CloudEngine 1800V
Virtual Switch

HUAWEI TECHNOLOGIES CO., LTD.

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Product Overview

Huawei CloudEngine 1800V (CE1800V) is a distributed virtual switch designed for virtualized environments in cloud data centers. It provides best-in-class forwarding performance, open architecture, and enhanced security protection. And it can run on multiple compute virtualization platforms such as Huawei FusionSphere, VMware ESXi, as well as open-source platforms.

The CE1800V can be combined with Huawei CloudEngine hardware switches and Huawei Agile Controller to offer a Software-Defined Networking (SDN) solution for data centers based on hybrid or host overlays. This solution supports Virtual Machines (VMs), containers, and physical servers with the same architecture.

Product Characteristics

Innovative forwarding architecture provides the industry’s highest performance

- Innovative architecture: Huawei’s CE1800V supports both the traditional IP forwarding and OpenFlow architectures to enable flexible deployment.
- Highest performance: The CE1800V uses Huawei-developed user-mode forwarding framework and improved Intel Data Plane Development Kit (DPDK) technology to provide 12Gbit per core forwarding rate – 20 percent higher than the industry average. This makes the CE1800V the optimal choice for high-performance hybrid and host overlay solutions.

Standard IETF NSH technology enables flexible service chain orchestration

- Standard Network Service Header (NSH) technology: Service chains can be predefined based on service attributes.
- Service Classifier (SC): The CE1800V can classify received packets, match them with predefined service chains, and encapsulate matching packets with NSH headers, so that the packets can be forwarded along the service chains.
- Service Function Forwarder (SFF): The CE1800V acts as an SFF to forward packets along a predefined NSH service chain, and terminates the service chain at the endpoint.

Open interfaces enable interoperation with mainstream compute virtualization platforms

- OpenFlow: The standard OpenFlow 1.3 protocol can be used as a northbound control interface to interoperate with standard SDN controllers. This creates an SDN architecture that separates the control plane from the forwarding plane.
- Open vSwitch Database Management Protocol (OVSDB): The OVSDB protocol can be used as a northbound management interface to provide an independent configuration channel. An SDN controller can use OVSDB to configure and manage the CE1800V.
- Interoperability with multiple virtualization platforms: The CE1800V can run on mainstream virtualization

platforms, including Huawei FusionSphere, VMware ESXi, Microsoft Hyper-V, and KVM. It shields differences among these virtualization platforms to simplify network O&M and development of new features and functions.

Distributed DHCP function enables millions of VMs to go online

- Distributed DHCP: The Dynamic Host Configuration Protocol (DHCP) can be deployed on all CE1800V nodes. Distributed DHCP deployment mitigates the load on a single node and enables millions of VMs to go online.

Distributed virtual firewall provides fine-grained security protection for VM ports

- Distributed virtual firewall: Security policies can be configured based on virtual ports, including protocols, ports or connection states. A virtual firewall records connection states and provides east-west traffic isolation and access control based on security policies.

Centralized control and management

- Control virtual networks the same way you control physical networks: The Agile Controller (Huawei's SDN controller) enables network administrators to manage both CE1800V and physical network devices, such as Huawei CloudEngine hardware switches. The Agile Controller delivers OpenFlow flow tables to the physical and virtual devices to steer traffic forwarding. In this way, the control plane is separated from the forwarding plane.
- Manage virtual networks the same way you manage physical networks: Huawei eSight network management system enables network administrators to manage and monitor both CE1800V and physical network devices, and supports automatic upgrades of these devices.

Product Specifications

Item	CE1800V
Forwarding architecture	Packet switching architecture
	OpenFlow forwarding architecture
Forwarding performance	12Gbit per core, user mode
Overlay	Virtual Extensible LAN (VXLAN)
	Number of VXLAN Network Identifiers (VNIs): 128k
Layer 2	Number of VLANs: 4K
	Number of MAC entries: 8k
	Link Aggregation function
Layer 3	IP packet forwarding
	Distributed forwarding by Distributed Virtual Routers (DVRs)
DHCP	Distributed DHCP

Item	CE1800V
QoS and security	Inbound traffic rate limiting
	DSCP priority mapping
	VM port isolation
SDN	OpenFlow 1.3
	Open vSwitch Database Management Protocol (OVSDB)
SFC	IETF NSH
	SC: Classifies received packets and sends them to matching service chains
	SFF: Forwards packets along a predefined NSH service chain and terminates the service chain at the endpoint.
Management and maintenance	Automatic installation and upgrade
	Resource alarm, monitoring, inspection, logging, and interface traffic statistics collection
	Link exception and abnormal process state monitoring and automatic recovery
	Remote Layer 3 port mirroring
Compatibility	Interoperable with FusionSphere
	Interoperable with OpenStack KVM
	Interoperable with VMware ESXi

Installation requirement

Host configuration required for CE1800V installation:

- CPU: at least 2 cores, 16 or more cores recommended, 1 core allocated to vSwitch
- Memory: at least 2 GB, 6 GB or larger recommended
- Hard disk space: at least 13 GB, 15 GB or larger recommended
- Network interface card: at least 2 (one for management and storage, and one for data forwarding), 4 or more interface cards recommended (two for management and storage in active/standby mode, and two for data forwarding); Intel DPDK network interface cards are supported.

