Drive Increased Revenue Stream

– GPON Superior Implementation of China Service Models

Weining Gan

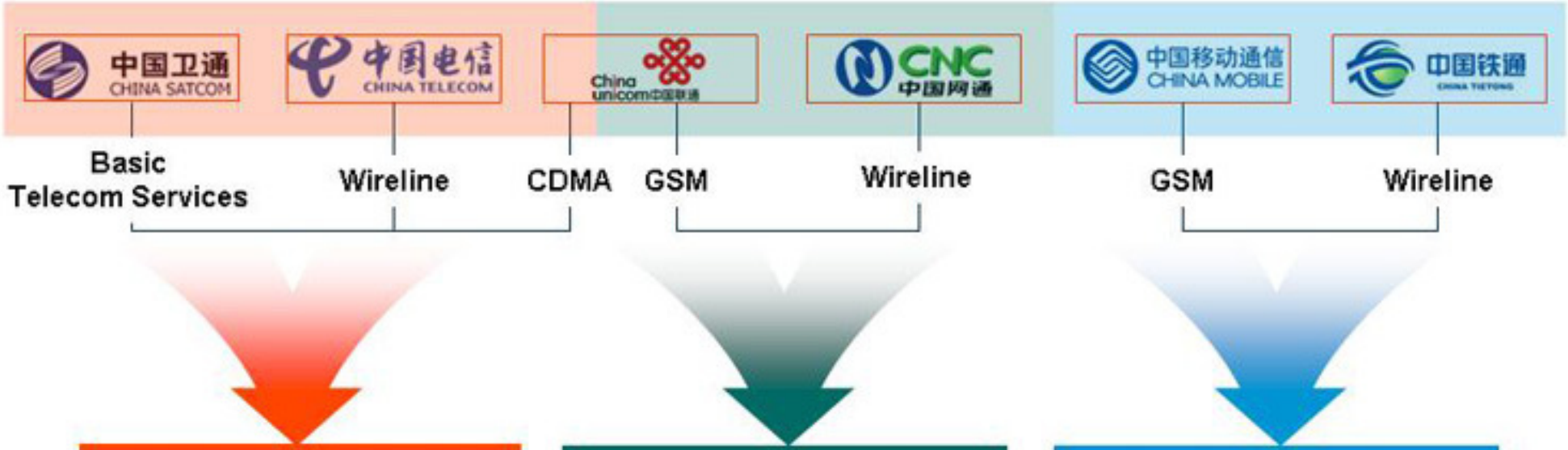
GPON Global Marketing

FTTH China 2008 | Shenzhen • China | Sept 2008

ERICSSON

TAKING YOU FORWARD

China Carrier Landscape Transition



New China Telecom	
CDMA	43.153M
Phone	216.29M
Internet	38.36M

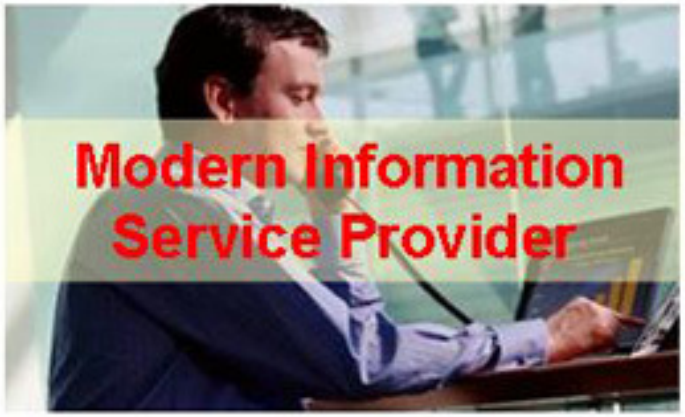
New China Unicom	
GSM	126.525M
Phone	108.7M
Internet	22.12M

New China Mobile	
GSM	399.5M
Phone	in millions
Internet	in millions

All three fully licencsed: Wireless, Phone, Internet, Value-Added

Industrywide Strategic Transition

Strategic Transition



- Full broadband service is a critical to offset saturated traditional TDM based wireline and wireless voice and basic bandwidth centric broadband services
- Ability to offer service oriented full broadband services is an effective way to increase ARPU & reduce churn rate

中国电信 CHINA TELECOM | 中国移动通信 CHINA MOBILE | China unicom中国联通 | CNC 中国网通

China FTTx Drivers

Massive Infrastructure Build-out

Nationwide real-estate boom demands massive greenfield telecom infrastructure build-out creating a unprecedented opportunity for future proof fiber access infrastructure

Increased Copper Cost

Increasingly expensive copper-based cable forces all wireline operators to look for alternative fiber-based solutions to reduce capital expenditure (CapEx)

Sagging Revenue Growth

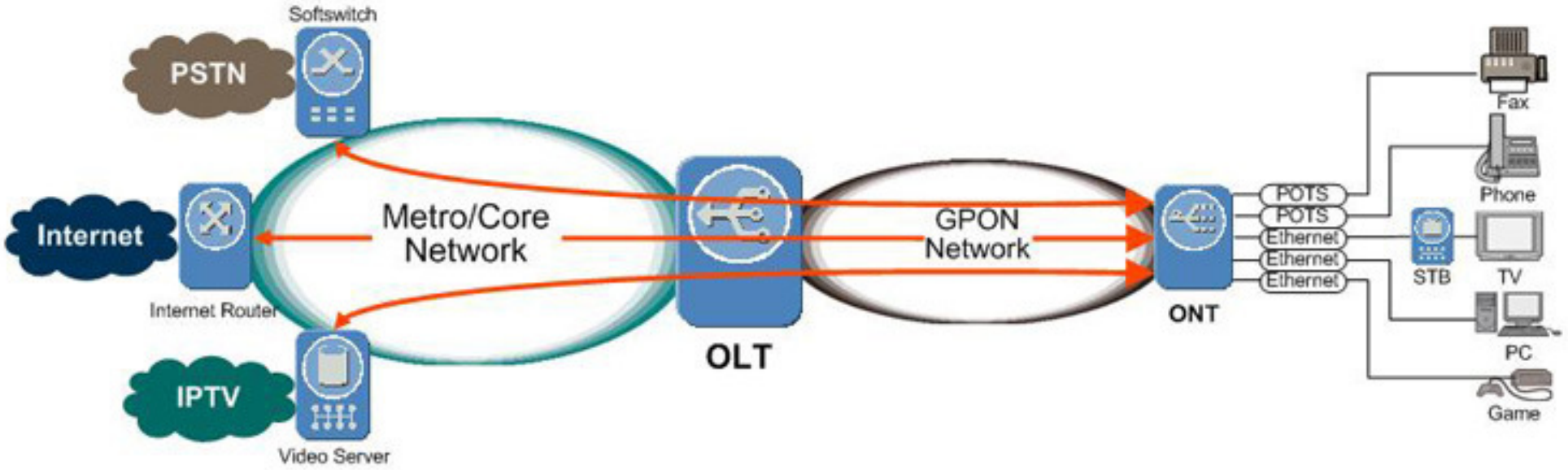
Voice service shift from wireline to wireless and broadband saturation cause flat revenue growth. High bandwidth applications and SLA service delivery are the only ways to lift up sagging ARPU

Service Requirement Trend

- Bandwidth is associated with services and charged along with services
- No more bandwidth-hungry applications with little service revenue dry up all network bandwidth
- Industry is migrating from pure bandwidth selling to service-oriented offerings

