



FiberHome DataCom Solution-Enhanced ROUTER&SWITCH PRODUCT



Content



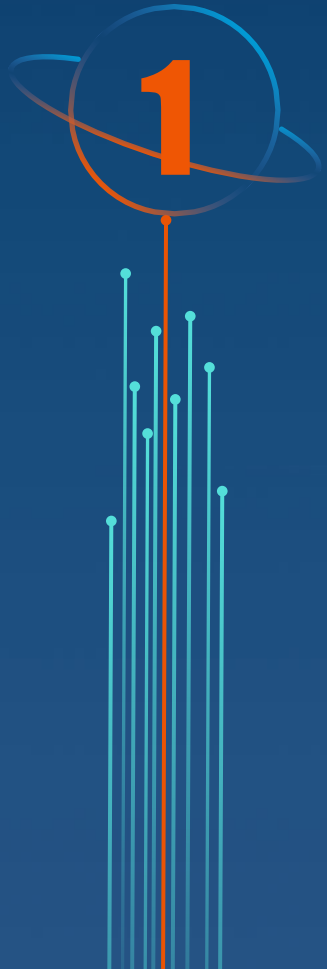
FiberHome DataCom History



Introduction of Router Solution&Cases



Introduction of Switch Solution&Cases

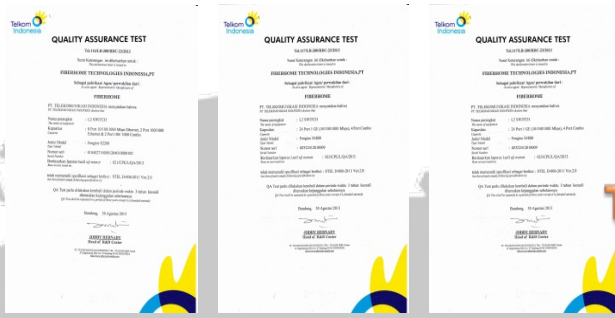


FiberHome DataCom History



Accumulation

20+ years datacom technology research & development with a large number of patents and advanced techniques



QA
Telcom Indonesia

Dedication

12 consecutive years as key supplier of the 3 Chinese Carriers(China Mobile, China Telecom & China Unicom)



ITU-T Standards by
FiberHome

Innovation

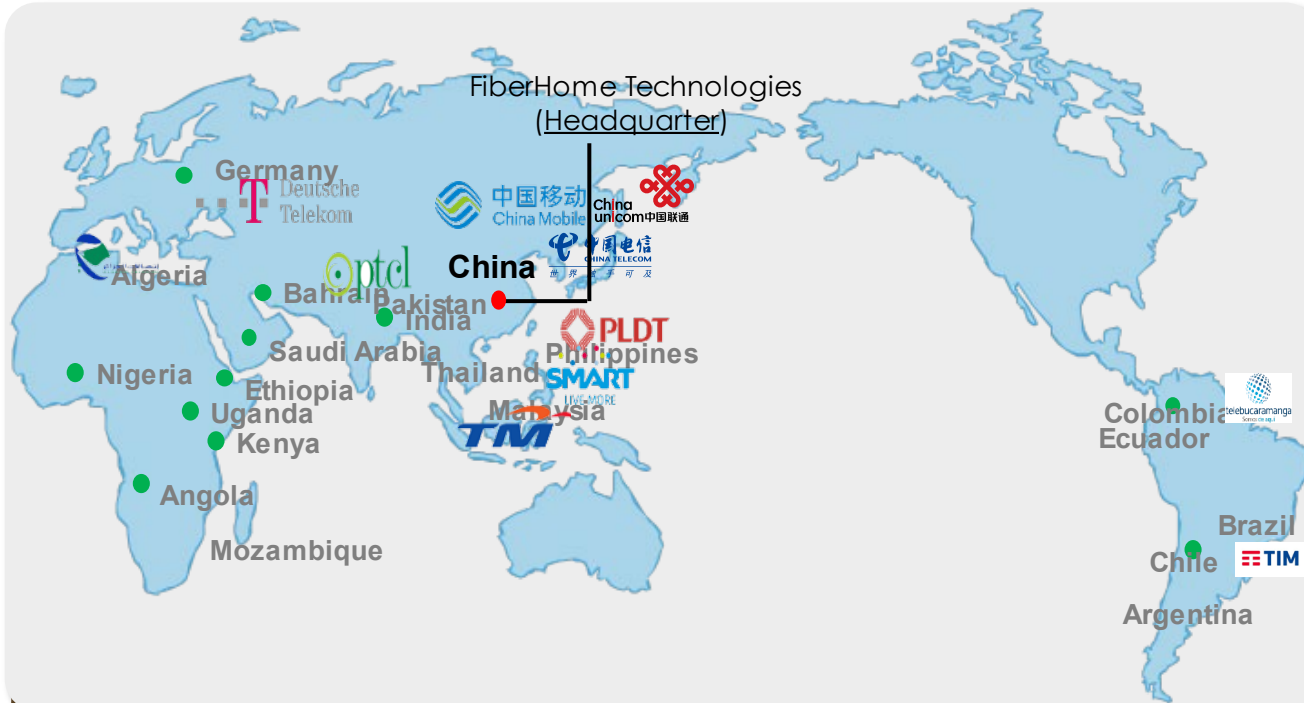
Investment in datacom technologies
Primary member of the standards developing organization, such as **ITU-T, IEEE, IETF, MEF.etc.**

Cooperation

Strategic partnership with Broadcom、Marvell
Products co-developing with tier 1 suppliers

Markets	Customers
Domestic Carriers	  
Overseas Carriers	        
Enterprise	    

FIBERHOME IP GLOBAL FOOTPRINT



Datacom Global Market **TOP 7**



Over world **200** metros, **180+** LTE Metros



World wide used over **400,000** sets



China Unicom market share exceed **30%**



China Telecom market share exceed **25%**



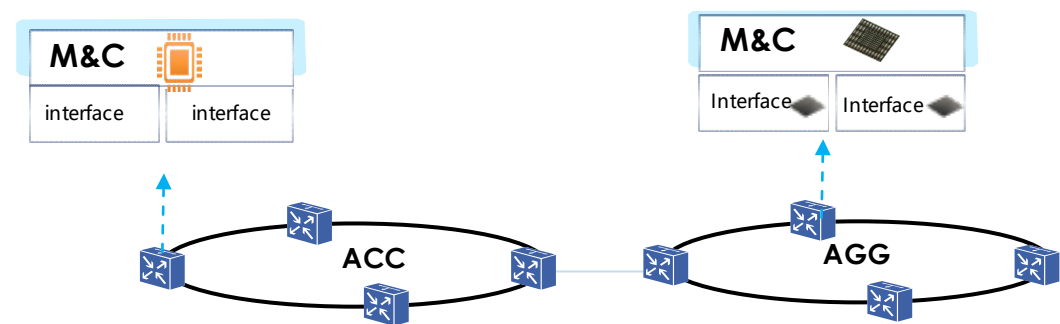
China Mobile market share exceed **20%**
2020 5G TOP2, 30%



KEY CHIP 100% DEVELOPED IN-HOUSE TO IMPROVE CAPACITY



- Control and Forwarding Key Chips 100% Developed in-house, 0.1+ Billion USD investment

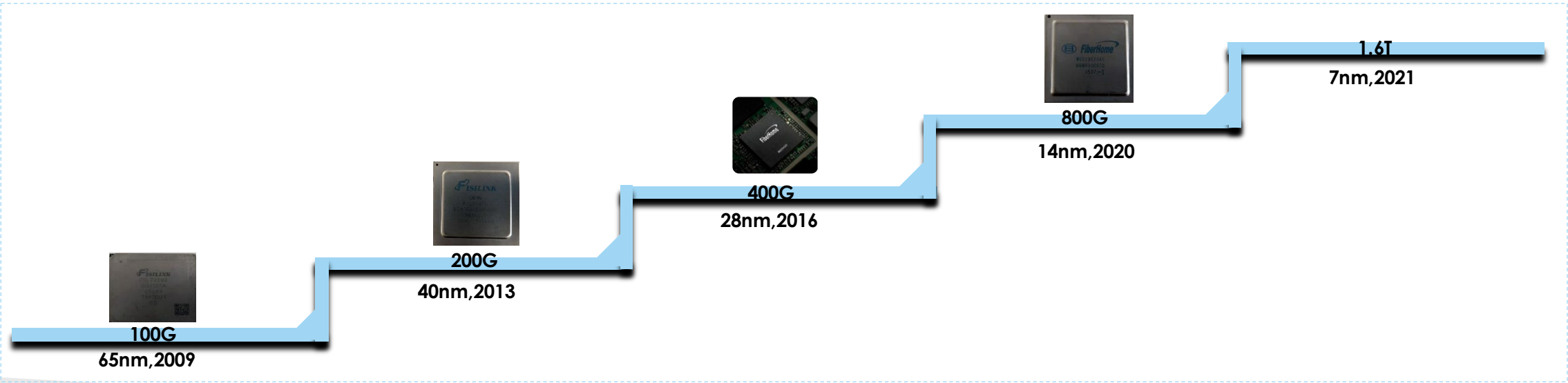


R&D Center in California

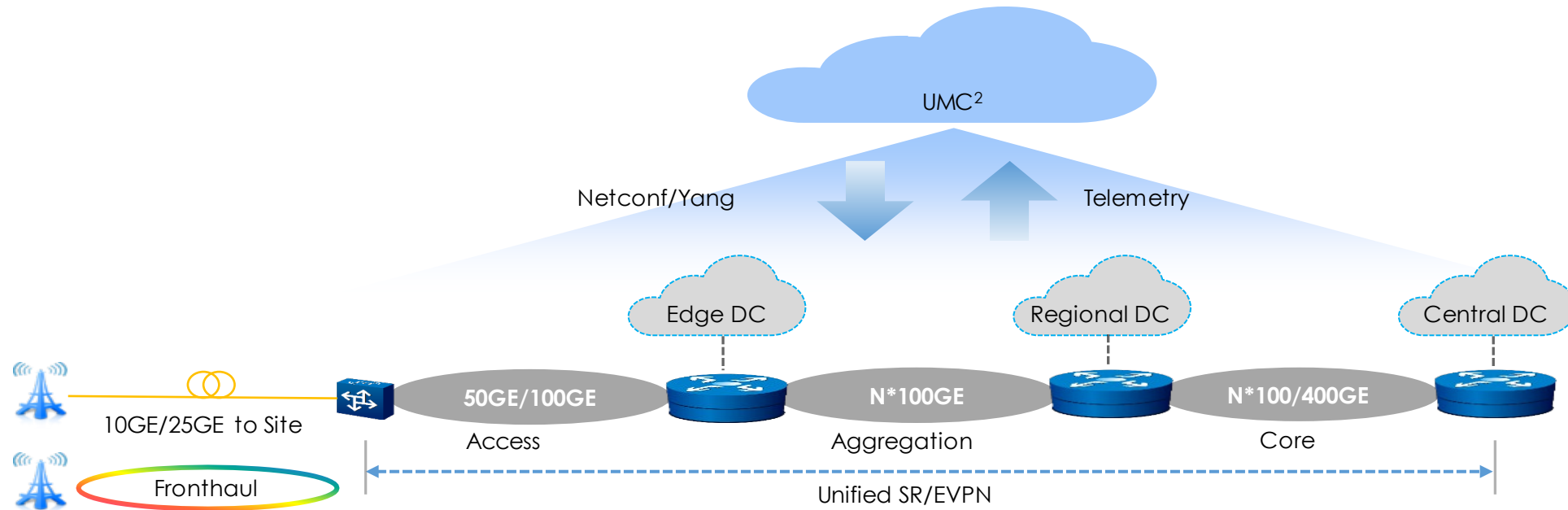


R&D Center in Silicon Valley

- 14nm Technology, Integrate 4.2 Billion Circuit, Tier-1



FIBERHOME 5G BEARER SOLUTION READY



Capacity Ready

- 10GE/25GE to site, 50GE/100GE Access Ring
- 100GE Agg/Core, and capable of evolving to 400GE

