

# Cisco Virtualization Experience Infrastructure



## Overview

IT departments are inundated with user demands for wider mobile access, video and interactive multimedia services, new 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. Many IT departments view [desktop virtualization](#) or virtual desktop infrastructure (VDI) as a solution to these demands. Cisco® Virtualization Experience Infrastructure (VXI) provides IT departments with a comprehensive system approach to scaling desktop virtualization, while combining virtual desktops, voice, and video to deliver the next-generation virtual workspace.

## Delivering the Next-Generation Virtual Workspace Solution

Cisco VXI is an integrated, end-to-end, tested, virtual workspace system that supports the next-generation virtual work environment by unifying virtual desktops, voice, and video. This new approach to delivery of end-user services enables IT to provide a more flexible, secure, and efficient converged infrastructure that delivers an uncompromised end-user experience and much greater business value.

Cisco VXI is an open and validated solution that spans Cisco's data center, network, and collaboration architectures in combination with critical partner technologies. This solution mitigates deployment risks and simplifies implementation with a step-by-step approach that is supported by partners and Cisco Services and holistic solution support.

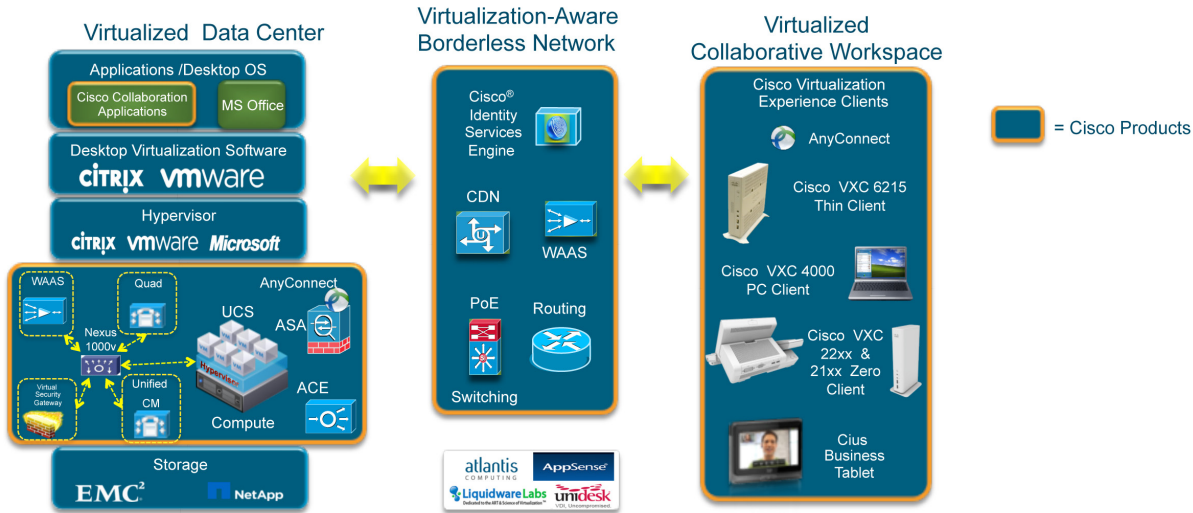
Cisco VXI is built on three main architectural elements (Figure 1):

- **Virtualized data center:** The core of Cisco VXI is the virtualized data center, based on Cisco's innovative data center architecture that enables IT to simplify, secure, and scale the hosting and management of desktop virtualization while building the foundation for full virtual workspace deployments. This architecture includes the Cisco Unified Computing, Unified Network Services, and Unified Fabric foundational elements along with industry-leading ecosystem partner technologies. This comprehensive open and standards-based architecture is well suited for hosting virtual desktops, providing computing and network infrastructure simplification and cost reduction, a streamlined operating model, and systems excellence delivered through enhanced security, business continuity, virtual machine mobility, energy efficiency, and application performance. Cisco

VXI is compatible with, and fully supports, Vblock™ Infrastructure Packages and Flexpod converged infrastructure solutions.

- **Virtualization-aware network:** The end user accesses the virtual desktops and services hosted in the data center cloud through a virtualization-aware network, based on the Cisco Borderless Network Architecture. The network helps ensure an end-to-end superior user experience, regardless of geography, by providing the optimized, secure delivery of virtual desktops at scale, together with voice, video, and traditional data. The network uses WAN optimization to improve the virtual desktop experience together with multimedia, print services, and other capabilities while also reducing the bandwidth consumed by each virtual desktop session. The network provides comprehensive secure virtual desktop access from any device and a holistic solution for policy enforcement for users

Figure 1. Cisco VXI: An Architecture Approach





and devices using the same management system for physical desktops and virtual desktops.