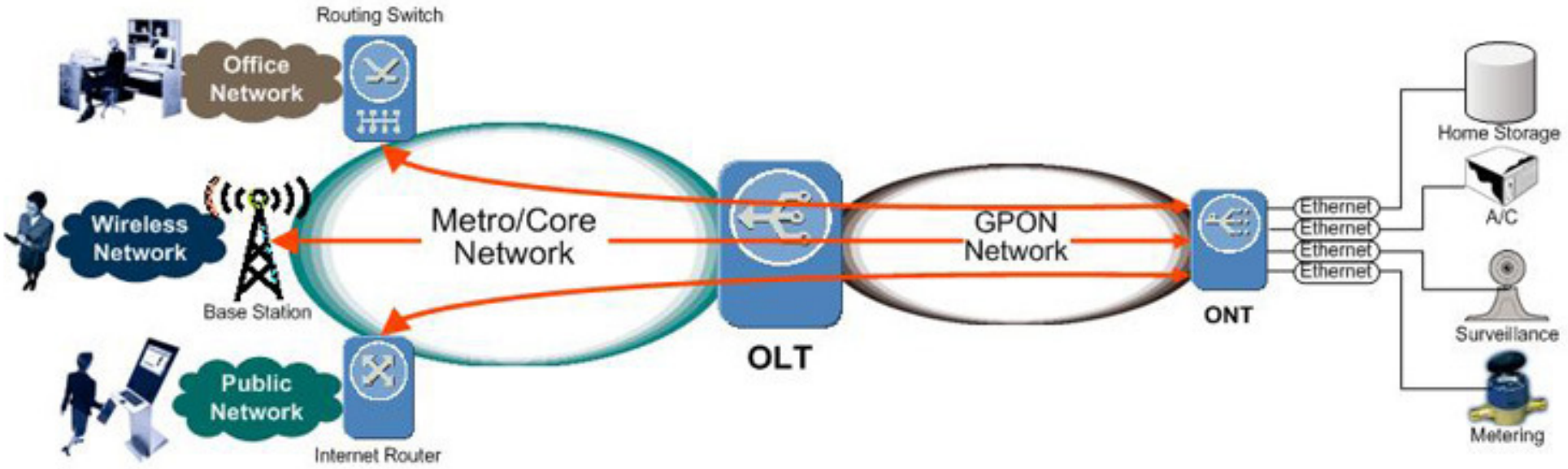
- Both downstream and upstream SLAs and QoS management are required to accommodate all revenue-generating services that could be user and carrier sourced
- Flexible SLAs and QoS configuration are a must to allow diversified service offerings

Services Sourced at Carrier Network



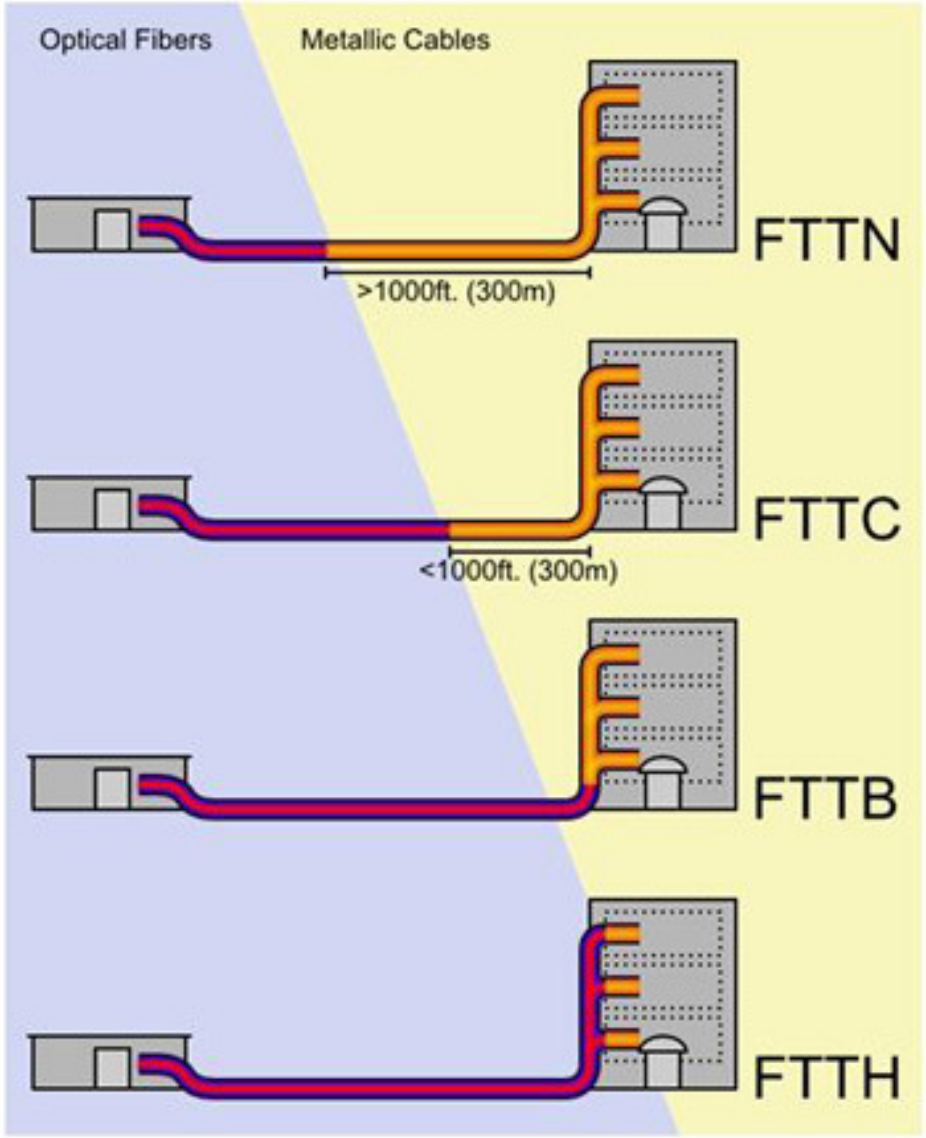
- Service sources are located at carrier network
- Terminal devices are located at user network
- Bandwidth is much higher at downstream than upstream
- Guaranteed SLA is mandated for downstream traffic
- Bandwidth Hungary both at metro/core and access

Services Sourced at User Network



- Service sources are located at user network
- Terminal devices are located at outside of user network
- Bandwidth is higher at upstream than downstream
- Guaranteed SLA is mandated for upstream traffic
- Moderate bandwidth both at metro/core and access

FTTx Deployment Scenario



MDU (PON+ADSL2+)

MDU (PON+VDSL2)

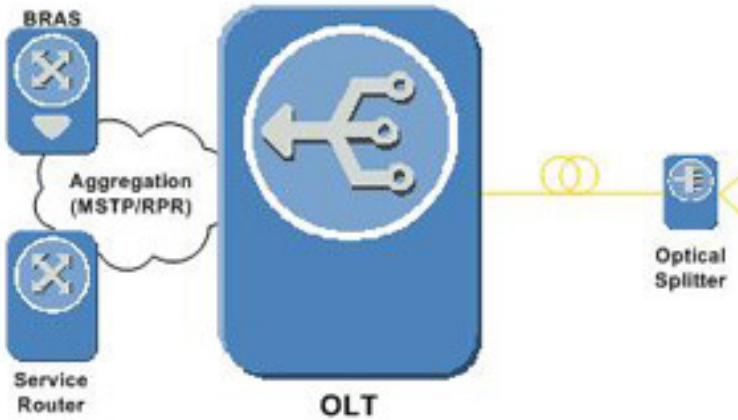
MDU (PON+Ethernet)

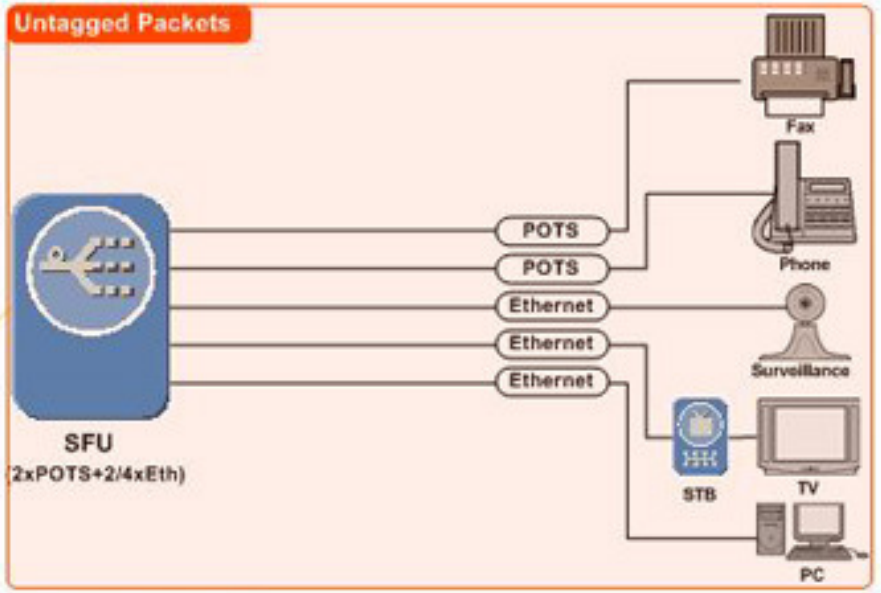
SFU (PON Only)

