

Huawei NetEngine5000E Cluster Router



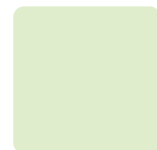


Huawei NetEngine5000E Cluster Router

Huawei NetEngine5000E cluster router (NE5000E) delivers industry-leading huge capacity, carrier-level availability and green design, which fully guarantees the network robustness, service flexibility and TCO saving for service providers. Powered advanced backplane connection design, distributed and highly scalable Versatile Routing Platform (VRP) operating system, NE5000E, a super-core routing platform, service steadily and high-efficiency at internet backbone, metro core, internet data center and Internet bearer network.

Offering the innovative and advanced solutions such as the industry-largest capacity board, back-to-back cluster system and hybrid-chassis cluster system, the NE5000E makes network configured on demand and helps customer improve earnings, as well as save TCO.

The NE5000E has two parts in hardware: Cluster Central Chassis (CCC) and Cluster Line Chassis (CLC). CLC is used to forward service flow and CCC is used to connect CLC's control plane and data plane in cluster system.



Product Highlights

Huge capacity, Sustainable evolution

NE5000E cluster system supports single chassis mode and multi chassis cluster modes, such as back-to-back, 2+4, 2+8. The future-oriented design ensures the cluster system to be expanded to 16+64 multi-chassis. The large capacity of cluster can meet the requirement of extra-large bandwidth service deployment for carriers.

Huawei released NE5000E 2+8 cluster system with 40G line card in April 2008, and now the capacity can be up to 128T with 1T line card. NE5000E can support 2T line card with single chassis mode.

Single Chassis



Back-to-Back Cluster System



2+8 Cluster System





Huawei continuously devotes high-end router R&D, and helps customers build more efficient network. Huawei firstly launched NE5000E 2+8 cluster with 40G line card in 2008 and led the 10T era of Internet. The end-to-end 100G solution combining 100GE+100G WDM was released by Huawei next year. The high density 480G fixed line card and 400G flexible line card both were released in 2012. The LPUF- 400 supports flexible sub-card deployed on demand. And then, Huawei released 1Tbps line card in 2013, 2Tbps line card in 2015.

High availability, Enhanced network robustness

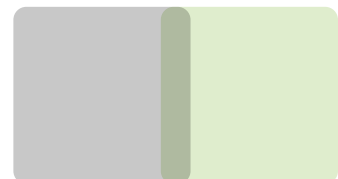
NE5000E provides all-round protections for reliability guarantee. For device-level protection, NE5000E has a passive backplane, with all the key parts of the device hot-swappable, hot-pluggable and hot-backup. NE5000E supports non-stop routing (NSR) for control and data plane. NE5000E provides hot-patching and comprehensive In-Service Software Upgrade (ISSU) technology for smooth upgrade of the software. For network-level protection, NE5000E supports comprehensive high-availability mechanisms, such as IGP fast convergence, IP/LDP/TE FRR, BGP/ISIS Auto FRR, BGP/ISIS/OSPF/LDP/PIM GR, VRRP, BFD and Trunk, which will effectively ensure the network operation with high reliability. As a result, NE5000E system exceeds 99.999% carrier-class reliability.

Adopting innovative In-service Hardware Expansion (ISHE) technology, NE5000E can be expanded smoothly. It is the most flexible core router in industry and meets the requirement of continuous expansion. High-speed Optical Flexible Card (OFC) of cluster can be configured on demand and the switch mode of fabric chipset can be configured flexibly. All these innovative core features are integral part of In-service Hardware Expansion (ISHE) technology, which not only improves the availability of network, but also protects investment of the customers for decades to come.

Green philosophy, TCO saving greatly

NE5000E is designed with green concepts from the beginning. NE5000E core chipset, with 32nm technology, reduces power consumption of 30%. The adoption of the cycling air heat dissipation system in CCC greatly improves the dissipation efficiency, reduces dissipation power consumption of 50%. It adopts linked OFC, which can be configured flexibly as required. The compact design of the chassis reduces the size and weight of the device and needs no modification to the equipment room. NE5000E cluster system is truly "All-Green" in design, deployment and operation.

Huawei released industry 1st NE5000E back-to-back cluster in 2006, and less site room space and power consumption, reducing 45% TCO for customers. The back-to-back cluster with 1Tbps line card supports 32Tbps of system capacity, and meets the requirement of carrier business development in 3-5 years. NE5000E back-to-back cluster smoothly upgrades to multi chassis system, and is the most cost-effective cluster solution.



The main features and specifications of NE5000E are listed in the following tables:

Features

Attribute	Description
Throughput capability	Non-block switch fabric, support multi Chassis 2048Tbps/64 Chassis (1T)
Switching Capability	81.92Tbps/single Chassis
Slots/CLC	16 slots/single Chassis
Interface Types	GE, 10GE, 10G POS, 40GE, 40G POS, 100GE, 100G OTN, etc.
Routing protocol	IPv4 static route, OSPF, IS-IS, BGP, PIM, MSDP, MBGP
IPv6	IPv4 & IPv6 dual stack; IPv6 line speed forwarding based on hardware Pv6 static route, BGP4+, RIPng, OSPFv3, IS-ISv6 IPv6 peer discovery, PMTU discovery, TCP6, ping IPv6, Tracert IPv6, socket IPv6, TFTP IPv6 client, IPv6 policy route , IPv6 NetStream, etc Manually configured tunnel, automatic tunnel, 6 to 4 tunnel
High Availability	1:1 standby for MPU, 3+1 backup switching fabric, 8+8 backup for power supply hot swappable based on stateNon-stop Forwarding (NSF) and Non-stop Routing (NSR) BFD for VRRP/BGP/OSPF/ISIS/TE LSP/LDP/ LSP/TE and PIM IGP/BGP/Multicast Fast Convergence IP/LDP/BGP/TE Fast Re-Route (FRR), BGP/ISIS Auto FRR, ETH Trunk, IP Trunk Automatic fault diagnosis function, Hot Patching Configuration Management Bi-Direction Compatible

CLC Specification

Attribute	Description
Dimension (WxDxH)	442mm × 650mm × 1778mm (17.4 in. × 25.6 in. × 70.0 in.)
Power Consumption	19000W (full configuration of 2T line card)
Weight	434kg (full configuration of 2T line card)

CCC Specification

Attribute	Description
Dimension (WxDxH)	442mm × 850mm × 1955mm (17.4 in. × 33.5 in. × 77.0 in.)
Power Consumption	4300W (2+2 Cluster based on full configuration of 400G line card)
Weight	420kg (with 400G Swith Fabric)

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