

Article Overview

40G carrier-grade routers are high-performance network devices designed for ultra-reliable, high-bandwidth service delivery in core, edge, and metro networks.

Overview

40G carrier-grade routers are engineered to handle high-throughput, low-latency traffic for service providers, hyperscale data centers, and large enterprises. They support 40 Gigabit Ethernet (40G) interfaces, often alongside 100G, 25G, 10G, and GE ports, enabling flexible deployment for IP/MPLS, Carrier Ethernet, and cloud networks . These routers are designed for mission-critical applications, offering redundant power supplies, hot-swappable modules, and non-stop forwarding to ensure zero service disruption during failovers .

Key Features

- o High-Density Interfaces: Support for multiple 40G QSFP+ or QSFP28 ports, often configurable as 100G or breakout to 4x 25G/10G for granular bandwidth allocation .
- o Carrier-Grade Reliability: Redundant power, hot-swappable fans, NSF/SSO, and advanced OAM for uninterrupted service .
- o Advanced Routing & Service Support: Full support for L2/L3 VPNs, MPLS TE, Segment Routing (MPLS and IPv6), EVPN, FlexE, QoS, GRE/IPsec tunneling, and IPv6 transition .
- o Scalability & Performance: Modular architectures with line-rate forwarding, distributed hardware-based switching, and high throughput (e.g., Huawei NE40E series offers 2T per line card, Cisco NCS-55A1 supports 24x 40G/100G ports), .
- o SDN & Automation: Support for programmable interfaces, model-driven automation, and integration with software-defined networking frameworks .

Examples of 40G Carrier-Grade Routers

- o Huawei NetEngine NE40E Series
 - o Modular routers with X3A and X8A models for different network scales.
 - o Supports 100GE, 40GE, 10GE, and GE interfaces.
 - o Provides up to 51.2 Tbps switching and 7,232 Mpps forwarding .
- o Cisco NCS-55A1-24H-B
 - o 2RU chassis with 24 QSFP28 ports configurable as 100G, 40G, or breakout to 4x 25G/10G.
 - o Runs Cisco IOS XR with Segment Routing, MPLS, EVPN/VXLAN, and SDN programmability.
 - o Optimized for 5G backhaul, cloud edge, and IP/MPLS core networks .
- o Nokia 7750 SR Series with 3HE03208AA Interface Board



40G Carrier-Grade Router

- o 4-port 40G QSFP+ optical interface board for SR-14, SR-24, and SR-72 routers.
- o Carrier-grade performance for core networks, hyperscale data centers, and government networks.
- o Supports IEEE 802.3ba, VLAN, QoS, MPLS-TP, EVPN, and BGP-LU .

Applications

- o Core and Edge IP/MPLS Networks: High-capacity routing for backbone and metro networks.
- o 5G Mobile Backhaul: Low-latency, high-throughput transport for mobile networks.
- o Cloud and Data Center Interconnect (DCI): Scalable, reliable connectivity between data centers.
- o Carrier Ethernet Services: Supports residential, business, and mobile services with predictable performance.

Conclusion

40G carrier-grade routers are essential for modern high-speed networks, providing scalable, reliable, and flexible solutions for service providers and large enterprises. They combine high-density 40G interfaces, advanced routing capabilities, and carrier-grade reliability to meet the demands of bandwidth-intensive applications, including 5G, cloud services, and IP/MPLS networks .

Cloud Grade Routing Secure Internet Peering Carrier Edge VPN Services Next Generation EVPN Services for 5G/ MEC, CIN, &

NE40E Series Overview The NetEngine 40E series universal service routers are high-end network products launched by Huawei.

The Cisco® Carrier-Grade Services Engine (CGSE) for the Cisco Carrier Routing System (CRS) is an ideal platform for these

Cisco ASR 9000 Series line cards and routers are designed to provide the fundamental infrastructure for scalable

How 40G QSFP+ optical transceivers boost performance in data centers and telecom networks. Learn about types, use cases, and

Based on a 2T platform, equipped with NP chipsets, and powered by its Versatile Routing Platform (VRP),

Juniper MX104-40G-AC-BNDL Overview The Juniper MX104-40G-AC-BNDL is a compact carrier-grade edge router bundle designed

A 40G-SR4 transceiver in the QSFP form factor The 40/100 Gigabit Ethernet standards encompass a number

40G Carrier-Grade Router

of different Ethernet

Deploy Cisco ASR1004-40G-NB with ESP40, RP2, SIP40 and 4x10GE SPAs for scalable 40G edge routing and secure AESK9

With these capabilities, the ASR 9000 Series line card (Figure 1) and routers provide the fundamental infrastructure

The Cisco ASR 9000 Series line cards and routers are designed to provide the fundamental infrastructure for scalable

If you are working with substantial amount of data - like providing Internet access or maintaining a huge data center - this is the

FS 40Gb Switches offer high bandwidth, network virtualization, and redundancy, ensuring efficient

Applications Carrier-grade Switch Servers Access and edge switch/router - Mobile Backhaul, PTN, POTN, OLT 1G, 10G, 40G, 100G

Foundry Network's 10GbE NetIron 40G router offers wire-speed, non-blocking performance of up to 1.5 billion packets per second.

Carrier Routing System (CRS) is a modular and distributed core router developed by Cisco Systems Inc that enables service

Web: <https://kremgroup.co.za>

