



Virtual Connect Multi-Enclosure Stacking Reference Guide

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Executive Summary

Customers today are challenged with simplifying the network edge by reducing complexity and cost. HP's Virtual Connect solution helps customers simplify server network connections by cleanly separating the server enclosure from the data center network. Stacking multiple enclosures enables the management of up to four enclosures from a single control point.

ME Stacking provides the following benefits:

- Provide connectivity for any blade server to any uplink port in the VC domain, regardless of location
- Reduce the overall number of cables needed for uplink connectivity
- Ability to move a profile between enclosures
- Reduce the datacenter core switch traffic, as internal communication stays inside the Virtual Connect domain
- Reduces the management touch points by consolidating Virtual Connect manager interfaces

Within environments where the 10Gb uplink ports are a premium, VC Flex-10 and FlexFabric can be used with a minimal number of uplink ports in order to provide connectivity for multiple enclosures. The stack links provide high speed connections between enclosures that can be adjusted by adding more physical links to the stack. This enables the ability to create a high speed private network connection between blades for services such as VMotion, Cluster heart beats, backups, and IP Storage to name a few.

This reference guide will provide best practices to designing a multi-enclosure stack, and provide guidance on various approaches.

Multi-Enclosure Stacking Guidelines

Multi-Enclosure (ME) Stacking enables a base enclosure to have external physical connections to multiple remote enclosures, by using the physical uplink ports (called Stack Links) of the Virtual Connect (VC) modules. Up to 4 Virtual Connect-enabled C7000 enclosures can be stacked together and managed as one Virtual Connect domain for 128 servers, not to exceed a total of 16 VC-Enet and 16 VC-FC modules (a Virtual Connect FlexFabric module counts as both one VC-Enet module and one VC-FC module towards these limits). Any available Ethernet uplink port not assigned to a Virtual Connect Network or SUS can become a stack link. Stacking of Virtual Connect Fibre Channel is not provided or supported. All VC Ethernet modules must be stacked together, to form a valid L2 ring topology. Having Ethernet module(s) physically present but not linked to the other Ethernet modules in the domain is an invalid and unsupported configuration.

The ME Stacking feature was designed and tested for enclosures that are physically close to each other, in a single rack or in a few racks side-by-side. However, stacking can be achieved and is supported with any of the cabling options supported by Virtual Connect, including optical fiber on longer distances. As the distance between enclosures in the stack increases, so will the network latency over the management network (connected through the Onboard Administrators) which will have an impact on Virtual Connect Manager performance, so it is advisable to keep distances between enclosures in a stack to a minimum.

In order to configure ME Stacking, the base enclosure must have 1/10Gb-F Virtual Connect Ethernet Modules or Virtual Connect Flex-10, Flex-10/10D or FlexFabric Modules in bay 1 or redundant pairs installed in bays 1 and 2. The original HP 1/10Gb Virtual Connect Copper Ethernet Modules¹ are not supported in bay 1 and 2 of the base enclosure. The HP 1/10Gb VC Copper module does not contain the required amount of system resources to manage multiple enclosure configurations. Remote enclosures may be populated with any Virtual Connect Ethernet modules. The HP 1/10Gb-F Ethernet Modules can be the management modules of a Multi Enclosure Domain ONLY if the stack does NOT contain any Flex-10, Flex-10/10D or FlexFabric module, i.e. it only has 1/10Gb and 1/10Gb-F modules (plus VC-FC modules), again because of limited system resources.

Virtual Connect Enterprise Manager (VCEM) is not required to manage a ME Stacked Domain. VCEM provides a central console to administer LAN and SAN address assignments, perform group-based configuration management, and execute rapid deployment, movement and failover of server connections and their workloads for 250 Virtual Connect domains (up to 1,000 enclosures and 16,000 server blades). ME Stacking and VCEM can be used together to provide the stacking benefits listed above and all the benefits of VCEM for central management of all the domains.

¹ HP Part Number 399593-B22

The first Virtual Connect domain created on the first enclosure will become the Base Enclosure. Remote Enclosures will then be imported into the Base Enclosure Virtual Connect Domain. The base enclosure will contain the primary and secondary Virtual Connect Manager instances. The base enclosure “role” cannot be transferred to another enclosure in the stack. If the base enclosure (or its VC modules running the management application) is powered off, the other enclosures will remain functional and connected assuming the VC networks have usable uplinks in the remaining enclosures. The Virtual Connect Manager application will not be accessible until the base enclosure is powered back on. All OA's and Virtual Connect modules for each enclosure to be managed must be on the same IP subnet.

When designing a solution, the principles you apply to a single enclosure domain should be applied to a ME stacked domain in the same way. For example, if you are building clusters of servers and you consider making your clusters span multiple enclosures with single enclosure domains in order to be able to shut down an enclosure entirely and still have the cluster up and running, you should make your clusters span multiple ME Stacked Domains as well. Do not put all the servers of a cluster into different enclosures of one ME Stacked Domain if you wouldn't want to put them into a single enclosure.

As another example, do not make a ME Stacked Domain with enclosures in 2 different datacenters in an attempt to build a disaster recovery solution. If a disaster hits the datacenter where the primary enclosure is located, you would not be able to recover server profiles from the primary enclosure and you would not be able to manage Virtual Connect in the remaining datacenter.

It is important that the IP subnet you plan on using for OA and VC traffic is not over utilized. Virtual Connect Manager relies on LAN connectivity between the Onboard Administrators to provide management and control in a multi-enclosure Virtual Connect domain. This connection ensures the configuration settings of the distributed modules remain in sync. HP recommends isolating the management network from other networks to ensure that the communication integrity remains intact.

HP only supports importing remote enclosures that do not have an existing domain configuration. Importing remote enclosures with an existing domain will have the remote enclosure's configuration erased. Merging of domains is not an available feature.

Virtual Connect Fibre Channel does not support ME Stacking using the physical uplink port connections. All enclosures in a single stack must have the identical VC-FC, VC Flex-10/10D and VC FlexFabric module placement and configuration in each enclosure.



Important: Additional guidelines and configuration rules will be found in the document titled “HP Virtual Connect for c-Class BladeSystem Setup and Installation Guide²”

When to choose Multi-Enclosure Stacking

Here are some criteria that can be used to determine if you should use Multi-Enclosure Stacking:

- If the 10Gb ports in the core switches are at a premium, you can reduce the number of ports required to connect your servers by consolidating uplinks over up to 4 enclosures. Of course the tradeoff is that the overall bandwidth between the enclosures and the core network would be reduced.
- If the applications running on the servers generate a lot of traffic between themselves, but not so much towards the core network, you could use Multi-Enclosure stacking to keep that traffic between up to 4 enclosures without going to the core switches.
- If you have a small environment with 4 enclosures or less and you want to consolidate the management of your Virtual Connect environment without implementing Virtual Connect Enterprise Manager, you can use Multi-Enclosure Stacking to create a single Virtual Connect domain.
- At the opposite end, if you have a large environment with more than 250 Virtual Connect-enabled enclosures, you can use Multi-Enclosure Stacking to group these enclosures in domains of 2, 3 or 4 enclosures to stay below the supported limit of 250 Virtual Connect domains per Virtual Connect Enterprise Manager server.

