



DRIVING NEXT GENERATION DATA CENTERS TOWARD 400G

Edgecore Networks, the leader in open networking, continues driving the quality design and manufacturing for high speed 400G networks

Market Trend

As our data-centric world rapidly develops around us, the capacity of the networks that carry all the data traffic are constantly being stretched to their limits. The ever-increasing rise of more and more cloud applications and services, the expanding use of video in many applications, and a steady climb in the number of users all adds up to an unrelenting volume of data. With Hyperscale data center operators looking for solutions to the current traffic growth, they also have to cope with an upcoming traffic surge from new technologies. The advent of 5G mobile networks, the Internet of Things (IoT), edge computing, and AI machine learning and deep learning are all data intensive and are poised to cause a massive increase in network traffic.

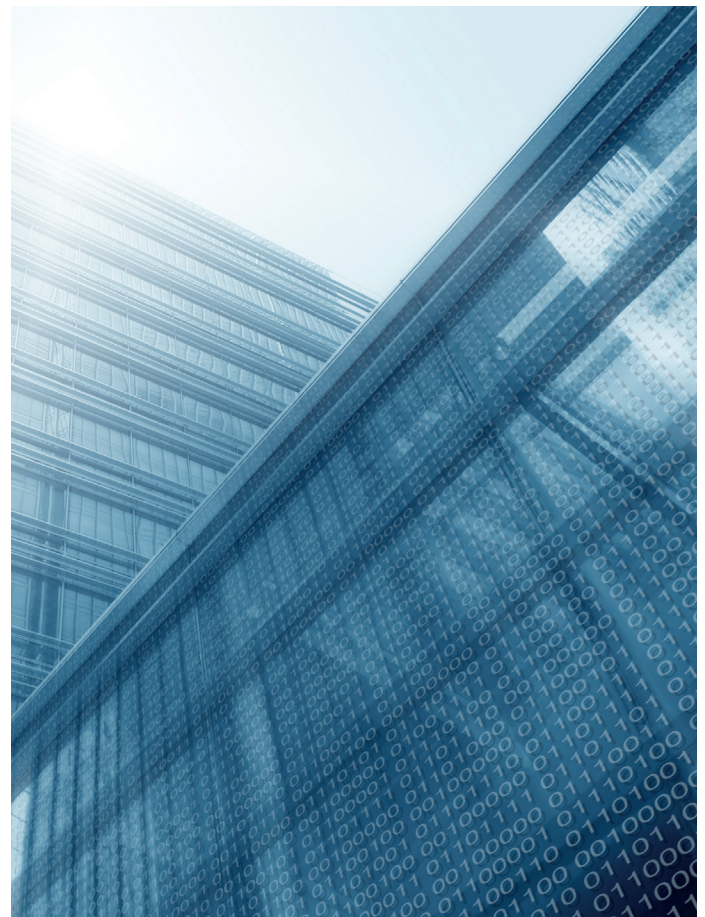
A typical hyperscale data center has seen storage increasing more than 50% annually for some years, with by far the bulk of data traffic being moved within the data center. Hyperscale data center operators are now looking to the next-generation 400G network infrastructure to help absorb the demanding workloads. With greater server density and processing power in the data center, operators need the higher-bandwidth 400G links to replace the limited 100G/200G connections. But, 400G offers operators much more than that. The new advanced 400G network equipment delivers greater efficiency, at a lower cost per bit, lower power, with potentially fewer points of failure in the network. As operators struggle to meet high-volume network demands, reduce operational costs and reach sustainability goals, 400G offers an ideal solution.

Open networking is helping to transform the way IT is deployed and used by many types of businesses. Open networks are based on networking hardware whose designs are fully open-sourced, with a choice of independent open software for NOS, SDN, virtualization and cloud orchestration.

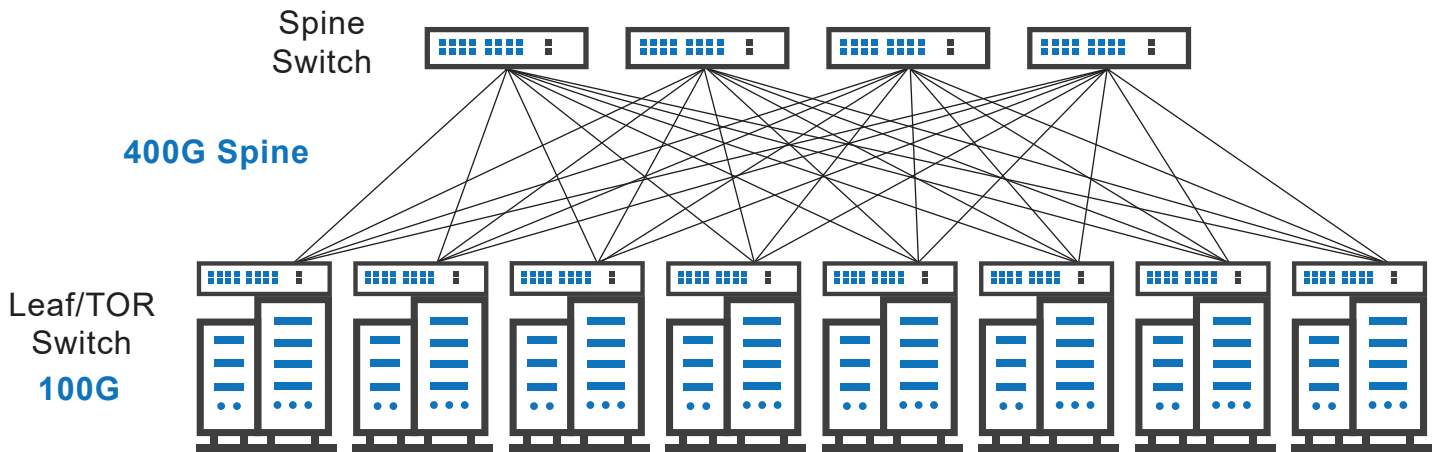
How and why 400G networks are being used in the hyperscale data center

