



H3C SeerEngine-DC Controller

Release Date: May, 2020



New H3C Technologies Co., Limited

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Product overview

Software-defined networking (SDN) is a new networking architecture that implements unified and flexible traffic management by separating the control plane from the forwarding plane. It offers a platform for core network and application innovations.

SDN delivers the following features:

Service-oriented—SDN can be easily integrated with computing functions. This feature facilitates resource management and maintenance. SDN aligns network goals with service goals.

Customizable—SDN networks support software developed by any one, allowing for flexible network usage and operation.

Agile—Users can develop applications instead of waiting for the controller provider to deliver the applications. Users can deploy the applications based on service requirements and use the applications in real time.

Simple—A controller can manage all IT operations. SDN adopts automated configuration, simplifying network management and reducing problems caused by manual operations to enhance network availability.

Open standards-based and vendor-neutral—The MP-BGP EVPN-based AD-DC solution is an open standard and makes for an open market that can accommodate devices of all vendors, effectively avoiding vendor lock-in.

The SeerEngine-DC controller is an SDN control system. As the core of the H3C AD-DC solution, the controller presents a software platform with the following features:

It allows data centers, public clouds, private clouds, and campus edges to deliver their network features.

It is open and provides application programming interfaces (APIs). The platform uses OpenFlow, NETCONF, and OVSDB as southbound network control protocols to manage physical networks.

Similar to a network operating system, the SeerEngine-DC controller provides a platform for users to develop and run applications. It controls resources on the Overlay network and provides northbound APIs for applications to ensure their forwarding requirements.

Features and benefits

Open architecture

Multiple REST APIs—REST APIs use cache to reduce response time and allow different servers to process different requests, improving server scalability. Browsers can be used as clients to simplify software requirements. Compared to other HTTP-based mechanisms, REST is more independent from software, without requiring any other resource detecting mechanisms. REST presents better software compatibility.

High availability

H3C SeerEngine-DC controllers can form a team that contains a maximum of 32 members. When one controller fails, another controller in the team takes over to prevent single points of failure and provide higher network availability. In addition, a team implements centralized configuration and monitoring for controllers in the team.

You can deploy four DC controllers across two data centers, two at each. When both controllers at one data center fail, the other two controllers can take over to provide higher network availability.

High usability

Web-based management.

Network devices and access hosts are displayed graphically.

Detailed log information helps you trace user behaviors.

You can configure regions for a team on a complicated network to simplify network management.

Overlay network

H3C SeerEngine-DC controllers can manage the VXLAN-based overlay network. The controllers can manage forwarding devices such as the vSwitches in the server, ToR devices, and border devices. The controllers provide APIs for upper-layer cloud computing systems to integrate the overlay network into the converged cloud network.

All features provided by H3C SeerEngine-DC controllers are IPv4/IPv6 dual-stack-capable. You can deploy the controllers at multiple data centers by using the multi-fabric solution to enable automated interconnections among the data centers.

The controller uses the MP-BGP EVPN-based networking model.

The EVPN-based networking model implements complete separation of the management plane, control plane, and forwarding plane. It features easy management, high forwarding efficiency, and flexible scalability and is suitable for large-scale networks.

The controllers can deploy forwarding table entries to the vSwitch on a host to guide forwarding of hybrid overlay traffic. At the data center egress, you can deploy multiple egress points with their respective firewall settings to implement flexible network deployment and control.

The controllers provide APIs and OpenStack plug-ins for upper-layer cloud computing systems to integrate the overlay network into the cloud, allowing users to perform all tasks on the cloud. The controllers are compatible with the H3C CloudOS cloud management platform, OpenStack, other third-party cloud platforms, and container platforms including Kubernetes and OpenShift.

Service chains

The service chain technology is used to guide data packets through security service nodes. It provides secure, customized network services for users. The security service nodes include physical service nodes and virtual service nodes. H3C provides firewall service nodes (FW/vFW) and LB service nodes (LB/vLB).

The service chain technology enables the SDN controller to perform logical abstraction for the network and implement flexible service orchestration. Service packets are guided through service nodes in the specified order for processing.

The SeerEngine-DC controller has the service chain module built in. The service chain module can virtualize security devices into service chain resource pools to meet all types of security service application model requirements. The controller supports flexible orchestration for service chains. The service chain module provides northbound APIs that can be used by all cloud management systems, and provides southbound APIs for managing service nodes and deploying service chains.

Standards

OpenFlow 1.3

NETCONF standard (RFC6241)

OVSDB interface for Open vSwitch

Neutron interface for OpenStack

Running environment

Server requirements for H3C SeerEngine-DC controllers

The SeerEngine-DC controller can be deployed on physical servers or VMs and the hardware requirements are the same for both deployment methods. The SeerEngine-DC controller has exclusive use of the hardware resources on the server or VM where it is deployed.

In hybrid overlay networking scheme, you must configure separate interfaces for vBGP.

Hardware requirements

Item	Minimum requirements	Recommended configuration
CPU	16 cores	20 cores

Item	Minimum requirements	Recommended configuration
	2.0 GHz or above	2.2 GHz or above
Memory size	64 GB or above	128 GB or above
Drive	<ul style="list-style-type: none"> RAID controller: 1G cache memory One of the drive configuration options: <ul style="list-style-type: none"> 1 TB or above of SAS SSD or NVMe SSD Two 1 TB or above of 7.2K RPM SATA/SAS HDDs, RAID 1, 5, or 10 setup with the drive space no less than 1 TB 	<ul style="list-style-type: none"> RAID controller: 1G cache memory One of the drive configuration options: <ul style="list-style-type: none"> 1 TB or above of SAS SSD or NVMe SSD Two 1 TB or above of 7.2K RPM SATA/SAS HDDs, RAID 1, 5, or 10 setup with the drive space no less than 1 TB
NIC	<ul style="list-style-type: none"> Non-bonding mode: 1 × 10 Gbps or above Ethernet port Bonding mode (recommended mode: mode 2 or mode 4): 2 × 10 Gbps Linux bonding interfaces 	<ul style="list-style-type: none"> Non-bonding mode: 1 × 10 Gbps or above Ethernet port Bonding mode (recommended mode: mode 2 or mode 4): 2 × 10 Gbps Linux bonding interfaces

Ordering information

Module	Description
H3C SeerEngine Software Customized Development Charge per Person-Day	This license allows for one-person-day software developing workload.
H3C SeerEngine DC Software Additional 1 Server Node License	This license provides control over one more server node.
H3C SeerEngine DC Software Additional 1 Physical NE License	This license provides control over one more physical network element.
H3C SeerEngine DC Software Additional 1 Virtual Service Node License	This license provides control over one more virtual service node.
H3C SeerEngine DC Software Additional 1 Virtual Switch License	This license provides control over one more virtual switch node.
H3C SeerEngine DC Software Edition Unlimited License	This license is required for a SeerEngine-DC controller to run correctly.



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