Cisco UCS: Your Platform for Hyperconverged Infrastructure

Contents

Why Cisco?

- Complete software-defined server nodes.

- Global policy controller for consistent delivery.

- 360-degree relationships with partners for deployment and automation.

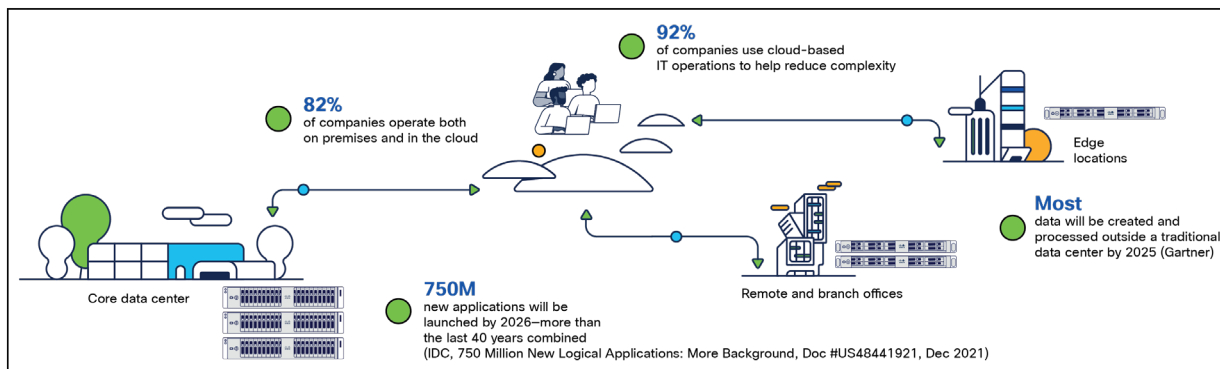## Applications and distributed IT are redefining infrastructure

Figure 1.
Distributed IT is prompting a rethinking of where to deploy applications and the infrastructure to support them

Hyperconverged infrastructure gives you the freedom to place workloads where you need them:

- **Core, cloud, and edge:** Create a private cloud in your core data center and use the same infrastructure at remote and branch offices and at the edge—all supporting virtualized and cloud-native applications.

- **Flexibility:** Now you can quickly adapt to the pressures that new applications place on your organization. It's easy to scale up at the edge if your data is growing there. Or bring data back to the core data center for AI training.

- **Make the right choice:** When you make the right choice of management software, you take control of your network and computing from asset control to automated, policy-based deployment, speeding operations with cookie-cutter consistency.

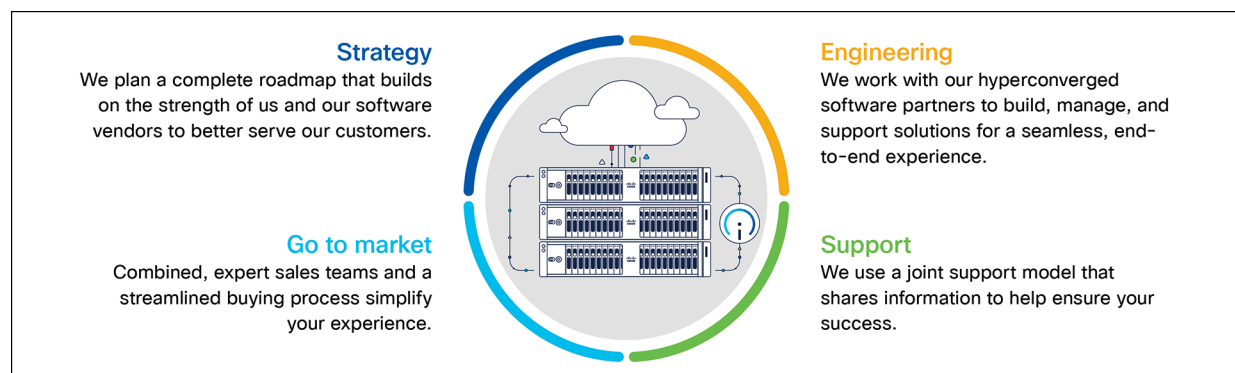# We work with hyperconverged software vendors in a 360-degree relationship

Strategy
We plan a complete roadmap that builds on the strength of us and our software vendors to better serve our customers.

