Go to: Guidelines to Edit UC Virtualization Pages

Use this page prior to quoting, procuring, designing or deploying Virtualization of Cisco Unified Communications.

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Useful Links

- UC Virtualization Design and Sizing
  - Cisco Unified Communications Design Guide
  - Cisco UC System Sizing Tool (UCSST)
  - Virtual Machine OVA Templates for UC apps
  - Application Co-residency and Virtual/Physical Sizing
  - LAN and QoS Design
  - Storage System Design and IOPS

- UC Virtualization Compatibility Information
  - Supported Apps and Versions
  - Supported Hardware (TRC vs. Specs-based)
  - Supported VMware products, versions and features
  - UC app-specific support rules (in addition to or instead of above links)

Presales Design Considerations

For a design example case study, see **Unified Communications Virtualization Sizing Guidelines.**

Note: Mixed deployments of virtual, nonvirtual, Cisco-provided, and customer-provided servers are supported provided you follow all rules listed below for sizing UC applications and sizing UC hardware. Use general requirements in UC application design; for example, do not make a backup node smaller than a primary node, and do not make a Publisher smaller than a Subscriber.

Sizing UC Applications for Virtualization

- Verify the **supported UC Application products and versions** listed in **Unified Communications Virtualization Supported Applications**.
- **Sizing virtualized UC applications** is the same as appliance sizing. Use the **Cisco Unified Communications System Design Guidance** and **Unified Communications Sizing Tool**. Instead of determining appliance size and count, determine Virtual Machine size and count.
- Select an appropriate OVA/OVF template for each "Server" required for a UC application. Each UC application has one or more OVA/OVF template options. See **Unified Communications Virtualization Downloads (including OVA/OVF Templates)**.
- Follow the **coresidency policy in Sizing Guidelines**to determine which OVAs can share physical servers. Which OVAs "should" share a physical server depends on customer placement logic, which includes but is not limited to considerations for geographic distribution, minimizing server footprint, server/site redundancy, security domains, change management, service level agreements and assessed business criticality of the individual UC apps.
- Verify alignment of virtualization support details (such as supported hardware or VMware features). These details may vary based on each UC application. Because UC applications share physical resources, be sure to verify alignment of these details for all UC applications in your deployment--particularly for UC applications that share a physical server.

Selecting the VMware Product and Version

- Verify the **VMware product/version compatibility and VMware feature support for each UC app** in your deployment. See **Unified Communications VMware Requirements**.

Sizing the Compute, Storage, and Network Hardware

Physical server count is dependent on VM quantity and size, customer placement logic, and the coresidency support policy (see **Unified Communications Virtualization Sizing Guidelines**).

General Rules

Decide which one of the following options you will use:

◊ **Tested Reference Configurations (TRC)**
◊ **Specification-Based Hardware Support**

Follow the rules for your selected approach; your allowed hardware options, design rules, procurement and TAC support are different for each.

Sizing Network Hardware and QoS Considerations

Virtualized deployments of Unified Communications have specific LAN and QoS considerations. See **QoS Design Considerations for Virtual UC with UCS**.

Sizing Shared Storage (SAN/NAS)

See **Shared Storage Considerations** for support of NFS NAS or FC/FCoE/iSCSI SAN, including best-practices guidelines for UC.

See also **IO Operations Per Second (IOPS).**

Procurement Considerations

The following sections describe purchasing options for the various components of Virtualization of Cisco Unified Communications.

Purchasing Cisco Unified Communications Applications

There is no change to how UC applications are purchased. Cisco User Connect Licensing, Cisco Unified Workspace Licensing and Cisco UC Software Subscription are all the same for both virtualized and nonvirtualized deployments.

License **enforcement** can differ from appliances when virtualized. See **Licensing Model for Virtualized UC Applications** for details.

Purchasing the Required VMware Software

For UC on UCS (whether specs-based or Tested Reference Configuration), VMware vSphere ESXi and vCenter may be either customer-provided or purchased from Cisco.

For specs-based with HP/IBM servers, all VMware software must be customer-provided and may not be purchased from Cisco.