Architecture Ready

- SR/EVPN unified protocols
- 1588v2/G.8275.1 E2E phase Synchronization precision: $\pm 1.5\mu s$

Slicing Ready

- Hard/soft slicing deploy on demand, Strictly guaranteed SLA, Flex-E
- Intent-driven automatic network slicing

Intelligence Ready

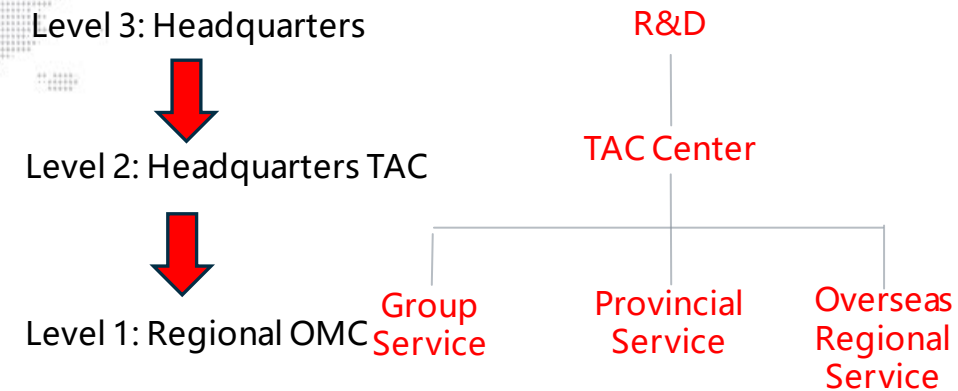
- Telemetry real-time data collection
- Automatic Service creation, path and topology visibility
- Intelligent fault prediction

Global Service Platform

全球服务平台



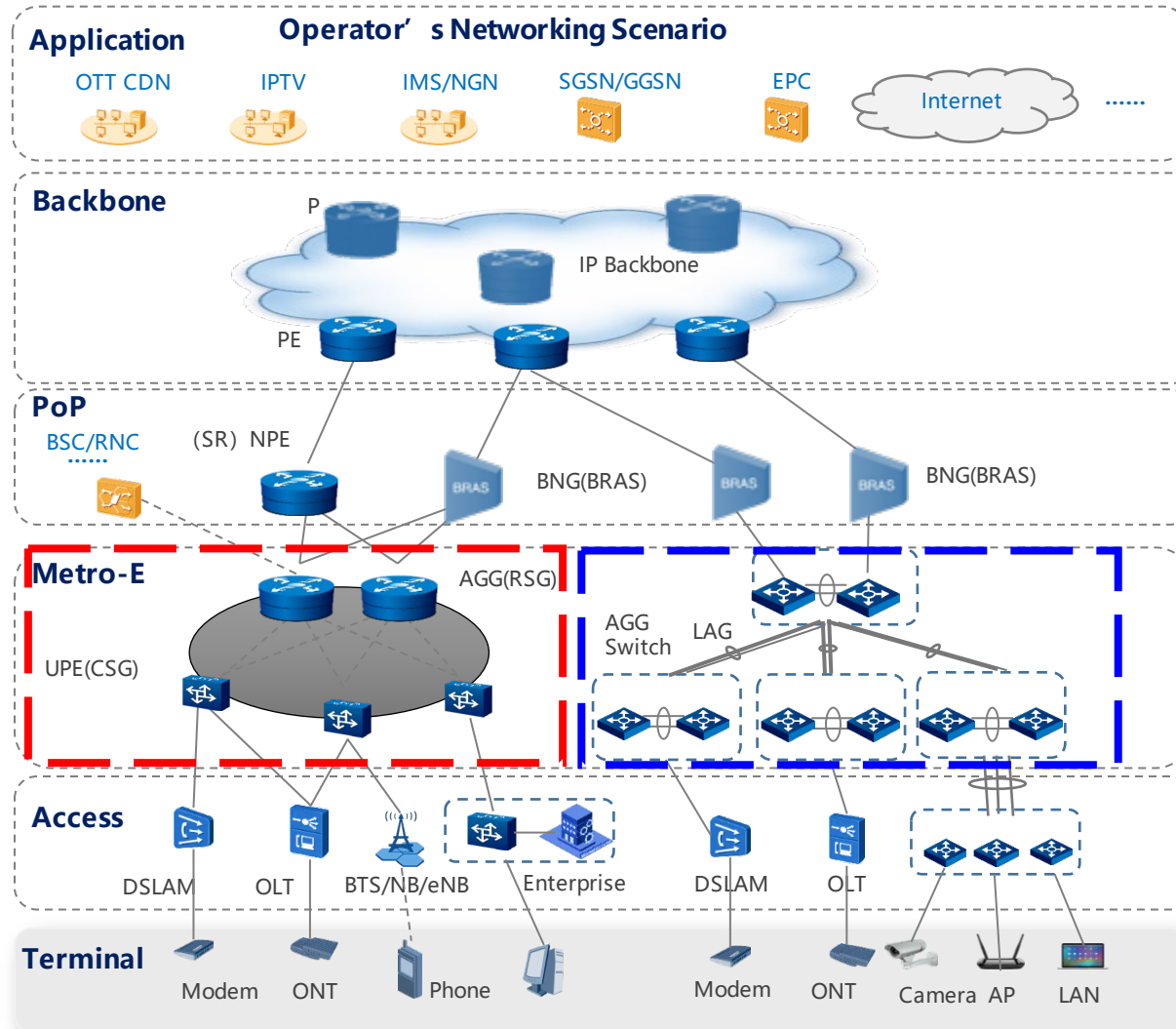
TAC Center / Regional OMC



- **57 local service centers**
- Global 5000+ professional technical engineers
- provide "zero distance" service
- **Cover 90+ countries and regions**
- Global 100+ mainstream operators
- 3 billion + users worldwide



■ Main application scenarios



■ **Scenarios:** MBH, LL, Metro Transmission
L2+L3 & Full L3 (Static, Dynamic)

Network level	Router/IPRAN
Metro-E Core	R8000/R8000E
Aggregation	R850-6/-10
Access	R820-7
Mini-access	R820、R810

Network level	SWITCH
Chassis Core	S7800/S7800e/S6800
10GE Agg	S6800
GE Agg	S5800
GE Acc	S4800

EOR



Core Switch



Router



Security

GE

**FSG10000-G**

10GE



FSG10000-X2/X4/X10



Railed Layer 2

Chassis Layer 2 &3



FIS6000

2

Introduction of Router Solution&Cases



Router/IPRAN Family



R8000-10, 2T,14RU

R8000-5, 1T,6RU

R8000-3, 600G/800G,4RU

R820-2/3/4,1RU



R8000-20E, 8T,40RU



R8000-10E, 4T,21RU



R850-10, 480G,5RU



R850-6, 240G,3RU



R820-7,1RU

LTE & 5G mature solution

R8000E BUILD 5G ULTRA-BROAD PIPE



R8000-20E



R8000-10E



- **Large capacity:** 2.6T switching capacity per slot , current switching board supports 1T capacity per slot
- **High-speed access:** chip developed-in house, providing 100G/200G/400G service access capability
- **Full-service interface:** supports 100GE/50GE/25GE/10GE/GE, and CPOS/STM-1/E1 interfaces, and smoothly supports 200GE/400GE interfaces.
- **AC and DC power supply:** Provide -48V DC, high voltage DC integrated power supply, support 220V AC power supply

Feature	R8000-20E	R8000-10E
Switching Capacity	52T	26T
Access Capacity	8T	4T
Number of Service Slots	20	10
Redundancy	Main Control: 1:1, Switching: 7+1	Main Control: 1:1, Switching: 3+1
Dimension (H x W x D)	1778×443×740 (40U)	933×443×740 (21U)

R8000 BUILD ULTRA-BROAD PIPE



R8000-3



Access Capacity
600G

R8000-5



Access Capacity
500G

R8000-10



Access Capacity
2Tbps

- High Performance
 - Target to use at Core & Aggregation
 - Large Capacity 100GE platform
- Exquisite Design
 - Low power consumption($\leq 30W$ / per 10GE port)
 - Compact, space saving design
- Future Oriented
 - SDN, IPV6, Segment Routing, etc.
 - Continuous upgradeable and evolution

Equipment	R8000-3	R8000-5	R8000-10
Service Slot	3	5	10
Hight	4RU	6RU	14RU
Power Input	Redudant DC , Range of DC: -48V-57V		
Power consumption	900W	1200W	2500W

PARTS OF SERVICE BOARD CARD



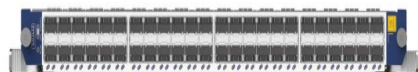
1 port 100GE



2 ports 100GE

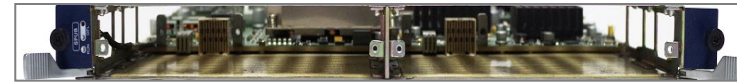


4 ports 100GE



48 ports 10GE

Integrated Card



100G/200G Service Process Unit



2 ports 50GE



4 ports 25GE



16 ports GE/FE(e)



5 ports 10GE



10 ports 10GE



20 ports GE/FE(o)

Sub-Card

■ R850 MEET THE 5G INTEGRATED ACCESS



R850-10



R850-6

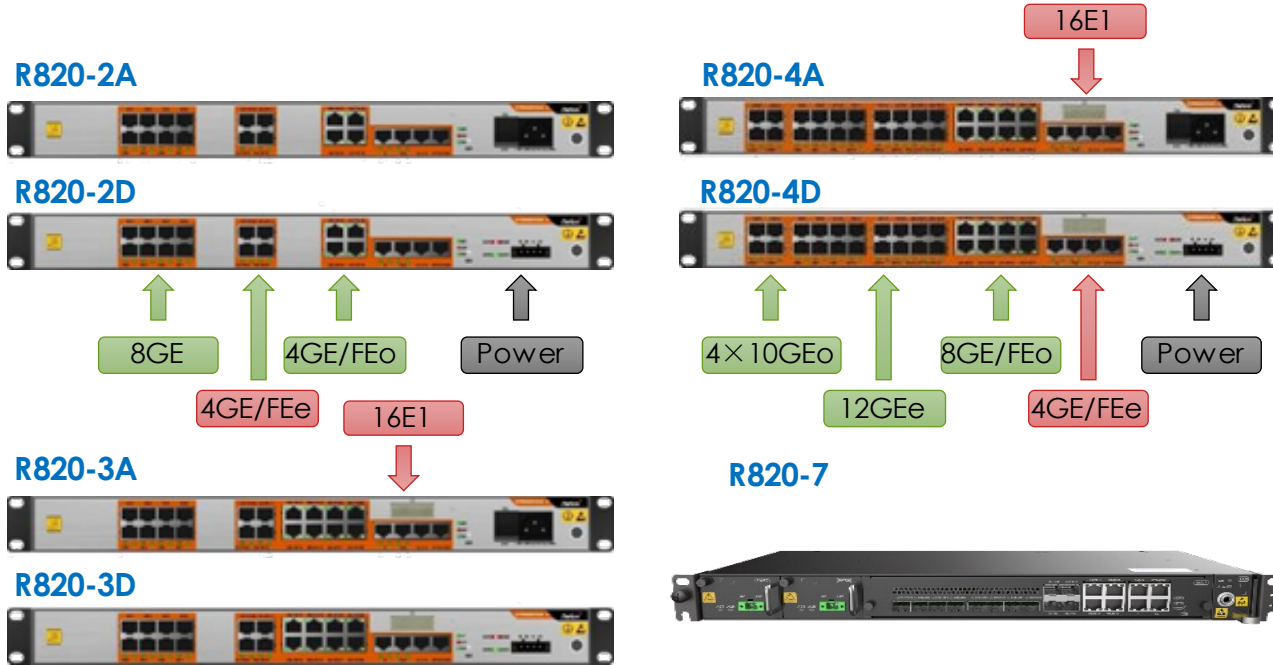


- **Large capacity:** The current switching board supports access capacity of 480G/240G, meeting the large-capacity access requirements of the 5G era.
- **High-speed access:** chip developed-in house, the current single slot provides the maximum 100G service access capability.
- **Full service interface:** Supports 100GE/50GE/25GE/10GE/GE and CPOS/STM-1/E1 interfaces
- **Easy to install:** installed in 300mm deep cabinet, saving room space
- **AC and DC power supply:** support -48V DC, 220V AC power supply