² <http://h18004.www1.hp.com/products/ blades/components/c-class-tech-installing.html>

Conversely, here are some reasons why you could not or would not want to use Multi-Enclosure Stacking:

- If you are using c3000 enclosures
- If the enclosure you are considering to be the base enclosure has Virtual Connect 1/10Gb modules running Virtual Connect Manager
- If you want to maintain different VC firmware versions across the enclosures
- If not all OA and VC modules are on the same network/IP subnet
- If many VC faceplate ports are used for uplinks and you do not have enough available ports to form a recommended stacking configuration
- If all the OA modules do not have common login credentials with administrator privileges
- If you cannot or do not want to have identical FC or FCoE uplink ports across all enclosures
- If you want to use DirectAttach FC fabrics (connecting Virtual Connect directly to a Storage Array without going through a FC switch) because moving across enclosures a server profile with Boot from SAN settings would require some manual adjustments (the target controller WWN would change)

Virtual Connect Domain Stack Planning

Starting the Multi-Enclosure Stacking setup requires some upfront planning. The base enclosure will need to have its Domain provisioned, before importing any remote enclosures. Imported remote enclosures should not have an existing Virtual Connect domain.



Important: If the remote enclosure contains an existing domain configuration it will be erased.

Follow these steps to configure Multi-Enclosure Stacking through the Virtual Connect Manager GUI.
To import the remote enclosure(s):

- Login to the existing Virtual Connect domain of the first enclosure and select Enclosures in the left pane
- Press the “Find” button
- Enter the IP address and credentials for the OA of the enclosure you wish to import
- Choose the “Import” Action on the enclosure that has just been found, this may take a few minutes to complete
- From the left pane, select Stacking Links and verify there are no stacking link errors

Figure 1: Importing an enclosure into an existing VC Domain

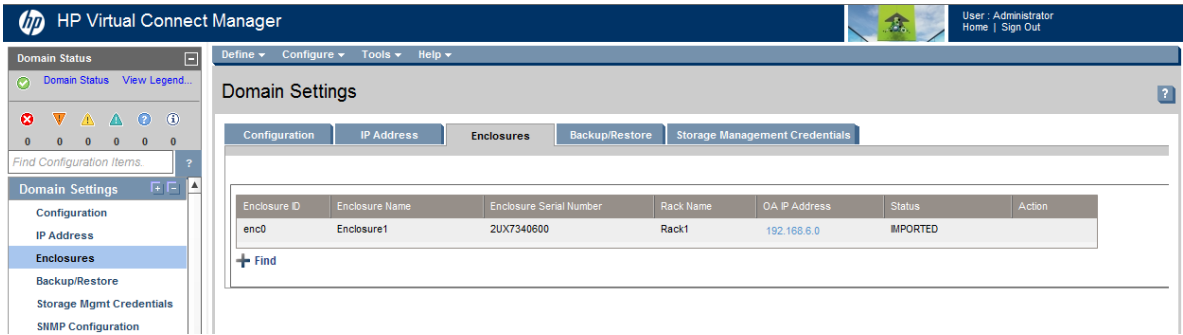


Figure 2: Enter the IP address and credentials of for the OA of the enclosure being imported.

