Tapping Into the Cloud

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Thursday, August 19, 2021

11:00 am – 12:00 pm ET

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Today's Speakers

Alan Breznick
Cable/Video Practice Leader
Light Reading

Krithika Moorti
GM, Cable & Fixed Broadband Access
Intel

Griffin Ashe
Senior Architect
Service Provider & Edge Computing
Red Hat

Paul Rodrigues
Director, Field Education
SCTE

Agenda

- **Light Reading—**Cable's virtualization journey
- **Intel—**Economics and components of virtualized CMTSs
- **Red Hat–-**Hybrid cloud and edge computing in cable
- **SCTE**—Training, standards & certifications
- **Audience Q&A**

Why Cable is Embracing Virtualization

OPERATIONS

AUTOMATE

Simplify & Orchestrate

INFRASTRUCTURE

SCALE

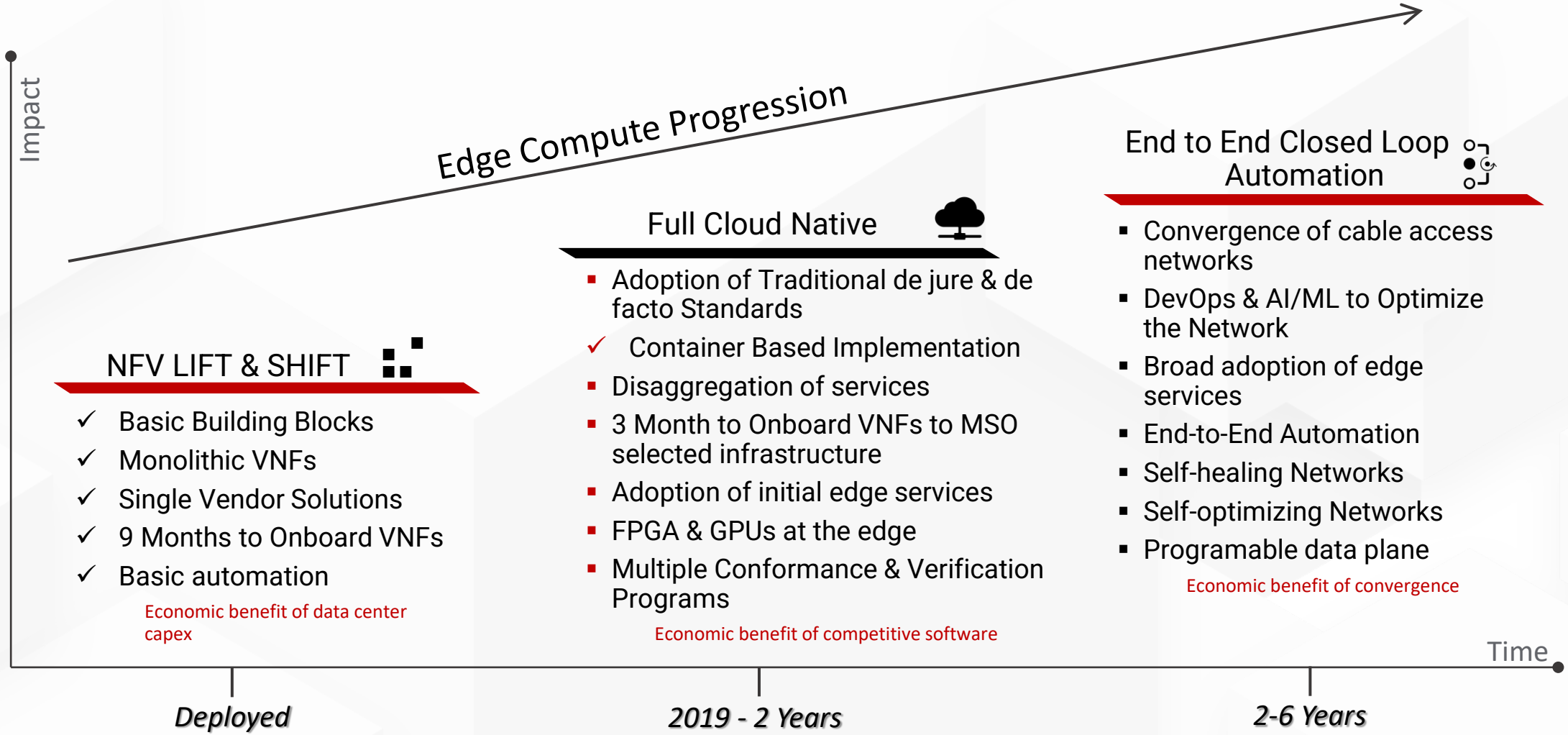
Virtualize, Centralize & Distribute

SERVICES

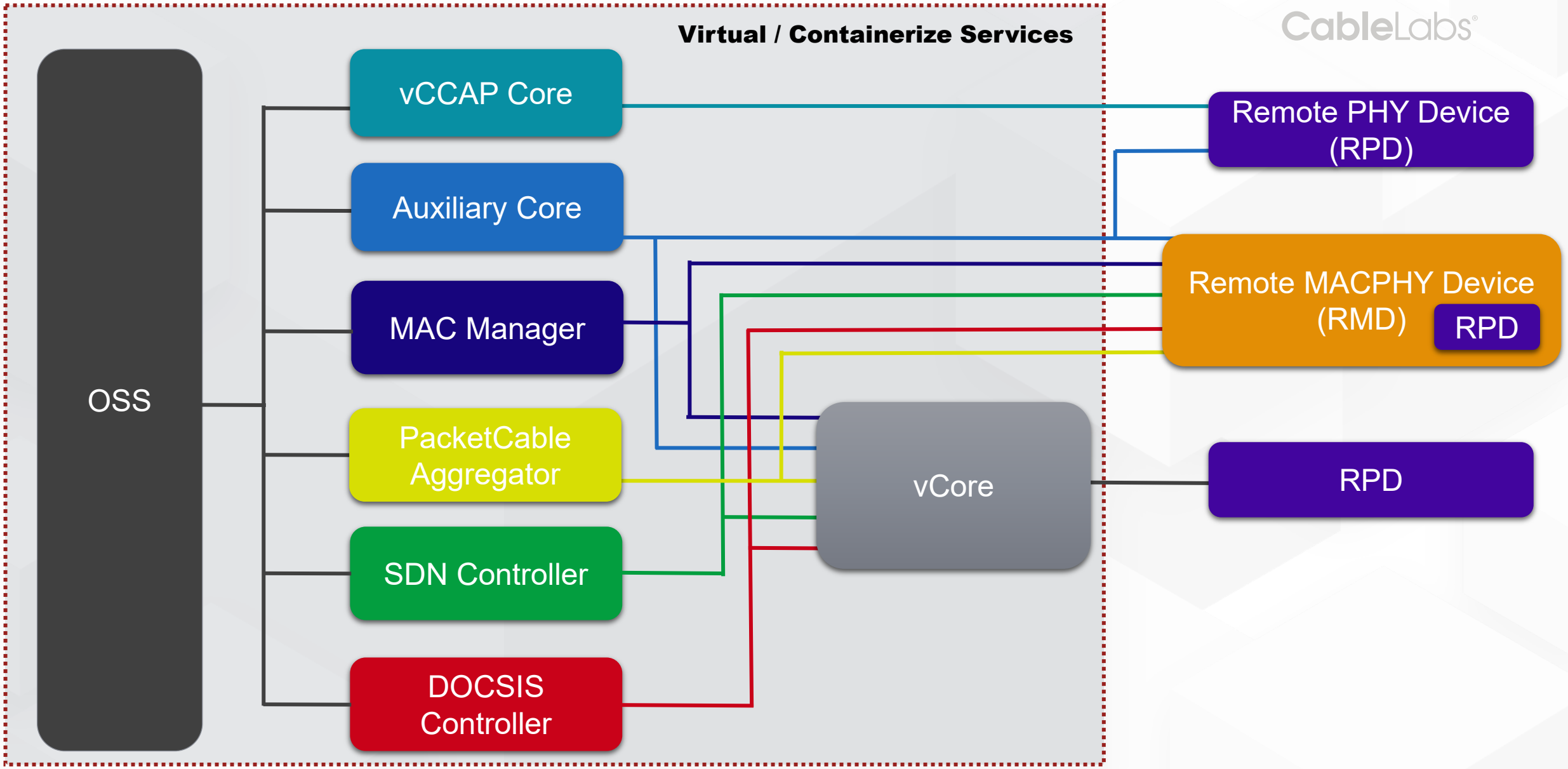
CREATE

Innovation & Agility

The Three Waves of Edge



Virtualizing DAA with Flexible MAC Architecture (FMA) and RPHY



Krithika Moorti

GM, Cable & Fixed Broadband Access
Intel

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vCMTS Powered By Compute

CMTS Appliance

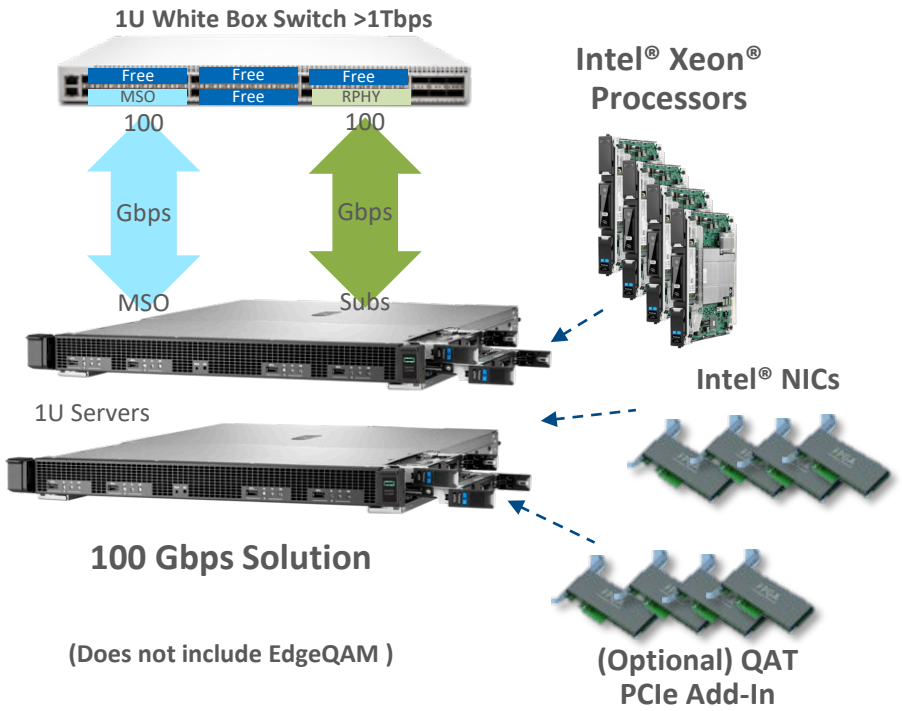
100 Gbps Solutions

(CMTS + EdgeQAM + Erouter)

77 RU footprint, 11.6 kW

NFV

vCMTS on Intel Servers



5 RU footprint, 1.5 kW*

- Realize Space and Power Savings in the HeadEnd