Feature	R850-10	R850-6
Switching Capacity	2.8T	1.4T
Access Capacity	480G	240G
Number of Service Slots	10	6
Redundancy	Main Control and Switching: 1+1	Main Control and Switching: 1+1
Dimension (H x W x D)	222×442×272	133×442×272

Interface Type	Card Density
100GE	1
50GE	1/2
25GE	2/4
10GE	8

R820 SERIES OFFER FLEXIBLE END ACCESS



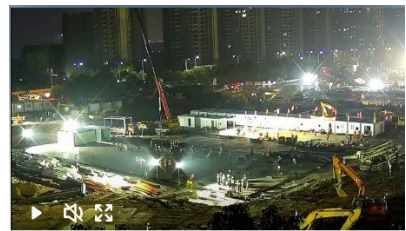
- **Rich service interface:** support 10GE/GE/FE/E1 interface
- **Easy installation:** 1U height box device, installed in 300mm deep cabinet, saving room space
- **AC and DC power supply:** support -48V DC, 220V AC power supply, meet the complex power supply environment for end access

Feature	R820-2	R820-3	R820-4	R820-7
Switching Capacity	16G	20G	64G	88G/168G/228G
Access Capacity	8×GE(o)+4×GE/FE(o)+4×GE/FE(e)	8×GE(o)+4×GE/FE(o)+8×GE/FE(e)+16E1	4×10GE(o)+12×GE(o)+4×GE/FE(o)+8×GE/FE(e)+16E1	8*10GE(o)+4GE/FE(o)+4GE/FE(e) 16*10GE(o)+4GE/FE(o)+4GE/FE(e) 4*25GE/10GE(o)+12*10GE/GE(o)+4GE/FE(o)+4GE/FE(e)
Dimension (H x W x D)	44.4×443×225	44.4×443×225	44.4×443×225	44.4×443×225



5G SUPPORTS THE IMPLEMENTATION OF THE INFORMATION INDUSTRY

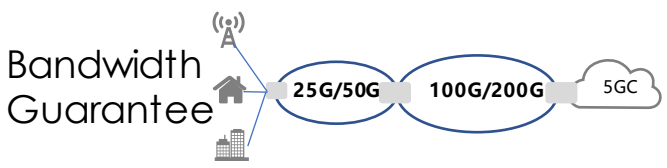
Remote Supervisory



Fire Gold Mountain Hospital under the construction

Timely release of Progress information

- ✓ Daily visit peak: 90 million people
- ✓ Accumulated visit: 200 million people



End-to-end stable rate
'0' packet loss

Telemedicine



Remote expert diagnosis of new coronavirus patients

Effective treatment for critically ill patients

- ✓ At a distance of 1200KM, doctors in Beijing and doctors in Wuhan remotely diagnosis
- ✓ "CT original image" sharing, real-time marking and judgment

Latency Guarantee



E2E Latency < 20ms
E2E '0' packet loss

iFactory



Safe isolation, low latency guarantee, differentiated SLA

A win-win situation for resumption of production and production prevention

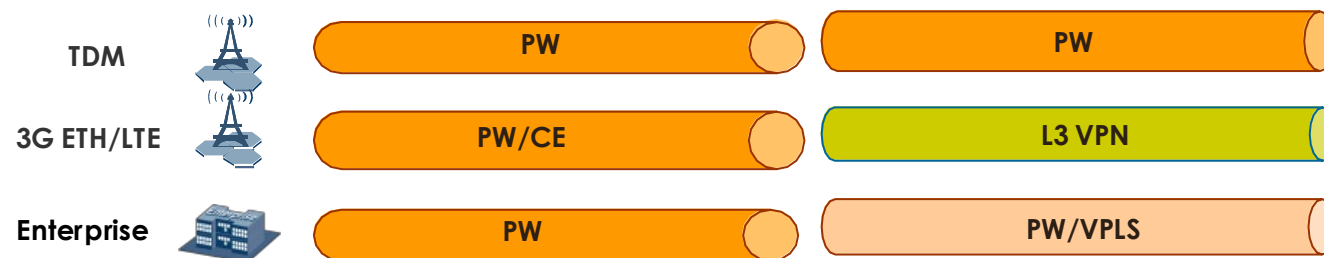
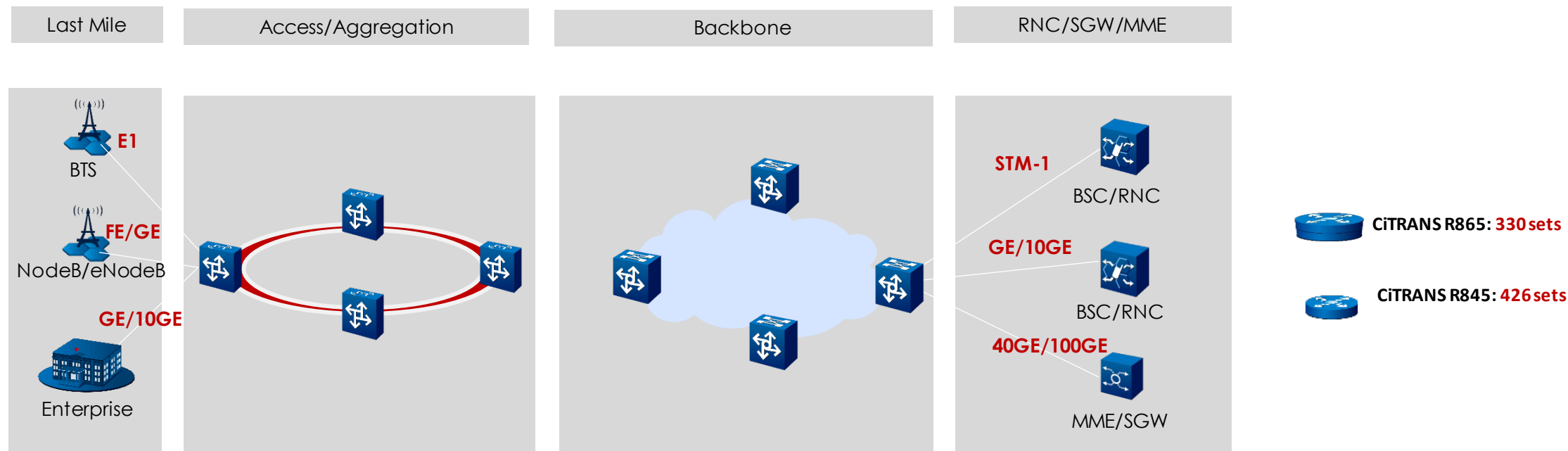
- ✓ Save 50% manpower, increase production efficiency by 30%, resume work rate by 70%, and restore production capacity by 99%

Data Security



Slicing isolation, differentiated SLA

PHILIPPINES SMART MOBILE BACKHAUL NETWORK

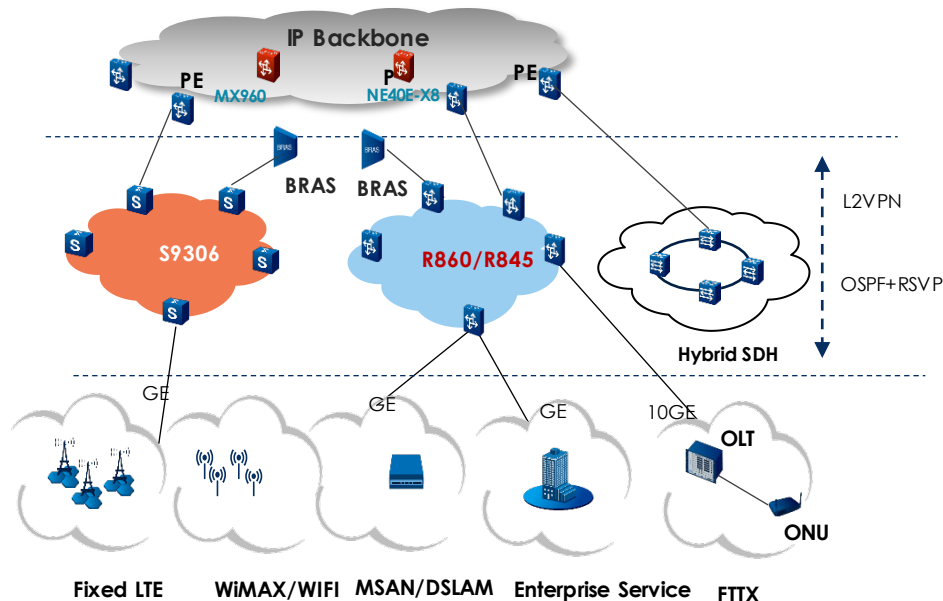


The Solution

- ✓ Bearer Solution: VLL, VPLS
- ✓ MS-PW(deployed):
 - Stability - Resist multiple fiber cuts
 - Scalability - Aggregate the LSP No. in Aggregation layer

BROADBAND CASE - AT.

Network Topology



Network Scale

- ✓ 32 local networks(32/48)
- ✓ 345 sets R860 & 160 sets R845
- ✓ 7297 services

Technical Advantages

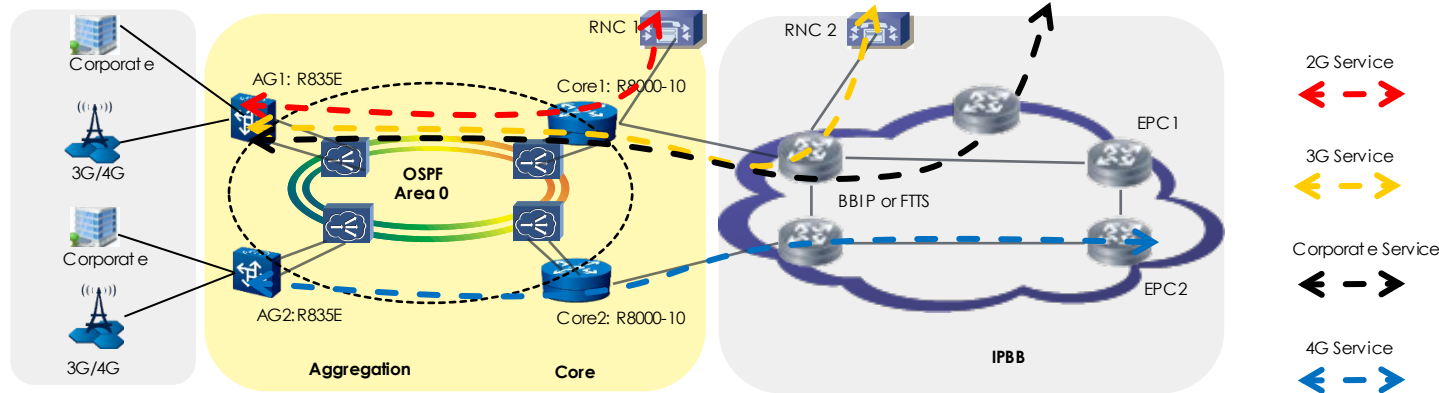
- ✓ The Metro-E network adopts IP/MPLS router with strong IP/MPLS function, its evolution is better than that of switch
- ✓ The high-bandwidth scale
- ✓ The Metro-e has the link-detecting protocols which can recover the traffic quickly

Unique Values for the Customer

- ✓ Anti-loop technology to resist layer 2 ethernet loop scenarios
- ✓ Deploying the service End to end with IP/MPLS label

4G IP+OPTICAL NETWORK BRAZIL TIM

Details of proposed network solutions



Interoperability with other Manufactures

Intra Domain:

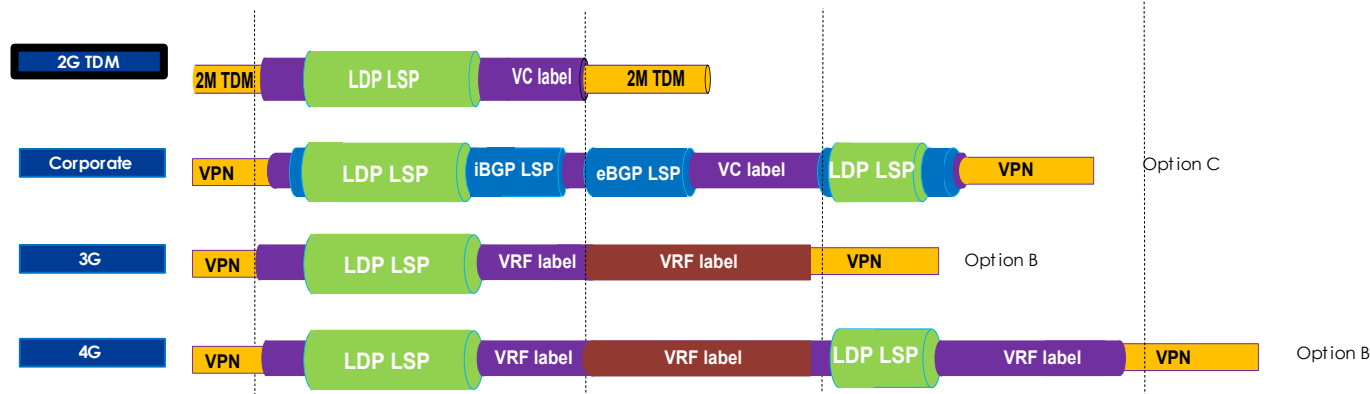


Inter Domain:

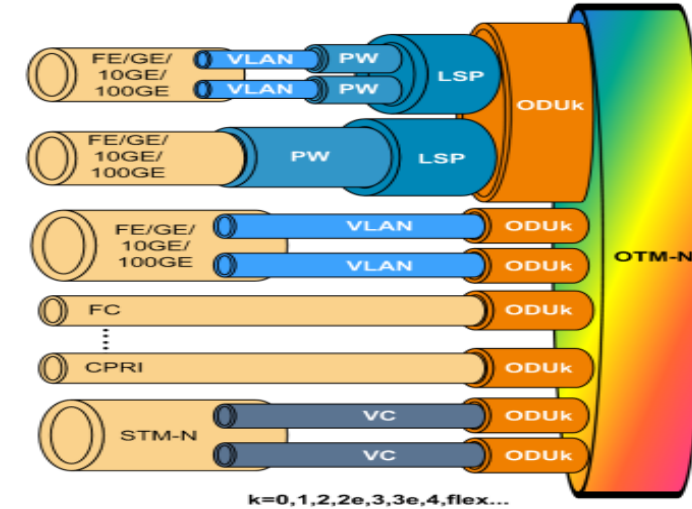
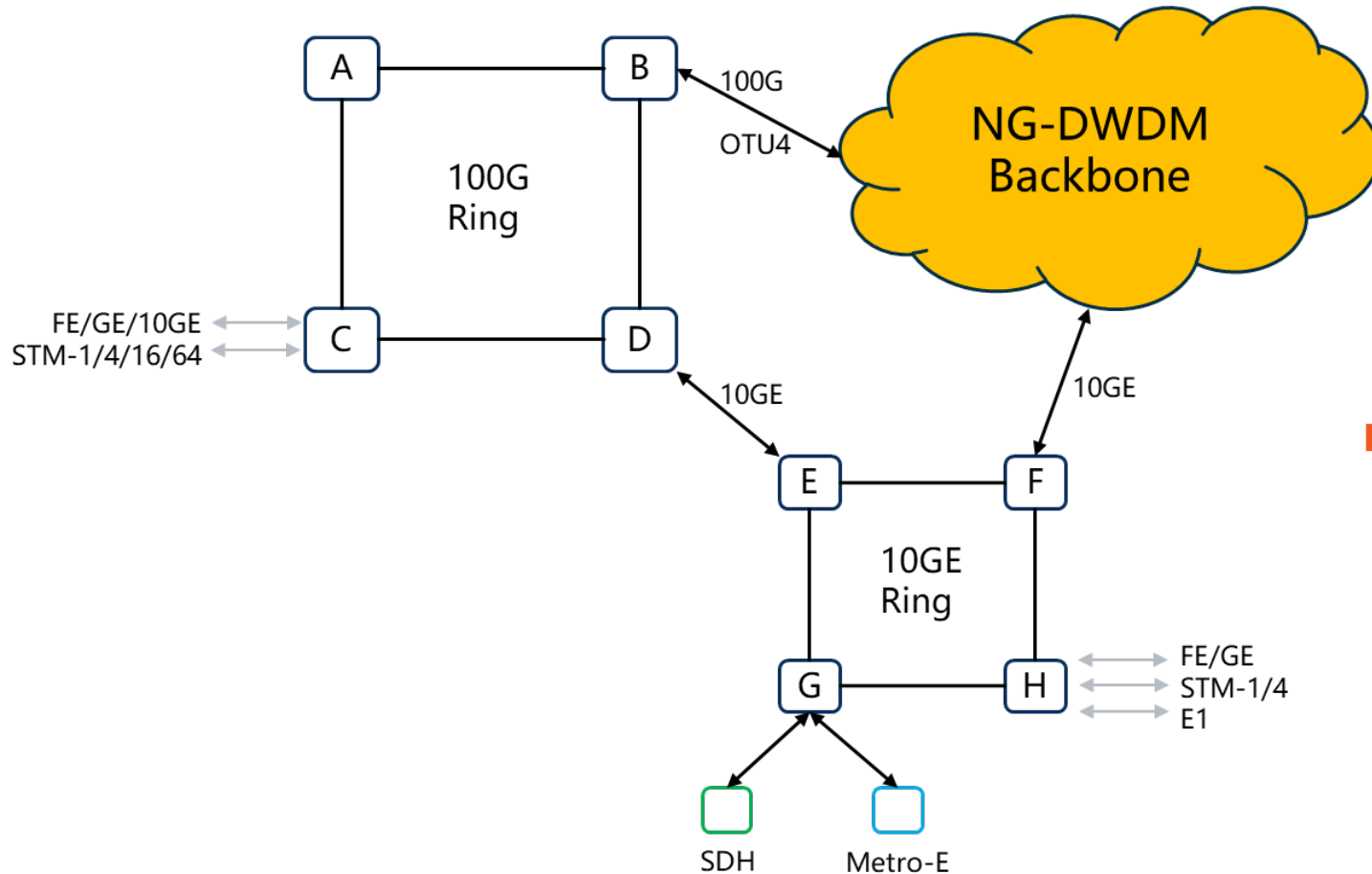



Technical Advantages

- L2 VPN carry on 2G service, provide High scalability, high reliability, high network security
- Option C carry on corporate service. The entire network can exchange labels freely, and the information can be accessed everywhere.
- Option B carry on 3G&4G service.



ALGERIA TELECOM HYBRID NETWORK (2019)



POTN mode for all service transport

- ✓ Massive TDM service existing: E1, STM-1/4/16/64
- ✓ Packet service grooming: FE/GE/10GE
- ✓ Smoothly interworking with current SDH/OTN/Metro-E Network
- ✓ Mix OTN card for line side to save fiber resource and high bandwidth usage
- ✓ 5G bearer is ready for future access

3

Introduction of Switch Solution&Cases



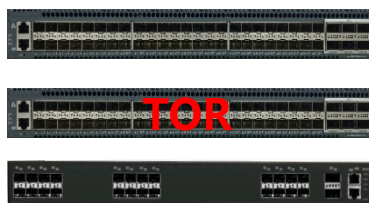
Switch Family



Leaf

Spine

10G Agg
S6800/S7800
/S16800



S6800



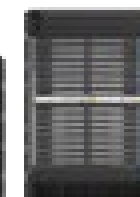
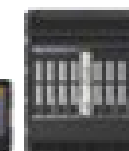
S7800



EOR

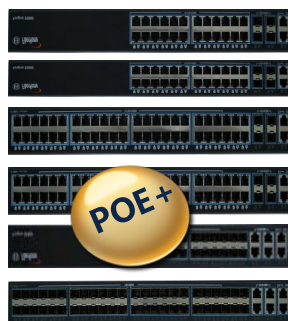


S7800E



S16800

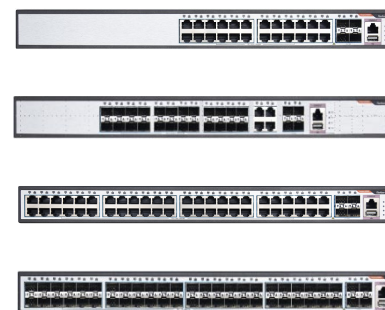
GE L2/L3
S5800/S4820



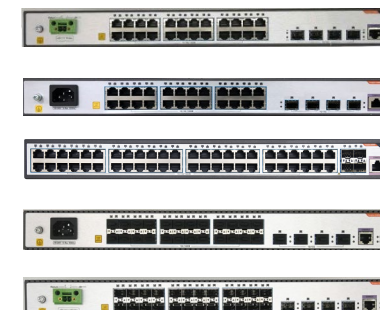
S5800-S



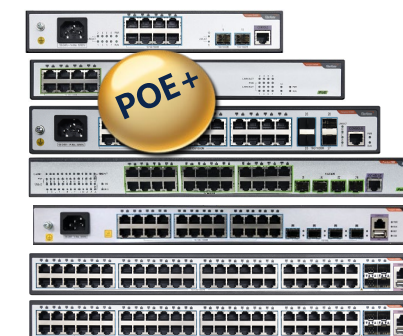
S5800-S-E



S5800-X



S4820-
XL



S4820

■ S16800 Series Cloud Switch

Feature	S16800-04	S16800-08	S16800-16
Switching capacity	43T/172T	86T/345T	115T/690T
Throughput	10080M/28800M	20160M/57600M	40320M/115200M
Main control slots	2	2	2
Bandwidth per slot	5.4T/21.6T	5.4T/21.6T	3.6T/21.6T
Port capacity per slot	2.4T/9.6T	2.4T/9.6T	2.4T/9.6T
Service slots	4	8	16
业务板种类	➤ 48*10GE ➤ 36*40GE ➤ 8/16/24*100GE ➤ 48*25GE/50GE ➤ 12/36/48*100GE ➤ 12/24*200GE ➤ 6/12/24*400GE		



S16800-04

S16800-08

S16800-16

Designed for cloud network

Zero-backplane

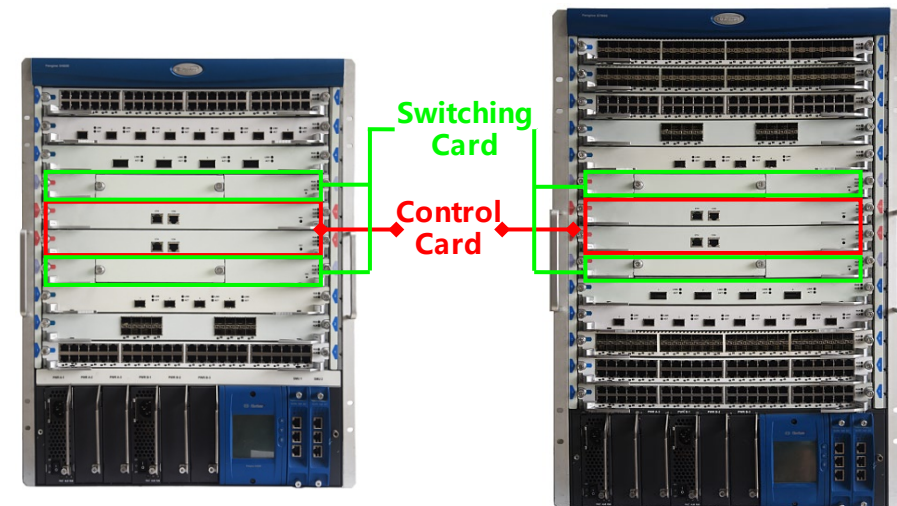
CLOS orthogonal switching architecture

S7800E Series Core Switch

Scenarios

- MAN core & Aggregation
- Mid & small DC core & Aggregation
- Campus core & Aggregation