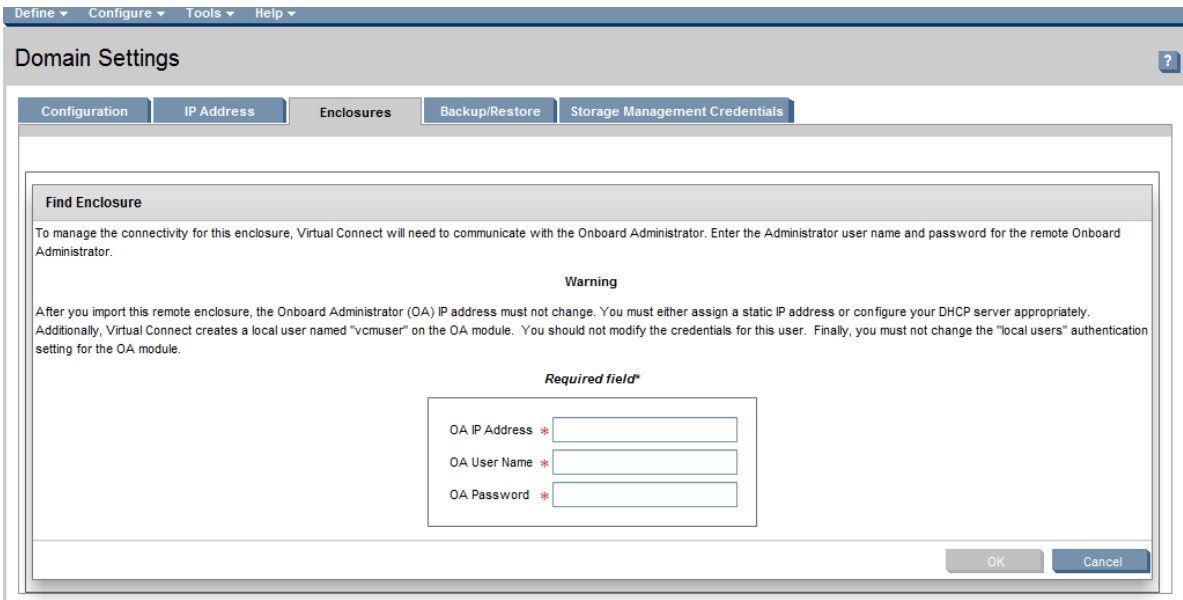


Figure 3: Import the enclosure

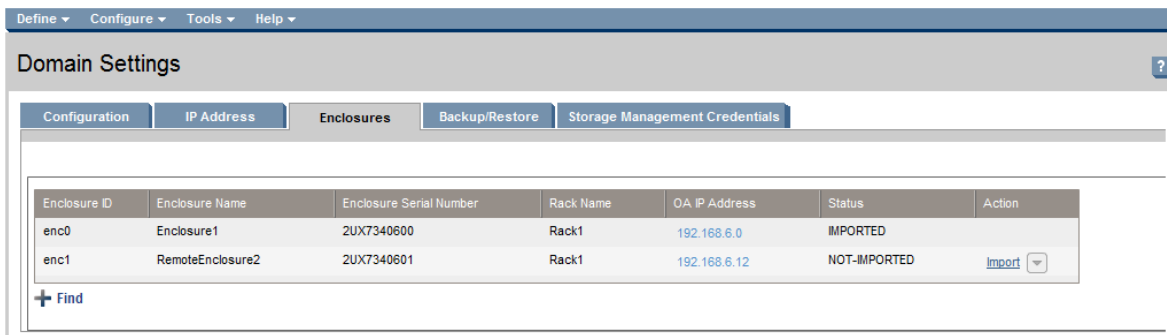
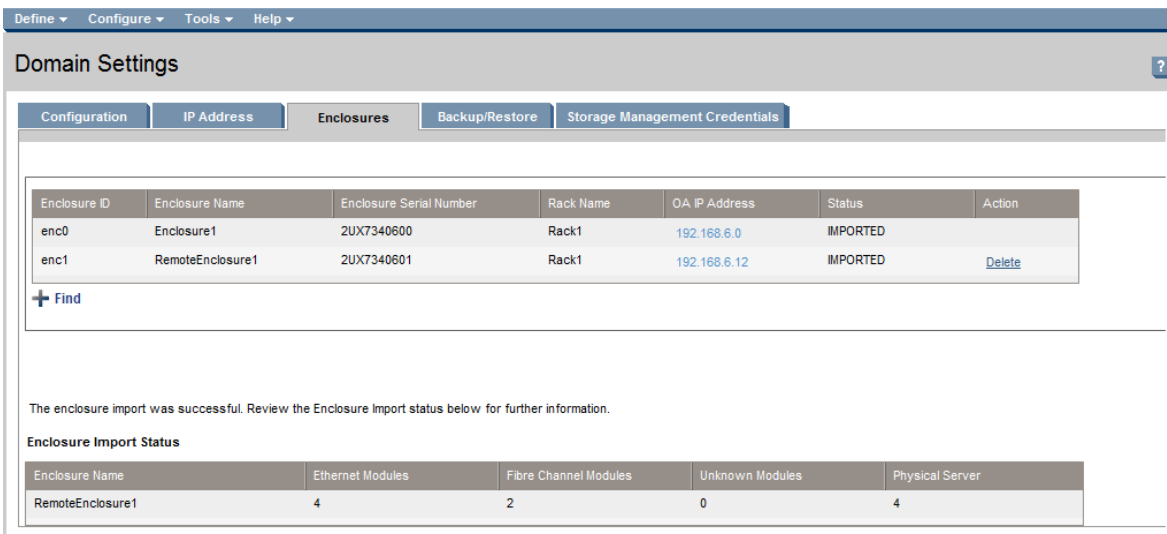


Figure 4: The enclosure is imported



The enclosures in the stack are assigned an enclosure ID. The base enclosure is assigned enc0, and the remote enclosures are given IDs enc1 through enc3. The Enclosure name being imported is also displayed in the second column of the graphic.

Figure 5: VC Domain Stacking Links

Stacking Links

Stacking Links

The Virtual Connect Manager has discovered the VC-Enet module stacking links listed below. The 'Connection Status' below indicates whether all VC-Enet modules are interconnected and accessible. The 'Redundancy Status' indicates whether the VC-Enet modules will remain connected with the loss of a module or cable.

Connection Status: OK

Redundancy Status: OK

Enclosure	Link Speed	From Connection	To Connection
Enclosure1(enc0)			
	10 Gb	enc0:Bay1:PortX5	enc0:Bay3:PortX6
	10 Gb	enc0:Bay1:PortX7	enc0:Bay2:PortX7
	10 Gb	enc0:Bay1:PortX8	enc0:Bay2:PortX8
	10 Gb	enc0:Bay2:PortX5	enc0:Bay4:PortX6
	10 Gb	enc0:Bay3:PortX11	enc0:Bay4:PortX11
	10 Gb	enc0:Bay3:PortX12	enc0:Bay4:PortX12
	10 Gb	enc0:Bay3:PortX13	enc0:Bay4:PortX13
	10 Gb	enc0:Bay3:PortX14	enc0:Bay4:PortX14
RemoteEnclosure1(enc1)			
	10 Gb	enc1:Bay1:PortX5	enc1:Bay3:PortX6
	10 Gb	enc1:Bay1:PortX6	enc0:Bay3:PortX5
	10 Gb	enc1:Bay1:PortX7	enc1:Bay2:PortX7
	10 Gb	enc1:Bay1:PortX8	enc1:Bay2:PortX8
	10 Gb	enc1:Bay2:PortX5	enc1:Bay4:PortX6
	10 Gb	enc1:Bay2:PortX6	enc0:Bay4:PortX5
	10 Gb	enc1:Bay3:PortX11	enc1:Bay4:PortX11
	10 Gb	enc1:Bay3:PortX12	enc1:Bay4:PortX12
	10 Gb	enc1:Bay3:PortX13	enc1:Bay4:PortX13
	10 Gb	enc1:Bay3:PortX14	enc1:Bay4:PortX14

NOTE:
 Port X7 and X8 may connect to the internal link between horizontally-adjacent HP VC Flex-10 Enet and HP VC FlexFabric 10Gb/24-Port modules.
 Ports X11, X12, X13, and X14 connect to the internal link between horizontally-adjacent HP VC Flex-10/10D Modules.

After successful configuration of the ME Stack, you will be able to create a VC network and choose any uplink port in the VC domain. A profile can be assigned to any server blade bay within any enclosure in the Virtual Connect domain.

Figure 6: Virtual Connect network creation

Define Ethernet Network

Network

Network Name

DC1_Prod_247

Color

none

Labels

Type to add Network Labels

Smart Link

Private Network

Enable VLAN Tunneling

Advanced Network Settings

External Uplink Ports

Port	Port Role	Port Status	Connector Type	Connected To	PID	Speed/Duplex	Action
Connection Mode: <div>Auto</div> LACP Timer: <div>Domain Default, Short (1 sec)</div>							
<div>Fallover</div> <div>Short (1 sec)</div> <div>Long (30 sec)</div>							
Add Port							
RemoteEnclosure1	Bay 1	Port X1 (LINKED)					
Enclosure1	Bay 2	Port X2 (LINKED)					
	Bay 3	Port X3 (LINKED)					
	Bay 4	Port X4 (LINKED)					

Figure 7: Blade server profile placement

FCoE HBA Connections

Port	Connect	FC SAN / FCoE Network Name	Type	WWPN	MAC	Action
1	Bay 1	Unassigned	RED	VC-DEFINED	VC-DEFINED	
2	Bay 2	Unassigned	RED	VC-DEFINED	VC-DEFINED	Delete

+ Add

Fibre Channel Boot Parameters

Assign Profile to Server Bay

Enclosure	Server
	Unassigned
	Unassigned
	RemoteEnclosure1
	Enclosure1

Bay 1 (HP ProLiant BL420c Gen8)

Bay 2 (HP ProLiant BL460c Gen8)

Bay 3 (HP ProLiant BL460c G7)

Bay 4 (HP ProLiant BL465c Gen8)

Bay 5 (HP ProLiant BL685c G7)

Bay 6 (HP ProLiant BL680c Gen8)

Bay 7 (COVERED)

Bay 8 (HP ProLiant BL680c G7)

Bay 9 (HP ProLiant BL420c Gen8)

