

The Enduring Strength of Simplicity

Cisco UCS Advantages Over HPE Synergy

What you will learn

The launch of Cisco Unified Computing System™ (Cisco UCS®) in 2009 changed the server industry. Based on the principles of simplifying and unifying the data center, and always looking to the future, Cisco UCS has withstood the test of time. Its stateless architecture enabled us to pull management out of servers and chassis and into the system itself. Today, with the Cisco Intersight™ cloud operations platform, we pull management out of the data center and into the cloud, giving you a policy-based management and orchestration platform with global reach. Cisco UCS integrates our entire product line of workload-optimized blade and rack servers into a unified single system. We eliminated switching in blade chassis and simplified down to a single unified network and a single networking layer. Good ideas withstand the test of time, and Cisco UCS has supported twelve generations of Intel® Xeon® Scalable Processors and four generations of network fabrics, all in the same blade-server chassis.

Hewlett Packard Enterprise promotes their Synergy blade platform as being more unified, simplified, and future-ready than Cisco UCS. This document examines those claims and shows how Cisco UCS sets the standard for simple, unified, and future-ready data center infrastructure.

Contents

Introduction	3
Optimized server products	3
Form factors don't matter	4
Integrated infrastructure solutions.....	5
Unified management	5
Evolution with Cisco Intersight	5
Managing HPE Synergy.....	7
Managing storage	7
DevOps integration	8
Acquisition costs.....	9
Complexity is costly	11
Management cost	11
Power and cooling	12
Fabric and networking	12
Cisco UCS unified fabric	12
Synergy fixed networking.....	13
Power	14
Chassis design and power limitations	15
Scale	15
Management scale	15
Network scale.....	16
Conclusion	17

Introduction

Ever since the introduction of Cisco Unified Computing System (Cisco UCS) in 2009, we have been demonstrating how to simplify, unify, and future-proof your data centers:

- **Simplify** with a stateless architecture in which server identity, configuration, and connectivity are defined programmatically rather than through individual element managers. In 2009, we pulled management out of the chassis and embedded it into the centralized fabric. With the Cisco Intersight cloud operations platform, we are taking the next giant step forward and migrating management into the cloud. Now there are no longer any management touch points in your data center, and management has a global reach from your core data center to the edge and into the public cloud.
- **Unify** with a single management model that treats all servers equally, regardless of form factor. Unify with a single fabric that combines IP network traffic, Fibre Channel connectivity, and the management network for ultimate cabling and top-of-rack switching simplicity. Unification means network consolidation. With a single network layer in the system, there are no blade-chassis-resident switches, and variable latencies that can cause inconsistent performance are banished.
- **Be future ready** with a blade server chassis that has already supported many generations of Intel Xeon Scalable Processors and four generations of network fabrics—and that is still poised to accommodate future generations of high-power processors.

While we continue down the path of removing complexity from your data center, HPE claims that their product—HPE Synergy—is the more unified, simplified, and future-ready product. Cisco UCS spans a greater range of capabilities than Synergy can handle. It is simpler, with fewer management touch points. It is more unified with a single management model that handles the entire Cisco UCS product line and a single network fabric that handles all network modalities. And during the last decade, while HPE has cycled through two blade server chassis, multiple midplane swaps, and different management tools for each chassis, it is the Cisco UCS blade server chassis and our management model that has remained a constant.

Optimized server products

Every IT organization knows that they need servers optimized for the workload at hand. While it is possible to design systems that can address a broad range of workloads, there will always be a need for specific workload optimizations. For example:

- **AI/ML workloads** need servers with as many GPU accelerators as they can handle.

- **Edge locations** such as remote and branch offices and retail locations need servers that can fit into rugged locations and be configured and managed remotely.
- **Private clouds** that support virtualized and containerized applications are often hosted on hyperconverged systems.
- **Big data environments** usually specify 2RU servers fully populated with disk storage

Form factors don't matter

Cisco is laser focused on offering as few platforms as possible that are optimized for specific workloads. What sets us apart is that we manage and connect all of our systems in the same way, as part of a single unified system. Form factors don't make any difference to Cisco UCS, so, whether you are using blade, rack, storage, high-density, or hyperconverged systems, they are all connected the same way, with one operational model.

Like Cisco, HPE has a portfolio of servers designed for specific application needs. For every workload category shown in Figure 1, Cisco and HPE have competing products. While the claim is that Synergy supports virtually any workload, HPE runs a healthy business selling workload-optimized systems.