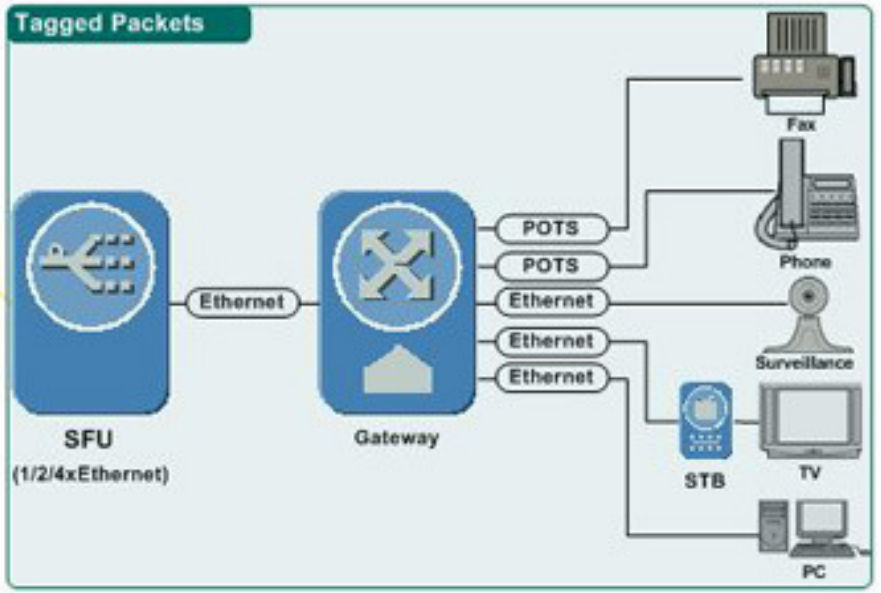
SFU: Deployment Scenario

Greenfield

- Single-family house/villa
- Townhouse
- High-end apartment

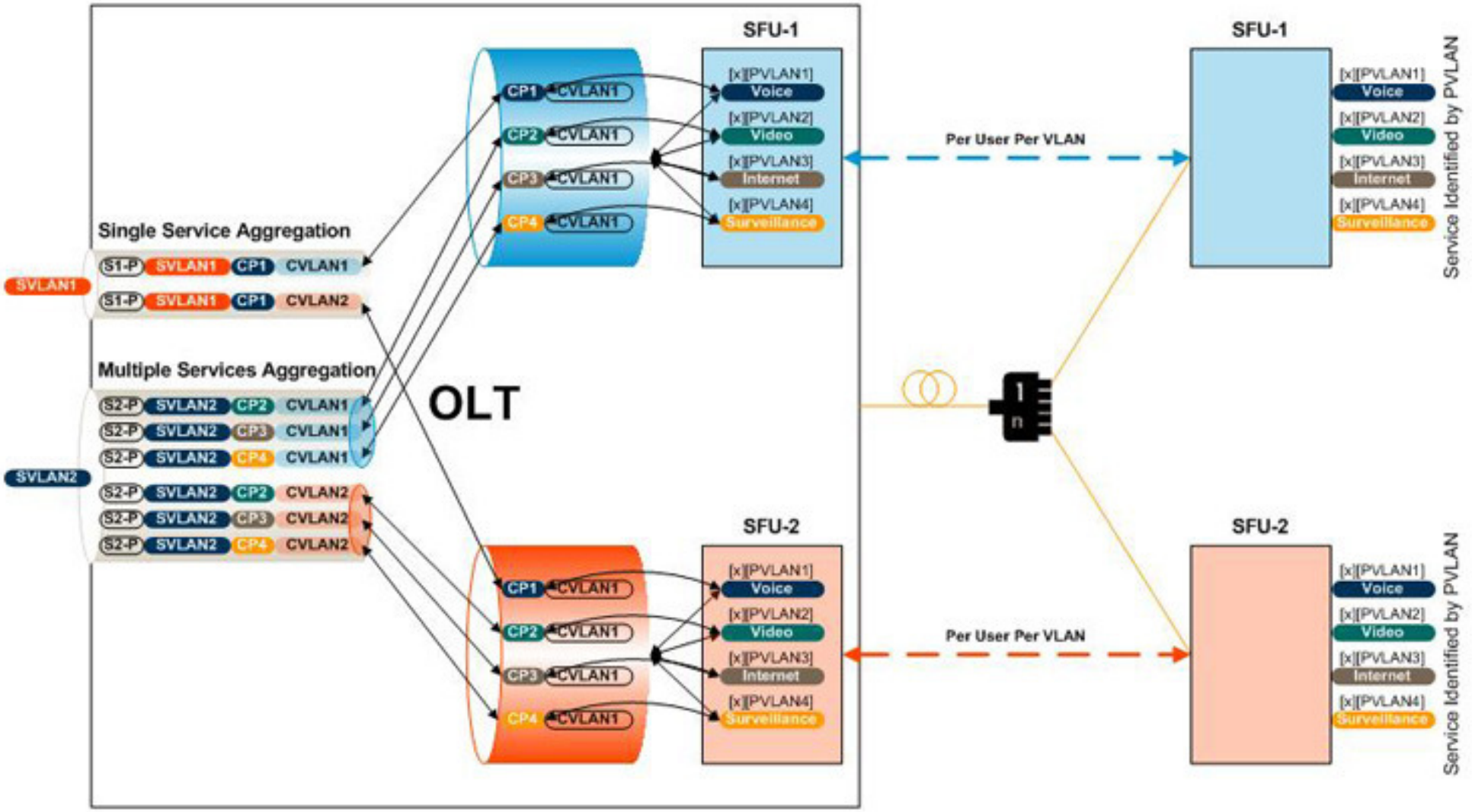






SFU: Service Requirements

Per User Per PVLAN with Packets Tagged



SFU: Service Requirements

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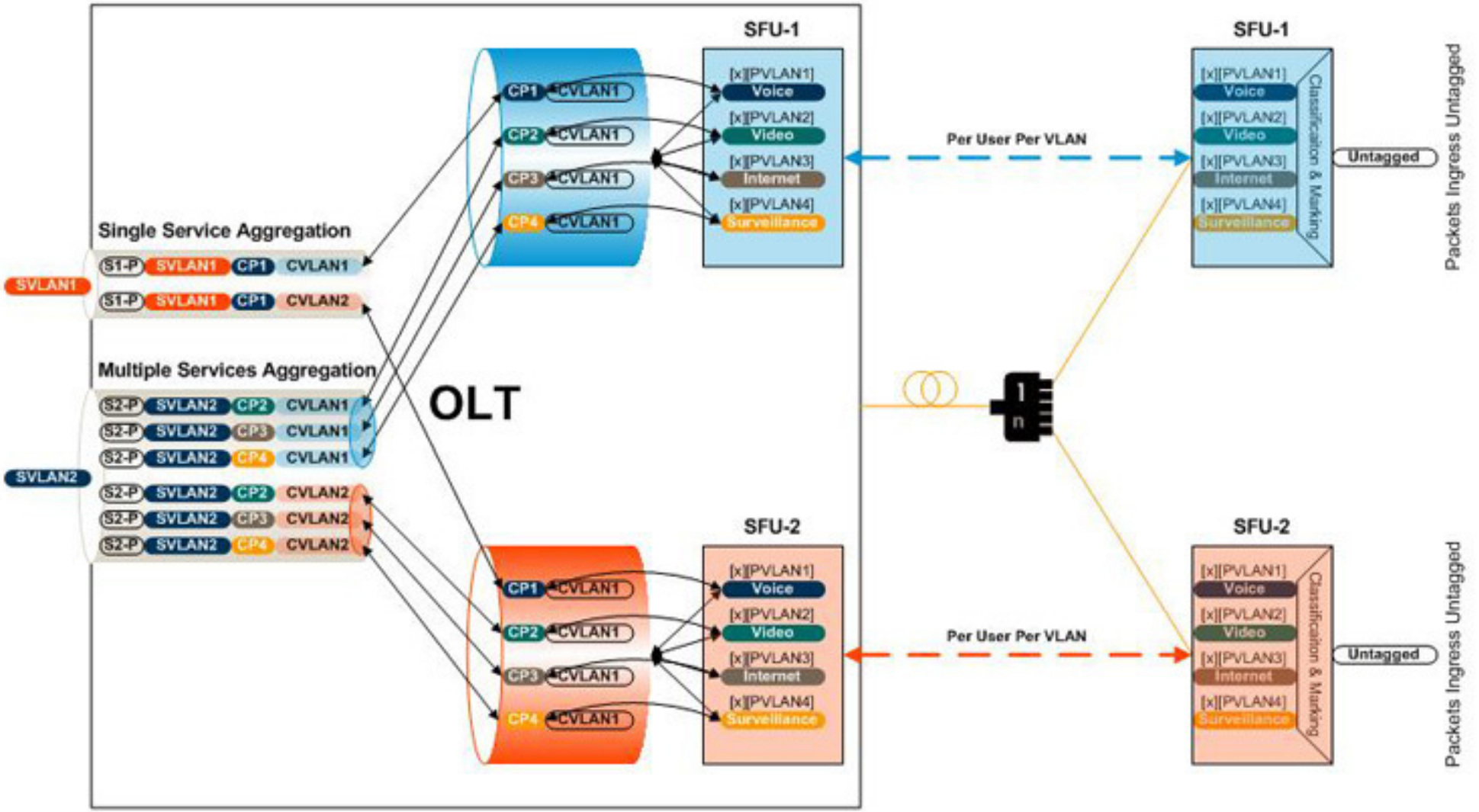
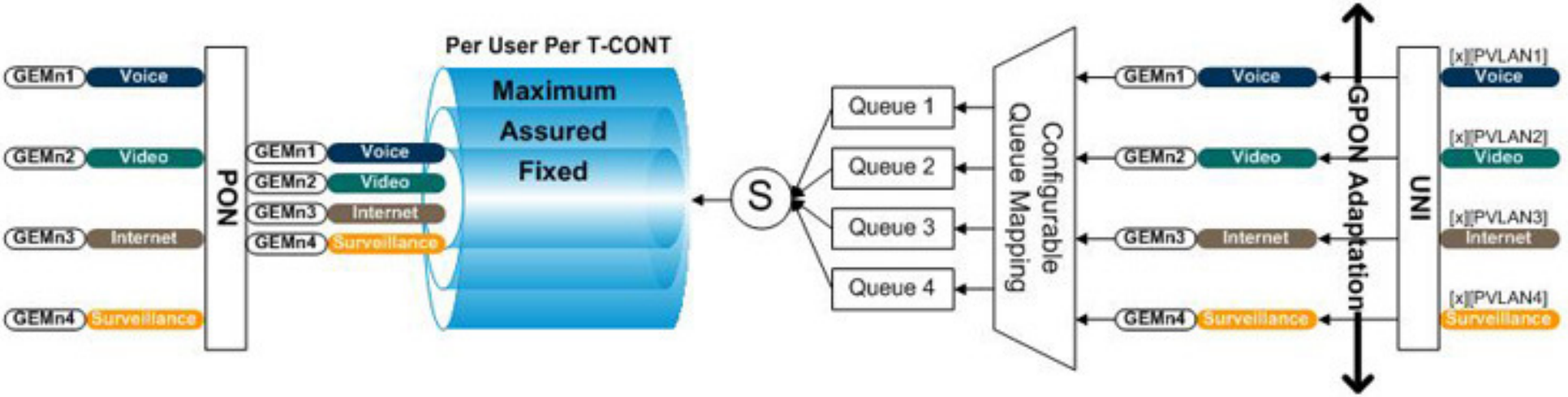


