

Cisco vEdge Cloud

Product Overview

Cisco vEdge Cloud is a software router platform that supports an entire range of capabilities available on the physical vEdgerouter platforms. The vEdge Cloud router is offered as a virtual machine that can be deployed in the variety of private, public, and hybrid cloud computing environments. It is supported on all major hypervisor platforms.

Cisco vEdge Cloud router uses the Intel DPDK infrastructure to help ensure the most optimal performance on x86 platforms. The software is also capable of using the AES-NI encryption offload technology available on most Intel platforms. AES-NI offers optimized IP security (IPSec) performance when using AES encryption algorithms.

Deployment Use Cases

The vEdge Cloud router targets the following main deployment use cases:

1. Extending SD-WAN overlay into public cloud environments
2. Virtualized WAN router

1. Extend SD-WAN Overlay into Public Cloud Environments

Hybrid cloud is now the new norm for enterprises. With hybrid cloud, certain enterprise workloads remain within the boundaries of the private data centers, while others are hosted in the public cloud environments, such as Amazon Web Services (AWS) and Microsoft Azure. This approach provides enterprises with the utmost flexibility in consuming compute infrastructure as required.

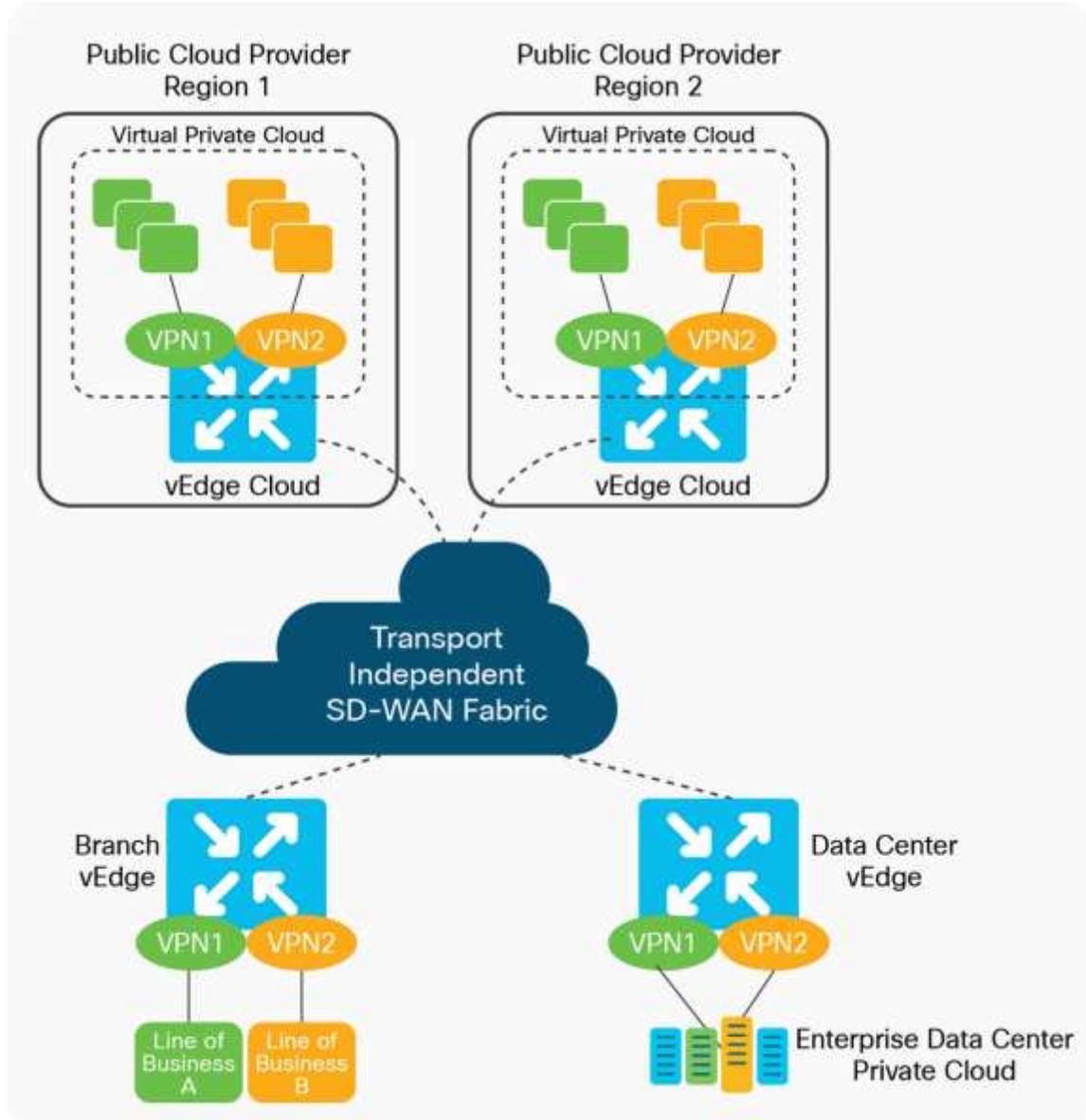
With the Cisco Software-Defined WAN (SD-WAN) solution, you can extend ubiquitous connectivity, zero-trust security, end-to-end segmentation, and application-aware Quality-of-Service (QoS) policies of the organizational WAN into the Infrastructure-as-a-Service (IaaS) public cloud environments.

