Cisco Catalyst 8000V Edge Software



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Delivering cloud routing with rapid deployment and flexibility

The Cisco Catalyst™ 8000V Edge Software (Catalyst 8000V) is a cloud router providing network services for deployments across multicloud domains.

Optimized to serve as a single-tenant or multitenant WAN gateway, the Catalyst 8000V uses proven, industry-leading Cisco IOS® XE Software and SD-WAN networking and security features. The Catalyst 8000V enables enterprises to transparently extend their WANs into cloud service providers and external provider-hosted clouds.

Benefits

- **Rapid deployment and service automation:** Virtual form factor accelerates deployment and eliminates hardware costs such as complete equipment upgrades and Return Materials Authorizations (RMAs).
- **Single-tenant use:** Cloud service providers can provision a routing instance per tenant, simplifying service delivery and tenant management. It also helps the provider overcome VLAN scale limits, increasing tenant scale.
- **Enterprise network extension to the cloud:** Provides enterprises highly secure direct connections from their globally distributed sites to their cloud-hosted applications, improving application response time and user experience.
- **Network consistency:** Uses familiar enterprise-class Cisco IOS Software features for consistent network operation across premises, colocation data centers, and cloud, allowing the enterprise to view the off-premises locations as just additional nodes in its network.
- **Network scalability:** Enables scale beyond the limitations of 802.1q VLAN tagging by building a Virtual Extensible LAN (VXLAN) network or extending Layer 3 routing deeper into the cloud environment.
- **Consolidation of network functions:** Eliminates the facility requirements and complexity of physical network devices by consolidating multiple network functions onto a single piece of server hardware.

Use cases

The Cisco Catalyst 8000V is a software router that an enterprise or cloud provider, including public, private, and hybrid cloud, can deploy as a Virtual Machine (VM) in a provider-hosted cloud (Figures 1 and 2) for the following uses:

Traditional routing

- **Highly secure VPN gateway:** Route-based IP Security (IPsec) VPNs, Dynamic Multipoint VPN (DMVPN), Secure Sockets Layer (SSL) VPN, and FlexVPN, along with the Cisco IOS Zone-Based Firewall and access control, enable an enterprise to connect distributed sites directly to its cloud deployment.
- **Multiprotocol Label Switching (MPLS) extension:** This MPLS customer-edge or provider-edge router enables a service provider to offer a customer end-to-end managed connectivity. Also, by extending the MPLS WAN deeper into the cloud, the provider can increase tenant scale.
- **IP mobility and virtual-machine migration:** Locator/ID Separation Protocol (LISP) enables an enterprise to maintain addressing consistency when moving applications into the cloud. Overlay Transport Virtualization (OTV) enables an enterprise to extend Layer 2 VLANs from data center to cloud.
- **Traffic control and redirection:** The Cisco Catalyst 8000V includes networking services such as Hot Standby Router Protocol (HSRP) and Cisco Application Visibility and Control (AVC), enabling a cloud tenant to receive a comprehensive networking experience.

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- **VXLAN gateway:** You can expand network scalability by using VXLAN isolation instead of 802.1q VLANS.

Cisco Catalyst SD-WAN

Cisco Catalyst 8000V provides an enterprise-grade software-defined WAN solution that simplifies the management and operation of wide area networks and enables cloud transformation for enterprises. It fully integrates routing, security, centralized policy, and orchestration into large-scale networks. It is secure, multitenant, cloud-delivered, highly automated, scalable, and application-aware with rich analytics that results in operational simplicity and cost savings.

- **NGFW for multilayer security:** Cisco Catalyst 8000V includes advanced security, Next-Generation Firewall (NGFW) capabilities to secure your WAN connections with multilayered security features: stateful inspection, Intrusion Detection and Prevention (IDS/IPS), URL filtering, advanced malware protection, identity-based filtering, and TLS decryption. These features help secure Direct Internet Access (DIA) traffic from branches and optimize the connectivity to cloud-hosted SaaS applications.
- **Multicloud connectivity:** With Cisco Catalyst 8000V, you can extend your enterprise WAN to multiple public clouds and middle-mile provider data centers in minutes by leveraging the Cloud OnRamp automation available in Cisco Catalyst SD-WAN Manager orchestrator. This gives you the flexibility to use the best cloud platforms that meet your unique business and cost requirements.
- **WAN optimization:** Cisco Catalyst 8000V in SD-WAN mode includes an Application Quality of Experience (AppQoE) solution that helps overcome WAN link limitations and optimizes your network and application performance. Capabilities include bandwidth optimizations with Data Redundancy Elimination (DRE) and Lempel–Ziv–Welch (LZW) compression, link integrity mitigations using Forward Error Correction (FEC), and Packet Duplication (PD).
- **Voice services:** Cisco Catalyst 8000V includes the CUBE (Cisco Unified Border Element) feature set that offers rich voice services in both Catalyst SD-WAN and traditional Cisco IOS XE software feature stacks. This enables you to bridge voice and video connectivity between two separate Voice over IP (VoIP) networks and helps connect enterprise networks to Internet Telephony Service Providers (ITSPs).