SFU: GPON Implementation

ONT Upstream – Per User Per CONT

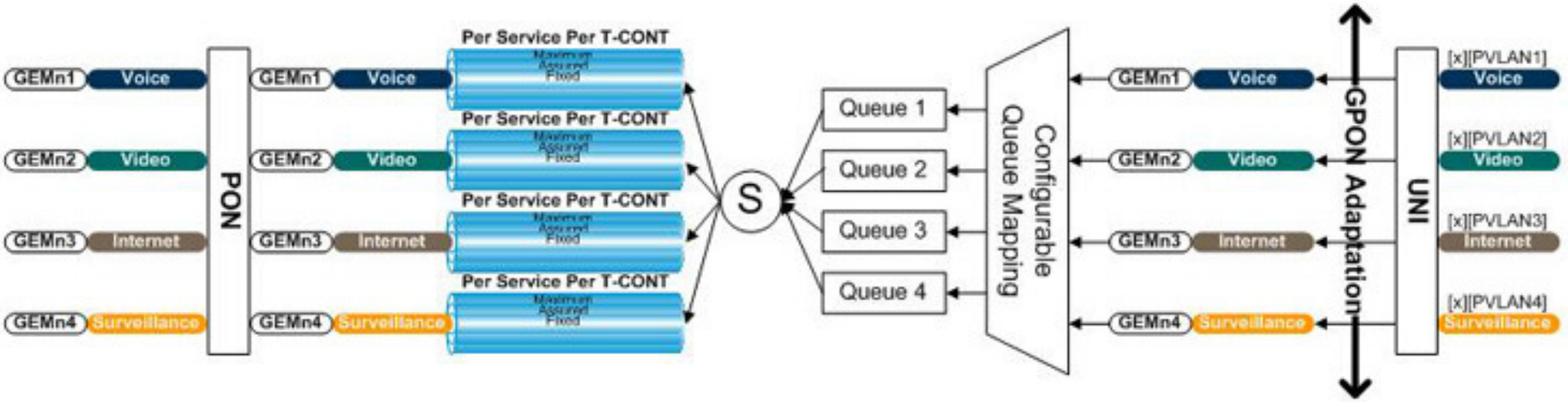


Key Characteristics

- SLA guaranteed at Per Subscriber level
- Unused bandwidth by one service can be re-used by other services under the same subscriber
- Low revenue and high bandwidth applications can eat up all network resource

SFU: GPON Implementation

ONT Upstream – Per User Per Service Per CONT

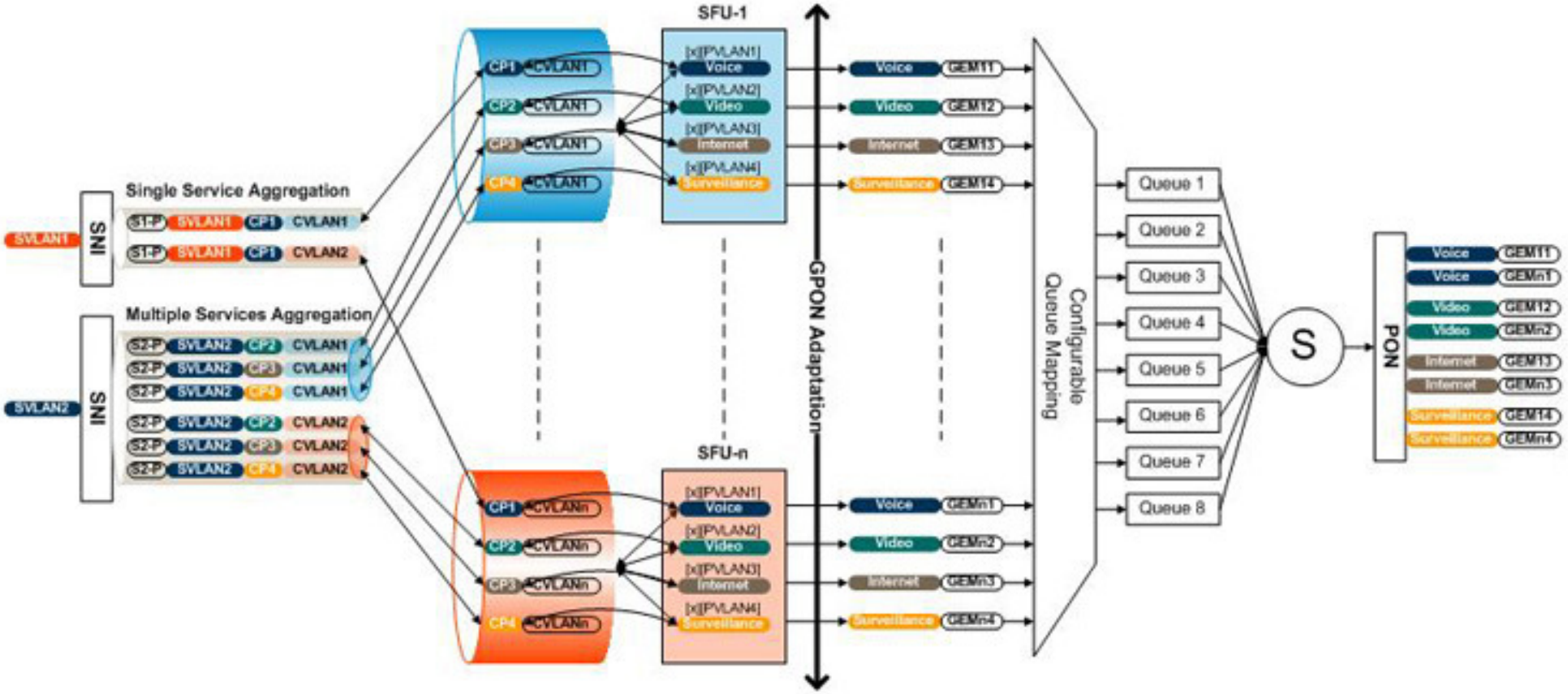


Key Characteristics

- SLA guaranteed at Per Subscriber Per Service level
- Bandwidth can be associated and charged with services
- Unused bandwidth can be shared by the same class of services from other subscribers
- Bandwidth can be maximized for revenue services

