Cisco Virtualization Guide for Cisco On-premises Calling Applications

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Contents

About the Documentation

The following table provides an overview of the significant changes to the features in this guide through the current release. The table does not provide an exhaustive list of all changes made to the guide or of the new features up to this release.

Change History

Date	Change	Reason
January 2026	First publication	See Applicable Applications and Versions.

New and Changed Information

Table 1. New Features and Changed Behavior in Cisco Virtualization Guide for Cisco On-premises Calling Applications

Release	Description	Reference
January 2026	Initial release current through: • Applications release 15 SU4 • VMware vSphere ESXi 8.0 • Nutanix AHV 10.0, AOS 7.0, PC 2024.3 • Cisco NFVIS-for-UC 4.18	

Introduction to Supported Virtualization Environments

Cisco only supports on-premises calling applications in the following virtualization environments when configured in accordance with this document. This document covers common virtualization baseline support.

Note: For application-specific details, including any application-specific differences from this document, see the Install Guide of each application.

VMware vSphere ESXi

VMware ESXi (formerly named ESXi, now renamed back to ESX in version 9.0) is an enterprise-class, type-1 hypervisor developed by VMware and Broadcom. As a Type 1 hypervisor, ESXi runs directly on bare-metal hardware without requiring a host operating system, providing direct access to hardware resources for enhanced performance and efficiency.

Cisco on-premises applications are supported on VMware vSphere ESXi running on a broad spectrum of Cisco Calling Appliances, Cisco General-purpose Compute/Storage, and third-party General-purpose Compute/Storage.

For more information on vSphere ESXi, see Broadcom.com.

For more information on Cisco on-premises calling applications support on ESXi 8.0, see Virtualization Requirements for VMware vSphere ESXi.

For more information on Cisco on-premises calling applications' support of vSphere ESXi 7.0 and older, see Cisco Collaboration Virtualization.

Nutanix AHV

Nutanix is a hyperconverged infrastructure (HCI) platform that integrates compute, storage, and networking into a single, software-defined system, providing a robust foundation for hybrid cloud deployments.

Acropolis Hypervisor (AHV) is a hypervisor from Nutanix that runs alongside Acropolis OS (AOS) hyperconvergence software and Prism Central (PC), a web-based, centralized management software. These products are all part of Nutanix Cloud Infrastructure (NCI) or Nutanix Cloud Platform (NCP) portfolios.

Cisco Compute Hyperconverged with Nutanix (CCHN) is a joint solution that runs Nutanix software on Cisco hardware, with joint support from both companies.

Cisco on-premises applications are supported on Nutanix AHV, AOS, and PC with CCHN hardware.

For more information on Nutanix software, see the Nutanix Home page.

For more information on CCHN hardware, see Cisco Compute Hyperconverged with Nutanix

For more information on Cisco on-premises calling applications support on Cisco Compute Hyperconverged with Nutanix, see Virtualization Requirements for Nutanix AHV.

Cisco NFVIS-for-UC (Network Function Virtualization Infrastructure Software)

Cisco NFVIS (Network Function Virtualization Infrastructure Software) is a hypervisor product from Cisco's Enterprise Network Function Virtualization (Enterprise NFV)) portfolio. It is a special-purpose Linux/KVM-based virtualization layer for deploying select application workloads on select Cisco hardware.

Cisco NFVIS-for-UC is a special edition of NFVIS. Select Cisco on-premises calling applications are supported on Cisco NFVIS-for-UC (not the base Cisco NFVIS product) on select Cisco Calling Appliances only.

For more information on the base Cisco NFVIS from Cisco Enterprise NFV, see the following:

- Optimize the virtualization layer
- Cisco Enterprise NFV Infrastructure Software

For more information on Cisco on-premises calling applications support on Cisco NFVIS-for-UC, see Virtualization Requirements for Cisco NFVIS-for-UC.

Applicable Applications and Versions

This document applies to the following:

- Version 15SU4 of UCM, SME, IMP, CUC, CER
- Version X15.4 of Cisco Expressway Series
- The Enhanced Survivability Node of Webex Calling dedicated instance (“DI ESN”) is also supported; its virtualization requirements are described here: Link

Physical Hardware Categories

Cisco on-premises Calling applications use the following categorizations of compute and storage hardware in this guide:

Cisco Calling Appliances

- Cisco Business Edition 6000 (BE6000 or BE6K)
- Cisco Business Edition 7000 (BE7000 or BE7K)
- Cisco Expressway CE1400V (CE1400V)

Cisco General-purpose Compute/Storage

Including but not limited to:

- Cisco UCS C-Series
- Cisco UCS X-Series
- Cisco UCS B-Series
- Cisco HCI-Series

- Cisco HCIX-Series
- Cisco HX-Series

Third-party General-purpose Compute/Storage

- Third-party compute from various vendors.
- Third-party storage from various vendors, either local DAS, external SAN/NAS, or Hyperconverged (HCI/SDS).

Unsupported Infrastructure

Cisco does not support on-premises calling applications on infrastructure environments that are not explicitly listed.

Unsupported environments/No support includes (but is not limited to) the following:

- **Bare-metal / non-virtualized / physical installation** on any hardware or public cloud bare-metal solutions.
- Any **other on-premises hypervisors**, for example, Hyper-V or Azure Local
- New features in **VMware Cloud Foundation (VCF)** 5.2.2 and older; only traditional ESXi+vCenter supported.
- Any **customer-provided open-source** environments, for example, RedHat OpenShift or OpenShift Virtualization, Proxmox VE, Harvester, KVM-based or Xen-based Linux distributions, and more.
- Any **customer-provided-3rdparty-public clouds**, for example, Amazon EC2 or EVS, Azure Compute or Azure VMware Solution, OCI or Oracle Cloud VMware Solution, GCP or Google Cloud VMware Engine, Alibaba, IBM Cloud, and more.
- **Hybrid infrastructure, cloud-connected or cloud extension-based** environments, for example, Amazon AWS Outposts, Azure Stack Hub (ASH), Dell Apex Cloud Platform, GKE On-prem, and more.

General Requirements

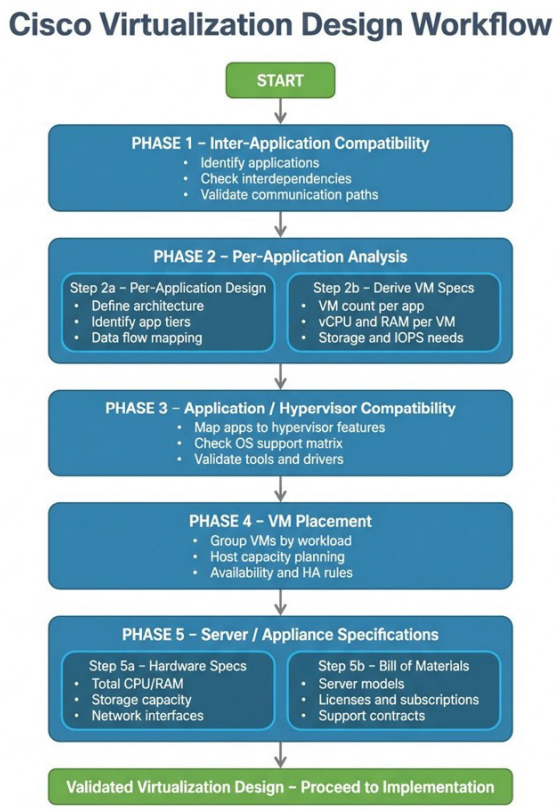
Recommended Design Workflow

The recommended workflow to properly size and configure a virtualized environment for On-premises Calling applications is below (details in subsequent sections):

1. Inter-application Compatibility
2. For each application:
    a. Per-Application Design
    b. Per-Application Derive Virtual Machine (VM) count/specifications
3. Application / Hypervisor Compatibility
4. VM Placement
5. For each server/appliance:
    a. Required Hardware Specification
    b. Bill of Materials (BOM)

For examples of how to use this workflow, see the chapter on **Example Hardware Bill of Materials (BOMs)**.