Bay 10 (HP ProLiant BL460c Gen8)

Bay 11 (HP ProLiant BL460c G7)

Bay 12 (HP ProLiant BL465c Gen8)

Bay 13 (COVERED)

Bay 14 (COVERED)

Bay 15 (COVERED)

Status

Power

UID

Apply

Apply & Close

Cancel

Virtual Connect Fibre Channel

When VC FC, VC Flex-10/10D or VC FlexFabric is implemented in a multi-enclosure domain, all enclosures must have identical VC-FC, VC Flex-10/10D and VC FlexFabric module placement and FC or FCoE cabling. VC-FC does not support the concept of Multi-Enclosure stacking. When a VC Fibre Channel (FC) Fabric is created, its configuration is automatically replicated to the remote enclosures. For example, if you create a VC FC fabric with an uplink on the module in Bay 5 of the base enclosure, this configuration will be replicated to the remote enclosures as shown in the graphic below, using the same port on other modules in bay 5 of the remote enclosures. This helps to ensure that the profile mobility is maintained across enclosures, so that when a profile is moved from one enclosure to another within the stack, SAN connectivity is preserved.

Figure 8: VC FC SAN Fabric view

Edit SAN Fabric: SAN_A_R2

Fabric

Fabric Name	Status	Fabric Type	Login Re-Distribution	Configured Speed
SAN_A_R2	✓	FabricAttach	MANUAL	Auto

Enclosure Uplink Ports

Uplink Port	Enclosure	Bay	Port Status	Connected To	Action
Uplink Po...	Enclosure1	5	✓ 8 Gb	51:08:05:F3:00:11	Delete
	RemoteEnclosure1	5	✓ 8 Gb	51:08:05:F3:00:11	
	RemoteEnclosure2	5	✓ 8 Gb	51:08:05:F3:00:11	
	RemoteEnclosure3	5	✓ 8 Gb	51:08:05:F3:00:11	

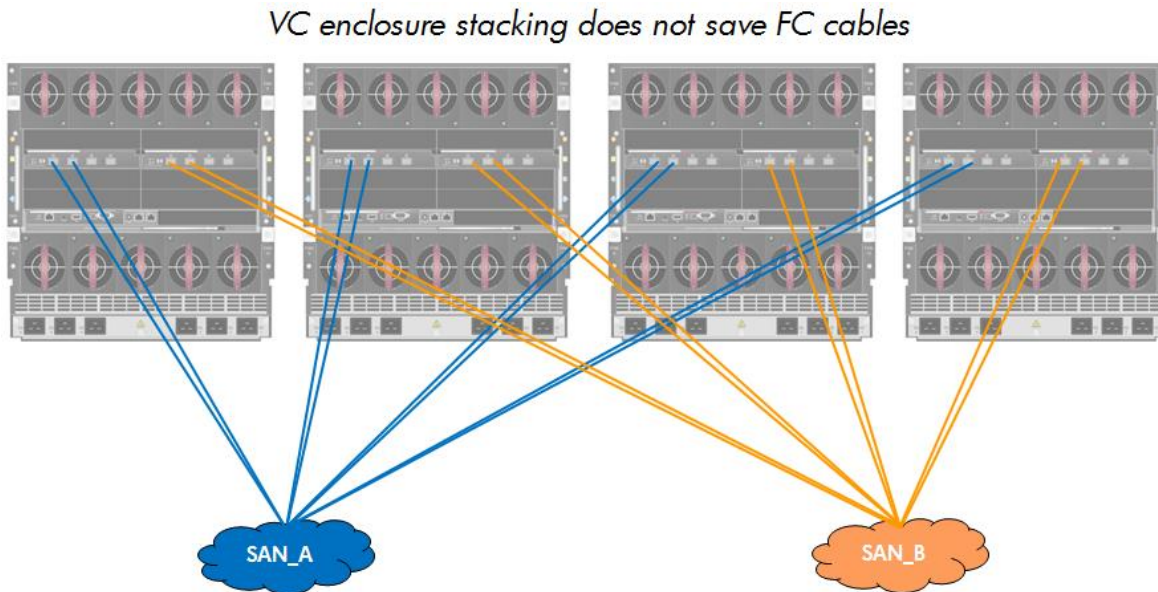
Add Port

Bay 5

Apply

Cancel

Figure 9: Example of VC FC stacking configuration



Multi-Enclosure Stacking External Connection Architectures

This section will outline multiple scenarios for stacking 2, 3 and 4 enclosures to form a Multi-Enclosure Stack. Each example displayed is configured with 4 uplink ports which connect to the external switches.

The Virtual Connect network would be created with an A and B side to allow all links to be in an active state. Blade host operating systems will need to be configured with NIC teaming to provide both path and module redundancy. More physical uplinks could be setup and additional Virtual Connect networks defined to reduce latency and provide more bandwidth to the networking layer, based on needs and application demands.

The following graphics show the physical connections for stacking enclosures that will provide a configuration that is tolerant of any one module or cable failure. These examples utilize the SFP+ DAC (Direct Attached Copper) connection of each Flex-10 module to interconnect the enclosures.



Important: The CX-4 and X1 ports on the VC Flex-10 modules are shared. If an SFP/SFP+ or DAC cable is inserted into X1, the CX-4 port is disabled. CX-4 cables have a distance limitation of 7m for stacking purposes. SFP+ DAC cables are thinner and more flexible than CX-4 cables, and all SFP+ DAC cables (passive or active) listed in the Quickspecs of the VC module can be used for stacking.



NOTE: CX-4 and SFP+ DAC cables offer a cost effective solution for stacking. Other cabling options supported by Virtual Connect can still be used and are supported.

