



# Simplify Desktop Delivery to a Hybrid Workforce

Use the Cisco UCS® X-Series as the foundation for your virtual desktop infrastructure.

**Imagine easily supporting your hybrid workforce with virtual desktops and workstations with excellent security and responsiveness anywhere, at any time.**

Over the past two years, the way in which people work has changed dramatically. This has forced IT organizations to support remote services with immediate access and a consistent user experience. Because of work-from-home orders, many turned to the cloud for a quick answer, thinking the need would be temporary. This allowed companies to leverage previous cloud experience to get a solution out fast. However, initial cloud cost forecasts were more expensive than originally estimated, some corporate data could not be moved to a public cloud, and cloud security profiles didn't always match requirements. Today, the workplace is transformed. It is estimated that by 2025, 75 percent of the global workforce will be made up of people who prefer to work remotely. This has IT organizations looking for long-term solutions.

## Highlights

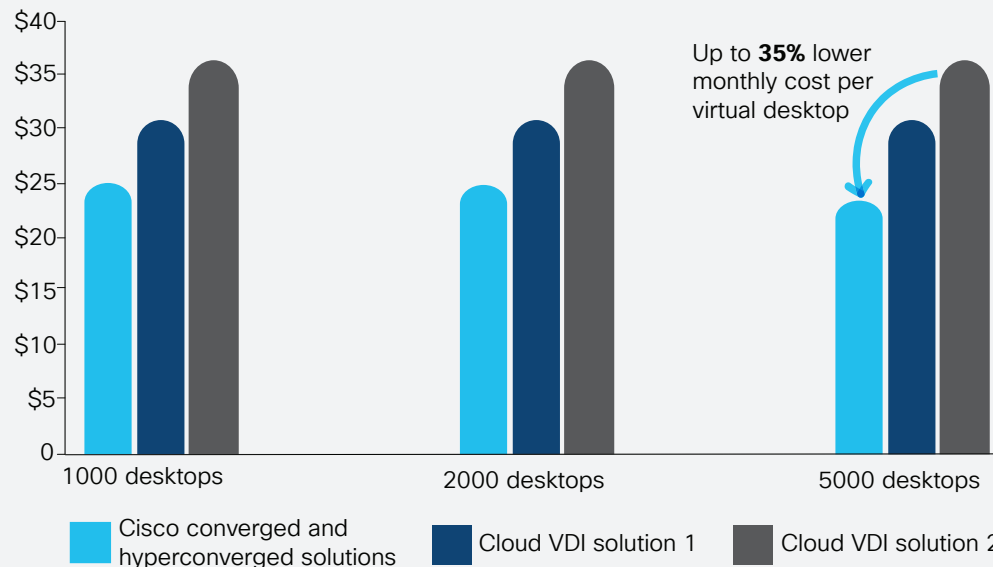
- Be prepared for the future of remote working
- Gain excellent virtual desktop performance and response times
- Enable operational simplicity and flexibility that leads to cost savings and improved productivity
- Manage centrally with Cisco Intersight™ software

## Hybrid virtual desktop infrastructure

Historically, virtual desktop infrastructure (VDI) designs have focused on the data center. Today, this focus is shifting to delivering remote services with a hybrid-cloud model to ensure that services are more easily accessible to remote users.

- **To deliver secure remote access across a variety of devices:** You will need simplified desktop image management for easy deployment and updates. You will also need to put data and applications closer to your users for fast access.

- **To reduce IT costs and simplify lifecycle management:** Your solution will need fast application deployment and upgrades, simplified application and desktop patching and management, and support for modern application migration. When new staff is hired, you will need instant desktop provisioning.
- **To simplify hardware and software:** You will need simplified foundational hardware and software to power your VDI solution. Enterprise Strategy Group (ESG) found that Cisco® converged infrastructure and hyperconverged infrastructure solutions can provide a 13 to 35 percent lower average monthly cost per virtual desktop than equivalent cloud-based models over a three-year period.



**Figure 1.** ESG Models found that Cisco converged infrastructure and hyperconverged infrastructure solutions can provide up to a 13 to 35 percent lower average monthly cost per virtual desktop compared to cloud-based models over a three-year period.