Remote and branch office environments	Traditional virtualized environments	Predefined application environments based on best practices	Virtualized, containerized, and cloud environments	Big data environments	AI/ML and HPC	Web-scale environments	High-density compute
 							
<p>Cisco HyperFlex™ Edge</p> <p>Cisco UCS Mini</p>	<p>Cisco UCS B-Series Blade Servers</p>	<p>Cisco integrated infrastructure solutions</p>	<p>Cisco HyperFlex systems</p>	<p>Cisco HyperFlex and UCS C-Series servers</p>	<p>Cisco UCS C480 ML Rack Server</p>	<p>Cisco UCS S-Series Storage Servers</p>	<p>Cisco UCS C4200 Series Rack Server Chassis</p>
<p>HPE Edge-line EL8000 chassis with ProLiant e910 Server Blades</p> <p>HPE ProLiant MicroServer</p>	<p>HPE BladeServer c7000 chassis</p>	<p>In-house solutions</p>	<p>HPE Simplivity</p>	<p>HPE ProLiant DL Rack Servers</p> <p>HPE Apollo 4000 system servers</p>	<p>HPE Apollo 6000 system servers</p>	<p>HPE Apollo 4200 servers</p>	<p>HPE Moon-shot systems</p> <p>Apollo 2000 systems</p>

Figure 1. For every optimized product that Cisco offers, HPE has at least one competitor other than HPE Synergy .

The company's web pages for specific workloads tend to promote the specialized servers and not Synergy.

It follows that, after four years on the market, HPE announced that it had a total of 6000 Synergy customers (HPE Discover, May 2020). When Cisco UCS reached the four-year mark, we had 60,000 customers. Part of this discrepancy may be due to Synergy being more of a niche play for HPE while the systems shown in Figure 1 make up most of its business.

Integrated infrastructure solutions

Cisco integrated infrastructure solutions give customers a wide range of storage choices from the leading vendors, including Hitachi, IBM, NetApp, and Pure Storage. In the past, Cisco UCS Director provided lifecycle management for the Cisco UCS servers, Cisco Nexus® switches, and the third-party storage systems included in these offerings. As we migrate management to the Cisco Intersight cloud operations platform, Cisco UCS Director functions are integrated into Intersight, as does control over third-party storage systems. Similar to Cisco UCS integrated infrastructure solutions, HPE offers tailored solutions that use in-house Nimble and Primera storage. As long as these solutions are constrained to use these HPE storage offerings, they can be managed by HPE OneView for Synergy. Much of the storage system set up and hardware management still must be handled through separate element managers for the HPE storage systems.

Unified management

We brought stateless computing to the market in 2009, envisioning servers as resources whose identity, configuration, and connectivity could be managed through software rather than the tedious, time-consuming, error-prone manual processes of the day. Over time, we have increased the power of programmable infrastructure by enabling more high-level approaches to managing not just a cluster of servers, but your entire global operation—including the workloads you run.

We first simplified the data center by moving management out of servers and chassis and into the system itself. Cisco UCS Manager was embedded in each system's fabric interconnects. We enhanced this approach by unifying management and policies across multiple domains through Cisco UCS Central software, and we provided cross-vendor orchestration with Cisco UCS Director. Both of these tools integrate through the Cisco UCS unified API that has been standard since 2009.

Evolution with Cisco Intersight

The concept of stateless infrastructure changed the game in 2009, and today we are changing the game again. Now we are moving management out of the data center entirely, bringing to the Cisco Intersight cloud operations platform the capability to handle full lifecycle management of your

on-premises infrastructure, your remote, branch, and edge locations, and the public cloud. From a single cloud-based interface, you can consistently manage all of your infrastructure, no matter where it resides (Figure 2). With a software-as-a-service model, you never have to worry about management servers and software revisions and manual updates again. And with support for new products and innovative new features arriving automatically, you always have the best tool for the job.

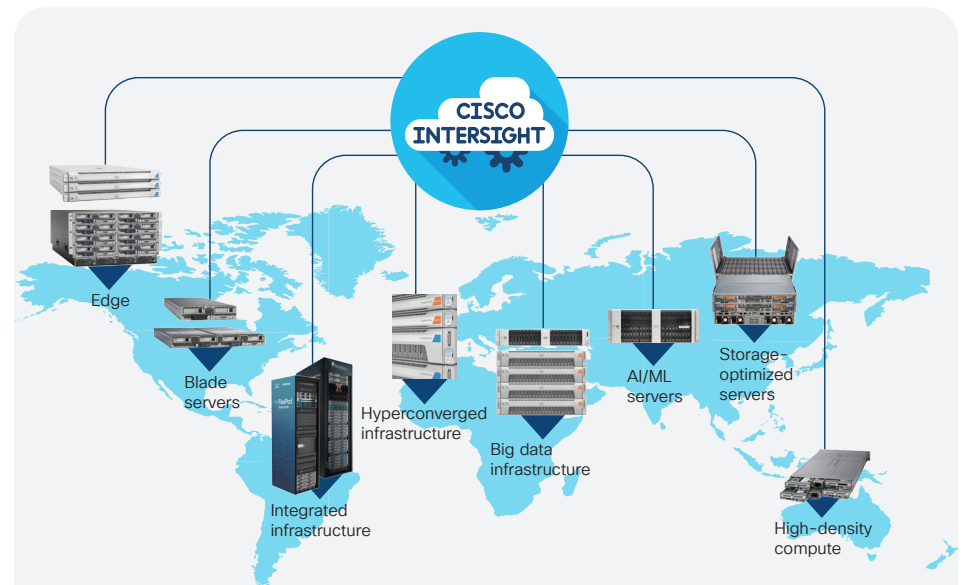


Figure 2. The Cisco Intersight cloud operations platform manages all of your infrastructure from the cloud