Engineering
We work with our hyperconverged software partners to build, manage, and support solutions for a seamless, end-to-end experience.

Go to market
Combined, expert sales teams and a streamlined buying process simplify your experience.

Support
We use a joint support model that shares information to help ensure your success.

Figure 2.
Our relationships with software vendors includes go-to-market strategy, engineering, and support models

Operations at scale

Automation is the key to deploying at scale in your data center, in remote and branch offices, and at the edge. We integrate Cisco Intersight® with Nutanix and VMware management frameworks for a seamless experience.

Increased choice and flexibility

We are vendor agnostic, so you have the choice of hyperconverged software and the infrastructure to support it—rack or modular systems, whichever your business needs dictate.

End-to-end security

Cloud-based management operates through secure device connectors so you can manage on a global scale from cloud-based tools.

Comprehensive support

Our deep relationship with software partners enables us to provide support without finger pointing. Our support systems share data so any issues can be resolved quickly.

Ease of purchase

We offer packages that include software, servers, networking, and support, so you can get the solution you need without having to specify each component yourself. A streamlined experience shortens time to value.

Good hyperconverged infrastructure starts with the right platform

Cisco UCS® is adaptable so that you can assemble compute, storage access, and networking resources into servers through policy-based automation.
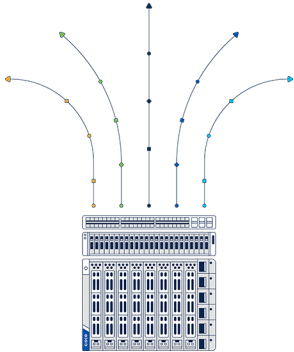

Abstract

We abstract all server identity, configuration, and connectivity into variables that can be set through our unique cloud-based management. Now hardware acts like software and configuring and reconfiguring servers is as simple as turning the knobs on variables.
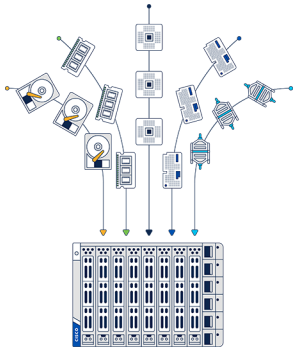
Virtualized

With virtual infrastructure, you can configure and repurpose servers as business needs and workload demands dictate. With Cisco UCS virtual interface cards, even the number and type of I/O devices are programmed on demand.
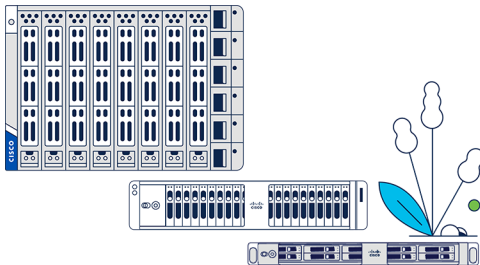
Form-factor neutral

Deploy Hyperconverged Infrastructure (HCI) with the components that are best for the job. Imagine having modular systems with GPU acceleration in the data center and disk-intensive rack servers in remote and branch offices.

**AMD
EPYC**

**intel.
XEON
PLATINUM**

Choice of processors

You can choose the processor architecture that best suits your application needs: our server products support Intel® Xeon® and AMD EPYC™ processors.
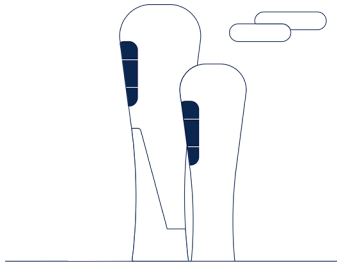
No more silos

Silos are a thing of the past. When your IT operations are supported in virtualized infrastructure supported by virtualized hardware, your infrastructure can adapt to whatever new requirements come your way.

