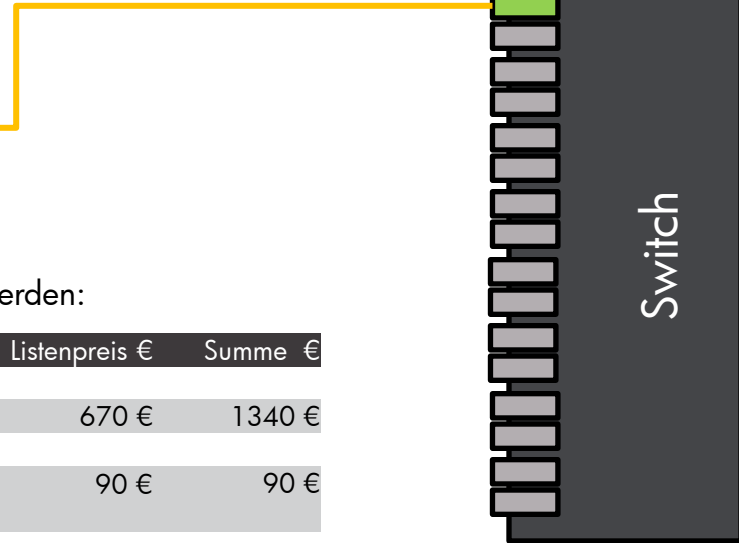
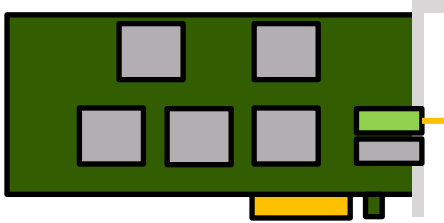


# HP 10 Gb Netzwerk



# 10Gb Netzwerk

## Industrie Standard Server



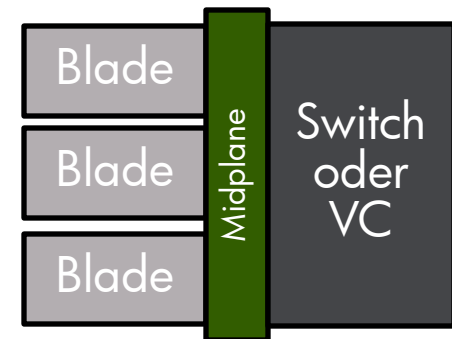
Für eine 10Gb LAN Verbindung zwischen Server und Switch werden:

Menge	Produkt-Nr	Beschreibung	Listenpreis €	Summe €
2x	455883-B21	10Gb Short Range Small Form-Factor Pluggable	670 €	1340 €
1x	AJ837A	HP 15m Multi-mode OM3 50/125um LC/LC 8Gb FC and 10GbE Laser-enhanced Cable 1 Pk	90 €	90 €

## Blade Server

Bei den HP BladeSystemen **entfallen** diese Kosten, da die Midplane hier die Verbindung zwischen Server und Switch ist.