Feature	S7800-06(E)	S7800-10(E)
Main control slots	2	2
Switching slots	2	2
Service card slots	6	10
Switching capacity	21Tbps	56Tbps
Max 100G qty	24	40
Max 40G qty	72	120
Max 10G qty	288	480
dimensions(W×D×H)mm	440×460×574 (13U)	440×460×710 (16U)



S7800E-06

S7800E-10

Dual control Slot + dual switching card

Bandwidth configuration instructions				
Control Card qty	1	2	2	2
Switching card qty	0	0	1	2
Bandwidth per Slot	120G	240G	360G	480G

S7800 Series Core Switch

Scenarios

- MAN core & Aggregation
- Mid & small DC core & Aggregation
- Campus core & Aggregation



Feature	S7800-03	S7800-08(E)	S7800-12(E)
Main control slots	2	2	2
Service card slots	3	8	12
Backplane capacity	4.8 Tbps	12.8 Tbps	19.2 Tbps
Switching capacity	1.92 Tbps	2.56 Tbps/5.12 Tbps	5.12 Tbps/7.68 Tbps
Throughput	1440 Mpps	1920 Mpps /3840 Mpps	3840 Mpps/5760 Mpps
Max 10G qty	96	256	384
Max GE qty	144	384	576
dimensions(W×D×H)mm	440×478.3×220	440×460×574	440×460×710

■ S6800 Series Aggregation 10G Switch

Scenarios

- IP MAN convergence layer
- large-scale enterprise zone
- the core of the network layer



S6800-24F2C



S6800-48F6Q

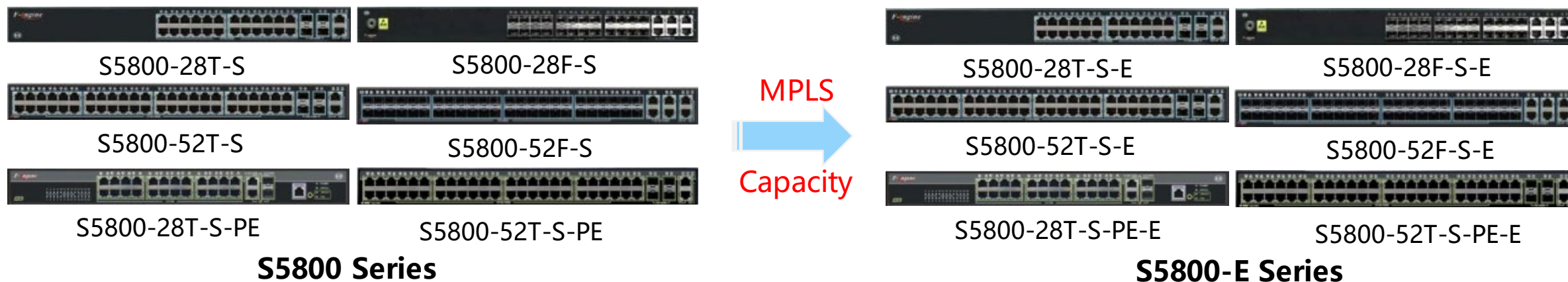


S6800-48F4C2Q

Max. 48x10GE, 2x40GE,4x100GE

Feature	S6800-24F2C	S6800-48F4C2Q	S6800-48F6Q
Ports	24×10GE SFP+ 2×40/100GE QSFP28	48×10GE SFP+ 2×40GE QSFP 4×40/100GE QSFP28	48×10GE SFP+ 6×40GE QSFP
Throughput	1080Mpps		
Switching capacity	1.44Tbps		
Fan	3*hot-swapped fans		
Security	1+1 power redundancy		
Dimensions (W×D×H)mm	440x340×44	440x340×44	440x340×44

■ S5800-S(-E) Series Aggregation GE Switch



Large switching capacity, high density of GE ports, 4*10GE for uplinks

Feature	S5800-28T-S(-E)	S5800-28F-S(-E)	S5800-52T-S(-E)	S5800-52F-S(-E)	S5800-28T-S-PE(-E)	S5800-52T-S-PE(-E)
Ports	24×10/100/1000 Base-T 4×100/1000 Base-X Combo	24×100/1000 Base-X SFP 4×10/100/1000 Base-T Combo	48×10/100/1000 Base-T 4×100/1000 Base-X Combo	48×100/1000 Base-X SFP 4×10/100/1000 Base-T Combo	24×10/100/1000 Base-T(PoE) 4×100/1000 Base-X Combo	48×10/100/1000 Base-T(PoE) 4×100/1000 Base-X Combo
Extension slot	2 extension slots(Support 2 ports 10G SFP+, 2 ports GE SFP, 2 ports GE combo, Stacking card)					
Throughput	96Mpps		132Mpps		96Mpps	132Mpps
Switching capacity	256 Gbps(320 Gbps)					
Dimensions (W×D×H) mm	440×400×44					
Power consumption	<65 W typica	≤80W typical	≤80W typical	≤100W typical	≤800W typical (PoE:≤720)	800W typical (PoE:≤720)

S5800-X Series GE Switches



S5800-28T-X



S5800-28F-X



S5800-52T-X



S5800-52F-X

Scenarios: Core of small networks, GE desktop access, WLAN

Benefits: Dual Power , high density of GE ports, 4*10GE for uplinks

Feature	S5800-28T-X	S5800-28F-X	S5800-52T-X	S5800-52F-X
Ports	24×10/100/1000 Base-T 4×1G/10G SFP/SFP+	24×100/1000 Base-X SFP 4×GE Combo 4×1G/10G SFP/SFP+	48×10/100/1000 Base-T 4×1G/10G SFP/SFP+	48×100/1000 Base-X SFP 4×1G/10G SFP/SFP+
Throughput	96Mpps		132Mpps	
Switching capacity	256 Gbps(320 Gbps)			
Dimensions (W×D×H) mm	440×310×44			
Power consumption	<45 W typica	≤50W typical	≤55W typical	≤60W typical

■ S4820 Series GE Access Switches



S4820-10T-GF-PE



S4820-10T-GF



S4820-28T-GF-PE



S4820-28T-GF



S4820-28T-X



S4820-52T-X

Scenarios: Core of small networks, GE desktop access, WLAN

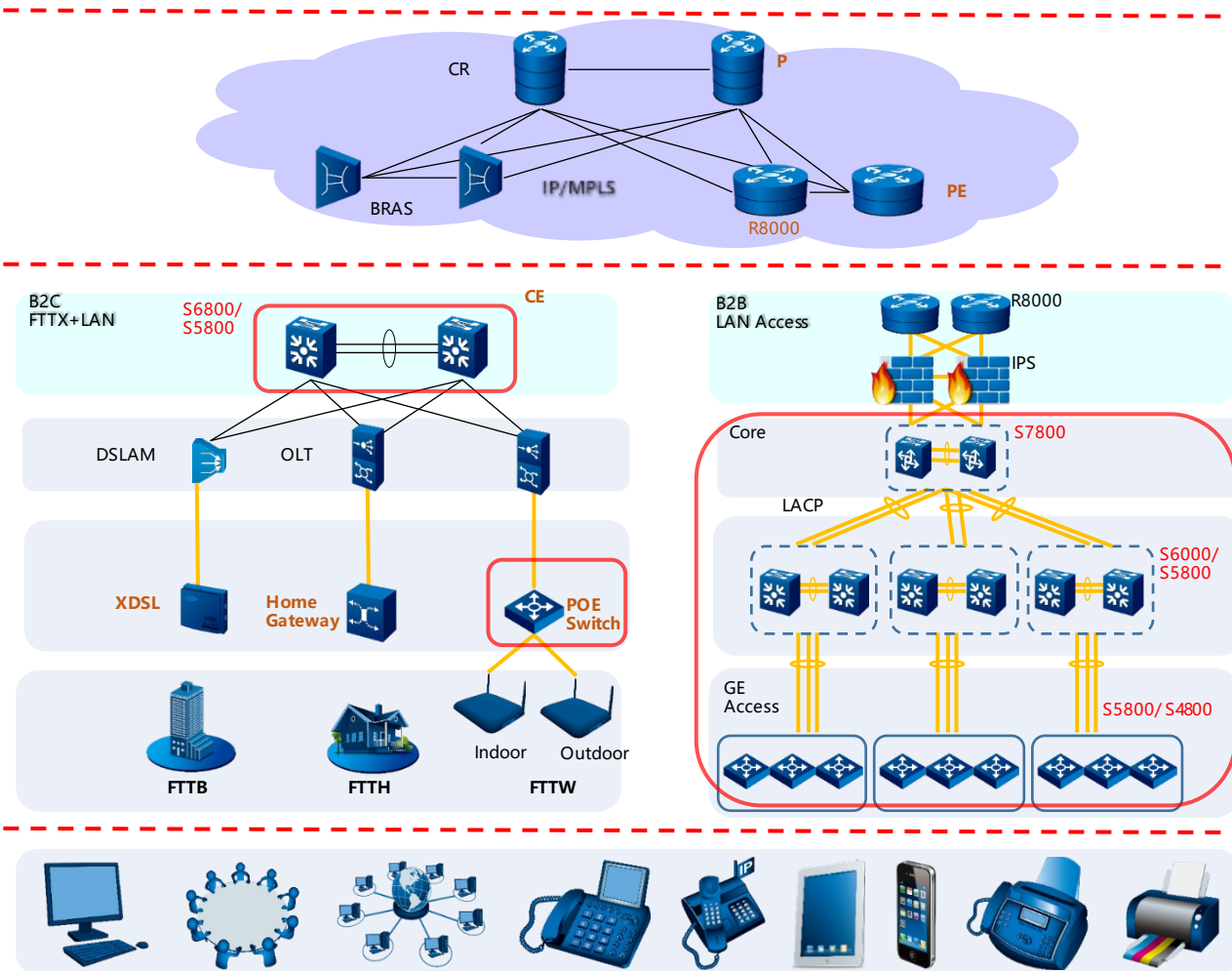
Benefits: High bandwidth access, PoE+, superior PoE allocations & easy management, etc.

Feature	S4820-10T-GF(-PE)	S4820-28T-GF(-PE)	S4820-28T-GF-PE
Ports	8×10/100/1000 Base-T(POE) 2×1000 Base-X SFP	24×10/100/1000 Base-T(POE) 4×1000 Base-X SFP	24/48×10/100/1000 Base-T(PoE) 4×1/10 GE SFP+
Throughput	15 Mpps	42 Mpps	96/132Mpps
Switching capacity	20 Gbps	56 Gbps	64/88 Gbps
MAC Table	8K		16K
Memory Buffer	4.1Mb		12Mb

■ LAN Access Solution

IP Core

Aggregation and Access



■ MPLS L2/L3VPN

■ Easy to maintain

- “0” touch & in-service upgrading
- Batch configuration and upgrade
- BFD, QOS, CFM, EFM, Y1731, Dying Gasp...