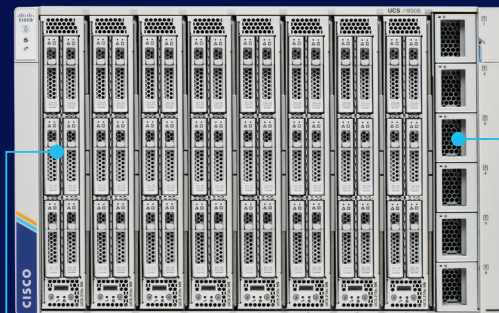
IT infrastructure should never be the reason for loss of desktop data

“We give the salespeople an iPad, keyboard, and mouse, and they get a full desktop experience anywhere in the world. And if those iPads are ever stolen from a hotel room or ransacked in some way... we don’t have to worry because all of the data is tucked safely in our data center.”

**Michael Rhoades**  
IT Manager, North American  
Höganäs Co.

# Meet the Cisco UCS X-Series Modular System

Cisco UCS X9508 Chassis  
7RU, 8 flexible slots



## Computing

Cisco UCS X210c  
M6 Compute Nodes

## Power and cooling

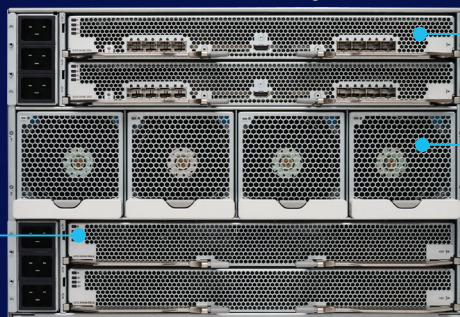
6x 2800W PSU  
54V power distribution  
4x 100 mm dual-rotor fan

## Expansion

Future Cisco UCS  
X-Fabric Modules

## Networking

Cisco UCS 9108 25G  
Intelligent Fabric Modules



Rear view

- **To improve compliance and protection of intellectual property:** You will need enhanced security and simplified data protection with remote backup to ensure that your corporate assets are safe.

## The right foundational hardware and software

We deliver the future-ready Cisco UCS X-Series Modular System to support the deployment and management of virtual desktops. We have a proven track record with hundreds of customers for providing solutions based on Citrix and VMware Horizon. The key capabilities from our historical designs have been carried forward into the Cisco UCS X-Series managed by the Cisco Intersight platform. Examples include: Cisco UCS service profiles, unified fabric, ease of scalability, performance, and cost-effective deployments.

## Foundational infrastructure for your virtual desktop infrastructure

The Cisco UCS X-Series is foundational infrastructure for your virtual desktop solution. It delivers:

- **Cloud operating model:** The Cisco UCS X-Series gives you an operating model with a virtually unlimited scale that is supported by flexible infrastructure that can shape itself to match the needs of your desktops and applications. We provide automated solution deployment so you can set policies to guide your route and let automated management get you there. This is the way to relieve your organization of the increasing burden of

complexity. It delivers consistent management across all hybrid-cloud infrastructure that can also deploy, manage, and optimize modern, cloud-native applications deployed in your private cloud, and can seamlessly move applications into the public cloud.

- **Standardized, adaptable infrastructure:** On-premises infrastructure often has a unique set of infrastructure, application, and tool silos for each application. IT staff can't continue to build, deploy, and manage infrastructure differently for each new purpose. This old way of doing things cannot be scaled with speed of business. Cisco UCS X-Series with Intersight eliminates silos and deploys applications with standardized, common infrastructure that acts more like fluid pools of resources rather than fixed, inflexible silos that inhibit resource sharing and change. You can change resource allocations with the speed and ease of software. This automation is the key to success in a hybrid-cloud world, and you need a consistent, automated way to manage an infrastructure that is both on premises and in the cloud.

- **Future-ready system:** Embrace emerging technology and reduce risk with a modular system engineered to support future generations of processor, accelerators, and interconnects with management enabled by a constant stream of new capabilities delivered as software as a service (SaaS).