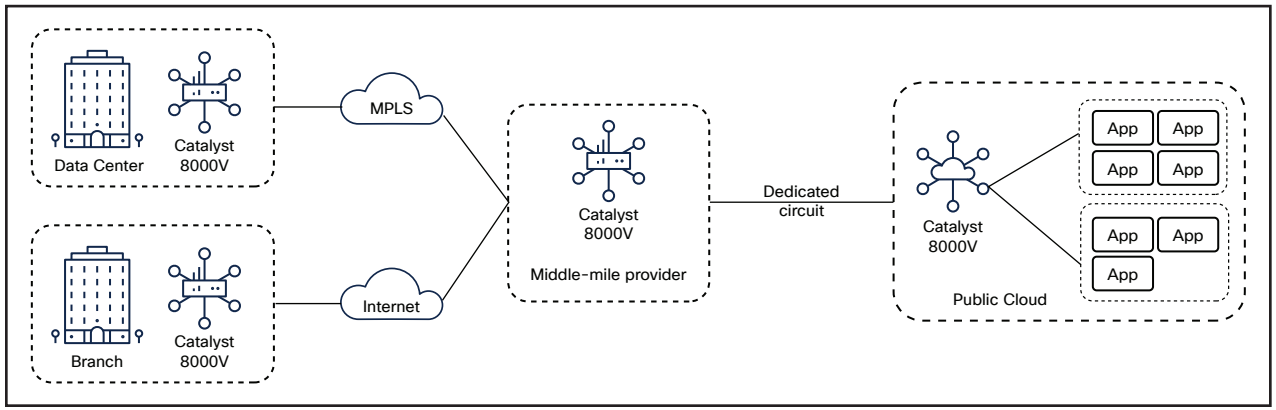


Figure 1. Cisco Catalyst 8000V enables you to extend your SD-WAN fabric to colocation and public clouds.

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Features

- **Routing:** Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Policy-Based Routing, IPv6, Virtual Route Forwarding Lite (VRF-Lite), Multicast, LISP, and Generic Routing Encapsulation (GRE).
- **SD-WAN:** The Catalyst 8000V is optimized for Cisco Catalyst SD-WAN, a set of intelligent software services that allows you to connect users, devices, branch office locations, and cloud deployments reliably and securely across a diverse set of WAN transport links.
- **Addressing:** Dynamic Host Configuration Protocol (DHCP), DNS, Network Address Translation (NAT), 802.1Q VLAN, Ethernet Virtual Connection (EVC), and VXLAN.
- **VPN:** IPsec VPN, DMVPN, SSL VPN, and FlexVPN.
- **MPLS:** MPLS VPN, VRF, and Bidirectional Forwarding Detection (BFD).
- **Security:** Cisco IOS Zone-Based Firewall (ZBFW); Access Control List (ACL); Authentication, Authorization, and Accounting (AAA); RADIUS; TACACS+; Snort IDS/IPS; and URL filtering.
- **NGFW:** Stateful inspection, Intrusion Detection and Prevention (IDS/IPS), URL filtering, advanced malware protection (AMP), identity-based filtering and TLS decryption.
- **High availability:** HSRP, Virtual Router Redundancy Protocol (VRRP), Gateway Load Balancing Protocol (GLBP), and box-to-box high availability for ZBFW and NAT.
- **Traffic redirection:** Application visibility, performance monitoring, and control: Quality of Service (QoS), AVC, and IP Service-Level Agreement (SLA).
- **Hybrid cloud connectivity:** OTV, Virtual Private LAN Service (VPLS), and Ethernet over MPLS (EoMPLS).
- **Management:** Command-Line Interface (CLI), Secure Shell (SSH) Protocol, Cisco Catalyst SD-WAN Manager, NetFlow, Simple Network Management Protocol (SNMP), Embedded Event Manager (EEM), and NETCONF/RESTCONF programming interfaces.
- **NFV:** Virtual Route Reflector (vRR).
- **Multicloud domain:** Catalyst 8000V is supported in the Amazon Web Services (AWS), Microsoft Azure, Google Cloud, Oracle Cloud Infrastructure (OCI) and Alibaba Cloud. It is also available in Equinix and Megaport middle-mile providers. You can deploy in these cloud providers with Bring Your Own License (BYOL) or in select providers with a Pay-As-You-Go (PAYG) consumption model.
- **On-premises hypervisors:** KVM with Cisco NFVIS, RedHat Enterprise Linux, SUSE Linux Enterprise Server, and Ubuntu. OpenStack KVM with Cisco Virtualized Infrastructure Manager (CVIM) and RedHat OpenStack Platform. VMware ESXi hypervisors.

