




# FiberHome

## FIBERHOME GROUP INTRODUCTION Data Products and Solutions 2011-2012

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# Agenda

## •FiberHome Introduction

- Product Portfolio
- Typical Application
  - Ethernet Product
  - Converter Product



# Overview

- ☑
- Established in 1974, FiberHome Group is an world leading Telecom Products and Total Solutions provider. FiberHome is directly under the supervise of China SASAC ;
- FiberHome products have been deployed in more than 65 countries, including the Southeast Asia, European Countries, US and Africa; FiberHome group revenue is around 2 Billion US Dollar in 2010
- FiberHome has been awarded Bloomberg Global TOP 100 Technology Company 2010.



# Bloomberg TOP 100 TECH 2010 – Rank 51



## Bloomberg Businessweek

Tuesday May 31, 2011

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### The Tech 100

Wang Chuanfu. Don't know the name? Until a few years ago, neither did Charlie Munger, vice-chairman of Berkshire Hathaway. When Munger checked out Wang's company, BYD, the Chinese maker of plug-in hybrid cars and rechargeable batteries, he was so impressed he persuaded Warren Buffett—legendary for his dislike of tech investments—to buy a 10 percent stake in BYD for about \$230 million. That was September 2008. Today Buffett's piece is worth nearly \$2 billion.

Scan Bloomberg Businessweek's Tech 100 list, and you'll find names familiar and new. From global powerhouses Samsung Electronics and Google to lesser-known players such as Taiwanese chipmaker Phison Electronics and Brazilian e-tailer B2W, these companies have managed to thrive during a bruising global recession. BYD (which stands for Build Your Dreams) has more than flourished: It even outperformed perhaps the hottest tech outfit around, No. 2 Apple.

For an explanation of our methodology, [go here](#).

Close

- Rank
- Company
- Country
- Tech Sector
- Revenue (\$MM)
- Revenue Growth (%)
- Operating Income...
- Shareholder's...

Rank	Company	Country	Tech Sector	Revenue (\$MM)	Revenue Growth (%)	Operating Income (\$MM)	Shareholder's Return (%)
51	FIBERHOME TELECOM	CHN	Communications equipment	681	39	41	77

# Listed Subsidiary Companies



Two subsidiary companies in FiberHome group are listed in Shanghai Stock-Exchange and Shenzhen Stock-Exchange.

- FiberHome Telecommunication Technologies Co., Ltd. (Public Listed, Code 600498, SS )
- Accelink Technologies Co., Ltd. (Public Listed, Code 002281, SZ )

FiberHome has been chosen as China Stock Component Index by Bloomberg and Reuters

**Bloomberg Businessweek**  
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INFORMATION TECHNOLOGY SECTOR | COMMUNICATIONS EQUIPMENT INDUSTRY June 15, 2011 7:29 AM ET

**FIBERHOME TELECOM TECH CO-A (600498:Shanghai)**

LAST ¥27.27 CNY CHANGE TODAY -0.16 -0.58% VOLUME 2.1M 600498 On Other Exchanges▼

As of 3:15 AM 06/15/11 All times are local (Market data is delayed by at least 15 minutes).

**REUTERS** EDITION: U.S.

**Fiberhome Telecommunication Technologies Co Ltd (600498.SS)**

Related Topics: STOCKS STOCK SCREENER TECHNOLOGY COMMUNICATIONS EQUIPMENT

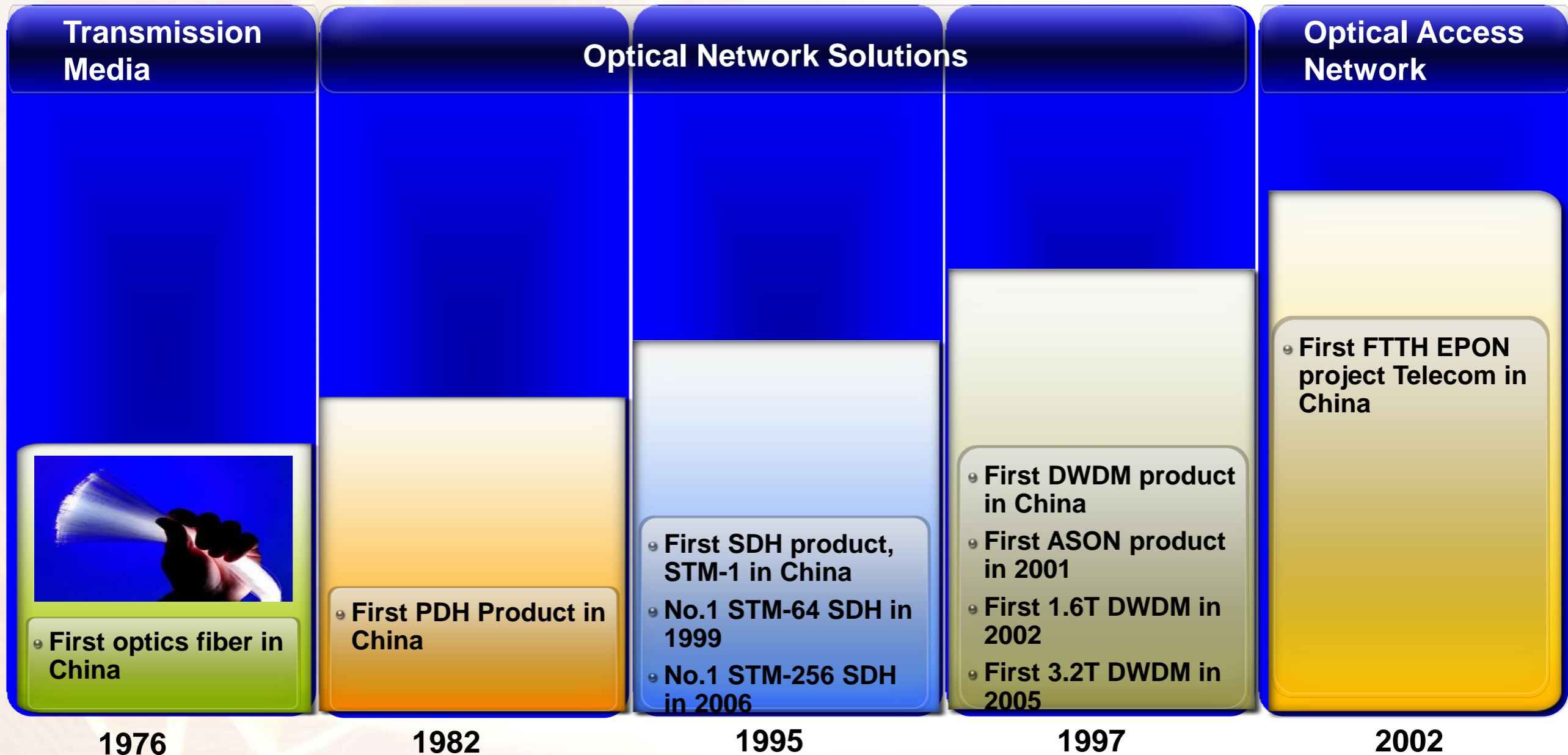
OVERVIEW NEWS KEY DEVELOPMENTS PEOPLE CHARTS FINANCIALS OPTIONS ANALYSTS RESEARCH PULSE

600498.SS on Shanghai Stock Exchange	Price Change (% chg) <b>¥-0.16 (-0.58%)</b>	Prev Close ¥27.43	Day's High ¥27.70	Volume 2,096,454	52-wk High ¥45.10
<b>27.27 CNY</b> 3:00am EDT		Open ¥27.44	Day's Low ¥27.21	Avg. Vol 2,037,243	52-wk Low ¥22.50

# Continuous Innovation



## Continuously Making Innovation in Telecommunication Industry



# Human Resources

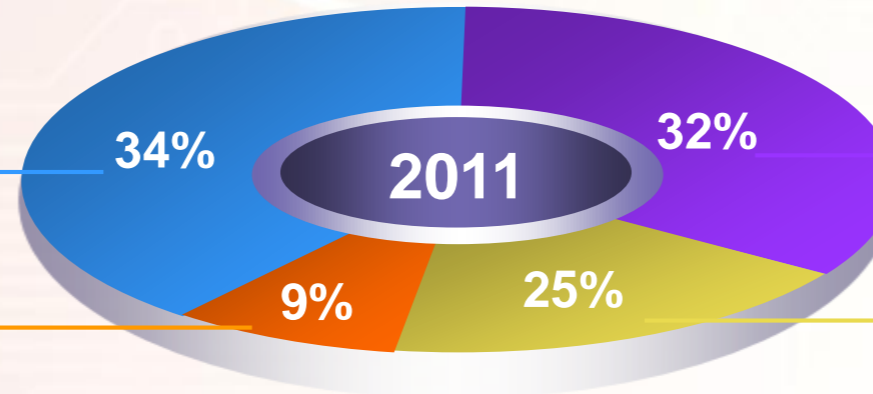


R&D:34%

- Total staffs: Over 15,000+;
- 1 academician of Chinese Academy of Engineering;
- 22 ITU-T experts including ITU-T SG15 Vice Chairman;



Market and service  
:32%



Administrater:9%



- Employee Average Age: 28
- 98% with university above degree;
- 35% with master degree;
- 27% with PhD degree



Supply chain:  
:25%

# Production Facilities



- **FiberHome Head office in China Optical Valley, Wuhan**
- **More than 5 manufacturing bases and 12 Plants around China; The Factory in Wuhan is around 300,000  $m^2$ , the largest unit plants in Asia.**



# Global Sales Network



FiberHome Technologies  
(Headquarter)



➤ 20+ oversea Branch Office/Company with maintenance functions



# Products Areas



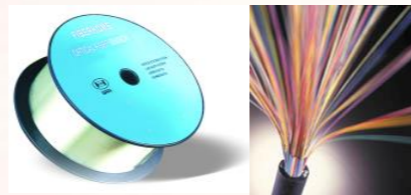
**Fiberhome is the “Expert in Optical backbone, IP Product and Fiber optical Cable”**

**Fiber Backbone products;  
Access Network products**



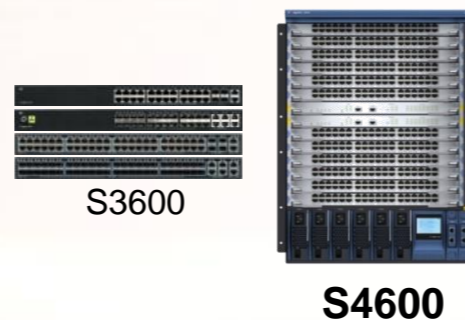
**PDH, SDH, DWDM, CWDM  
ASON, PTN;  
FTTH (GPON/EPON),**

**Fiber Optical Cable and  
Optoelectronic Devices**



**Duct cable; Aerial cable  
Direct burial cable; ADSS  
Cable, Underwater cable**

**Data and IP Product**



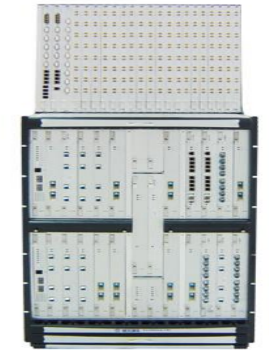
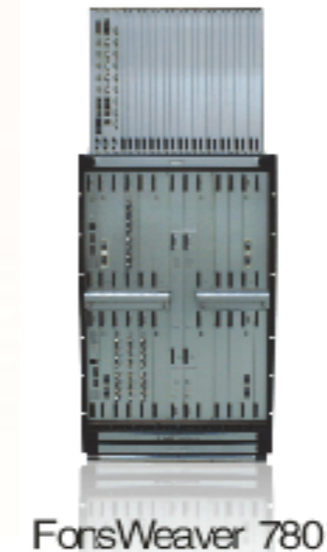
**Ethernet Product,  
Converter Product, L2/L3  
Switch, Media Converter;**

# FiberHome Products



## Family

- OTN/PTN Products
- DWDM Products
- ASON Products
- MSTP/SDH Products
- PDH/CWDM Products
- MSAN/DSLAM Products
- FTTX Products (GPON/EPON)
- Data Products (L2/L3 Switch)
- Ethernet over TDM Product (Converter)
- Fiber Optical Cable Products
- Wireless/Microwave/Antenna Products



Core Router Switch



# Business Summary - IP Products



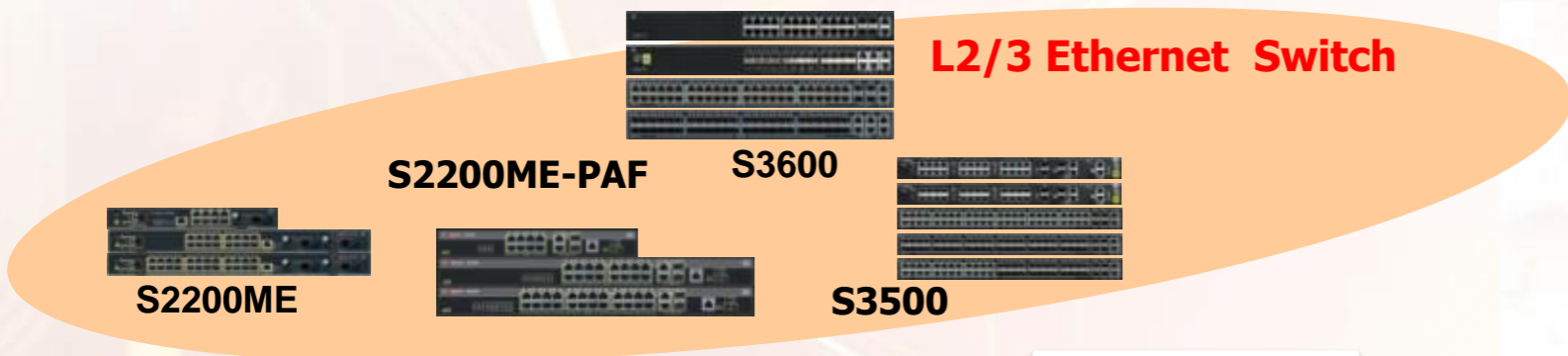

## ◆ Main Feature

- The **Only** supplier of end-to-end telecommunication solutions.
- An industry-leading **global** telecom vendor with **products deployed in over 15 countries**, including US, Canada, Russia, Thailand, India, Malaysia, Indonesia and Argentina etc.