Cisco provides two purchase options for VMware vSphere ESXi:

- ◊ As an option under a build-to-order data center part number for the UCS server: Note that for the Cisco UCS B-Series, you must order this option through the Netformx DesignXpert ordering tool UCS Advisor.
    - For vSphere 4.1, licenses are sold on a per-populated-physical-CPU-socket basis (not physical CPU cores or virtual CPUs or virtual CPU cores). Each populated CPU socket per physical server requires a VMware license and a required service contract. Only Advanced, Enterprise and Enterprise Plus Editions are available, and

only with one-year or three-year service subscription options. VMware licensing rules must be followed to determine quantities and feature editions - see details on VMware's web site here: https://www.vmware.com/files/pdf/vsphere_pricing.pdf .
    - Cisco does not resell vSphere 5.0 at this time.
- ◊ Preset ?per-server? Cisco Collaboration part number. This part number is separate from server hardware part numbers. You can use the same part number for Cisco UCS B-Series and C-Series deployments. Note that for the Cisco UCS B-Series, you must add this part number to a group of data center part numbers ordered through the Netformx DesignXpert ordering tool UCS Advisor. There are three options:
    - vSphere ESXi 4.1 Standard Edition, limited to two CPU sockets (no more, no less) and only with one-year service subscription (no multiyear or auto-renewals).
    - Cisco UC Virtualization Hypervisor 4.1, only available with Business Edition 6000 and with limited hardware/software deployment options - click here for details.
    - Cisco UC Virtualization Foundation 4.1, for use only with Business Edition 6000 and UC on UCS, and with limited hardware/software deployment options - click here for details.
- ◊ Cisco field and channel partners may consult the **"UC on UCS" chapter of the User Connect Licensing Ordering Guide at Cisco Partner Central**.
- ◊ For part number and SKU examples, see the UC on UCS page at **www.cisco.com/go/swonly**, specifically Table 1 on **http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/solution_overview_c22-59**

For guidance on supported VMware products, versions and features, and which vSphere Edition to buy for UC, see **VMware requirements**. If you are not buying one of the preset Cisco Collaboration part numbers for vSphere, then follow VMware licensing rules at https://www.vmware.com/files/pdf/vsphere_pricing.pdf to determine required Edition and license quantities.

Please keep the following in mind when purchasing VMware from Cisco:

- A vSphere license purchased from Cisco entitles both ESX and ESXi, but remember that UC only supports ESXi.
- A vSphere 4 license purchased from Cisco entitles either 4.0 or 4.1. License activation at vmware.com will be for latest version unless you explicitly request a downgrade. For version compatibility among VMware products, see the **VMware Product Interoperability Matrix**.
- VMware vCenter is mandatory for deployments on Specs-based Hardware Support. VMware vCenter is optional for deployments on Tested Reference Configurations.
- VMware.com provides Cisco-specific VMware builds for certain UCS servers. These UCS-specific builds are usually not required for UC on UCS, and the regular "off-the-shelf" builds of VMware are fine. Consult your server documentation to see which one you should use.
- VMware Partner Activation Codes (PACs) are currently per-CPU. A dual-CPU physical server requires two of these per-CPU licenses to be "combined" prior to generating a license key file for upload to the physical server hosting VMware. For example, see **http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=101**
- Cisco channel partners should register VMware Partner Activation Codes (PACs) with the end-user customer (not the channel partner) as Primary License Administrator to ensure that support contracts work correctly.
- For additional details, see **License Activation for Cisco UC on UCS**.

Purchasing Virtualization Hardware

This section provides details on server, storage, and network hardware requirements to implement virtualization.