- Dynamically Scale Solution for Network Needs
- Automate with Intelligent Orchestration and Advanced Telemetry

* Remote PHY Device adds 1RU of space + 130W in outside plant.

HW = Hardware, RU = Rack Unit, Gbps = Gigabits per second, kW = kilowatt

Analyzing the Economics of Virtual CMTS

- 92 to 112 SGs
- Space: 77 to 87 RU per CMTS chassis
- Power: 8-12 kW per chassis + cooling
- Throughput: Backplane limited to 100Gbps total
- HW cost: ~$200k+

QAT PCIe

Add-In

Do MORE with Less[1]

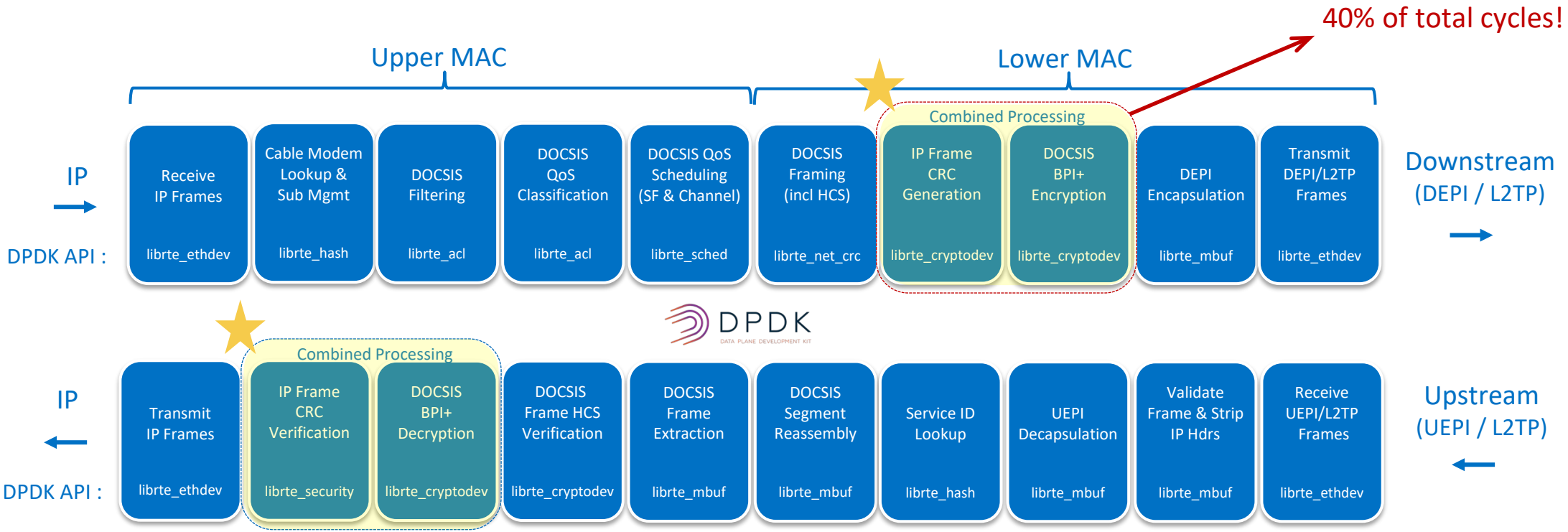
- 12 servers. 528 SG's. 1,174Gbps. 15 RU. 5.8kW.
- 7x Lower HW capital cost*
- 18-23x Less rack space*
- 4- 6x Less power consumption*
- Scale as you grow starting at ~$8k per server