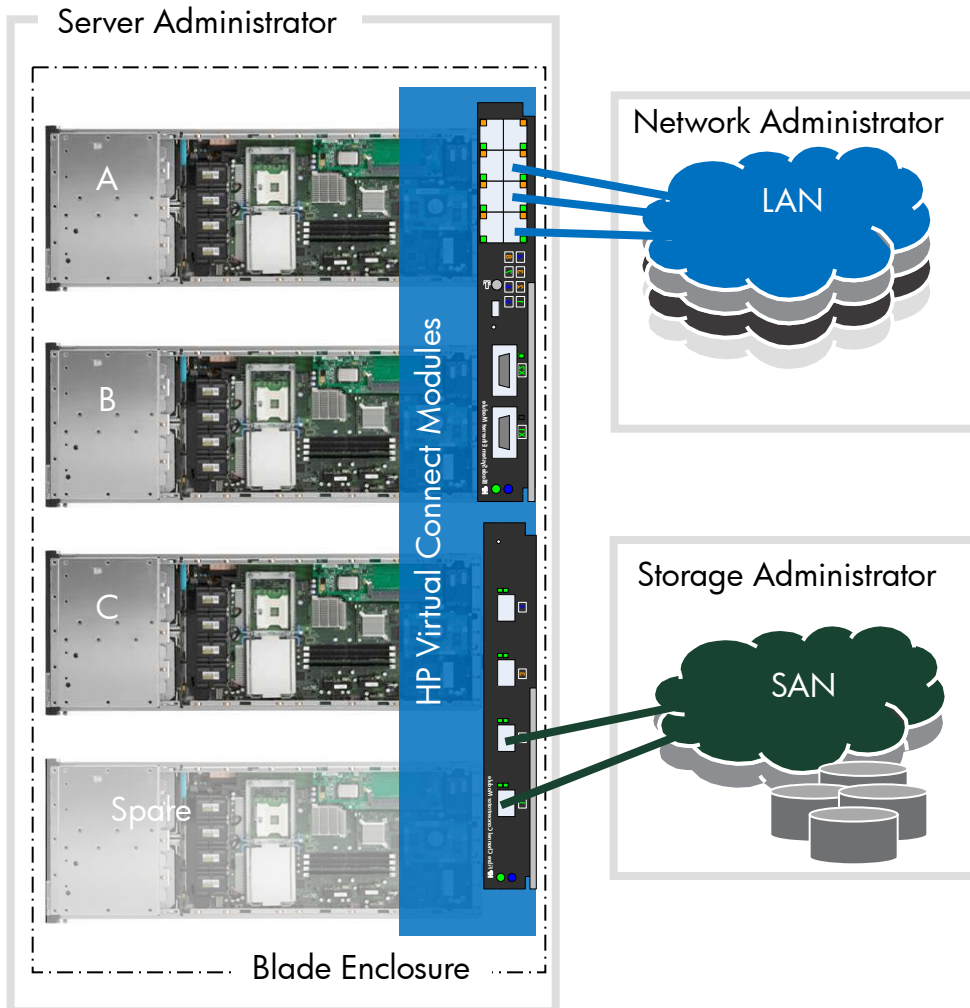
Ersparnis bei 32 LAN-Ports: 64 SFPs und 32 Kabel = 45.760 €



# Virtual Connect



# HP Virtual Connect



- Reduces cables without adding switches to manage
- No new FC domains
- Maintains end-to-end connections of your favorite brands (Cisco, Nortel, Brocade, McData, etc.)
- Cleanly separates Server from LAN & SAN
- Relieves LAN & SAN admins from server maintenance
- Servers are Change-Ready add, move, replace, upgrade without affecting LAN or SAN
  - MAC & WWN are locally administered so LAN & SAN connections stay constant
- Change servers when your business needs it, not when you can fit it into everyone's calendar

# HP Virtual Connect - Domain

The image displays two overlapping screenshots of the HP Virtual Connect Manager web interface, accessed via Microsoft Internet Explorer. The top screenshot shows the 'Ethernet Settings' page, and the bottom screenshot shows the 'Fibre Channel Settings' page.

**HP Virtual Connect Manager - Ethernet Settings**

Domain Status: 0 0 0 0 0

HP Virtual Connect can assign the MAC addresses used by server blades within the Virtual Connect Domain.

**Server Blade MAC Addresses**

Use Virtual Connect assigned MAC Addresses  
 Use the static, factory-default MAC Addresses

**Select Type and Range of MAC Addresses**

Type: User-defined

MAC Start	MAC End
00-17-A4-77-00-00	00-17-A4-77-03-FF

Ensure that each Virtual Connect domain uses a unique range of MAC addresses.  
This setting can not be changed after server profiles are defined.

**HP Virtual Connect Manager - Fibre Channel Settings**

Domain Status: 0 0 0 0 0

HP Virtual Connect can assign Fibre Channel World-wide Names (WWNs) used by server blade Fibre Channel host bus adapters within the Virtual Connect Domain.

By configuring Virtual Connect to assign WWNs in server blades, a system can maintain a consistent storage identity (WWNs) even when the underlying server hardware has been changed. This allows server blades to be replaced without affecting the external Fibre Channel SAN administration.

**Server Blade WWN Addresses**

Use Virtual Connect assigned WWN Addresses  
 Use the static, factory-default WWN Addresses

**Select range of WWN Addresses**

Type: User-defined

WWN Start	WWN End
50:06:0B:00:00:C2:62:00	50:06:0B:00:00:C2:65:FF

Ensure that each VC domain uses a unique range of world-wide names.  
This setting can not be changed after server profiles are defined.

Buttons: Clear, Apply, Cancel

# HP Virtual Connect - Network

The screenshot displays the HP Virtual Connect Manager web interface in Microsoft Internet Explorer. The browser address bar shows `https://192.168.1.50/html/index.html`. The page title is "HP Virtual Connect Manager". The user is logged in as "admin".

