VMware Desktop Solutions

SOLUTION BENEFITS

- Built on the industry's fastest-growing blade server solution and the most widely adopted virtualization platforms

- Unparalleled price-to-performance ratio that enables organizations to grow their deployments to match business demands

- Simplified provisioning and operations model that can spin-up virtual desktops in minutes versus hours or days

- Uncompromised user experience, consistent across user devices and locations, delivered across a QoS-enabled data center and network infrastructure

- Accelerated path to VDI return on investment with attractive, competitively priced infrastructure and software bundling that de-risks virtual desktop deployments and reduces initial capital outlay

What You Will Learn

IT departments are inundated with user demands for wider mobile access, greater choice of computing devices, and more flexible work models. IT is also challenged by limited budgets and resources and delivery of services that demand continuity, compliance, and security. This is why so many IT departments are looking to desktop virtualization, or virtual desktop infrastructure (VDI), to address these demands. But finding the right VDI solution for your business is not always easy. And finding the wrong solution can often mean added cost, complexity, and a poorly performing desktop environment that fails to grow with your business. With VMware® Horizon View™ and Cisco Unified Data Center, IT can leverage truly scalable desktop virtualization solutions that simplify management, optimize user experience, and offer unparalleled price-to-performance ratios for customers of all sizes.

Challenge: The Rise of Desktop and Application Virtualization

The traditional approach to managing desktops in a global enterprise has become untenable. Increasingly, geographically dispersed user endpoints, in the form of desktop and laptop computers and personal devices, are making "desktop" management and security nearly impossible. Operating costs are increasing dramatically as IT departments struggle with the security and operational challenges of distributed equipment and the sensitive data it contains. As IT departments consider the cost of upgrading equipment to accommodate the next version of Microsoft Windows, they are prompted to act.

Desktop and application virtualization constitutes an increasingly popular way for enterprises to reduce capital and operating expenses, improve efficiency, increase control, and expand connectivity. With virtual desktops, users now access their desktop images hosted on a data center server as virtual machines, which can be accessed from laptops, thin clients, smartphones, or other devices.

Organizations are implementing desktop virtualization to address these critical needs:

Bring-your-own-device (BYOD) and workplace mobility initiatives – Today's workforce is increasingly adopting myriad new device options, including tablets and smartphones. This trend is increasing pressure on IT to support this new flexibility and choice, while at the same time retaining manageability, control, and security.

Operating system (OS) migration and application management – Enterprises migrating to Microsoft Windows 7 and 8 want to do so without the usual capital expenditure associated with replacing outdated computer hardware not supported by the newest OS releases. Applications can be easily patched and updated centrally from the data center.

Business continuity and disaster recovery – Enterprises need to maintain high availability, respond rapidly in the event of a disaster, and quickly integrate new users during mergers, acquisitions, or off-shoring.

Security and compliance – Company policies and government regulations require protection against theft and lost data.

Total cost of ownership (TCO) – Enterprise IT departments want to reduce operating costs by simplifying application upgrades, patches, and administration.

As organizations reevaluate their desktop strategies, they recognize that change is difficult. They must juggle two competing requirements: the users' need for access, high-performance experience, choice, and flexibility; and the IT department's need for manageability, increased security and compliance, a scalable cost-effective infrastructure, and an agile approach that will quickly meet business requirements.

Cisco Desktop Virtualization Solution with VMware Horizon View

Desktop Virtualization with VMware Horizon View and Cisco Unified Computing System (UCS) delivers truly scalable solutions for customers of all sizes. Fully integrated with VMware vCenter™, this solution simplifies virtual desktop infrastructure (VDI) management and accelerates desktop patching, provisioning, and updates from hours to minutes. End users benefit from an uncompromised experience that is consistent across devices and locations, delivered across a QoS-enabled infrastructure that is virtual desktop-aware. This joint solution offers unparalleled price-to-performance ratios for customers of all sizes.