No longer are you managing just infrastructure, now you are managing your operations. Cisco Intersight acts as the bridge between your on-premises infrastructure and the cloud, able to simplify deployment, optimize operations, and ensure rapid delivery through integration with DevOps tools. It's still available through the Cisco UCS API, and is accepted and used by a large number of vendors. It provides the following benefits:

- You can simplify with a unified, cloud-delivered platform that gives you control over all of your Cisco® data-center components across your on-premises environment and edge locations. You gain a global inventory of devices with centralized policy management so that you can deploy and manage your infrastructure with consistency—wherever it resides.
- Continuous optimization comes through automated understanding of how application components map to physical infrastructure. For example, Cisco Intersight Workload Optimizer can help you apply the right resources to keep your applications running within the operational parameters you choose. In addition, Cisco Intersight can advise on security patches and operating system upgrades, to optimizing the use of reserved instances, to workload monitoring, sizing, and placement for both cost and performance optimization.

- Solution delivery and DevOps processes are accelerated with a unified, cloud-delivered platform that gives you all the capabilities to quickly deploy and configure a complete infrastructure stack with a few clicks, in minutes. With a solution catalog that essentially executes the steps from a Cisco Validated Design on your behalf, you can choose your destination and let Intersight get you there. Containers as a service? With Cisco Intersight Kubernetes Service, you can deploy a 100-percent upstream Kubernetes environment with additional services curated and integrated by Cisco.

Managing HPE Synergy

Managing an HPE Synergy domain requires managing several managers, a significant increase in complexity and touch points over Cisco UCS. That means supporting physical management appliances that are really single-socket 8-core processor-based servers. These require power, cooling, connectivity, and of course keeping firmware and the management software up to date. If you have more than one Synergy domain, you can aggregate their inventory and alerts through the HPE OneView Global Dashboard, a virtual management appliance that you need to host and keep up to date.

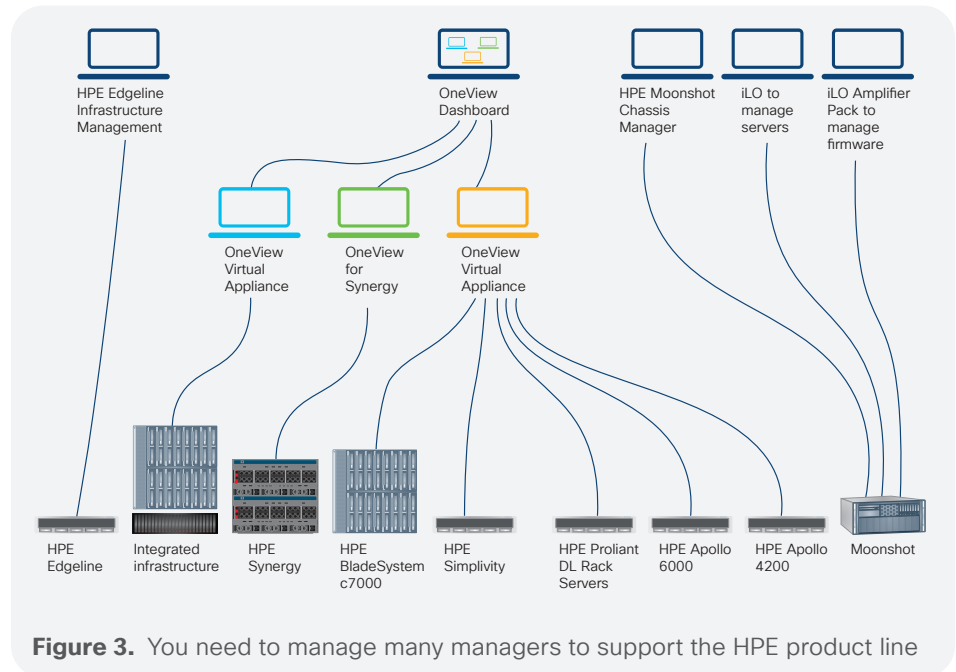
For each Synergy management domain, you must have a pair of composers, a pair of frame link modules to manage each frame, and a global dashboard if you want to aggregate more than one domain. The global dashboard aggregates inventory and status, but for all other management functions it only helps you to launch the OneView instance for the infrastructure you select. There is no integration of the instances to help you, for example, have global policies that are pushed down into each domain. This means that consistency is a copy-and-paste operation where you must manually keep your various Synergy domains synchronized.

