

# Deploy Highly Flexible Desktop Virtualization Solutions

Solution Brief  
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## Cisco UCS with Citrix XenDesktop Software



### Highlights

#### Let People Work from Anywhere

- Give users secure access to their desktops, applications, data, and corporate services from any device.

#### Implement the Right Desktop Virtualization Solution for the Task

- Choose from a portfolio of solution architectures that transform your desktops into centrally hosted user workspaces that are cost effective, easy to manage, and secure.

#### Take the Guesswork Out of Deployments

- Use verified, lab-tested architectures and guidebooks for implementation to reduce guesswork and risk.

#### Improve IT Performance

- Free IT to innovate by reducing the amount of time your IT staff spends supporting desktops and users.

## Accelerate the deployment and operation of your desktop and application virtualization environments and simplify IT management.

Change complicates your capability to keep your business and IT departments operating at peak efficiency. Your workforce is increasingly adopting new device options, including tablets and smartphones that let users work in locations without traditional desktops. Upgrades to operating systems and applications often require the replacement of outdated desktop hardware. Disaster-recovery measures and operation changes such as mergers, acquisitions, and the use of off-shore facilities require highly available infrastructure that can quickly adapt. Change in the work environment is redefining and complicating desktop management and making security goals difficult to balance against user needs.

That's why companies like yours are deploying desktop virtualization solutions from Cisco and Citrix. These powerful solutions let you host desktop images on a data center server as virtual machines, which can be accessed from laptops, thin clients, tablets, smartphones, or other devices. As a result, you can balance your users' need to work at any time, from any location, on any device with your IT department's need for manageability, increased security and compliance, and lower costs.

### Cisco and Citrix Desktop Virtualization Solutions

Cisco and Citrix provide a set of flexible architectures for transforming desktops into centrally hosted user workspaces that are cost effective, simple to manage, and easy to secure. Consisting of Citrix XenDesktop software running on the Cisco Unified Computing System™ (Cisco UCS®), the solutions are fully integrated to reduce the burden on your IT staff and accelerate virtual desktop deployment.

#### Cisco UCS

Providing the virtualized server foundation for all deployments, Cisco UCS is a self-integrating, self-aware system with a single management domain. All

components—blade and rack servers and networking, virtualization, and storage—access resources—are interconnected by a unified I/O infrastructure to deliver greater computing density, network simplicity, and management simplicity in a smaller footprint that reduces operating costs.

A policy-based operating model makes the system suitable for diverse IT scenarios. You can deploy Cisco UCS Mini in small-scale and enterprise-edge environments, Cisco UCS modular servers in environments with cloud-scale applications, and new fourth-generation Cisco UCS rack and blade servers in environments that require high application performance. With the system's flexibility and balanced approach to memory, I/O bandwidth, and processing power, you can support many virtual desktop deployments on each physical server without affecting performance.

#### Unified and Simplified Management

Flexibility matters when you move to desktop virtualization. To support a virtualized environment, your infrastructure shouldn't be rigidly defined or configured. Cisco UCS uses a stateless, programmable approach to give you flexibility in determining how, when, and where your resources are deployed and used. The system abstracts server identity, personality, and I/O connectivity from the hardware, enabling these characteristics to be applied on demand. These abstractions, called service profiles, allow every aspect of a server's configuration—from firmware revisions and BIOS settings to network profiles—to be assigned on demand.

Service profiles allow you to treat your server resources as raw computing capacity that can be allocated and reallocated among virtual desktop workloads. Because this intelligent system knows how objects fit together and can apply service profiles in a consistent manner, you can have confidence that the right equipment is provisioned for the desktop environment it is intended to support.

#### Citrix XenDesktop and XenApp

Citrix XenDesktop and XenApp transform desktops and applications into secure, on-demand services available to any user, anywhere, on any device. The Citrix solution delivers a high-definition user experience for Microsoft Windows applications and desktops, software-as-a-service (SaaS), and web applications to any device, including Microsoft Windows endpoints, Apple Macintosh computers, laptops, tablets, thin clients, and smartphones. Your deployments can run on your premises or at cloud scale with a desktop-as-a-service (DaaS) approach. As a result, your IT staff can centrally manage and update applications and increase security through tight controls and encrypted data while providing instant access to users anywhere and on any device.

