Quidway CX600 Metro Services Platform

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1 Product Overview

The Huawei Quidway CX600 (hereinafter referred to as CX600) Metro Services Platform (MSP) based on routing platform is purpose-built for the carrier-class Fixed-Mobile Convergence (FMC) Metro Area Network (MAN). It focuses on metro services access, aggregation and transmission in metro area. It adopts distributed forwarding mechanism and non-blocking switching fabric, featuring unmatched scalability, multiple service capability, enhanced MEN features, powerful QoS mechanism, and carrier-class high availability.

The scalable performance and port density provided by CX600 is available in four chassis configurations: CX600-16, CX600-8, CX600-4 and CX600-X3.

Figure 1 CX600-16

Figure 2 CX600-8

Figure 3 CX600-4

Figure 4 CX600-X3

2 Key Features

• Excellent Scalability

The CX600 offers an ideal platform for carriers to build scalable MEN with flexible transport choices such as Ethernet, MPLS and IP. It supports H-VPLS, VLL (EoMPLS), L3 MPLS VPN, policy routing to VPN, DHCP Server/Relay/Snooping, PIM SSM etc., enabling the scalability of MEN in terms of multiple services, network topology and network scale.

• Perfect QoS

The CX600 has perfect QoS scheduling mechanism, supporting various traffic classifications methods and service-aware policies, thus it can guarantee the fairness of traffic scheduling and the flexible differentiation of granular services. The CX600 supports PQ, WRR, WFQ. The CX600 supports Diff-Serv and Inter-Serv mechanism, realizing the integration of MPLS TE model and Diffserv model. It supports

8CT (Class Type) MPLS DS-TE. It supports 5-level HQoS, and QoS on MPLS VPN, VLL and PWE3, which ensures end-to-end QoS implementation and the reasonable configuration and efficient network resource utilization.

• Abundant Security

The CX600 supports anti-ARP scan attack, anti-Session attack based on BGP, flexible control IP packet with option, GTSM (General TTL Security Mechanism) for OSPF/BGP, VPLS and Layer 3 VPN traffic statistic, DHCP Snooping, and lawful interception.

• Enhanced Metro Ethernet Features

The CX600 supports QinQ, VLAN switch and flexible MAC table control mechanism. Further, the CX600 offers same clock precision with SDH network via synchronous clock based on Ethernet physical layer.

• Carrier-class High Reliability

The CX600 adopts carrier-class design with high availability. All key modules of CX600 are configured with redundancy and can be hot swappable in case of failure. Port trunk, VRRP, and RRPP are available to ensure network link haleness. The CX600 can provide routing graceful restart (GR) and fast convergence. Moreover, the CX600 offers MPLS OAM, Ethernet OAM, PWE3 end to end protection and double service router master/slave backup protection solution.

• IPv6 Feature

The CX600 supports IPv6 basis protocols, IPv6 MPLS VPN (V6 PE), and IS-IS multi-topology. Moreover, the CX600 supports IPv6 over GRE tunnel, IPv6 over IPv4, and IPv4 over IPv6. The CX600 is ready for new network era.

• Scalable Multicast

The CX600 supports IPv4/IPv6 multicast protocols, including PIM-SM/DM/SSM/MLDv1 /MLDv2 / Embedded RP/IGMPv3 etc. It also supports multicast functions of MEN, including IGMP snooping under VPLS instance and inter-VLAN multicast. Meanwhile, The CX600 supports multicast CAC (call admission control) feature. By configuring the multicast CAC policies, it can control the quantity and bandwidth of different IGMP snooping multicast groups at interface level and global level. The CX600 provides a flexible and scalable solution for BTV, VoD service deployment on various networks.

• Enhanced Subscriber Management

The CX600 can act as MSE (Multi service Edge) to implement access control and management of DHCP, IPOE, and Leased line subscribers. It supports dynamic user access, user management, user-based authentication and accounting, and user-based QoS. Meanwhile, CX600 provides the BOD service for

enterprise users and DHCP users. It changes the traditional piping price-scheme into the Value-added service price-scheme, embracing the customer-oriented "Granule Operation" era.

3 Product Specifications

The main specifications of CX600 are summarized in the following table.

