Huawei Enterprise
NE Products Quick Reference Guide

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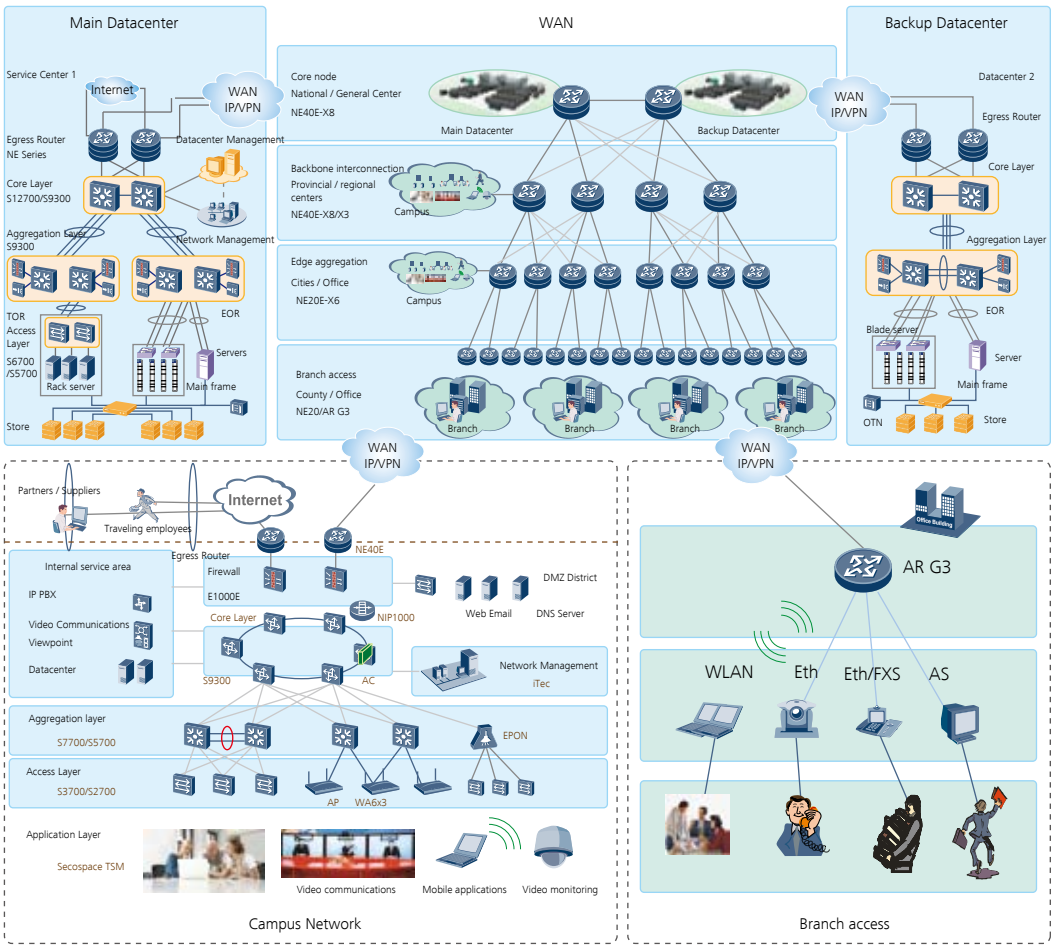
Overview of data communication NE

Overview

With the changing and developing of global economy, enterprise business gradually diversified from the single mode. The size of the organizations and agencies expands, and the number of branches increases. At the same time, corporate demands more in network communication: the situation of multi-network, multi-media, multi-service and multi-class users exists. Not only the complex network management becomes a major burden for enterprises, but also the problems of service reliability and information security issues are gradually revealed. Based on the needs of enterprise customers, focusing on their business requirements, and combining with industry-leading innovative network technology, Huawei makes the "ONE NET" enterprise IP networking solutions tailored for your requirements.

With Huawei's "ONE NET" IP solutions to realise the integration and opening up of their networks, enterprises improve the safety, reliability and efficiency of operations, and reduce their networks' construction, maintenance and other costs. Huawei is your first choice partner for data communications business.