The transport-independent nature of the Cisco SD-WAN solution allows use of a variety of connectivity methods in the active-active fashion by securely extending SD-WAN fabric into the public cloud environment across all underlying transport networks. These include Multiprotocol Label Switching (MPLS), broadband, 3G/4G LTE, satellite, and point-to-point links.

With the traffic segmentation policies, you can create multiple VPNs on top of a single fabric to functionally segregate different types of traffic between the private and public cloud environments. This behavior results in the end-to-end segregation. Application-aware topologies and intelligent selection of the best performing path toward the public cloud, in accordance with desired Service Level Agreements (SLAs), help ensure optimal overall Quality of Service (QoS). Extensive QoS mechanisms present in Cisco vEdge Cloud software router result in differentiated service for application traffic.

The following figure illustrates how Cisco vEdge Cloud router securely extends organizational WAN into the public cloud environment.

Figure 1. Extending the organizational WAN into the public cloud environment

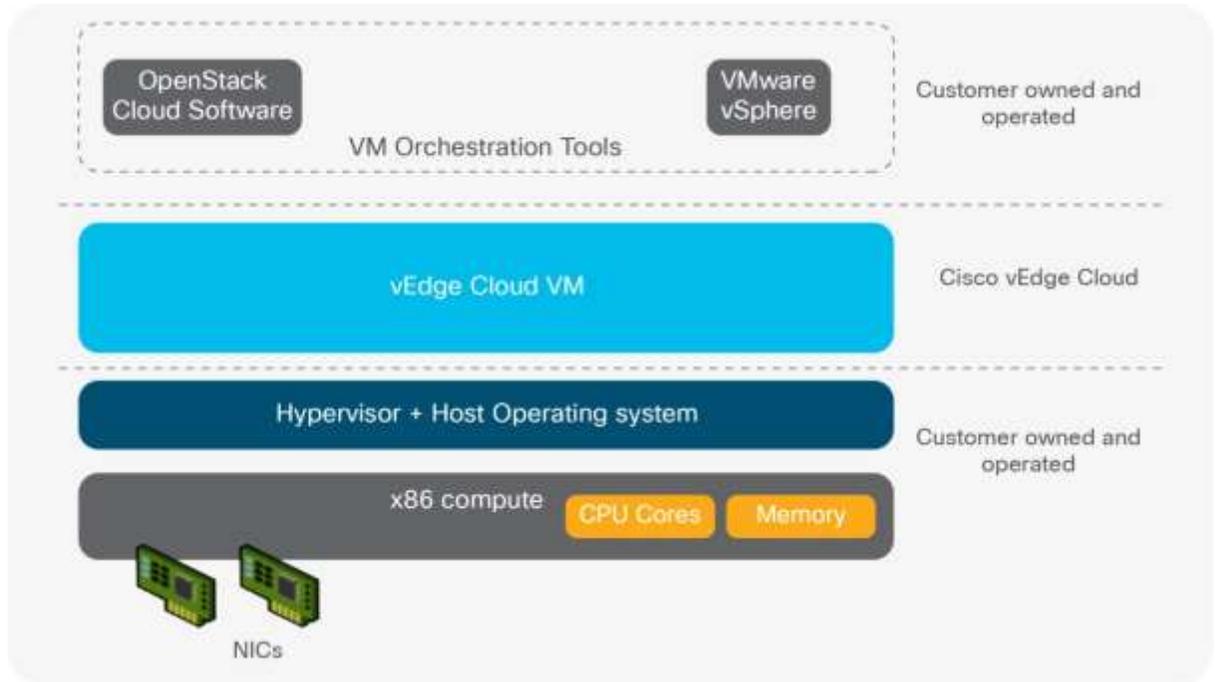


2. Virtualized WAN Router

A branch network consists of a number of elements. Operating, maintaining, and connecting these elements can be simplified by adopting a generic x86 platform on which discrete Virtual Network Functions (VNFs) are instantiated. This form of service delivery is also known as the virtual customer premises equipment or the vCPE. With vCPE, the vEdge Cloud router assumes the role of the WAN router VNF, providing secure WAN connectivity from and to the remote office.

The following figure illustrates Cisco vEdge Cloud router solution elements.