The main content area is titled "Edit Ethernet Network: 192-Net". It shows the following configuration:

- Network Name:** 192-Net
- Smart Link:**
- Status:**  OK  Disabled
- State:** Enabled

Below this, the "External Uplink Ports" section is visible. It includes a checkbox for "Use Shared Uplink Set" (unchecked) and a table of uplink ports:

Port	Port Role	Port Status	Connector Type	Connected to	PID	Speed/Duplex	Delete
c-class1: Bay 1: Port 1	NA	<input checked="" type="checkbox"/> OK	1 Gb RJ45	00:16:35:b4:67:40 (17)	<input type="radio"/>	Auto	X
c-class1: Bay 2: Port 1	NA	<input checked="" type="checkbox"/> OK	1 Gb RJ45	00:16:35:b4:67:40 (18)	<input type="radio"/>	Auto	X

At the bottom of the table, there is an "Add Port" button and a "Connection Mode" dropdown set to "Auto".

The left sidebar contains a navigation tree with categories like "Domain Settings", "Ethernet Settings", "Server Profiles", and "Hardware Overview". The "Ethernet Networks" section is expanded, showing "192-Net" selected.

The bottom of the browser window shows the Windows taskbar with the Start button, taskbar icons, and system tray showing the time as 2:35 PM.



# HP Virtual Connect - SAN

The screenshot displays the HP Virtual Connect Manager web interface in a Microsoft Internet Explorer browser window. The browser's address bar shows the URL `https://192.168.1.50/html/index.html`. The page title is "HP Virtual Connect Manager" and the user is logged in as "admin".

The main content area is titled "Bay 5 (HP 4Gb VC-FC Module)" and has two tabs: "Bay Summary" and "Configuration". The "Configuration" tab is active, showing the "Configure SAN" section. This section contains the following fields:

- Fabric Name:
- Uplink Ports Used:
- Uplink Port Speed:

At the bottom of the configuration section are three buttons: "Clear", "Apply", and "Cancel".

The left sidebar contains a navigation tree with the following categories:

- Domain Status (0 errors, 0 warnings, 0 alerts, 0 info)
- Elements and Events
  - HP Virtual Connect Home
    - Domain Settings
      - Domain Configuration
      - Domain IP Address
      - Backup/Restore
      - Firmware Management
      - Local Users
      - Directory Settings
    - Certificates/Authentications
      - SNMP
      - System Log
    - Ethernet Settings
    - Fibre Channel Settings
      - Stacking Links
    - Server Profiles
      - Assigned Server Profiles
        - BL860c\_iW2k3EE
        - BL480c
          - VMware\_1
          - VMware\_2
          - BFS\_Intel\_QLogic
          - BL460
      - Ethernet Networks
        - 192-Net
        - HP-Net
        - Internes\_Netz
        - DL585G2-VMotion
      - FC SAN Fabrics
        - SAN\_5
        - SAN\_6
    - Hardware Overview
      - c-class1
        - Interconnect Bays
          - Bay 1 (HP 1/10Gb VC-Enet)
          - Bay 2 (HP 1/10Gb VC-Enet)
          - Bay 5 (HP 4Gb VC-FC Mod)
          - Bay 6 (HP 4Gb VC-FC Mod)
          - Bay 7 (Brocade 4/24 SAN :)



# HP Virtual Connect – Server Profile

The screenshot displays the HP Virtual Connect Manager web interface in Microsoft Internet Explorer. The browser address bar shows the URL `https://192.168.1.50/html/index.html`. The page title is "HP Virtual Connect Manager".

The interface is divided into several sections:

- Domain Status:** Shows a green checkmark and "Domain Status 0 0 0 0 0".
- Elements and Events:** A navigation tree on the left includes:
  - HP Virtual Connect Home
  - Domain Settings (Domain Configuration, Domain IP Address, Backup/Restore, Firmware Management, Local Users, Directory Settings)
  - Certificates/Authentications (SNMP, System Log)
  - Ethernet Settings
  - Fibre Channel Settings (Stacking Links)
  - Server Profiles (Assigned Server Profiles: BL860c\_V2i3EE, BL480c, VMware\_1, VMware\_2, BFS\_Intel\_GLLogic, BL460)
  - Ethernet Networks (192-Net, HP-Net, Internes\_Netz, DL585G2-VMotion)
  - FC SAN Fabrics (SAN\_5, SAN\_6)
  - Hardware Overview (c-class1, Interconnect Bays: Bay 1-7)
- Edit Server Profile: BL460:**
  - Profile:** Profile Name: BL460, Status: OK.
  - Ethernet Network Connections (Physical ports):**