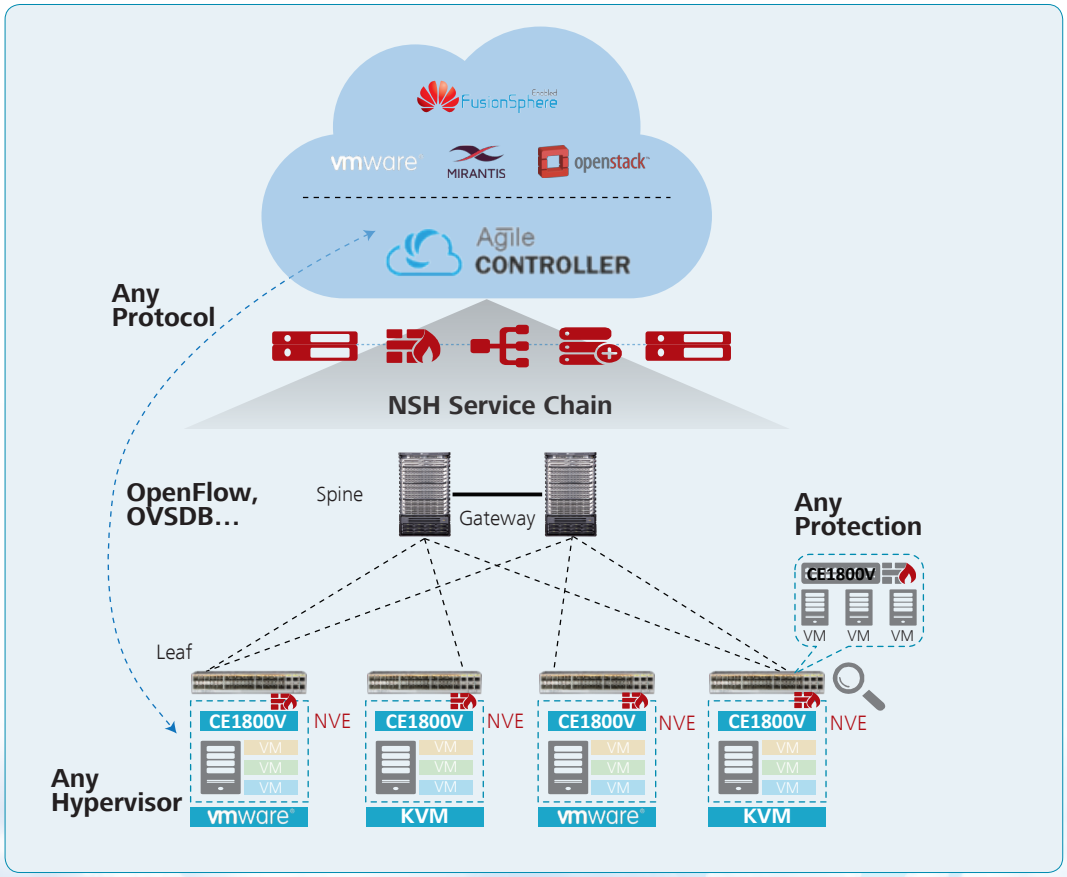
Ordering Information

Software	
CE18-LIC-BASEKVM	CE1800V basic software license - per 10G (KVM)
CE18-SWKVM-SNS1Y	CE1800V basic software - per 10G (KVM) - software subscription and security annual fee -1

Networking and Applications

In a data center that has deployed VMware ESXi, or KVM hypervisors, Huawei CE1800V provides fine-grained control and management of network traffic in the virtualized environment.

In the following network diagram, Huawei Agile Controller delivers OpenFlow flow tables to CE1800V virtual switches and CloudEngine hardware switches using a standard protocol such as OpenFlow or OVSDB, which separates the forwarding plane from the control plane. The CE1800V supports VXLAN and can function as a Network Virtual Endpoint (NVE). This shields differences between upper-layer hardware devices, reduces constraints on upper-layer device deployment, and enables tenant VMs to migrate on different platforms. Huawei eSight provides unified management and monitoring of CE1800V virtual switches and CloudEngine hardware switches.



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