For years, hyperscale data center operators have been enjoying the benefits of open networking: automated and accelerated provisioning of network capacity and services, greater control over the development of enhanced network services, flexibility to work with best-in-class suppliers, reduced network equipment expenses and reduced operating expenses. These open network benefits are now available for many more network use cases. Public and private cloud data centers of all sizes are being deployed with network fabrics built from open TOR and spine switches. Open networks are addressing telecommunications service provider requirements for new central office architectures, managed services delivery, monitoring and analytics networks, and Internet exchanges.

Now, the growth of IoT, AI and cloud computing machine learning has driven the requirement for higher processing speed and lower latency as well as high speed storage capability. All these demands require higher network bandwidth toward 400G or above.



Leaf and Spine Topology for Data Center



As an active member of OCP, ONF, TIP, DENT and SONiC open software communities, Edgecore Networks actively offer choices of open-source software that provide network operators with open platforms, as well as enable value-added application development.



TELECOM INFRA PROJECT



Together with its technology and integration partners, Edgecore Networks delivers leading open networks solutions for cloud data center, telecommunications and enterprise customers.

Edgecore/Accton Strength in Open Networking from design to manufacturing

- ▶ Experience/leading position for decades in IP networking design and manufacturing.
- ▶ Diversity of chipset development for open networking. Early partnership with Broadcom in design phase.
- ▶ Multiple choices of optic transceivers to support 100G/400G deployments, including DAC, AOC, and AEC cables.
- ▶ Advanced design capabilities in signal integrity, power integrity, and thermal analysis and management, which is essential for data center reliability.
- ▶ In-house experienced software development team to enable system bring-up quicker than the competition.
- ▶ Data center-focused Enterprise SONiC development and support.

Solution/Product Details

400G/100G



Model Number	AS9716-32D	AS7726-32X	AS7816-64X	AS7712-32X
Interfaces				
400 Gigabit QSFP-DD	32	—	—	—
100 Gigabit QSFP28	—	32	64	32
Serial Console	Yes	Yes	Yes	Yes
RJ-45 Management	Yes	Yes	Yes	Yes
USB Port	Yes	Yes	Yes	Yes
Optional Module	—	—	—	—
Optional Module Slots	—	—	—	—
Memory and Spaces				
SPI Flash	16 Mbytes x 2	16 Mbytes x 2	16 Mbytes x 2	8 Mbytes x 2
DRAM	8G x 2 DDR4	8G x 2 DDR4	8G x 2 DDR4	8G x 2 DDR3
NAND Flash	—	—	—	—
Storage Option	64GB	64G m.2 SSD	32G m.2 SSD	64G mSATA
Performance				
MAC Address Table Size	8K	32K min. 288 max.	8K min. 264K max.	8K min. 136K max.
Switching Capacity	25.6 Tbps full duplex	6.4 Tbps full duplex	12.8Tbps full duplex	6.4 Tbps full duplex
IPv4 / IPv6 Routes	L3 Host IPv4 UC: 16K IPv4 MC: 8K IPv6 UC: 8K IPv6 MC: 4K	IPv4: 16K min./168K max. host entries; 32K LPM entries with TCAM-only mode IPv6: 8K min./100K max. hostentries; IPv6/64=16K TCAM-only mode	IPv4: 76 K min./128 K max. L3 hosts/extended view; IPv4/32: 32 K LPM entries with TCAM-only mode IPv6: 46 K min./64 K max. L3 hosts/extended view; IPv6/64: 16K LPM entries with TCAM-only mode	IPv4: 8K min./72K max. host entries; 16K LPM entries with TCAM-Only mode IPv6: 4K min./36K max. host entries; IPv6/64=8K TCAM-Only mode
Forwarding Rate	7.88 Bpps	2.0 Bpps	4.2 Bpps	2.0 Bpps
Packet Buffer Size	64MBytes	32MBytes	42MBytes	16 MBytes
Jumbo Frame	9416 bytes	9416 bytes	9416 bytes	9416 bytes
Hardware				
Switch Silicon	Tomahawk III BCM56980	Trident III BCM56870	Tomahawk II BCM56970	Tomahawk BCM56960
Central Process Unit	Intel Xeon® D-1518	Intel Xeon® D-1518	Intel Xeon D-1518	Intel Atom C2538
Air Flow (1)	FtoB	FtoB / BtoF	FtoB	FtoB / BtoF
Fan Module	5 +1	5 +1	3 + 1	5 + 1
Power Module	2	2	2	2
Dimension (WxDxH) cm	43.84 x 53.6 x 4.31	43.84 x 51.5 x 4.35	43.84 x 58 x 8.77	43.84 x 51.5 x 4.35
Operation Temperature	0°C ~ 45°C	0°C ~ 45°C	0°C ~ 45°C	FtoB 0°C ~ 45°C BtoF 0°C ~ 40°C
Maximum Power Consumption	max. 1300 W	max. 550 W	max.850 W	max. 550 W
Certification				
OCP Status	Accepted	Accepted	Accepted	Accepted