With Cisco UCS Central Software, you actually integrate every Cisco UCS domain and have not just global inventory and alerts, but complete consistency of policies, and the administrator roles required to define and apply those policies. While Cisco UCS Central Software is hosted in your data center, Cisco Intersight gives you a much broader set of features from the cloud.

While we offer consistent management across the product line, the OneView Virtual Appliance for Synergy manages only Synergy and some functions of HPE storage systems. To manage the rest of the HPE product line requires the cost and complexity of managing many managers depending on what HPE products you deploy and where you deploy them (Figure 3).

Managing storage

The OneView for Synergy and the OneView Virtual Appliance manage HPE 3PAR, Primera, and Nimble storage arrays. It gives visibility into the arrays to create LUNs and assign them to servers. Management of the physical infrastructure (including configuration, upgrades, and operations) is left to product-specific tools.



We believe in supporting customers with the storage they prefer to use, so our philosophy is to support our customers' choosing the best solutions from our industry-leading storage partners. For years, Cisco UCS Director has handled orchestration and management of our integrated infrastructure offerings, enabling you to configure and manage storage systems from Hitachi, IBM, NetApp, and Pure Storage along with your Cisco UCS servers. Now these workflow functions and management of third-party storage are natively integrated into Cisco Intersight, so its ability to manage all of your infrastructure is comprehensive.

DevOps integration

Cisco UCS has supported an open, unified API since the beginning. This has enabled a large ecosystem of third-party management frameworks to support Cisco UCS since 2009. Our leadership reaches back to when XML APIs were emerging. While a REST API for managing Synergy may be more modern, programmers don't use the actual APIs; they use programming languages that bind the APIs into the language. And for those integrating with our API, Cisco Intersight provides a REST API that delivers the same consistency and openness as the Cisco UCS API.

- DevOps processes: If you want to implement DevOps processes with languages such as Python, you can manage Cisco UCS and HPE Synergy with scripts.
- Infrastructure as code: If you wish to deploy infrastructure as code, you can deploy it with the Intersight Service for HashiCorp Terraform. Do you want to deploy Kubernetes pods? Yes, you can do that through Cisco Intersight Kubernetes Service.

Cisco UCS blade server sales are:

#1 in North America

#2 Worldwide

Source: IDC Worldwide Server Tracker 2020Q3

It's important to start with a common understanding when doing total cost of ownership (TCO) comparisons. Different companies have different pricing structures, and thus a different relationship between manufacturer suggested list prices (MRSPs) and what customers typically pay.

We believe that our [TCO calculator](#) provides an accurate comparison between TCOs for Cisco UCS and Synergy. With the cost breakdown provided in the calculations, you can adjust comparative prices to account for offers from each company to make your estimates even more accurate.

With TCO typically comprising costs of acquisition, maintenance, management, and power and cooling, we examine differences between Cisco UCS and Synergy.

Acquisition costs

The biggest difference between Cisco UCS and Synergy costs is related to the chassis and the add-in components that HPE requires. This may be one of the reasons why HPE sows doubt about the future of the Cisco UCS 5108 Blade Server Chassis. Our chassis has supported a dozen generations of Intel Xeon Scalable Processors and will continue to do so for multiple future generations. HPE moved to Synergy because the HPE BladeSystem c7000 chassis could no longer support higher-power processors, and HPE's concept of what a chassis is translates directly from the c7000 chassis to Synergy. The Synergy chassis is essentially a data center in a box in terms of the number of active components that you must purchase in order to make it run, and the differences are highlighted in Figure 4.