VMware Horizon View

VMware Horizon View is the only end-to-end solution that simplifies IT management, and increases security and control of end users while decreasing costs by centrally delivering desktop services from your cloud. Horizon View enables highly available, scalable, secure, and reliable desktop services unmatched by physical PCs.

Delivering the highest fidelity performance and user experience across locations, Horizon View with PCoIP provides users with a rich, personalized desktop for access to data, applications, unified communications, and 3D graphics.

Cisco Unified Data Center

The foundation of the Cisco Desktop Virtualization Solution is the Cisco Unified Data Center. Cisco Unified Data Center provides an open, end-to-end, service-optimized infrastructure for next-generation virtual workspaces, delivered jointly with our primary industry partners.

- **Simplify** – Accelerate time to productivity by streamlining the data center infrastructure

- **Secure** – Improve protection of data center infrastructure and assets

- **Scale** – Support more desktops per server with predictable performance

- **Save** – Realize accelerated ROI, improved deployment speed, and investment protection

Cisco Unified Computing System with VMware Horizon View: An Integrated, End-to-End Solution for Desktop Virtualization

Desktop Virtualization with VMware Horizon View and Cisco Unified Data Center offers an end-to-end solution for desktop and application virtualization, built on the industry's leading virtual infrastructure combined with the fastest-growing blade server solution.

Unlike traditional approaches to desktop virtualization, VMware and Cisco deliver completely integrated solution stacks for virtual desktops that combine the unique benefits of Horizon View and the Cisco Unified Computing System (UCS) to deliver greater scalability with unparalleled price-to-performance ratios, simplified management, and an uncompromised user experience.

Risk-Free, Scalable Performance

Desktop IT managers can now benefit from the combined strengths of Cisco UCS and Horizon View to deploy and easily scale virtual desktops—free of the guesswork traditionally associated with sizing, installing, and expanding virtual infrastructure. Customers of all sizes who are looking to implement desktop virtualization can confidently deploy a day-1 infrastructure that provides an optimized balance of memory, I/O capacity, and CPU processing power, resulting in a price-to-performance ratio that delivers the lowest incremental costs as virtual desktop seats are added. With these solutions, desktops can easily be delivered as a service from a single integrated platform. This ensures IT can quickly scale up and down desktop services on demand to meet changing business needs and proactively protect against unplanned downtime.

Greater Business Agility and Operational Simplicity

Business owners and data center IT managers also benefit from the agility and simplicity offered by this integrated solution. Now organizations can more rapidly deploy virtual desktops to respond to changing business dynamics and opportunities. Cisco Unified Data Center is built on a next-generation stateless provisioning and operations model that eliminates the error-prone manual tasks traditionally associated with spinning-up new compute capacity. Fully integrated with VMware vCenter, this solution leverages Cisco UCS Manager and VMware View Manager™ with Linked Clones to enable organizations to deploy new virtual desktops to users in minutes. A single, powerful administrative console further provides oversight of desktop services while enabling IT to execute previously cumbersome tasks like provisioning, updates, and patches with a few clicks of a mouse. Policies for end users can additionally be quickly enabled and disabled. Fully validated joint reference architectures ensure that customers have a proven blueprint to quickly and effectively deploy virtual desktops in their environments.

Uncompromised End-User Experience

Poor end-user experience is considered among the top concerns for moving from a virtual desktop pilot or proof-of-concept, to full-scale production. Cisco and VMware have combined the capabilities and innovation found in VMware Horizon View and Cisco UCS to deliver an uncompromised experience that does not degrade as more virtual desktops are added. Optimized for both LAN and WAN environments, the Horizon View PCoIP Display Protocol adapts to changing network conditions ensuring a responsive desktop and optimal user experience. Business happens everywhere and whether end users are online or offline, accessing basic or 3D applications, connected to the LAN or WAN, VMware Horizon View improves end-user access and delivers maximum workplace productivity. Cisco Unified Data Center built on Cisco UCS provides QoS and individual desktop traffic flow manageability to ensure consistent performance amidst other data center–hosted workloads as well as planned, unplanned, or automated events such as "vMotion®"-ing of workloads across the virtual infrastructure.