■ Multi-service bearing

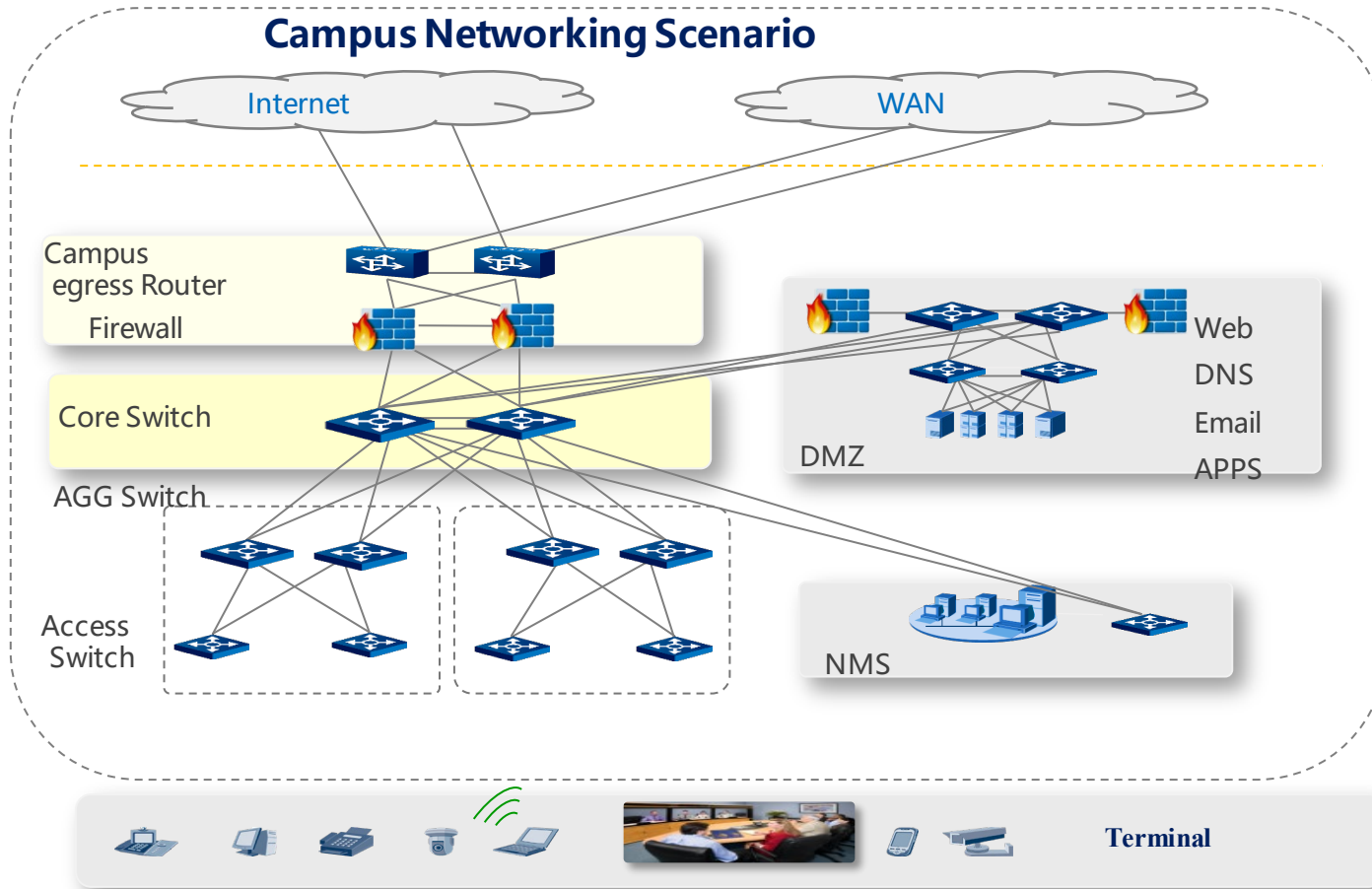
- Broadband access
- Enterprise VPN
- Voice, IPTV, CCTV.....
- Gigabit access to desktop

■ Network Security

- IPSG, CPU Defence, ACL.....

Intelligent Campus Solution

One Net Connect Everyone, Connect as One



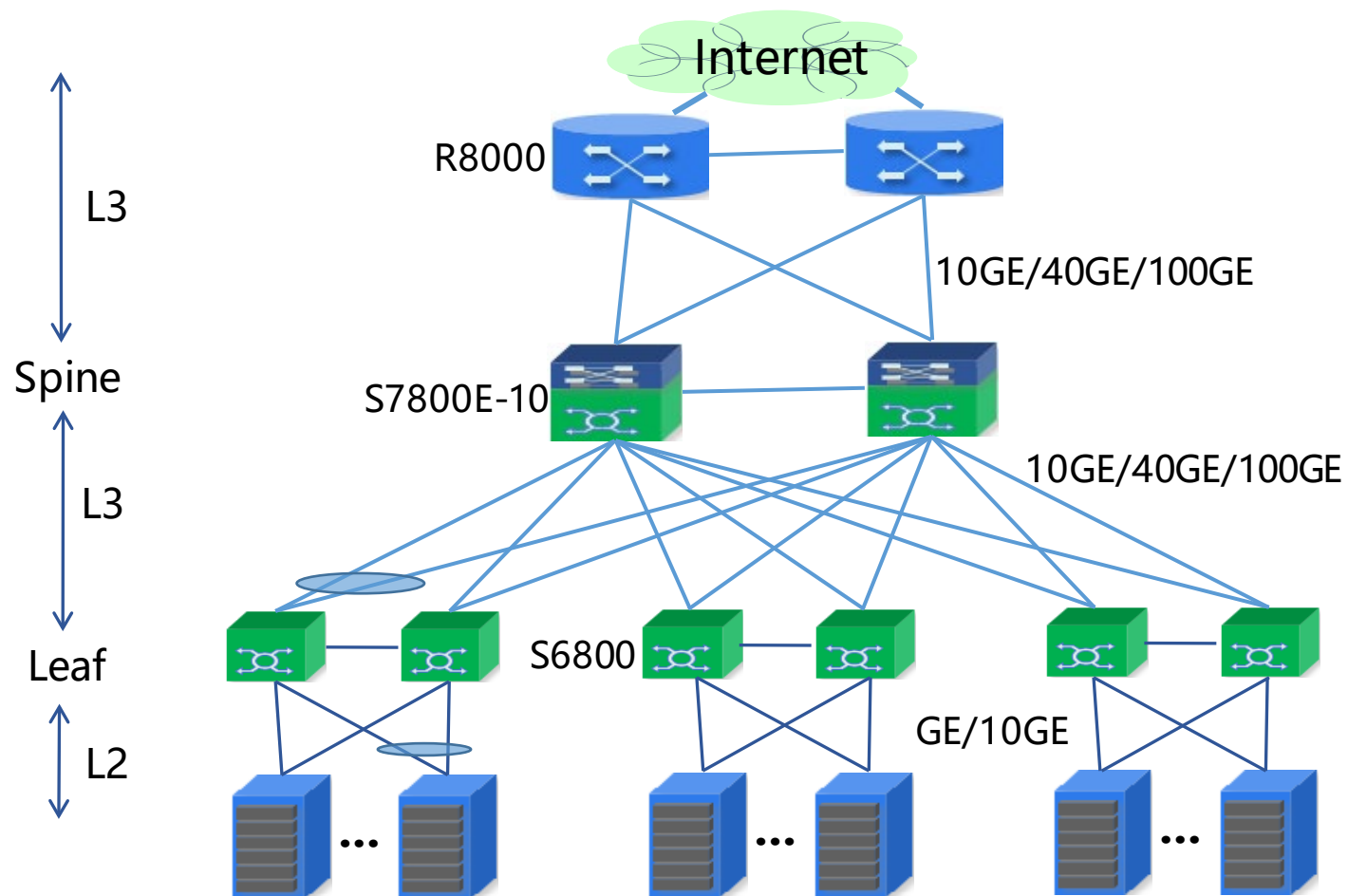
Switch

- Small and medium network
S4800+S5800/6800
- Large network :S4800/5800+S7800

Key features

- Network multi-purpose, flexible and fast, Reliable and visible
- Support ZTP, easy to install and upgrade
- Lightweight NMS Wview, suitable for campus deployment

■ Data Center Solutions



■ Switch

- Spine :S7800E/S16800
- Leaf: S6800

■ Key features

- L2 layer (Spine and leaf),
- L3 to the edge, the gateway is deployed at the access layer
- Leaf: M-LAG+VRRP, xSTP+VRRP, ZTP
- Spine: Equipment can be expanded

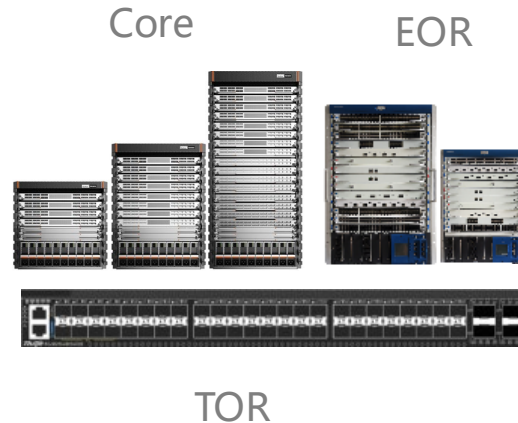
■ Rapid Customization Capabilities

Self-Developed Operation System

Rapid Customization			
Software Platform		Core Chipset	
FOS	USP	Self-developed ASIC/FPGA	Cooperative Chip makers

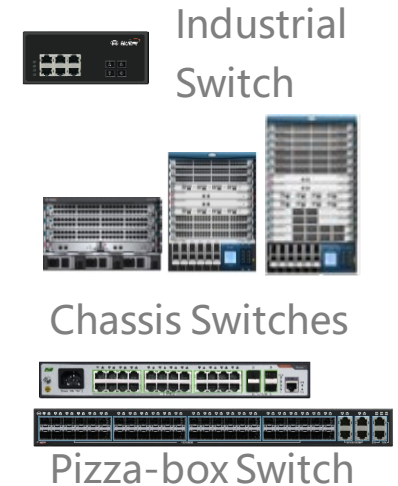
DateCenter Switch

- TOR/EOR DC switch
- 1.28G~115T Switching capacity
- 100GE/50GE/40GE/25GE/10GE/GE
- SR/EVPN/VXLAN/SDN



Metro-E Switch

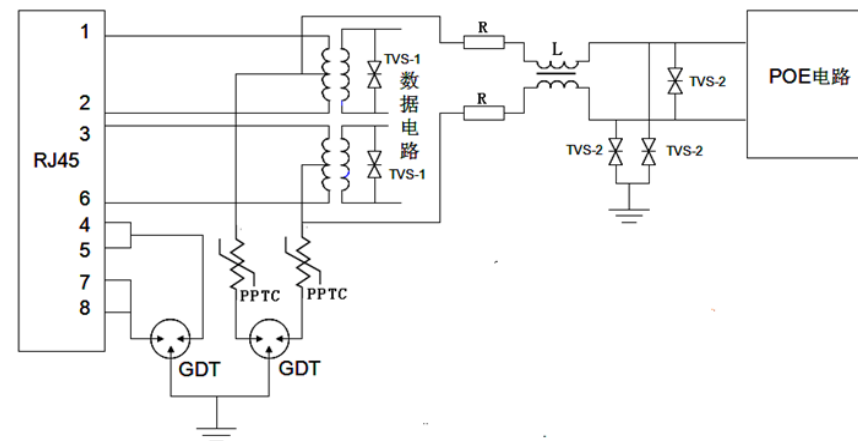
- L2+/L3 MPLS Switch
- GE/10GE/40GE/100GE
- Customized industrial Switch



■ 6KV Surge Protection

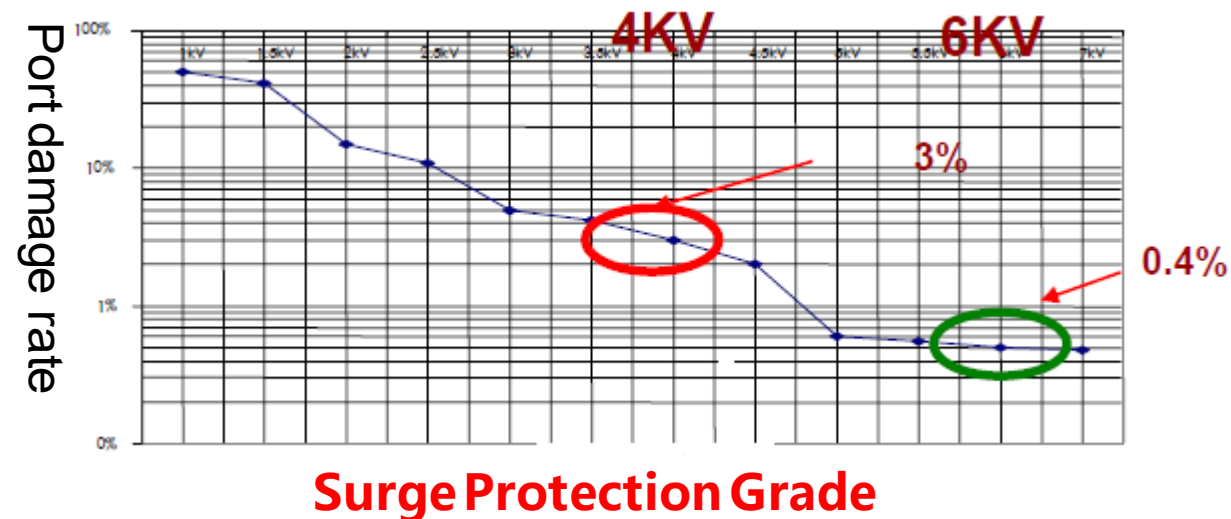
Methods:

Patent No: 201210172902.4, its principle is shown right, can realize the 6KV surge protection.