SFU: GPON Implementation

OLT Downstream

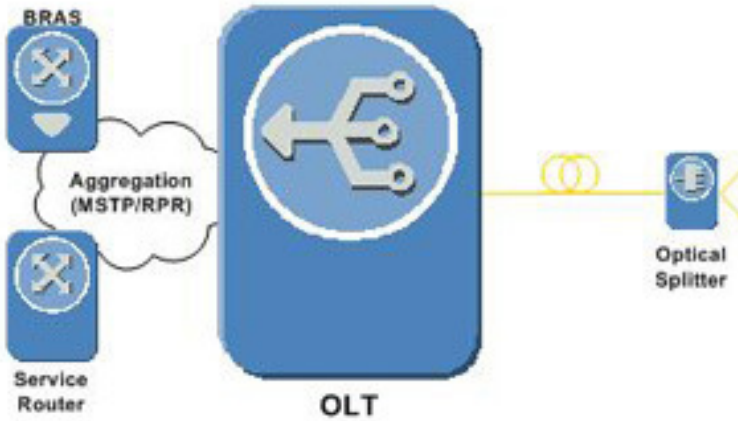


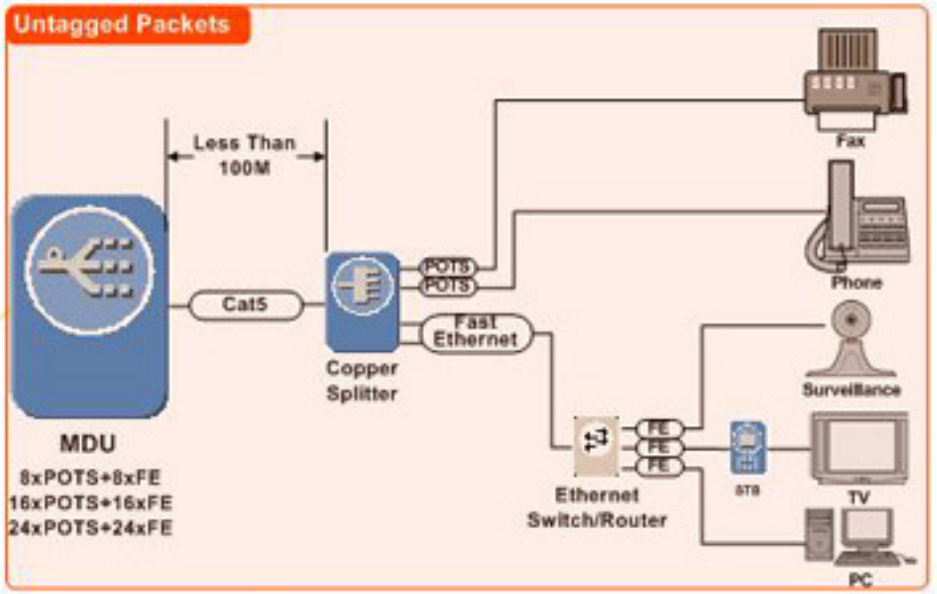
Services are treated differently based upon their own priority level