Network Topology



Solution Features

Features of wide area network solution:

- Unified architecture of WAN: Integrated and unified network management; unified bearing of wide area
- Reliable networks and devices: Device-level reliability; link layer reliability; network layer reliability; business layer reliability
- Sustainable network architecture: End to end QoS solution; resource reservation and guarantee
- Visual unified operation and maintenance: unified network management system; end to end service flow monitoring

Features of campus network solution

- Ubiquitous access: Smoothly changing basic network architecture; multi-access for wired or wireless campus; massive branches and mobile Internet user access
- Ubiquitous security: ubiquitous user security for access, border protection
- Ubiquitous quality: Multi-service deployment such as voice, video conferencing, surveillance and others ; high-quality experience of media business
- Intelligence Platform: Multi-system integration management, unified management of IT and IP; opening up for others

Characteristics of data center solutions

- Evolutionary data center: Modularized network design, which can protect expansion investment; standardized components and protocols to ensure interoperability; can smoothly evolve to the cloud computing network in the future
- Sustainable data center: Industry-leading high-reliability loop-free network, to provide service continuity; end to end, high-performance network to facilitate the sharing of resources
- Pooling of data centers: virtualization of network resources, which makes scheduling more effective, improves utilization; virtualize for the business resource, to ensure isolation and security for business
- Visualized data center: Visible service flow makes the service distribution all clear, which you can effectively plan the networks; visual topology, make management more intuitive and effective; unified platform for operation and maintenance, closed-loop process, which reduces maintenance

Branch access solution features

- Protect the user safety: User access control; guarantee the user experience; border security of branches
- Support the unified multi-service bearing: Fast service configuration; comprehensive QoS guarantee
- Easy to manage and easy to maintain: Visualized network management; ease to deploy and easy to manage, support classified network management

NE40E Universal Service Router

Product introduction

The NetEngine40E series universal service router (NE40E) is a family of high-end network products that are usually deployed at the edges of Internet Protocol (IP) backbone networks, IP Metropolitan Area Networks (MANs), and other large-scale IP networks. The NE40E and NE5000E together provide a complete, layered IP network solution.

The NE40E can be flexibly deployed at the edge or core of IP or MPLS networks, simplifying the network structure. With its ability to provide an extensive range of services with reliable service quality, the NE40E is enabling IP and MPLS bearer networks to develop greater broadband capacity and to become more secure, intelligent, and service-oriented. Based on distributed hardware forwarding and non-blocking switching technologies, the NE40E features line-rate forwarding capability, a well designed Quality of Service (QoS) mechanism, strong service processing capability, and excellent expansibility. The NE40E is based on a 400G platform and provides 100G line cards to satisfy increased demand for bandwidth. Compatible with all line cards currently in use, the NE40E minimizes the need for additional investments.

Product appearance

The NE40E series, including NE40E-X16, NE40E-X8 and NE40E-X3, can satisfy the requirement of various scales network.

NE40E-X16

NE40E-X8

NE40E-X3

Product Highlights

Leading 400G platform
Energy Saving Design
Strong business support capabilities
Future-Oriented IPv6-Compatible Solutions
Multi-Level Reliability
Complete QoS mechanism

Product Specification

Attribute	NE40E-X16	NE40E-X8	NE40E-X3
Switching Capacity	12.58 Tbps	7.08 Tbps	1.08T bps
Forwarding Performance	3200 Mpps	1600 Mpps	300 Mpps
Number of Slots	22 slots, including 2 MPUs(1:1 backup), 4 SFUs(3+1 backup), and 16 LPUs	11 slots, including 2 SRUs(1:1 backup), 1 SFUs(2+1 backup), and 8 LPUs	5 slots, including 2 MPUs(1:1 backup) and 3 LPUs
Dimension (W×D×H)	442mm × 650mm × 1420mm (32 U)	442mm × 650mm × 620mm (14 U)	442mm × 650 mm × 175mm (DC 4 U) 442mm × 650 mm × 220mm (AC 5 U)
Maximum power consumption	5360 W (40 G) 6500 W (100 G)	2800 W (40 G) 3300 W (100 G)	1100 W
Weight in full configuration	267 kg	130 kg	41 kg (DC) 51 kg (AC)
Interface type	10GE- LAN /WAN OC-192c/STM-64c POS OC-12c/STM-4c POS Channelized OC-3/STM-1 OC-12c/STM-4c CE1/CT1	GE/FE OC-48c/STM-16c POS OC-3c/STM-1c POS OC-3c/STM-1c ATM ATM E3/CT3 E1/T1	
IPv4	Supports the static routing protocol and IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP-4.		
IPv6	Supports various technologies for transition from IPv4 to IPv6: manual tunnel configurations, automatic tunnel configurations, IPv6-to-IPv4 (6-to-4) tunneling, Generic Routing Encapsulation (GRE) tunneling, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunneling. Supports IPv4 over IPv6 tunneling and IPv6 Provider Edge Router (6PE). Supports the IPv6 static routing protocol. Supports IPv6 dynamic routing protocols such as RIP Next Generation (RIPng), OSPFv3, IS-ISv6, and BGP4+. Supports IPv6 neighbor discovery and path Maximum Transmission Unit (PMTU) discovery. Supports Transmission Control Protocol Version 6 (TCP6), ping IPv6, traceroute IPv6, socket IPv6, static IPv6 Domain Name System (DNS), specifying the IPv6 DNS server, Trivial File Transfer Protocol (TFTP) IPv6 client, and IPv6 policy-based routing. Supports Internet Control Message Protocol Version 6 (ICMPv6) Management Information Base (MIB), User Datagram Protocol Version 6 (UDP6) MIB, TCP6 MIB, and IPv6 MIB.		