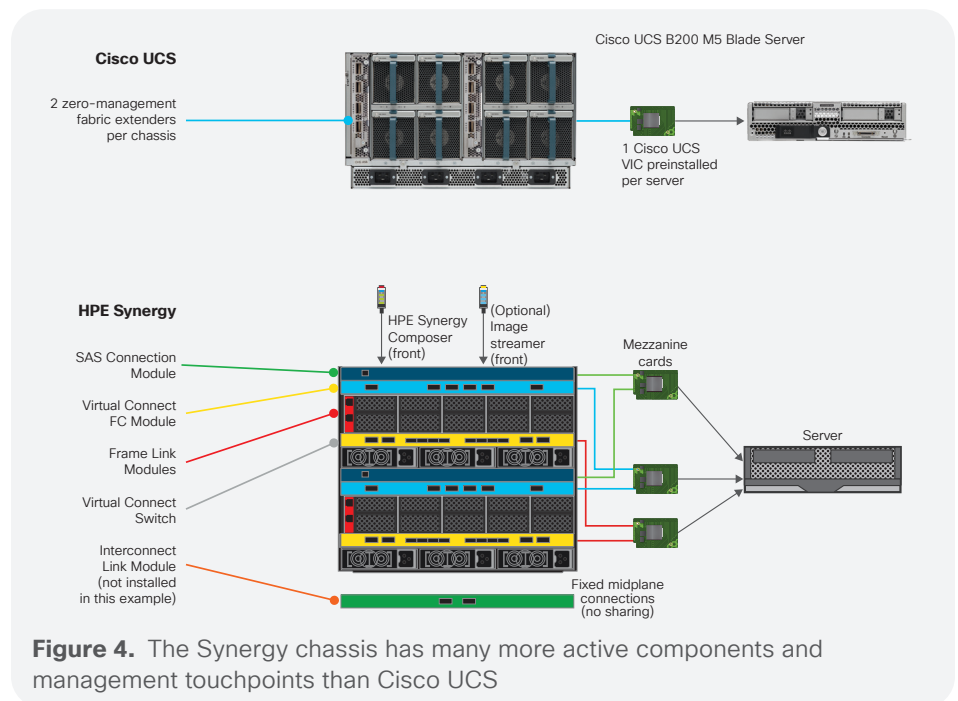


Figure 4. The Synergy chassis has many more active components and management touchpoints than Cisco UCS

The Cisco UCS chassis is a low-cost investment because it is made of sheet metal, a passive midplane, and temperature sensors. It has been flexible for more than a decade because a populated chassis has fewer components and zero-management points. All of the chassis connectivity passes through the fabric extenders, two of which plug into each chassis. These are low-cost, zero-management devices that aggregate traffic from the blades and forward it up to the fabric interconnects.

The Synergy chassis is essentially a data center in a box in terms of the number of active components that you must purchase in order to make it run.

Table 1. Synergy requires 30 percent more components and 6x the management touchpoints to support 72 blades

Cisco UCS (72 blades)	Number of components	Number of management touchpoints
Fabric Extenders	18	0
Fabric Interconnects	2	2
Total components and touchpoints	20	2
HPE Synergy (72 blades)		
Frame Link Modules	12	12
Composers	2	2
Virtual Connect Switches	4	4
Interconnect Link Modules	8	0
Total components and touchpoints	26	18
Additional components and touchpoints for Synergy	6	16
Percentage increase	30 percent	9x

Complexity is costly

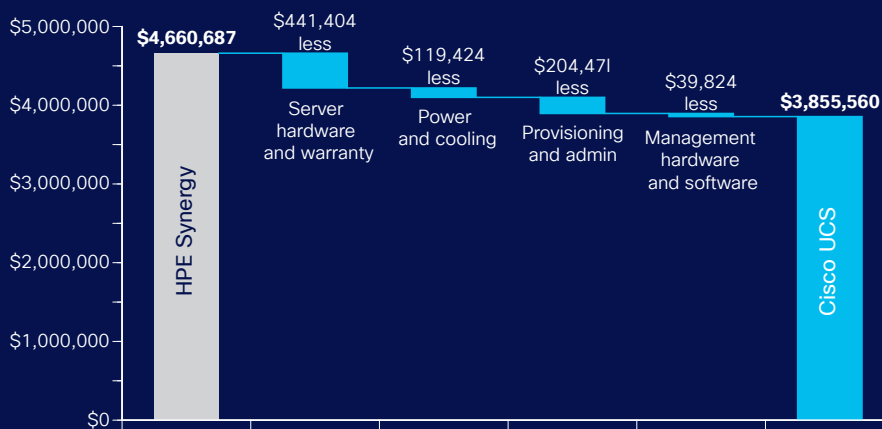
For each system to support 72 blades, Synergy requires 30 percent more components than Cisco UCS, based on those shown in Figure 4.

Management cost

For the example above, both Synergy and Cisco UCS have a single management domain. You can use Cisco UCS Manager, embedded in the system's fabric interconnects, or Cisco Intersight software-as-a-service management. For the Synergy system, you use the OneView instance that is hosted on the pair of composers.

Compared to Cisco UCS, Synergy has 9x the management points, adding to ongoing costs (Table 1). Any device in either system that has an IP address

Simplicity leads to lower TCO



When the 72-blade-server example is run through our TCO calculator, the result is a 17 percent savings in total cost of ownership, putting to rest the claim that Cisco UCS is more costly than HPE Synergy.

The server hardware category includes the cost of servers as well as chassis, in-chassis switching (for HPE), and fabric extenders and fabric interconnects for Cisco UCS. Simplicity yields a \$441,404 savings for this category, and it is amplified by the savings in ongoing administration costs of \$204,475. As the two systems are scaled, no new switching infrastructure is needed for Cisco UCS, but new Virtual Connect switches and satellites are needed for every three chassis in the Synergy example. So as you scale, the savings becomes greater. This example includes Cisco Intersight Essentials management for the Cisco UCS blade servers.

