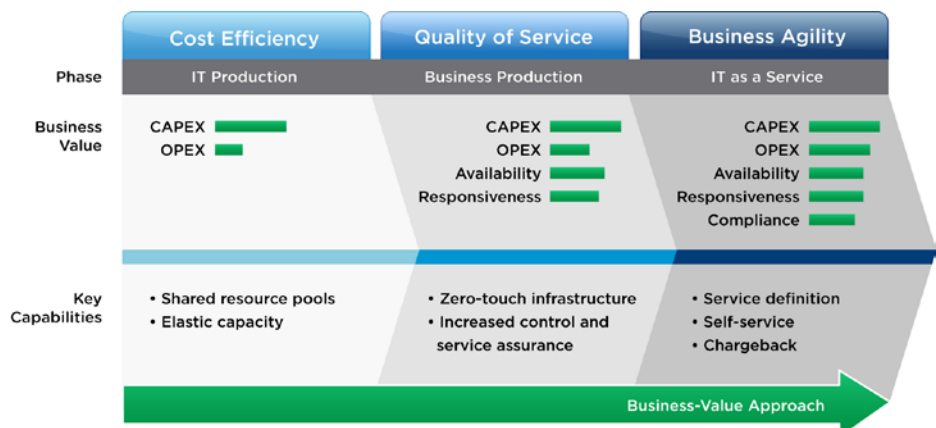



Figure 9: VMware offers a practical, three-phase journey to IT as a Service for organizations transitioning to a cloud computing approach.



Learn more. Contact VMware  
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dial 650-427-5000), or visit  
[www.vmware.com](http://www.vmware.com).



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