Ethernet MDU: Deployment Scenario

Greenfield

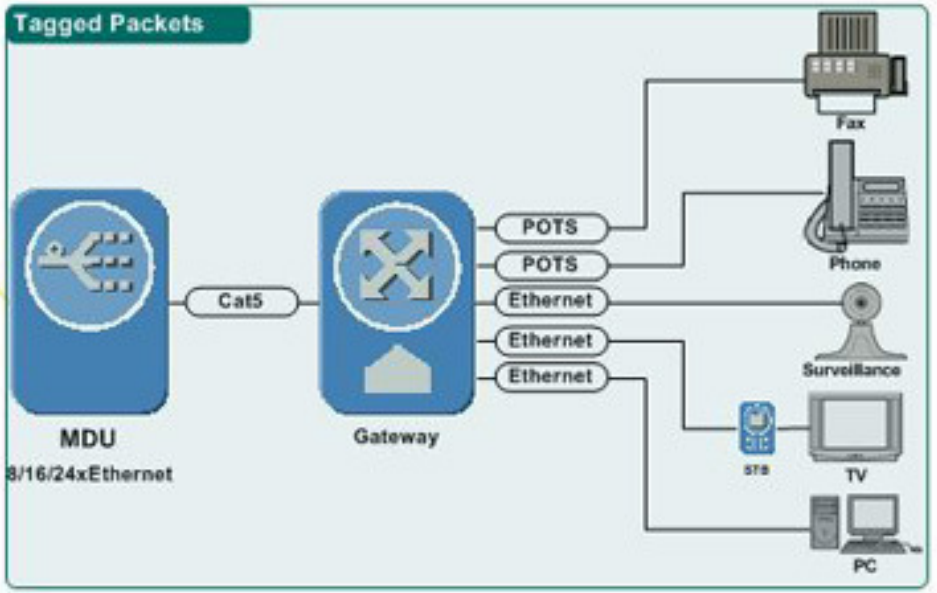
- Middle-class apartment building





Brownfield

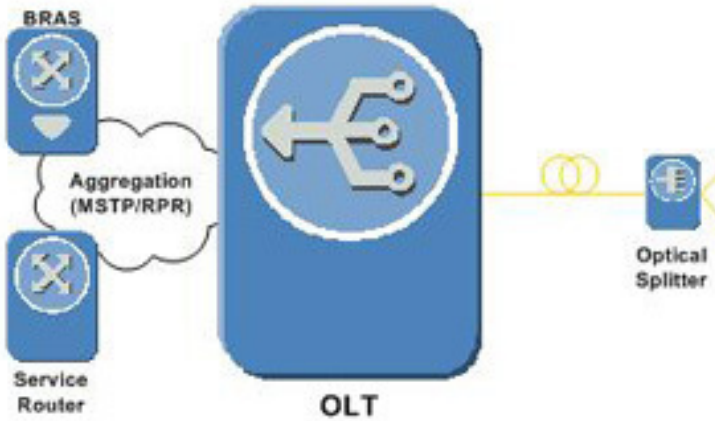
- P2P Ethernet+LAN upgrade

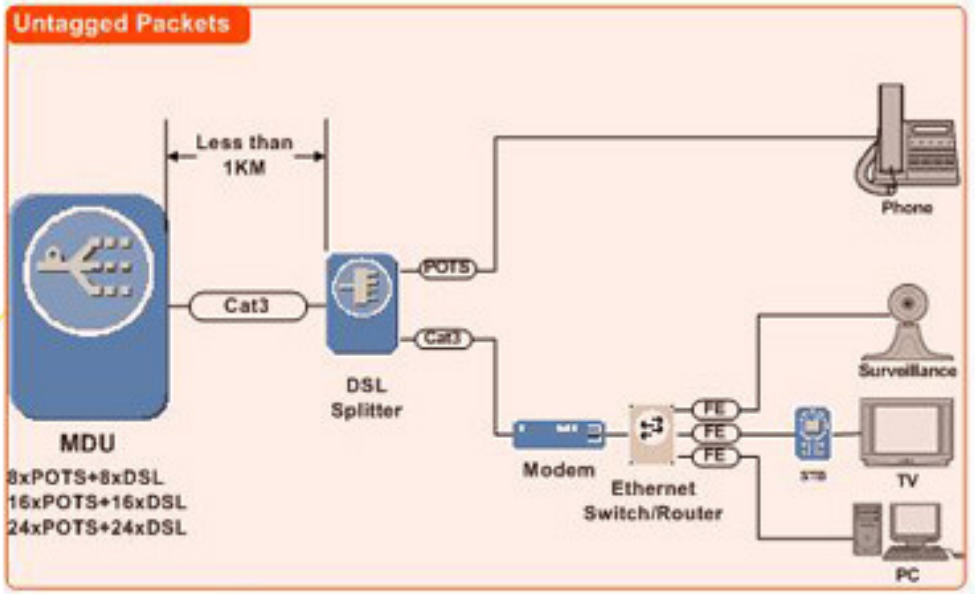


DSL MDU: Deployment Scenario

Greenfield

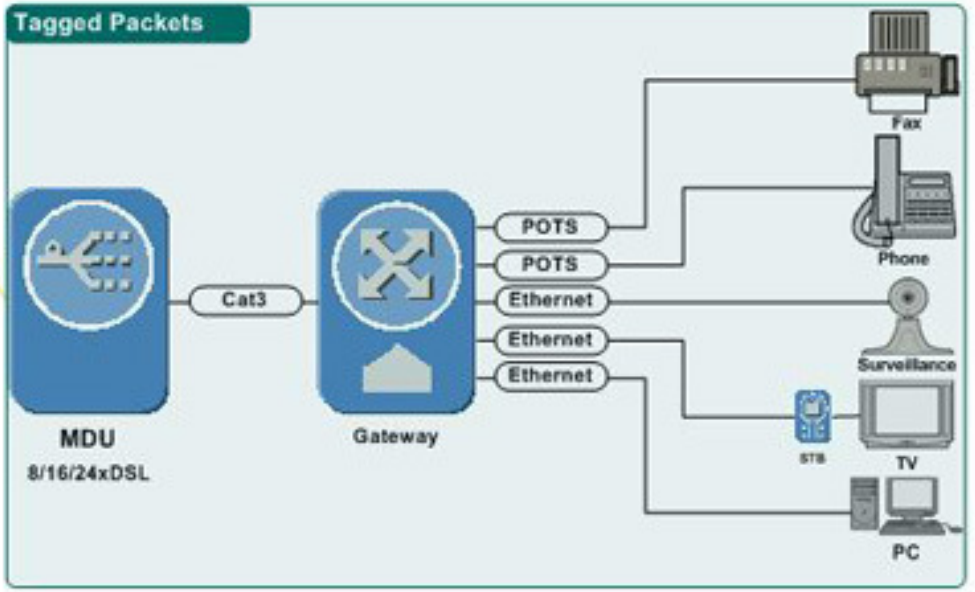
- Rural area access coverage
- Affordable apartment complex