Port	Network Name	PXE	MAC	Delete
1	192-Net	OK	00-17-A4-77-00-DC	X
2	192-Net	OK	00-17-A4-77-00-0E	X
  - FC SAN Connections (Physical ports):**

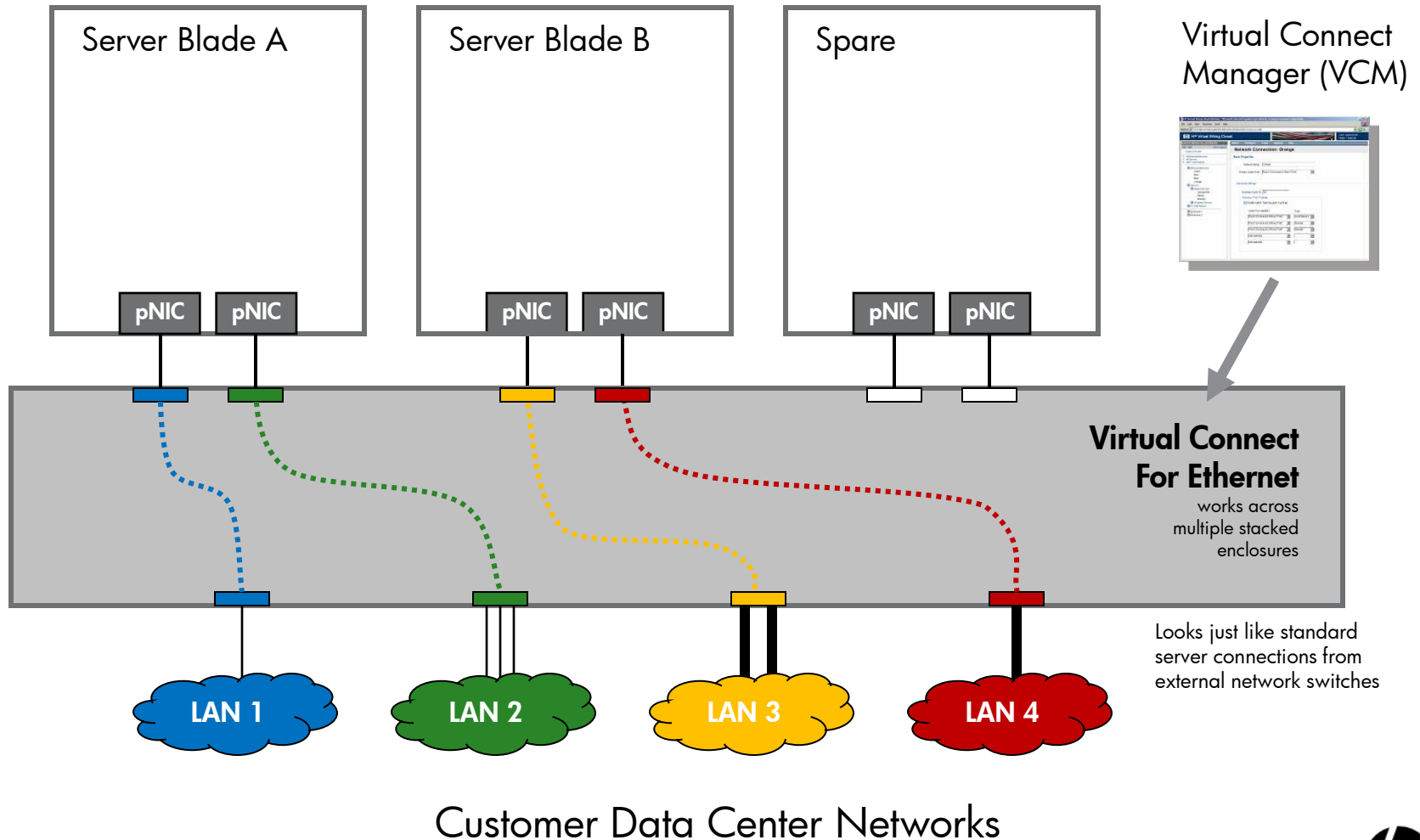
Port	Connected To	FC SAN Name	Status	Port Speed	WWPN
1	Bay 5	Unassigned	OK	Disabled	50:06:0B:00:00:C2:62:08
2	Bay 6	Unassigned	OK	Disabled	50:06:0B:00:00:C2:62:0A
  - Assign Profile to Server Bay:** A dropdown menu is open, showing options: Unassigned, Bay 2 (ProLiant BL460c G1), Bay 4 (Empty), Bay 9 (Empty), Bay 10 (Empty), Bay 11 (Empty), Bay 12 (Empty), Bay 13 (Covered), Bay 14 (Covered), Bay 15 (Covered), Bay 16 (Covered). The "c-class1" option is selected.





