Optimize the Mobile Experience for Your Subscribers

Deploy a Citrix and Cisco Desktop-as-a-Service Solution at Cloud Scale

As mobile technologies have become pervasive, businesses are looking to take advantage of Bring Your Own Device (BYOD) and anywhere computing workstyles. User mobility is a compelling force behind the increase in Desktop-as-a-Service (DaaS) initiatives that are creating new and growing opportunities for Cisco Powered™ Cloud and Citrix® Service Provider Partners.

To help providers rapidly deploy DaaS functionality and manage it at cloud scale, Cisco and Citrix engineers have validated a new reference architecture that is hosted on the Cisco Unified Data Center (UDC) architecture. On this scalable and cost-effective platform, the architecture delivers high user densities, outstanding performance, proven Cisco network reliability and security, and easy deployment and manageability, while providing a rich mobile user experience.

The DaaS Phenomenon

Savvy businesses recognize the versatility and value of Desktop-as-a-Service (DaaS) solutions. Employees that have ubiquitous access are more productive, responsive, and collaborative since they can work wherever and whenever it's convenient—at home, on the road, and in the office. Empowering a mobile workforce often goes hand-in-hand with a commitment to a BYOD model in which workers use their own smartphones, tablets, laptops, and workstations. DaaS solutions can provide the "anytime, anywhere, any device" access to Windows desktops and applications that workers need for optimal efficiency.

Mobilizing the workforce can pose potential security risks if devices are compromised by theft, loss, or negligence. However, a properly implemented DaaS architecture can reduce risk by safeguarding applications and data in the datacenter, protecting intellectual property and sensitive information while centralizing application and operating system images.

Instead of focusing on the complexities of deploying, maintaining, and managing a DaaS infrastructure, companies are increasingly turning to service providers to manage user mobility and BYOD initiatives that provision Windows applications and desktops as elastic cloud-based services. Subscribers gain the advantage of shifting infrastructure costs into a more predictable and usage-based operational expense (OPEX) model.

DaaS solutions that feature flexibility, manageability, high security, and an optimized user experience can help providers successfully deploy DaaS functionality at cloud-scale. To this end, the multi-tenant Cisco Cloud and Citrix Service Provider Reference Architecture on Cisco UDC platforms has been tested and validated as a Cisco Validated Design.

For subscribers, the Cisco and Citrix architecture brings a native user experience across a range of endpoints—smartphones, tablets, laptops, PCs, and Macs—even on low-bandwidth mobile networks. From the provider's perspective, implementing the Cisco and Citrix architecture on Cisco UDC platforms helps enable cost-effective services at cloud-scale across multiple tenants, infrastructure resources, and datacenters. Combined Citrix and Cisco technologies streamline the requirements for building new offerings, adding new tenants, and expanding subscriber volumes, helping providers grow their business and increase profitability.

Citrix and Cisco: Simplifying Cloud-Scale DaaS Offerings

Citrix has designed and validated the Citrix Service Provider Reference Architecture to simplify the delivery of state-of-the-art, cloud-based services. The design facilitates multi-tenancy with different levels of resource isolation. Tenant subscribers can use any Citrix Receiver™-enabled device. Advanced Citrix HDX™ technologies optimize the user experience based on the available network bandwidth and the device in use. Citrix worked closely with Cisco to bring further value to the DaaS architecture, developing a Cisco Validated Design specifically for the Cisco DaaS Solution with Citrix offering. When providers implement Citrix DaaS on Cisco UDC, it creates a cost-effective, high-density, high performance, and highly secure end-to-end solution that supplies Windows apps and desktops as agile and highly secure cloud services.

- **Simplified administration and management across multiple datacenters**. A fully virtualized architecture promotes fast deployment and growth. Because Citrix software is designed to scale across datacenters, user volumes can increase without the need to scale backend administration. Cisco UCS® Central Software manages multiple Cisco Unified Computing System (Cisco UCS) instances (or domains) across globally distributed data centers, allowing IT departments to enjoy the benefits of simplified, unified management of compute, network, and storage access resources.

