

Virtualization Technology for Core Switches



AI Overview

Core switch virtualization allows multiple physical switches to operate as a single logical switch or to run as virtualized network functions, improving scalability, flexibility, and traffic management in modern data centers.

Overview of Core Switch Virtualization

Core switch virtualization involves abstracting or combining physical switches or implementing software-based network functions to handle traffic traditionally managed by dedicated hardware. This can be achieved through:

- Logical switch aggregation:** Technologies like Cisco's Multi-Chassis EtherChannel (MEC) allow two or more physical switches to appear as a single logical switch. This simplifies topology, enables link aggregation across multiple devices, and reduces the need for spanning tree blocking, improving bandwidth utilization and redundancy.
- Network Functions Virtualization (NFV):** NFV virtualizes traditional network functions such as routing, switching, firewalls, and load balancing, running them as software on standard servers instead of dedicated hardware. Virtual Network Functions (VNFs) can be deployed, scaled, and updated independently, while orchestration frameworks manage lifecycle, resource allocation, and automation.
- Virtual switches in servers:** In virtualized data centers, hypervisors include software-based virtual switches that replace traditional top-of-rack switches for server connectivity. Technologies like Intel VT-c and SR-IOV allow VMs to access network hardware directly, improving performance and isolation.

Architectural Considerations

Traditional vs. modern designs: Traditional 3-tier architectures (core-aggregation-access) are still used for large-scale deployments, but virtualization and distributed workloads have increased east-west traffic, prompting adoption of spine-leaf or VXLAN overlay networks for efficient server-to-server communication.

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Article Content

AOS-CX 10.16 Virtual Switching Extension (VSX) Guide

HPE Aruba Networking Virtual Switching Extension (VSX) is virtualization technology for aggregation/core switches running the AOS-CX operating system. This solution lets the switches

Virtualization in Cloud Computing and Types

Virtualization is the fundamental technology that powers Cloud Computing. It allows you to create multiple simulated environments (Virtual Machines or VMs) from a single physical hardware

What Is Switch Virtualization Technology and What Are Stacking and

A physical switch can be logically virtualized into multiple virtual switches to isolate services and improve reliability. Stacking and M-LAG are widely used among these technologies.

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Enable Virtualization Technology (VT) on GIGABYTE computer

After entering the BIOS, select "BIOS Features" > "Intel Virtualization Technology", switch from Disabled to Enabled, and finally press "F10" to save and exit.

Zacks Investment Research

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Enable Memory Integrity (HVCI/VBS)

Memory Integrity is part of Windows Core Isolation and helps protect your system from blocking malicious attacks. It relies on your CPU hardware virtualization

Cisco Secure Firewall Advanced Threat Protection

Cisco's Secure Firewall hardware and software options enhance your security to block more threats and swiftly respond to breaches.

Intel® Virtualization Technology for Connectivity

Integrated into Intel Ethernet Controllers, Intel Virtualization Technology for Connectivity provides functionality that can help these administrators address their various and unique I/O needs for both

Virtual Switches Demand Rethinking Connectivity for Servers

With the creation of multiple virtual machines on each physical host server, network adapters now connect servers to the network with equivalency to a traditional top-of-rack switch. The adoption of

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Gain strategic business insights on cross-functional topics, and learn how to apply them to your function and role to drive stronger performance and innovation.

Application Virtual Switch: Software Networking in 2025

Learn how application virtual switches power modern data centers. Compare VMware, Open vSwitch, Hyper-V performance, plus Kubernetes CNI integration for cloud infrastructure.

Data Center Switches - Cisco Nexus

Get deep visibility, tighter security, and faster application performance with Cisco silicon. Virtualization, high density, and performance—all supporting scalable and efficient growth. Automate from day 0 to

The Telegraph

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Enable or Disable CPU Virtualization in UEFI BIOS Firmware Settings

This tutorial will show you how to enable or disable Intel ("Intel VT" or "VT-x") or AMD ("AMD-V") CPU virtualization in UEFI/BIOS on Windows 10 and Windows 11 PC. CPU virtualization

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VSX Details in Switch Dashboard

VSX is a virtualization technology for aggregation/core switches running the AOS-CX operating system. This solution lets the switches present as one virtualized switch in critical areas.

Create and configure a virtual switch with Hyper-V

This article shows you how to create and configure your virtual switch using Hyper-V Manager or PowerShell. A virtual switch allows virtual machines created on Hyper-V hosts to

Cisco Training

Product, technology, and certification training, developed by IT experts for individuals and teams.

Cisco Switch Virtualization

This lesson explains the advantage of using logical switches in Cisco Campus Network Designs.

Cisco StackWise Virtual Explained: Advantages, Comparisons ...

A pair of Catalyst 9500 core switches formed into a StackWise Virtual pair connects to multiple Catalyst 9300 distribution switches. Each distribution switch uses Multichassis ...

Data Center Switches – Cisco Nexus

Transform your data center and cloud networking infrastructure with Cisco Nexus 9000 Series and Cisco MDS switches.

Cisco Catalyst 9000 Platform StackWise Virtual White Paper

Cisco® Catalyst® 9000 platform StackWise® Virtual technology allows the clustering of two physical switches together into a single logical entity. The two switches operate as one; they

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Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.dknconsulting.co.za>

Email: info@dknconsulting.co.za

Phone: +31 6 2948 7351

Address: Herengracht 123, 1015 BT Amsterdam, Netherlands

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