Switch with Embedded AI Chip

400GE Smooth Evolution

CloudEngine 16800

Data Center Switch Built for the AI Era

Challenges for Data Center Networks

Low AI data processing efficiency

- On a traditional Ethernet, the AI computing power of data centers can only reach up to 50% due to a packet loss rate of 1‰. How is the computing efficiency improved?

Digital floods in the AI era

- In the next 5 years, the volume of data will increase 20-fold. The existing 100GE network cannot support such data. How is the network upgraded and evolved?

Difficulty in locating network faults

- The computing, storage, and data networks are deeply integrated, and manually locating network faults takes several hours. How is the O&M efficiency improved?

Huge losses caused by service interruptions

- Data center services are highly centralized. How are high network availability and 24/7 service continuity ensured?

Product Highlights

Embedded AI Chip

- Data Center switch with embedded AI chip
- Innovative iLossless algorithm, providing real-time learning and training of network-wide traffic and implementing auto-sensing and auto-optimization of the traffic model
- Zero packet loss, low latency, and 100% throughput, improving the AI computing power from 50% to 100%

Large Capacity

- 400GE smooth evolution, supporting traffic increase in the future
- SuperCooling – powerful heat dissipation, reducing the power consumption of each bit of data by 50%
- SuperPower – efficient power supply, improving power supply efficiency by 95% per unit space

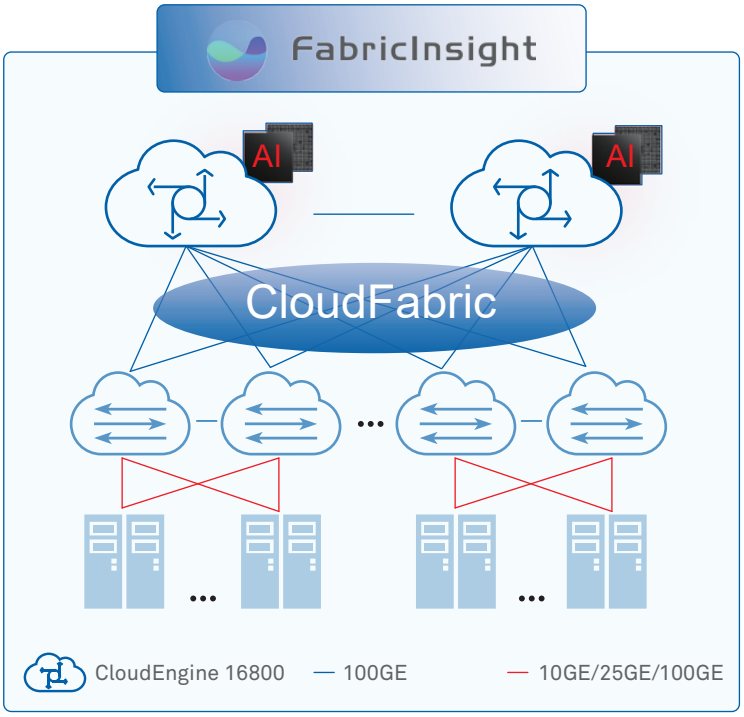
Autonomous Driving Network

- iNetOps intelligent O&M algorithm, analysis of root causes for over 70 typical issues in seconds, and automatic fault location rate of 90%
- Telemetry-based data collection in milliseconds, building data basis for the intelligent O&M platform
- Embedded AI chip, supporting edge AI processing and local inference and execution of 60% faults

Carrier-class Reliability (99.999%)

- Carrier-class reliability (99.999%)
- Non-blocking cell switching without packet loss
- Hot standby of MPUs, SFUs, power modules, and fan modules

HUAWEI



Product Description

Huawei CloudEngine 16800 data center switch is built for the AI era. It has an embedded AI chip and uses innovative iLossless algorithm to learn and train network-wide traffic, implement zero packet loss and E2E μs-level latency, and achieve maximum throughput. The CloudEngine 16800 is used with Huawei data center network analyzer FabricInsight. Based on the embedded AI chip, the CloudEngine 16800 can predict local faults and implement predictive maintenance.

The CloudEngine 16800 uses a fully orthogonal architecture without a backplane. It has an industry-leading Clos switching architecture and strict front-to-back airflow design. It provides 10GE to 100GE full-series interface cards, and supports numerous data center features and intelligent O&M features.

On a typical large-scale data center network, the CloudEngine 16800 functions as the core switch. The CloudEngine 8800/6800 functions as the ToR switch and connects to the CloudEngine 16800 through 100GE interfaces. The CloudEngine 16800 and CloudEngine 8800/6800 use VXLAN to build a non-blocking large Layer 2 network, which allows large-scale VM migration and flexible service deployment.

CloudEngine 16816

CloudEngine 16808

CloudEngine 16804

Parameter	CloudEngine 16816	CloudEngine 16808	CloudEngine 16804
Switching capacity (Tbit/s)	173/1,548[1]	86/774[1]	43/387[1]
Packet forwarding rate (Mpps)	45,120	22,560	11,280
Service slots	16	8	4
SFU slots	6 (scalable to 9 for future expansion)		
Chassis dimensions (W x D x H)	442 mm x 1020 mm x 1435.7 mm	442 mm x 861.4 mm x 703 mm	442 mm x 861.4 mm x 437.4 mm
Switching architecture	Clos switching architecture, cell switching, VoQ, and distributed large buffer		
Airflow design	Standard front-to-back		
Data center features	VXLAN routing and bridging BGP EVPN CSS, M-LAG NSH Microsegmentation iLossless AI algorithm		
Intelligent O&M	Telemetry NetStream Enhanced ERSPAN		
Open interconnection	Ansible-based automatic configuration and open-source module release		
Line card density	36 x 100GE; 18 x 100GE; 36 x 40GE; 24 x 40GE; 48 x 10GE		

1. Long-term evolutionary roadmap

HUAWEI TECHNOLOGIES CO., LTD.
Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129, P.R.China
Tel: +86 755 28780808
www.huawei.com

HUAWEI