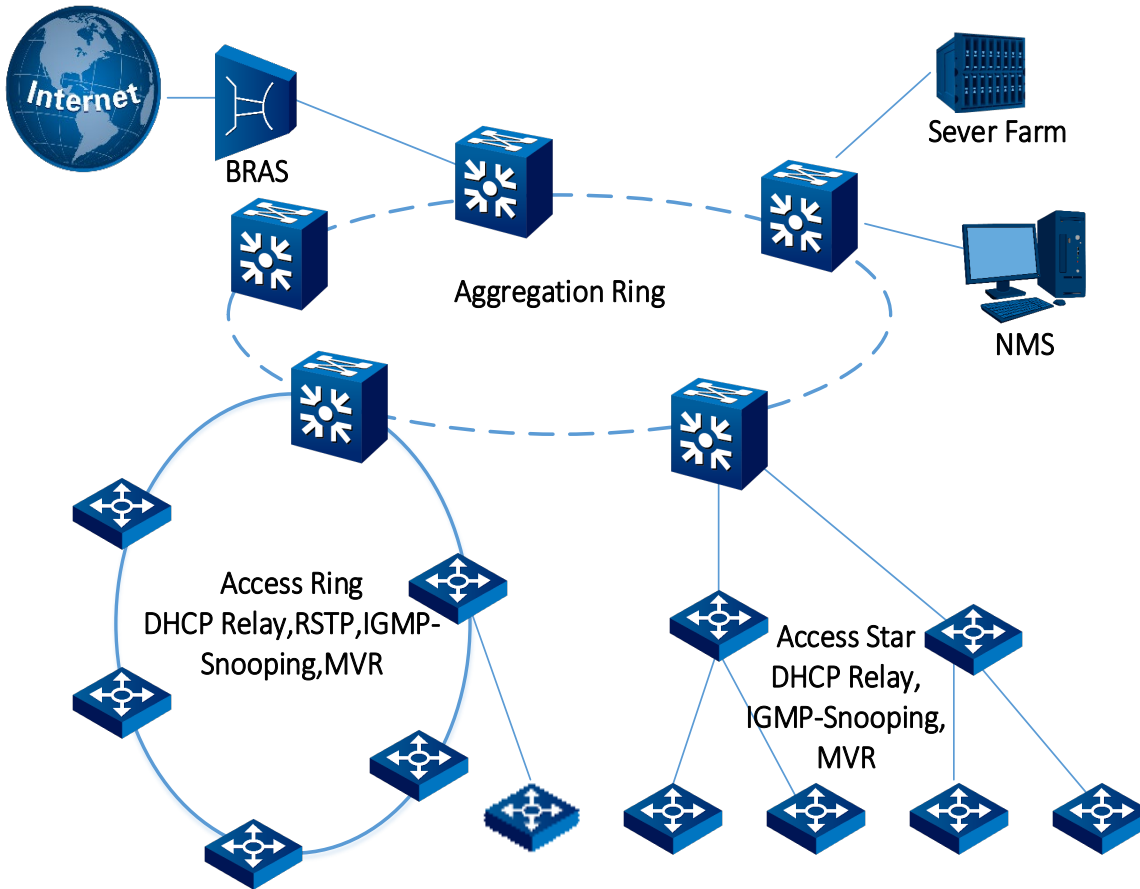


The features of patent:

- Integrated data line and power line Surge protection
- Standards compliance: IEC, ITU
- Fiberhome 6KV **VS** Trade standard 2/4 KV
- Port damage rate 0.4% **VS** 16%, 3%



Russian Veon FTTB Switch Project



Project Description

- Home and corporate LAN access network
- 2-layer network, GE Access, 10G Aggregation
- Major customers: VEON
- Quantity: >30000

Fiberhome Solutions and Customer Value

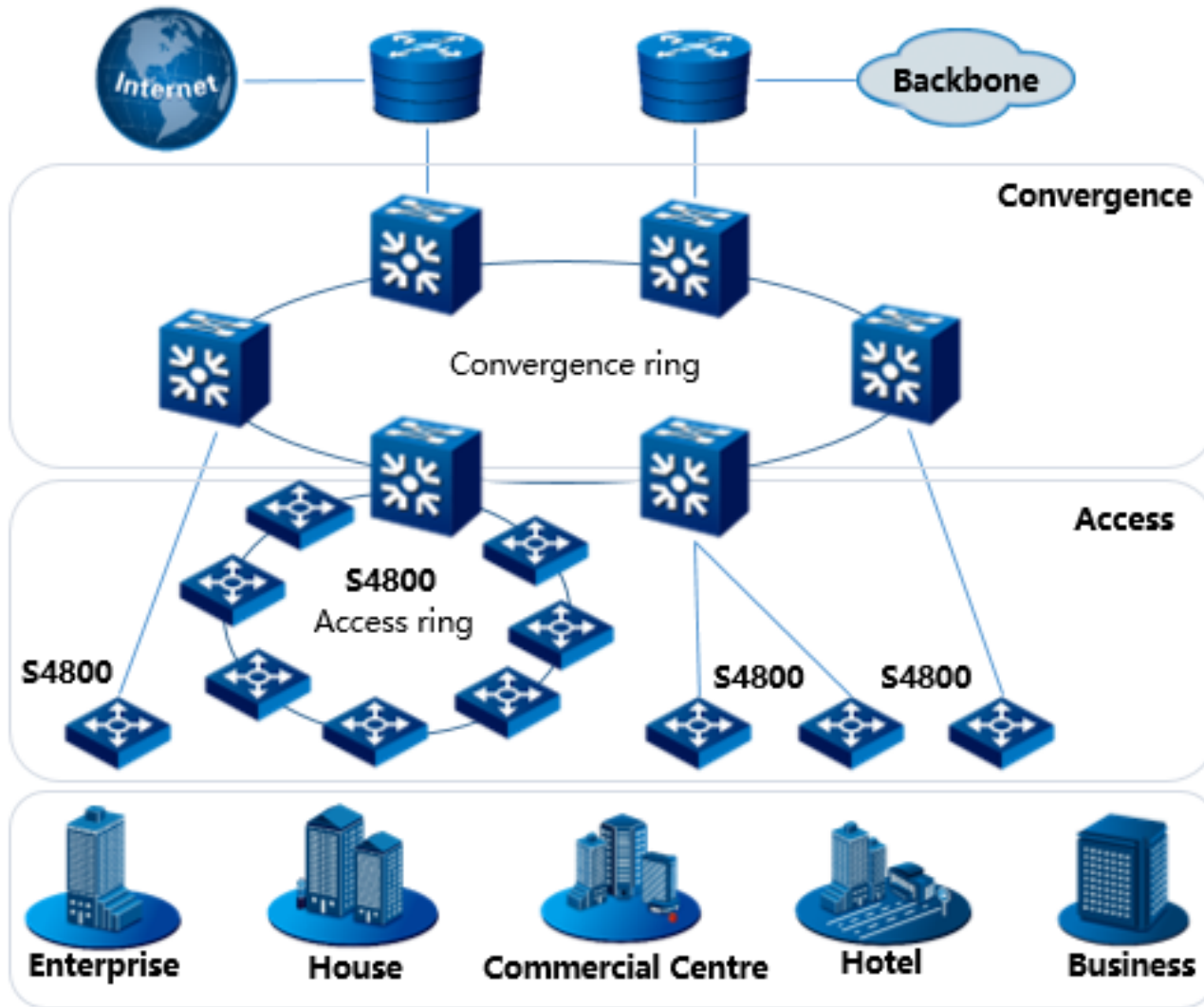
- **Cost-effective:** Provide the highest cost-effective solution and reduce customers' procurement costs by 30%
- **Quick customization:** 5 devices in 2 months, customized development

Technical Advantages

- **Operation temperature:** - 40°C to 70°C
- **Anti-attack:** DHCP Relay+IPSG, CPU Defence....
- **Easy Maintenance:** CFM, EFM, Y1731, Dying ...
- **High capacity:** 1/4K multicasts, 16K/128K MAC
- **Muti-services:** Voice, IPTV, Internet....



Russian MTS FTTB Switch Project



Project Description

- Update Broadband Access Network, FE to GE Access
- GE Access, 10G Uplink
- Quantity: >31000

Fiberhome Solutions

- **Quick customization:** Copy VEON successful experience, Complete the test preparation in 1 month and pass the test in 1 week
- **Service support:** 24*7 Round Clock Technical Support

Technical Advantages

- **Low noise design:** Adjustable fan speed
- **Anti-attack:** DHCP Relay+IPSG, CPU Defence....
- **Easy Maintenance:** CFM, EFM, Y1731, Dying ...
- **Muti-services:** Voice, IPTV, Internet....



- Broadband Access Network, GE Access
- 22 major cities, Provide broadband access services
- Replace Switches of other vendors

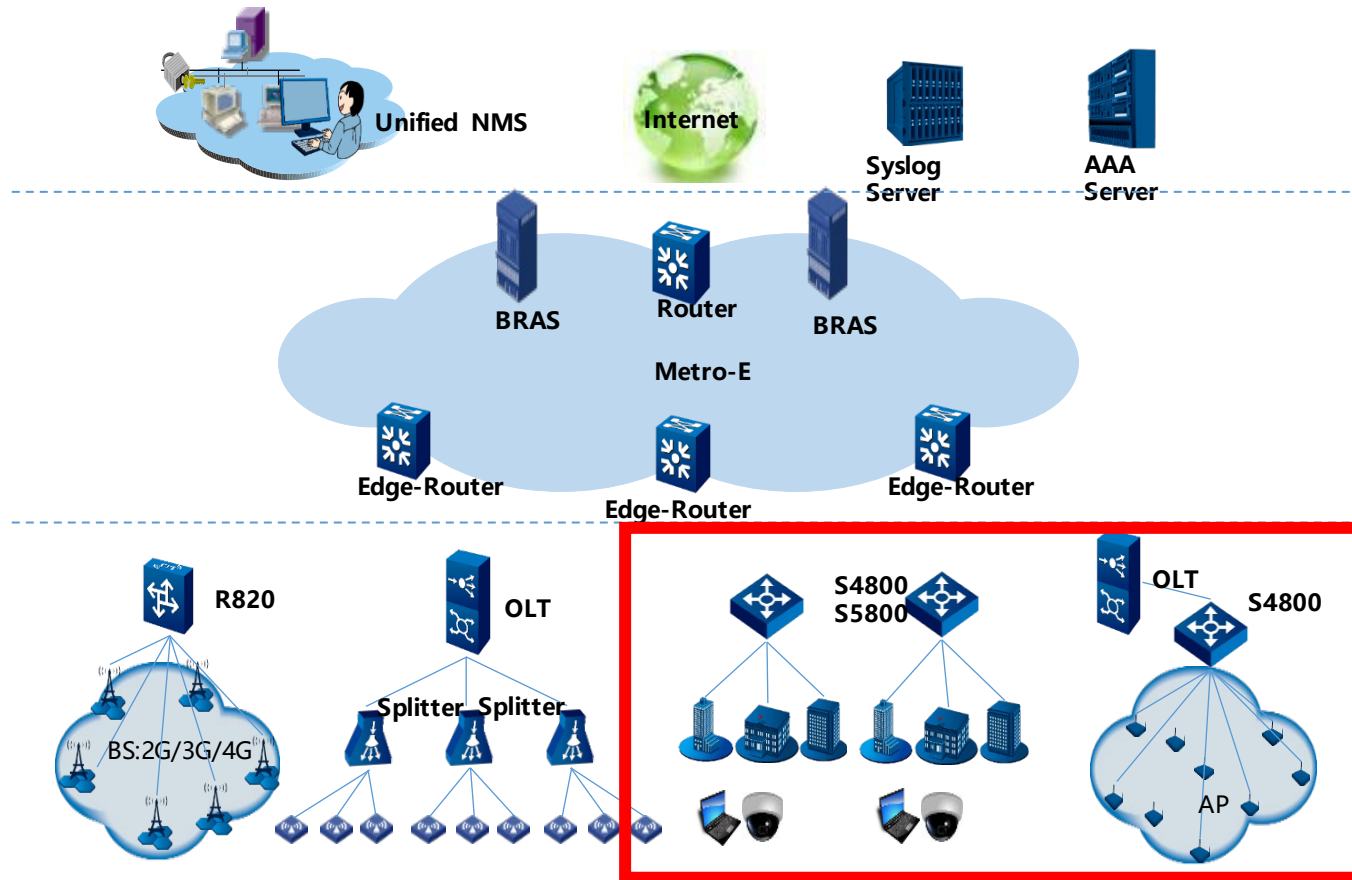
Customer pain points

- Complex O&M: Without a unified NMS, Fault location is difficult
- Slow service response : Supplier has no service team in India.