* per service group (SG)

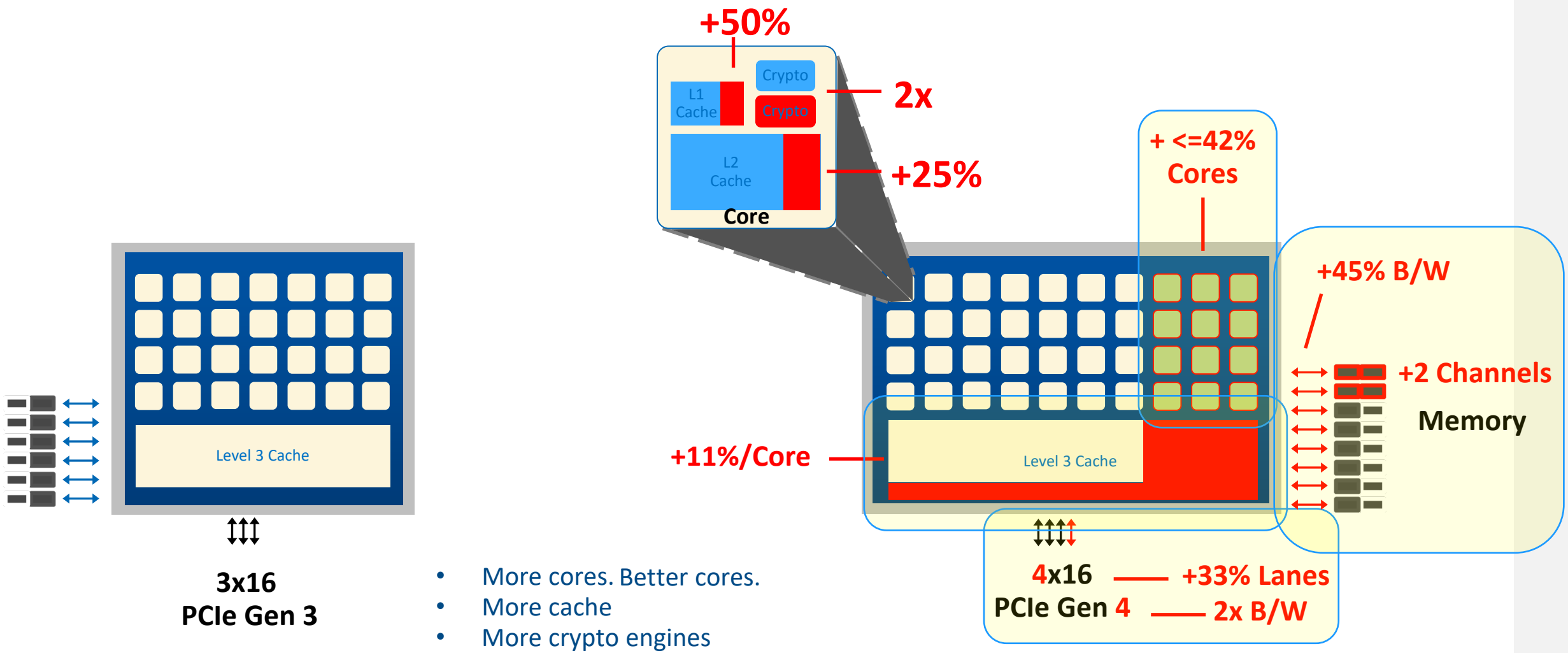
HW = Hardware, RU = Rack Unit, Gbps = Gigabits per second, kW = kilowatt

1. TCO comparative analysis conducted with Tier-1 MSO. Prices for switches and QAT devices derived from Compsource in June of 2019. Server price guidance derived from MSO engineer.