The combined strengths of VMware Horizon View and Cisco Unified Data Center offer a holistic approach to addressing the needs of business owners, IT managers and end users, as organizations deploy virtual desktops. Built on joint innovation and functional integration of the industry's fastest-growing blade server platform, and the most widely adopted virtual infrastructure, this solution offers a simplified, scalable approach to delivering virtual desktops, with an uncompromised user experience and consistently high performance for businesses of all sizes.
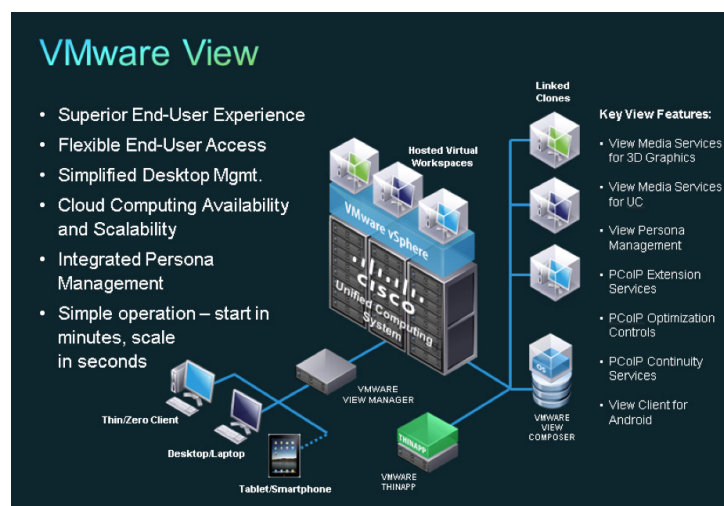

Figure 1. Cisco Desktop Virtualization Solution with VMware Horizon View

VMware Horizon View Solution Components

VMware vSphere® for Desktops – With this end-to-end solution from VMware, companies can apply powerful tools traditionally reserved for mission-critical, server-based applications in the data center to desktop environments. This feature allows customers to extend powerful data center capabilities to the desktop, simplify backup operations and disaster recovery for desktops, and unify management of servers and desktops.

VMware View Manager – This enterprise-class virtual desktop manager allows you to easily manage and securely deploy desktops from a single point of control to save time and resources and reduce TCO.

VMware View Administrator – This component of VMware View Manager can be used by desktop administrators to make configuration changes, manage virtual desktops, and set policies.

VMware View Composer™ – VMware View Composer uses linked-clone technology to rapidly create desktop images from a master image. User data and settings are separated from the desktop image so that they can be administered independently. This approach reduces storage costs and management time by up to 90 percent, increases the speed of automated desktop provisioning from minutes to seconds, and allows administrators to manage hundreds of desktops from a single central location.

VMware ThinApp® – This component streamlines application management, helps preserve user data and settings across OS upgrades and refreshes, and simplifies upgrading and patching applications. It also enables applications to run independently of the host operating system version or patch level, reducing platform support and release complexity.

Cisco Unified Computing System: The Optimized Platform for Desktop Virtualization

First Unified System for Desktop Virtualization

Cisco UCS goes beyond convergence to bring the benefits of centralized computing to the scale-out nature of many desktop virtualization environments: simplified management, greater deployment flexibility, and easier scalability. A self-integrating, self-aware system, Cisco UCS consists of a single management domain interconnected by a unified I/O infrastructure. The system is designed as a single virtual blade chassis that incorporates and scales across multiple blade chassis, rack servers, and racks as illustrated in Figure 2.

Radically Simplified Architecture

The system implements a radically simplified architecture that eliminates the multiple redundant devices that populate traditional blade server chassis and result in layers of complexity: Ethernet switches, Fibre Channel switches, and chassis management modules. Cisco UCS consists of a redundant pair of Cisco 6200 Series Fabric Interconnects that provide a single point of management, and a single point of control, for all I/O traffic.