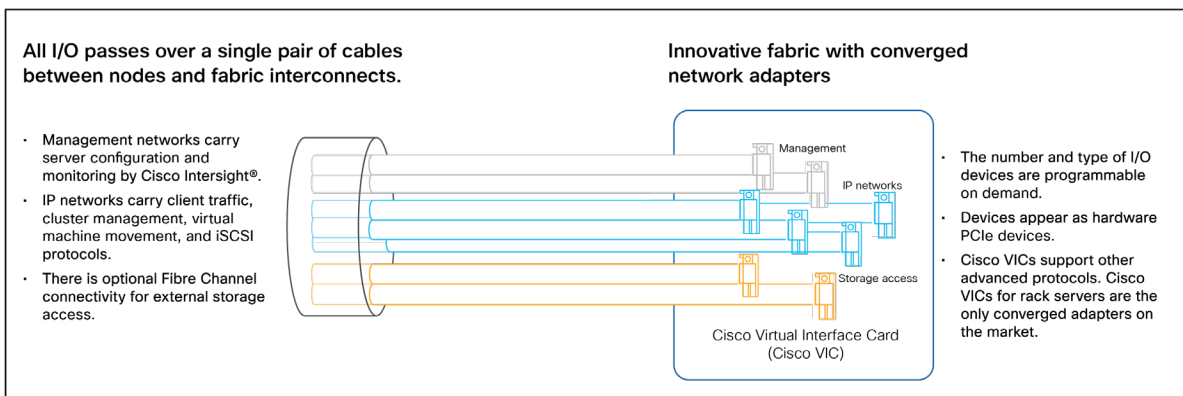# Cisco Unified Fabric makes networking as simple as plugging in a cable

All I/O passes over a single pair of cables between nodes and fabric interconnects.

- Management networks carry server configuration and monitoring by Cisco Intersight®.
- IP networks carry client traffic, cluster management, virtual machine movement, and iSCSI protocols.
- There is optional Fibre Channel connectivity for external storage access.

Management

IP networks

Storage access

Cisco Virtual Interface Card
(Cisco VIC)

Innovative fabric with converged network adapters

- The number and type of I/O devices are programmable on demand.
- Devices appear as hardware PCIe devices.
- Cisco VICs support other advanced protocols. Cisco VICs for rack servers are the only converged adapters on the market.

Figure 3.
Cisco Unified fabric integrates networking, storage access, and management into a single network

Only Cisco integrates fabric and computing:

- **Computing integrated with the network:** Wire once with a single pair of cables, and all virtual connections are managed as shared resources. Now you have fewer touchpoints to manage, with fewer cables and switches, all of which lowers your capital and operating cost.

- **Zero-touch management**: It doesn't matter where you deploy hyperconverged clusters; once the cables are connected, the network can adapt to the needs of applications, and all configurations are controlled through software.

- **Endpoint aware:** The system knows about all network endpoints, whether physical servers or virtual machines. Now you gain the scale of virtualization in your networks with the same degree of visibility, control, and security as with physical components.