In a Nutshell



Inter-application Compatibility

Pre-requisites: Identify all of your applications and their compatible versions.

For Cisco on-premises applications compatibility, see the following:

- Cisco Collaboration Systems Release 15
- Cisco Collaboration Systems Release Compatibility Matrix
- Software Compatibility Matrix of each application, for example, Cisco Unified CM+IMP 15 SU4

Result: The “output” is a list of applications and their versions.

Per-Application Design

Pre-requisites: For each application, perform capacity planning, sizing, and cluster design based on your scale and redundancy requirements.

Use one of the following documents, based on the level of prescriptive guidance you require:

- If planning a typical best practices design and deploying on Business Edition 6000 (BE6000) hardware, see section BE6000 Supported Solution Capacities in the appropriate Installation Guide.
- If planning a typical best practices design and deploying on Business Edition 7000 (BE7000) or similarly-spec'd hardware, see the section Simplified Sizing Examples in the appropriate Cisco Collaboration Sizing Guide.
- If you need a more customized design, see either the Cisco Collaboration Preferred Architectures or the appropriate Cisco Collaboration System Solution Network Design Guide.

Result: The “output” is a set of application nodes, each with a “T-shirt size” capacity, used to determine virtual machine information.

Per-Application Derive Virtual Machine (VM) count/specifications

The previous section details how many Virtual Machines are required.

To get the specifications of each Virtual Machine, see each application node in that application's Installation Guide.

Application / Hypervisor Compatibility

Identify compatible release of hypervisor software and any other required infrastructure software.

For hypervisor major/minor release compatibility, check the *Installation Guide* of each application.

For hypervisor maintenance/patch release compatibility, check each hypervisor-specific chapter in this document for the common virtualization requirement, and the Installation Guide of each application for any app-specific callouts.

Hyperconverged environments like Nutanix also require checking other components, like hyperconvergence software versions.

For major/minor hypervisor releases, you can use QuoteCollab to save time.

For previous releases, see the Cisco Collaboration Infrastructure Requirements document.

VM Placement

Derive server/appliance count using applications' VM Placement and co-residency rules vs. your needs for sites and redundant hardware.

You can use QuoteCollab to save time.

Unless otherwise indicated in application-specific documentation, co-residency of Cisco on-premises Collaboration applications + other Cisco applications + 3rd-party/customer-homegrown applications is allowed if the underlying virtualization environment allows (for example, Cisco NFVIS-for-UC does not support any "other Cisco" or 3rd-party applications).

All applications sharing hardware must align with the requirements in this document. To diagnose or resolve an issue with a Cisco on-premises calling application, Cisco TAC may ask that workloads be powered down or moved to another server (for example, if a 3rd-party workload is a "noisy neighbor" causing symptoms in Cisco Unified CM).

VM Placement rules for each hardware component are in the next section.

Required Hardware Specification

Derive raw physical hardware specs required for the set of application VMs you will run on each server, then combine with hypervisor system requirements to complete the required hardware specifications.

You can use QuoteCollab to save time by checking each hypervisor-specific chapter of this document.

Bill of Materials (BOMs)

Follow server- and appliance-specific rules to translate these hardware specs into orderable Bill of Materials (BOMs).

- For Cisco Business Edition 6000/7000 appliances, see their *Datasheets and Ordering Guides*.
- For the Cisco Expressway CE1400V appliance, see its Installation Guide and the Expressway Release Notes.
- For Cisco UCS or CCHN servers, see their *Datasheets* and *Spec Sheets*.

Virtualization Requirements for VMware vSphere ESXi

Overview

- For an overview of VMware vSphere ESXi as a supported virtualization environment, see the Introduction to Supported Virtualization Environments.
- In general, applications on a compatible ESXi release are supported on Cisco and 3rdparty hardware listed in the *VMware by Broadcom Compatibility Guide* as supported for that ESXi release.
  - Cisco calling appliances: **Business Edition 6000/7000** M5, M6, M7 generations and **Cisco Expressway CE1400V** M7.
  - Cisco **UCS, HX, HCI, HCIX models** (a Cisco-specific ESXi image may be required).

  3rd party compute with local DAS storage or 3rdparty storage (local DAS, 3rd party SAN/NAS, 3rd party HCI).
- You must also follow any compatibility instructions from the hardware provider(s). For example, the **Cisco UCS Hardware and Software Compatibility tool**.
- You must also follow the application rules for CPU, Memory, Storage, and Network in this chapter.

Application / Hypervisor Compatibility

ESXi releases through 8.0 can be described as **Major** and **Minor**. Within a **Major/Minor**, there are various **Update and patch** releases, and other versioned components like **Virtual Machine File System (vmfs)**, **Virtual Machine Hardware (vmv or vmx),** and (only for application releases previous to 15 FCS) **VMware Tools** (replaced by **Open VM Tools** in 15 FCS and beyond).

For compatibility of application releases with **ESXi Major/Minor** releases (for example, “8.0”, “7.0”, “6.7”), see each application’s Installation Guide.

- Compatible releases will be explicitly listed.
- Unlisted releases are *not supported and not tested*.
- See Broadcom.com for when compatible releases enter Broadcom’s release end-of-life and implications for support.

Within a supported **ESXi Major/Minor** release,

- A minimum **Update** release may be required for application compatibility (for example, “8.0 U1” not “8.0 GA” is the minimum requirement for “8.0” compatibility).
- Subsequent **Update/Patch** releases (for example, “8.0 U2”, “8.0 U3”) are compatible unless explicitly indicated otherwise.

Note: Certain Update/Patch releases may be compatible only with specific hardware; see Broadcom.com and your hardware’s documentation for details.

- For **Virtual Machine File System (vmfs)**, see Broadcom.com for Major/Minor/vmfs compatibility. All vmfs versions are compatible with applications unless explicitly indicated otherwise.

- For **Virtual Machine Hardware (vmv or vmx)**, see Broadcom.com for Major/Minor/vmv compatibility.
    - Application versions will define the minimum compatible version. For example, UCM 15 requires a minimum vmv 17/vmx 15.
    - Newer vmv/vmx versions are compatible unless explicitly indicated otherwise.
    - Cisco only provides Application OVAs for the required minimum vmv; if the customer needs a newer vmv, deploy OVA with the old vmv, then upgrade the vmv.
- **VMware VM Tools (vmtools)** are not compatible with applications release 15. **Open VM Tools (open-vmtools)** are required and are provided with the application.

VM Placement and Required Hardware Specifications

You can use QuoteCollab to save time, or follow the **VM Placement Rules**.