## ◆ Customer Reference



# Certifications


IPv6 Ready Phase-2 Enhanced  
Logo ID: 02-C-000391

## IPv6 Ready Test Report

### 测试报告

Product Model	产品型号:	<b>S3624 IPv6 layer 3 switch</b>
Product Version	产品版本:	<b>USP 5.0</b>
Vendor Name	送测单位:	武汉烽火网络有限责任公司 <b>Wuhan Fiberhome Network Co.,LTD</b>

全球 **IPv6 READY**  
BII 测试中心  
2009-9-14



# Certifications 2011 QA in Indonesia



## QUALITY ASSURANCE TEST

Tel. 0100/LB-200/RDC-23/2011

Surat Keterangan ini dikeluarkan untuk :  
*This declaration letter is issued to*

Sebagai pabrikan/ Agen/ perwakilan dari :  
*As an/a agent/ Representative/ Manufacture of*

**FIBER HOME**

PT. TELEKOMUNIKASI INDONESIA menyatakan bahwa  
*PT. TELEKOMUNIKASI INDONESIA declare that*

Nama perangkat <i>The name of equipment</i>	: L2 SWITCH
Kapasitas <i>Capacity</i>	: 8 FE Port + 2 GE Port
Jenis/ Model <i>Type/ Model</i>	: F-eNginx s2200
Nomor seri <i>Serial Number</i>	: OS393211060016 & OS393211060015
Berdasarkan laporan hasil uji nomor <i>Base on test result no.</i>	: 033/CPE/L/2011

# Agenda

- FiberHome Introduction
- Product Portfolio
- **Typical Application**  
**Ethernet Product**  
Converter Product

# Ethernet Switch



**L2/3 Ethernet Switch**

S2200ME-PAF    S3600    Demarcati on CEA300

S2200ME    S3500

This section displays several Ethernet switch models. On the left, there are two S2200ME switches. In the center, there are two S3600 switches and one S3500 switch. On the right, there is a Demarcation CEA300 switch. The switches are arranged in a cluster within an orange oval.



**Metro Ethernet Switch**

S4608    S4612

This section displays two large, rack-mounted Metro Ethernet Switches, the S4608 and S4612, within a blue oval.

# Ethernet Over Any



**NEW Generation HDLC/GFP/PPP-BCP**

**Ethernet over TDM**

This section shows various Ethernet over TDM products, including a large rack-mounted unit and several smaller desktop units, all within a white oval.



**Traditional HDLC**

**Multi-Service Access Platform**

This section displays a variety of Multi-Service Access Platform products, including a large rack-mounted unit and several smaller desktop units, all within a white oval.

# Converter and Connectivity Portfolio



**Fiber Multiplexers**    **Fiber Optical Modem**    **Media Converter**

This section shows three types of converter and connectivity products: Fiber Multiplexers, Fiber Optical Modem, and Media Converter, all within a white oval.

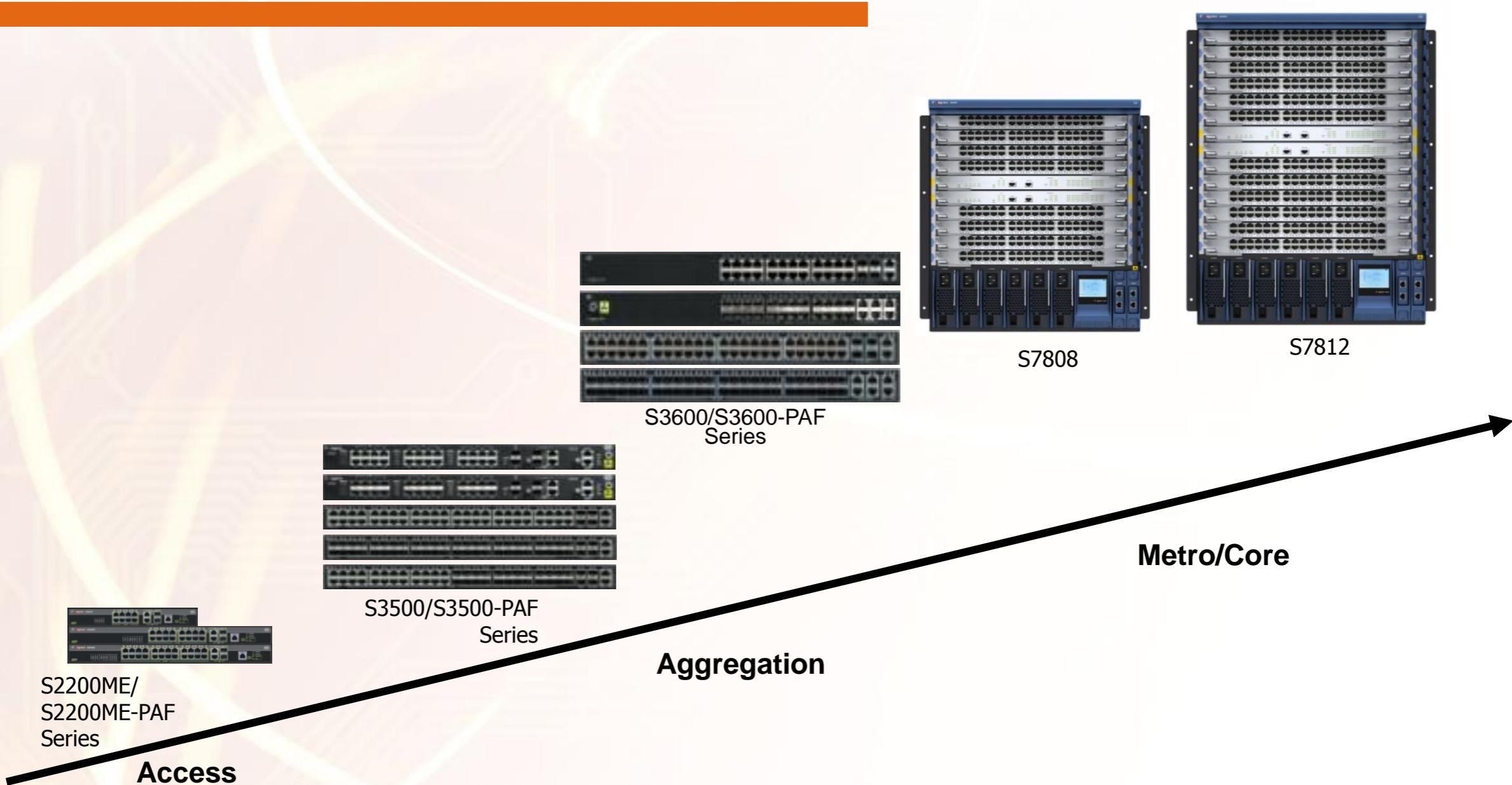


**Active/Passive CWDM**

This section displays Active/Passive CWDM products, including a rack-mounted unit and several smaller desktop units, all within a yellow oval.



