Putting Next -Gen PON to Work

LiveLearning Webinars™ For Professionals

Thursday, June 17, 2021

11:00 am – 12:00 pm ET

sponsored by

CORNING

harmonic

VECIMA

VIAVI Solutions

SCTE a subsidiary of CableLabs | LIVELEARNING WEBINARS™ FOR PROFESSIONALS

IN PARTNERSHIP WITH Light Reading

Today's Speakers

Alan Breznick
Cable/Video Practice Leader
Light Reading

Steve Harris
Executive Director
Technical Sales, Learning & Development
SCTE

Jason Morris
Marketing Manager
Corning Optical Communication

Rich Loveland
Director, Product Management
Vecima Networks

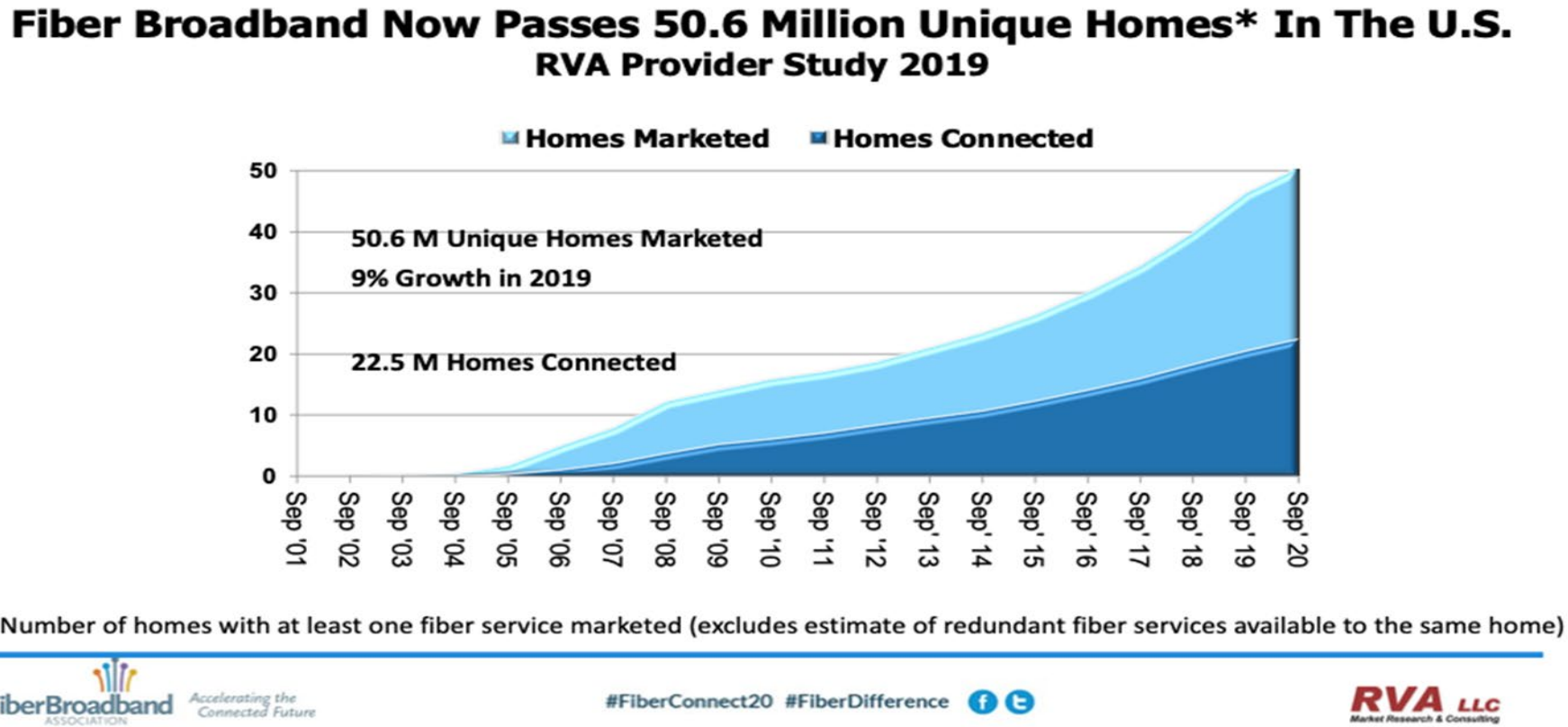
Jorge Figueroa
PON Solutions Manager
Harmonic

Douglas Clague
Solutions Marketing Manager
VIAVI Solutions

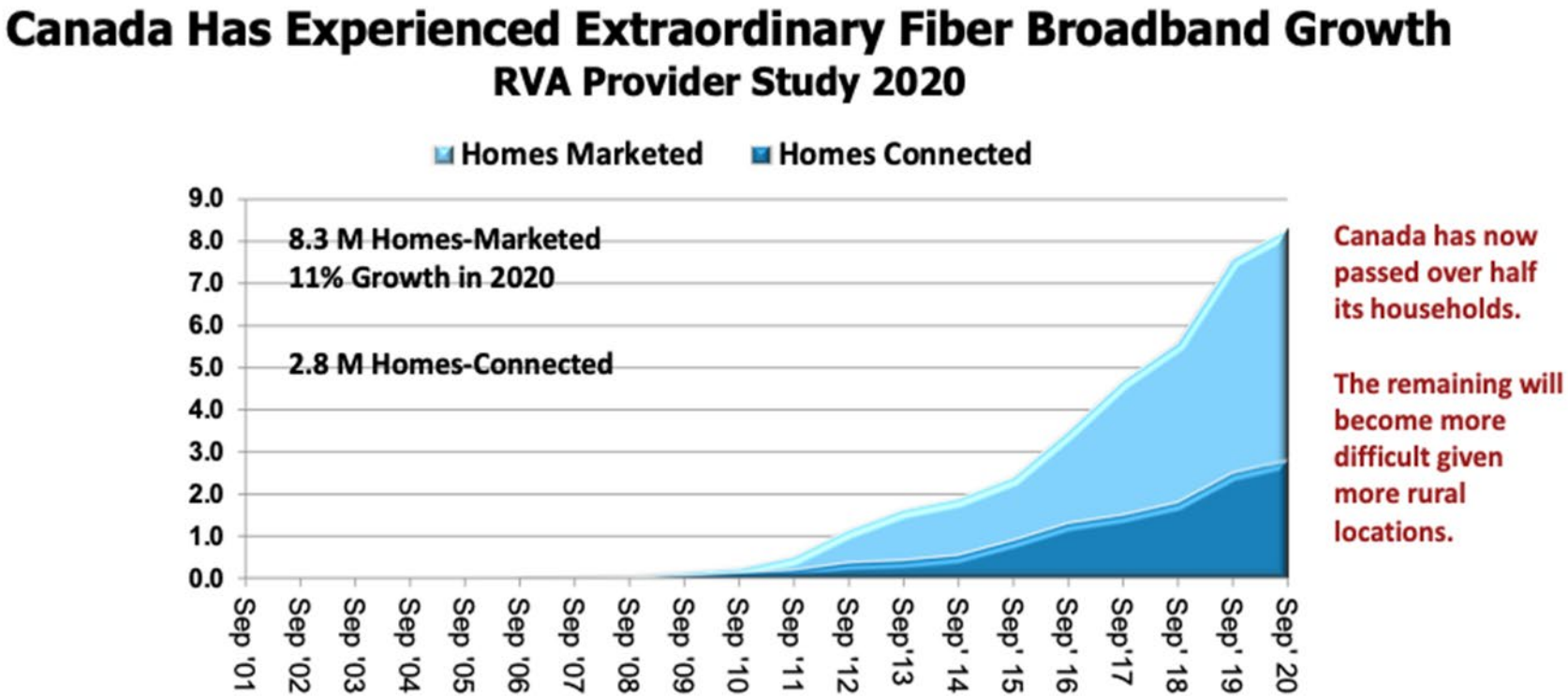
Agenda

- **Light Reading—**Fiber rollout trends & PON equipment outlook
- **Corning—**FTTX basics & typical deployment architectures
- **Vecima—**PON technology & MSO access network options
- **Harmonic**–Transitioning to a multi-access network
- **VIAVI –**Supporting new PON architectures & services
- **SCTE**—Training, standards & certifications
- **Audience Q&A**

Fiber network builds surging in U.S.



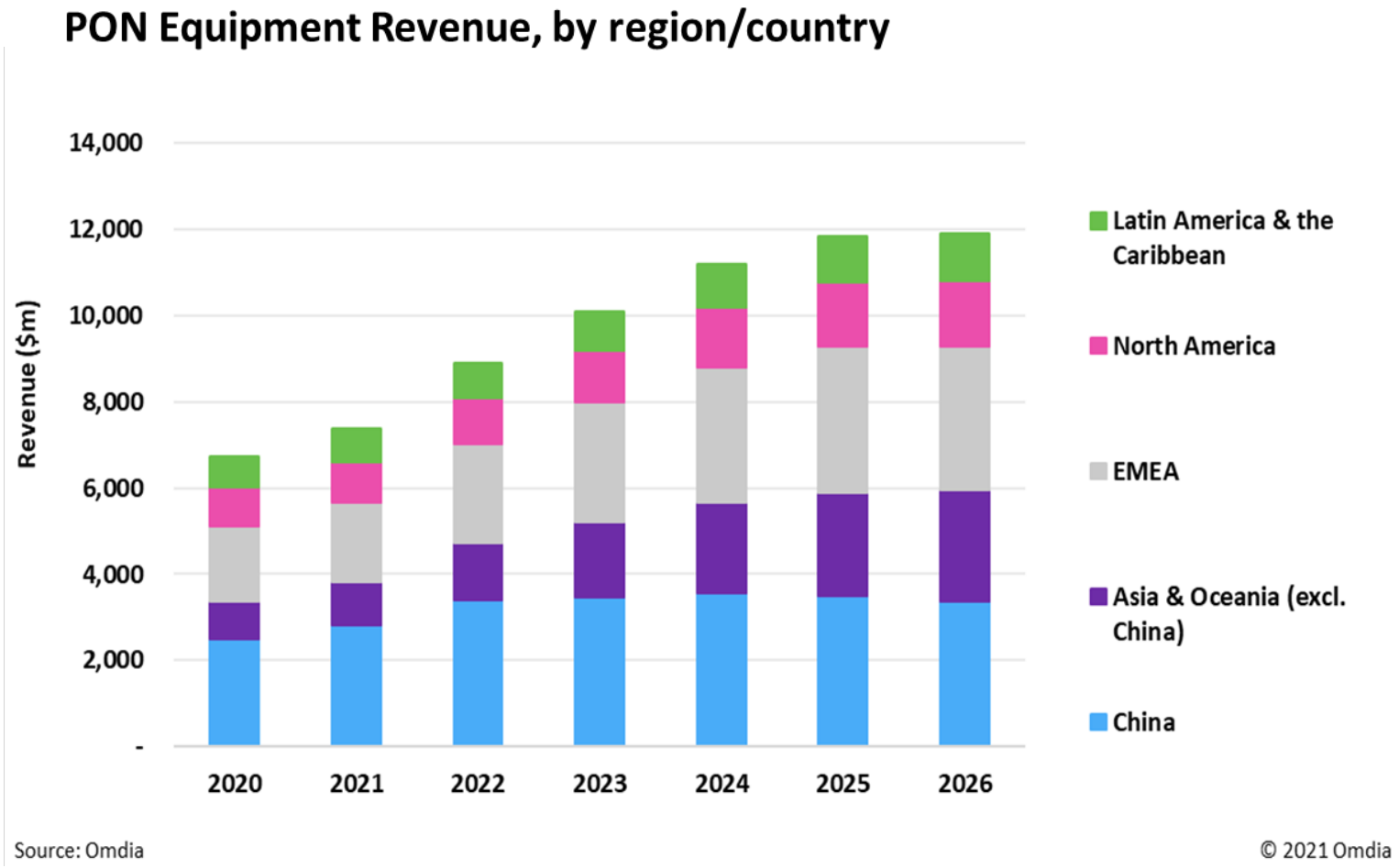
Fiber builds surging even more in Canada