This graph compares the three-year TCO for 72 HPE Synergy SY480 Gen10 Servers with the three-year TCO for 72 Cisco UCS B200 M5 Blade Servers. Each server has two Intel Xeon Gold 6248R CPUs and 768 GB of memory. HPE servers include a Synergy 6810C 25/50Gb Ethernet Adapter. The Synergy frames include Virtual Connect SE 100Gb F32 Modules and Synergy 50Gb Interconnect Link Modules. HPE OneView is included. The Cisco solution includes Cisco UCS VIC 1440 dual 40-Gbps unified fabric mLOM adapters for Cisco blade servers and the Cisco UCS 6454 54-Port Fabric Interconnect. Cisco Intersight Essentials is included. Pricing is as of March 18, 2021.

is actually a small server or switch that has firmware and software that needs to be kept up to date. In Cisco UCS, the fabric extenders are discovered and managed automatically by the fabric interconnects. Similarly, in Synergy, the Interconnect Link Modules are satellites that are under control of the Virtual Connect switches.

Management costs increase when you have multiple management domains. You can use the HPE Global Dashboard to help you launch into the different OneView domains you will have across your data center, but the lack of global configuration management and policies mean that consistency has to be maintained manually, which is then subject to errors that can cause downtime. In Cisco UCS, Cisco UCS Central Software can apply consistent policies so that your server configurations are the same and without configuration drift regardless of the management domain in which they are found. Similarly, with Cisco Intersight, you can have policies enforced globally from the cloud.

Power and cooling

Through power efficiency benchmarks established by the U.S. Government's [Energy Star program](#), Cisco UCS has established better performance per Watt than Synergy. Comparing similarly configured 2-socket, half-height blade servers, the Cisco UCS B200 M5 scores 30.9 on the SERT Active State Efficiency Score, while the HPE Synergy 480 Gen10 Compute Module scores 25.20.

HPE's lower power efficiency is likely due to the additional components that it takes to support each blade compared to Cisco UCS. It is surprising to find that HPE's TCO analysis shows that Synergy has lower power consumption than Cisco UCS. This serves as another reminder that not all TCO analysis gives results you can count on.

Fabric and networking

The way in which networking is implemented in Cisco UCS versus Synergy offers a contrast in design philosophy.

Cisco UCS unified fabric

We designed Cisco UCS with a “wire once” unified fabric that shares network traffic and has modalities and bandwidth assigned through software. Management, production, and Fibre Channel traffic are all supported by the Cisco Unified Fabric. This eliminates requiring separate interfaces for each network function. Indeed, with Cisco Virtual Interface Cards (VICs), the number and type of I/O devices is programmable on demand, and all traffic is shared through the chassis midplane.

The single point of connectivity for the entire system is the fabric interconnects. Each chassis contains a zero-touch fabric extender that

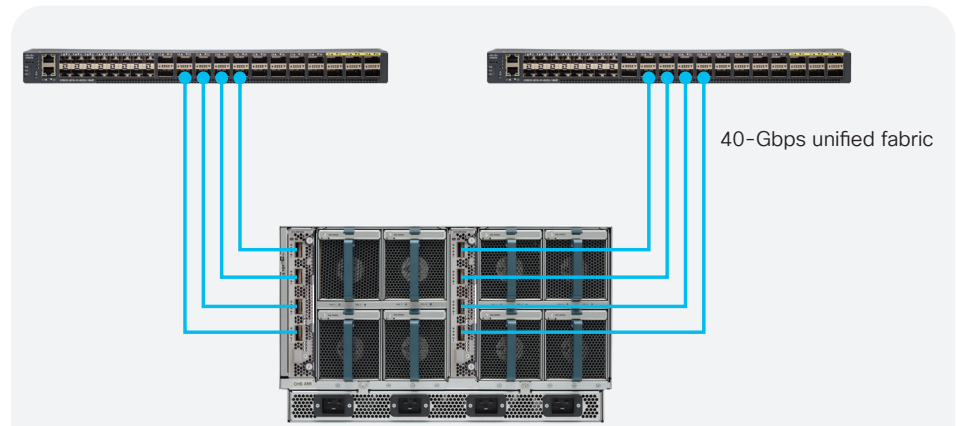


Figure 5. Cisco UCS treats networking—for any function—as a shared resource that is allocated through software

passes all traffic up to the fabric interconnects, eliminating in-chassis switches and simplifying the network topology so that traffic between any two blades has the same low latency—whether in the same or a different chassis (Figure 5).

Synergy fixed networking

With Synergy, up-front purchasing decisions really matter, because nothing is programmable after the fact. Every switching module you insert into the back connects to fixed traces on the midplane, which in turn connect to fixed NICs and HBAs in each server. Synergy requires separate networks for management, IP networking, and Fibre Channel connectivity, all of which requires switches and management devices within each frame, and also upstream switch ports to connect them all. This fixed approach causes customers to overprovision their networks because the cost of change is extremely high. There are more cables and touch points that add to the number of devices that HPE can sell, but that adds to cost and complexity for customers.