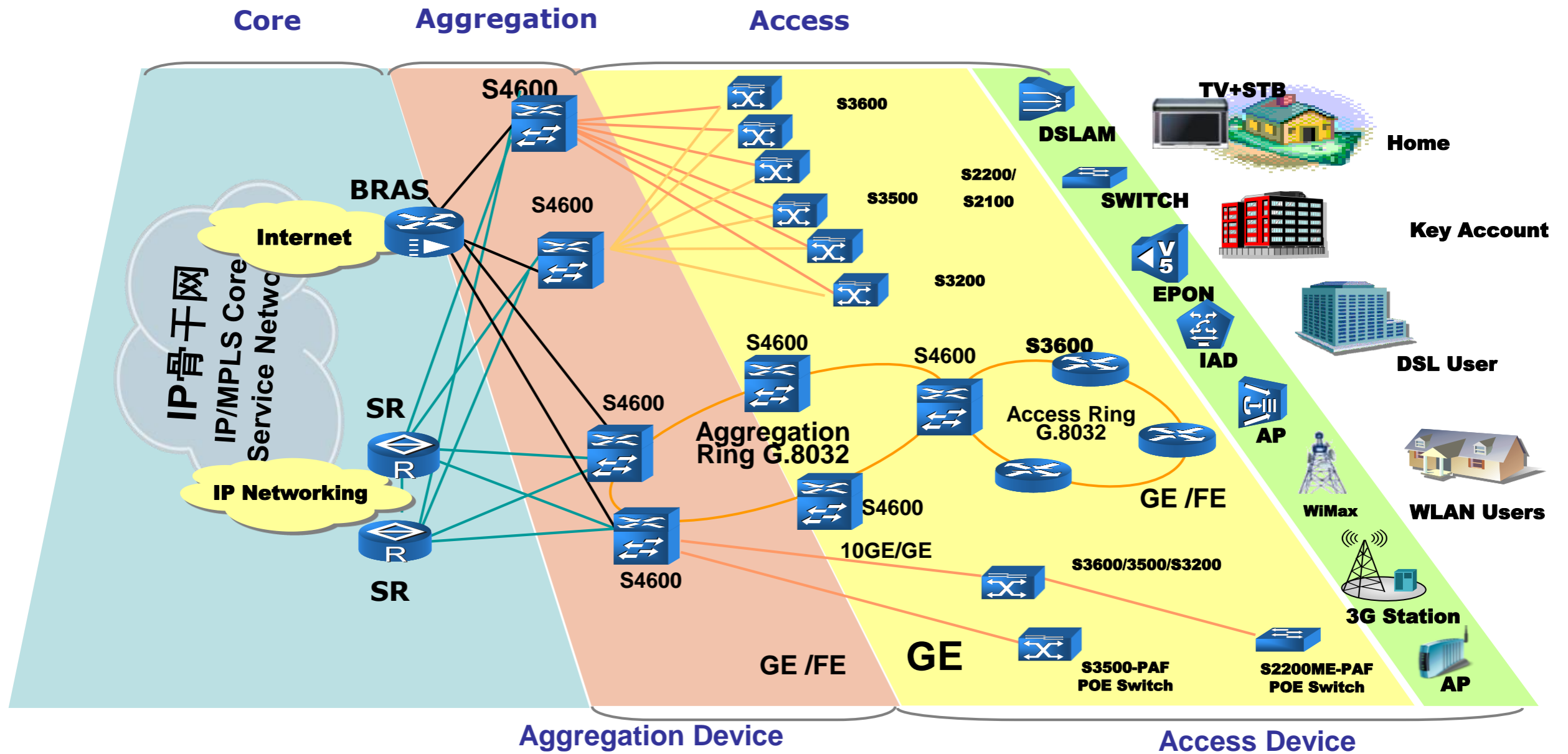
# Ethernet Switch Portfolio



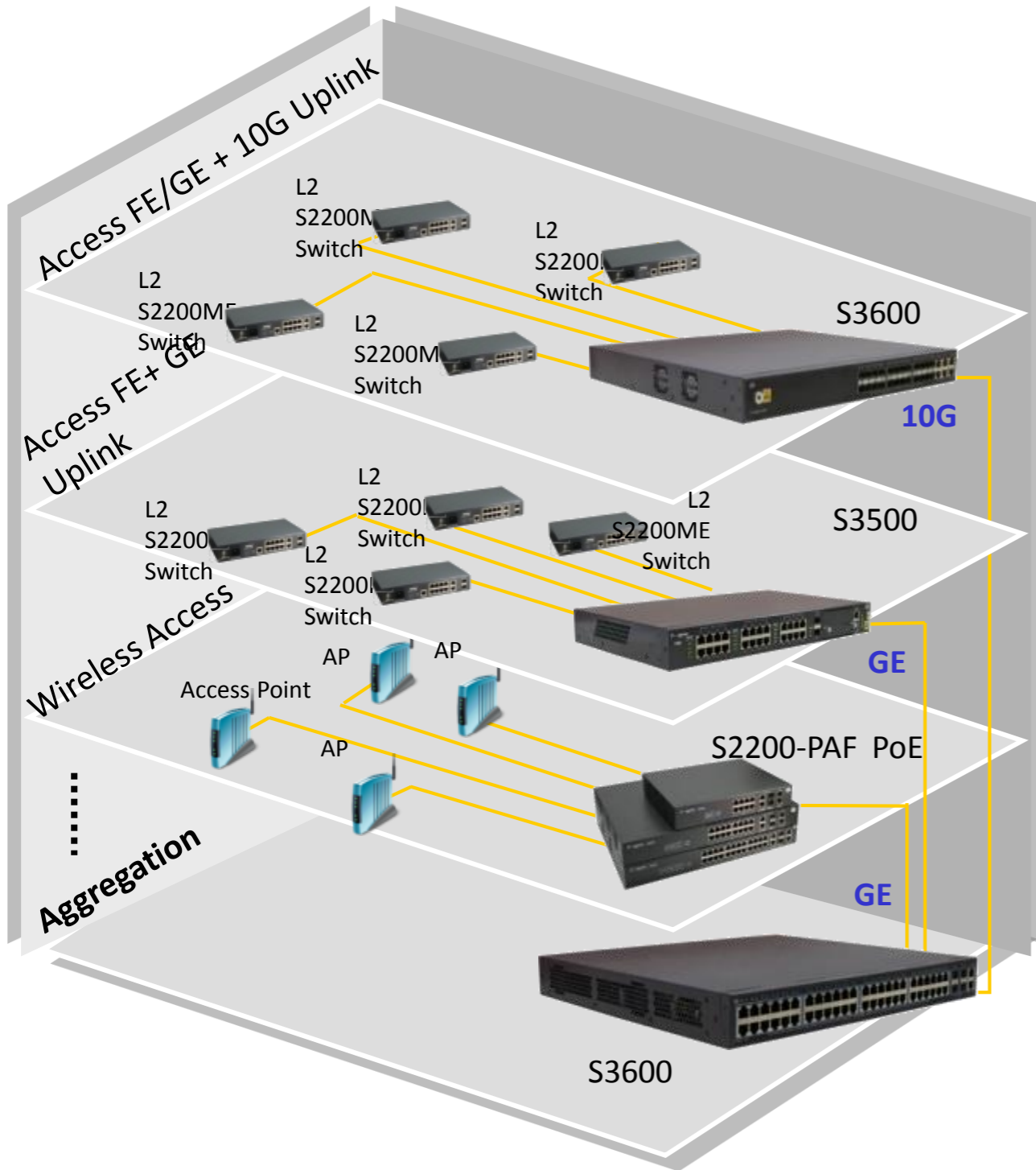
**A series of products to address the diversity of Ethernet networking**



# Carrier Metro Typical Solution



# Ethernet Switch for Enterprise



## Core Router AGGERGATION

- S4600 Core Router Switch
- Up to 384/576 GE ACCESS
- Up to 256/384 10G UPLINK
- Backplane Capacity: 6T
- Routing Protocol

## BUSINESS AGGREGATION

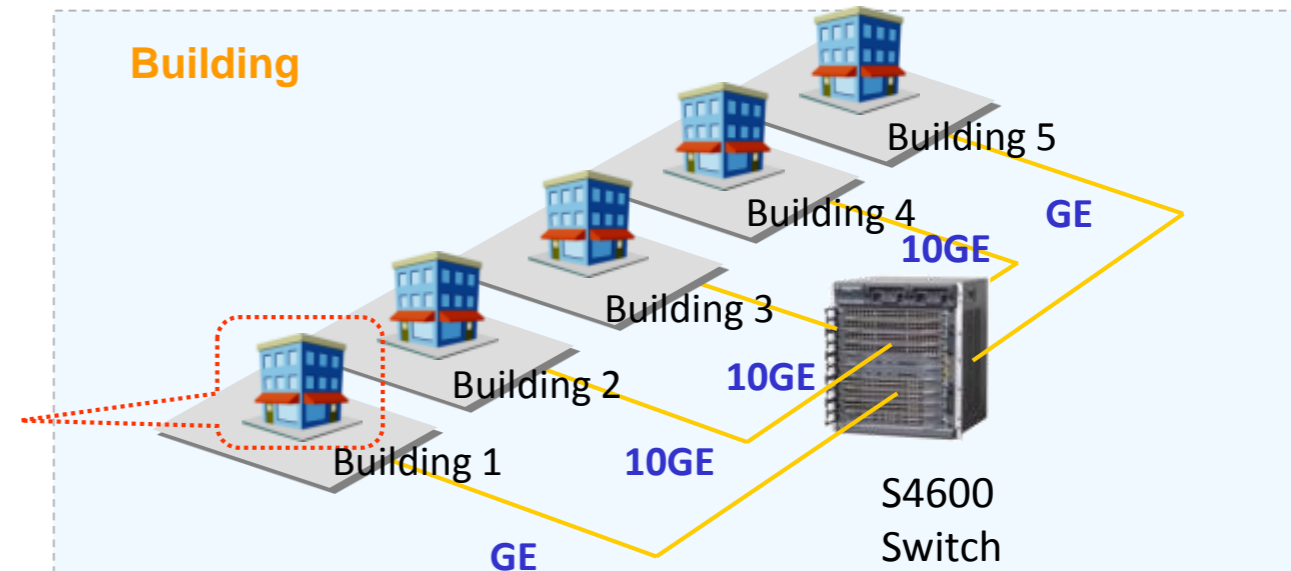
- S3600 Switch
- 24/48 GE ACCESS
- 2/4 10G UPLINK
- Routing Protocol

## BUSINESS AGGREGATION

- S3500 Switch
- 24/48 FE ACCESS
- 2/4 GE UPLINK

## ACCESS

- S2200-PAF PoE Switch
- POWER over ETHERNET
- 802.3af and 802.3at
- 8/16/24 FE ACCESS
- 2 GE UPLINK



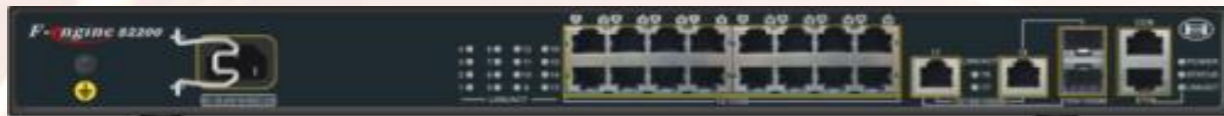
# S2200ME Series Portfolio Overview (L2 FE + 2GE)



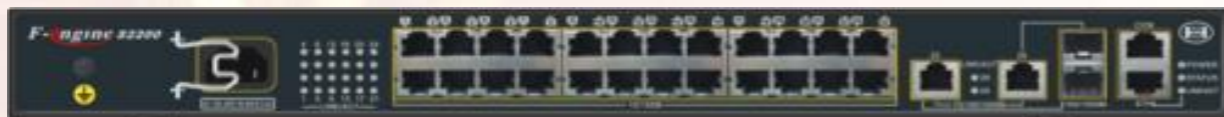
## S2208ME



## S2216ME



## S2224ME



	S2208ME	S2216ME	S2224ME
Interface	8*FE + 2*GE Combo	16*FE + 2*GE Combo	24*FE + 2*GE Combo

- 1. High reliability**
  - ✓ Aports 6Kv anti-thunder level
  - ✓ Ring protection -ESR <200ms
  - ✓ STP, RSTP & MSTP
  - ✓ ACL, Multicast, 802.1X
- 2. Advance QoS**
  - ✓ Rate limit granularity 64Kbps
  - ✓ Flexible scheduling algorithm: SP, WRR, SP+WRR
  - ✓ 4 QoS priority queues per port
- 3. Easy Management**
  - ✓ SNMPv1/v2/v3
  - ✓ CLI/Telnet/Console/W-VIEW GUI



# C2108 Series GE Switch (8\*GE + 1\*ComboG)



## C2108G



## C2108GP



## C2108GP-T



### 1. High reliability

- ✓ 4Kv anti-thunder level
- ✓ STP, RSTP & MSTP
- ✓ ACL, Multicast, 802.1X

### 2. Advance QoS

- ✓ Rate limit granularity 64Kbps
- ✓ Flexible scheduling algorithm: SP, WRR, SP+WRR

### 3. Easy Management

- ✓ SNMPv1/v2/v3
- ✓ CLI/Telnet/Console

### 4. Complete PoE solution

- ✓ 802.3af/at, optional for full at

	C2108G	C2108GP	C2108GP-T
Interface	8*GE + 1*GE Combo	8*GE + 1*GE Combo 802.3af/at, 135W	8*GE + 1*GE Combo 802.3af/at, 300W

# FHN S2200ME Vs CISCO 2960



Items	FiberHome	Cisco
Series Name	S2200ME	2960
Part Number	S2224ME	2960-24TT-L
Interface	24*10/100Base-T+2*GE combo	24*10/100Base-T+2*10/100/1000Base-T
Port Mirroring	support port 1:1, N:1 Mirroring	support port 1:1, N:1 Mirroring
Flow Mirroring	support	support
1: 1 VLAN Translation	support	not support
N: 1 VLAN Translation	support	not support
Max. concurrent VLAN	4K	255
QinQ	support	support
ACL	1K	384
QOS Priority	SP, WRR, SP+WRR	SP, SRR
QOS 802.1p priority	4 queues	4 queues

# S2200-48T/F Series Portfolio Overview (L2 48FE + 4GE)



## S2200-48T



## S2200-48F



### Features

	S2200-48T	S2200-48F
Interface	48*FE + 2 FE/GE SFP+ 2*GE SFP	48*SFP+ 2 FE/GE SFP+2*GE SFP
Switching capacity	17.6Gbps	17.6Gbps
Forwarding rate	13.2Mpps	13.2Mpps
MAC	8K	8K
VLAN	QinQ, VLAN mapping	
Multicast	1024	1024
ACL	1K	1K

### 1. outlook

In-front power supply, combo uplink

### 2. Strong anti-thunder

All-port anti-thunder (6kv)

### 3. Advanced features

1:1 & N:1 VLAN mapping, QinQ, multicast, ACL

### 4. Energy-save & Green

Lower power fan, RoHS

### Application

1: S2200ME is dedicated to Metro/Enterprise access to meet different SLA

2、 ANti-thunder area



# S4800-28T-GF Series Portfolio Overview (L2 24GE + 4GE)

## S4800-28T-GF



### Features

	S2200-48T
Interface	24*GE + 4*GE SFP
Switching capacity	56Gbps
Forwarding rate	41.6Mpps
MAC	16K
VLAN	QinQ, VLAN mapping
Multicast	1024
ACL	512

#### 1. outlook

In-front power supply, combo uplink

#### 2. Strong anti-thunder

All-port anti-thunder (6kv)