North American SPs Racing to Deploy Fiber

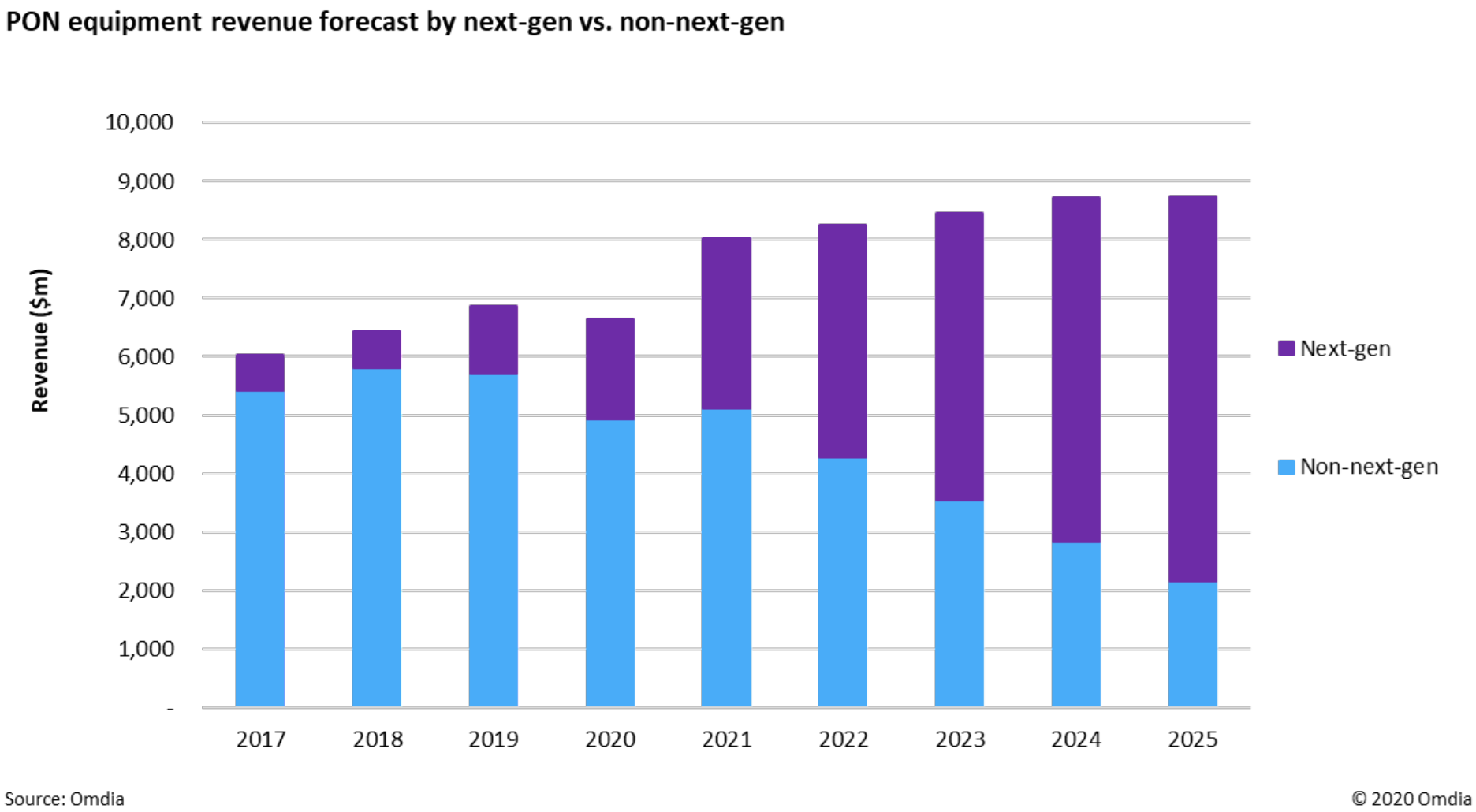
Service Provider	Fiber Plans & Deployments
AT&T	Added more than 1 million new fiber subscribers over past 4 quarters, boosting its total to over 15 million. Plans to extend fiber to 3 million more residential and business locations in 2021, including 2 million homes. Has set goal of reaching 30 million locations with fiber by 2025. Reported 5.2 million AT&T Fiber customers at end of Q1 2021.
Verizon	Now passes more than 15 million homes with fiber. Plans to add another 2.8 million homes by 2030. Says its One Fiber project, which calls for expanding to 60 new markets, is almost complete. Reported 6.3 million Fios Internet customers at end of Q1 2021.
Altice USA	Now passes over 1 million homes with fiber. Plans to extend fiber to 500,000 more homes in 2021 and another 1.5 million homes over 2022 and 2023, including 400,000 "low-penetration and low-speed" homes by the end of 2022.
Bell Canada	Aims to spend up to C$1.2 billion over next 2 years to fast-track fiber, wireless and rural network rollouts. Plans to add up to 250,000 fiber and 150,000 wireless homes in 2021 and more in 2022. Predicted to have 6.9 million locations passed by fiber by end of 2021.
Lumen Technologies (CenturyLink)	Now passes about 2 million homes with fiber. Plans to extend fiber to 6.8 million locations by 2030.

PON equipment forecast: Very strong growth



- PON is a fiber-efficient technology, enabling symmetrical, high-bandwidth services.
- 10G PON is gaining momentum, supporting high-end residential services, along with non-residential customers and applications, including enterprises, smart cities, and xHaul Transport.
- PON should be viewed as a complement to coax. It is rarely “either-or” for cablecos.
- Vendors are improving DOCISIS to PON adoption

Movement to next-gen PON drives revenues



Source: Omdia

Jason Morris

Marketing Manager
Corning Optical Communication

SCTE • ISBE LIVELEARNING WEBINARS™ FOR PROFESSIONALS — IN PARTNERSHIP WITH Light Reading

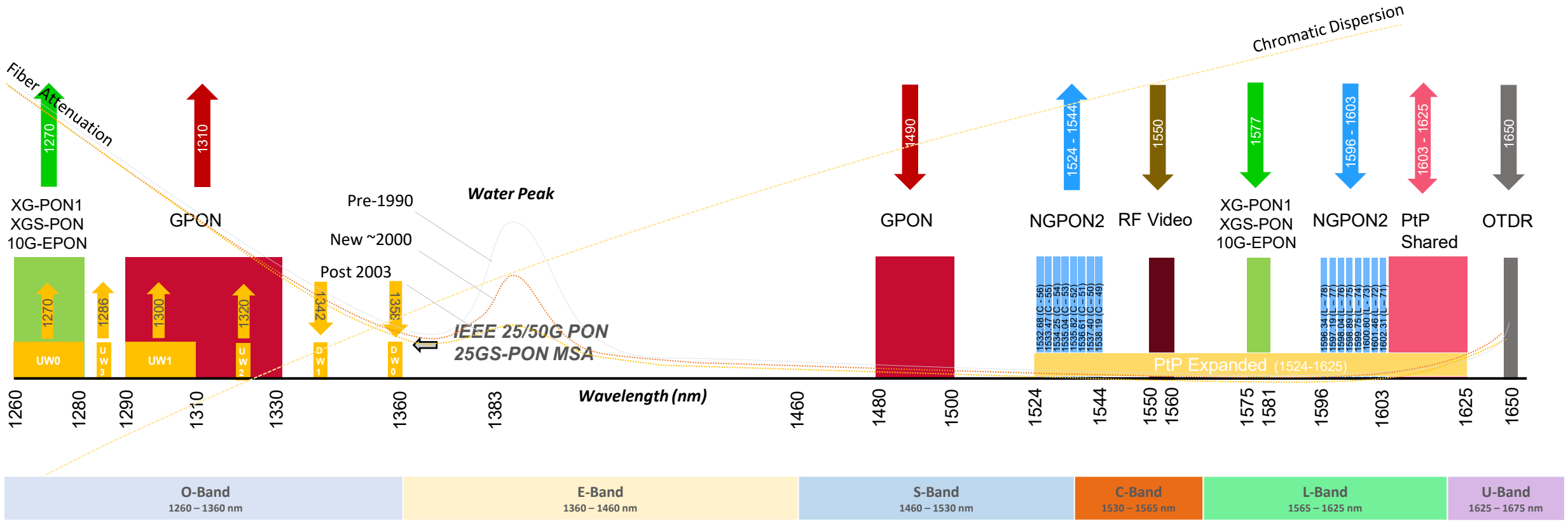
Giving more fire power to existing PONs with higher bandwidth technologies

- IEEE (Ethernet) based PONs use Ethernet packet protocol.
- ITU PONs based on GEM/10GEM protocol (Gigabit encapsulation mode).
- PONs use TDM in upstream (Time Division Multiplexing) – Individual ONT's transmit in specified time windows.
- Coexistence important for leveraging existing infrastructure investment
- Standards allow vendors to commercialize solutions and carriers comfortable to deploy.
- Keeping ahead of bandwidth demands to ensure R&D time to develop products.

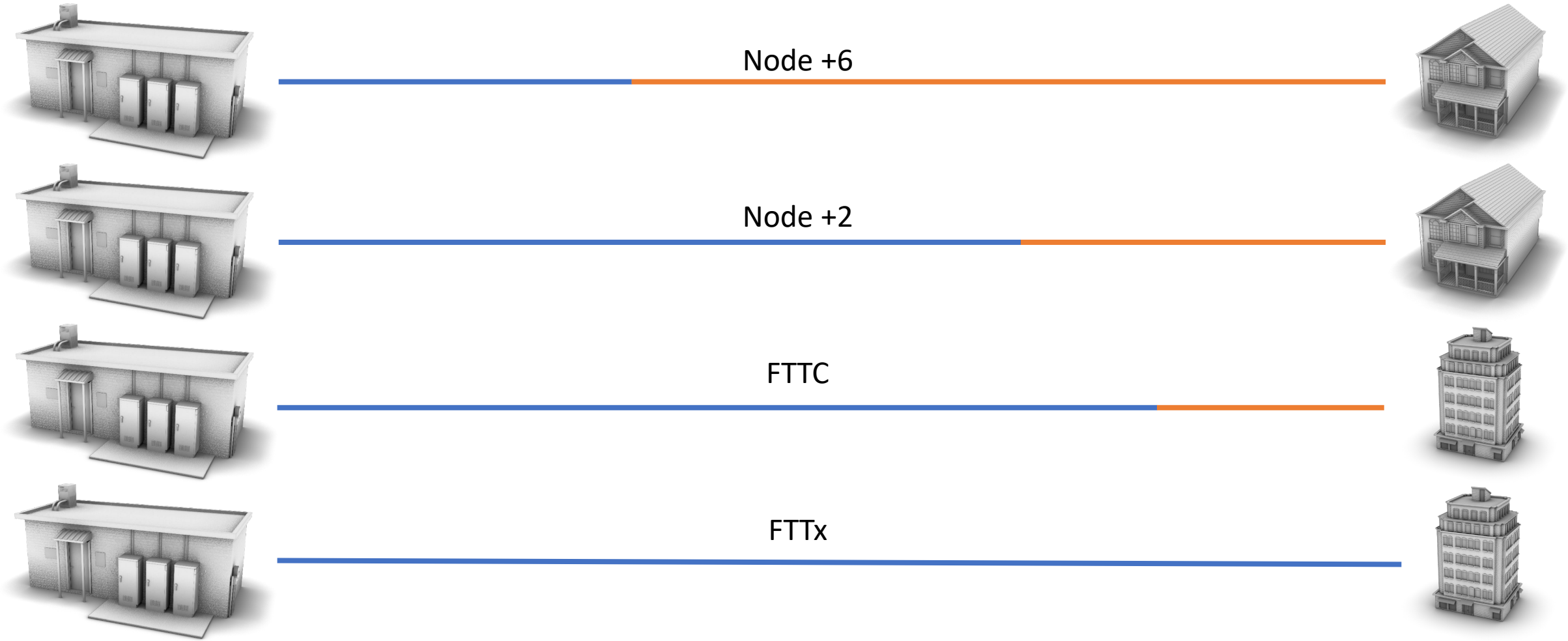
							HSP (high speed PON)	
	GPON	**XG-PON1**	**XGS-PON**	**10G EPON**	**NG-PON2 (TWDM)**	**25G PON**	**50G G.HSP (TDM)**	**50G TWDM PON**
Standard	ITU-T G.984.1	ITU-T G.987.1	ITU-T 9807.1	IEEE 802.3av	ITU-T G.989	25G EPON IEEE 802.3ca (Ethernet) 25GS-PON MSA (25GEM)	ITU-T G.9804.1 G.hsp.50Gpmd SG15 Q2 G.HSP	*ITU-T G.9804.1*
Number of wavelengths (Upstream)	1	1	1	1	up to 8 (4 currently)	4 options	1	*up to 4*
Number of wavelengths (Downstream)	1	1	1	1	up to 8 (4 currently)	2 options	1	*up to 4*
Bandwidth	2.5G DS / 1.25G US	10G DS/ 2.5G US	10G DS / 2.5G US 10G DS / 10G US	10G DS / 10G US	10G/10G, 10G/2.5G (up to 80G/80G w\channel bonding)	25G/10G 25G/25G Up to 50G/10G 50G/25G 50G/50G w/channel bonding)	*50G\50G* 50G\25G 50G\12.5G	*50G\50G 50G\25G 50G\12.5G (per channel pair)*