Components of the vCMTS Dataplane



DOCSIS requires cryptography to keep data private in transit

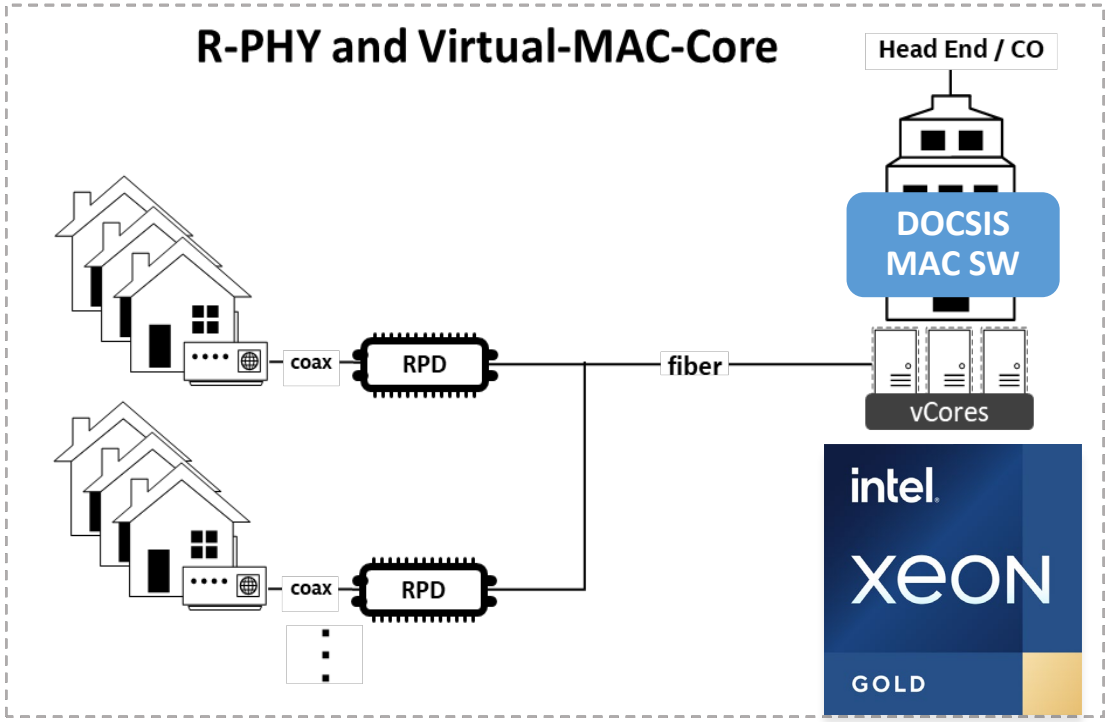


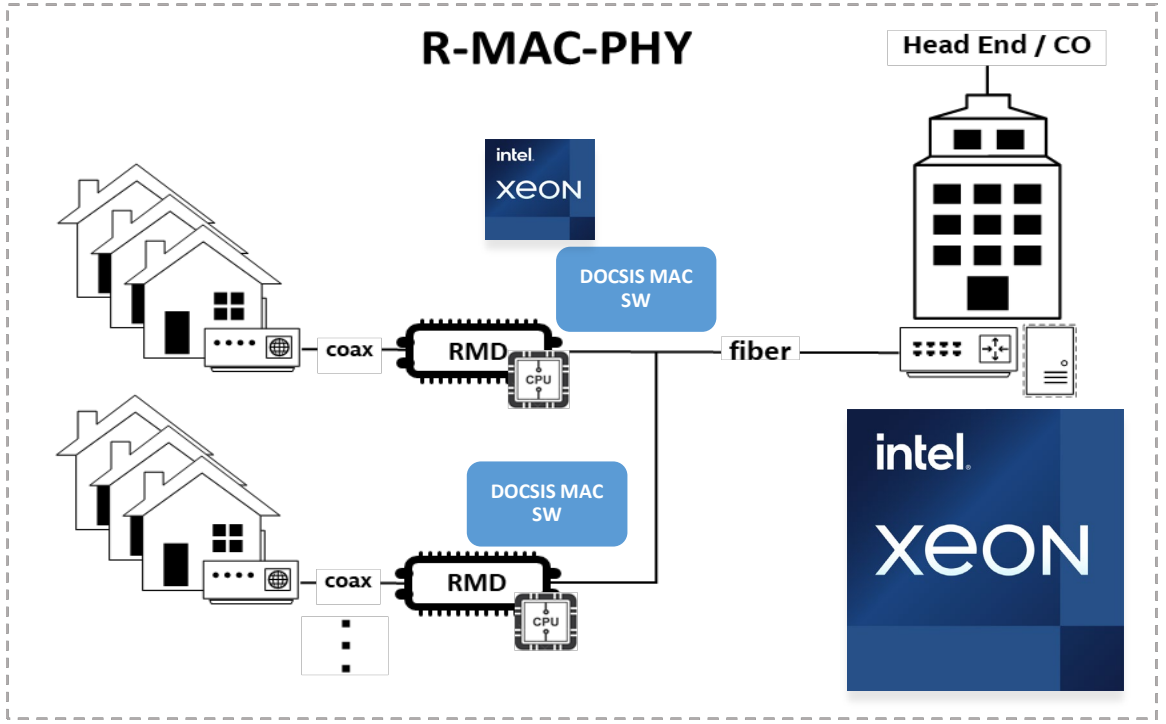
- More cores. Better cores.
- More cache
- More crypto engines
- More Memory Bandwidth
- More IO