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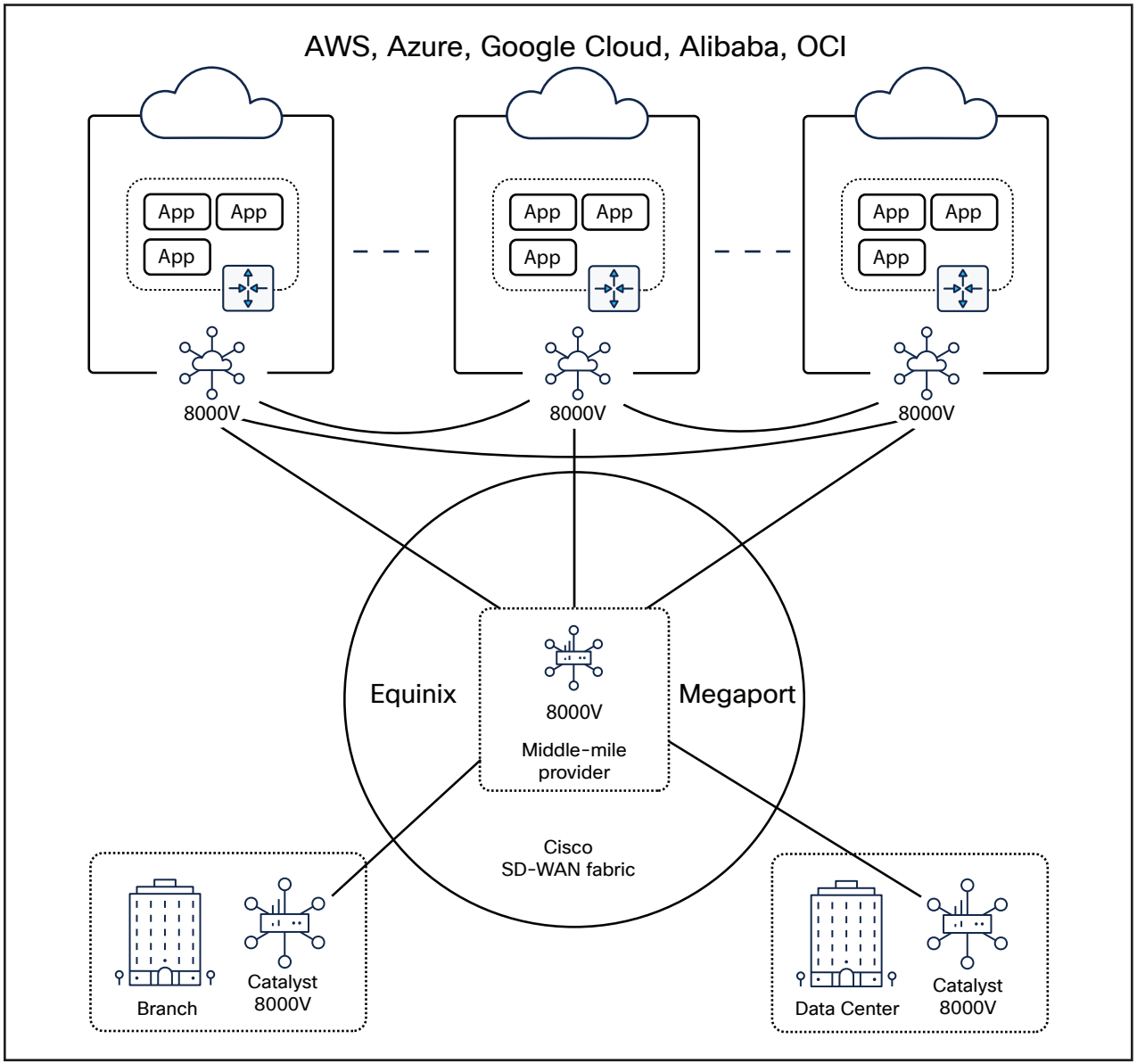


Figure 2. Cisco Catalyst 8000V as a secure cloud router provides multicloud connectivity to public IaaS clouds.

Cisco DNA Software

Get licensing and support for the Cisco Catalyst 8000V and Cisco Catalyst SD-WAN with flexible subscriptions. https://www.cisco.com/site/us/en/products/networking/wan-software/dna-subscription-wan/index.html.

Cisco CX

Accelerate your success with services from Cisco Customer Experience (CX). Now you can adopt SD-WAN with ease and confidence, thanks to our trusted expert resources. https://www.cisco.com/c/en/us/products/routers/service-listing.html.

Next steps

For more information about the Cisco Catalyst 8000V, visit: https://www.cisco.com/c/en/us/products/routers/catalyst-8000v-edge-software/index.html.

Try it free for 30 days: https://www.cisco.com/c/en/us/solutions/enterprise-networks/promotions-free-trials/catalyst-8000V-free-trial.html.

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