Attribute	NE40E-X16	NE40E-X8	NE40E-X3
MPLS	Supports LDP over TE, VPLS, H-VPLS, policy-based routing in VPN. Supports MPLS L2VPNs in either Martini or Kompella mode. Supports VLL/VPLS access L3VPNs. Supports QinQ, MPLS/BGP L3VPN, and inter-AS VPN Option A/B/C. Supports Asynchronous Transfer Mode (ATM) E1, Inverse Multiplexing over ATM (IMA), and Time-Division Multiplexing (TDM) PWE3. Supports MPLS-TP.		
Layer 2 feature	Supports IEEE802.1q, IEEE802.1p, IEEE 802.3ad, and IEEE 802.1ab. Supports the Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSTP), RRPP, DHCP+, VLAN switching, and user binding.		
Reliability	Supports BGP GR, IS-IS GR, and OSPF GR. Supports LDP GR, Resource-Reservation Protocol (RSVP) GR, and Non-Stop Forwarding (NSF). Supports VLL/VPLS/L3VPN GR/NSF. Supports multicast NSF. Supports BGP/IS-IS/OSPF/LDP/RSVP-TE/PIM/ISSU Non-Stop Routing (NSR). Supports In-Service Software Upgrade (ISSU). Supports fast convergence of Interior Gateway Protocols (IGPs), BGP, and multicast routing. Supports IP/LDP/VPN/TE/VLL FRR. Supports IP Auto FRR. Supports BFD for the static routing protocol and protocols such as IS-IS, RSVP, LDP, TE, Label Switched Path (LSP), PW, OSPF, BGP, VRRP, PIM, and RRPP. Supports RRPP. Supports MPLS OAM and Ethernet OAM, Y.1731. Supports backup of service routers, PW redundancy, and PWE3 end-to-end protection. Supports E-Trunk, E-APS, E-STP.		
QoS	Supports Weighted Random Early Detection (WRED), DS-TE capability with a maximum of eight CTs, five-level H-QoS scheduling, VLL/PWE3 QoS, and MPLS H-QoS. Supports the last mile QoS. Supports multicast replication of IPoE access users.		
Multicast	Supports IGMPv1, IGMPv2, IGMPv3, IGMP snooping, multicast VPN, and IPv6 multicast. Supports static multicast routes. Supports multicast routing protocols: PIM-DM, PIM-SM, PIM-SSM, Multicast source Discovery Protocol (MSDP), and Multi protocol BGP (MBGP). Supports the deployment of both multicast and TE. Supports multicast CAC.		
Security	Supports ACL filtering, URPF, GTSM, and DHCP Snooping. Supports anti-ARP attack and anti-DOS attack. Supports MAC address limitation and bonding between MAC and IP. Supports SSH and SSH v2. Supports NetStream. Supports IPSec.		

Attribute	NE40E-X16	NE40E-X8	NE40E-X3
Environmental requirements	Long-term ambient temperature: 0℃ to 45℃ Short-term ambient temperature: –5℃ to +55℃ Long-term relative humidity: 5% to 85%, non-condensing Short-term relative humidity: 0% to 95%, non-condensing Working altitude: lower than 3000 meters		

NE40E-X1/X2 Universal Service Router

Product Introduction

Huawei NE40E-X1/X2 Universal Service Router is a high end Ethernet product (hereafter referred to as the NE40E-X1/X2). It focuses on Ethernet services access in metro area. It mainly locates at metro access and aggregation point. As the smallest one of NE40E family, the NE40E-X1/X2 is a perfect complement to NE40E series.