Extended Spectrum

FTTx Basics



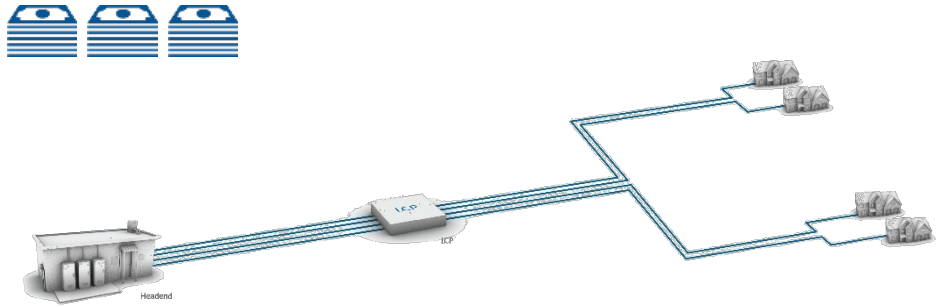
FTTx Basics



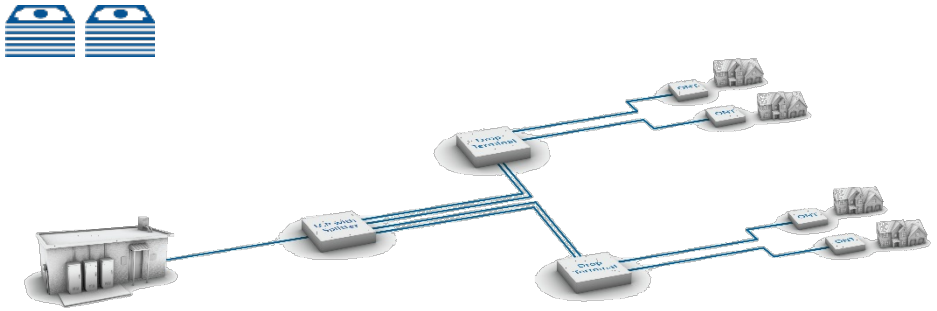
Typical Deployment Architectures

FTTx Basics

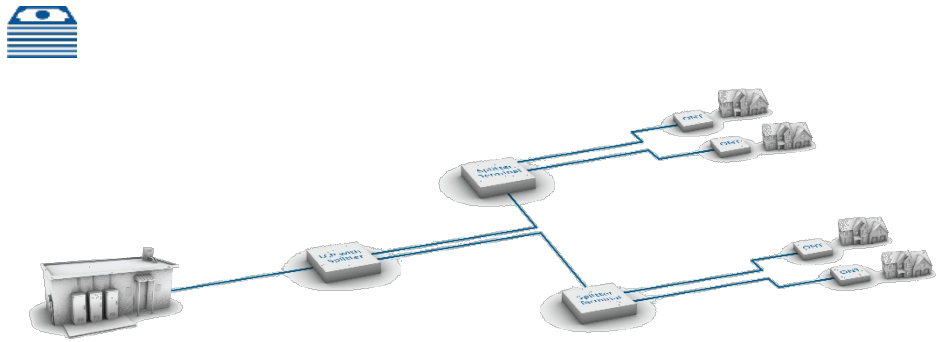
Home Run



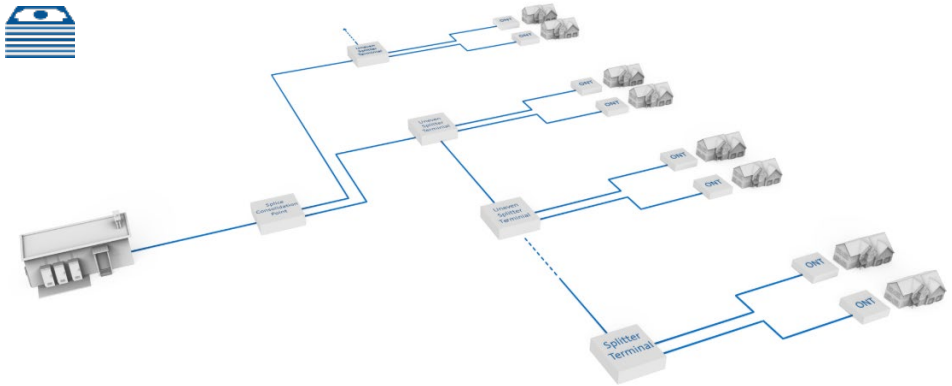
Centralized Split



Distributed Split



Distributed Tap



NOTE: Assessments based on Corning models, field trials and deployments.

Speed

Optimization of contractor resources and management of skill bottlenecks

Cost

Nation-wide building and management of complex and variable mass infrastructure deployments

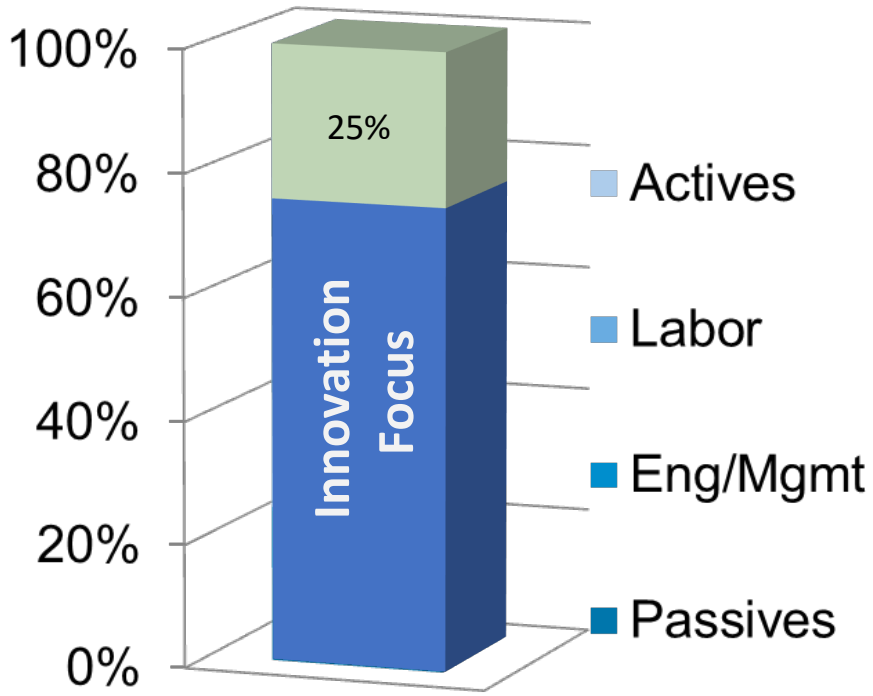
Quality

Consistent delivery of aesthetically pleasing, low consumer impact, high quality networks

FTTx Basics

FTTH Characteristics

- Labor and installation account for half of the cost of deployment
- Availability of skilled labor is a challenge with large scale deployments
- Involves the installation of cable and up to 40 different hardware components
- Challenge is to reduce skilled labor requirements to enable deployment with a given level of man power



Labor costs make up an increasingly higher percentage of the total cost as equipment suppliers reduce network component/solution costs

Rich Loveland

Director, Product Management
Vecima Networks

SCTE • ISBE LIVELEARNING WEBINARS™ FOR PROFESSIONALS — IN PARTNERSHIP WITH Light Reading

Agenda

01 | Explosive Growth of Fiber Deployment

02 | Government Funding Fiber Deployment

03 | PON Technology Options (Who's using what)

04 | MSO access network Options

05 | Weighing the PON Options

06 | Unifying Access

07 | Summary

Putting Fiber To Work

Driving Fiber Deployment

Competition - Telcos Deploying[1]

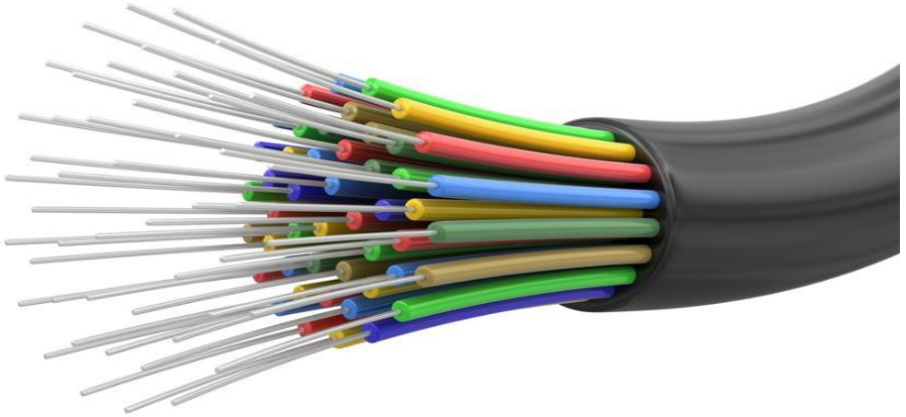
- AT&T >15 M HHP and building past another 3M homes and Businesses this year
- Verizon >15M HHP – planning to add another 2.8 M by 2030
- CenturyLink ~2M HHP going to 6.8 by 2030
- Frontier ~3M HHP
- Windstream ~1.3M HHP
- Bell Canada predicted to have 6.9M locations passed by end of 2021 (Lightwave Feb 8, 2021)

Government Funding

Greenfield

MDU complexes

Brownfield Hotspots



FTTH will pass 60 million by 2030, says New Street

(US Homes)

1.) New Street (Oct 27, 2020)
the analyst group is forecasting that homes passed by fiber will increase from 40 million to 60 million over the next 10 years. That would increase the percentage of homes passed from 25% to 35%.

RDOF, American Jobs Plan & American Rescue Plan

Rural Digital Opportunity Fund

$20.4B USD to:

- Buildout rural fiber over 10 years
- Many Vecima customers have received funding
- Vecima Tier 1 operator initiating huge fiber build
- Incremental to existing FTTP opportunity

American Jobs Plan


The White House
@WhiteHouse
United States government organization

Right now, more than 35% of rural Americans lack access to broadband at minimally acceptable speeds. President Biden's American Jobs Plan will change that and bring affordable, reliable high-speed internet to every American.

12:14 PM · 4/25/21 · The White House

$100B USD to:

- Build high-speed broadband infrastructure to reach 100% coverage
- Promote transparency and competition
- Reduce the cost of broadband internet service and promote more widespread adoption

[FACT SHEET: The American Jobs Plan Will Bolster Cybersecurity | The White House]

[FACT SHEET: The American Jobs Plan | The White House]

American Rescue Plan

Figure 2. ARP funding to address the digital divide

ARP provision	Funding and expiration	Primary Recipients	Physical Network Build-Out	Device Support	Broadband Connectivity Subscription Support	Digital Literacy Training
Elementary and Secondary School Emergency Relief Fund	$122.775 billion through Sept 30, 2023	Local educational agencies		x	x	
Institute of Museum and Library Services	$200 million until expended	State library administrative agencies	x	x	x	x
Economic Adjustment Assistance	$3 billion through Sept 30, 2022	Department of Commerce, states, and communities	x			
Homeowner Assistance Fund	$9.961 billion through Sept 30, 2025	States, territories, and Tribal governments			x	
Emergency Connectivity Fund	$7.171 billion through Sept 30, 2030	Schools and libraries	x	x	x	
Coronavirus state fiscal recovery fund	$219.8 billion through 2024	States, territories, and Tribal governments	x	x	x	x
Coronavirus local fiscal recovery fund	$13.2 billion through 2024	Metropolitan cities, nonentitlement units of local government, and counties	x	x	x	x
Coronavirus capital projects fund	$10 billion until expended	States, territories, and Tribal governments	x	x		
Local assistance and tribal consistency fund	$2 billion through Sept 30, 2023	Revenue sharing counties and Tribal governments	x	x	x	x

Source: Brookings analysis of ARP.

B | Metropolitan Policy Program at BROOKINGS

$7B for Schools and Libraries connectivity

VECIMA

What technologies are being used?