2nd Generation CPU

3rd Generation CPU

Software Portability for Flexible MAC Architecture





Same DOCSIS MAC Software may be deployed on Intel® Xeon® Processors for all scenarios - vCMTS on Intel® Xeon® SP or RMD/RMC on Intel® Xeon® D

Audience Poll I

What's the most challenging thing you face when debugging legacy CMTSs?

- Lack of Telemetry
- Difficulty connecting into modern management system
- Proprietary Management interface
- Lack of modern tools capabilities

Griffin Ashe

Senior Architect
Service Provider & Edge Computing

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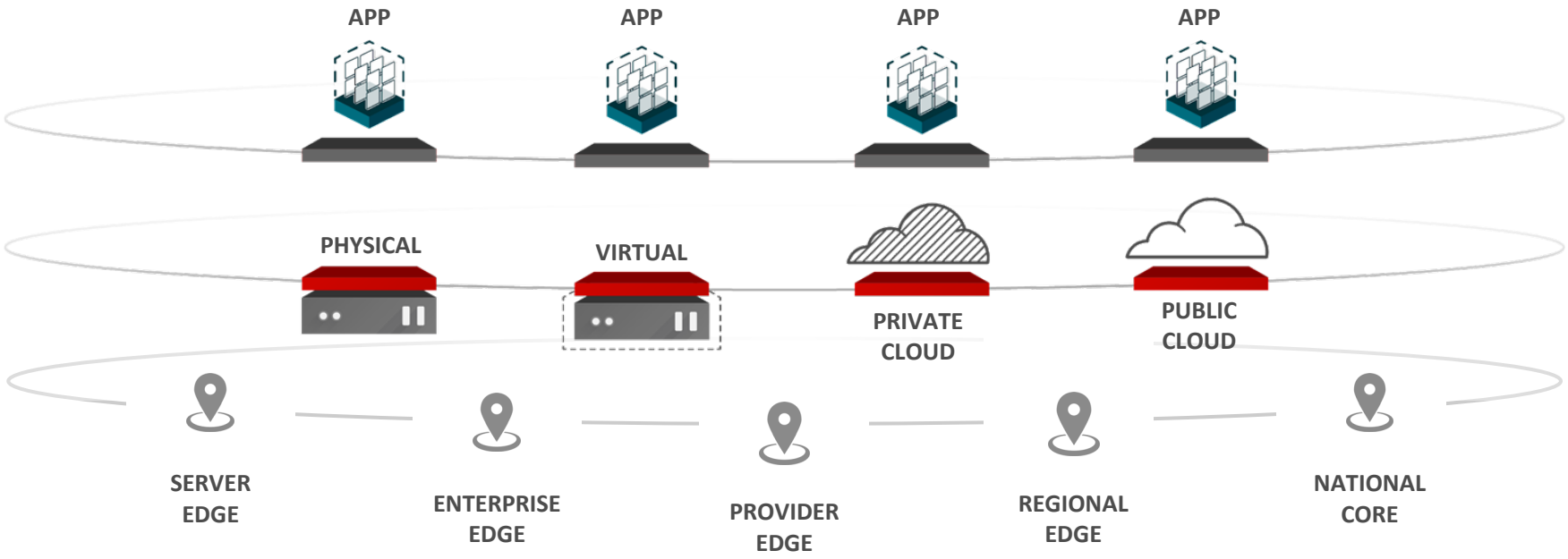
Hybrid Cloud and Edge Computing in Cable

Griffin Ashe
Lead Architect, Service Provider and Edge Computing
Red Hat

Extending the Open Hybrid Cloud Vision with Edge Computing

Any workload , any footprint , any location.



