

Huawei Core Router NetEngine9000 Series



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Product Overview

As the Internet enters the Cloud Era, cloud business diversification will make data traffic unpredictable, and as Over the Top (OTT) and 4K video services consume a lot of bandwidths, IP backbone networks will need greater bandwidths, more flexibility, and continuous expanding capability. Huawei's NetEngine9000 series core router (NE9000) is Huawei's flagship core router created for the Cloud Internet Era. With features that include high capacity, high stability and a green design, the NE9000 is positioned for large-scale Data Center Interconnect (DCI), super core nodes on the carrier backbone network, metro core, and core nodes on large-scale enterprise networks.

As the industry's largest Pbit core router, the NE9000 adopts Huawei's self-developed Solar series NP chips for excellent line rate forwarding performance. The NE9000 is based on the CLOS distributed multi-stage architecture with non-blocking switching technology. The NE9000 supports multiple solution, such as MPLS backbone network optimization solution, IP border network traffic scheduling solution, IP+Optical synergy solution and DCI E2E service provisioning solution. The NE9000 continues to innovate based on an industry-leading platform for improved QoS mechanism and carrier-class reliability to swiftly deal with the new challenges that backbone networks face in the Cloud Era.

Product Appearance



NE9000-20 with front doors closed



NE9000-20 with front doors open



NE9000-20 back

Product Features

1 Powerful Forwarding Capacity

The NE9000 adopts Huawei's self-developed Solar series NP chip forwarding engine to realize duplex line rate forwarding from all interfaces (including IPv4/IPv6/MPLS) while also achieving multicast line rate forwarding so that hardware can achieve two copy grades: SFU copies to the LPU and forwarding engine copies to the interface. The NE9000 supports the industry's largest port capacity with a single-chassis port capacity of up to 80-160 Tbps and expands the maximum system capacity to 7.68P through cluster extension as the industry's largest Pbit platform.

2 Agile Architecture for the Cloud Era

The NE9000 fully supports multiple scenarios, covering WAN backbone networks, DC interconnects, IGW and many other scenarios. MPLS backbone network optimization solution and IP border network traffic scheduling solution achieves real-time smart data traffic tuning to enhance link utilization; the IP+Optical synergy solution achieves a synchronous network resources for simplified operations and maintenance and enhanced network resource utilization; the DCI E2E service provisioning solution builds an open, virtual cloud DC network to achieve rapid provisioning of new businesses. Based on these technology, the NE9000 can quickly adapt to backbone network traffic in the Cloud Era with smart backbone business networks built for the cloud.

3 Improved Operational Efficiency

The NE9000 is equipped with complete IPv4/IPv6 solutions, supports smooth IPv4 to IPv6 network migration, provides improved MPLS and VPN solutions, realizes MPLS/BGP-based L3VPN, provides VPN end-to-end solutions and improved Quality of Service (QoS) capabilities with differentiated Service Level Agreement (SLA) guarantees to meet the development needs of Voice over IP (VoIP), Over the Top (OTT) and other services. The NE9000 comes with a thorough safety design with a variety of security measures in place to provide data protection for service providers and end-users to prevent DDoS attacks, unauthorized access, control plane overloads. The distributed design ensures that data plane is naturally separated from the control plane for industry-leading security and performance.

4 Carrier-Class Reliability

The NE9000 delivers comprehensive and reliable technology, first and foremost, through device-level protection with a passive backplane design in which all key components support hot swapping and hot backup. State-based hot swapping and rich uninterrupted routing technology are supported for hot patching and smooth software upgrades. Secondly, the NE9000 delivers reliability through network level protection with IGP fast convergence, IP/LDP/TE/VLL FRR, BGP/IS-IS automatic FRR, Virtual Router Redundancy Protocol (VRRP), BFD fast link detection, Trunk inter-board trunking and other protection mechanisms to effectively guarantee fast and reliable network-wide operations with system reliability of over 99.999%.

5 Innovative Energy-Saving Design

The NE9000 adheres to green design concepts. The Solar core processing chip adopts smart dynamic frequency technology (IFA) with energy savings of 50% compared to conventional high-frequency operations. The power module is also designed based on configurations as needed with power savings of up to 30% compared to traditional integrated power supplies. The NE9000's compact design, small size, light weight, and power consumption of less than 0.4 W/G set the pace for similar devices for a design, deployment and operations that are truly "green", delivering significant savings for network operations.



NE9000-20 Product Specifications

Item	Description
Stand-Alone Capacity	80 Tbps, single slot 4T, expansion up to 8T
Clustering	Supported (Future)
Number of Slots	30, with 20 service board slots, 2 MPU slots, and 8 SFU slots
Dimensions (H×W×D)	2200 mm x 600 mm x 800 mm (49.5 U) The NE9000 presents a single-cabinet design for a cabinet-free installation
Typical Power Consumption	0.4 W/G
Interface Type	400GE, 100GE, 40GE, 10GE
Routing Protocol	Supports OSPF, IS-IS, BGP, PIM, MSDP, MBGP and other routing protocols
IPv4/IPv6	<ul style="list-style-type: none"> Fully supports IPv4 and IPv6 dual protocol stacks, implements IPv6 hardware-based line rate forwarding processes Supports OSPFv3, IS-ISv6, BGP4+, RIPng and other routing protocols Supports IPv6 neighbor discovery, path MTU discovery, TCP6, ping IPv6, Tracert IPv6, TFTP IPv6 client, IPv6 policy routes, and other features Provides a wealth of IPv4 to IPv6 transition technologies
Reliability	<ul style="list-style-type: none"> Implements MPU 1:1 backup, SFU N+1 backup System power supply redundancy, and fan redundancy Supports state-based hot swapping and non-stop forwarding Supports non-stop routing Supports VRRP/BGP/OSPF/ISIS/RSVP/LDP/ LSP/TE/PW/PIM BFD Delivers IGP/BGP/multicast fast route convergence and IP/LDP/TE/VLL FRR; supports BGP/IS-IS automatic FRR; supports link bundling









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HUAWEI TECHNOLOGIES CO.,LTD.
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129,P.R.China
Tel: +86 755 28780808

www.huawei.com