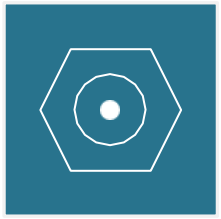
Telcos

- Using GPON
- Evolving to XGS PON
- Developing 25G
- ITU defining 50G single wavelength
- NGPON2

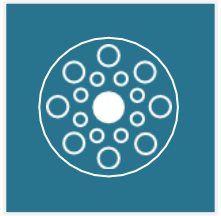
MSOs

- Using DPoE 10G EPON and some XGS/GPON
- Evolving to either 25G or 100G?
  - IEEE 802.3ca for 25G/50G EPON
  - CableLabs Coherent PON @100G
  - Infinera & Open XR Forum standardizing 100G and 40
    subcarriers (25G subcarrier

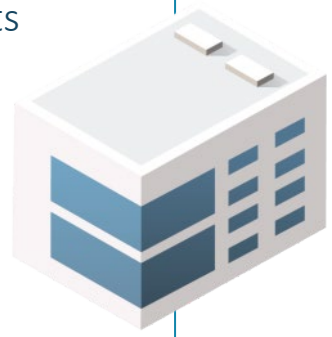
What options do MSOs have for their access network?



Coax has vast coverage, but some capacity limits



Fiber brings capacity, but lacks ubiquitous coverage and can be expensive



"Status Quo"

- Business as usual HFC capacity expansion with node splits, DOCSIS 3.1, spectrum reallocation
- Space, power, and distance limitations plus operational cost and complexity are blockers

Distributed Access Architecture

- Simplify the network by pushing certain cable functions to the node and virtualizing the headend
- Network expansion (fiber deep, node splits, DOCSIS 3.1/4.0) without cost, space, power, & distance bottlenecks
- Stepping stone to FTTP

FTTP

- Fiber to the home or business: 10G EPON, XGS PON, or P2P
- The ideal solution: unlimited capacity and future-proof – but slowed by required investment

VECIMA

Weighing the PON Options

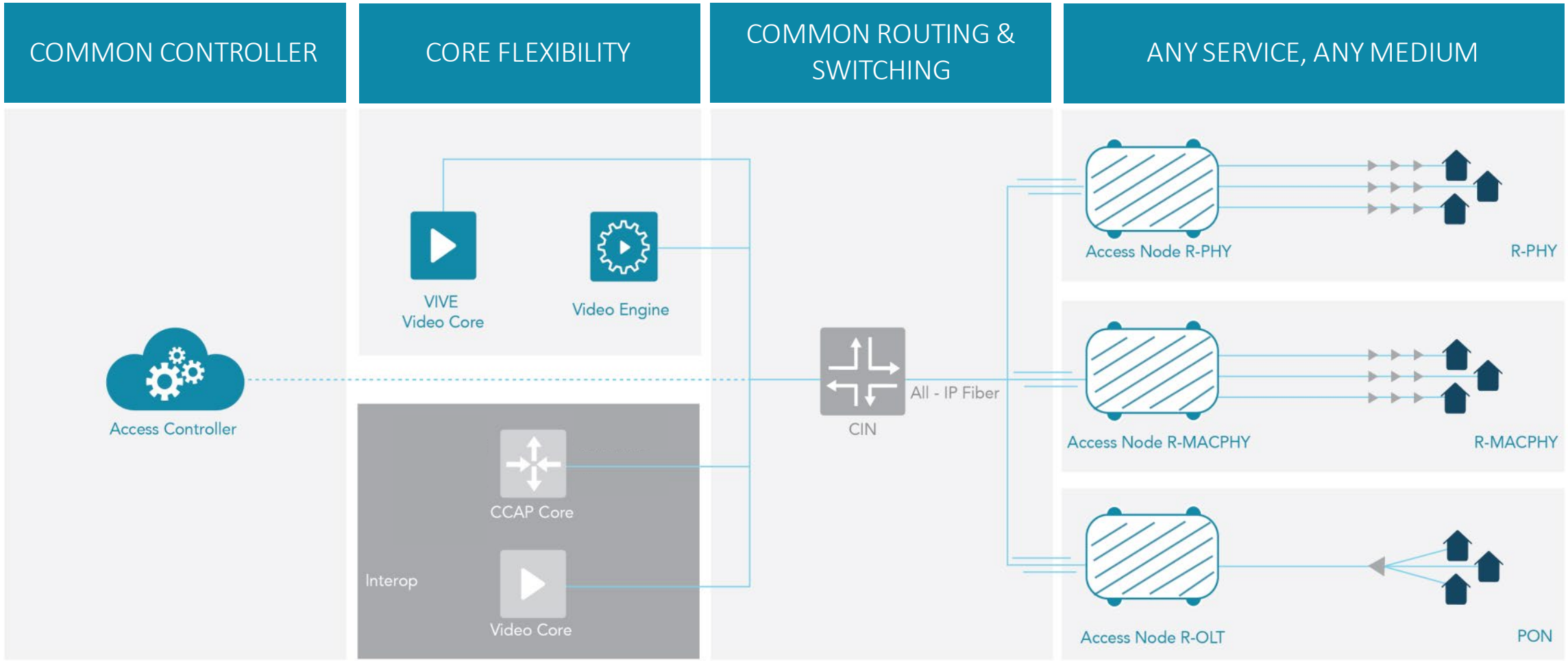
- New OSS middleware/ integration
- Traffic classification on L2 (P bit. VLAN, Port)
- Possible BRAS router also needed as DS traffic is typically managed on a high level router
- ONU/ONT Interoperability – Vendor variations in OMCI
- IPDR not always available on GPON on a per SF basis (GPON/XGS does not have SFs in the same manner)
- Defined by ITU which is Telco controlled

- Easy OSS Integration through CableLabs DPoE
- Traffic Classification on L2 (P-bit, VLAN, Port) & L3 (IP@, TCP port)
- BRAS functionality built in
- ONU/ONT interop a fundamental assumption from the beginning.
- Unified HFC/PON platforms
- IPDR statistics per SF
- Defined by IEEE and CableLabs where MSOs have more influence

Both are evolving to faster speeds
Both developing SDN style management

VECIMA

Unified Cable Access: R-PHY, R-MACPHY and PON together

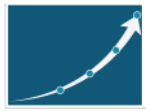


SUMMARY

Putting Fiber to Work

- Introduce FTTP faster and easier with PON solution leveraging CableLabs DPoE
- Unified Access – DAA with Fiber Deep plus PON Solution for Competitive Advantage

Competitive Advantage



Faster time to revenue

Innovative, future-proof technology

Leadership with network coverage

www.vecima.com

Audience Poll I

Which network upgrade options is your company considering? (Feel free to select more than 1 choice).

- Going Fiber Deep
- Deploying FTTP
- Implementing DAA
- Deploying DOCSIS 4.0
- Deploying Next-Gen PON
- Implementing network virtualization

Jorge Figueroa

PON Solutions Manager
Harmonic

SCTE • ISBE LIVELEARNING WEBINARS™ FOR PROFESSIONALS — IN PARTNERSHIP WITH Light Reading

cableOS®

TRANSITIONING THE CABLE PROVIDER EDGE TO A MULTI-ACCESS NETWORK

Jorge Figueroa

2021 CABLE MARKET TRENDS

harmonic

BROADBAND SERVICE EXPANSION	NETWORK CONVERGENCE	DATA & ANALYTICS
Greater connectivity in rural & urban areas	Multi-access & flexible compute	Improvements in proactivity & monitoring
Increasing development of high-bandwidth apps	Sustainability	Flexibility & capacity management
	Leaner operations	

DISRUPTION – TRANSFORMATION – SUCCESS

LAY THE FOUNDATION FOR
THE ULTRA-CONNECTED FUTURE

harmonic

Avoid Regrettable Spend
- Milk every investment in HFC
- Leverage existing infrastructures

Boost Capacity & Efficiency
- Scale sustainably
- Step on the path to 10G

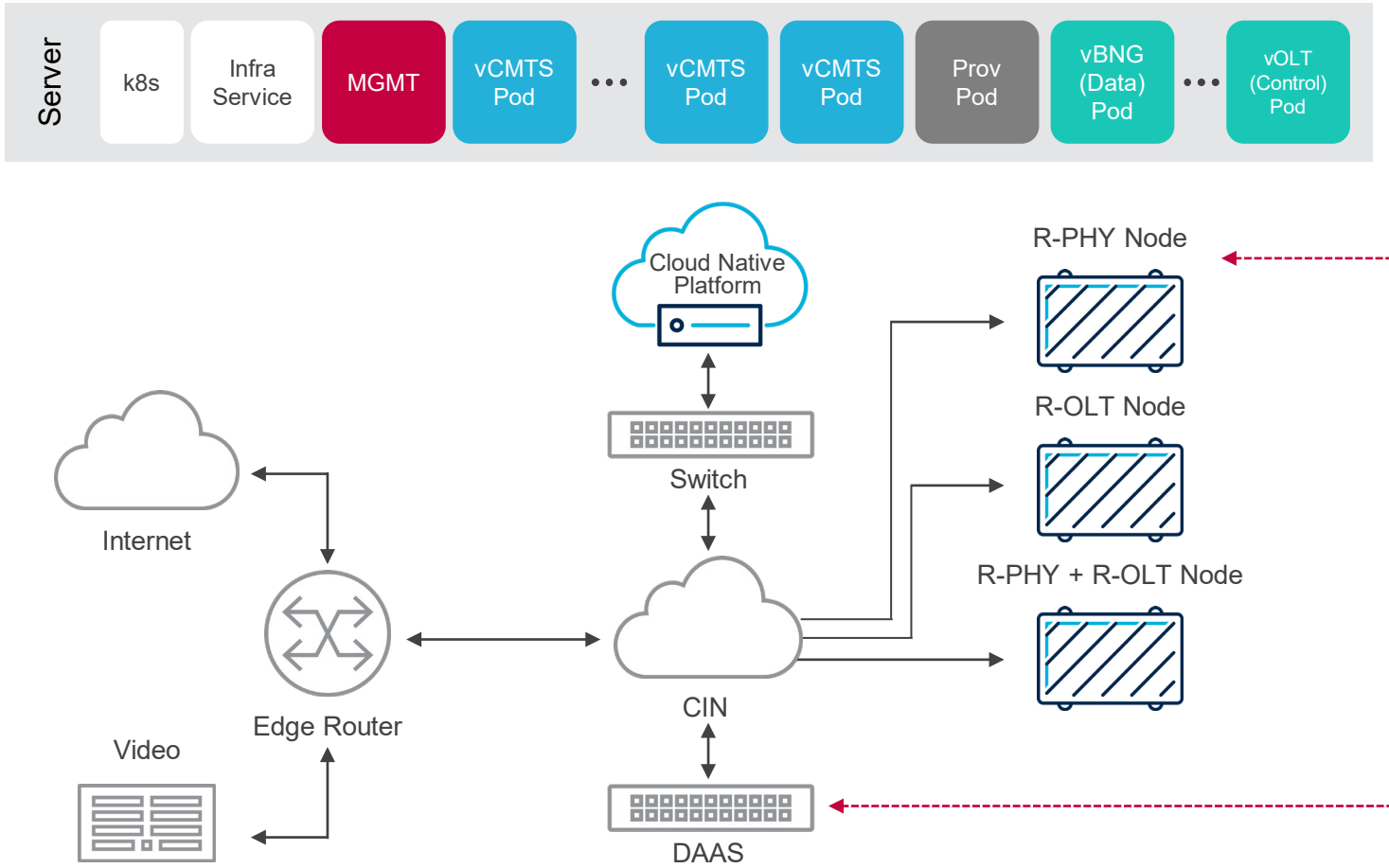
Improve cost savings
- Reduce operational complexity
- Eliminate legacy hardware & related costs

Enable Future Evolution
- Gain flexibility & agility
- Get a versatile multi-access solution