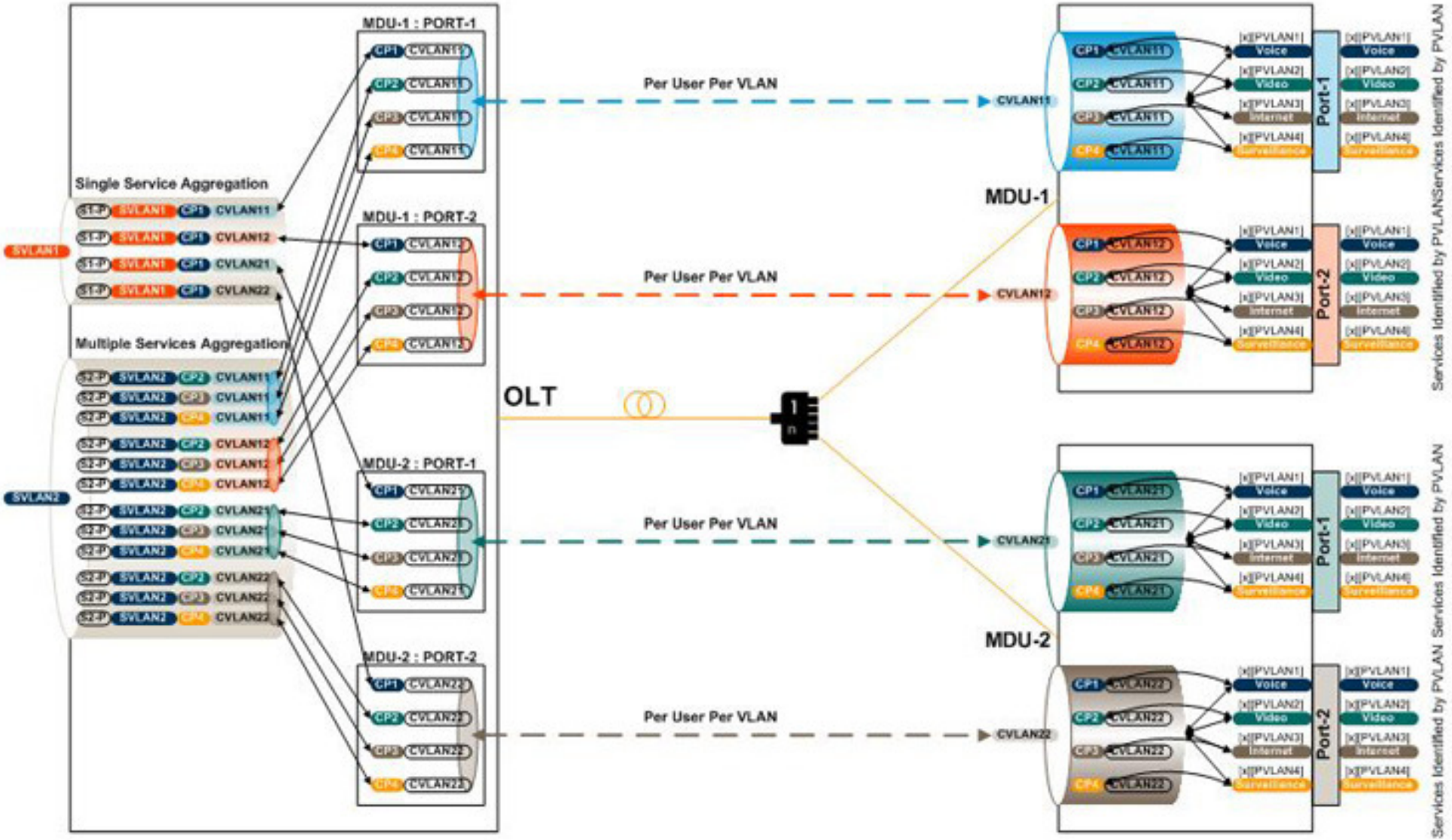
Brownfield

- Retrofit existing copper access



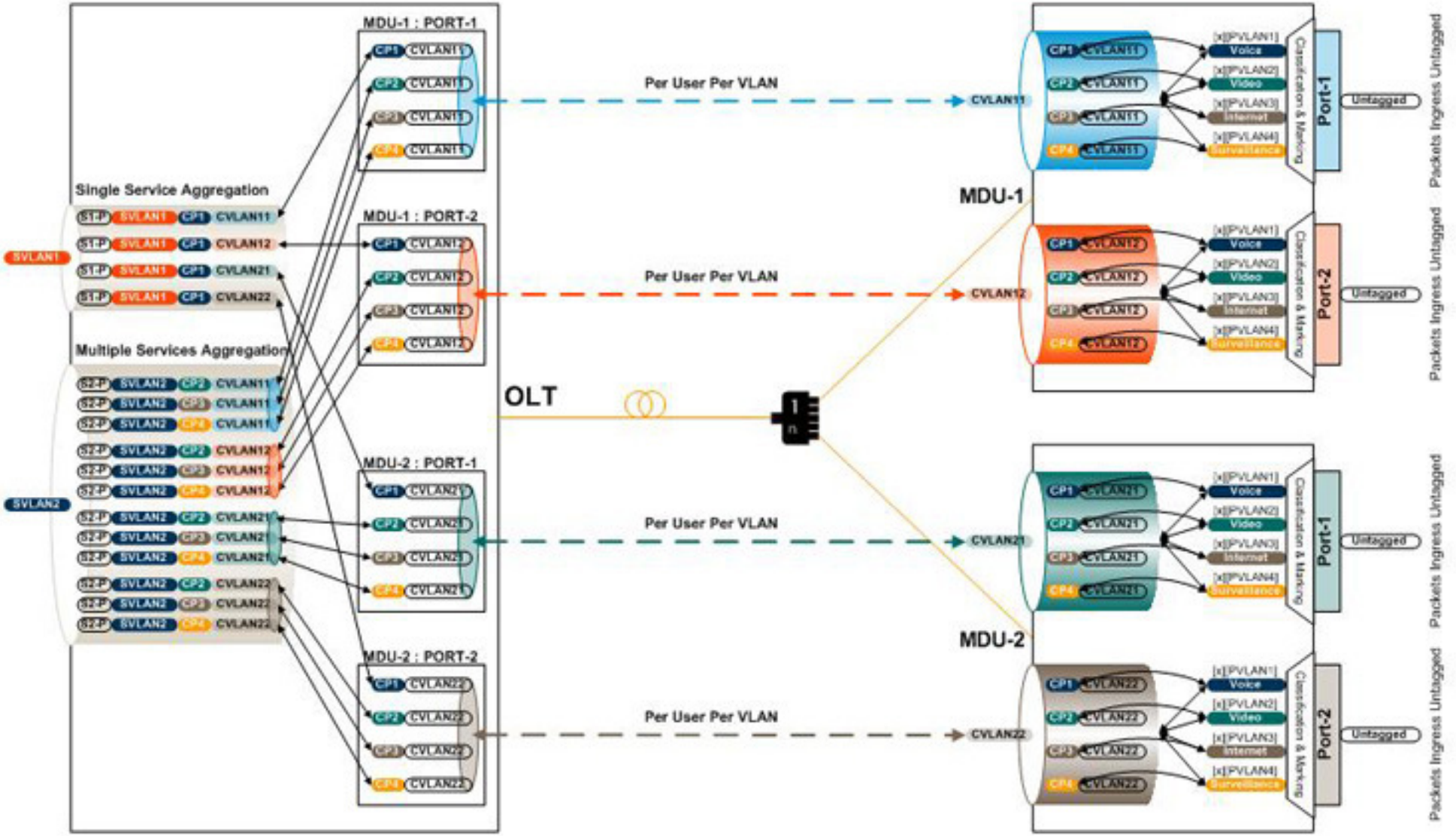
MDU: Service Requirements

Per User Per PVLAN with Packets Tagged



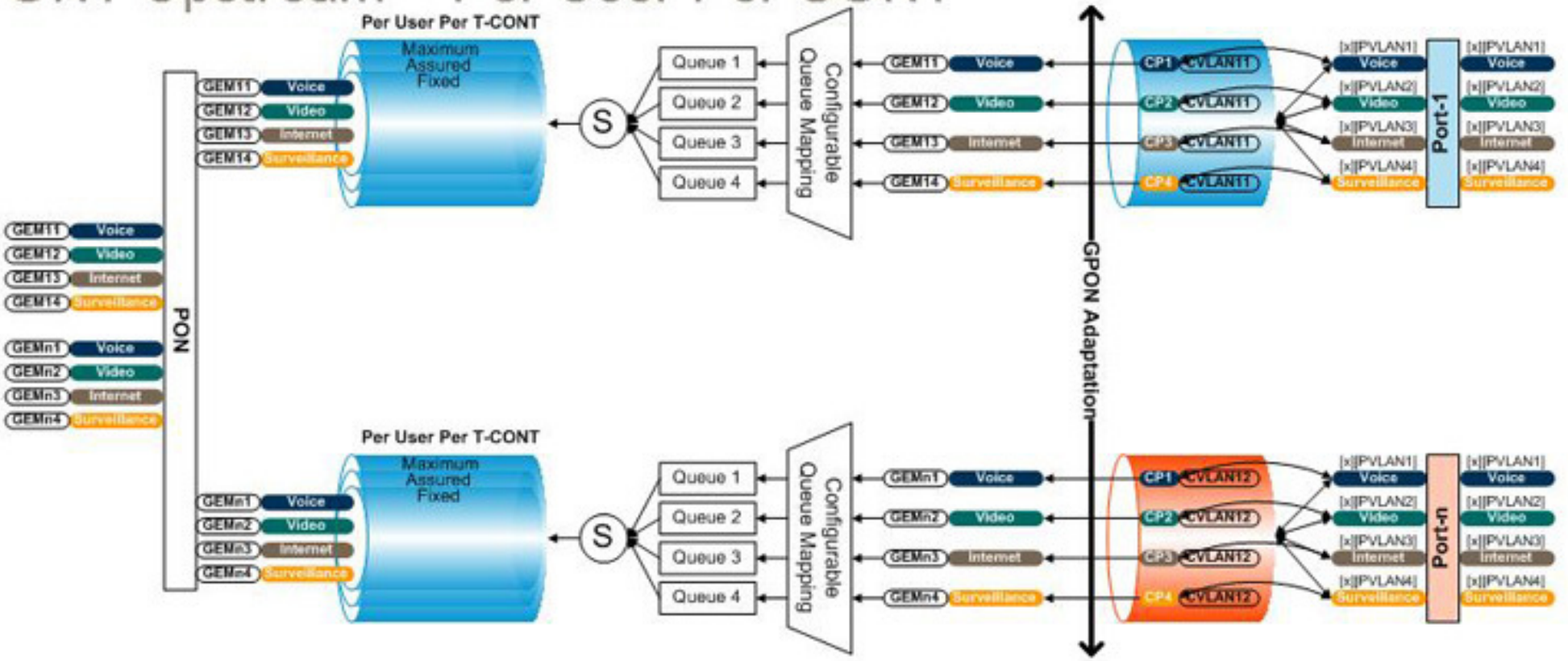
MDU: Service Requirements

Per User Per PVLAN with Packets Untagged



MDU: GPON Implementation

ONT Upstream – Per User Per CONT

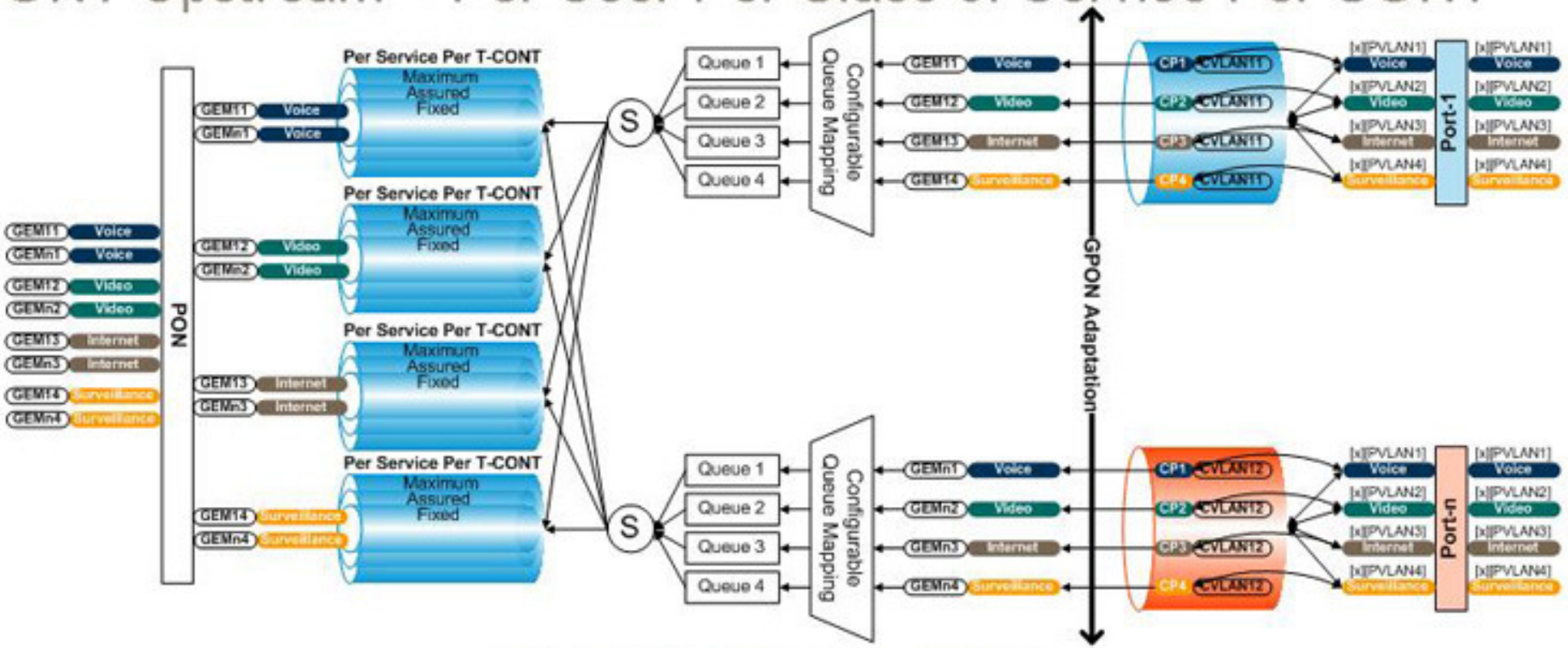


Key Characteristics

- SLA is guaranteed at Per Subscriber level
- All bandwidth for one subscriber will be shared by all services
- High bandwidth apps of little revenue can dry up all network resource