#### Choice of Hypervisors

To promote configuration flexibility, Cisco and Citrix desktop virtualization solutions support multiple hypervisors, including Citrix XenServer, Microsoft Hyper-V, and VMware vSphere. You can accommodate the needs of your business units, capitalize on the hypervisor skill sets of your IT staff, and avoid vendor lock-in.

“Employees can login from any workstation and access all the applications assigned to them. Desktops are managed with one golden image, making it quick and simple to complete software upgrades.”

Jens Becker-Mühlenbrock, Authorized Representative, Organization and Operation of IT Systems, WGZ Bank  
[Faster Access to Information and Applications](#)

## Implementation Options

No single infrastructure can meet the needs of every user in every business. That's why Cisco and Citrix offer implementation options that are optimized for common IT constraints and delivery models (Figure 1).

#### Onboard Architecture

Cisco® Onboard Architecture is designed for environments with nonpersistent virtual desktops and integrated server-resident storage and management resources. This approach lets you place virtual desktop virtual disks (vDisks) on flash-memory-based storage directly on Cisco UCS servers for fast access to the OS and application components. With this approach, you can reduce desktop boot and login times and the I/O processing burden on backend shared storage and storage networks.

#### Simplified Architecture

Designed to give each worker a dedicated workspace, Cisco Simplified Architecture offers appliance-like

configurations that support persistent hosted virtual desktops with personal vDisks and nonpersistent hosted virtual desktops with virtual application delivery. With this approach, you can accelerate server deployment, help ensure continued data security, and significantly reduce complexity and management time and staff.

**Scalable Architecture**

Cisco Scalable Architecture is a flexible, enterprise-class desktop virtualization architecture that scales from 100 to many tens of thousands of persistent, virtual desktops and works with existing SAN investments. The entire hardware infrastructure can be managed locally with Cisco UCS Manager or scaled for global management with Cisco UCS Central Software, with support for more than a million virtual desktops worldwide. And you can use any combination of storage protocols to implement your shared-storage infrastructure, including Fibre Channel, Fibre Channel over Ethernet (FCoE), Small Computer System Interface over IP (iSCSI), and network-attached storage (NAS).

**Integrated Infrastructure**

Cisco Integrated Infrastructure solutions use technologies from storage partners to deliver conveniently packaged infrastructure that modularizes data center components into easily consumable building blocks that can be added for scalability. Each unit of infrastructure offers self-contained computing, storage, and network fabric resources coupled with virtualization software to simplify and accelerate virtual desktop deployments. You can choose solutions from an ecosystem of integrated infrastructure partners, including EMC (VSPEX), IBM

(VersaStack), NetApp (FlexPod), and Nimble Storage (SmartStack).

**Hyperconverged Infrastructure**

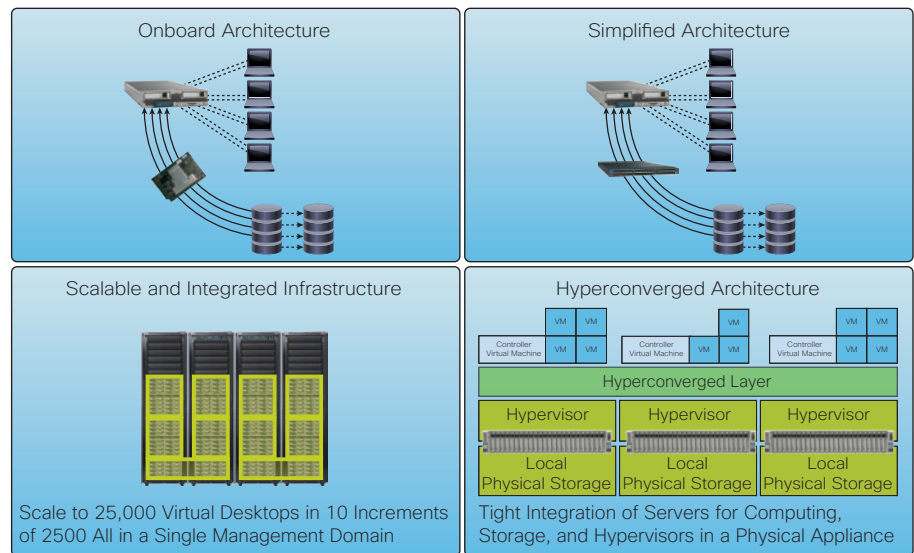
Cisco Hyperconverged Infrastructure takes integrated infrastructure to the next level. Computing and networking resources are combined with locally attached hard-disk drives (HDDs), solid-state-disk drives (SSDs), and flash-memory drives that are pooled using software-defined storage mechanisms into a distributed and shared data store. Highly specific and linear storage scaling is possible without the need for SAN storage, SAN fabrics, and add-on storage accelerators. This low-cost and operationally simple approach is highly resilient, helping ensure your organization does not experience data loss in the event of a hardware failure.