- **Virtualized collaborative workspace:** The virtualized collaborative workspace allows IT to deliver an uncompromised user experience for fixed and mobile work environments. Building on Cisco’s collaboration architecture and portfolio, it extends the reach of the virtual desktop to a diverse range of endpoint platforms, including thin and zero clients, smartphones, and tablets. These include innovative user devices offered by Cisco that combine virtual desktops with voice and video capabilities. Unlike today’s desktop-only virtualization solutions, this virtual workspace supports critical collaboration capabilities such as conferencing, messaging, and unified communications clients.

### Flexible, Secure, and Uncompromised

- **Flexible:** Cisco VXI supports user choice to accommodate different work styles and combinations of virtual desktop, voice, and video endpoint devices, while enhancing the user experience for improved productivity and user satisfaction. It also provides a flexible, open virtual workspace platform that offers agility for varied and multiple deployment scenarios and enables rapid responses to changing business needs. It allows IT to achieve faster, more efficient provisioning and management of end-user services through centralized control of end-to-end virtual desktop and collaboration infrastructure and services.
- **Secure:** Cisco VXI improves data confidentiality and integrity by centralizing, protecting, and controlling access to critical data and intellectual property at the data center rather than across diverse endpoints. Cisco VXI integrates policy-based identity services that enable device profiling, posture assessment, and

provide need-to-know access to centralized resources. This approach reduces exposure by protecting the organization from data loss, compliance litigation, loss of revenue, and brand damage, and it allows IT to respond quickly to security attacks and planned and unplanned disruptions: technical, natural, or man-made.

- **Uncompromised:** Cisco VXI allows companies to achieve competitive advantage and improved productivity without compromising cost or resilience goals for a superior return on investment (ROI). IT can now reduce risk and protect technology investments through a roadmap based on fully validated integrated systems, an open partner ecosystem, financing options, end-to-end support, and planning and implementation services. Users also can now benefit from a unified virtual desktop, voice, and video work environment on any device in any location, with excellent performance and user experience (Figure 2).

Figure 2. Cisco VXI: Delivering the Next-Generation Virtual Workspace



### Desktop Virtualization Use Cases

The most common applications for Cisco VXI are:

- **Microsoft Windows 7 migration:** Cisco VXI addresses this important client computing milestone by helping organizations lower operating costs and improve the security and control associated with Microsoft Windows 7 implementation on a virtualized desktop.
- **Business process outsourcing:** Cisco VXI enables customers to outsource critical processes while maintaining control of applications and data, so that security and compliance are not compromised.
- **Temporary workers:** Organizations can deploy and manage desktop images on third-party or employee-owned assets, thus maintaining separation between corporate and personal resources.
- **Remote and branch office support:** Cisco VXI enables organizations to reduce costs while maintaining centralized control of sensitive data. Cisco VXI also simplifies administration and management of remote and branch office resources.
- **Mobile users:** Cisco VXI customers can extend anytime, anywhere access to mobile users, while offering choice of endpoints and maintaining security and control.
- **“Bring your own device” (BYOD):** Companies grappling with support for BYOD initiatives can now easily provide secure access to company work from a wide variety of desktop, laptop, and handheld devices, without the need to control or remotely wipe the devices.
- **Home/Teleworkers:** Cisco VXI enables home-based workers to access corporate voice, video, and data resources over secure links, simplifying deployments and reducing costs associated with home offices.



## Cisco VXI Components

The Cisco VXI solution includes mandatory and optional components from both Cisco and third-party technology partners. Mandatory components are those that provide the basic foundation for a virtualized desktop deployment:

- **Computing:** This component consists of the servers that host virtual machine-based desktops and applications. The Cisco VXI computing component is based on the Cisco UCS™ B-Series Blade Servers and C-Series Rack-Mount Servers. Cisco UCS servers adapt to application demands, intelligently scale energy use, and offer best-in-class virtualization.
- **Hypervisor:** This component virtualizes host systems so that multiple operating systems, running as virtual machines, can share the same hardware resources. Cisco VXI supports the following hypervisors:
  - VMware ESX and ESXi
  - Microsoft Hyper-V
  - Citrix XenServer
- **Desktop virtualization:** This component virtualizes desktop images for deployment from centralized servers. Connection brokers automate the connection of client endpoints to virtual desktops. Cisco VXI supports the following desktop virtualization solutions:
  - Citrix XenDesktop and XenApp
  - VMware View

A broad range of additional components have been validated and can be integrated with the Cisco VXI system.