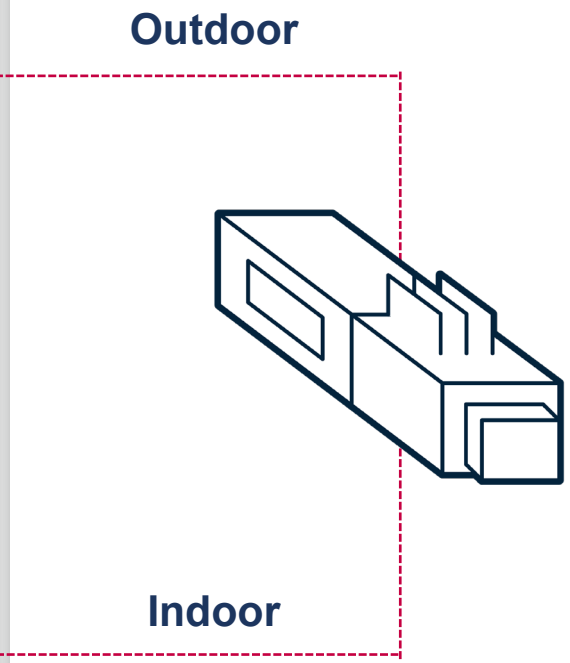
A SINGLE SOLUTION FOR
HFC DOCSIS AND PON/FTTH