#### 3. Advanced features

1:1 & N:1 VLAN mapping, QinQ, multicast, ACL

#### 4. Energy-save & Green

Lower power fan, RoHS

### Application

1: S4800-28T-GF is dedicated to Metro/Enterprise access to meet different SLA

2、 ANti-thunder 6KV

# S2200ME-PAF series PoE Switch (L2 8/16/24FE + 2GE)



## S2208ME-PAF



## S2216ME-PAF



## S2224ME-PAF

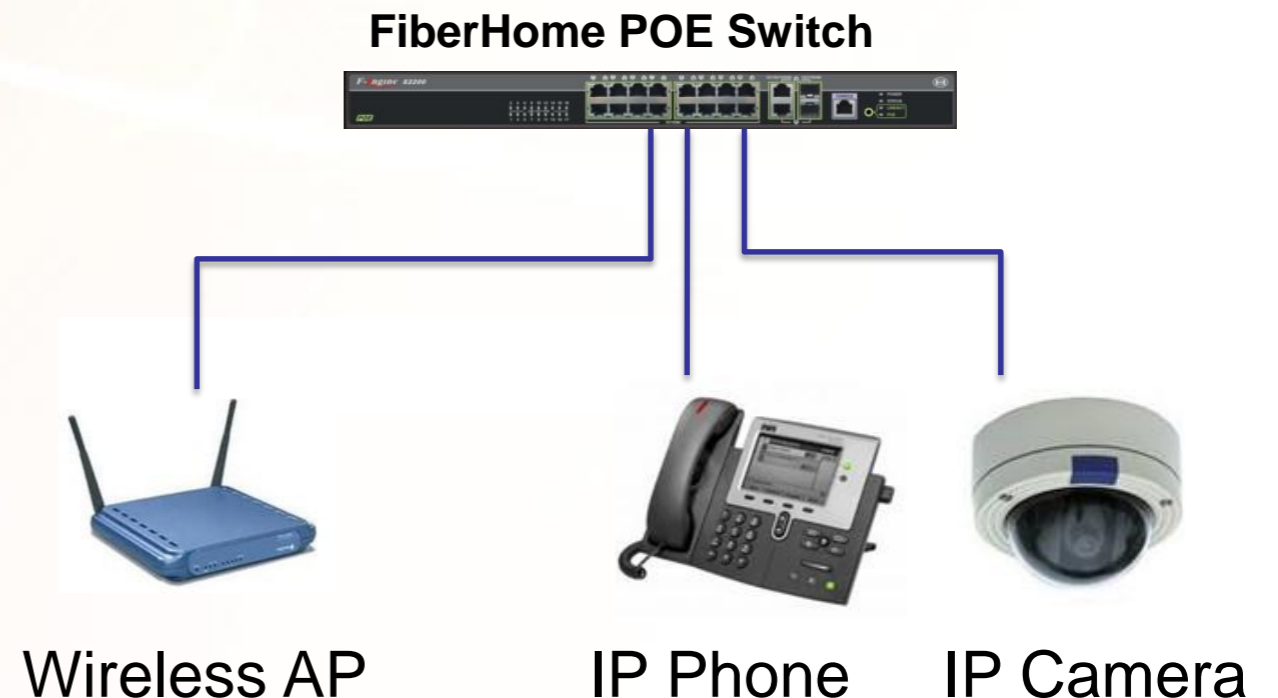


## Features

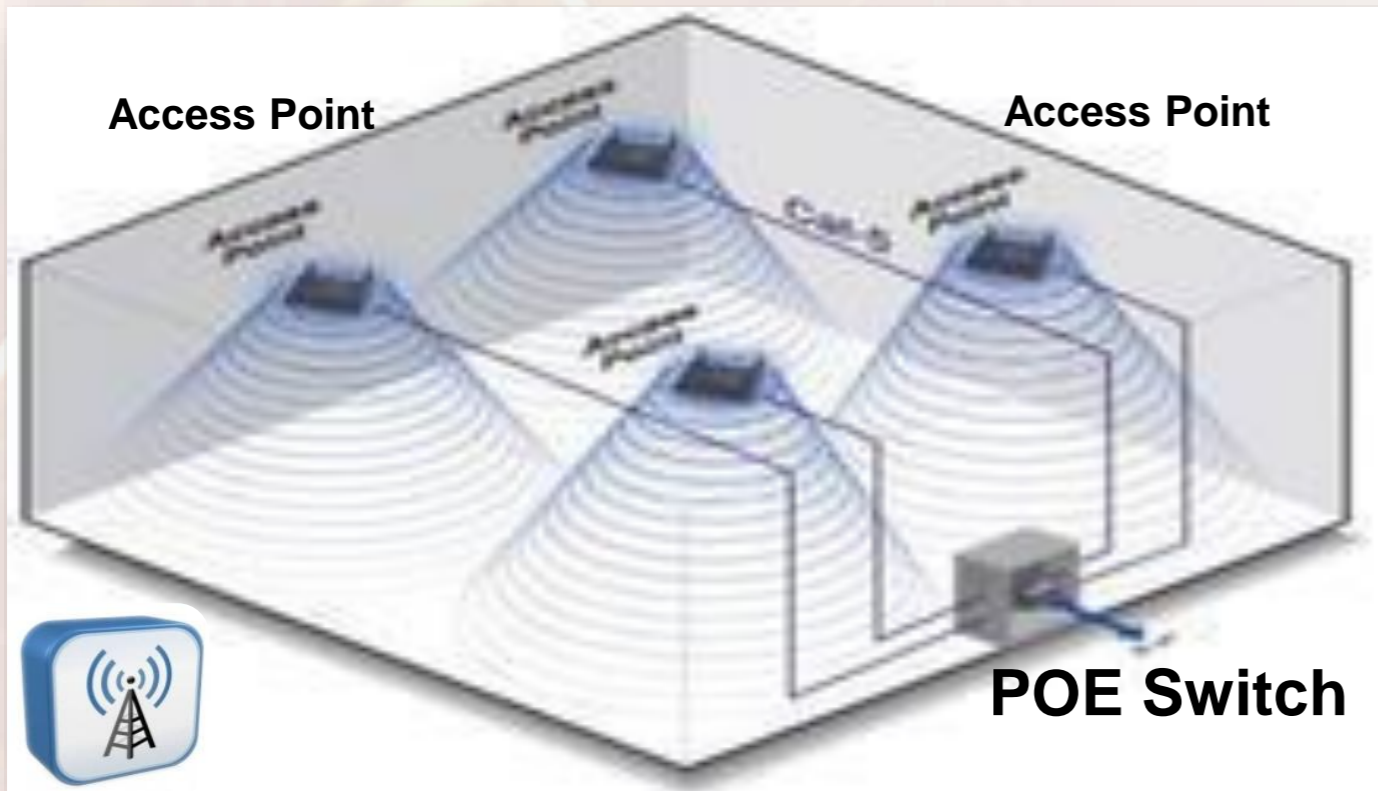
	S2208ME-PAF	S2216ME-PAF	S2224ME-PAF
<b>Interface</b>	8*FE PoE + 2*GE Combo	16*FE PoE + 2*GE Combo	24*FE PoE + 2*GE Combo
<b>Power Output</b>	124W	247W	370W

- Support IEEE802.3af/ IEEE802.3at, Offering 15.4W(30W in max) power to terminals;
- PoE function on ports and whole chassis enabled;
- The priority of PoE port configurable;
- The max. output power of PoE port configurable

## Application



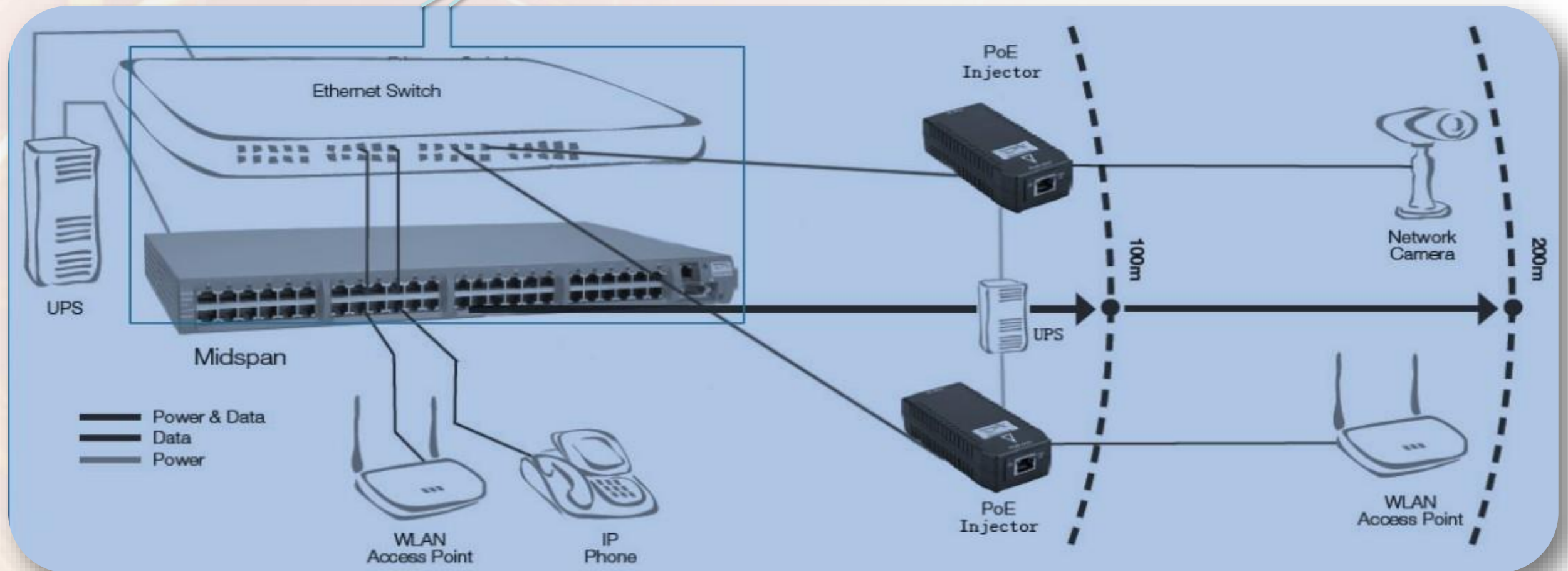
# Wi-Fi City 3G+WLAN



## WLAN Hotspot Coverage

POE Switch + Access Point

# POE Switch VS Switch + Midspan

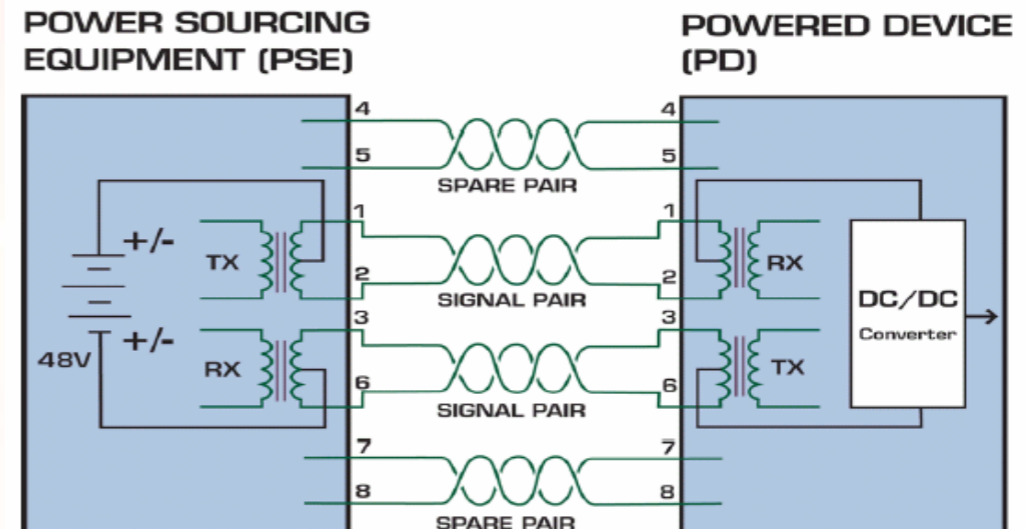
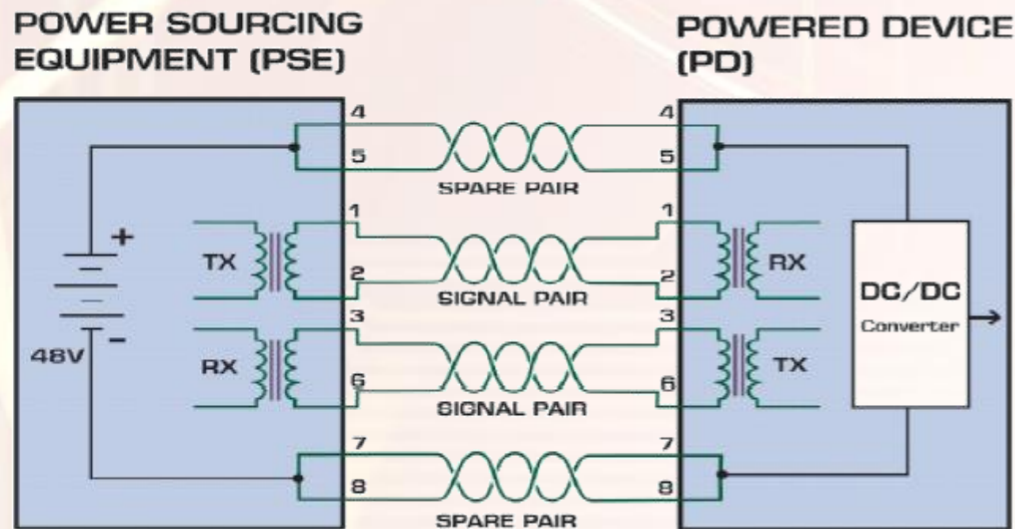


# PoE Power supply technology



## PoE (Power Over Ethernet)

PoE is through the 10BASE-T, 100BASE-TX, 1000BASE-T Ethernet network powered IP-based terminal for transmitting data signals at the same time, but also provide DC power supply for such equipment, the ability of the reliable power supply distances up to 100 meters.