## Simplify management and reduce costs

Cisco UCS X-Series compute nodes meld the benefits of both blade and rack servers, and make up the first system exclusively managed

through Cisco Intersight software. This makes your virtual desktop infrastructure cloud-operated with complete hardware and software lifecycle management from a single interface, regardless of location.

The Cisco UCS X-Fabric technology is designed to accommodate new devices and interconnects as they become available, including the capability to extend the compute node's PCIe connectivity to attach additional GPU accelerators.

The system consists of Cisco UCS X210c M6 Compute Nodes powered by 3rd Gen Intel® Xeon® Scalable processors. It can run VDI wholly within a compute node using six local storage drives for an amazing 96 TB of storage per node. You can also combine Cisco UCS X-Series nodes with NetApp (FlexPod) or Pure Storage (FlashStack) storage systems,

creating a converged infrastructure solution to accommodate larger deployments.

### Cisco Intersight platform

The Cisco UCS X-Series is managed through Cisco Intersight. Intersight is a software-as-a-service (SaaS) infrastructure lifecycle management solution that delivers simplified configuration, deployment, maintenance, and support. With a SaaS model you always use the most-to-date management software, you don't have to manage managers, and you don't have to worry about incompatible versions. With the Cisco Intersight platform, you get all the benefits of SaaS delivery and the full lifecycle management of Intersight-connected distributed servers and third-party storage systems across data centers, remote sites, branch offices, and edge environments (Figure 2).

The Cisco Intersight platform is designed to be modular, so you can adopt services based on your requirements. The platform significantly simplifies IT operations by bridging applications with infrastructure, providing visibility and management from bare-metal servers and hypervisors to serverless applications, thereby reducing costs and mitigating risk. This unified platform uses an open REST API to provide a common interface that natively integrates with third-party platforms and tools.

### X-Series security enhancements

Security is vital to keeping corporate data and systems safe. With cyber attacks increasing, these enhancements are important for protecting corporate assets and keeping business running.

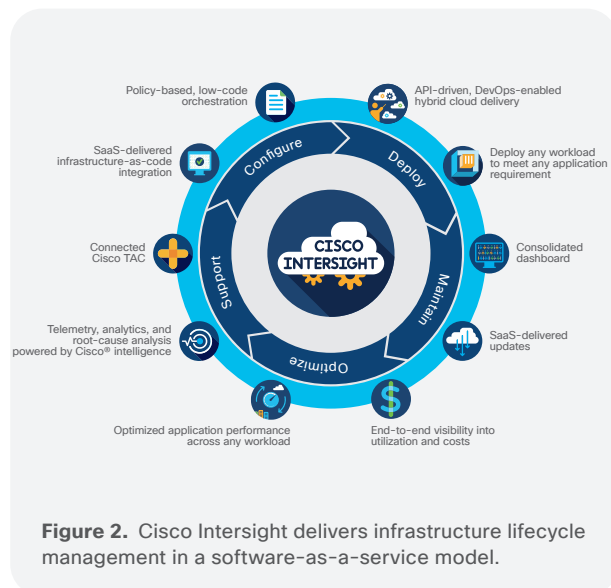


Figure 2. Cisco Intersight delivers infrastructure lifecycle management in a software-as-a-service model.

**“Cisco’s Intersight management from the cloud is adding a lot to our toolset—not only the ability to securely monitor and manage our data center from anywhere, but with the new Intersight Workload Optimizer service it expands this visibility to applications, both on prem and in the public cloud. This ensures that not only our hardware is performing perfectly but also our applications.”**

**Wouter Hindriks**  
Technical Team  
Missing Piece BV

## Cisco Customer Experience (CX) Services

We are here help accelerate your virtual desktop and application deployments. Our VDI Rapid Deploy service will install the VDI software stack for either VMware Horizon or Citrix in specified configurations that support either 500 or 1000 user desktops. These are competitively priced to assist you with your new VDI instances or to expand a current deployment.