# HP Virtual Connect Manager

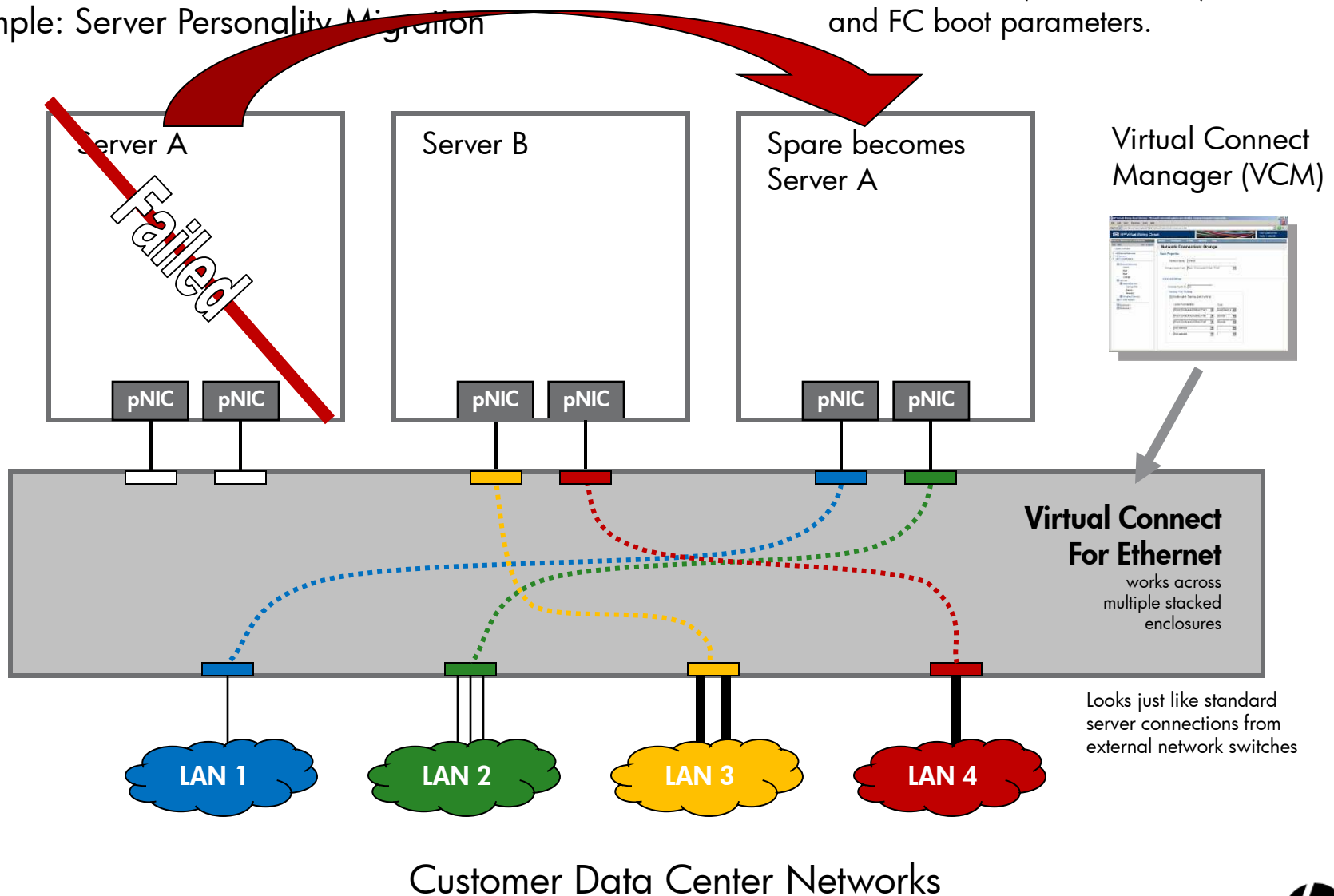
Example: Server Personality Migration



# HP Virtual Connect Manager

Example: Server Personality Migration

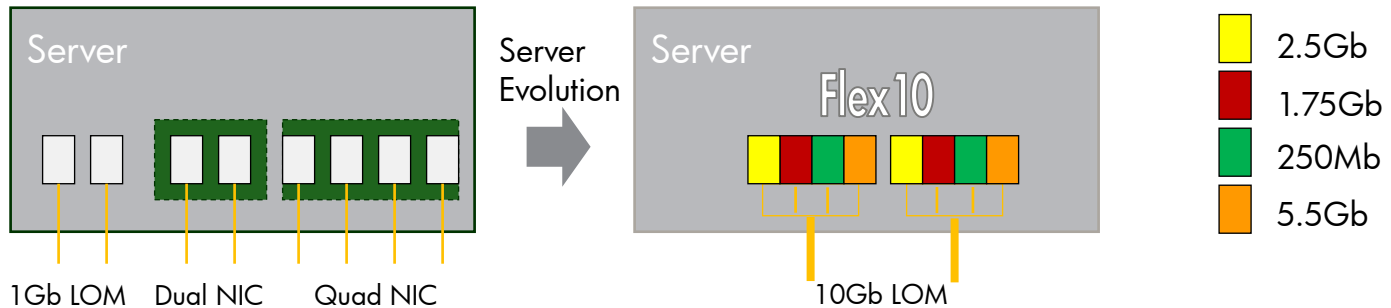
Move Ethernet MACs, FC WWNs, and FC boot parameters.



# HP Flex-10 Technologie

- Intelligente Netzwerkkarte Flex-10 für HP BladeSysteme

- eine 10 Gb Leitung kann in vier physikalisch getrennte Verbindung aufgeteilt werden
- es werden nur 2 Flex-10 Virtual Connect Interconnects benötigt



Interconnect Modules

1Gb Switch	1Gb Switch
1Gb Switch	1Gb Switch