Item	Description			
	CX600-16	CX600-8	CX600-4	CX600-X3
Capacity	Switching capacity: 2.56 Tbps Port capacity: 640 Gbps Forwarding performance:800 Mpps	Switching capacity: 640 Gbps Port capacity: 320 Gbps Forwarding performance:400 Mpps	Switching capacity: 320 Gbps Port capacity: 160 Gbps Forwarding performance:200 Mpps	Switching capacity: 240 Gbps Port capacity: 120 Gbps Forwarding performance:150 Mpps
Slots	16 for LPUs, 2 for MPUs, 4 for SFUs	8 for LPUs, 2 for SRUs, 2 for SFUs	4 for LPUs, 2 for SRUs, 2 for SFUs	3 for LPUs, 2 for MPUs
Interface Types	OC-192c/STM-64c POS OC-12c/STM-4c POS OC-3c/STM-1c POS Channelized OC-3/STM-1 GE/FE E1/T1	OC-48c/STM-16c POS OC-12c/STM-4c ATM OC-3c/STM-1c ATM 10GE-WAN/LAN E3/CT3 CE1/CT1		
Service Processing Unit	Netstream, Tunnel & Multicast VPN			
Clock Transmission	Synchronous Clock Based on Ethernet PHY			
L2 Ethernet	IEEE802.1q, IEEE802.1p, IEEE 802.3ad , IEEE 802.1ab, STP/RSTP/MSTP, RRPP, DHCP+, VLAN Switch, and User Binding			
MAC Table	256K per slot			
IPv4/IPv6 Routing Protocols	Static routing, RIP/RIPng, OSPF/OSPFv3, IS-IS/IS-ISv6, BGPv4/BGP4+, IPv6 over Ethernet, IPv6CP, IPv6 ACL/ Telnet, IPv6 MPLS VPN(V6 PE), IS-IS MT			
L2/L3 VPN	LDP over TE, VPLS/H-VPLS, Policy routing to VPN, L2 VPN/VLL with Martini and Kompella VLL/VPLS access L3 VPN Instance QinQ, MPLS/BGP L3 VPN, Inter-AS VPN with option A/B/C			
Multicast	IGMP v1/v2/v3, IGMP Snooping, Multicast VPN, IPv6 Multicast, Static Multicast Routing, PIM-DM/SM/SSM, MSDP, MBGP Deploy Multicast and TE at same time Multicast CAC			
QoS	WRED, DS-TE with 8CT, H-QoS with 5 levels, VLL/PWE3 QoS, 128K queues for ingress processing, and 128K queues for egress processing, Access Network QoS Control, User Location Report			
Network Reliability	BGP/IS-IS/OSPF GR/LDP GR/RSVP GR/NSF, VLL/VPLS/L3VPN GR/NSF, BGP/IGP/Multicast Fast Convergence IP/LDP FRR, TE FRR, VPN FRR, VLL FRR BFD for Static Routing, IS-IS, RSVP, LDP, TE, LSP, PW, OSPF, BGP, VRRP, PIM,RRPP RRPP Ring Protect MPLS OAM N:1 Protect(Trunk port support), Ethernet OAM(L2 LSA , 802.1ag and 802.1ah), Double SR Master/Slave, PWE3 End to End Protection All for one, to guarantee the service convergence less than 50ms			
Dimensions (W×D×H)	442mm × 669mm × 1600mm (36U); one CX600-16 can be installed into a 2.2m standard rack	442mm × 669mm × 886mm (20U); two CX600-8 can be installed into a 2.2m standard rack	442mm × 669mm × 442mm (10U); four CX600-4 can be installed into a 2.2m standard rack	Chassis (DC): 442mm × 650mm ×175mm (4U) eleven CX600-X3 can be installed into a 2.2m standard rack Chassis (AC): 442mm × 650mm × 220mm (5U)

Item	Description			
	CX600-16	CX600-8	CX600-4	CX600-X3
Weight	250kg (fully configured) MPU: 3.8kg SFU: 3.0kg LPU: 5.0kg	147kg (fully configured) SRU: 3.8kg SFU: 1.8kg LPU: 5.0kg	87kg (fully configured) SRU: 3.8kg SFU: 1.8kg LPU: 5.0kg	36kg (DC fully configured) 46kg (AC fully configured) MPU: 1.5kg LPU: 5.0kg
Max. Power Consumption	4700W	2200W	1400W	900W
Environment	Long Time Work Temperature: 0~45°C Short Time Work Temperature: -5~55°C Restriction on Temperature Variation Rate: 30°C/Hour Long Time Work Humidity: 5%RH~85%RH, non-condensing Shot Time Work Humidity: 0%RH~95%RH, non-condensing Long Time Work Altitude: ≤3000m			

4 Deployment Scenario

Figure 5 below shows a typical deployment scenario for the use of CX600 in Metro Ethernet solution. With CX600 deployed in MEN aggregation layer, flexible choice of the network topology, service insertion point, as well as the transport technologies can be available, and the optimal balance between operations and network transport efficiency can be brought to carriers.

The CX600 enables the MEN to have a residential hybrid approach of L3 service edge design, e.g. to form a distributed L3 edge for VoIP/IP/BTV/VoD whilst a centralized L3 edge for High Speed Internet (HSI), that allows multicast channels to be distributed at closest edge to consumers with minimal operational needs, meanwhile, the existing service model, operational structure and traffic pattern of HSI can be still retained.

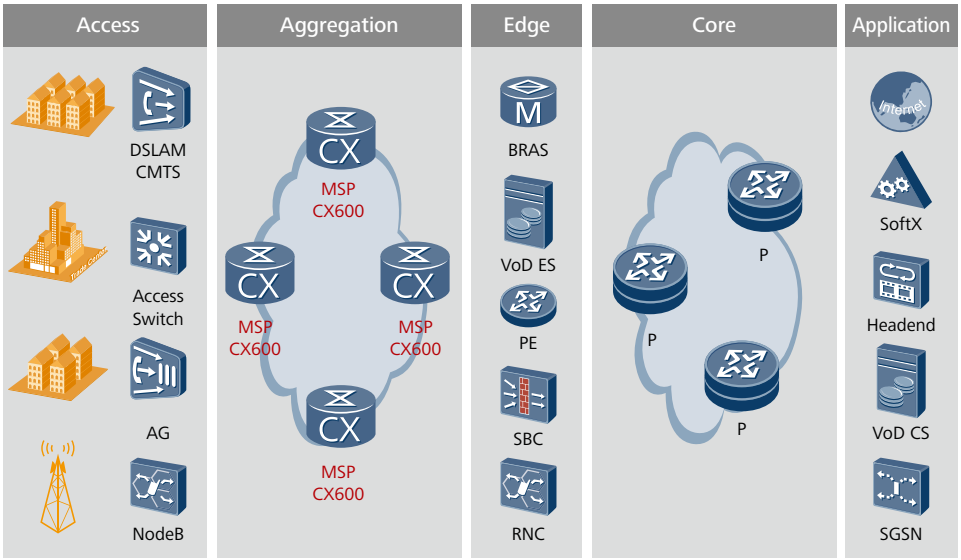

Figure 5 Typical scenario for CX600 in Metro Ethernet Network

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