### ◆ Powered by free feet

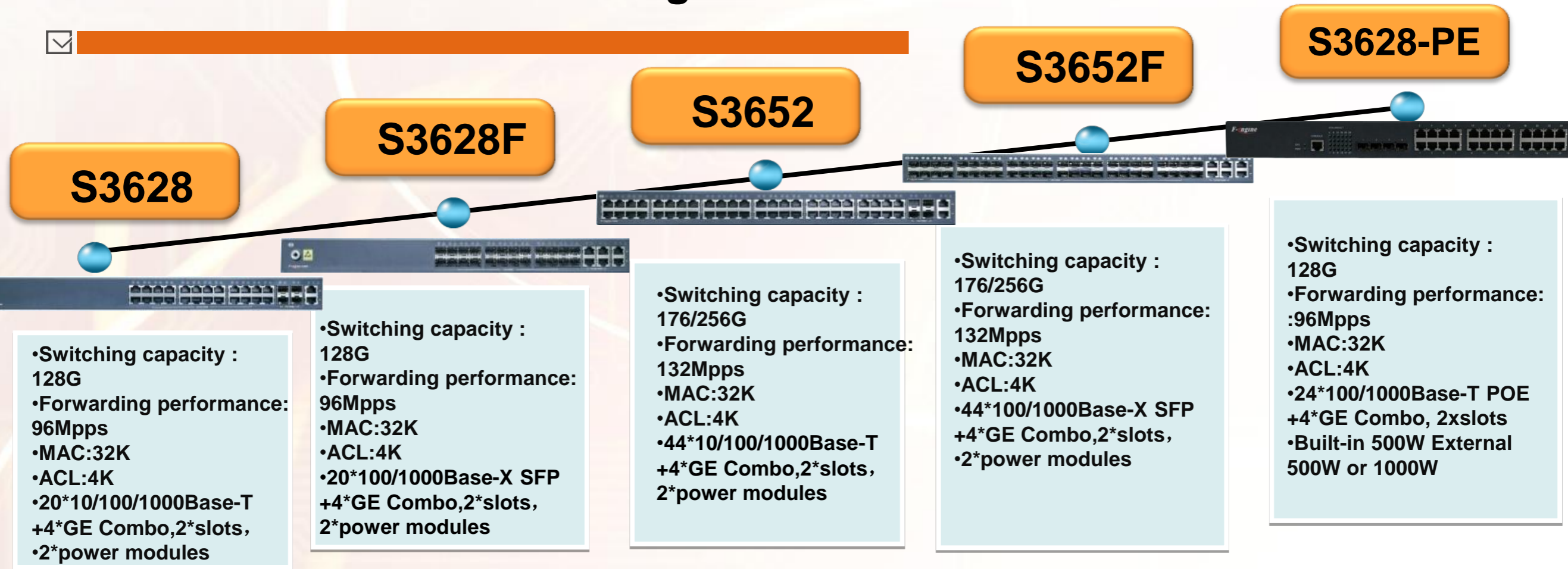
Links to form a positive 4,5, 7,8 the formation of negative links, Power from the PSE to the PD. 1,2,3,6 transfer data.

### ◆ Through the data pin power supply

Power to the PD through the data. DC and data frequencies interfere with each other, 1,2,3,6 both current and data transmission.

IEEE 802.3af/3at Standard does not allow application of these two conditions simultaneously, only PSE equipment to provide a usage, but the power PD applications must be able to adapt to the two cases.

# S3600 Series Carrier-Class Gigabit Ethernet Switches



•Switching capacity : 128G  
 •Forwarding performance: 96Mpps  
 •MAC:32K  
 •ACL:4K  
 •20\*10/100/1000Base-T +4\*GE Combo,2\*slots, 2\*power modules

•Switching capacity : 128G  
 •Forwarding performance: 96Mpps  
 •MAC:32K  
 •ACL:4K  
 •20\*100/1000Base-X SFP +4\*GE Combo,2\*slots, 2\*power modules

•Switching capacity : 176/256G  
 •Forwarding performance: 132Mpps  
 •MAC:32K  
 •ACL:4K  
 •44\*10/100/1000Base-T +4\*GE Combo,2\*slots, 2\*power modules

•Switching capacity : 176/256G  
 •Forwarding performance: 132Mpps  
 •MAC:32K  
 •ACL:4K  
 •44\*100/1000Base-X SFP +4\*GE Combo,2\*slots, 2\*power modules

•Switching capacity : 128G  
 •Forwarding performance: 96Mpps  
 •MAC:32K  
 •ACL:4K  
 •24\*100/1000Base-T POE +4\*GE Combo, 2xslots  
 •Built-in 500W External 500W or 1000W

## FM-F10-2XGE-XFP



2-port 10GE XFP

- ✓ supports VLAN Mapping 、 selective QinQ 、 IGMP Snooping、 IGMP filter、 IGMP fast leave、 and IGMP proxy, multicast across VLANs;
- ✓ 2\* extended slot for 10G, maximum 4\* 10G uplink
- ✓ Redundant power supply
- ✓ High bandwidth and performance full mesh at line speed forwarding
- ✓ Carrier-class Ethernet and protection features: G.8032/G.8031,EAPS,R-link,VRRP,BFD, Redundancy Power supply, Switching Time <50ms
- ✓ static routing 、 RIPv1/2、 OSPF、 BGP 、 IS-IS (V2) 、 PIM-SM ;
- ✓ OAM 802.3ah
- ✓ Network Management



MEF9/MEF14

# F-engine S3500 Series Carrier-Class Ethernet Switches



MEF9/MEF14

**S3528**

- Switching capacity: 12.8 / 32G
- Forwarding performance: 9.6Mpps
- MAC :16K
- ACL:2K
- 24\*10/100Base-Tx
- +2\*1000Base-X SFP
- +1\*slots

**S3528F**

- Switching capacity: 12.8 / 32G
- Forwarding performance: 9.6Mpps
- MAC:16K
- ACL:2K
- 24\*10/100Base-Tx
- +2\*1000Base-X SFP
- +1\*slots

**S3552**

- Switching capacity: 17.6 / 32G
- Forwarding performance: 13.2Mpps
- MAC:16K
- ACL:2K
- 48\*10/100Base-Tx
- +2\*1000Base-X SFP
- +2\*100/1000Base-X SFP

**S3552F**

- Switching capacity: 17.6 / 32G
- Forwarding performance: 13.2Mpps
- MAC:16K
- ACL:2K
- 48\*10/100Base-Fx
- +2\*1000Base-X SFP
- +2\*100/1000Base-X SFP

**S3552-PAF**

- Switching capacity: 17.6 / 32G
- Forwarding performance: 13.2Mpps
- MAC:16K
- ACL:2K
- 24\*10/100Base-Tx
- +24\*10/100Base-Tx POE
- +2\*1000Base-X SFP
- +2\*100/1000Base-X SFP

•Support 802.3 af

## Application

•S3500 Series can be deployed in commercial centers and residential areas to access the intranets and MAN. meet requirements of applicable scenarios such as building access and convergence and access in campus networks

## Features

- forward Layer 2 and Layer 3 data packets at line speed
- Strong multi-service access capability
- supports VLAN Mapping , selective QinQ , IGMP Snooping, IGMP filter, IGMP fast leave, and IGMP proxy , multicast across VLANs ;
- Carrier-class Ethernet technologies and reliability supports ESR, R-link, VRRP, BFD, double power modules
- complicated Layer 3 functions:
- supports static route , RIPv1/2, OSPF, BGP , IS-IS(V2), PIM-SM ;
- Environment-friendliness and energy saving
- ROHS, Temperature& Fan Speed monitoring ,
- All interfaces support 6KV lightning protection

# FHN S4600 Metro Ethernet Switch

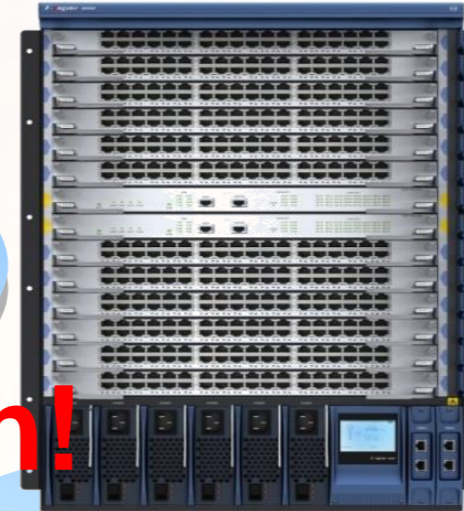


S7808



Backplane Capacity : 3.75T  
 Switching Capacity : 2.56T  
 Forwarding performance : 1920Mpps

S7812



Backplane Capacity : 6T  
 Switching Capacity : 5.12T  
 Forwarding performance : 3840Mpps

**Coming Soon!**

## Highlighted Feature List

- High Performance and density
- Support Flexible QinQ , 1 : 1 and N:1 VLAN binding
- MPLS/VPLS/L3VPN
- Ethernet OAM(802.1ag/Y.1731/802.3ah)
- Protection: G.8032/G.8031、 R-link、 VRRP、 BFD
- Static routing、 RIP、 OSPF、 BGP、 IS-IS、 PIM-SM
- IPv4 /IPv6
- Precise Timing Protocol( 1588v2 )
- SyncE
- ATCA-like Chassis

	S4608	S4612
Max No. of 10G port	256	384
Max No. of 1000M port	384	576



# Graphical User Interface

The screenshot displays the EasyDo Wview network management system interface. It features a hierarchical network topology view on the left, a central pane for device configuration and monitoring, and a right-hand pane for alarm management. The alarm management section includes a search filter, a table of alarm records, and a legend for alarm status.

**告警信息 (Alarm Information) Table:**

告警等级	告警数目
清除告警	0
警告告警	0
次要告警	0
主要告警	0
紧急告警	0
告警总数	0

**告警日志 (Alarm Log) Table:**

告警设备	告警名称	告警内容	告警时间	告警级别	恢复时间	恢复人	确认时间
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:50:51	主要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:50:49	次要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:49:48	主要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:49:47	次要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:48:53	主要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:48:51	次要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:47:09	主要告警			
10.18.11.30 [10.18.11.30]	链路丢失	接口1/1	2008-10-21 10:47:07	次要告警			

**告警原因 (Alarm Cause) Legend:**

- 恢复未确认 (Light Blue)
- 确认未恢复 (Light Green)
- 恢复且确认 (Light Purple)
- 未恢复且未确认 (Light Yellow)