**Delivering User, Business, and IT Advantage**

Desktop virtualization solutions built with Cisco hardware and Citrix

software increase efficiency with a rich mobile experience. On-demand access to desktops, applications, and data allows users to work and collaborate in a familiar environment. Users can quickly and easily access newly provisioned or existing Microsoft Windows applications, services, and data from any device with consistent high-definition performance that supports even the most demanding 3D applications.

And the benefits don't stop there. Your IT staff can eliminate the distributed computing environments that are keeping your IT infrastructure stagnant and holding your workers back. With a platform designed to support changes in technology, your IT staff can quickly and efficiently support new versions of server operating environments, Microsoft Windows client operating systems, and new devices and applications to deliver the resources users need to work the way they want and be successful.



**Figure 1.** Cisco and Citrix Offer a Portfolio of Desktop Virtualization Solution Architectures

### Protect Intellectual Property

With Cisco and Citrix solutions, you can deliver, manage, and protect data by keeping your servers, applications, storage resources, and intellectual property in your data center, yet allow users to securely access that information any time they need it without loss of control by your IT staff. Encrypted data is tunneled through a secure network and firewall, allowing your IT staff to restrict access and use. Centrally managed desktops simplify conformance to corporate, industry, and government regulations and policies, and extensive role-based access control (RBAC) and the capability to isolate virtual desktop workgroups help protect applications and data.

### Reduce Operating Costs

Scalable infrastructure and an open, modular approach support many user profiles and allow you to scale, balance, and optimize your computing resources so that your organization can deploy more desktops per server. This radically simplified architecture reduces physical system requirements and streamlines desktop management, enabling better resource utilization and reduced desktop and storage costs.

### Deliver a Rich User Experience

Cisco and Citrix collaborate with NVIDIA to deliver 3D applications and data to any device. High-end graphics capabilities support graphics-intensive

workloads in a variety of industries, including oil and gas, design, and healthcare imaging. Virtual desktop deployments can share graphics processing units (GPUs) to support knowledge workers and power workers, delivering an excellent user experience for general graphics-accelerated applications such as Microsoft Office and Windows 7, 8, and 10.

### Reduce Risk

Cisco and Citrix identify deployment scenarios and jointly develop solutions so that your IT staff doesn't need to spend a lot of time selecting, connecting, integrating, testing, and managing components. By following the guidelines in these Cisco Validated Designs, your business can take advantage of the flexibility of desktop virtualization and maintain a simplified and trusted approach for the use and management of your organization's services, applications, and data.

### Helping People Work Better from Anywhere

Together, Cisco and Citrix help people work better, the way they want, while providing IT with the control it needs to safeguard your company's data and intellectual property. These simple solutions offer everything your IT staff needs—servers, storage, networking, and cloud access—in flexible data center infrastructure that connects

“We aimed for a best-in-class integrated solution and that is what we have. We've been able to deploy a VDI solution that everyone is happy with, without any loss in performance.”

Paul Bauwens, Information and Communications Technology Architect,  
Meander Medisch Centrum  
[Hospital Sees 200 Percent Uplift in Application Performance](#)

everything together so that users can securely access their desktops, applications, data, and company services from any device.

### For More Information

For more information about Cisco Desktop Virtualization solutions with Citrix, visit <http://www.cisco.com/go/citrix>.

For more information about Cisco Desktop Virtualization solutions, visit <http://www.cisco.com/go/vdi>.

For more information about Cisco Validated Designs for desktop virtualization deployments, visit <http://www.cisco.com/go/vdi-cvd>.



**Americas Headquarters**  
Cisco Systems, Inc.  
San Jose, CA

**Asia Pacific Headquarters**  
Cisco Systems (USA) Pte. Ltd.  
Singapore

**Europe Headquarters**  
Cisco Systems International BV Amsterdam,  
The Netherlands

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