CPU / Processor Requirements

General

- If Cisco Calling Appliance, the CPU vendor/architecture/model is selected by default in the appliance model (no changes are supported). For more details, see *Install Guide* of each appliance.
- For Cisco General-purpose and 3rd-party General-purpose hardware, must follow:
    - CPU **vendor/architecture** must be listed in the table below. Applications are not supported for unlisted vendors/architectures (for example, ARM is not supported, nor is the Intel Processor-D architecture).
    - Within a vendor/architecture, the selected CPU **model** must follow these rules:
    - **Model range** must be listed in the table below (for example, Intel 69xxP or AMD 9xx5). Applications are not supported on unlisted model ranges. Some applications support different model ranges for different scale points.
    - Have a minimum **Base Frequency** defined by each application's Installation Guide (which may vary by scale point). Applications are not supported on frequency-scaling technologies like **Intel Turbo Boost or AMD Turbo Core / Core Performance Boost / Precision Boost**. Applications are not supported on CPUs that use power management "throttling" features.

CPU vendor/architecture codename & details on their website **(unlisted vendors/architectures not supported)**	Supported CPU model ranges **(unlisted ranges not supported)**	Example Model **(Cores / Base Frequency)**	**Example Cisco Product IDs**
Intel Xeon Granite Rapids **Link**	Xeon 6 6900 P-core (69xxP)	6960P (72C/2.7 GHz)	n/a

CPU vendor/architecture codename & details on their website (unlisted vendors/architectures not supported)	Supported CPU model ranges (unlisted ranges not supported)	Example Model (Cores / Base Frequency)	Example Cisco Product IDs
	Xeon 6 6700 P-core (67xxP)	6730P (32C/2.5 GHz)	UCS-CPU-I6730P
	Xeon 6 6500 P-core (65xxP) (E-core and/or 63xx models not supported)	6505P (12C/2.2 GHz)	UCS-CPU-I6505P
AMD 5th-gen EPYC Turin Link	AMD EPYC 9005 (9xx5)	9115 (16C / 2.6 GHz)	UCS-CPU-A9115
Intel Xeon Emerald Rapids Link	Xeon Platinum 8500 (85xx) Xeon Gold 6500 (65xx) Xeon Gold 5500 (55xx)* Xeon Silver 4500 (45xx)*	6526Y (16C/2.8 GHz) 4510 (12C/2.4 GHz)	UCS-CPU-I6526Y UCS-CPU-I4510
Intel Xeon Sapphire Rapids Link	Xeon Platinum 8400 (84xx) Xeon Gold 6400 (64xx) Xeon Gold 5400 (54xx)* Xeon Silver 4400 (44xx)*	6426Y (16C/2.5 GHz) 4410Y (12C/2.0 GHz	UCS-CPU-I6426Y UCS-CPU-I4410Y
AMD 4th-gen EPYC Genoa Link	AMD EPYC 9004 (9xx4)	9334 (32C / 2.70 GHz) 9224 (24C / 2.5 Ghz)	
Intel Xeon Ice Lake Link	Xeon Platinum 8300 (83xx) Xeon Gold 6300 (63xx) Xeon Gold 5300 (53xx)* Xeon Silver 4300 (43xx)*	6326 (16C/2.9 GHz) 4310T (10C/2.3 GHz)	UCS-CPU-I6326 UCS-CPU-I4310T
AMD 3rd-gen EPYC Milan Link	AMD EPYC 7003 (7xx3)	7453 (28C / 2.75 GHz) 7313P (16C / 3.0 Ghz)	UCS-CPU-A7453 UCS-CPU-A7313P
Intel Xeon Cascade Lake Link	Xeon 8200 Platinum (82xx) Xeon 6200 Gold (62xx) Xeon 5200 Gold (52xx) * Xeon 4200 Silver (42xx) *	6242 (16C / 2.80 GHz)	HX-CPU-I6242
Intel Xeon Skylake	Xeon 8100 Platinum (81xx)	6132 (14C / 2.60 GHz)	UCS-CPU-6132

CPU vendor/architecture codename & details on their website **(unlisted vendors/architectures not supported)**	Supported CPU model ranges **(unlisted ranges not supported)**	Example Model **(Cores / Base Frequency)**	**Example Cisco Product IDs**
Link	Xeon 6100 Gold (61xx) Xeon 5100 Gold (51xx) * Xeon 4100 Silver (41xx) *	4114 (10C / 2.20 GHz)	HX-CPU-6142 UCS-CPU-4114
* Only supported for deployments of <1K users and <2.5K devices			

VM Placement Rules

- Unless explicitly indicated otherwise in the application Installation Guide, deployments must follow these rules: **Physical CPU cores**: Each server must provide a **total physical core quantity** at least equal to the sum of all virtual machines' vcpus. For example, if your physical server is 2S/10C, you may run any combination of VMs totaling 20 vCPUs.
- If Hyperthreading is present in the hardware BIOS, always enable, but ignore any **Logical Processor** quantity shown in ESXi.
- **ESXi CPU Reservations** are hardcoded in the Cisco-provided OVA and may not be changed. Applications do not use CPU Reservations to control VM placement.

RAM / Memory Requirements

General

- If Cisco Calling Appliance, the memory configuration is selected by default in the appliance model (no changes are supported). For more details, see *Install Guide* of each appliance.
- For Cisco General-purpose and 3rd-party General-purpose hardware, must follow:
  - Physical memory hardware must be supported by the hardware vendor.
  - Cisco applications do not prescribe memory module quantity, density, speed, or layout/population.

  Follow instructions from the CPU vendor and your hardware provider. For Cisco UCS, see the server model's *Spec Sheet* and *Memory Guide*.

VM Placement Rules

- Physical memory must not be oversubscribed.
- **Usable RAM:** Memory configuration must provide at least as many GB as the sum of all virtual machines' vram plus additional memory for ESXi itself. At the time of this writing, additional usable GB from ESXi Hardware Requirements are:
  - ESXi 8.0 minimum 8GB, 12GB for typical production deployments

Storage Requirements

General

- If Cisco Calling Appliance, the storage hardware and RAID configuration are selected by default in the appliance model (no changes are supported). For more details, see *Install Guide* of each appliance.
- For Cisco General-purpose and 3rd-party General-purpose hardware, must follow:

◦ The "storage system" is defined as all hardware and software end-to-end required for the UCM virtual machine's vdisk to be available to the application. Including but not limited to:

    - The ESXi datastore configuration.
    - One of the following:
        - RAID controller with local DAS disks.
        - Network adapter, transport network and 3rdparty SAN/NAS array.
        - Hyperconvergence software (AOS, HXDP, and more) and underlying hardware.
    - The entirety of the storage system must be listed as supported by the ESXi release being run, per the beginning of this chapter.

- **ESXi datastores** may be provisioned with eager zero or lazy zero.

VM Placement Rules

- **Maximum latency of storage system:** Application requirements must be met, or the storage will be inadequate for the application software load presented. For application symptoms that correlate with high storage latency, Cisco may require resolving the storage latency before proceeding with troubleshooting or resolution.

◦ Unless otherwise indicated, Cisco Collaboration applications require storage systems to have **average virtual machine operating system latency per command <= 25 ms**.

    - In VMware documentation and monitoring tools like esxtop, this is also called "**GAVG/cmd**" (Guest Average Latency per command), and is the response time as perceived by the guest operating system. It is the sum of two other latency values (GAVG = KAVG + DAVG):
        - "KAVG/cmd" (VM Kernel Average Latency per command) - an indicator of CPU resources/performance. Expected to be 0ms in an ideal environment. Values greater than 2ms may cause performance problems.
        - "DAVG/cmd" (Device Average Latency per command) - an indicator of disk subsystem performance. Values consistently greater than 20-30ms are often indicative of performance problems in typical applications.
    - Latency values over time are expected to fluctuate. Ephemeral spikes above the application's indicated maximum with tiny duration and tiny frequency are expected, but spikes above the application's indicated maximum that are frequent, sustained, and/or high-magnitude indicate a potential problem and are likely contributors to application symptoms.
    - See VMware by Broadcom documentation for monitoring, performance, and esxtop for more details on viewing and interpreting latency values.