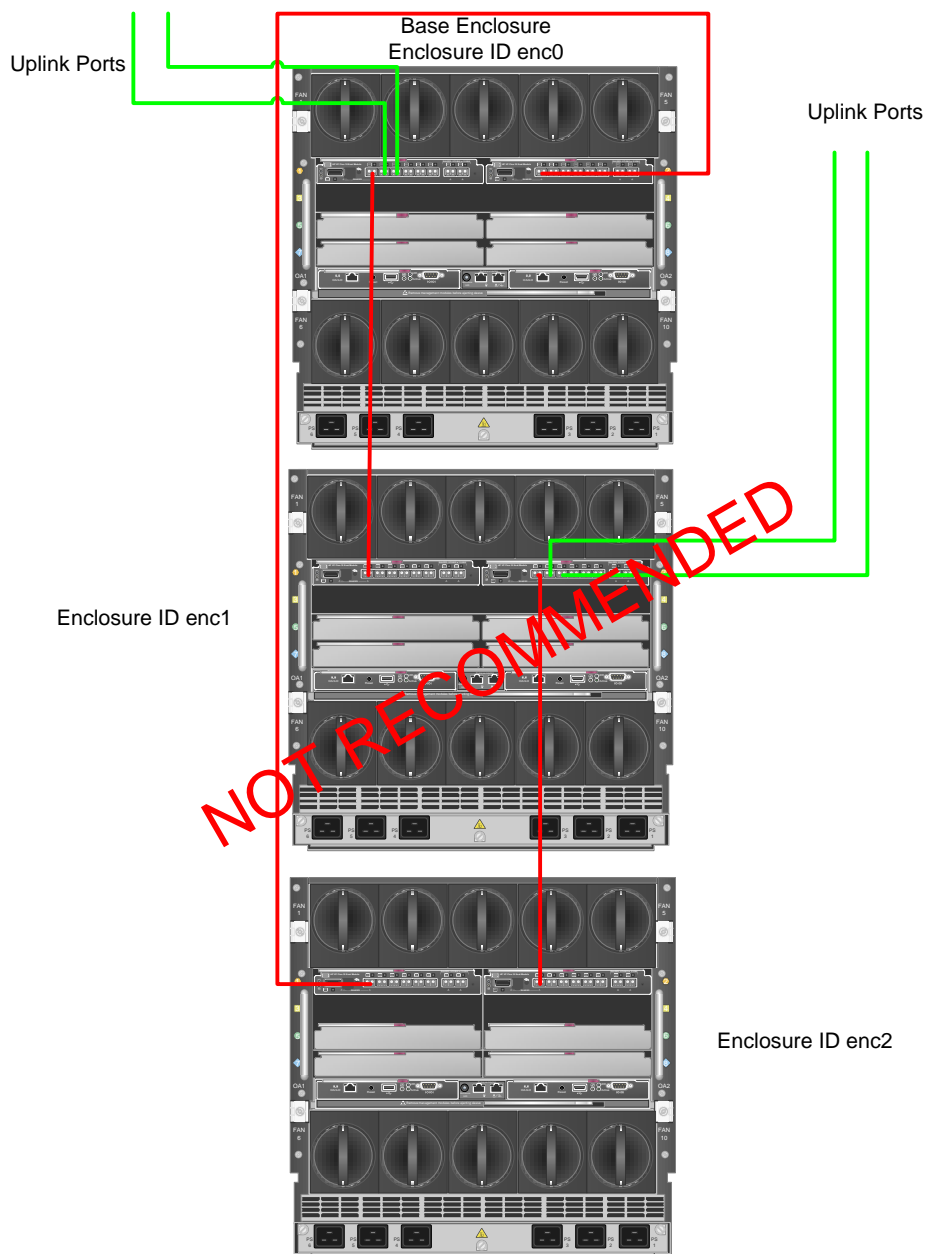
It is important to note that the following are only recommended examples. It does not pretend to be an exhaustive list of all supported stacking configurations. The basic rules for a supported stacking configuration are listed in the “HP Virtual Connect for c-Class BladeSystem Setup and Installation Guide”. The main rule is that all Virtual Connect Ethernet

Modules (including FlexFabric Modules) must be interconnected via stacking links. It is also highly recommended to have at least one level of redundancy in the stacking links, meaning that you could lose any one stacking cable and still have connectivity from any VC Ethernet module to any other VC Ethernet module in the domain over the remaining stacking links.

The following examples represent a “dual-ring” topology: the VC Ethernet modules are connected as if they formed 2 rings, one with the left-side modules, one with the right-side modules. Each ring follows the rules laid out above (connectivity from any module to any other even after failure of one stacking cable) independently of the other.

Virtual Connect firmware upgrades

The stacking topology is important in the scenario of a VC firmware upgrade: by default the Virtual Connect Support Utility (VCSU) which is used for firmware upgrades activates the new firmware on all the modules on one side in parallel by rebooting them, and then all the modules on the other side after the first side have come back up. Consider a single-ring topology such as this picture with 3 enclosures which has been recommended in the past:



When the modules on the left-hand side (the odd side) of enc1 and enc2 reboot to activate the new firmware, the servers in enc1 and enc2 would be isolated from enc0 and would lose network connectivity through the enc0 uplinks. It is still possible and supported to use such a topology if you are willing to incur this connectivity loss during a firmware upgrade or if you are willing to use the command-line options of VCSU to change the order in which the modules are rebooted to activate the new firmware. The following describes the default behavior of VCSU 1.7.0 (or later). A manual activation process (using the `-oe manual` option on the VCSU update command) would best mimic this procedure.

1. Reset the module in the Base Enclosure (enc0) that is identified as the Backup Module (the VCSU healthcheck action can be used to determine which module is Primary and which one is Backup)
2. Wait for checkpoint to complete. You will see this within VCM or you can run a VCSU Healthcheck to see that the Domain Configuration is "In Sync".
3. Force Failover of VCM from Primary to Backup module. This can be done by logging in to VCM and choosing "Reset Virtual Connect Manager" on the Tools pull-down menu and check the box to Force failover.
4. Wait for the Backup Module to become Primary and checkpoint to complete. (Use GUI or Healthcheck)
5. Reset the module in the Base Enclosure (enc0) that was the original Primary, but is the current Backup.
6. Wait for checkpoint to complete (use GUI or Healthcheck)
7. Reset the remaining modules on the odd side.
8. Wait for the odd-side modules to come back up.
9. Reset the remaining modules on the even side.

Note that all the modules in a Multi-Enclosure domain must be running the same version of the firmware, it is not supported to run different versions of the firmware in different enclosures that belong to the same domain, beyond a reasonable time needed to activate the new firmware on all the modules in the domain.

Note when using VCSU to upgrade VC firmware in a ME stacked domain, ensure that a common OA login account (with synchronized passwords) is utilized for all enclosures in the stack.