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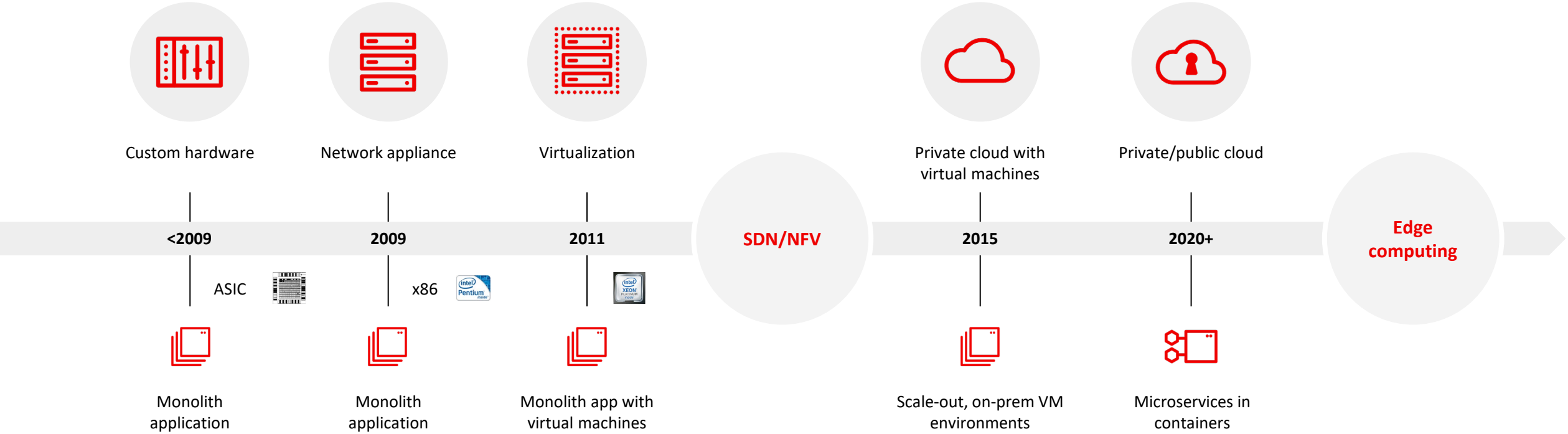
Network transformation journey



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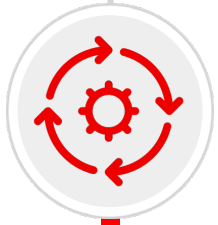
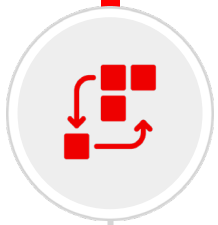
Cable and the Hybrid Cloud



LEVERAGE EXISTING INVESTMENTS: Legacy infrastructure still widely deployed. How can we best support this going forward?

SIMPLIFY OPERATIONS: Environments are becoming more distributed and workloads more diverse. Consistent operation tooling is crucial.



PARTNERSHIP ECOSYSTEM: NEPs, HW/SW suppliers will continue to be strategic partners to cable as the industry moves more cloud native.