- **Intuitive infrastructure management and low total cost of ownership (TCO)**. The Cisco Unified Data Center platform combines compute, network, management, and storage access into a single architecture. The platform uses a "wire-once" design that simplifies configuration changes and reduces cabling by up to 77% and power and cooling by up to 54%. Integrated management tools help administrators manage a growing infrastructure.
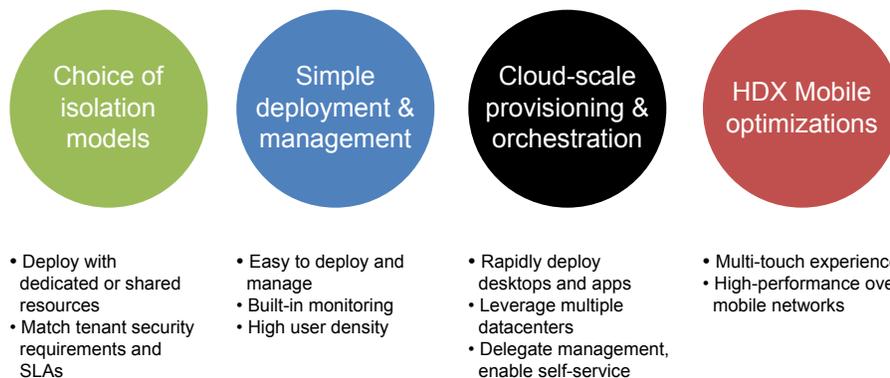

Figure 1. Advantages of the Cisco Validated Design for the Citrix Service Provider Architecture on Cisco UDC.

As illustrated in Figure 1, the Cisco Validated Design for the Citrix Service Provider Reference Architecture on Cisco UDC provides key advantages:

- **Support for a variety of multi-tenancy isolation models**. For customers with stringent security requirements, providers can deploy services using dedicated rather than shared resources. Sharing resources (and using session isolation) promotes a lower cost model for tenants with less rigorous security needs.

- **Easy platform expansion**. Flexible Cisco UCS designs make it easy to expand capacity with easy-to-deploy systems that reduce provisioning time by up to 84%. Cisco networks bring operational simplicity and scale across physical and virtual environments and dramatically simplify how you provision resources critical to application performance.

- **Exceptional simplicity for provisioning and onboarding**. Administrators can easily deploy the right mix of hosted shared desktops (HSD) and virtual desktop infrastructure (VDI) offerings from a centralized interface that spans datacenters. Delegated administration even permits tenant self-servicing.

- **Optimized user experience**. Enhanced HDX technologies supply a native touch experience on mobile devices and optimize performance for low-bandwidth mobile networks.

Tested and validated for the Cisco DaaS solution with Citrix, Cisco UDC has synergy with the Citrix Service Provider Reference Architecture. The integrated capabilities help to consolidate infrastructure deployment, reduce management complexity, and lower TCO. The combined solution transforms resources into an agile cloud-based infrastructure for efficient and scalable DaaS service delivery.

The Power of Integrating Citrix Software

The Cisco Validated Design reference architecture integrates these Citrix software components:

- **Citrix XenDesktop™ 7.1**. Citrix XenDesktop delivers Windows apps and desktops as highly secure mobile services. Incorporating the full power of XenApp, XenDesktop can deliver full desktops or just apps to any device.

- **Citrix App Orchestration 2.0**. App Orchestration is a "game changer" in this architecture since it provides consistent end-to-end configuration management. It allows providers to orchestrate and automate the delivery of applications and desktops in multi-tenant environments across multiple products, sites and datacenters.

- **Citrix CloudPortal™ Services Manager 11.0.1**. CloudPortal Services Manager is an easy-to-use web portal that helps service providers manage the delivery of cloud services and offerings to their customers.