- **Usable space:** The storage system must provide usable space in GB at least equal to the sum of all virtual machines' vdisks. Non-appliance hardware may also use thin provisioning, with the caveat that disk space must be available to the VM as needed; running out of disk space due to thin provisioning will cause application instability and data corruption, including preventing restore from backup.
- **IOPS capacity:** Some storage system design documentation will request information on the application workloads' I/O operations, including read/write, sequential, and random. For most applications, this varies by deployment model and capacity; refer to each application's Installation Guide for details.
- Best Practices by Storage Option
    - Local DAS:
        - Make sure the RAID controller and all disks are listed by Broadcom as compatible for the ESXi release being used, and listed as supported by the hardware vendor.
        - See hardware providers for guidance on meeting application latency and IOPS requirements. Below are guidelines only; your results may vary.

RAID1	○ HDD pairs are not recommended unless the environment is very small (fewer than 100 devices or fewer). ○ Consider SSD pairs with sufficient usable space. High-endurance models are recommended, as many Cisco Collaboration applications are write-intensive.
RAID5	○ For most Collaboration deployments, RAID5 has been the best tradeoff among competing factors of maximizing usable space, IO performance, fault tolerance, and ease of failed disk replacement while minimizing total storage system price and complexity. ○ One HDD per physical CPU core, with 4-6 disks per RAID5 array (more disks per volume are discouraged as it increases the risk of long rebuild times if there is ever a multiple disk failure). ○ Each disk SAS 10kbps (15kbps recommended). The following are not recommended because they tend to be too slow: SATA disks and SAS disks with < 10 kbps.
RAID6	○ One HDD per physical CPU core, with 4-8 disks per RAID6 array (more disks per volume are discouraged due to slowed write times vs. many Cisco Collaboration applications are write-intensive). ○ Each disk is SAS with a minimum of 15K rpm. Otherwise, same guidelines as for RAID5.
RAID10	○ One HDD per 2 physical CPU cores, with at least 4 disks per RAID10 array ○ Each disk same as the RAID5 recommendation.

- 3rd-party SAN/NAS arrays:
  - Make sure the SAN/NAS used is listed by Broadcom as compatible for the ESXi release being used, and listed as supported by the compute vendor.
  - Network planning must include both vDisk storage traffic and vnic network traffic.
  - Follow hardware vendors' guidance for compatibility and meeting application latency and IOPS requirements.
- Hyperconverged environments:
  - Cisco Compute Hyperconverged with Nutanix.
    - AOS is the hyperconvergence software.
    - Network planning must include both vdisk storage traffic and vnic network traffic.
    - Follow AOS and hardware vendor guidance for compatibility and meeting application latency and IOPS requirements.
    - VM Placement needs to factor in a required Controller VM on each server. Specifications of this VM depend on AOS cluster sizing.

Network Requirements

General

- If Cisco Calling Appliance is selected, the network hardware is selected by default in the appliance model (no changes are supported). For more details, see Install Guide of each appliance.
- For Cisco General-purpose and 3rd-party General-purpose hardware, must follow:
  - **Network adapters** are defined as all NICs, HBAs, VICs, etc., used for the server to access the network for LAN access or storage access. If storage is SAN, NAS, or HCI, then network planning must include both vDisk storage traffic and vNIC network traffic.
    - Make sure all network adapters used are listed by Broadcom as compatible for the ESXi release being used, and listed as supported by the compute/storage vendors.
  - **Network infrastructure** is defined as the physical or virtual switching/routing/fabric network elements providing LAN access or storage access.
    - Make sure all virtual elements running on the server are listed by Broadcom as compatible for the ESXi release being used, and listed as supported by the compute/storage vendors.
    - For a physical access switch, you may need to check the compatibility of that switch with your compute/storage vendors.

VM Placement Rules

- **Physical network access links:** Each "server" must provide enough for the vnics of all application VMs (details out of scope for this policy).
  - Redundant physical network access links (for example, "NIC teaming") are permitted where supported by the VMware Compatibility Guide and the network hardware/software providers' instructions.

    - If you choose to use access options like VLAN trunking or link aggregation, multiple physical links will be required.
- Application vnic network traffic capacity/quality of service required:
    - **vnic traffic:** see application design guides for their "min spec" for network traffic and quality of service (for example, required bandwidth and max tolerable delay, jitter, and loss, along with which quality of service traffic marking mechanisms they support). For example:
        - For example, see Cisco Collaboration 12x guidelines for Network Infrastructure
        - For example, see Cisco Collaboration 12x quality of service guidelines
    - **vdisk traffic:** If the same network will be carrying both application VM vnic network traffic and application VM vdisk storage traffic, make sure to plan for both sets of traffic. Storage Requirements must be met for the applications to be supported.
- See Cisco network and datacenter Preferred Architectures for best practices on network element selection and configuration.

Virtualization Requirements for Cisco NFVIS-for-UC

Overview

For an overview of Cisco NFVIS-for-UC as a supported virtualization environment, see the Introduction to Supported Virtualization Environments.

- Cisco NFVIS-for-UC is only supported on the following hardware:
    - **Cisco calling appliances: Business Edition 6000/7000** M5, M6, M7 generations and **Cisco Expressway CE1400V** M7.
- You must also follow any compatibility instructions in Supported Platforms from NFVIS Release Notes (for example, Link).
- You must also follow the application rules for CPU, Memory, Storage, and Network in this chapter.

Application / Hypervisor Compatibility

The minimum supported releases are 15 SU4 / X15.4 with NFVIS-for-UC 4.18.

Supported NFVIS-for-UC releases can be classified as **Major** and **Minor**. Within a **Major/Minor**, there are various **Maintenance** releases.

For compatibility of application releases with NFVIS-for-UC **Major/Minor** releases (for example, “4.18”), see each application’s Installation Guide.

- Compatible releases will be explicitly listed. Newer hardware generations may require a newer minimum Major/Minor release.
- Unlisted releases are *not supported* and *not tested*.
- See Cisco EOL Bulletins for when compatible releases enter Cisco’s release end-of-life and implications for support.

Within a supported NFVIS-for-UC **Major/Minor** release,

- A minimum **Maintenance** release may be required for application compatibility (for example, “4.18.2a” not “4.18.1” is the minimum requirement for “4.18” compatibility).
- Subsequent **Maintenance** releases (for example, “4.18.2a” as the minimum compatible release vs. future “4.18.3”) are compatible unless explicitly indicated otherwise.
- There are no other versioned components that need to be tracked/managed.

VM Placement and Required Hardware Specifications

You can use QuoteCollab to save time, or follow the **VM Placement Rules**.

CPU / Processor, RAM / Memory, Storage, Network Requirements

General

- NFVIS-for-UC is only supported on the Cisco Calling Appliance models listed above.

- The entire hardware loadout and configurations are selected by default in the appliance model (no changes are supported). For more details, see *Install Guide* of each appliance.

- NFVIS-for-UC is NOT supported on Cisco General-purpose or 3rd-party General-purpose hardware.