- Simplify operation and increase agility
- Accelerate adoption and efficiency
- Reduce risk

For more information visit [Cisco CX Services](#)

The Cisco UCS X-Series through 3rd Gen Intel Xeon Scalable processors has enhanced security including the following:

- **Secure boot** (with an FPGA) to keep your system from being hacked through the boot process.
- **Anti-counterfeit** (ACT2) with product identity information and assertion functionality for various uses to secure your products.
- **Total memory encryption** (TME) enables all memory to be encrypted with a single key which protects all memory.
- **Multi-key TME** (MKTME) provides unique keys per virtual machine (VM) encryption to protect each virtual desktop. How this is used depends on your operating system and virtual machine manager (VMM).
- **Intel Software Guard Extensions** (SGX) enables per-application encryption. It delivers hardware-based attestation capabilities to measure and validate software and signatures. This prevents memory snooping, cold-boot attacks, and software attacks, even if the OS, drivers, BIOS, or VMM are compromised.
- **Crypto acceleration** with a co-processor designed specifically to perform computationally intensive cryptographic operations. This co-processor performs these computations far more efficiently than a general-purpose CPU. It offloads these functions from the CPU to speed up cryptographic operations and free up CPU cycles to run your applications. It provides big-number arithmetic and is two-times faster at public key encryption and decryption than a standard CPU. It uses SHA1 and SHA256

hash algorithms that are four-times faster and provide stronger encryption. Vector AES and vector carry-less multiply with AES and AES-GCM acceleration, also performed by this co-processor, delivers three-times faster secure hash performance.

## Who can benefit?

If you are tasked with delivering desktops and applications to your users on any device, available anytime and anywhere, we can help you. We can help you with:

- **Proven converged infrastructure solutions** that already have the best practices documented for VDI. This enables quick implementation to obtain the benefits rapidly.
- **Consulting services** that can implement the solution through our VDI Rapid Deploy service that enables a rapid install but does not impact your current IT projects.
- **Moving your proven on-premises management capabilities** to Cisco Intersight. This provides broad capabilities to enforce IT policies, track system health, and install patches, all while conforming to your cloud strategy.
- **Using intellectual capital** gained from thousands of VDI deployments across a wide range of applications and use types (task user, knowledge worker, and power user).
- **Separating applications** from being tied to specific servers. This enables movement of system resources as needs dictate.

## Learn more

Discover how Cisco UCS X-Series solutions with Cisco Intersight management can help you deliver more to your users.

- [Cisco UCS X-Series with Intersight solution overview](#)
- [Cisco Intersight Services](#)
- [Cisco UCS X-Series Modular System](#)
- [Virtual Desktop Infrastructure](#)
- [Cisco Desktop Virtualization Design Navigator](#)
- [VMware and Cisco Solutions](#)
- [Citrix and Cisco Solutions](#)
- [NVIDIA and Cisco Solutions](#)

- **Increasing performance of platforms** that deliver performance and availability.
- **Raising density** in terms of virtual desktops per server over our last-generation servers.

## The heart of converged infrastructure solutions

Cisco is the recognized leader in converged infrastructure. Our collaboration with NetApp delivers the number one converged infrastructure—[FlexPod](#). And our collaboration with Pure Storage produces the fastest-growing converged infrastructure solution with [FlashStack](#). These joint solutions enable you to easily scale with business needs and use the enterprise storage solutions you already have in your data center.

We have spent thousands of hours developing, testing, and documenting solutions and creating Cisco Validated Designs. These designs clearly show the capability of Cisco UCS blade, rack, and X-Series servers to easily scale from hundreds to more than 2500 users in a single building block. You can deploy additional blocks to implement solutions from 5000 to 20,000 users.

Our engineering team is also preparing Cisco Validated Designs for Citrix and VMware Horizon 8 on FlexPod and FlashStack with the Cisco UCS X-Series.

## Cisco UCS X-Series for VDI

As employees return to the workplace, your company has to be ready for whatever the future holds. Whether that is a remote workforce due to stay-at-home orders, or a hybrid workforce split between home and office, your VDI has to be ready to adapt quickly to changing conditions. We enable you with compute, storage, and networking infrastructure for delivering centrally managed secure applications to ensure workforce productivity, service availability, and operational profitability.

## Contact us today

Contact your [Cisco sales representative](#) today to find out more about Cisco UCS X-Series solutions for virtual desktop and application environments.