Figure 2. Solution elements of the Cisco vEdge Cloud router



The Cisco SD-WAN solution supports numerous intelligent in-line and off-path methods of integrating the vEdge Cloud router with the rest of the virtual Customer Premises Equipment (vCPE) elements. This integration includes routing, policy-based routing, bridging, and service insertion methods.

Cisco vEdge Cloud routers can be deployed as a redundant active-active pair using either OSPF or BGP protocols for routed environments or VRRP for bridged environments. This deployment helps to ensure a higher degree of connectivity resilience and uptime for the remote offices.

Product Specifications

Cisco vEdge Cloud routers can be deployed on a variety of x86 platforms. The following table lists minimum x86 platform requirements.

Table 1. Minimum x86 platform requirements for Cisco vEdge Cloud router

Services and Slot Density	
Image Formats	QCOW2, OVA, AMI, VDX
Recommended host Operating Systems	<ul style="list-style-type: none"> • Ubuntu 14.04/16.04 LTS LTS • Red Hat Enterprise Linux 7.0
Supported hypervisors	<ul style="list-style-type: none"> • VMware ESXi 5.5 and ESXi6.0 • Kernel Based Virtual Machine KVM • Amazon Machine Image (AMI) on Amazon Web Services • Azure Hyper V
Supported I/O	<ul style="list-style-type: none"> • E1000 • VMXNET3 • VirtIO • SR-IOV

Services and Slot Density	
Server specifications	<ul style="list-style-type: none"> • Intel Sandy Bridge with a clock frequency of 2.0 GHz • Intel Atom (formerly Rangely) with a clock frequency of 2.0 GHz • WAN Interface: Gigabit Ethernet Network Interface Cards (NICs) • CPU: Minimum of two virtual CPUs (vCPUs) • Memory: 2 GB • Disk Space: 8 GB • Network interfaces: Up to 8 virtual NICS (vNICs) per virtual machine

AWS Host Requirements

The vEdge Cloud software router is supported on any Amazon Elastic Compute 2 (EC2) instance type that supports enhanced networking. Recommended EC2 instance types are: m4.large, c4.large, and c3.large.

Software Capabilities

Cisco vEdge Cloud routers take advantage of standards-based features for the LAN (service) and WAN (transport) side of the network. The following table lists key software capabilities of the Cisco vEdge Cloud routers.

Table 2. Key software capabilities of the Cisco vEdge Cloud router

Category	Features
AAA	TACACS+, RADIUS, local, role-based access control
Routing	OSPF, eBGP, iBGP, static, connected, OMP
Bridging	802.1Q, native VLAN, bridge domains, IRB, host-mode bridging
Security	Zero-trust, whitelisting, DTLS/TLS, IPSec, ESP-256-CBC, Authentication Header, HMAC-SHA-1, DDOS protection, control plane protection, NAT traversal
Forwarding and QoS	Classification, prioritization, low latency queuing, remarking, shaping, scheduling, policing, mirroring, NAT/PAT
Multicast	IGMP v1/v2, PIM, Auto-RP, scale-out traffic replication
Policy	Route policies, App-Aware Routing, control policy, data policy, ACL policy, VPN membership policy, service advertisement, and insertion policy
System and network services	IPv4, SNMP, NTP, DNS client, DHCP client, DHCP server, DHCP relay, config archival, Syslog, SSH, SCP, NAT/PAT, Cflowd v10 IPFIX export
Lifecycle management	VMware vCenter, OpenStack

Ordering Information

Cisco vEdge Cloud router is sold as a software subscription license. No additional SKUs are required to operationalize this product. The following table lists SKUs for Cisco vEdge Cloud router.

Table 3. SKUs for Cisco vEdge Cloud router

vEdge-Plus-10M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 10 Mbps
vEdge-Plus-20M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 20 Mbps
vEdge-plus-50M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 50 Mbps
vEdge-plus-100M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 100 Mbps
vEdge-plus-10M-3YR	3-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 10 Mbps
vEdge-plus-20M-3YR	3-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 20 Mbps

vEdge-plus-50M-3YR	3-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 50 Mbps
vEdge-plus-100M-3YR	3-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 100 Mbps
vEdge-plus-10M-5YR	5-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 10 Mbps
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vEdge-plus-100M-5YR	5-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, plus license, 100 Mbps
vEdge-Pro-10M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, professional license, 10 Mbps
vEdge-Pro-20M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, professional license, 20 Mbps
vEdge-Pro-50M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, professional license, 50 Mbps
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vEdge-Pro-10M-3YR	3-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, professional license, 10 Mbps
vEdge-Pr-20M-3YR	3-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, professional license, 20 Mbps
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vEdge-Pro-100M-5YR	5-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, professional license, 100 Mbps
vEdge-Ent-10M-1YR	1-Year Software (SD-WAN controller and CPE software) Subscription License to use SEN capabilities on vEdge, enterprise license, 10 Mbps
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