VM Placement Rules

- NFVIS-for-UC 4.18 requires a "holdback" of 1-2 pcores and 11-13 GB per appliance (depending on appliance model). These are reserved for NFVIS-for-UC and are not available to application workloads.
  - For general requirements, see Host System Requirements in the NFVIS Software Configuration Guide, Release 4.x: Link
  - Here is a translation of the general requirements into holdback by appliance model:

					NFVIS reservations
	Sockets	Total Physical Cores	Total Physical Memory (GB)	Physical cores	Memory (GB)
BE6000M M5	1	10	48	1	11
BE6000H M5	2	20	64	2	12
BE7000M M5	1	14	96	1	11
BE7000H M5	2	28	192	2	13
BE6000M M6	1	10	64	1	11
BE7000M M6	1	16	96	1	11
BE7000H M6	1	28	192	1	11
BE6000M M7	1	12	64	1	11
BE7000M M7	1	16	96	1	11
BE7000H M7	2	32	192	2	13
CE1400V	1	16	64	1	11

All other rules for CPU, RAM, Storage, and Network are the same as on VMware vSphere ESXi

Virtualization Requirements for Nutanix AHV

Overview

For an overview of Nutanix AHV as a supported virtualization environment, see the Introduction to Supported Virtualization Environments.

- Cisco on-premises applications are only supported with Cisco Compute Hyperconverged with Nutanix (CCHN) hardware, in deployment models HCI / Hyperconverged Node or Compute-only Node with HCI nodes.
    - Cisco HCI-Series, HCIX-Series
    - Allowed specifications of UCS C-Series, UCS X-Series, HX-Series, and (compute-only node) UCS B-Series.
    - For more information, see CCHN Spec Sheets for Hyperconverged Nodes and Compute-only Nodes at the link.
- Applications are NOT supported on :
    - FlashStack (Cisco HCI Node with external storage from Pure Storage)
    - 3rd-party HCI nodes
    - 3rd-party Compute node with HCI nodes or external storage
- You must also follow:
    - Any compatibility instructions from Nutanix and the hardware provider(s).
    - Application rules for CPU, Memory, Storage, and Network in this chapter.

Application / Hypervisor Compatibility

The minimum supported releases are 15 SU4/X15.4 with Nutanix AHV 10.0 / AOS 7.0 / Prism Central 2024.3.

Nutanix software releases can be described as **X.Y.z.n**, where a single **X.Y** may contain several **z.n**. For more information, see the following link

For compatibility of application releases with Nutanix AHV and AOS **X.Y** (for example, “10.0” or “7.0”), see each application’s *Installation Guide*.

- Compatible releases will be explicitly listed.
- Unlisted releases are not supported and not tested.
- See Nutanix.com for when compatible releases enter Nutanix’s release end-of-life and implications for support.

Within a supported Nutanix AHV or AOS **X.Y** release,

- A minimum **z.n** release may be required for application compatibility.
- Subsequent **z.n** releases are compatible unless explicitly indicated otherwise.

Note: Some releases may be compatible only with specific hardware; see Nutanix.com and the hardware documentation for details.

- There are no other versioned components that need to be tracked/managed.

VM Placement and Required Hardware Specifications

You must follow Nutanix technical documentation to determine the minimum and maximum server counts for the Nutanix cluster, as well as the Controller VM specifications for each server.

For application requirements, you can use QuoteCollab to save time, or follow the **VM Placement Rules**.

CPU / Processor, RAM / Memory, Storage, Network Requirements

General

Only Cisco Compute Hyperconverged with Nutanix hardware listed above is supported.

VM Placement Rules

- Rules for CPU are the same as on VMware vSphere ESXi, but must add the vcpu of the Controller VM.
- Rules for RAM are the same as on VMware vSphere ESXi, but instead of the RAM GB overhead for ESXi, you must add the vram of the Controller VM.
- Rules for Storage are the same as on VMware vSphere ESXi, but you must add the vdisk of the Controller VM.
- Rules for the network are the same as on VMware vSphere ESXi.

Bill of Materials (BOM)

When Nutanix cluster design and physical hardware specifications are finalized, use the Spec Sheet for the desired CCHN server model.

Example Hardware Bill of Materials (BOMs)

Summary of Hardware Examples

Example designs are provided for Small Collaboration Design used for Hardware Examples, Medium Collaboration Design used for Hardware Examples, and Large Collaboration Design used for Hardware Examples. Each is built with a variety of hardware options.

Cisco Calling Appliances

These examples are supported with Cisco NFVIS-for-UC as described in this virtualization guide.

	Business Edition 6000M (M7) Example for Small Collaboration			**Business Edition 7000M (M7) Example for Medium Collaboration**			**Business Edition 7000H (M7) Example for Medium Collaboration**		
	Spec	**Product ID**	**Qty**	**Spec**	**Product ID**	**Qty**	**Spec**	**Product ID**	**Qty**
Base System	BE6000M (M7) Appliance	BE6K-M7-K9	1	BE7000M (M7) Appliance	BE7M-M7-K9	1	BE7000H (M7) Appliance	BE7H-M7-K9	1
CPU	Single Xeon 4510T (1S/12C/2.00 GHz)	Included		Single Xeon 6526Y (1S/16C/2.80 GHz)	Included		Dual Xeon 6526Y (2S/16C/2.80 GHz)	Included	
RAM	64GB RAM	Included		96GB RAM	Included		192GB RAM	Included	
Storage	RAID Controller w/ SuperCAP	Included		RAID Controller with SuperCAP	Included		RAID Controller with SuperCAP	Included	
	Local DAS storage 6 x 600GB SAS in single 6-disk-RAID5 ~3TB usable GB	Included		Local DAS storage 16x 600GB SAS in quad 4-disk-RAID5 ~1.8TB usable GB per volume	Included		Local DAS storage 24x 600GB SAS in quad 6-disk-RAID5 ~1.8TB usable GB per volume	Included	
Network + IO	OCP 3.0 MLoM NIC 2x10GE Cu	Included		OCP 3.0 MLoM NIC 2x10GE Cu	Included		OCP 3.0 MLoM NIC 2x10GE Cu	Included	
	Single PCIe NIC (4x10GE SFP+)	Included		Dual PCIe NIC (4x10GE SFP+)	Included		Dual PCIe NIC (4x10GE SFP+)	Included	
	PCIe Riser	Included		PCIe Riser	Included		PCIe Riser	Included	
Misc.	Redundant power supplies	Included		Redundant power supplies	Included		Redundant power supplies	Included	
	Rack-mounting kit	Included		Rack-mounting kit	Included		Rack-mounting kit	Included	
	Trusted Platform Module	Included		Trusted Platform Module	Included		Trusted Platform Module	Included	

	Business Edition 6000M (M6) Example for Small Collaboration			**Business Edition 7000M (M6) Example for Medium Collaboration**			**Business Edition 7000H (M6) Example for Large Collaboration**		
	Spec	**Product ID**	**Qty**	**Spec**	**Product ID**	**Qty**	**Spec**	**Product ID**	**Qty**
Base System	BE6000M (M6) Appliance	BE6K-M6-K9	1	BE7000M (M6) Appliance	BE7M-M6-K9	1	BE7000H (M6) Appliance	BE7H-M6-K9	1
CPU	Single Xeon 4310T (1S/10C/2.30 GHz)	Included		Single Xeon 6326 (1S/16C/2.90 GHz)	Included		Single Xeon 6348 (1S/28C/2.60 GHz)	Included	
RAM	64GB RAM	Included		96GB RAM	Included		192GB RAM	Included	
Storage	RAID Controller (12G)	Included		RAID Controller (12G)	Included		RAID Controller (12G)	Included	
	Local DAS storage 6 x 600GB SAS in single 6-disk-RAID5 ~3TB usable GB	Included		Local DAS storage 16x 600GB SAS in quad 4-disk-RAID5 ~1.8TB usable GB per volume	Included		Local DAS storage 24x 600GB SAS in quad 6-disk-RAID5 ~3TB usable GB per volume	Included	
Network + IO	2x10GE Cu LoM NIC	Included		2x10GE Cu LoM NIC	Included		2x10GE Cu LoM NIC	Included	
				Dual 4x10GE Cu NIC	Included		Dual 4x10GE Cu NIC	Included	
				PCIe Riser	Included		PCIe Riser	Included	
Misc.	Redundant power supplies	Included		Redundant power supplies	Included		Redundant power supplies	Included	
	Rack-mounting kit	Included		Rack-mounting kit	Included		Rack-mounting kit	Included	
	Trusted Platform Module	Included		Trusted Platform Module	Included		Trusted Platform Module	Included	