Lower Cost of Scale

Cisco UCS scales with less cost and less complexity. Instead of expanding the system by adding layers of switching in racks, blade servers, and hypervisors, Cisco UCS uses low-cost, low-energy-consuming fabric extenders to connect the data and management planes directly to blade and rack servers. Cisco fabric extenders bring up to 160Gbps of network, storage, and management bandwidth to each chassis, and multiple 10-Gbps connections to each rack-mount server. This significant reduction in components enables a lower-cost, more graceful scaling model in which the per-server infrastructure cost, including the cost of blade chassis and switching, is as little as half that of typical blade servers.
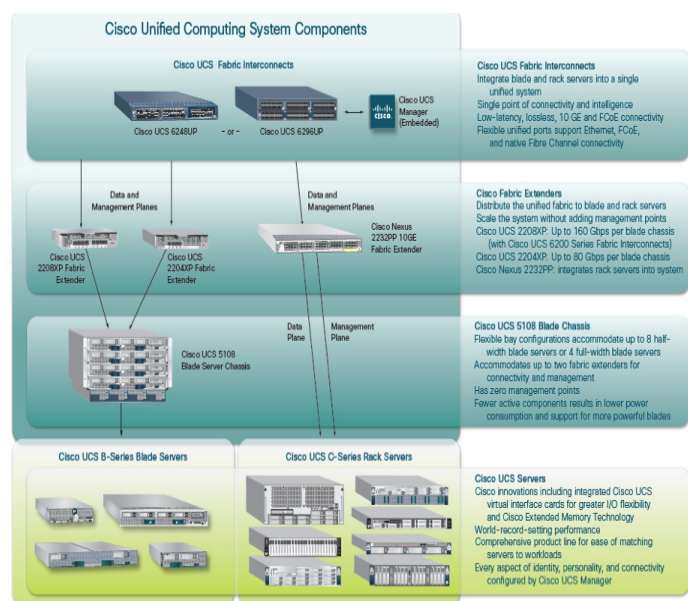
Figure 2: Cisco UCS Solution Components

Desktop Virtualization with VMware Horizon View and Cisco Unified Data Center delivers

Single unified system – Cisco UCS goes beyond convergence by providing a massively scalable, distributed virtual blade chassis with a single integrated point of connectivity and management.

Intelligent infrastructure – Every aspect of the system's configuration is programmable through an intuitive GUI, third-party management tools, or an open-standard XML API, bringing automation to sever configuration.

Integrated, model-based management – The system's model-based management amplifies the knowledge of subject-matter experts by enabling consistent, error-free alignment of policy, server personality, and workloads as shown in Figure 3.

Unified fabric – The system's high-speed, low-latency unified fabric brings the data and management planes, Ethernet, and FCoE to each blade server, reducing the number of components needed and delivering uniform connectivity to each server. Figure 4 compares the unified fabric with a traditional server environment.