Fiberhome Solutions and Customer Value

- 220V AC+12V DC Dual power supply , support external rechargeable power supply
- Lightweight NMS(WView): Customized north interface, connected with the operator management system, providing a full range of services from payment to service opening
- Professional service team, provide **7 * 24 hours** service, response to customer's requirement at any time

Indonesia Telecom Enterprise Network



Project Description

- Government and enterprise network, small cell backhaul
- 2-layer network, data, GE Access, 10G Aggregation
- Major customers: PINS, Telkom, Indosat, Smartfen...
- Quantity: >10000

Fiberhome Solutions and Customer Value

- Service Support: 5 service centers, Hundreds of Field Teams, 24*7 Round Clock Technical Support
- Unified NMS: Support unified network management of switches, routers, and OLTs to achieve full end-to-end business monitoring

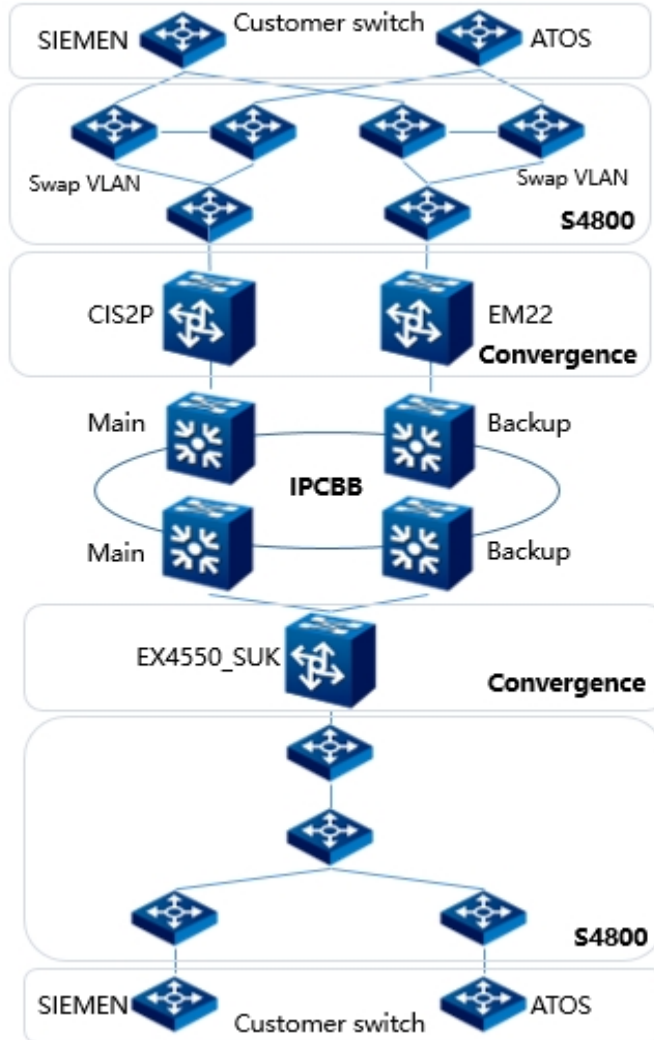
Technical Advantages

- Energy-saving (30% lower than average)
- 6KV Surge Protection
- Easy Maintenance: Zero Touch , Batch configuration, batch upgrade, end-to-end TroubleShooting...
- Muti-services: Voice, IPTV, Internet....
- Small size and fanless design, suitable for outdoor cabinet installation

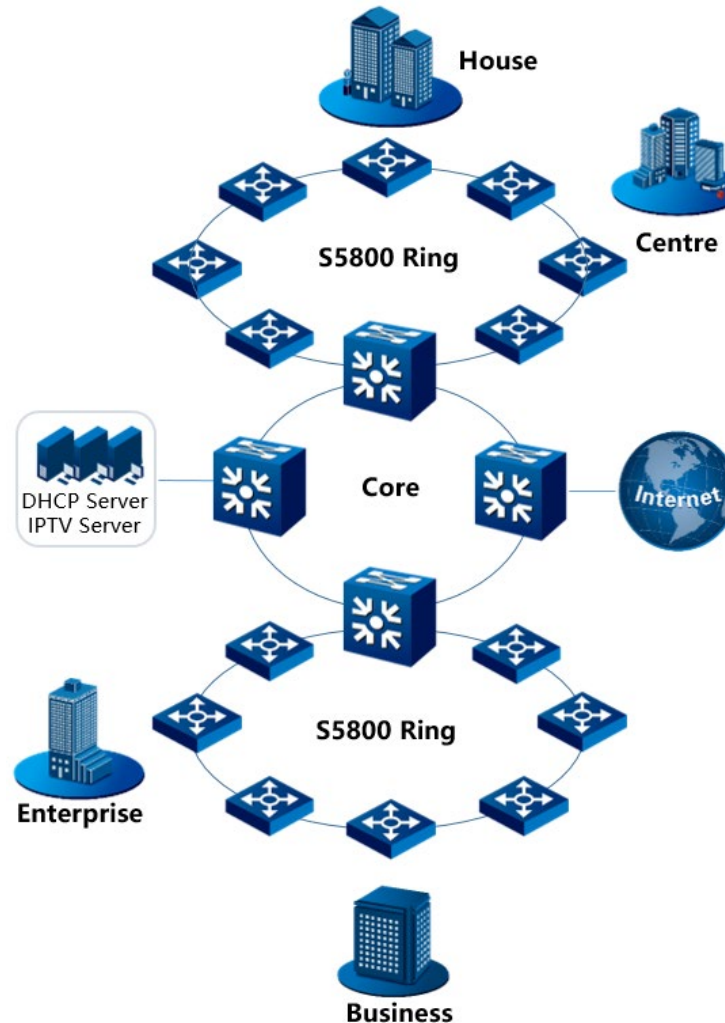
2018 Asian Games Communications Guarantee

Thailand AIS Switch Project

EDS Topology



TPO Topology



Project Description

- In 2017, S4800 entered the AIS EDS procurement catalog;
- In 2019, S5800 entered the AIS EDS procurement catalog;
- In May 2020, S5800 entered the AIS TPO procurement catalog;
- Quantity: >10000

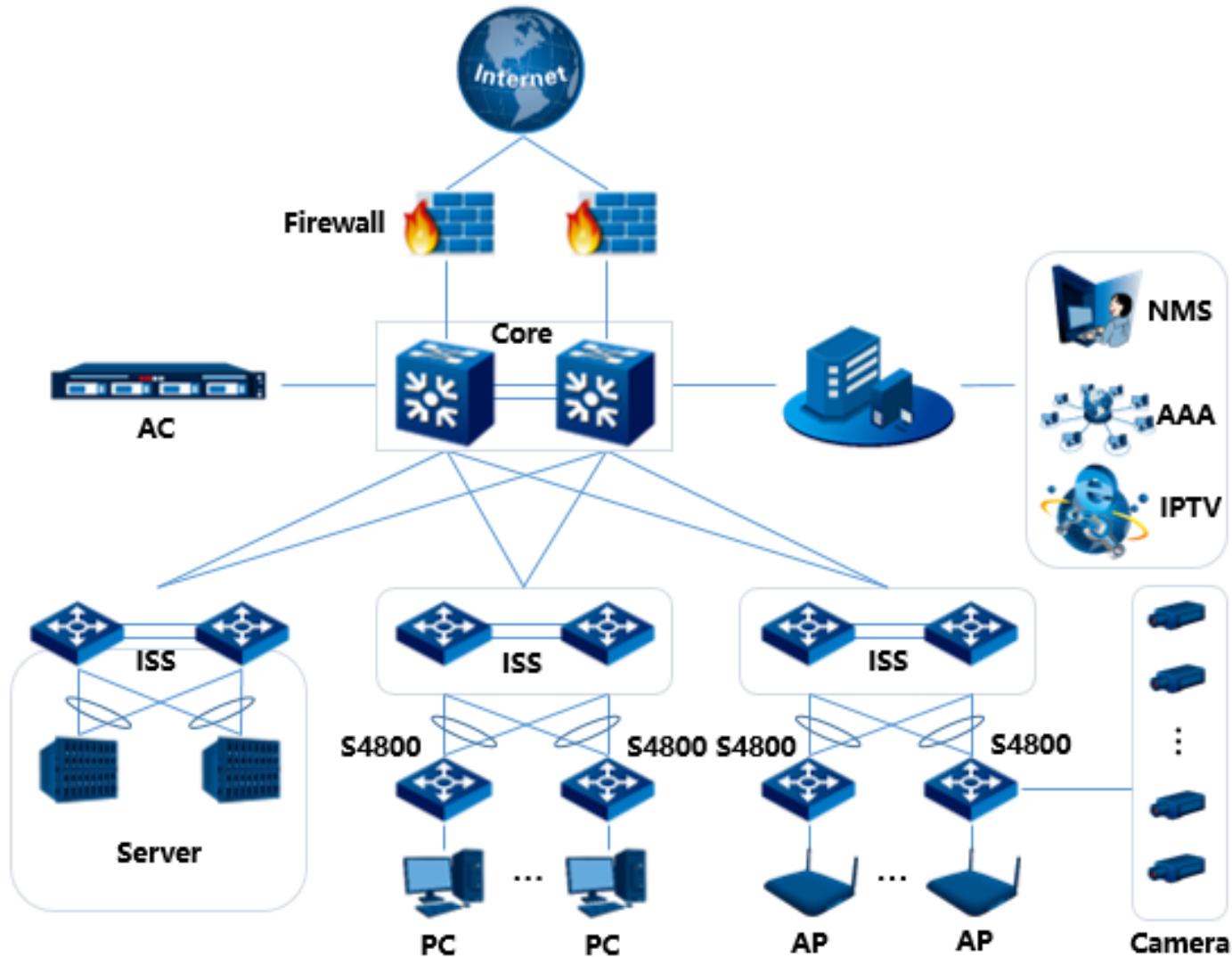
Fiberhome Solutions

- Use standard Ethernet protocol to seamlessly connect with existing network equipment
- The access layer S4800 adopts fanless design, aggregation layer S5800 adopts redundant dual power supply design, safe and reliable

Technical Advantages

- 6KV Surge Protection
- Easy Maintenance: Zero Touch , Batch configuration, batch upgrade, end-to-end TroubleShooting...
- Muti-services: Voice, IPTV, Internet....

Thailand 3BB Campus Network



Project Description

- Government and enterprise campus network
- Quantity: >3000

Benefits for 3BB

- Supports standard MIB , can be managed by a third-party NMS
- 24*7 Round Clock Technical Support

Technical Advantages

- **Easy Management:** Built-in WEB network management
- **Easy Maintenance:** CFM, EFM, Y1731, Dying gasp ...
- **Muti-services:** Voice, IPTV, Internet....

The background is a deep blue gradient. In the upper left, a silhouette of a person is running on a glowing orange horizon. Concentric blue circles emanate from the person, and several white stars are scattered in the sky. On the right side, there are dynamic, flowing blue and cyan lines that suggest speed and technology. The FiberHome logo is positioned in the lower left, featuring the brand name in white with a swoosh above the 'e'.

FiberHome

Thank You for your Listening!