Consider the complexity of scaling network capacity in Synergy. Switching domains are small in Synergy (maximum of five frames, 60 blades) compared to Cisco UCS (160 servers of any type). But the size of the switching domain is directly—and inversely—proportional to the bandwidth you want to support. A typical five-frame switching domain in Synergy would use two Virtual Connect switches (masters) and eight Interconnect Link Modules (satellites) so that each master switch supports four satellites, each with 25 Gbps of bandwidth. The satellites function similarly to Cisco UCS fabric extenders, passing network traffic up to the master (or the fabric interconnects in Cisco UCS). Figure 6 illustrates such a typical network configuration. Each blade has access to a maximum of 25 Gbps of bandwidth over an A and a B fabric. There are many rules to observe.

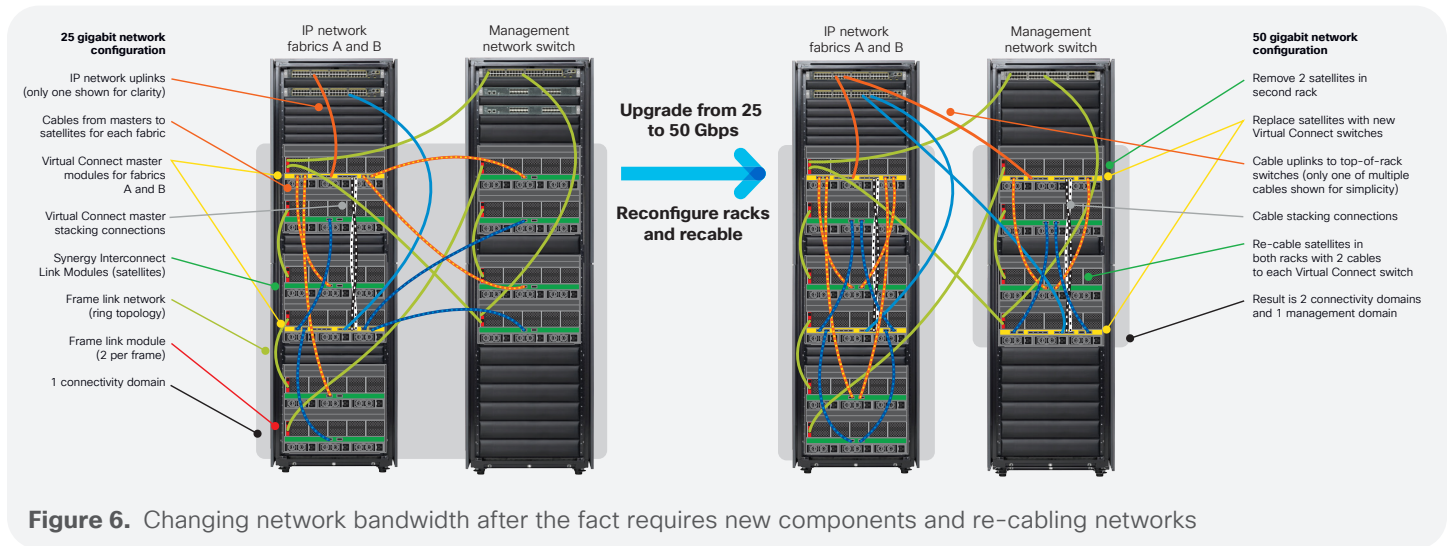


Figure 6. Changing network bandwidth after the fact requires new components and re-cabling networks

Now suppose that your actual workload needs more than 25 Gbps of bandwidth and you want to use the full capability of the new 50-Gbps Virtual Connect switches. You have to break the switching domain into two, remove two of the satellites and replace them with two new Virtual Connect switches. You must re-cable the remaining satellites in the second rack to connect to the new switches, and you must add cabling to the first rack to run two cables (50 Gbps) to each satellite. Now you have to reconstruct the entire IP network and manage the complexity of having two network domains. Finally, you have to undertake a complex series of changes in the OneView interface that amounts to a complete overhaul that includes fabric downtime.

The end result is a very limited network fabric where there is no sharing. To achieve bandwidth beyond 50 Gbps you must use link aggregation in the operating system itself, increasing complexity further. If you add Fibre Channel capacity, bandwidth can't be shared with IP networks. Changing the balance of network resources involves re-cabling and downtime. There is nothing programmatic or composable about it. In Cisco UCS, the unified fabric is a shared resource that is allocated through software as needed. Being managed programmatically, Cisco UCS is far more composable than Synergy.

Power

We make sure that you can populate a Cisco UCS blade server chassis with the highest-power processors from Intel with no fixed configuration limits or need to downgrade the number of server blades in a chassis. If you plug certain combinations of processors and GPUs into our power calculator, you can create configurations that exceed the maximum chassis power. This is allowed because we treat power distribution the same as we treat network bandwidth: as a shared resource where real-world workloads don't typically all need the same resources at the same time.

Our chassis power management is handled through policies defined through any of our management interfaces. In real time, the system allocates power to servers as they need it, with the servers setting power parameters on the Intel Xeon processors as needed. This keeps the power distribution balanced so that peak workloads receive peak power. This is one of the many reasons why the Cisco UCS 5018 Blade Server Chassis has supported Cisco UCS blade servers for more than a decade, and is poised to support generations more.