Cisco Fabric Extender (FEX) technology – As shown in Figure 5, this design condenses three layers of networking into one, providing scalability with less cost and no additional complexity, and it brings visibility and control to virtualized environments.
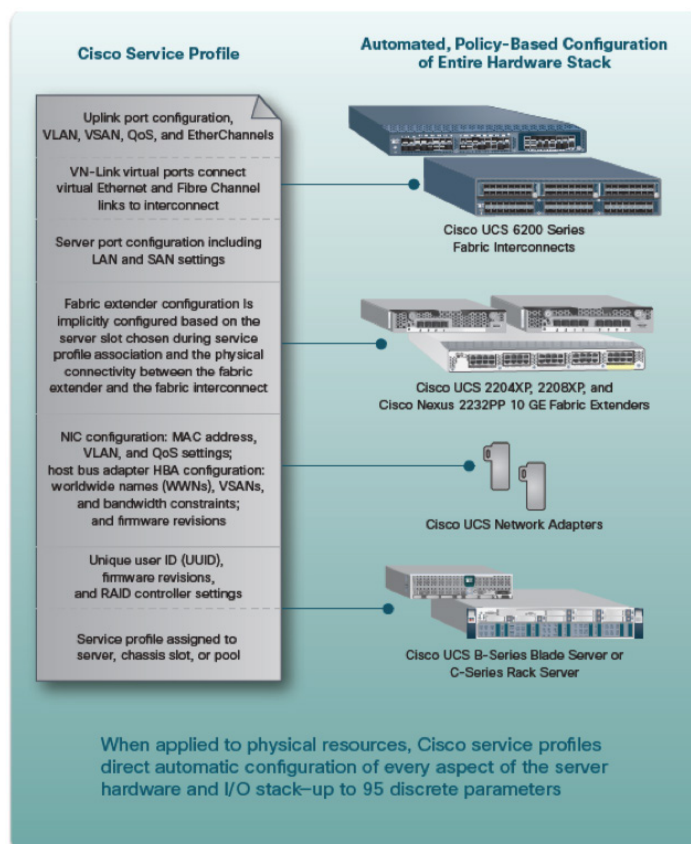

Figure 3: Integrated Model-Based Management Enabled by Cisco Service Profile Templates

## Unified Fabric Yields Massive Infrastructure Reduction

Traditional rack and blade server environments use separate infrastructure for IP, storage, and management networks, resulting in a massive number of cables, I/O interfaces, and upstream switch ports to support the servers. Total number of network cables in this example: 138.

Traditional Blade and Rack Servers

Cisco's unified fabric carries IP, storage, and management traffic over a single infrastructure, reducing cost and complexity while establishing uniform I/O connectivity to each server. Total number of network cables in this example: 60.

Cisco UCS

Figure 4: Cisco Unified Fabric Simplified Virtual Desktop Data Center Infrastructure
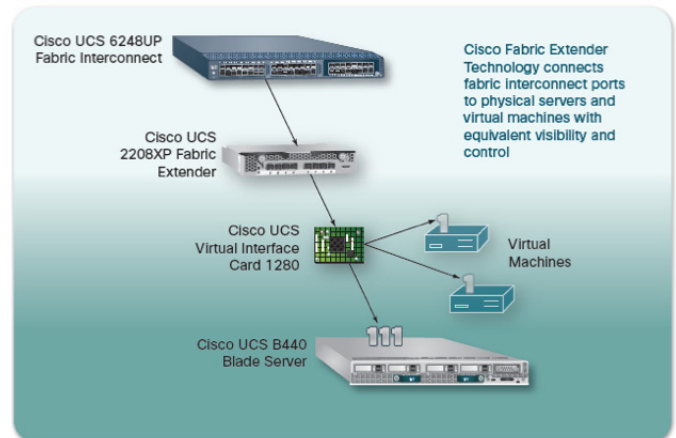
Figure 5: Cisco Fabric Extender Technology

Accelerating the Return on Investment of Desktop Virtualization

Cisco and VMware share an unmatched history of joint solution innovation and differentiated capabilities in the data center and end-user computing marketplace. Built on a truly integrated and simplified platform, Cisco and VMware are now delivering a new, integrated joint solution bundle that accelerates the path to VDI success. Organizations seeking to tap into the benefits of virtual desktops can de-risk their implementation, while reducing their initial CapEx outlay, by taking advantage of new infrastructure bundling being made available by Cisco and VMware. Incorporating the Cisco UCS B200 M3 Series Blade Server, combined with VMware Horizon View and licensing for 300 users, this attractive and competitively priced offer drives the per-user VDI acquisition cost below the cost of a physical PC and offers customers unparalleled price-to-performance ratios.