- **Citrix Provisioning Services™ (PVS)**. Citrix PVS supports image management, simplifying patching and updates for Windows operating system and application images.

- **Citrix Usage Collector**. Citrix Usage Collector tracks Citrix licenses to streamline billing.

- **Citrix HDX Insight**. Citrix HDX Insight provides monitoring and analysis of Citrix Independent Computing Architecture (ICA®) traffic.

- **Citrix NetScaler®**. Citrix NetScaler secures client access points and balances load.

To extend the architecture, Cisco Cloud and Citrix Service Providers can go beyond apps and desktops and optionally add Citrix XenMobile® for mobile device management and Citrix ShareFile® for highly secure file sync and share.

Cisco UDC: Performance, Expandability, Security, and Ease of Management

The Cisco UDC platform is ideal for DaaS infrastructure workloads. Large memory footprints and industry-leading virtualization performance mean that Cisco Cloud and Citrix Service Providers can consolidate workloads and deploy fewer physical systems. The platform uses Cisco single-connect networking that radically simplifies cabling. All of this promotes lower costs, greater performance, and simplified infrastructure management for service providers.

Extending the emphasis on simplicity, Cisco UCS Director provides a single "pane of glass" interface to manage all the resources used to configure your DaaS solution: computing, networking, storage, operating systems, and hypervisors. It converges infrastructure management and uses policy-driven configuration for provisioning, making it possible to deploy infrastructure through an easy-to-use point-and-click interface.

A Fully Validated Architecture

In the Citrix Solutions Lab, Citrix engineers validated the Citrix Service Provider Reference Architecture, integrating software components on a fully

virtualized infrastructure. In addition to confirming the architecture's ability to support tenants with different multi-tenancy isolation models, lab engineers performed load testing with a HSD/ VDI workload mix and various subscriber volumes, documenting the configuration.

Cisco is further testing and validating the Cisco DaaS solution with Citrix through the rigorous development of the Cisco Validated Design for this solution. Cisco Validated Designs provide the information and assurance cloud providers demand to deploy reliable, high performance Cisco cloud solutions.

The joint Citrix and Cisco solution allows providers to configure and provision DaaS services quickly with less risk and infrastructure complexity, supporting growth while improving data security and providing a consistently rich mobile experience for subscribers. Providers will appreciate that the solution incorporates reliable Citrix and Cisco products that are backed by world-class 24x7 global support organizations.

Cisco Cloud and Citrix Service Providers are entitled to partner resources, including assistance with business planning, sales and marketing support (including demand generation), and Citrix Service Provider licensing programs. The Cisco DaaS solution with Citrix is part of the Cisco Powered program, providing you with:

• Partner training and sales enablement

• Cisco generated awareness, demand generation, and marketing resources

• Cisco sales commission on partner cloud services sales

• Cisco Capital programs.

Your customers' benefit knowing their solution is built and delivered on proven Cisco validated architectures validated by Cisco, their provider met strict qualifications for delivering Cisco Powered services, and the solution is third-party audited for quality. In addition, Citrix Service Providers receive access to Citrix assets that can help to grow the business, including validated architectures that nurture scale and margin advantages.

Get Started

Please reference the appropriate links below to get started with the Citrix and Cisco DaaS solution.

• **Existing Cisco Cloud Providers and Cisco IaaS partners** should speak to their account team and visit www.cisco.com/go/daas for more information about Cisco DaaS solutions.

• **Existing Citrix Service Providers** can get started evaluating this optimized DaaS solution using Citrix and Cisco technologies. For more details, look for the Citrix Service Provider Reference Architecture whitepaper on www.citrix.com/csptoolkit.

• **Providers interested in becoming part of the Citrix CSP Program** can apply at www.citrix.com/csp or contact csp@citrix.com.

• **Providers interested in Cisco Powered and the Cisco Cloud and Managed Services Program** should visit www.cisco.com/web/partners/pr11/mscp/index.html.