Chassis design and power limitations

HPE's focus on the chassis highlights a key difference between approaches. Our chassis is just sheet metal, a midplane, and some temperature sensors. It's not a high-cost item relative to the servers that it houses. We could change chassis every generation and it wouldn't matter because the management is the same and the fabric is the same. During the time that the Cisco UCS 5108 Blade Server Chassis has been serving Cisco UCS customers, HPE has outgrown its c7000 chassis and has replaced it with Synergy.

HPE has had two chassis during the time we have had one because HPE loads them up with active devices that consume real estate, restrict airflow, and subtract from the power budget allowed for servers—we call this “parasitic hardware.” Ethernet, Fibre Channel, and SAS switches; frame link modules, composers, and image streamers—all of these devices make the chassis a much more important cost item for HPE customers, and can produce friction when customers want to move forward. While Cisco UCS B200 M5 Blade Servers support high-power Intel Xeon Scalable processors and 32 DIMMs, it remains to be seen whether HPE Synergy will be able to support this memory capacity. This was one of the limiting factors for the c7000 chassis: that generation of blades supported only 16 DIMMs and HPE did not support the top-bin CPUs available from Intel.

Scale

The goal of scale in IT infrastructure is to be able to grow to large numbers of servers without a commensurate increase in cost and complexity. In other words, adding your thousand-and-first server should not cost as much as adding your first one did. We enable immense scale with Cisco UCS through a combination of our management and networking philosophies.

Management scale

We believe that providing centralized management with central policy implementation is the way to simplify data center operations. Whether you use Cisco UCS Manager, Cisco UCS Central Software, or Cisco Intersight, our approach is to enable you to create policies that dictate how infrastructure is deployed so that provisioning 100 servers is as effortless as deploying one. With policies created for each type of server, you can

establish consistency and compliance across your data center on a global scale. All of this helps to eliminate configuration drift and errors that can cause downtime.

When Synergy was announced in 2017, its approach to management scale differed from Cisco UCS in two major ways:

- The way in which multiple Synergy instances are aggregated by a global dashboard is similar to how multiple Cisco UCS instances can be aggregated by Cisco UCS Central software. But Cisco UCS Central software actually integrates multiple management domains into a single interface with shared global policy, reducing complexity. The OneView Global Dashboard integrates status and inventory, but it does not integrate the multiple OneView instances into one.
- While we moved management from servers into the network starting in 2009, HPE Synergy chose a path that adds more management complexity. As you grow your data center, you have to add more and more management appliances in the form of OneView composers. Each of these small servers have firmware and software to manage, and they consume data center space, power, and cooling resources—all adding friction that impedes scalability.

As we implement our vision for Cisco Intersight, we have moved management from the data center into the cloud, where you have unlimited scale along with global policy management. With the Intersight cloud operations platform, you get support for every phase of your application lifecycle, and for bare-metal, virtualized, and containerized applications, whether in your data center or in the public cloud. With better operational control you gain more efficiency and greater scale.

Network scale

Cisco UCS network domains contain up to 160 servers of any type. For every 160 servers you need to purchase a pair of fabric interconnects. In practice, our customers tend to choose smaller network domain sizes to match their own practices for limiting the size of a failure domain. Once you deploy your Cisco Unified Computing System, you manage bandwidth as any other policy, allocating it as your workloads require.

HPE Synergy has a cost of scale that is dependent on network bandwidth. If you choose 25-Gbps networking using the 100-Gbps Virtual Connect switch, you have to purchase a new pair of switches for every five chassis (60 blades.) If you choose 50-Gbps networking you have to purchase a new pair of switches for every three chassis (36 blades). These decisions impact how you must provision top-of-rack switches, because more uplink ports are needed as you deploy more switches. Purchasing so many in-chassis switches adds to cost, while complexity increases as your bandwidth choices cause impacts on your upstream switch provisioning.

For more information

- Visit cisco.com/go/ucs

Conclusion

Cisco UCS is the more simplified, unified, and future-ready platform, and it is all by design. A single management philosophy—focused on removing complexity from the data center—enables you to manage Cisco UCS as a single unified system. Whatever servers you deploy, and wherever you deploy them, they are all managed the same, not by software that varies with the form factor and deployment location. Moving management out of the data center significantly reduces capital and operating costs and gives you global management scale and unified policies, removing the need to copy-and-paste between multiple interfaces. Eliminating parasitic hardware from blade chassis enables higher network scale, and frees more power and cooling capacity to drive your workloads. And a philosophy of sharing means that you can adapt your network to workload conditions as they change without tearing a system down for reconfiguration and re-cabling. Cisco UCS has supported many generations of Intel Xeon processors and four generations of network fabrics, raising the legitimate question of whose system is more ready for the future.

When it comes to simplifying, unifying, and being ready for the future, the choice of Cisco Unified Computing System is a straightforward one.