Lifecycle management with a single, unified operations platform

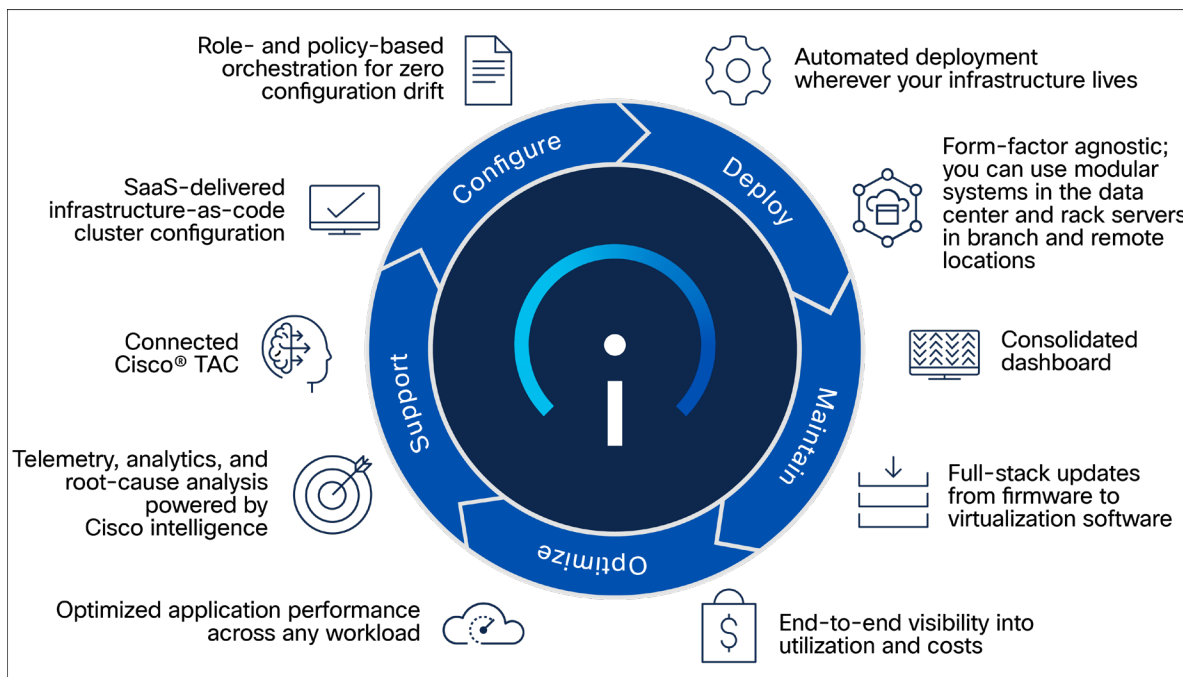Cisco Intersight® enables you to automate HCI deployment wherever your infrastructure lies.

Figure 4.
Cisco Intersight provides support for your hyperconverged infrastructure throughout its lifecycle

Cisco is the only vendor that offers a single, cloud-connected, or private management platform to give you control over all of your HCI clusters wherever you choose to deploy them. The Cisco Intersight IT-operations platform lets you configure, deploy, manage, and monitor with immense scale and with global reach. We integrate the entire hardware stack for lights-out, zero-touch, automated deployment.

Lifecycle management starts before your cluster is even installed, with predefined server profiles that are ready to onboard your servers the moment they are plugged into the network and a secure connection established.

Cisco Intersight automates with policies and templates that eliminate manual errors, drives consistency, and enforces security and compliance. Intersight provides continuous guidance and support through its connection to Cisco Technical Assistance Center (Cisco TAC) that provides:

- **Current security advisories** customized and pertinent to your specific environment.

- **Hardware, software, and firmware stack** validated with our hardware and software compatibility lists.

- **Coordination with Cisco TAC teams** for fast issue resolution and comprehensive solution support.

- **Proactive RMAs** to automatically create authorized service requests, reducing the amount of time from failure to replacement.

A secure management connection keeps your infrastructure safe, and a global dashboard lets you track inventory and status for all of your devices.

What Cisco Intersight means for your hyperconverged infrastructure is that you can reach to network edge without needing skilled staff in remote locations.

