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Fiber Optic Virtual Channel Setup Method



Overview

Hyper-V Virtual Fibre Channel in Windows ServerThis article gives a brief overview of Fibre Channel on Hyper-V so you can understand how Understanding Fibr.

Key Takeaways

A virtual Fibre Channel (vFC) channel allows virtual machines or client partitions to access SAN storage directly by using virtualized WWPNs mapped to physical Fibre Channel adapters.Overview

Virtual Fibre Channel enables direct SAN connectivity for virtualized environments. It uses N_Port ID Virtualization (NPIV) to assign multiple virtual WWPNs to a single physical Fibre Channel adapter, allowing multiple VMs or client partitions to communicate with storage independently. vFC is supported on platforms like Hyper-V, Cisco Nexus switches, and IBM Power systems .

Prerequisites
• Physical Fibre Channel adapter with NPIV support and updated drivers .

• SAN infrastructure capable of supporting NPIV, including switches and storage arrays .

• Firmware and driver updates for HBAs, switches, and storage arrays .

• Licensing if required (e.g., Cisco Storage Protocol Services license for Nexus switches), .

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• Virtualization platform: Hyper-V with Windows Server 2012 or later, or IBM Power with VIOS .

Steps for Hyper-V Virtual Fibre Channel

• Discover and classify Fibre Channel fabrics in your VMM storage fabric .

• Create vSANs by grouping host HBA ports; each vSAN can only contain HBAs from a single fabric .

• Create a VM that will access the vFC storage .

• Create zones connecting each VM vHBA to the storage array .

• Create LUNs on the storage array and register them for the VM or host .

• Assign WWNs to each vHBA, either dynamically or statically, and select the classification .

• Deploy the VM or service tier to access the virtual Fibre Channel storage .

Steps for Cisco Nexus Virtual Fibre Channel

• Ensure FCoE-capable Ethernet interfaces are available on the switch .

• Configure the virtual Fibre Channel interface using the same CLI commands as native FC interfaces; vFC supports only F mode .

• Associate the vFC interface with a VSAN; note that features like SAN port channels, VSAN trunking, and buffer-to-buffer credits are not supported .

• Activate the Storage Protocol Services license if required for operational status .

Steps for IBM Power Systems

• Use the Hardware Management Console (HMC) to create virtual Fibre Channel adapters on the VIOS .

• Associate vFC adapters on client partitions with the VIOS adapters .

• Generate unique WWPNs for each client vFC adapter; the HMC handles WWPN assignment .

• Map vFC adapters to physical HBAs using the vfcmap command on VIOS .

• Avoid single points of failure by not connecting multiple vFC adapters from the same client partition to the same physical HBA .

Best Practices

• Use zoning to control access between vFC adapters and storage arrays .

• Monitor firmware and driver versions to maintain compatibility .

• Plan WWPN assignments carefully to avoid conflicts and ensure redundancy .

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• Test connectivity before deploying production workloads to ensure LUNs are accessible. By following these steps, you can successfully configure a virtual Fibre Channel channel that provides VMs or client partitions with direct, high-performance access to SAN storage while maintaining isolation and redundancy.

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