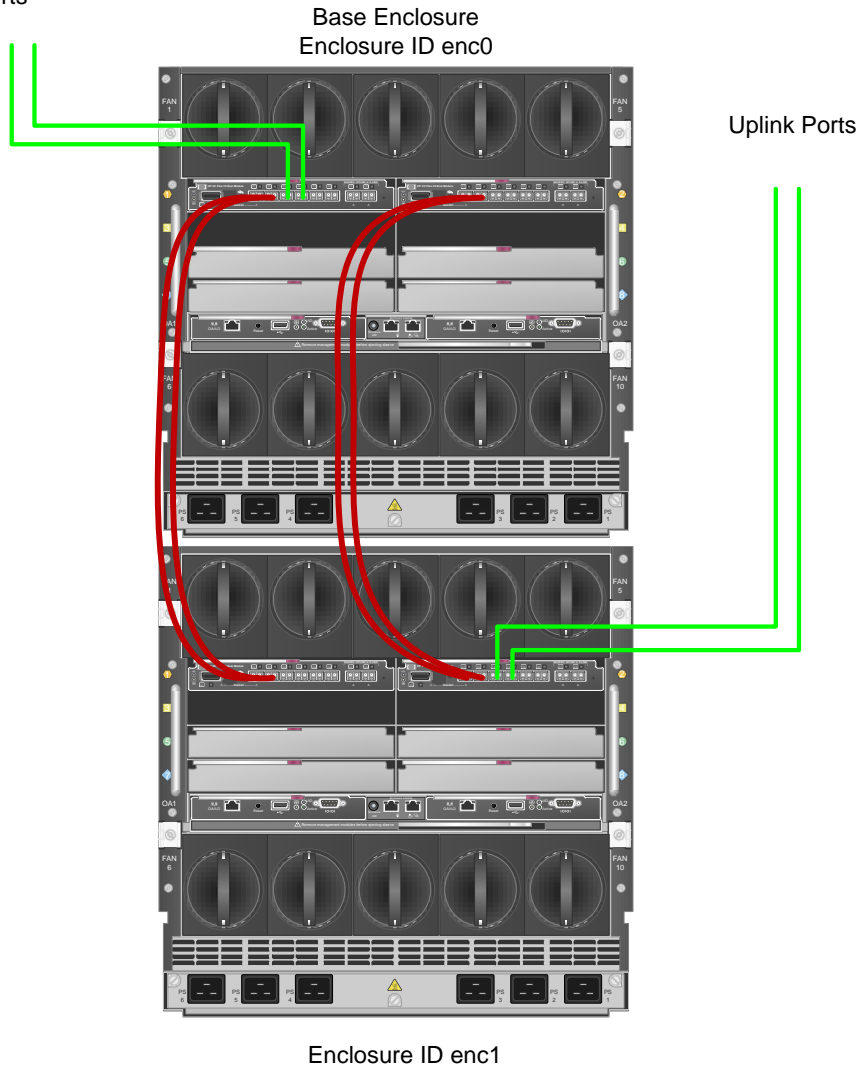
NOTE: When considering an upgrade for Virtual Connect firmware, you should consider upgrades for other components of the BladeSystem c-Class infrastructure. HP recommends the use of Service Packs for ProLiant (SPP) which consist of a comprehensive bundle of firmware and drivers that have been thoroughly tested together. For more information go to <http://www.hp.com/go/spp>

Dual Ring 2 Enclosures

Note that uplinks are connected to alternate enclosures/VC modules (left side/right side). In addition to the external stacking cables (red lines) seen in the following graphic, the VC modules are also cross connected internally, creating a L2 ring topology within Virtual Connect.

This configuration provides the ability to sustain a chassis, module, uplink or upstream switch failure/outage and still maintain connectivity to the network. If additional bandwidth is required, uplinks could be added to these VC networks, or additional VC networks could be configured.

Uplink Ports

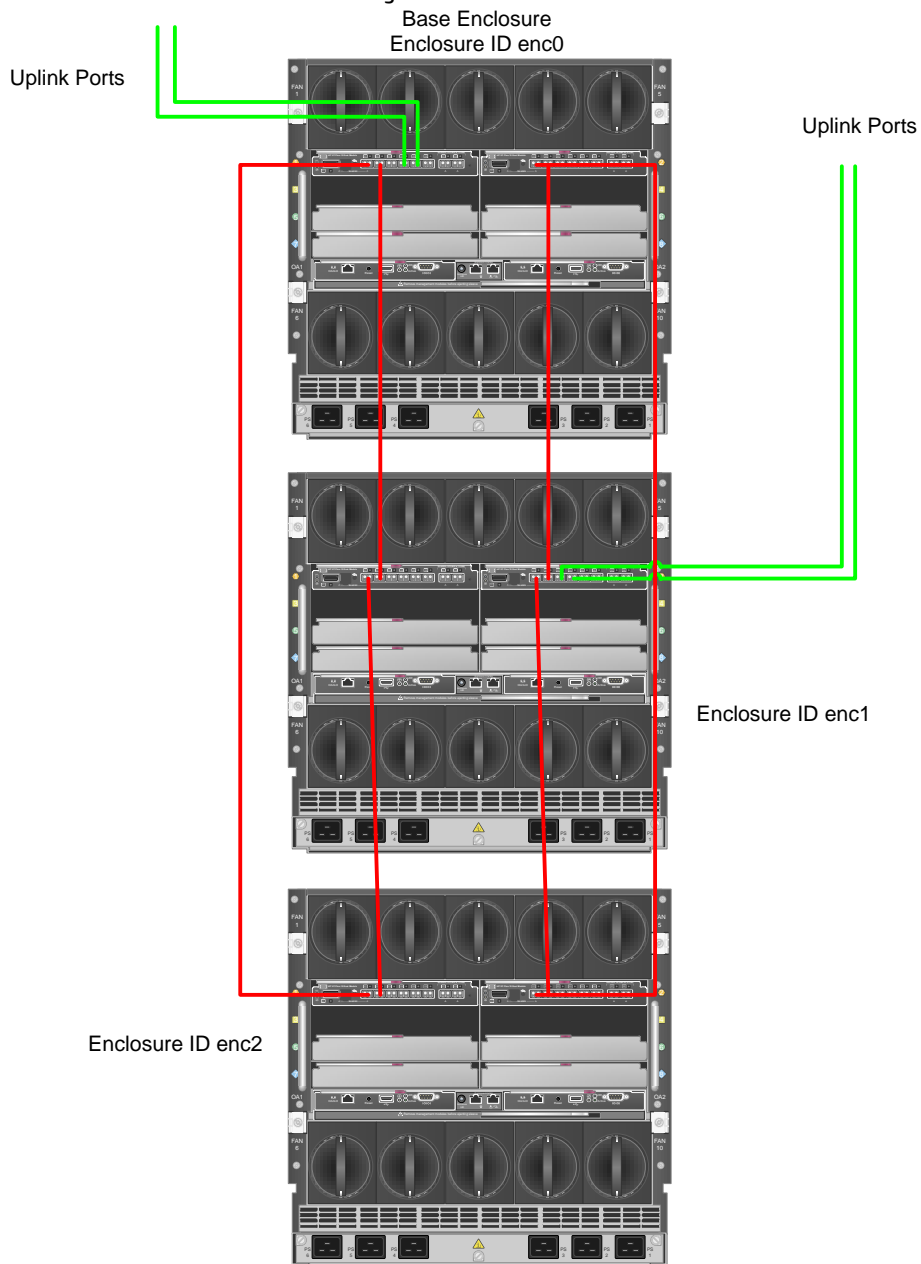


Dual Ring 3 Enclosures

Note that uplinks are connected to alternate enclosures/VC modules (left side/right side). In addition to the external stacking cables (red lines) seen in the following graphic, the VC modules are also cross connected internally, creating a L2 ring topology within Virtual Connect.

Communications from Enclosure 3 would be routed through either enclosure 1 or two, depending on how the VC networks are assigned to the server profiles.

This configuration provides the ability to sustain a chassis, module, uplink or upstream switch failure/outage and still maintain connectivity to the network. If additional bandwidth is required, uplinks could be added to these VC networks, or additional VC networks could be configured.