	Business Edition 6000M (M5) Example for Small Collaboration			**Business Edition 7000M (M5) Example for Medium Collaboration**			**Business Edition 7000H (M5) Example for Large Collaboration**		
	Spec	**Product ID**	**Qty**	**Spec**	**Product ID**	**Qty**	**Spec**	**Product ID**	**Qty**
Base System	BE6000M (M5) Appliance	BE6M-M5-K9	1	BE7000M (M5) Appliance	BE7M-M5-K9	1	BE7000H (M5) Appliance	BE7H-M5-K9	1
CPU	Single Xeon 4114 (1S/10C/2.20 GHz)	Included		Single Xeon 6132 (1S/14C/2.60 GHz)	Included		Dual Xeon 6132 (2S/14C/2.50 GHz)	Included	
RAM	48GB RAM	Included		96GB RAM	Included		192GB RAM	Included	
Storage	RAID Controller (12G)	Included		RAID Controller (12G)	Included		RAID Controller (12G)	Included	
	Local DAS storage 6 x 300GB SAS in single 6-disk-RAID5 ~1TB usable GB	Included		Local DAS storage 14x 300GB SAS in dual 7-disk-RAID5 ~1TB usable GB per volume	Included		Local DAS storage 24x 300GB SAS in quad 6-disk-RAID5 ~1TB usable GB per volume	Included	
Network + IO	2x10GE LoM NIC	Included		2x10GE LoM NIC	Included		2x10GE LoM NIC	Included	
				Dual 4x1GbE NIC	Included		Dual 4x1GbE NIC	Included	
				PCIe Riser	Included		PCIe Riser	Included	
Misc.	Single / non-redundant Power supply	Included		Redundant power supplies	Included		Redundant power supplies	Included	
	Rack-mounting kit	Included		Rack-mounting kit	Included		Rack-mounting kit	Included	

Cisco Compute Hyperconverged with Nutanix

<<COMING SOON>>

The following are for the HCI/Hyperconverged Node deployment model.

These examples are supported with Nutanix AHV as described in this virtualization guide.

Cisco Blade Server

The following are for a boot-from-SAN deployment model.

These examples are supported with VMware vSphere ESXi as described in this virtualization guide.

	UCS X210c M7 **Example for Small Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	UCS X210c M7 Compute Node (standalone)	UCSX-M7-MLB UCSX-210C-M7-U	1
CPU	Single Xeon 4410Y (1S/12C/2.0 GHz)	UCSX-CPU-I4410Y	1
RAM	64GB (4x16GB)	UCSX-MRX16G1RE1	4
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 15420 (mLOM)	UCSX-ML-V5Q50G-D	1
Misc.	Blanking panels	UCSX-X10C-FMBK-D	1
		UCSX-M2-HWRD-FPS	1
		UCS-DDR5-BLK	28
	Heat sink for CPU	UCSX-C-M7-HS-F	1
	Trusted Platform Module	UCSX-TPM-002C-D	1

	UCS X210c M7 **Example for Medium Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	UCS X210c M7 Compute Node (standalone)	UCSX-M7-MLB UCSX-210C-M7-U	1
CPU	Single Xeon 6426Y (1S/16C/2.5 GHz)	UCSX-CPU-I6426Y	1
RAM	96GB (6x16GB)	UCSX-MRX16G1RE1	6
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 15420 (mLOM)	UCSX-ML-V5Q50G-D	1
Misc.	Blanking panels	UCSX-X10C-FMBK-D	1
		UCSX-M2-HWRD-FPS	1
		UCS-DDR5-BLK	26
	Heat sink for CPU	UCSX-C-M7-HS-F	1
	Trusted Platform Module	UCSX-TPM-002C-D	1

	UCS X210c M7 **Example for Large Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	UCS X210c M7 Compute Node (standalone)	UCSX-M7-MLB UCSX-210C-M7-U	1
CPU	Dual Xeon 6426Y (2S/16C/2.5 GHz)	UCSX-CPU-I6426Y	2
RAM	192GB (12x16GB)	UCSX-MRX16G1RE1	12
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 15420 (mLOM)	UCSX-ML-V5Q50G-D	1
Misc.	Blanking panels	UCSX-X10C-FMBK-D	1
		UCSX-M2-HWRD-FPS	1
		UCS-DDR5-BLK	20
	Heat sinks for CPUs	UCSX-C-M7-HS-F	1
		UCSX-C-M7-HS-R	1
	Trusted Platform Module	UCSX-TPM-002C-D	1

	UCS B200 M6 **Example for Small Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	UCS B200 M6 Blade Server (standalone)	UCS-M6-MLB UCSB-B200-M6-U	1
CPU	Single Xeon 4310T (1S/10C/2.3 GHz)	UCS-CPU-I4310T	1
RAM	64GB (4x16GB)	UCS-MR-X16G1RW	4
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 1440 (mLOM)	UCSB-MLOM-40G-04	1
Misc.	Blanking panels	UCSB-FBLK-M6	2
		UCS-DIMM-BLK	28
	Heat sink for CPU	UCSB-HS-M6-R	1
	Trusted Platform Module	UCSX-TPM-002C	1
	UCS 5108 Blade Chassis FW Package 4.20	N20-FW018	1

	UCS B200 M6 **Example for Medium Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	UCS B200 M6 Blade Server (standalone)	UCS-M6-MLB UCSB-B200-M6-U	1
CPU	Single Xeon 6326 (1S/16C/2.9 GHz)	UCS-CPU-I6326	1
RAM	96GB (6x16GB)	UCS-MR-X16G1RW	6
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 1440 (mLOM)	UCSB-MLOM-40G-04	1
Misc.	Blanking panels	UCSB-FBLK-M6	2
		UCS-DIMM-BLK	26
	Heat sink for CPU	UCSB-HS-M6-R	1
	Trusted Platform Module	UCSX-TPM-002C	1
	UCS 5108 Blade Chassis FW Package 4.2	N20-FW018	1

	UCS B200 M6 **Example for Large Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	UCS B200 M6 Blade Server (standalone)	UCS-M6-MLB UCSB-B200-M6-U	1
CPU	Single Xeon 6348 (1S/28C/2.6 GHz)	UCS-CPU-I6348	1
RAM	192GB (12x16GB)	UCS-MR-X16G1RW	12
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 1440 (mLOM)	UCSB-MLOM-40G-04	1
Misc.	Blanking panels	UCSB-FBLK-M6	2
		UCS-DIMM-BLK	20
	Heat sink for CPU	UCSB-HS-M6-R	1
	Trusted Platform Module	UCSX-TPM-002C	1
	UCS 5108 Blade Chassis FW Package 4.2	N20-FW018	1