Easy topology

Rich Network

Meticulous

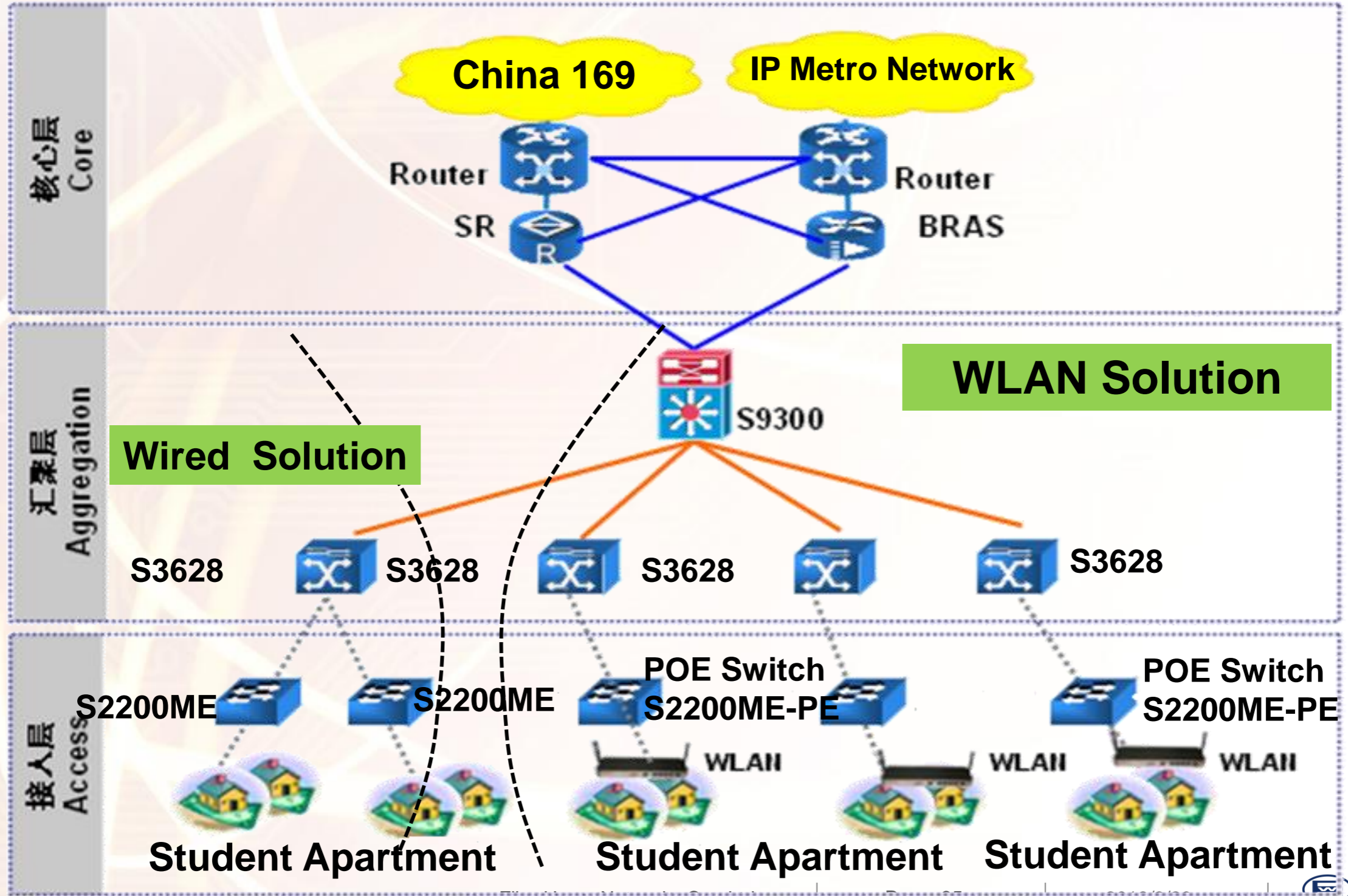
Full alarm management

# Mainstream Vender Corresponding Product Series

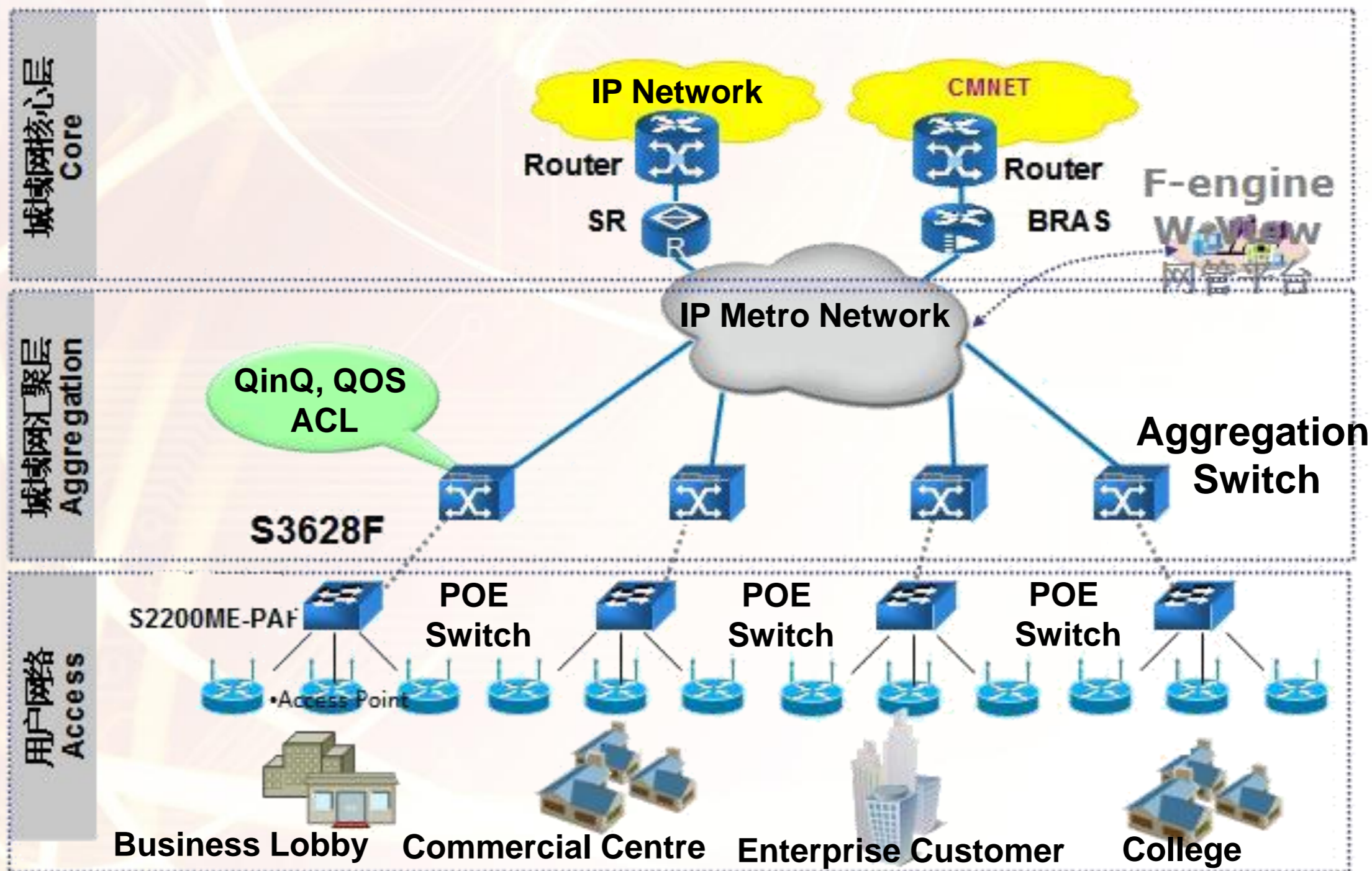
Class	 FiberHome	 HUAWEI	ZTE中兴	 CISCO
Layer 2 Switsh	S2208ME/S2108ME	2309TP-EI	2809	2960-8TC-L
	S2216ME/S2116ME	2318TP-EI	2920/2920-SI	
	S2224ME/S2124ME	2326TP-EI	2928/2928-SI	2960-24TC-L
	S2200-48T	S2352P-EI	2852S	2960-48TC-L
Layer 2 POE Switsh	S2208ME-PAF	S2309TP-PWR-EI		2960-24LT-L
	S2216ME-PAF			
	S2224ME-PAF	S2326TP-PWR-EI	2826A-PS	2960-24PC-L
Aggregation Layer 2 Switch	S3228	S3328TP-SI	3228A	
	S3228F	S3328TP-EI-24S	3228A-FI	
	S3252	S3352P-SI	3252A	
	S3252F	S3352P-EI-48S		
	S3252-24F	S3352P-EI-24S		
Aggregation Layer 3 Switch	S3528	S3328TP-EI	3928A	3560-24TS
	S3528F	S3328TP-EI-24S	3928A-FI	
	S3552	S3352P-EI	3952A	3560-48TS
	S3552F	S3352P-EI-48S		
	S3552-24F	S3352P-EI-24S		
All GE Ports Layer 3 Switch	S3628	S5328C-EI	5928	3750E-24TD
	S3628F	S5328C-EI-24S	5928-FI	3750E-24TD-S
	S3652	S5352C-EI	5952	3750E-48TD
	S3652F			3750E-48D-s
Core/Aggregation Layer 3 Switch	S4600	S9300	8900	6500

# Case 1:

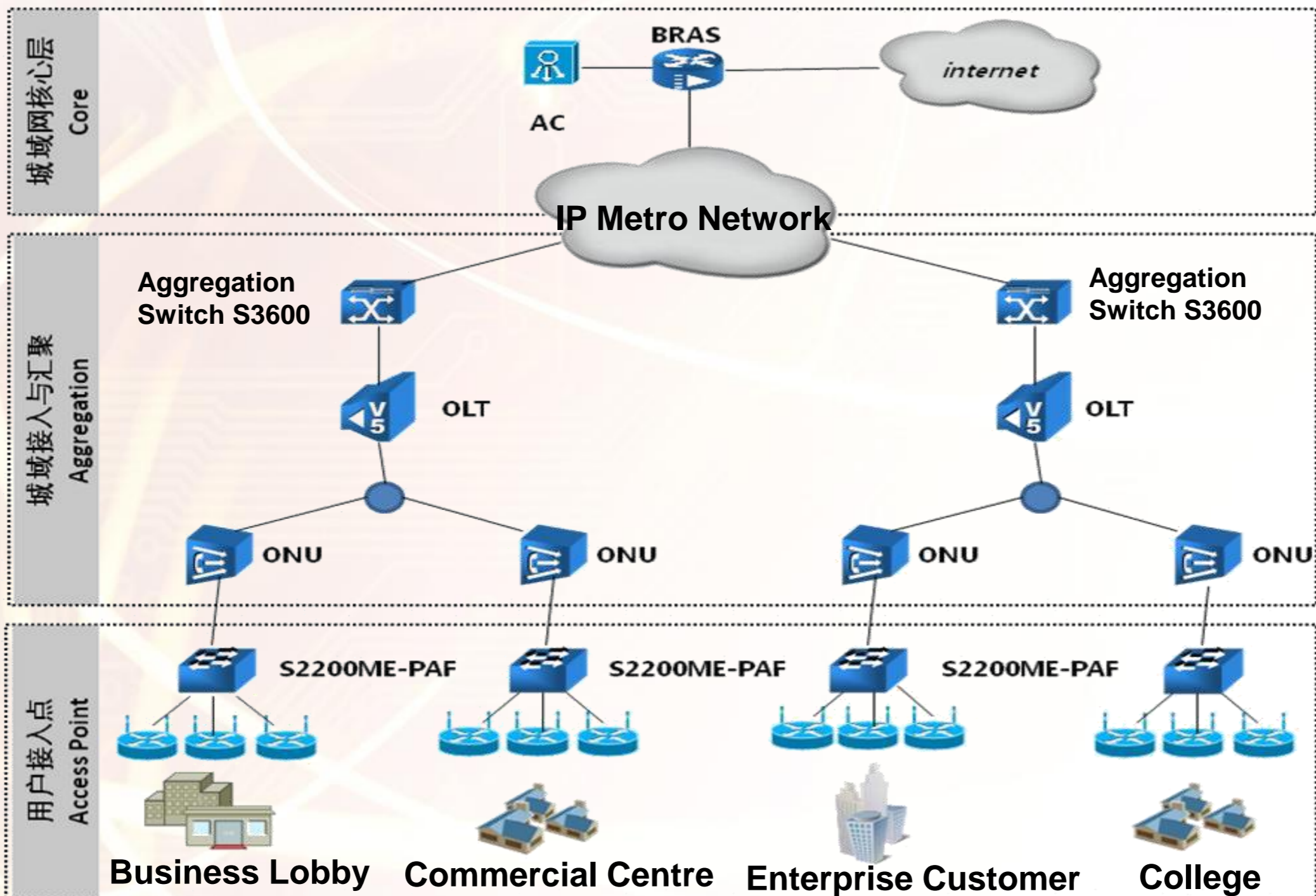
## 2011 Unicom **University Town Project** for HEBEI Province



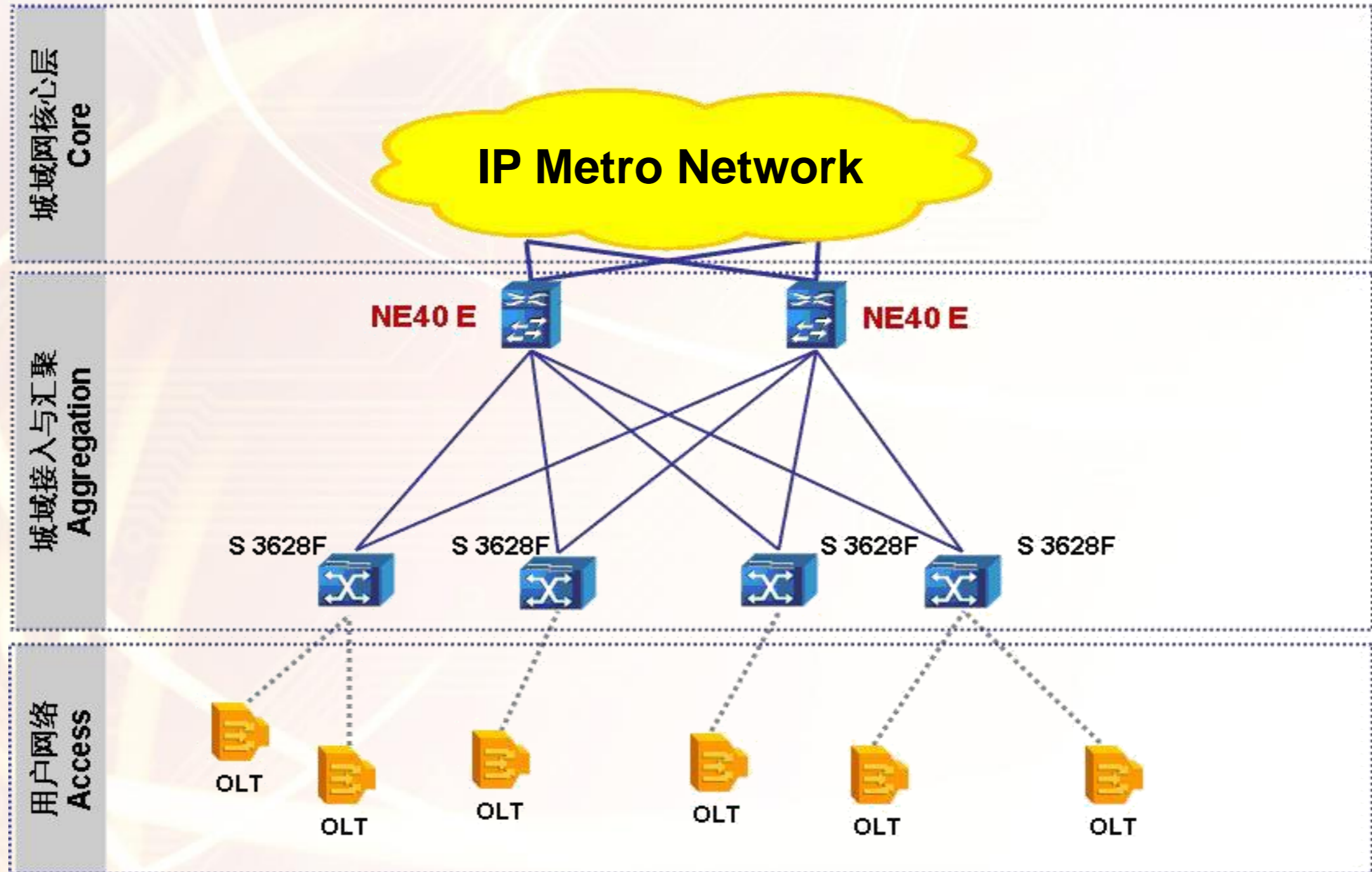
# Case 2: 2011 China Mobile **WLAN Coverage Project** for Qingdao