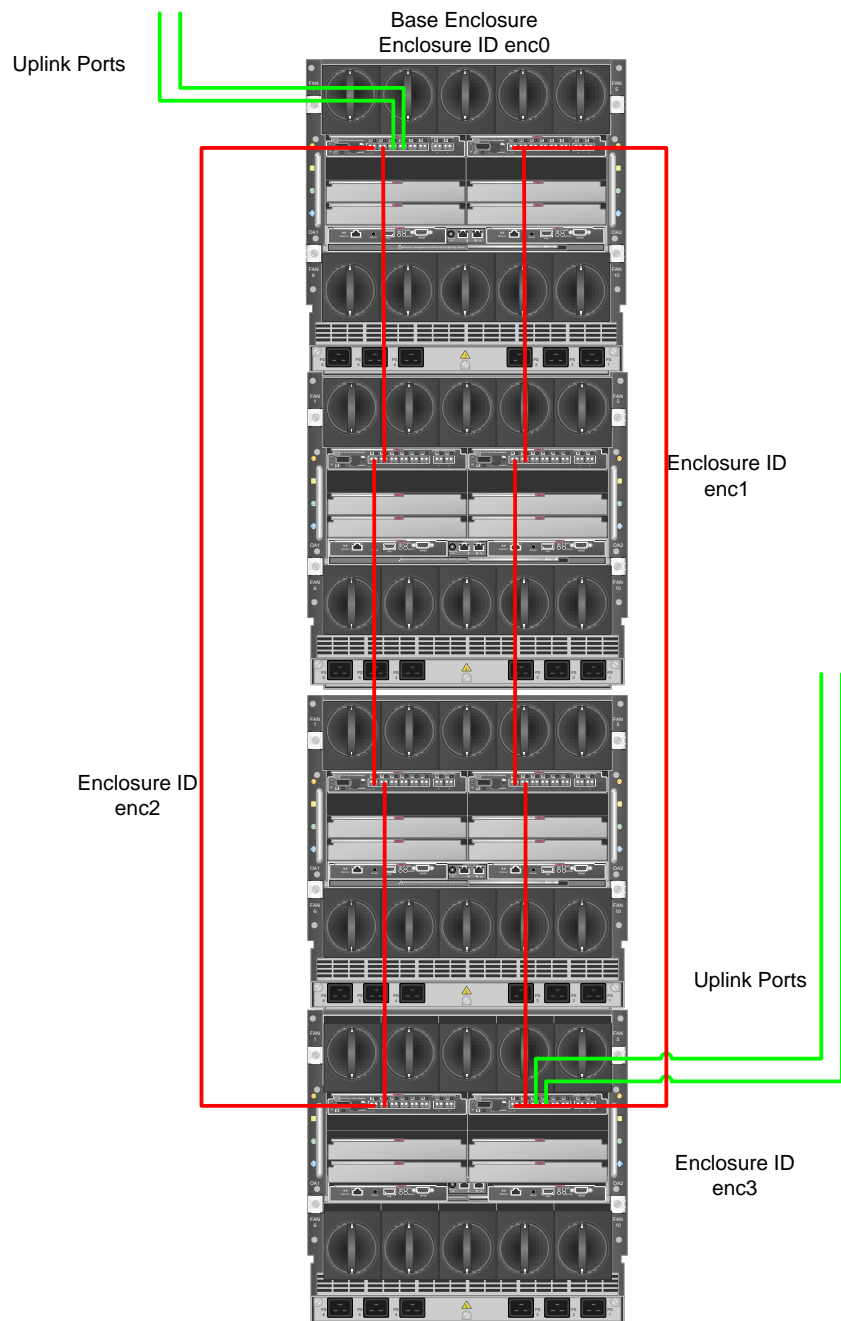


Dual Ring 4 Enclosures

Note that uplinks are connected to alternate enclosures/VC modules (left side/right side). In addition to the external stacking cables (red lines) seen in the following graphic, the VC modules are also cross connected internally, creating a L2 ring topology within Virtual Connect.

Communications from Enclosure 3 and 4 would be routed through either enclosure 1 or two, depending on how the VC networks are assigned to the server profiles.

This configuration provides the ability to sustain a chassis, module, uplink or upstream switch failure/outage and still maintain connectivity to the network. If additional bandwidth is required, uplinks could be added to these VC networks, or additional VC networks could be configured.



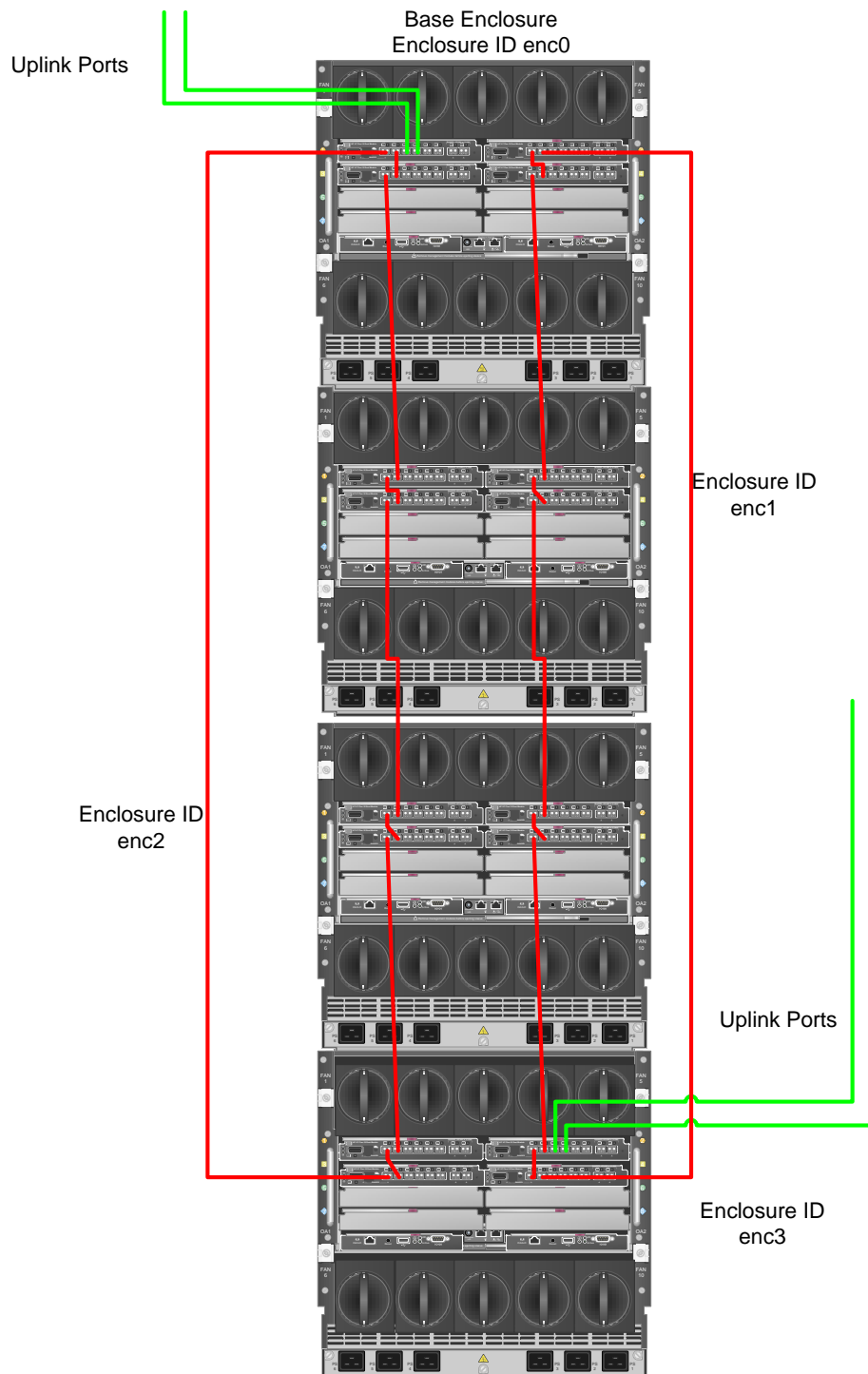
Additional stacking cables may be required or desired for some of the following reasons:

- If you have more than two VC-Enet modules per enclosure.
- If you want redundancy for more than one cable or module failure.
- If you want to minimize latency between a NIC and its uplink by reducing the hop count.
- If you want to increase bandwidth for IP communication between enclosures

Any of these reasons may lead you to add more physical connections in your stacking environment. You can add additional physical links between VC modules where the first stacking link is located. Virtual Connect will use LACP to form a Link Aggregation Group (LAG) with each stack link member terminating to the same VC-Ethernet modules.

None of the pictures above show Virtual Connect Fibre Channel modules or Fibre Channel connections since these are irrelevant to the stacking cables layout. Remember that all enclosures in a domain must have the same Virtual Connect Fibre Channel (and/or FlexFabric) module configuration and the same Fibre Channel uplinks.

Even if the examples above show only 2 Virtual Connect modules per enclosure, the same concepts would apply with more modules. Here is an example with 4 enclosures and 4 modules per enclosure for a total of 16 modules which would be the maximum supported in a domain:



Choosing where to place uplink cables

There is no specific requirement on where you put uplink cables (the green cables in the example pictures above that connect the VC Domain to upstream switches). It is recommended that you use uplink ports in odd-numbered bays (left side) and even-numbered bays (right side) for redundancy to ensure you retain connectivity during an upgrade where all the modules in the odd-numbered bays reboot to start using a new firmware.

It is customary to put uplink cables on the top-most and bottom-most enclosures as shown in most of the example pictures above. You can also put uplink cables on the first and second enclosures as shown in the 3-enclosure example picture. This has one advantage when you are also running VCEM in the environment: this 3-enclosure domain could coexist in a VCEM domain group with a 2-enclosure domain precisely because the 3rd enclosure does not have any Ethernet uplink, which makes VCEM consider this enclosure as “optional” in the domain group configuration.

You can also put uplinks on more than 2 enclosures, however remember that one of the main benefits of multi-enclosure stacking is to save on the number of uplink cables and ports.

Consolidating Existing VC Domains and Enclosures

This section will outline an example to consolidate multiple independent VC Domains into a ME Stack with one VC domain.

This configuration is more complex as you will be dealing with existing VC domains, VC network uplinks and host configurations. This configuration will need to have some scheduled downtime allotted to make the required changes to the Virtual Connect infrastructure.



Important: ME Stacking will not support “merging” of existing VC domains, remote enclosure VC domains must be deleted in order for stacking to be successful.

Enclosures being imported must have no previous Virtual Connect domains configured. The Base enclosure becomes the only VC domain for the entire ME Stack.

This is an example set of steps for ‘importing’ a previously configured remote Virtual Connect domain and what you have to plan for.

- Backup ALL VC domains
- Create a VC CLI script to recreate the Profiles for all the blades in the remote enclosures: do not assign them to server bays at this time. The new profile MAC and WWPN's will be created with the HP Predefined managed range of the base enclosure. If you are using Virtual Connect firmware 3.30 or later, you can use the CLI command “show config” to create a script that can be edited and used to recreate these profiles.
- Decide on new stack uplink port strategy – will all the existing uplink ports be used in the new stacked domain or will additional be added?
- Decide on new naming convention for remote enclosure VC network uplink ports (if the same name as the base enclosure)
- Import the remote enclosures through the CLI or GUI interface.
- Take the new WWPN's created in the new unassigned profiles and have them zoned and presented in parallel with the existing WWPN's for storage. Once the enclosures are stacked and the new profiles assigned to the remote servers, remove the old WWPN's from the storage infrastructure.
- If Needed – Create a CLI script to define new VC Networks using the remote enclosure uplink ports.
- Create a CLI script to assign the new profiles to the correct blade server bays.

Removing an enclosure from a multi-enclosure domain

You can remove an enclosure from a multi-enclosure domain as long as it is not the base enclosure with the VC modules that manage the domain. In order to do so, you must first unassign or move all the server profiles that were assigned to server bays in the enclosure you want to remove. You must also make sure that no network, shared uplink set or port monitor use any uplink port on the VC modules in that enclosure. You can then go to Domain Settings in Virtual Connect Manager and click Delete in the Action column of the row displaying the enclosure you want to remove from the domain. You can also select the enclosure you want to remove, right-click and choose delete from the pop-up menu. After the enclosure is removed, its Virtual Connect modules will be back to unconfigured mode and you will have to create another VC domain in that enclosure (or import it into another multi-enclosure domain). This operation has no effect on the base enclosure or the other remote enclosures of the domain, they will remain up and running normally.

HP Virtual Connect Manager

User: Administrator
Home | Sign Out

DefineConfigureToolsHelp

Domain Status

Domain StatusView Legend...

000000

Find Configuration Items.

Domain Settings

ConfigurationIP AddressEnclosuresBackup/RestoreStorage Management Credentials

ConfigurationIP AddressEnclosuresBackup/RestoreStorage Management CredentialsSNMP ConfigurationSystem LogStacking LinksUsers/AuthenticationEthernetFibre ChannelServer Serial NumbersConnectionsServer ProfilesEthernet NetworksShared Uplink SetsSAN FabricsNetwork Access Groups

Domain Settings

ConfigurationIP AddressEnclosuresBackup/RestoreStorage Management Credentials

Enclosure ID	Enclosure Name	Enclosure Serial Number	Rack Name	OA IP Address	Status	Action
enc0	Enclosure1	2UX7340600	Rack1	192.168.6.0	IMPORTED	
enc1	RemoteEnclosure1	2UX7340601	Rack1	192.168.6.12	IMPORTED	Delete
enc2	RemoteEnclosure2	2UX7340602	Rack1	192.168.6.21	IMPORTED	Delete
enc3	RemoteEnclosure3	2UX7340603	Rack1	192.168.6.31	IMPORTED	Delete

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