harmonic

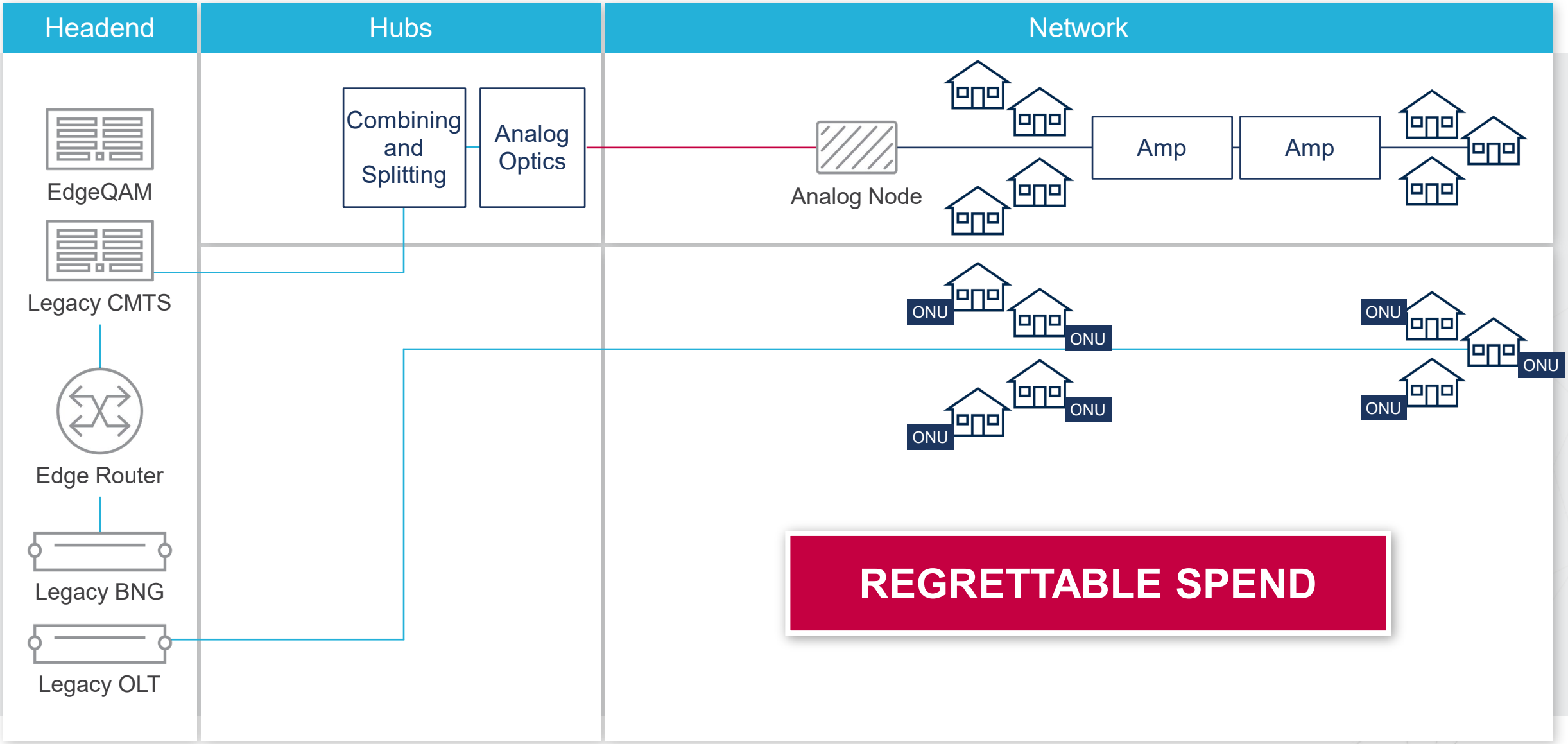
Cloud-Native Platform



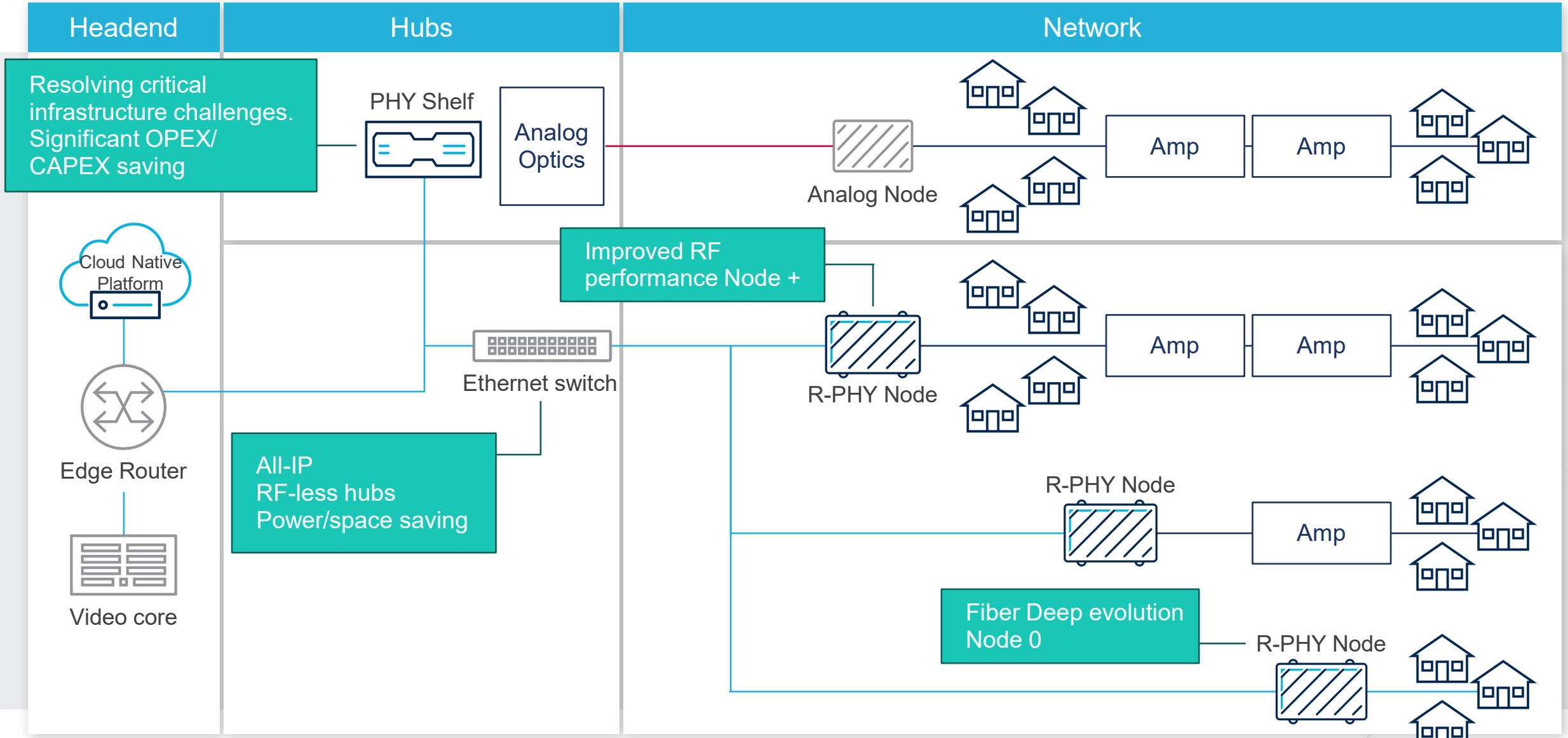
PON Interface SFP+



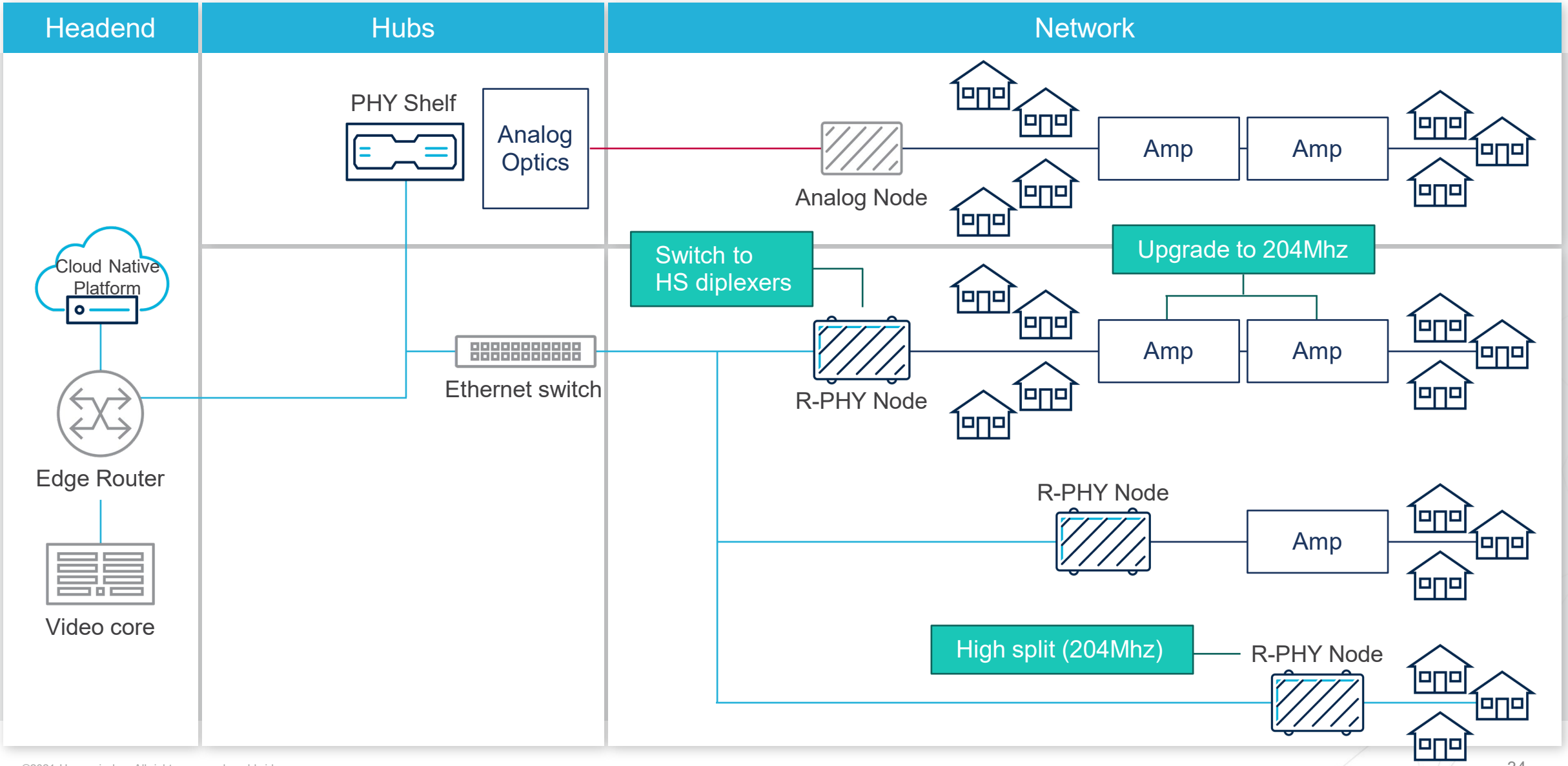
LEGACY NETWORK ARCHITECTURE



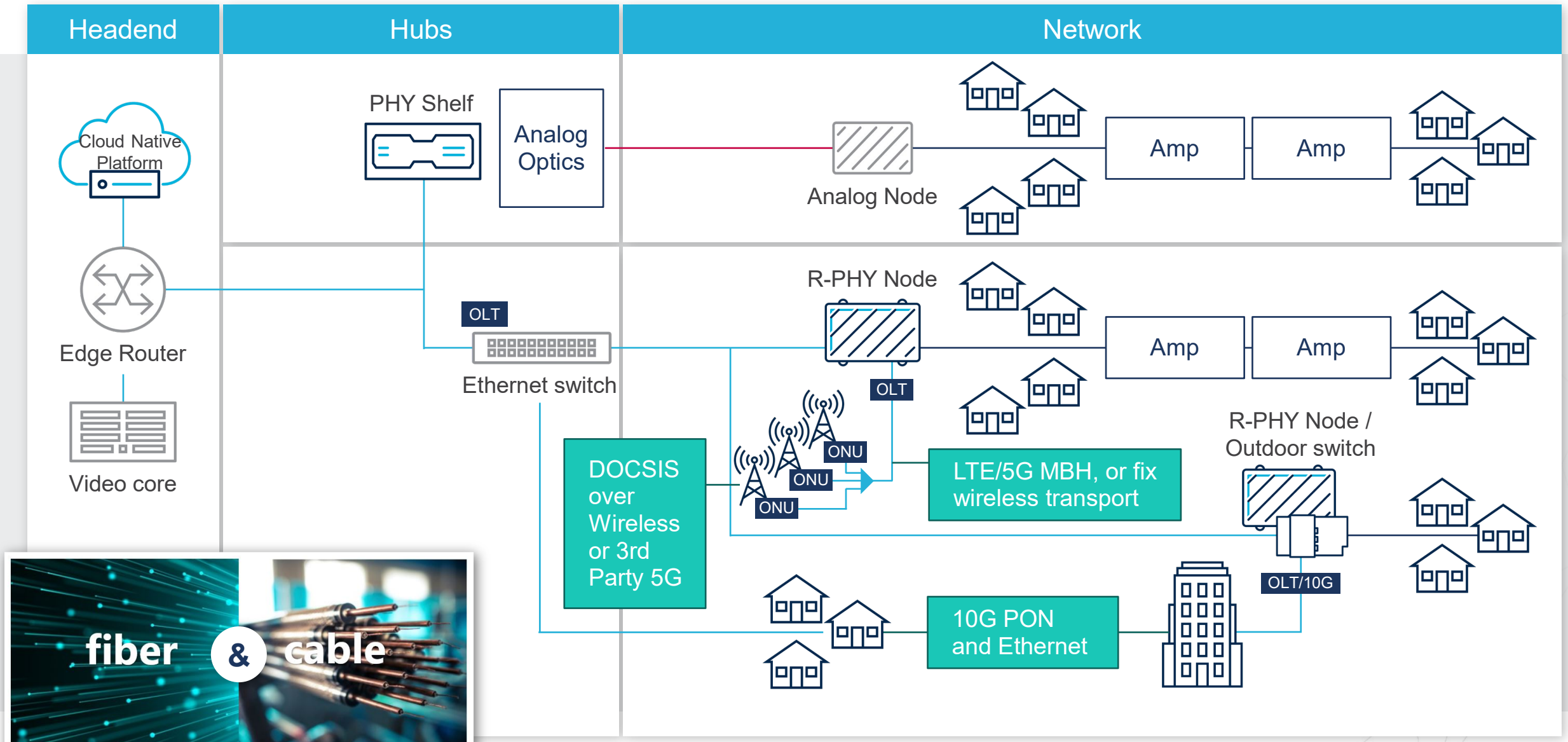
NETWORK EVOLUTION WITH A CLOUD NATIVE PLATFORM



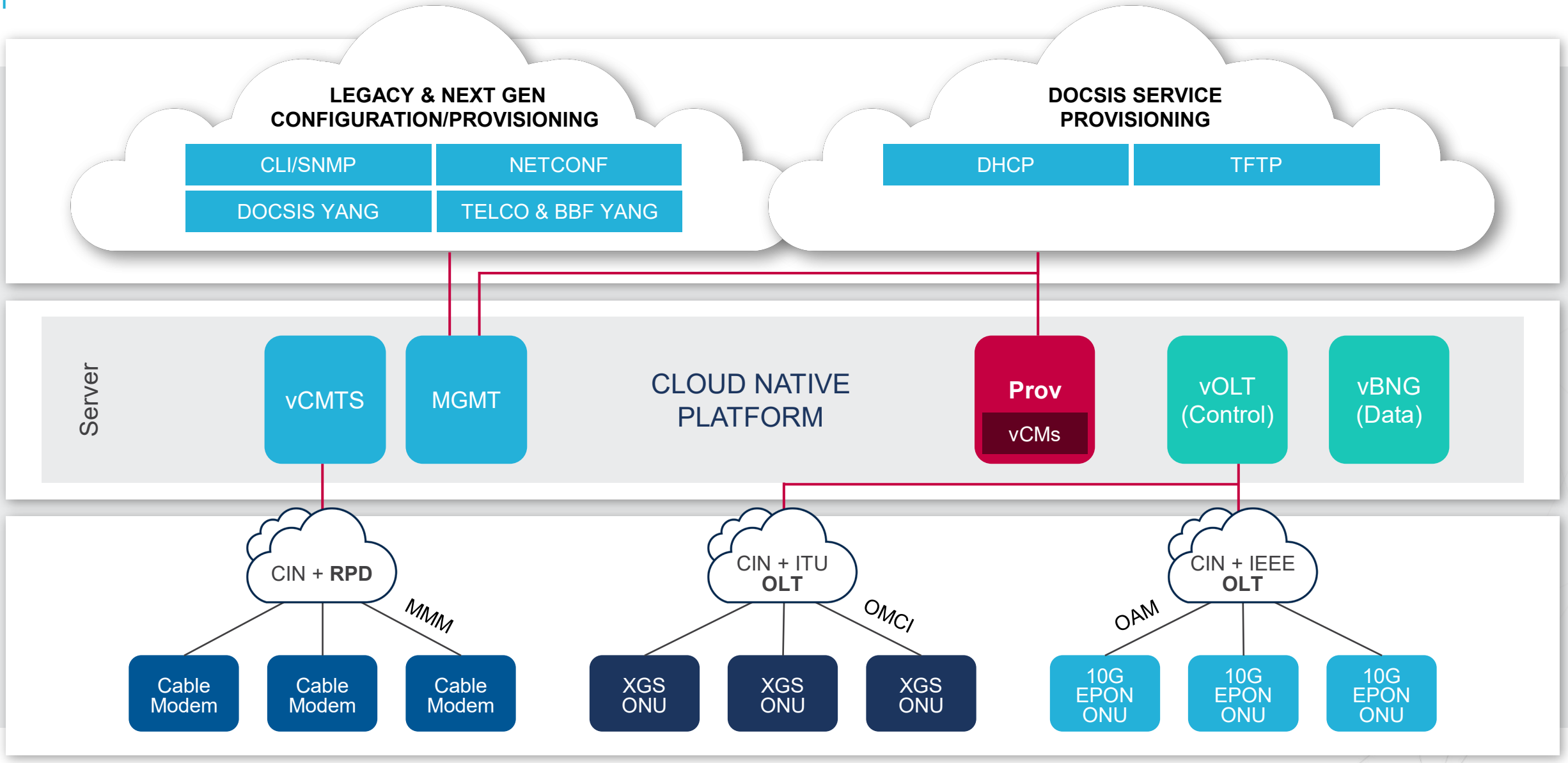
NETWORK EVOLUTION – INCREASING UPSTREAM CAPACITY WITH MID/HIGH SPLIT



NETWORK EVOLUTION WITH A CLOUD NATIVE PLATFORM



UNIFORM PROVISIONING FOR ANY ACCESS



cableOS®

harmonic®

THANK YOU.

Douglas Clague

Solutions Marketing Manager

VIAVI Solutions

SCTE • ISBE LIVELEARNING WEBINARS™ FOR PROFESSIONALS — IN PARTNERSHIP WITH Light Reading

VIAVI Solutions

Putting Next Gen PON to Work

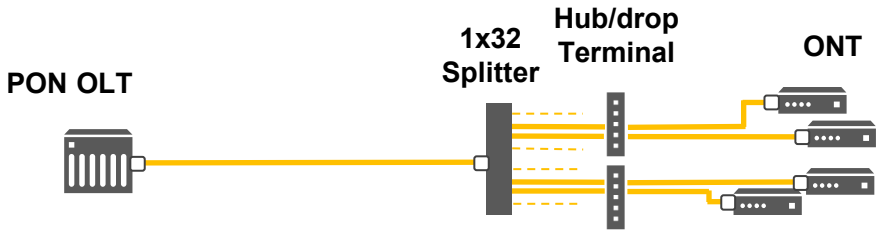
SCTE Live Learning Webinar

Speaker Name
Speaker Title
June 2021

Existing PON Architectures

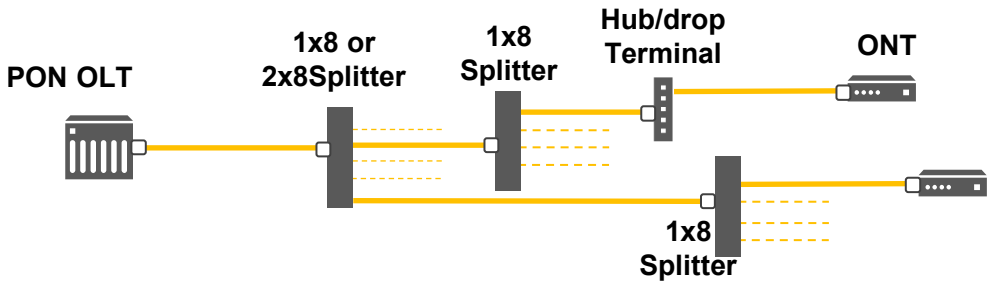
- The larger the split ratio, the more attractive for the service provider
- Split ratio of up to 1x64 is largely deployed