Cisco Unified Computing System (UCS) Servers

Cisco UCS servers may be purchased through the following options:

- Certain **Tested Reference Configurations** of Cisco UCS servers may be purchased as a single Cisco Collaboration part number. This purchase option supports only a single fixed-server configuration with no parts substitutions supported. For the Cisco UCS B200 it does not include any other components such as blade-server chassis, fabric extenders, or fabric interconnect switches (a certified Cisco channel partner must order these components using the Netformx DesignXpert ordering tool UCS Advisor). This "single SKU" option provides simplicity of ordering for deployments that are predominantly Cisco Unified Communications software. Note that some supported tested reference configurations, such as Cisco UCS C210 M2 Tested Reference Configuration 2, are not offered through this procurement option because they are used only for design guidance with **Specification-Based Hardware Support**. For mapping of Tested Reference Configurations to lists of equivalent Cisco Data Center part numbers, see **http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/ps5748/ps378/solution_overview_c22-597556.ht**

- Any Cisco UCS that is deployed as a **Tested Reference Configuration** or that uses **Specification-Based Hardware Support** may be purchased as a build-to-order set of "a la carte" Cisco Data Center part numbers. This option supports all Cisco Unified Computing System components, and for UC apps that support **Specification-Based Hardware Support** provides a broader range of server and part options. A certified Cisco channel partner must order from Dynamic Configuration Tool (for UCS C-Series) or the Netformx DesignXpert ordering tool UCS Advisor (for UCS B-Series). This option is appropriate for mixed software deployments in which the customer wants something different from the tested reference configurations that are offered as single Cisco Collaboration SKUs.

Cisco field and channel partners may also consult the "UC on UCS" chapter of the User Connect Licensing Ordering Guide.

Third-Party Servers

For a deployment of **Specification-Based Hardware Support** using supported third-party servers, the servers must be customer-provided and are not purchased from Cisco.

Shared Storage and Network Access Hardware

Shared storage arrays (for supported SAN or NAS deployments) are customer-provided and are not purchased from Cisco. Network hardware for LAN and storage access may be Cisco-provided or third-party-provided depending on deployment.

Key Differences Between Appliances and Virtualization of Cisco Unified Communications

Deployments on Cisco 7800 Series Media Convergence Servers that are shifting to virtualization should prepare for the following:

- Virtualization of Cisco Unified Communications is "not an appliance." You must independently configure, manage, and monitor the hardware, VMware software, and virtualized UC applications.
- Higher level of expertise with server administration, VMware vSphere/vCenter administration, and storage administration is expected from whoever is managing the UC deployment. This expectation is more for deployments of **Specification-Based Hardware Support** and UC on UCS B-Series than for UC on UCS C-Series **Tested Reference Configurations**.
- If you are using Shared Storage (SAN or NAS), be aware that it is a critical solution component and if improperly configured, monitored, or managed will cause significant performance and availability issues for UC apps. Ensure that whoever is managing the UC deployment is experienced and proficient with storage management.
- Adhere to all licensing requirements for virtualized UC apps. For example, license keys may be different when virtualized than they are on appliances.
- UC application features that are dependent on physical USB ports are not supported. See the required **UC Application documentation** for alternatives and workarounds.

Considerations for Cisco TAC Support

This section is for convenience and illustration purposes only, and does not supersede any master support agreements or other support documents between Cisco and its partners/customers.

If you purchased your solution components from Cisco and have a service contract with Cisco, then Cisco TAC accepts the first call for virtualization issues, coordinates triage, and automatically escalates the issue to other vendors covered by Cisco service contracts as required.

If your solution components are self-sourced, then Cisco TAC does not take the first call, nor does Cisco provide triage coordination or escalation. In these cases, you may need to directly engage with your component vendors to escalate an issue and/or coordinate triage with Cisco TAC.

The following table identifies who takes the first call for each solution component.

Note: These support demarcations are similar to the appliance hardware demarcations provide by Cisco versus customer self-sourced.

Deployment Scenario	Server Hardware	Shared Storage Hardware	VMware Software	Cisco Application Software
UCS + VMware purchased from Cisco	Cisco	Third-party[1]	Cisco	Cisco
	Cisco	Third-party[1]	Third-party[1]	Cisco

UCS + Customer-provided VMware				
VCE Vblock	vcesupport.com	vcesupport.com	vcesupport.com	Cisco
Customer-provided Server and VMware	Third-party	Third-party	Third-party	Cisco

[1] A VCE Vblock may be leveraged to provide single source of support.

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