# Case 3: 2011 China Mobile **WLAN Coverage Project** for Hunan Province



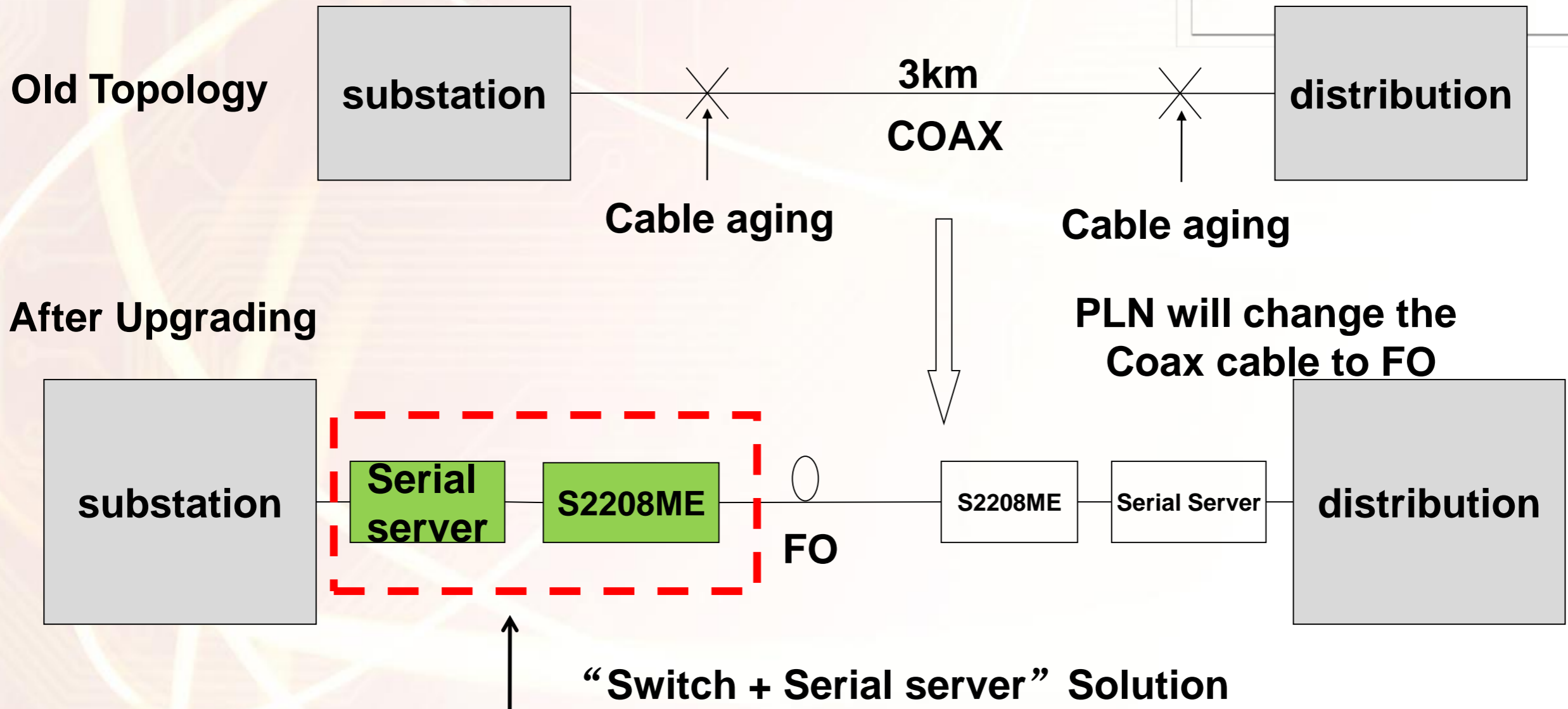
# Case 4 : 2011 State Grid **Distribution Network Upgrading** project for Anhui Province



# Case 5: 2012 National Power Grid **Distribution Network** **Upgrading** Project for Indonesia



**Substation:** Transform voltage levels , Lifting voltage  
**Distribution:** Acceptance and distribution of electric energy



# Agenda

- Product Portfolio
- Typical Application

Ethernet Product

**Converter Product**



## Ethernet over TDM NTU Overview



FE-E1 Protocol Converter GFP/HDLC

FE-4E1 Protocol Converter GFP/HDLC

FE-8E1 Protocol Converter GFP/HDLC

FE-16E1 Protocol Converter GFP/HDLC

GE-STM1 Protocol Converter GFP/HDLC

EOS Protocol Converter

FE-2E3 Protocol Converter

# WHY EoTDM?



- **Wide coverage network**
- **Mature technology**
- **Existing rich resources**
- **Stable and reliable**
- **Saving operation cost**
- **Better security**
- **Flexibility(64K-155M, bridge/node to multi-node)**



# Common EoTDM technology



- **HDLC(High level Data Link Control)**

HDLC is a bit-oriented synchronous protocol, provide an easy, efficient, reliable EoPDH solution, however, as there were no unified standards of the encapsulation, LCAS, propagation delay skew, which makes a lot of trouble in communication between different manufacturers



- **GFP(Generic Framing Procedure)**

GFP, the first ITUT standard for EoPDH solution, combined with VCAT(Virtual concatenation), LCAS, realize the intercommunication between different manufacturers.

# B2161/4/8/16/63 Series New Generation Converter











**New GFP/PPP-BCP**

**(HDLC/GFP/PPP-BCP)**

	Network	User	Management	Power	Encapsulation Protocol	Jumbo Frame	N*64K Time Slot	Status
<b>B2161</b>	1/2xE1	4 FE	SNMP /WEB/CLI	AC/DC	HDLC/GFP-F /PPP-BCP	2K Byte	Support	volume
<b>B2104L</b>	4xE1	4FE	SNMP /WEB/CLI	AC/DC	HDLC/GFP-F /PPP-BCP	2K Byte	Support	volume
<b>B2108L</b>	8xE1	4 FE	SNMP /WEB/CLI	AD(- 48~220V)	HDLC/GFP-F /PPP-BCP	2K Byte	Support	volume
<b>B2116</b>	16xE1	2 GE	SNMP /WEB/CLI	Dual AD (-48~220V)	HDLC/GFP-F /PPP-BCP	2K Byte	Support	volume
<b>B2163E</b>	2xSTM-1	2 GE Combo	SNMP /WEB/CLI	Dual AD (-48~220V)	HDLC/GFP-F /PPP-BCP	2K Bytes	Support	volume

# Fiberhome VS RAD



<b>Fiberhome</b> 	<b>RAD</b> 
<b>B2163E-2GE2STM-1</b> 	<b>E-gate 100</b> 
<b>B2116-16E12GE</b> 	<b>RICI-16E1</b> 
<b>B2104L-4E14TX</b> <b>B2108L-8E14TX</b> 	<b>RICI-4E1</b> <b>RICI-8E1</b> 
<b>B2161-2E14TX</b> 	<b>RICI-E1</b> 

# B2161-2E14TX



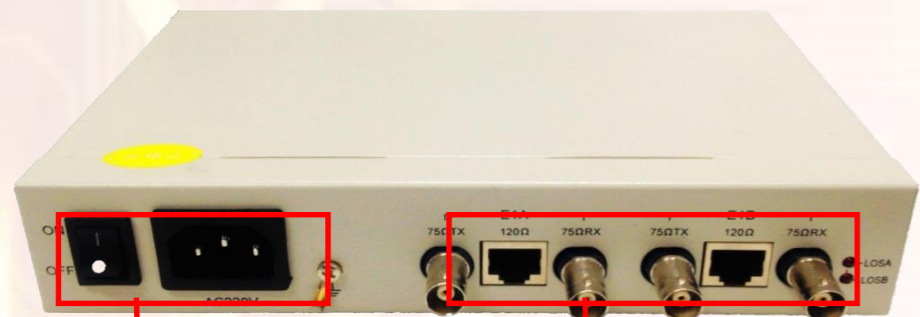
Indosat –E-KTP  
Project for  
Indonesia  
Government 2011  
**Over 2000 sets**

**B2161**  
**4 FE over 2 E1**



4 FE

Console



100-220V

2xE1  
(75/120)

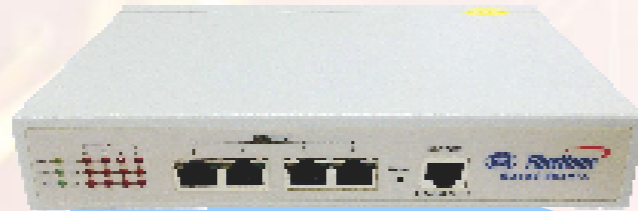
- 4xFE
- 2KBbyte Jumbo Frame
- Support Frame E1 N\*64K
- HDLC/PPP-BCP/GFP-F
- VLAN QinQ
- Statistic
- SNMP/WEB/CLI
- Upgrade via WEB
- Anti Thunder design

# B2104L-4E14TX

# B2108L-8E14TX



## B2104L



- 4 E1 Ports
- 4TX or 2TX1FX
- AC/DC/AD

## B2108L



- 8 E1 Ports
- 4TX or 2TX2FX
- AC/DC/AD

## Benefits and Features

- GFP-F encapsulation complies with ITU-T G.704 standard.
- GFP-F encapsulation support extension null header or extension linear header.
- Optional GFP-F FCS function.
- E-Tree and E-LAN.
- SNMP(v1/v2c/v3) and WEB(both http and https) management.
- Build in redundant AC or DC power supply, per power supply: 240VAC ~ -48VDC.

# B2116-2GE16E1



B2116E——  
**GE over 16E1** Aggregation

**Indosat –E-KTP  
 Project for  
 Indonesia  
 Government 2011  
 Over 100 sets**

Depth of Chassis <300mm  
 All ports in Front



Dual AD  
 Power  
 supply

16xE1(1200hm) 16x RJ45

Console

2\*GE

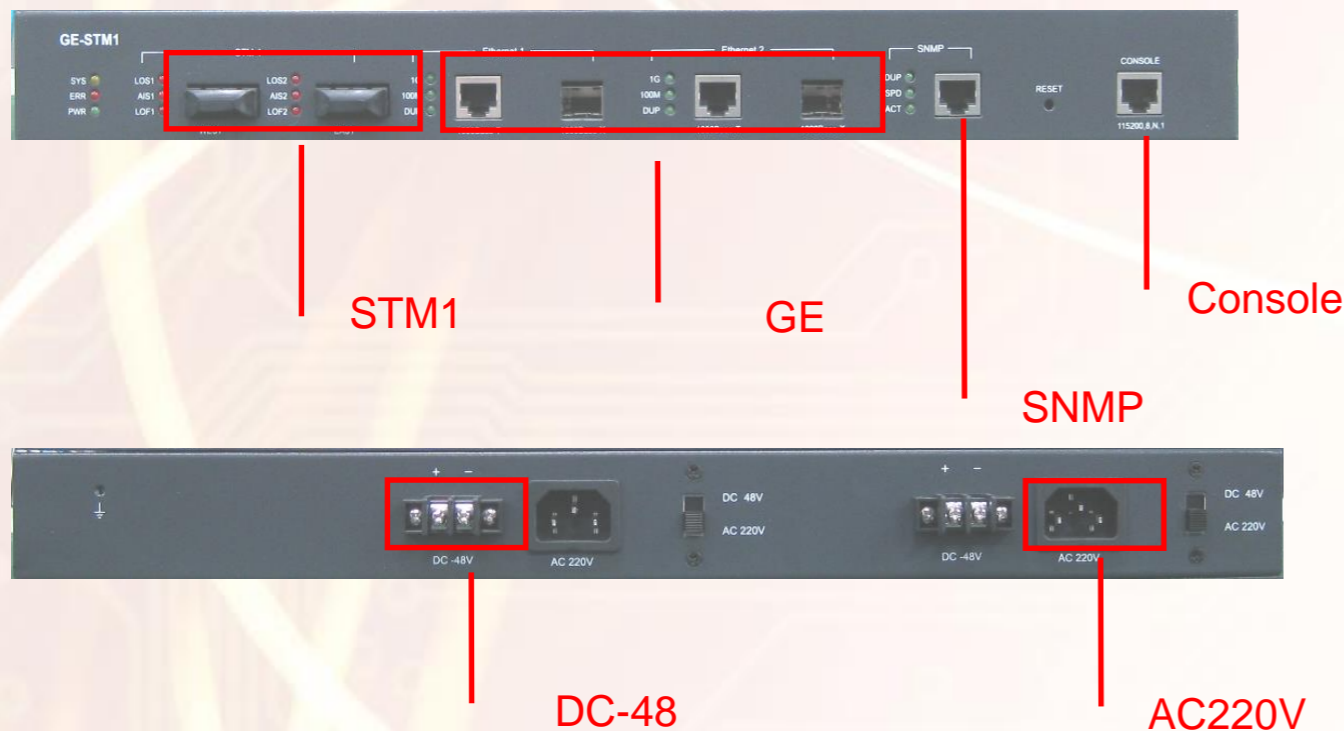
- 2x GE
- Maximum 31x logical Channel
- N x 64Kbps binding
- 1-16E1 binding
- GE Trunk
- HDLC/PPP-BCP/GFP-F
- VLAN QinQ
- E1 Pattern and statistics
- E1 Channel loop detect
- Software Upgrade via WEB
- SNMP(V1/V2/V3)/WEB/CLI
- Console/Telnet/SSH CLI management