We accomplish what nobody else tries: management integration and automation

Now you can use your favorite tools to deploy both infrastructure and hyperconverged software.
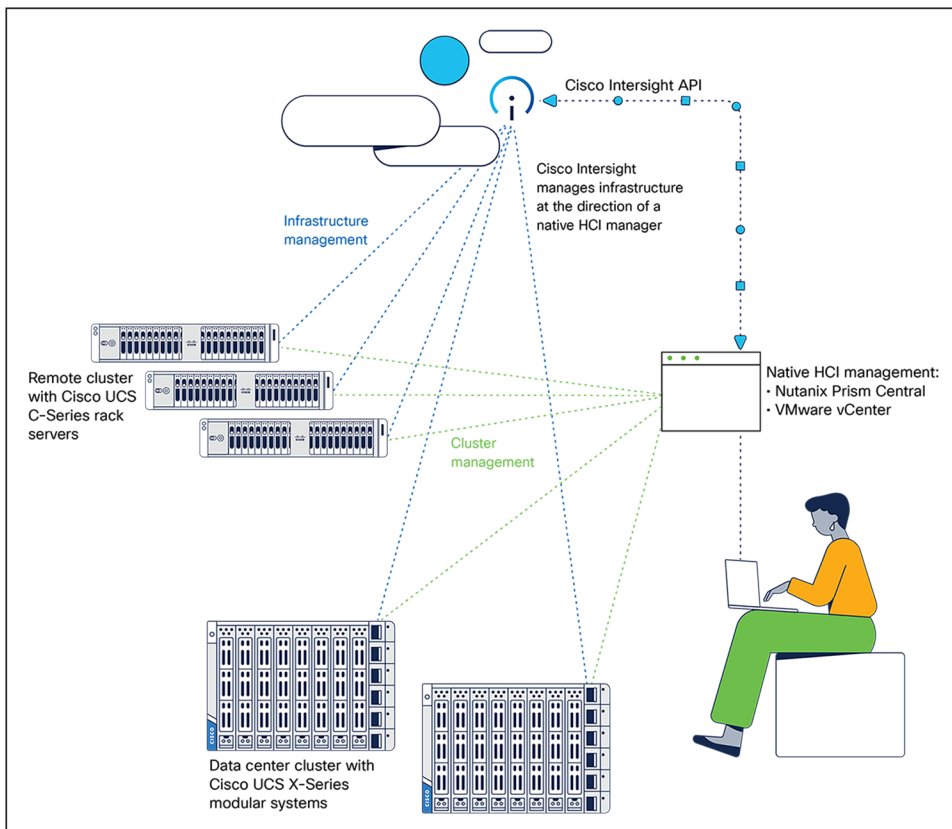

Figure 5.
Native HCI management works with Cisco Intersight to deploy and manage cluster infrastructure

The secret is integrated tools

When you choose Cisco UCS® as the foundation for your hyperconverged infrastructure, you can use the tools you already know to deploy and manage your clusters. That's because Cisco Intersight® is API-driven, so our engineers can work with our partners' engineers to integrate tools to create a better whole.

Each tool contributes its best to the solution. The native Hyperconverged Infrastructure (HCI) management tools—Nutanix Prism Central or VMware vCenter—can call on the Cisco Intersight API to accomplish infrastructure-level management functions that are beyond the scope of the traditional tools, including bare-metal deployment and rolling, full-stack firmware updates. It's a two-way conversation, so Intersight can tell the native tools about events such as completed updates or changes to the physical infrastructure.

Automated operations

The key to getting ahead on limited budgets is through automation. We invest heavily in creating tested and validated solutions in the form of Cisco Validated Designs. These documents encapsulate the knowledge of how to set up hyperconverged infrastructure with cookbook-like instructions. Our designs also include scripts that automate workflows, from deploying clusters in a remote location to adding a new server to a cluster. Automation means that the job is done according to your best practices, without the potential errors that can arise through manual tasks. Day-to- day operations are simplified with the global dashboard in Cisco Intersight, where the status of all your cluster infrastructure is visible at a glance.