MDU: GPON Implementation

ONT Upstream – Per User Per Class of Service Per CONT

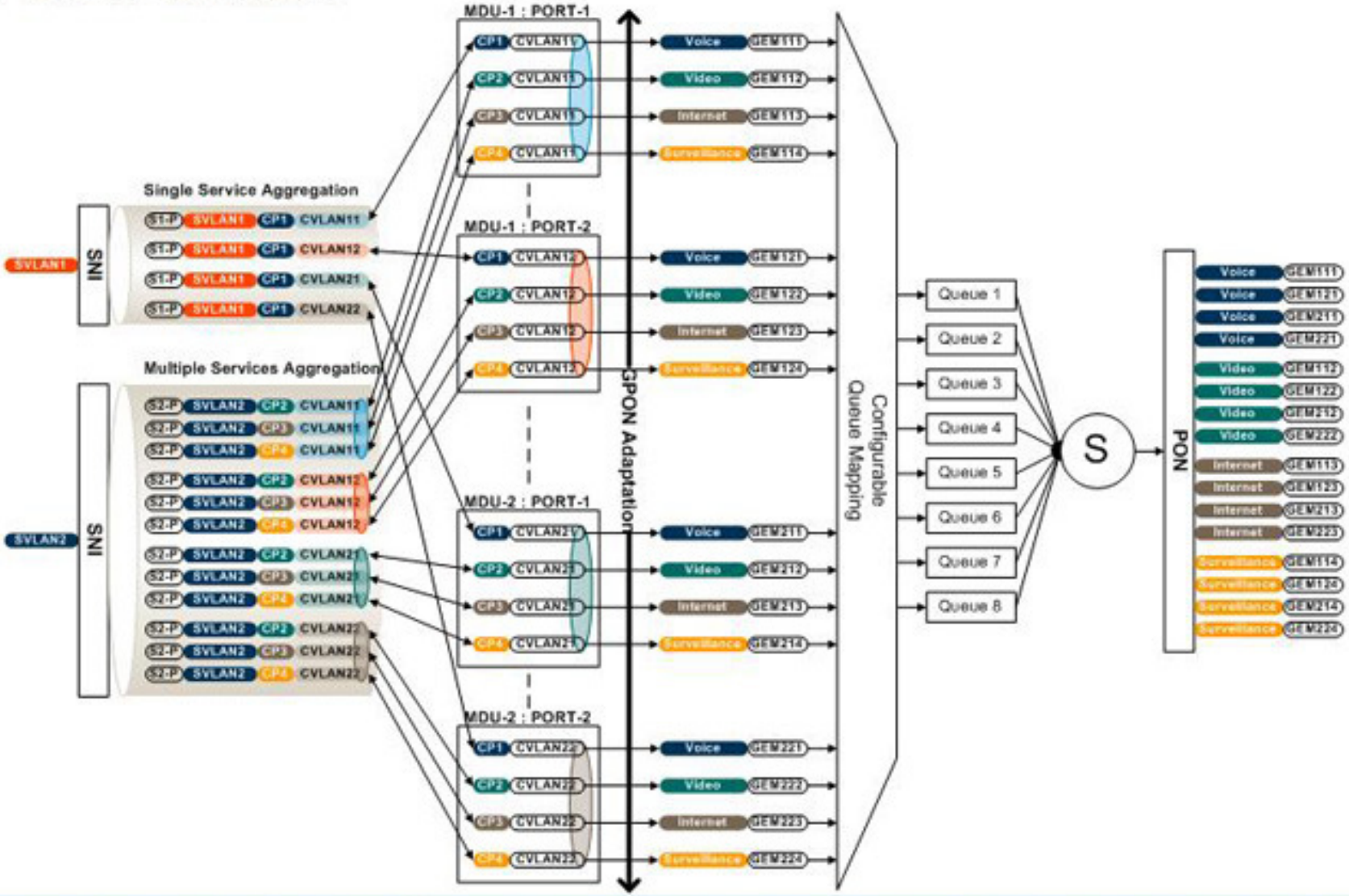


Key Characteristics

- SLA is guaranteed at Per Subscriber Per Service level
- Bandwidth can be associated and charged with services
- Unused bandwidth is shared by same class of services of other users
- Bandwidth can be maximized for revenue generating services

MDU: GPON Implementation

OLT Downstream



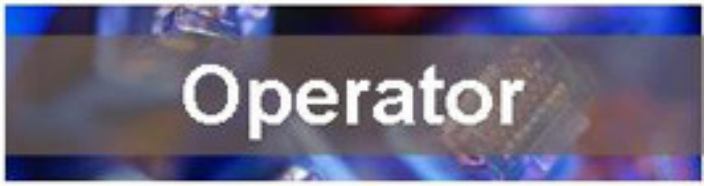
Services are treated differently based upon their own priority level

Key Messaging

Industry is transferring from traditional bandwidth selling to service oriented offerings. Both downstream and upstream SLAs are equally critical to ensure quality delivery of services

GPON has technology superiority and intrinsic QoS mechanism to guarantee SLAs at both Per User and Per User Per Service levels for all deployment scenario

Worldwide Standardization



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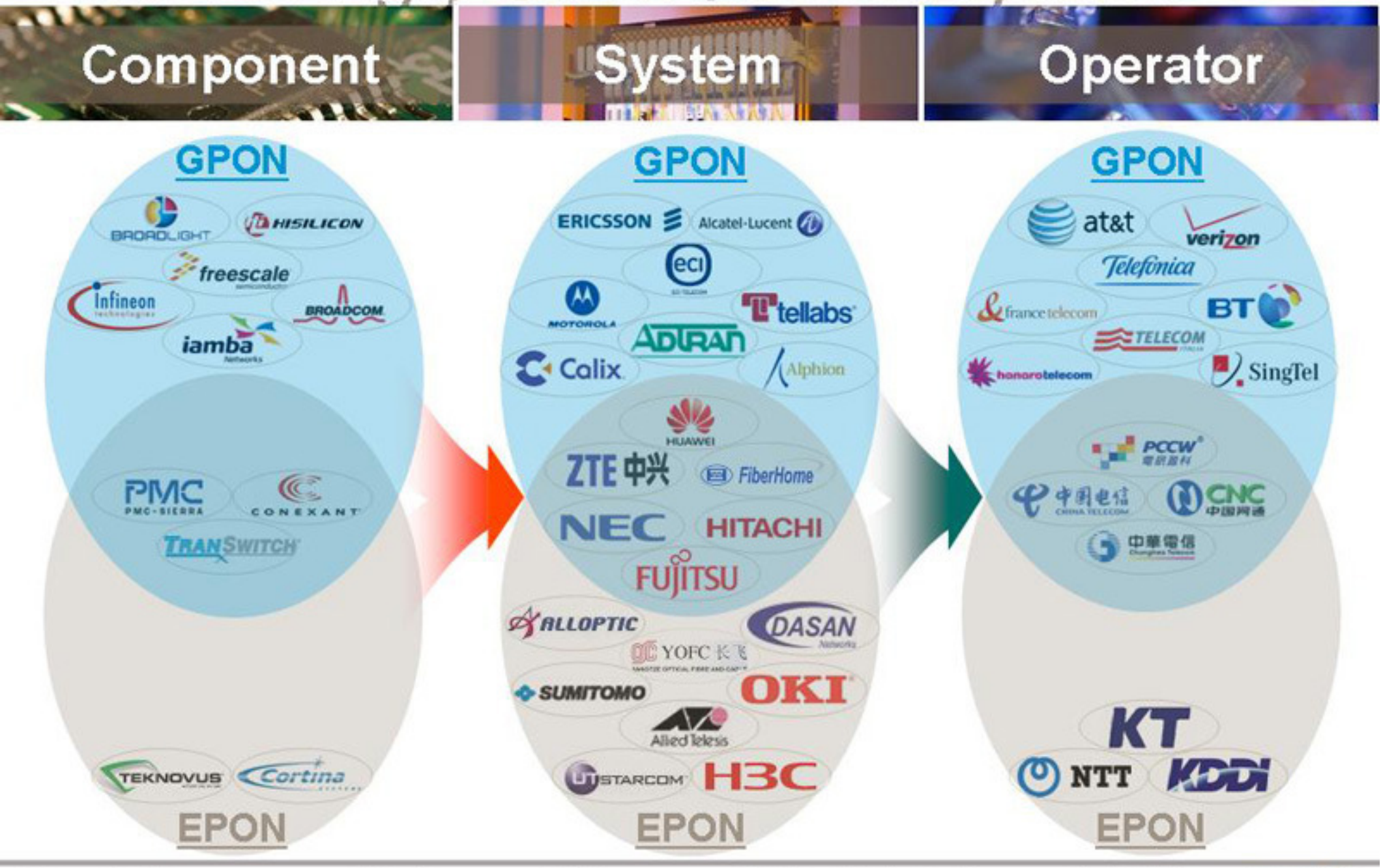
ITU

FSAN
Full Service Access Network

Increasingly Stronger Ecosystem



Worldwide Acceptance

GPON	**North America**: USA, Canada **Asia Pacific**: India, Singapore	**Europe**: France, Italy, Germany, Norway, Sweden, Demark, Russia, Spain **Latin America**: Brazil, Argentina
GPON+EPON	China, Hong Kong, Taiwan, Korea	
EPON	Japan	

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