# B2163E-2GE2STM1

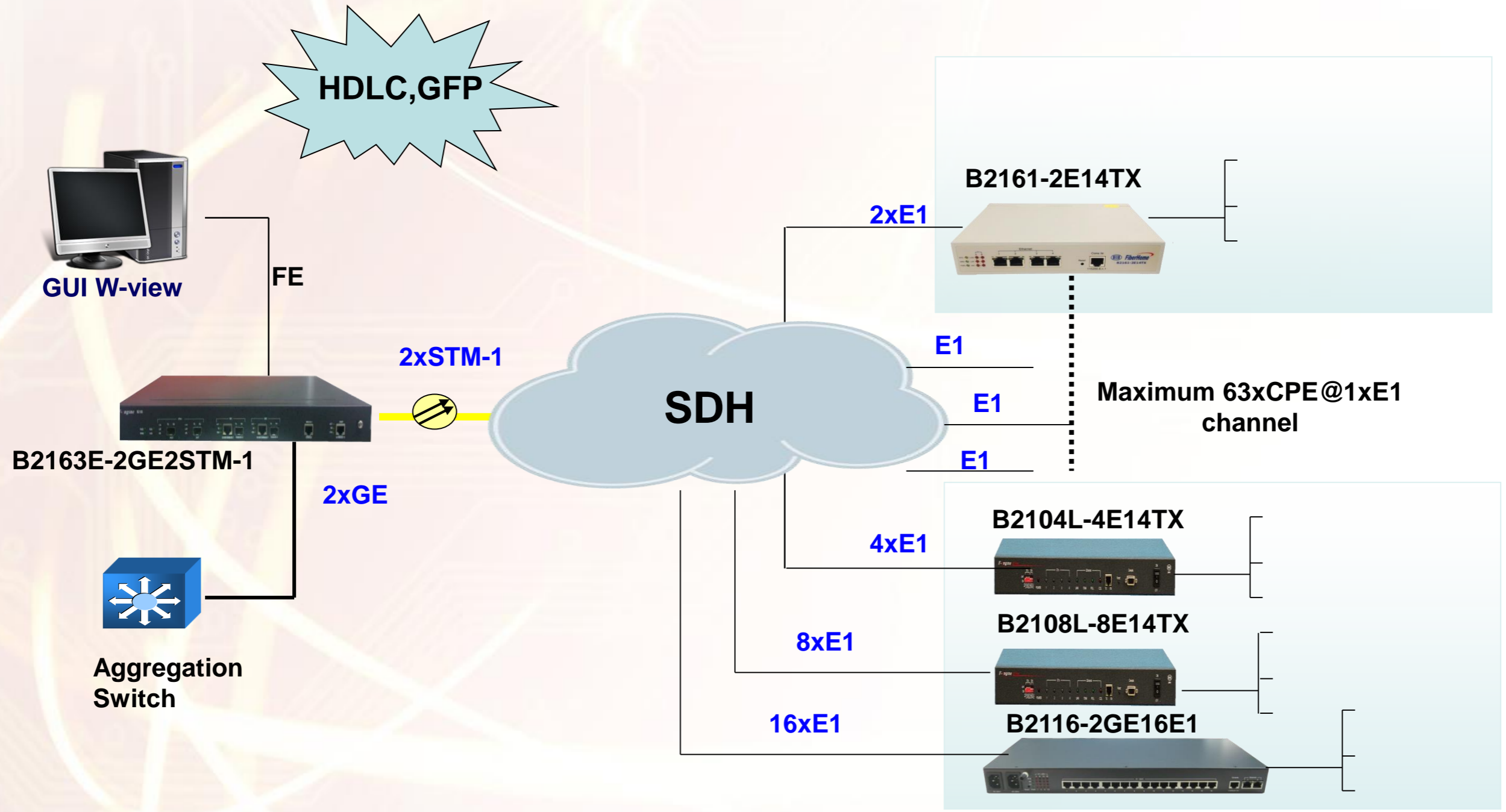


B2163E -- **GE over STM1** aggregation converter



- 2x TM 1+1STM1/ 2+0
- Maximum 63x VCG
- 1-16E1 binding
- GE Trunk
- HDLC/PPP-BCP/GFP-F
- VLAN QinQ
- E1 Pattern and statistics
- E1 Channel loop detect
- Software Upgrade via WEB
- SNMP/WEB/CLI

# Aggregation Interface Converter Solution - B2163E-2GE2STM-1



# Case1: E-KTP Government Project 2011 for Indosat - ID Information Collection Project



802.1Q VLAN & standard Q in Q  
VLAN10/20/30  
/70/80

**RAD RiCi 16**



GE

Switch

**Government Headquarters**

STM1 optical port  
1+1 protection

SDH

**Venders involved in**



**FiberHome**



**Max.63 branches convergence using fiber pair, 1+1 protection**

2E1  
GFP / HDLC

2E1  
GFP / HDLC

B2161-2E14TX

B2161-2E14TX

B2161-2E14TX

VLAN10

VLAN70

VLAN80



**Government Branch Office 1**

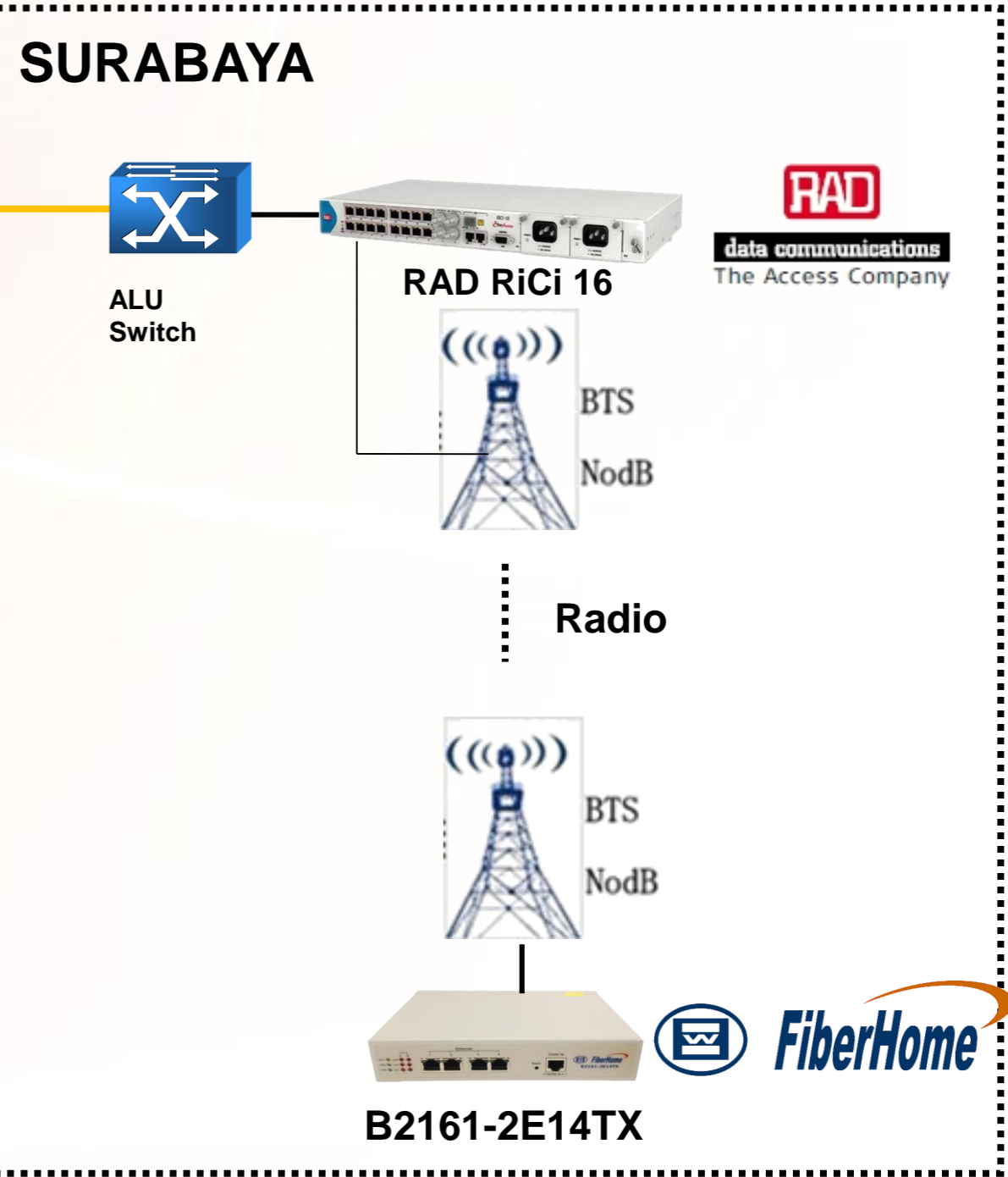
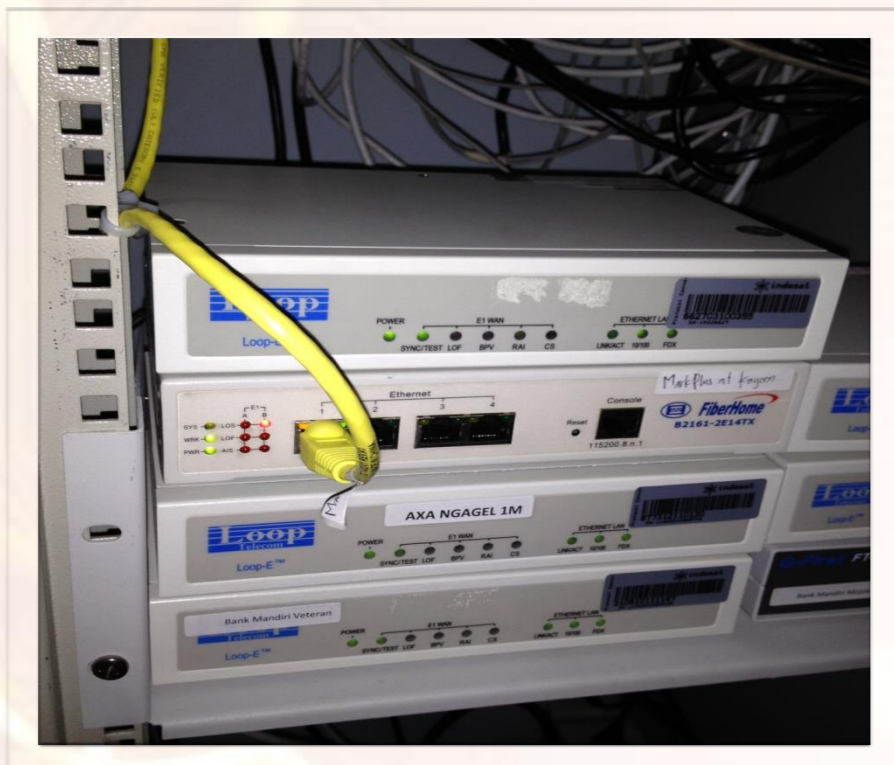
**Government Branch Office XX**

**Government Branch Office 63**

# Topology in Surabaya



- ✿ National governmental project
- ✿ E-Personal Personal ID system



# Aggregator- Rici 16 VS FH B2116-2GE16E



- ✿ RAD RICI 16 as Aggregator
- ✿ 2011.11, 600+ deployed
- ✿ FH passed through the testing in May, get PO 200 set B2116-16E12GE and have chance to take place it.



The End