	UCS B200 M5 **Example for Small Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	B200 M5 Blade Server (standalone)	UCSB-B200-M5-U	1
CPU	Single Xeon 4210 (1S/10C/2.20 GHz)	UCS-CPU-I4210	1
RAM	32GB RAM (2x16GB)	UCS-MR-X16G1RT-H	2
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 1440 (mLOM)	UCSB-MLOM-40G-04	1
Misc.	Blanking panels (FlexStorage)	UCSB-LSTOR-BK	2
	Blanking panels (DIMM)	UCS-DIMM-BLK	22
	Heat sink for CPU	UCSB-HS-M5-F	1
	UCS 5108 Blade Chassis FW Package 4.0	N20-FW016	1

	UCS B200 M5 **Example for Medium Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	B200 M5 Blade Server (standalone)	UCSB-B200-M5-U	1
CPU	Single Xeon 6132 (1S/14C/2.60 GHz)	UCS-CPU-6132	1
RAM	64GB RAM (2x32GB)	UCS-ML-X32G2RS-H	2
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 1440 (mLOM)	UCSB-MLOM-40G-04	1
Misc.	Blanking panels (FlexStorage)	UCSB-LSTOR-BK	2
	Blanking panels (DIMM)	UCS-DIMM-BLK	22
	Heat sink for CPU	UCSB-HS-M5-F	1
	UCS 5108 Blade Chassis FW Package 4.0	N20-FW016	1

	UCS B200 M5 **Example for Large Collaboration**		
	Spec	**Product ID**	**Qty**
Base System	B200 M5 Blade Server (standalone)	UCSB-B200-M5-U	1
CPU	Single Xeon 6132 (2S/14C/2.60 GHz)	UCS-CPU-6132	2
RAM	192GB RAM (12x16GB)	UCS-MR-X16G1RS-H	12
Storage	None - offbox storage and boot	-	
Network + IO	Cisco VIC 1440 (mLOM)	UCSB-MLOM-40G-04	1
Misc.	Blanking panels (FlexStorage)	UCSB-LSTOR-BK	2
	Blanking panels (DIMM)	UCS-DIMM-BLK	22
	Heat sink for CPU	UCSB-HS-M5-F	1
		UCSB-HS-M5-R	1
	UCS 5108 Blade Chassis FW Package 4.0	N20-FW016	1

Cisco Rack Server

The following are for a local storage deployment model.

These examples are supported with VMware vSphere ESXi as described in this virtualization guide.

	UCS C220 M7S Example for Small Collaboration			UCS C240 M7SX Example for Medium Collaboration			UCS C240 M7SX Example for Large Collaboration		
	Spec	Product ID	Qty	Spec	Product ID	Qty	Spec	Product ID	Qty
Base System	UCS C220 M7S Rack Server	UCS-M7-MLB UCSC-C220-M7S	1	UCS C240 M7SX Rack Server	UCS-M7-MLB UCSC-C240-M7SX	1	UCS C240 M7SX Rack Server	UCS-M7-MLB UCSC-C240-M7SX	1
CPU	Single Xeon 4510T (1S/12C/2.0 GHz)	UCS-CPU-I4510T	1	Single Xeon 6526Y (1S/16C/2.8 GHz)	UCS-CPU-I6526Y	1	Dual Xeon 6526Y (1S/16C/2.8 GHz)	UCS-CPU-I6526Y	2
RAM	64GB (4x16GB)	UCS-MRX16G1RE3	4	96GB (6x16GB)	UCS-MRX16G1RE3	6	192GB (12x16GB)	UCS-MRX16G1RE3	12
Storage	RAID Controller w/ SuperCAP	UCSC-RAID-M1L16	1	RAID Controller w/ SuperCAP	UCSC-RAID-MP1L32	1	RAID Controller w/ SuperCAP	UCSC-RAID-MP1L32	1
	6x 600GB 12G SAS disk (HDD)	UCS-HD600G10KJ4-D	6	16x 600GB 12G SAS disk (HDD)	UCS-HD600G10KJ4-D	16	24x 600GB 12G SAS disk (HDD)	UCS-HD600G10KJ4-D	24
	Single 6-disk RAID5 volume		1	Quad 4-disk RAID5 volume		1	Quad 6-disk RAID5 volume		1
Network + IO	OCP 3.0 NIC (2x10GE Cu)	UCSC-O-ID10GC-D	1	OCP 3.0 NIC (2x10GE Cu)	UCSC-O-ID10GC-D	1	OCP 3.0 NIC (2x10GE Cu)	UCSC-O-ID10GC-D	1
	Single PCIe NIC (4x10GE SFP+)	UCSC-PCIE3Q10GF-D	1	Dual PCIe NIC (4x10GE SFP+)	UCSC-PCIE3Q10GF-D	2	Dual PCIe NIC (4x10GE SFP+)	UCSC-PCIE3Q10GF-D	2
	PCIe Riser	UCSC-RIS1A-22XM7		PCIe Riser	UCSC-RIS1A-240-D	1	PCIe Riser	UCSC-RIS1A-240-D	1
Misc.	Redundant Power Supplies	UCSC-PSU1-1200W-D	2	Redundant Power Supplies	UCSC-PSU1-1200W-D	2	Redundant Power Supplies	UCSC-PSU1-1200W-D	2
	Rack-mounting kit	UCSC-RAIL-D	1	Rack-mounting kit	UCSC-RAIL-D	1	Rack-mounting kit	UCSC-RAIL-D	1
	Blanking panels	UCSC-BBLKD-M7	4	Blanking panels	UCSC-BBLKD-M7	8	Blanking panels		
		UCS-DDR5-BLK	28		UCS-DDR5-BLK	31		UCS-DDR5-BLK	20
		UCSC-FBRS-C220-D	1		UCSC-FBRS2-C240-D	1		UCSC-FBRS2-C240-D	1
		UCSC-FBRS2-C220M7	1		UCSC-FBRS3-C240-D	1		UCSC-FBRS3-C240-D	1
	Cables	CBL-SAS-C220M7	1	Cables	CBL-SDSAS-C240M7	1	Cables	CBL-SDSAS-C240M7	1
		UCSC-RDBKT-22XM7	1		UCSC-SDBKT-24XM7	1		UCSC-SDBKT-24XM7	1
		UCS-SCAP-D	1		UCS-SCAP-D	1		UCS-SCAP-D	1
		CBL-SCAP-C220-D	1		CBL-SCAPSD-C240-D	1		CBL-SCAPSD-C240-D	1
	Heat sink for CPU	UCSC-HSLP-C220M7	1	Heat sink for CPU	UCSC-HSHP-C240M7	1	Heat sink for CPU	UCSC-HSHP-C240M7	2
	mLOM Mounting for OCP NIC	UCSC-OCP3-KIT-D	1	mLOM Mounting for OCP NIC	UCSC-OCP3-KIT-D	1	mLOM Mounting for OCP NIC	UCSC-OCP3-KIT-D	1
	Trusted Platform Module	UCSX-TPM-002C-D	1	Trusted Platform Module	UCSX-TPM-002C-D	1	Trusted Platform Module	UCSX-TPM-002C-D	1