Desktop Virtualization 400-User Starter Kit for Horizon View

(2) Cisco UCS 6296UP 96-Port Fabric Interconnects
(1) Cisco UCS Chassis with 2 Cisco 2208 IOM Modules
(2) Cisco UCS B200 Controller Blade Servers
- CPU: 2 x 2.20GHz Intel Xeon Processors E5-2660 v2
- Memory: 8 x 16GB (128GB total)
- Cisco UCS Virtual Interface Card VIC 1240

(3) UCS B200 M3 Desktop Workload Blades
- CPU: 2 x 2.80GHz Intel Xeon Processors E5-2680 v2
- Memory: 16 x 16GB (256GB total)
- Cisco UCS VIC 1240

(4) VMware Horizon View Premier 100 Packs

UCS-SL-VDI-B200-02

100-User Expansion Bundle for Horizon View

(1) Cisco B200 Hosting Blade Server
- CPU: 2 x 2.80GHz Intel Xeon Processors E5-2680 v2
- Memory: 16 x 16GB (256GB total)
- Cisco UCS VIC 1240

(1) 100 View Premier Pack

UCS-SL-VDI-B200-05

UCS On-Board Storage Expansion Options

(1) Cisco B200 Hosting Blade Server
- CPU: 2 x 2.80GHz Intel Xeon Processors E5-2680 v2
- Memory: 16 x 16GB (256GB total)
- Cisco UCS VIC 1240

(1) VMware Horizon View Premier 100 Pack

With Fusion-io 785GB, 100 users:
UCS-SL-VDI-B200-03
With LSI 400GB, 100 users:
UCS-SL-VDI-B200-04

Graphics-Intensive Applications Upgrade Options

(1) Cisco UCS C240 Hosting Rack Server
- CPU: 2 x 2.80GHz Intel Xeon Processors E5-2680 v2
- Memory: 16 x 16GB (256GB total)
- Cisco UCS VIC 1225
- 2 x 300GB SAS

NVIDIA K1:
UCS-SL-VDI-C240-K1
NVIDIA K2:
UCS-SL-VDI-C240-K2

100-User SMB Bundle for Horizon View

(1) Cisco UCS C240 Rack Server
- CPU: 2 x 2.80GHz Intel Xeon Processors E5-2680 v2
- Memory: 16 x 16GB (256GB total)
- HDD: 24 x 300GB SAS
- Cisco UCS VIC 1225

(1) 100 Horizon View Premier Pack

UCS-SL-VDI-C240-01

Figure 6: Cisco Desktop Virtualization Solution with VMware Horizon View Is Delivered as a Comprehensive, End-to-End Solution Bundle

Why Cisco and VMware?

Cisco Desktop Virtualization Solution with VMware Horizon View gives control of the desktop back to IT departments—control over desktop and data security, control over desktop operations, and control over operating expenses—while providing an uncompromised user experience. There are no better sources for a desktop virtualization solution than Cisco and VMware.

Cisco and VMware are market-leading, innovative companies with a long history of joint solution innovation in virtual infrastructure. By combining their vision and capabilities, Cisco and VMware together offer customers powerful allies for designing and implementing next-generation virtual desktop environments that go beyond the limits of traditional solutions in the marketplace. Together, Cisco and VMware deliver a standards-based, cohesive, unified environment that easily scales to meet the needs of the business with a simplified operational model, an uncompromised user experience, and an unparalleled price-to-performance ratio.

The collaboration between these two companies brings you scalable desktop capacity and resource reuse, enabled though holistic management automation, increasing human and resource efficiency and reducing errors and downtime. With Cisco and VMware technologies, new desktops can be securely brought online in minutes rather than weeks or months, and desktop resources can automatically scale up or down to meet business requirements, reducing energy consumption. The combination of Cisco and VMware delivers an infrastructure that speeds desktop delivery, increases security, and improves desktop availability and the user experience for local and remote desktop access, both online and offline, without compromising control over the solution's TCO.

For More Information

For additional information about Cisco Desktop Virtualization Solution with VMware Horizon View, please visit

- Cisco Desktop Virtualization Solution with VMware Horizon View

- VMware Horizon View

- Cisco Unified Computing System