1Gb Switch	1Gb Switch
1Gb Switch	1Gb Switch

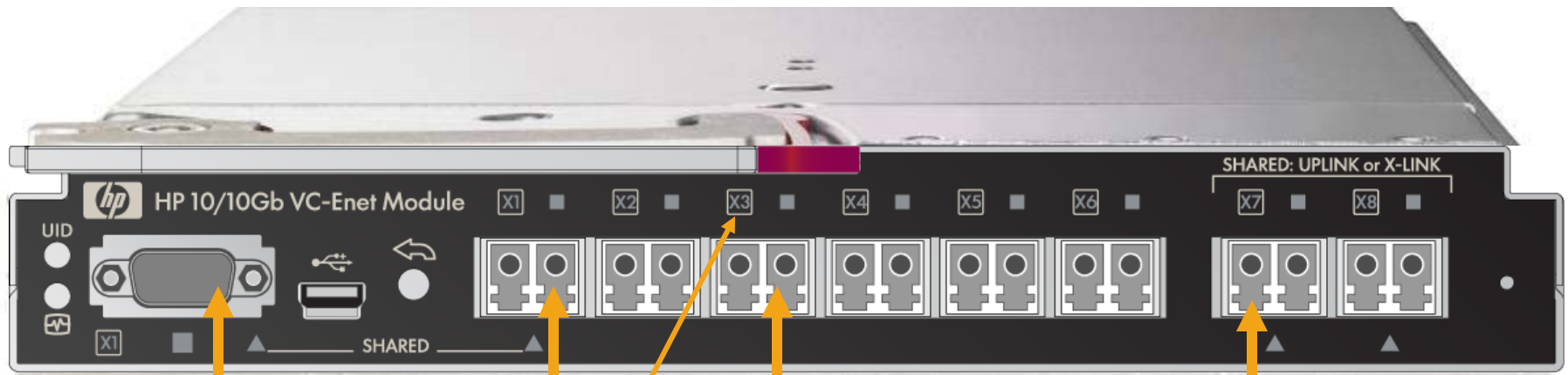
Interconnect Modules

10Gb Flex-10	10Gb Flex-10

~600 Watt/h  
Stromersparnis

Cisco 3120  
47.480 € bis 72.320 €      Ersparnis ~70%      HP Flex-10  
21.600 €

# HP Virtual Connect Flex-10 10Gb Ethernet Module



1x 10GBASE-CX4 Ethernet or  
1x SFP+ module (X1)

5x SFP+ modules (X2-6) 2x Crosslinks (midplane)  
(1GbE or 10GbE) or  
2x SFP+ module (X7-8)

## Port Number & Status Indicators

Indicates whether a data center link (green),  
stacking link (amber), or highlighted port (blue).