- **Storage:** Desktop virtualization requires centralized storage for applications and data. Cisco VXI supports both direct-attached and network-attached storage. Cisco VXI validated storage solutions include both EMC and NetApp storage as well as storage optimization technology from a number of partners.
- **Endpoints:** These are the means by which hosted virtual desktops are accessed and used. Cisco VXI supports a broad range of thick clients, thin-clients, and zero-clients and mobile devices such as tablets and smartphones.

The Cisco VXI endpoint portfolio includes the new Cisco Virtualization Experience Client (VXC) 6215, the first enterprise-ready thin client built with intelligence embedded in the endpoint, which helps provide exceptional voice and video experiences in a virtual environment. The VXC 6215 is complemented by the Cisco VXC 2000 Series zero clients as well as a software appliance, the Cisco VXC 4000 Series, which can help transform a Microsoft Windows PC into a multimedia-capable virtual desktop client. Zero and thin clients from Wyse, Devon IT, and IGEL are also supported.

- **Mobility:** For mobile users, Cisco VXI also supports the Cisco Cius™ enterprise tablet, which allows workers to access their virtual workspace from work, at home, or on the road.
- **Network:** This component consists of routing, switching, and network services products that help ensure optimized handling of desktop virtualization traffic. For example, Cisco Wide Area Application Services (WAAS) optimizes bandwidth consumption

and reduces latency for virtual desktop traffic. Cisco WAAS also provides zero-touch WAN acceleration for Citrix ICA traffic.

Cisco VXI validated network components include:

**Data center switches:** Cisco Nexus® 7000 and 5000 Series Switches

**Virtual switches:** Cisco Nexus 1000V Series Switches

**SAN switches:** Cisco MDS 9000 Family products

**LAN switches:** Cisco Catalyst® 6500 and 4500 Series Switches

**WAN:** Cisco Integrated Services Routers (ISRs) and Cisco Wide Area Application Services (WAAS), including Cisco Virtual WAAS (vWAAS), WAAS Mobile, and WAAS Express

**Security:** Cisco ASA 5580 and 5540 Adaptive Security Appliances, Cisco AnyConnect™ Secure Mobility Solution, Cisco Virtual Security Gateway (VSG), and Cisco Identity Services Engine

## Collaborative Applications

Cisco VXI supports unified communications and collaboration solutions (such as Cisco Unified Communications Manager) in virtualized environments. Solutions include:

- IP communications (Cisco Unified Communications Manager and IP Phones)
- Customer care
- Enterprise social software including Cisco Quad™ (for virtual teaming) and Cisco Show and Share® (video creation and access)
- Conferencing (Cisco WebEx®)



## Cisco VXI Partner Ecosystem

- **Hypervisor:** Citrix XenServer, Microsoft Hyper-V, VMware vSphere
- **Desktop Virtualization:** Citrix XenDesktop and XenApp, VMware View
- **User Virtualization:** AppSense
- **Optimization:** Atlantis Computing, Teradici
- **Storage:** EMC, NetApp
- **Virtual Anti-Virus:** McAfee, Trend Micro
- **Management:** Liquidware Labs, Unidesk
- **Clients:** WinXP and Windows 7 PCs, Wyse

## Services

Cisco VXI includes a comprehensive portfolio of advanced and technical services. Customers who take advantage of the Cisco VXI Audit and Validation Service qualify for Cisco Unified Solution Support, which can help alleviate the overhead associated with deploying and managing complex solutions. In addition, customers can take advantage of these Cisco Desktop Virtualization Services:

- Desktop Virtualization Advisory Strategy
- Desktop Virtualization Planning, Design, and Implementation

## Cisco VXI Roadmap

Cisco has made a long-term commitment to delivering several Cisco VXI initiatives in multiple phases:

- Infrastructure optimized to host virtual desktops with lower cost, increased scalability and security, and simplified management
- Solutions to enhance delivery of multimedia to virtual workplaces
- An expanding range of endpoint solutions
- Integrated virtual services for end-to-end per-user policy and control

These initiatives include technology roadmaps, a broad partner ecosystem, validated system-level designs, and cross-domain professional services.

## Conclusion

Cisco VXI is a unique solution, for the first time integrating the workplace, network, and data center into a comprehensive system that transforms business outcomes by enabling faster response to market opportunities and threats. The Cisco VXI journey begins with tried and tested solutions that, over time and at your own pace, will evolve to support the transformation of your organization while eliminating risk and the trade-offs between the user experience and budget imperatives. Cisco offers a strategy aligned with enterprise objectives. It uses technical and deployment expertise in an open ecosystem combining best-in-class Cisco and partner products to help ensure success.

## For More Information

- [www.cisco.com/go/vxi](http://www.cisco.com/go/vxi)
- [www.cisco.com/go/partnervxi](http://www.cisco.com/go/partnervxi)