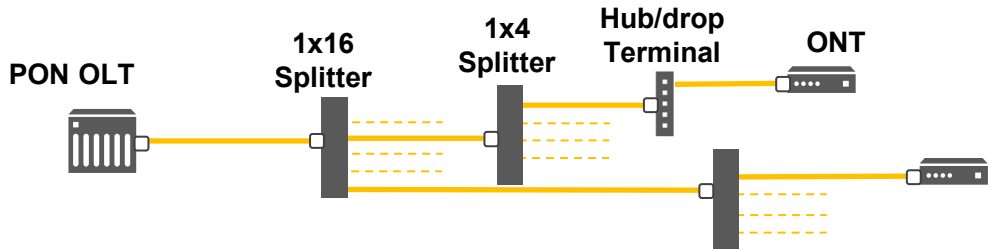
SINGLE SPLIT



Optimized speed per customer

CASCADED SPLIT

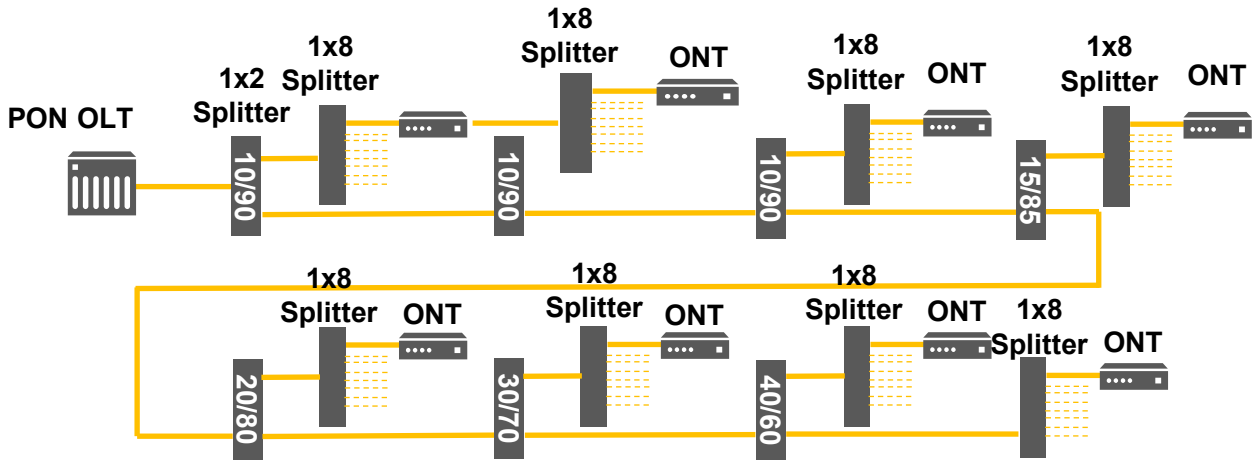




Densification but could limit bit rate per customer

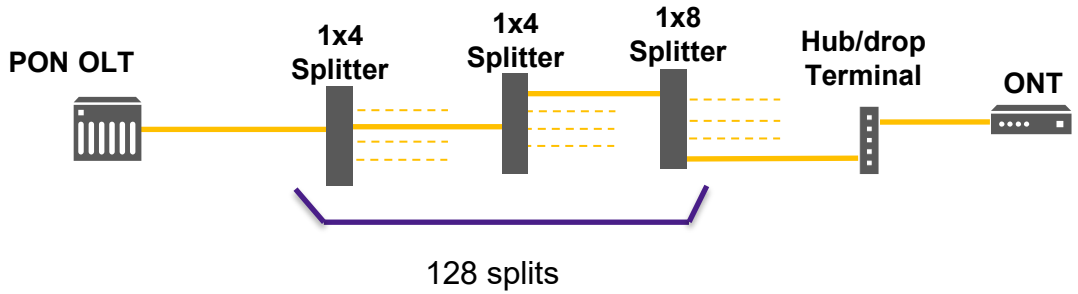
New Architectures

UNBALANCED OR TAPPERED



Uneven splitting ratio to increase cascading capability and scalability

DENSIFICATION



Increase densification in standard PON architectures

PON Services

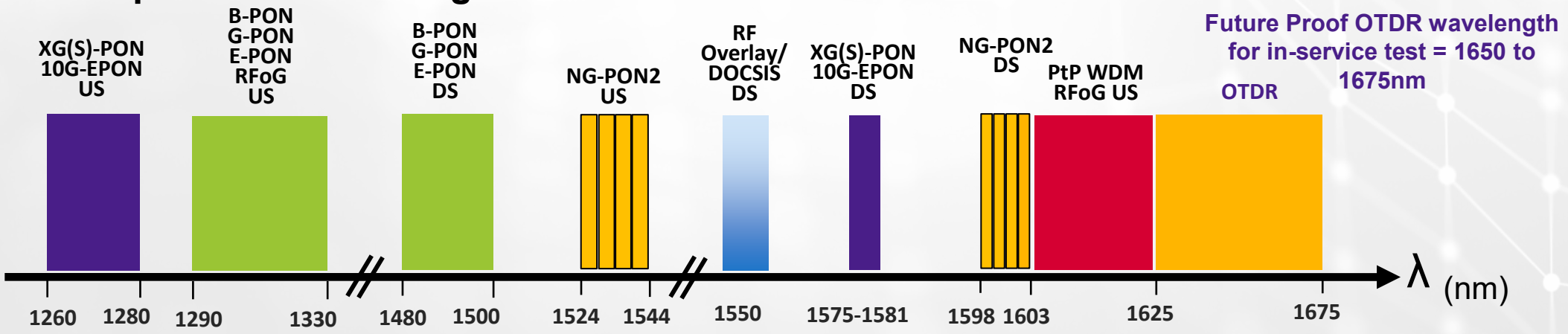
SPEED INCREASES

- Seeing more of the 10G services being deployed – XGS-PON & 10GE-PON

WHAT DOES THAT MEAN FOR SERVICE PROVIDERS AND INSTALLERS

- New service wavelengths in use
- New build networks going straight to XGS-PON & 10GE-PON
- Co-existence of services on already built / deployed PON

PON Spectrum: Wavelength Allocation and Co-existance Plan

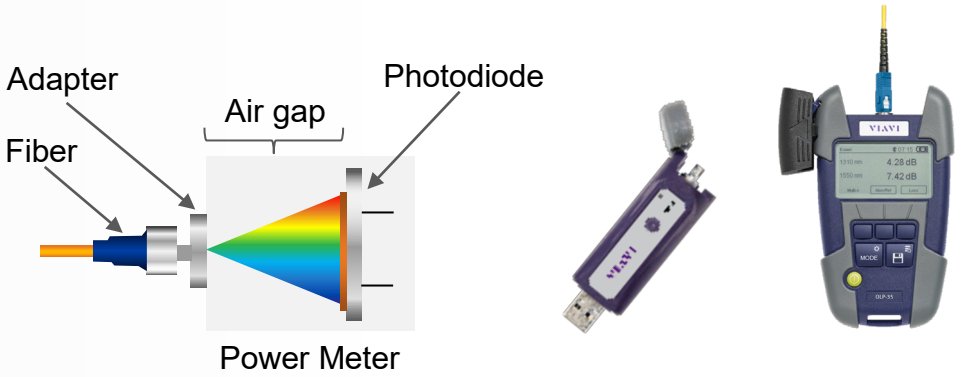


What Does That Mean for Power Meters?

Selecting the Right Power Meter

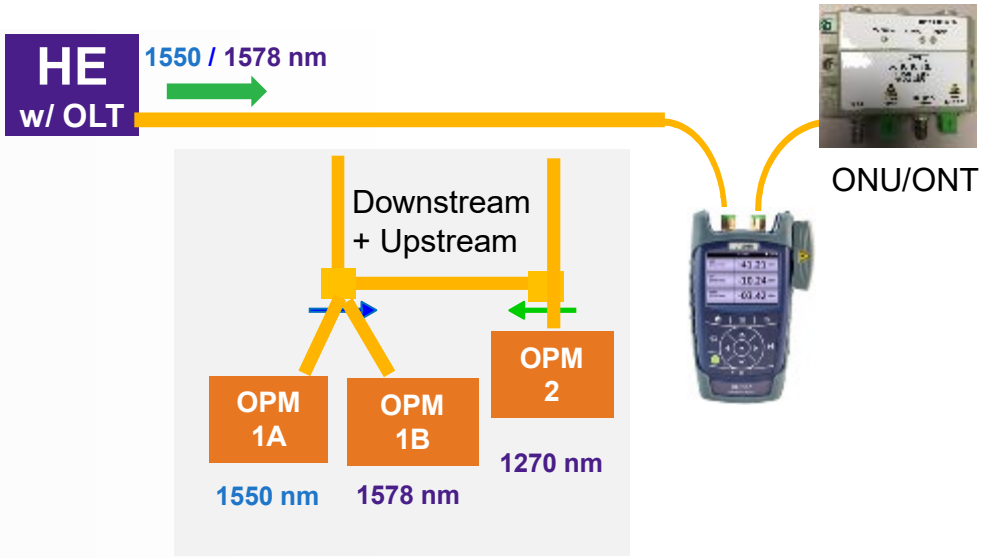
BROADBAND POWER METER

- Measures average peak power of **ALL** wavelengths present
- Will only provide accurate power measurement if only **one** wavelength is present
- *Does* **NOT** *confirm which wavelength/ channel is present or being measured!*



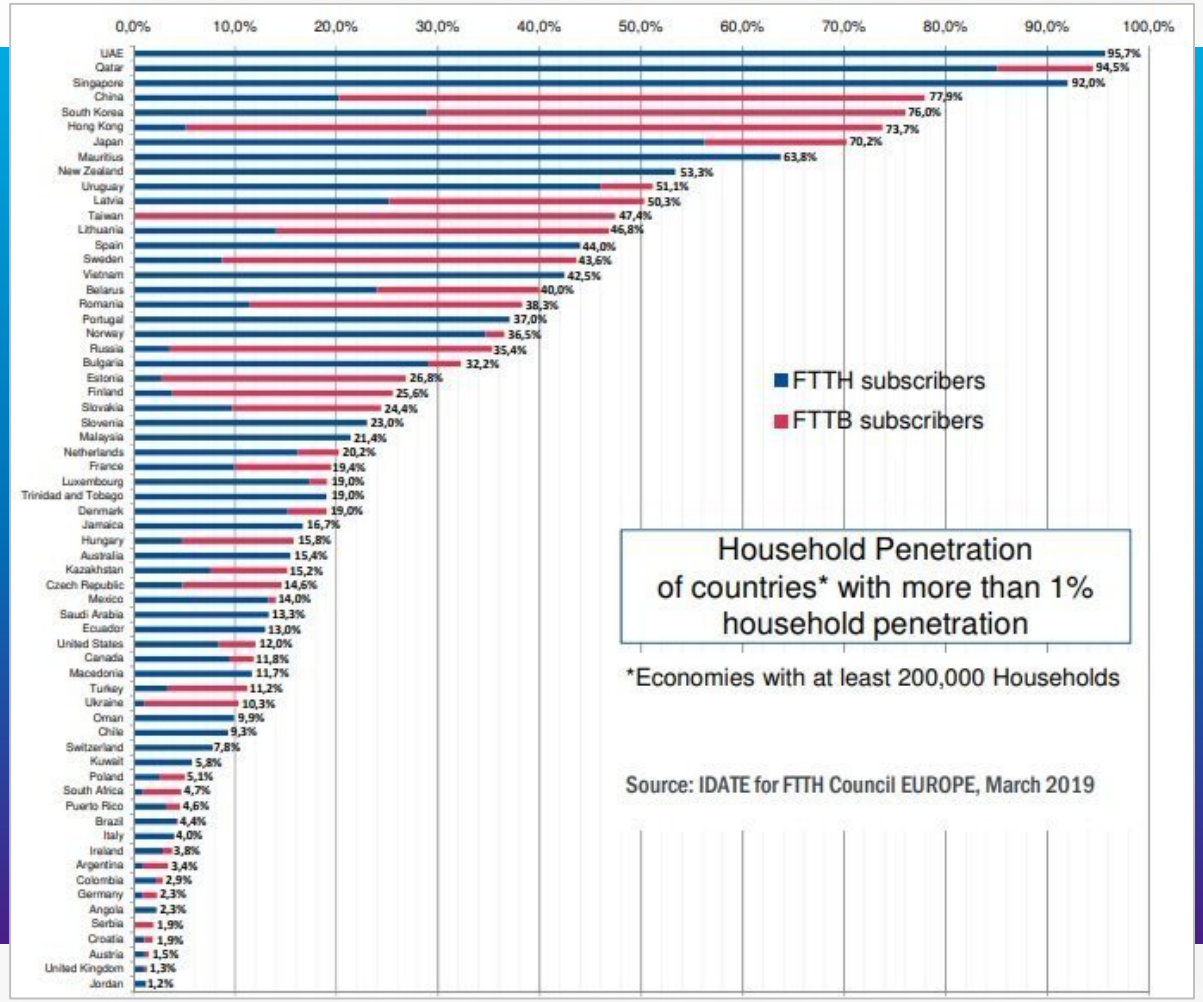
PON POWER METER

- Has ability to isolate individual service wavelengths
- Verifies power level and service presence simultaneously
- Has the ability to be inserted in-series to measure down and upstream signals
- Upstream signal is TDM and requires BURST measurement capability



The Drive for More Fibre PON Build

Selecting the Right Power Meter



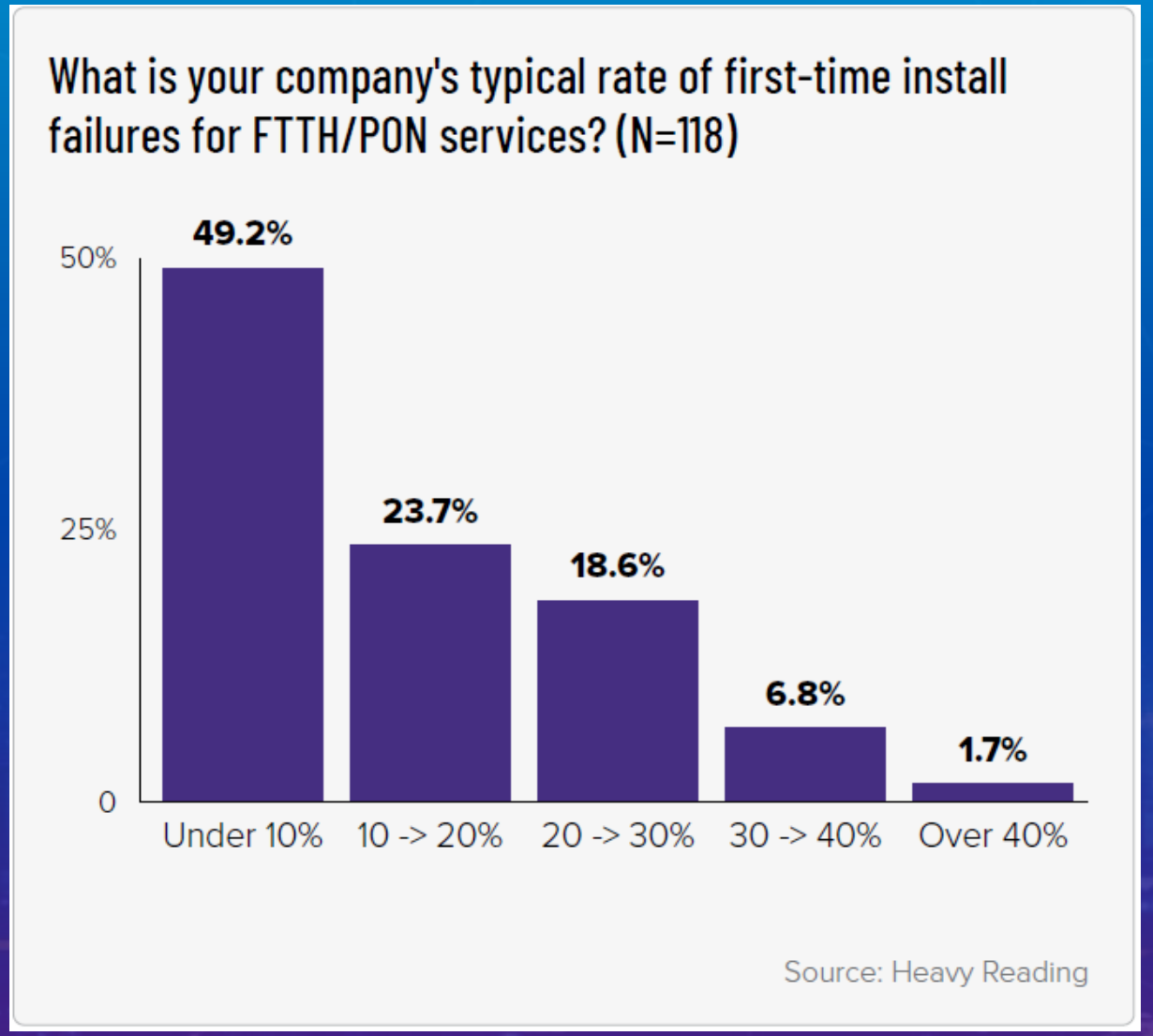
FTTH / PON key trends and global stats:

- 'Minimal test' driven by deployment pressure
- Between 20% to 50% of homes don't pass at first install and/or turn-up
- 3 additional fiber tech dispatches after first are mandatory in > 10% of the cases
- Early life failures average rate in the next 30 days after installation is > 5%.

IMPACT for Service Providers:

- Techs not meeting KPIs – not enough jobs closed per day
- Activation delay → bad customer experience, increased number of churns
- Excessive troubleshooting expenses, increased OPEX, low ROI, longer time to revenue.

The Industry View




VIAVI
VIAVI Solutions
viavisolutions.com

Steve Harris

Executive Director

Technical Sales, Learning & Development

SCTE

SCTE • ISBE LIVELEARNING WEBINARS™ FOR PROFESSIONALS — IN PARTNERSHIP WITH Light Reading

SCTE Fiber Education Programs

COURSE TITLE	DELIVERY METHOD
BFI - Broadband Fiber Installation	ONLINE
BTS - Broadband Transport Specialist	ONLINE
DAA - Distributed Access Architecture Essentials	ONLINE
EPON - Ethernet Passive Optical Network	ONLINE
Fiber Restoration	ONLINE
FSS - FTTx Splicer Specialist	ONLINE
Maintenance Technology Level 2	ONLINE
Network Testing and Maintenance Level 2	ONLINE
OFC - Optical Fiber Construction	ONLINE
Telecommunication Engineering 101	ONLINE
Understanding Multiplexing	ONLINE

For more information go to: **SCTE.org/courses**

Boot Camps available, contact us at **sharris@scte.org**

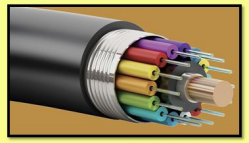
SCTE Society of Cable Telecommunications Engineers a subsidiary of CableLabs® LightReading

The SCTE FTTH Course prepares SCTE Members for 3 Fiber Certifications!

SCTE
a subsidiary of CableLabs®
BFI
CERTIFIED

SCTE
a subsidiary of CableLabs®
CERTIFIED

SCTE
Broadband
Fiber Installer

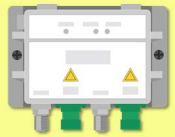


Module 01

SCTE
Broadband
Fiber Installer

Module 02

SCTE
Broadband
Fiber Installer



Module 03

ELECTRONICS TECHNICIANS ASSOCIATION
ETA® INTERNATIONAL

SCTE
Broadband
Fiber Installer

Module 04

SCTE
Broadband
Fiber Installer

Module 05

SCTE
Broadband
Fiber Installer

Module 06

SCTE
Broadband
Fiber Installer

Module 07

The Fiber Optic Association, Inc.
FOA
Certified Fiber Optic Technician

For more information go to: **SCTE.org/certification**

SCTE
Society of Cable Telecommunications Engineers
a subsidiary of CableLabs®

LightReading

The SCTE Transport Course prepares SCTE Members for 3 Fiber Certifications!

SCTE a subsidiary of CableLabs CERTIFIED

SCTE a subsidiary of CableLabs BTS CERTIFIED

ELECTRONICS TECHNICIANS ASSOCIATION ETA INTERNATIONAL

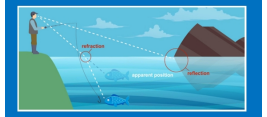
The Fiber Optic Association, Inc. FOA Certified Fiber Optic Technician

SCTE Broadband Transport Specialist

Module 01

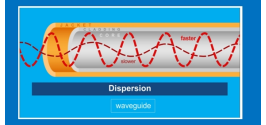
SCTE Broadband Transport Specialist

Module 02



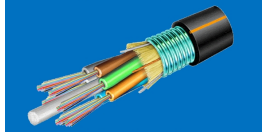
SCTE Broadband Transport Specialist

Module 03



SCTE Broadband Transport Specialist

Module 04



SCTE Broadband Transport Specialist

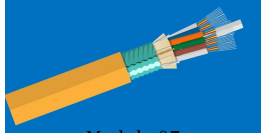
Module 05

SCTE Broadband Transport Specialist

Module 06

SCTE Broadband Transport Specialist

Module 07



SCTE Broadband Transport Specialist

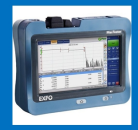
Module 08

SCTE Broadband Transport Specialist

Module 09

SCTE Broadband Transport Specialist

Module 10

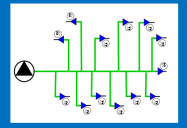


SCTE Broadband Transport Specialist

Module 11

SCTE Broadband Transport Specialist

Module 12

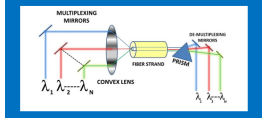


SCTE Broadband Transport Specialist

Module 13

SCTE Broadband Transport Specialist

Module 14



SCTE Broadband Transport Specialist

Module 15

SCTE Broadband Transport Specialist

Module 16

For more information go to: **SCTE.org/certification**

SCTE Society of Cable Telecommunications Engineers a subsidiary of CableLabs

LightReading

SCTE
a subsidiary of CableLabs®

MICROLESSON FIBER TOPICS

SCTE a subsidiary of CableLabs® TRAINED

MICROLESSONS - **TECHNICAL**	TYPE
5G	Primer
AWG	Primer
CBRS	Primer
CCAP	Primer
Convergence	Primer
Cyber Security	Primer
DOCSIS 3.1	Primer
DOCSIS 3.1 PNM	Primer
DOCSIS Profiles	Primer
EPON	**LightningMod**
F-Connector	Primer
Fiber Cleaning	**Primer**
Fiber Deep	**LightningMod**
Fiber Deep	**Primer**
FWA (Fixed Wireless)	Primer
Full-Duplex DOCSIS	Primer
IoT LoraWAN	Primer
Leakage and Ingress	Primer
Metro Ethernet	Primer
NFV	Primer
OFDM	Primer
OFDMA	Primer
PKI	Primer
Remote PHY (R-PHY)	**Primer**
SDN	Primer
Wi-Fi 6	Primer

MICROLESSONS - **TECHNICAL**	TYPE
10G	MicroLearning
Anatomy of a Utility Pole	MicroLearning
Bonding and Grounding	MicroLearning
DAA	**MicroLearning**
IoT	MicroLearning
IPv4 Addressing Part 1: Binary Numbering System	MicroLearning
IPv4 Addressing Part 2: Address Classes	MicroLearning
IPv4 Addressing Part 3: Subnet Masks	MicroLearning
IPv4 Subnetting	MicroLearning
IPv6 Addressing	MicroLearning
LTE	MicroLearning
Network Virtualization	MicroLearning
Ohm's Law	MicroLearning
Pushable MPO	**MicroLearning**
Wi-Fi	MicroLearning

MICROLESSONS - **SOFT SKILLS**	TYPE
5 Tips on How to Hire Great People	MicroLearning
5 Tips on Time Management	MicroLearning
Benefits of Professional Certifcation	MicroLearning
Career Enhancement	MicroLearning
Creating a Winning Presentation	MicroLearning
Flashcards	MicroLearning
How to Avoid Meeting Malpractice	MicroLearning
How to Build the Creativity Muscle	MicroLearning
How to Deligate Effectively	MicroLearning
How to Motivate and Energize your Team	MicroLearning
Improving Recall and Retention	MicroLearning
Learning Preferences	MicroLearning
Learning through Peers	MicroLearning
Peer Networking	MicroLearning
Quizzing to Learn	MicroLearning
Recalling Information a Little at a Time	MicroLearning

Primers *: Answer the Question "What is" is less than 2 minutes*

LightningMods *: Overview of a course or topic in 8-10 minutes*

MicroLearnings *: Focused to meet a specific learning outcome in 2-5 minutes.*

Over 50 Topics!

SCTE
a subsidiary of CableLabs®

CHAPTERS & MEMBERS

The Network for Your Network

Succeed with SCTE, a potent force for the technical workforce. Accelerate deployment of technology to drive business results. Exclusive benefits keep professionals like you prepared for technology's growing sophistication.

Let the industry's applied science arm increase your expertise. Comprising innovative thinkers and problem solvers, SCTE is the go-to for every broadband network—and career.

Learn more & join at: scte.org/membership

SCTE Society of Cable Telecommunications Engineers a subsidiary of CableLabs®

LightReading

SCTE's Award Winning Standards Are Leading the Cable Telecommunications Industry

Amplify your enterprise's thought-leadership and innovation acumen. Join the SCTE·ISBE Standards Program!

THE ONLY ANSI-ACCREDITED program in the cable industry

OVER 300 SCTE·ISBE standards and operational practices approved by ANSI.

Organization-based program with OVER 140 member organizations.

Top service providers and **OVER 1,100** subject matter experts.

Join NOW at https://scte.org/standards-join

SCTE Society of Cable Telecommunications Engineers a subsidiary of CableLabs® LightReading

SCTE
a subsidiary of CableLabs®
CABLE-TEC EXPO®
FAST FORWARD 2021

#cabletecexpo • expo.scte.org

UNLEASH THE POWER OF LIMITLESS CONNECTIVITY

OCTOBER 11-14
ATLANTA, GA

REGISTRATION OPENS JULY 2021

WE'VE UNLEASHED THE POWER...

Act Now, Exhibit & Sponsorships Available!

2021 PROGRAM CHAIR:
Kevin Hart
EVP, Chief Product & Technology Officer, Cox Communications

Audience Q & A

Alan Breznick
Cable/Video Practice Leader
Light Reading

Steve Harris
Executive Director
Technical Sales, Learning & Development
SCTE

Jason Morris
Marketing Manager
Corning Optical Communication

Rich Loveland
Director, Product Management
Vecima Networks

Jorge Figueroa
PON Solutions Manager
Harmonic

Douglas Clague
Solutions Marketing Manager
VIAVI Solutions

Next Months Webinar

10G or Bust: HFC & the Future Access Network

7/15/2021 11:00 am New York / 8:00 am Los Angeles

This educational series is a member benefit in partnership with LightReadingSCTE•ISBE LiveLearning Webinars™ for Professionals is a series of live, interactive, web-based seminars that occur the third Thursday of every month.

Register for next month's webinar, the 2021 webinar series or access previously recorded sessions at www.scte.org/LiveLearning.

THANK YOU!

LiveLearningWebinars™ For Professional

ENVISIONING THE FUTURE OF CONNECTIVITY, TODAY.

SCTE a subsidiary of CableLabs | LIVELEARNING WEBINARS™ FOR PROFESSIONALS

IN PARTNERSHIP WITH Light Reading

LightReading LIVE! WEBINAR

Thank you for attending!

Upcoming Light Reading webinars

www.lightreading.com/webinars.asp