Enjoy massive scale, whether in the core data center or in remote or edge locations

You don't have to worry about managing growth in your business or workloads:
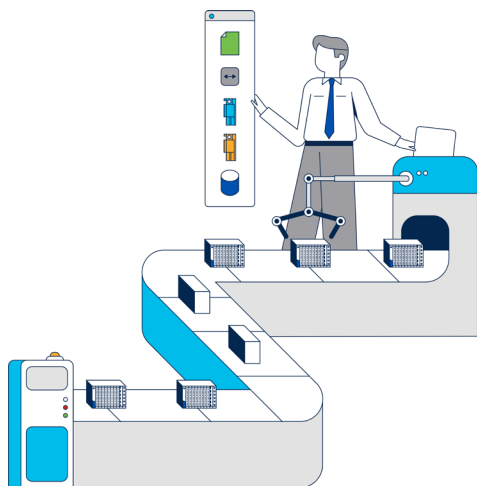
Automation enables scale

Cisco UCS® was built for automation so you can increase your business agility and reduce friction. We start with best-in-class compute, network, and infrastructure management, and we simplify every aspect of operations to reduce friction and increase scale. With role- and policy-based server configuration, it's as easy to deploy a dozen clusters as it is a single one. Intersight® works as a cloud-based orchestration tool— but with its open API it can interoperate with other orchestration engines including Ansible and Terraform.

Deploy in the core data center and remote and edge locations

Automation plus integrated lifecycle management means that you can deploy hyperconverged clusters wherever you can find someone to plug in a network cable—once you claim servers in Cisco Intersight, they are securely managed—from firmware updates to online operations. Cisco UCS is form-factor neutral, so you can deploy scalable modular systems in your data center, or small clusters in your remote and edge locations.

Security is in our DNA

Security is [deeply woven into our solution](#) because we have the advantage of full-stack development. We build security into every product at the design stage, including the parts that we specify to propel our servers into the top tier. We carefully scrutinize the supply chain to ensure fidelity with our specifications, and we build in system-level features designed to meet your certification and compliance needs. From initial power-on to the end of a system lifecycle, Cisco Intersight provides relevant, targeted advisories, and it automates mitigation to minimize the time to remediation. All of our approach is aimed at reducing the threat surface and keeping your applications and data secure.

Five reasons why Cisco UCS is the right platform for hyperconverged solutions

1. Networking and management

When you think of networking, you think of Cisco, and we realize the promise of integrated compute, networking, and management, like no other vendor. It's in the DNA of Cisco UCS®, with its original innovation of building management into the fabric itself, and now operating from the cloud for consistent, repeatable, and compliant lifecycle management wherever your infrastructure is deployed.

2. Ecosystem integration

We interconnect management tools to create a better experience for our customers. Integrated tools share information, create new capabilities, and offer proactive support levels—all of which are beyond the scope of basic plugins. Our tools talk in both directions, so they work together to simplify your infrastructure and operations.

3. Cisco Validated Designs

Our work with ecosystem partners culminates in [Cisco Validated Designs](#), cookbook-like documents that encapsulate best practices for both infrastructure configuration and application deployment. These instructions are often encoded in scripts that can direct Cisco Intersight® and the HCI manager to deploy infrastructure compliant with the design. With Cisco Validated Designs, you can gain faster time to value while reducing risk.

4. Higher productivity through automation

We jointly build custom, automated workflows that eliminate tedious, manual, error-prone tasks in HCI deployment. With Intersight as the automation engine, you can deploy and scale clusters with consistent, compliant configurations throughout your global infrastructure.

5.   Simplest, most flexible, and resilient solution

The simplicity of our solution is enhanced with easy-to-buy HCI solutions with pre-engineered compute, storage, networking, and management. It is flexible because you can deploy HCI solutions anywhere, and support modern applications and use cases, including those needing multicloud connectivity. Resilience is enhanced by Cisco Intersight's ability to keep systems running with proactive support and security capabilities.

The bottom line

When you choose Cisco UCS as your platform for hyperconverged solutions, it's less costly to build, deploy, and operate your solution. Learn more about HCI on Cisco Compute with Nutanix and VMware.

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