	UCS C220 M6S Example for Small Collaboration			UCS C240 M6SX Example for Medium Collaboration			UCS C240 M6SX Example for Large Collaboration		
	Spec	Product ID	Qty	Spec	Product ID	Qty	Spec	Product ID	Qty
Base System	UCS C220 M6S Rack Server	UCS-M6-MLB UCSC-C220-M6S	1	UCS C240 M6SX Rack Server	UCS-M6-MLB UCSC-C240-M6SX	1	UCS C240 M6SX Rack Server	UCS-M6-MLB UCSC-C240-M6SX	1
CPU	Single Xeon 4310T (1S/10C/2.3 GHz)	UCS-CPU-I4310T	1	Single Xeon 6326 (1S/16C/2.9 GHz)	UCS-CPU-I6326	1	Single Xeon 6348 (1S/28C/2.6 GHz)	UCS-CPU-I6348	1
RAM	64GB (4x16GB)	UCS-MR-X16G1RW	4	96GB (6x16GB)	UCS-MR-X16G1RW	6	192GB (12x16GB)	UCS-MR-X16G1RW	12
Storage	RAID Controller	UCSC-RAID-220M6	1	RAID Controller (12G)	UCSC-RAID-M6SD	1	RAID Controller (12G)	UCSC-RAID-M6SD	1
	6x 600GB 12G SAS disk (HDD)	UCS-HD600G10K12N	6	16x 600GB 12G SAS disk (HDD)	UCS-HD600G10K12N	16	24x 600GB 12G SAS disk (HDD)	UCS-HD600G10K12N	24
	Single 6-disk RAID5 volume	R2XX-RAID5	1	Quad 4-disk RAID5	R2XX-RAID5	1	Quad 6-disk RAID5	R2XX-RAID5	1
Network + IO	2x10GE Cu LoM NIC	Included		2x10GE Cu LoM NIC	Included		2x10GE Cu LoM NIC	Included	
				Dual 4x10GE Cu NIC	UCSC-P-IQ10GC	2	Dual 4x10GE Cu NIC	UCSC-P-IQ10GC	2
	PCIe Riser Kits	UCSC-R2R3-C220M6	1	PCIe Riser	UCSC-RIS1A-240M6	1	PCIe Riser	UCSC-RIS1A-240M6	1
		UCSC-FBRS-C220M6	1						
Misc.	Redundant Power Supplies	UCSC-PSU1-1050W	2	Redundant power supplies	UCSC-PSU1-1050W	2	Redundant power supplies	UCSC-PSU1-1050W	2
	Rack-mounting kit	UCSC-RAIL-M6	1	Rack-mounting kit	UCSC-RAIL-M6	1	Rack-mounting kit	UCSC-RAIL-M6	1
	Blanking panels	UCSC-BBLKD-S2	4	Blanking panels	UCSC-BBLKD-S2	8	Blanking panels	UCS-DIMM-BLK	20
		UCS-DIMM-BLK	28		UCS-DIMM-BLK	26		UCSC-FBRS2-C240M6	1
					UCSC-FBRS2-C240M6	1		UCSC-FBRS3-C240M6	1
					UCSC-FBRS3-C240M6	1			
	Cables	CBL-SAS-C220M6	1	Cables	UCS-SCAP-M6	1	Cables	UCS-SCAP-M6	1
		UCS-SCAP-M6	1		CBL-SCAPSD-C240M6	1		CBL-SCAPSD-C240M6	1
		CBL-SCAP-C220M6	1		CBL-SDSAS-240M6	1		CBL-SDSAS-240M6	1
	Heat sink for CPU	UCSC-HSLP-M6	1	Heat sink for CPU	UCSC-HSHP-240M6	1	Heat sink for CPU	UCSC-HSHP-240M6	1
	Trusted Platform Module	UCSX-TPM-002C	1	Trusted Platform Module	UCSX-TPM-002C	1	Trusted Platform Module	UCSX-TPM-002C	1

	UCS C220 M5SX Example for Small Collaboration			UCS C240 M5SX Example for Medium Collaboration			UCS C240 M5SX Example for Large Collaboration		
	Spec	Product ID	Qty	Spec	Product ID	Qty	Spec	Product ID	Qty
Base System	UCS C220 M5SX	UCSC-C220-M5SX	1	UCS C240 M5SX	UCSC-C240-M5SX	1	UCS C240 M5SX	UCSC-C240-M5SX	1
CPU	Single Xeon 4114 (2S/10C/2.20 GHz)	UCS-CPU-4114	2	Single Xeon 6132 (1S/14C/2.60 GHz)	UCS-CPU-6132	1	Single Xeon 6132 (2S/14C/2.60 GHz)	UCS-CPU-6132	2
RAM	48GB RAM (3x16GB)	UCS-MR-X16G1RS-H	3	96GB RAM (6x16GB)	UCS-MR-X16G1RS-H	6	192GB RAM (12x16GB)	UCS-MR-X16G1RS-H	12
Storage	RAID Controller (12G)	UCSC-RAID-M5	1	RAID Controller (12G)	UCSC-RAID-M5HD	1	RAID Controller (12G)	UCSC-RAID-M5HD	1
	6x 300G 10K SAS disk	UCS-HD300G10K12N	6	Local DAS 14x 300GB SAS in dual 7-disk-RAID5 ~1TB usable GB per volume	UCS-HD300G10K12N	14	Local DAS 24x 300GB SAS in quad 6-disk-RAID5 ~1TB usable GB per volume	UCS-HD300G10K12N	24
	RAID5	R2XX-RAID5	1	RAID5	R2XX-RAID5	1	RAID5	R2XX-RAID5	1
Network + IO	2x10GE LoM NIC	Included		2x10GE LoM NIC	Included		2x10GE LoM NIC	Included	
				Dual 4x1GbE NIC	UCSC-PCIE-IRJ45	2	Dual 4x1GbE NIC	UCSC-PCIE-IRJ45	2
				PCIe Riser	UCSC-PCI-1B-240M5	1	PCIe Riser	UCSC-PCI-1B-240M5	1
Misc.	Single / non-redundant Power supply	UCSC-PSU1-770W	1	Redundant Power supplies	UCSC-PSU1-1050W	2	Redundant Power supplies	UCSC-PSU1-1050W	2
	Rack-mounting kit	UCSC-RAILB-M4	1	Rack-mounting kit	UCSC-RAILB-M4	1	Rack-mounting kit	UCSC-RAILB-M4	1
	Blanking panels (disk slot)	UCSC-BBLKD-S2	4	Blanking panels (disk slot)	UCSC-BBLKD-S2	12	Blanking panels (disk slot)	UCSC-BBLKD-S2	2
	Blanking panels (power supply)	UCSC-PSU-BLKP1U	1	Blanking panel (PCI riser slot)	UCSC-PCIF-240M5	1	Blanking panel (PCI riser slot)	UCSC-PCIF-240M5	1
	Cable (storage)	CBL-SC-MR12GM52	1	Cable (storage)	CBL-SC-MR12GM5P	1	Cable (storage)	CBL-SC-MR12GM5P	1
	Cable (storage)	UCSC-SCAP-M5	1	Cable (storage)	UCSC-SCAP-M5	1	Cable (storage)	UCSC-SCAP-M5	1
	Heat sink for CPU	UCSC-HS-C220M5	1	Heat sink for CPU	UCSC-HS-C240M5	1	Heat sink for CPU	UCSC-HS-C240M5	2

Small Collaboration Design used for Hardware Examples

See the Cisco Collaboration Sizing Guide for Release 15, Simplified Sizing Examples, Small Example.

For a deployment that will fit on Cisco Business Edition 6000 appliances, modify this deployment and its assumptions to fit within the BE6000 Supported System Capacities.

Medium Collaboration Design used for Hardware Examples

See the Cisco Collaboration Sizing Guide for Release 15, Simplified Sizing Examples, Medium #1 and Medium #2 Examples.

Large Collaboration Design used for Hardware Examples

See the Cisco Collaboration Sizing Guide for Release 15, Simplified Sizing Examples, Large Example.

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