# HP Virtual Connect 8Gb 24 Port FC Module

**MidPlane**

16x 8Gb FC – Connects to one HBA port in each HH blade server bay  
Mgmt Interfaces to Onboard Administrator



SFP+ Transceivers  
Qty 2 Included

Port LEDs  
Link and Activity

Module LEDs  
Health and UID

Port Number & Status Indicators  
Indicates whether a port is configured (green)  
or highlighted (blue).

8x 2/4/8 Gb FC  
Connects to data center Fibre  
Channel switches.

# HP Virtual Connect FlexFabric



# HP Virtual Connect Portfolio

4.800.000 VC ports shipped



Basic Ethernet and Fibre Channel connectivity

Virtual Connect 1/10-F Ethernet Module



Consolidate Ethernet and iSCSI storage

Virtual Connect Flex-10 10GbE Module



Converge Ethernet and FC/iSCSI storage

Virtual Connect FlexFabric 10Gb/24-port Module\*



\*c7000 enclosure support only

Virtual Connect 8Gb 24-port Fibre Channel Module

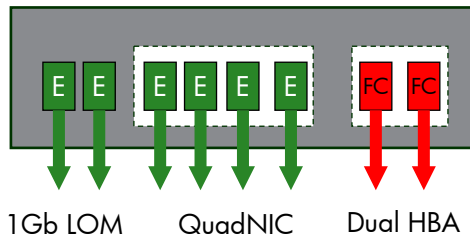


Virtual Connect 8Gb 20-port Fibre Channel Module

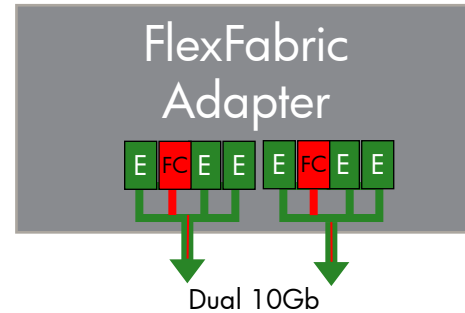


# HP Virtual Connect FlexFabric

## Traditional Blade Server



## HP ProLiant BL G6/G7 Server



## Enclosure Managed Switches

1Gb Switch	1Gb Switch
8Gb FC Switch	8Gb FC Switch
1Gb Switch	1Gb Switch
1Gb Switch	1Gb Switch

## Virtual Connect Modules

VC FlexFabric	VC FlexFabric

FlexFabric LOM configuration (ProLiant G7)

VC FlexFabric	VC FlexFabric

Mezz card configuration (ProLiant G6)

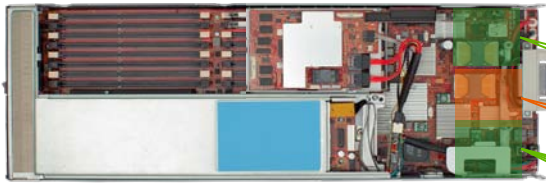


**FCoE/ iSCSI**  
**Enet**



# Netzwerk ohne Virtual Connect FlexFabric

16x Blades mit jeweils 6x LAN und 2x SAN Verbindungen



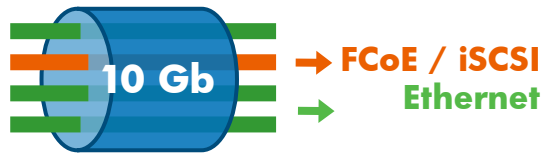
Integerierte Dual-Port Netzwerkkarte	0€
1x NC364 Quad-Port Netzwerkkarte	9.600€
1x QLogic QMH2562 FC-HBA	11.760€
6x CISCO 3120X LAN Switche	60.000€
2x Brocade 8/24c SAN Switche	17.540€
Summe für 16 Blades	98.900€

LAN 

 SAN

# Netzwerk mit Virtual Connect FlexFabric

16x Blades mit jeweils 6x LAN und 2x SAN Verbindungen

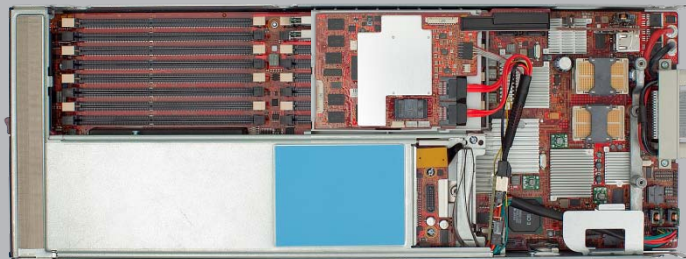


Integrierter Dual-Port FlexFabric 10Gb Adapter	0€
2x HP Virtual Connect FlexFabric 10Gb/24-port Module	32.200€
Summe für 16 Blades	32.200€