The NE40E-X1/X2 is adapted to hardware forwarding mechanism and non-blocking switching technology, based on routing platform. The NE40E-X1/X2 focuses on DSLAM, MSAN, enterprise and BTS aggregation, and is the most cost-effective small UPE in the industry. The NE40E-X1/X2 supports 20/40G capacity, high-density interface, rich interface types. At only 220mm deep, the NE40E-X1/X2 is extremely compact and can be installed in the same rack with access equipment. Additional features include carrier-class reliability, powerful L3 functions, advanced QoS features, and industry leading 1588v2 clock synchronization features.

Product Appearance

NE40E-X1

NE40E-X2

Product Highlights

Large capacity with the smallest depth
Strong business support capabilities
Future-Oriented IPv6-Compatible Solutions
Multi-Level Reliability
Complete QoS mechanism

Product Specification

Attribute	NE40E-X1	NE40E-X2
Backplane Capacity	285 Gbps	450 Gbps
Port Capacity	20 Gbps	40 Gbps
Forwarding Performance	30 Mpps	60 Mpps
Number of Slots	1 for NPU, 2 for MPUs, 4 for FICs	2 for NPU, 2 for MPUs, 8 for FICs
Dimension (W×D×H)	442mm × 220mm × 132mm (3 U)	442mm × 220mm × 222mm (5 U)
Maximum power consumption	480 W	850 W
Weight in full configuration	14 kg	22 kg
Interface type	Channelized STM-1 (to E1) 10GE-WAN/LAN GE/FE E1 (75/ 120ohm)	
IPv4	Supports the static routing protocol and IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP-4.	
IPv6	Supports various technologies for transition from IPv4 to IPv6: manual tunnel configurations, automatic tunnel configurations, IPv6-to-IPv4 (6-to-4) tunneling, Generic Routing Encapsulation (GRE) tunneling, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunneling. Supports IPv4 over IPv6 tunneling and IPv6 Provider Edge Router (6PE). Supports the IPv6 static routing protocol. Supports IPv6 dynamic routing protocols such as RIP Next Generation (RIPng), OSPFv3, IS-ISv6, and BGP4+. Supports IPv6 neighbor discovery and path Maximum Transmission Unit (PMTU) discovery. Supports Transmission Control Protocol Version 6 (TCP6), ping IPv6, traceroute IPv6, socket IPv6, static IPv6 Domain Name System (DNS), specifying the IPv6 DNS server, Trivial File Transfer Protocol (TFTP) IPv6 client, and IPv6 policy-based routing. Supports Internet Control Message Protocol Version 6 (ICMPv6) Management Information Base (MIB), User Datagram Protocol Version 6 (UDP6) MIB, TCP6 MIB, and IPv6 MIB.	

Attribute	NE40E-X1	NE40E-X2
MPLS	Supports LDP over TE, VPLS, H-VPLS, policy-based routing in VPN. Supports MPLS L2VPNs in either Martini or Kompella mode. Supports VLL/VPLS access L3VPNs. Supports QinQ, MPLS/BGP L3VPN, and inter-AS VPN Option A/B/C. Supports Asynchronous Transfer Mode (ATM) E1, Inverse Multiplexing over ATM (IMA), and Time-Division Multiplexing (TDM) PWE3. Supports MPLS-TP.	
Layer 2 feature	Supports IEEE802.1q, IEEE802.1p, IEEE 802.3ad, and IEEE 802.1ab. Supports the Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), Multiple Spanning Tree Protocol (MSTP), RRPP, DHCP+, VLAN switching, and user binding.	
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Security	Supports ACL filtering, URPF, GTSM, and DHCP Snooping. Supports anti-ARP attack and anti-DOS attack. Supports MAC address limitation and bonding between MAC and IP. Supports SSH and SSH v2.	
Environmental requirements	Long-term ambient temperature: -5℃ to 50℃ Short-term ambient temperature: –20℃ to +60℃ Long-term relative humidity: 5% to 85%, non-condensing Short-term relative humidity: 5% to 95%, non-condensing Working altitude: lower than 3000 meters