LAN / SAN

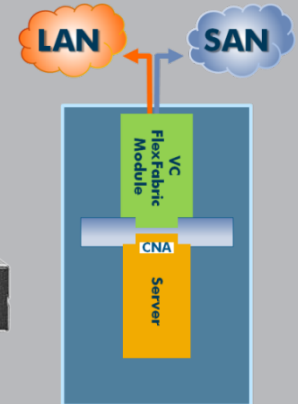
# HP Virtual Connect FlexFabric

HP ProLiant G7 server blades with embedded dual port FlexFabric 10Gb network adapters

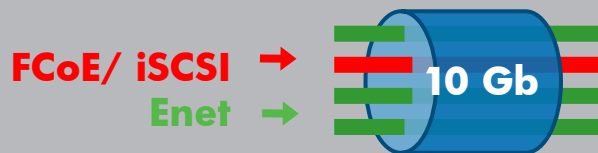


+

HP Virtual Connect FlexFabric 10Gb/24-port Module



## Supported Hardware



	<b>FCoE</b>	<b>iSCSI</b>
VC Modules	VC FlexFabric	VC FlexFabric VC Flex-10
CNA	NC551i NC551m NC553i NC553m	NC551i NC551m NC553i NC553m

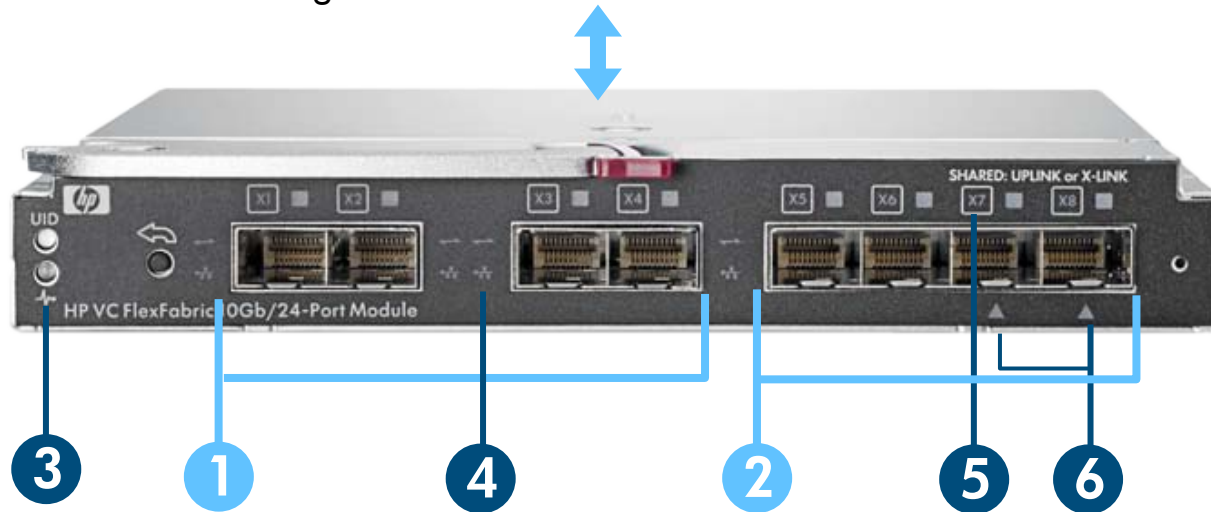
# HP Virtual Connect FlexFabric 10Gb/24-port Module

## Mid-Plane

16x 10 Gb Ethernet—Connects to one CNA in each HH blade server bay

2x 10 Gb—Cross-link between adjacent VC FlexFabric modules

Mgmt Interfaces to Onboard Administrator



Item	Description
1	4x 10 Gb Ethernet or 2/4/8 Gb Fibre Channel (SFP+) – data center or stacking links.
2	4x 10 Gb Ethernet (SFP+) – data center, stacking or shared internal x-connect links (2)
3	UID and module status indicator
4	Fibre Channel or Ethernet indicators
5	Port Number and Status Indicators
6	Up or X-link indicators