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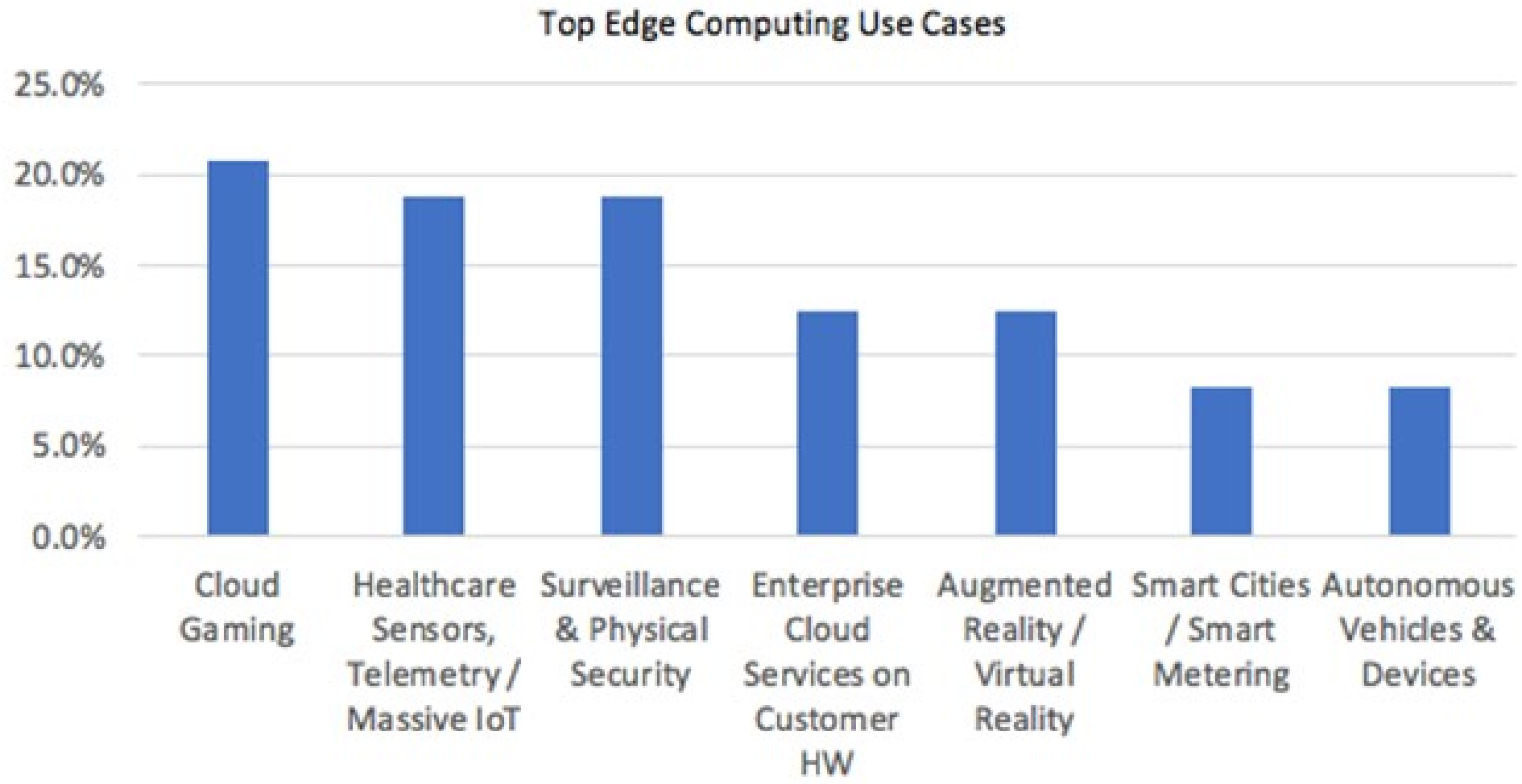
Edge Computing Use Cases in Cable



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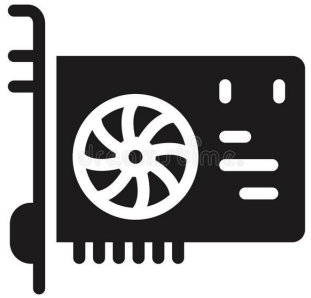
* Data from 2020 Broadband Success Partners Survey

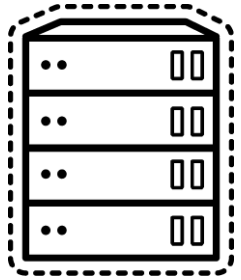
Edge Computing - Cloud Gaming

kubernetes
+
KubeVirt

VMs running alongside Containers



GPU Acceleration



Converged Edge Platform

Thank you

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Audience Poll II

What best describes the state of your company's cloud deployment?

- No immediate plans to deploy
- Exploring value to the organization and requirements
- Evaluating technologies and vendors
- Outlining infrastructure plans
- Deployment in process
- Fully deployed

Paul Rodrigues

Director, Field Education

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SCTE Training and Certifications

Courses

- Distributed Access Architectures
  - Remote-PHY, Remote MAC-PHY
- Understanding Cloud Computing (CompTIA Cloud Essentials)*
  - Concepts, characteristics and types of cloud services; adoption, cloud computing & security
- Network Specialist (CompTIA Network+)**
  - Networking principals from the LAN to the cloud
- Cyber Security Essentials
  - Topics include cybercrime, security principles, technologies, and procedures used to defend network

*Also available as a certification CLO-002

** Also available as a certification N10-007

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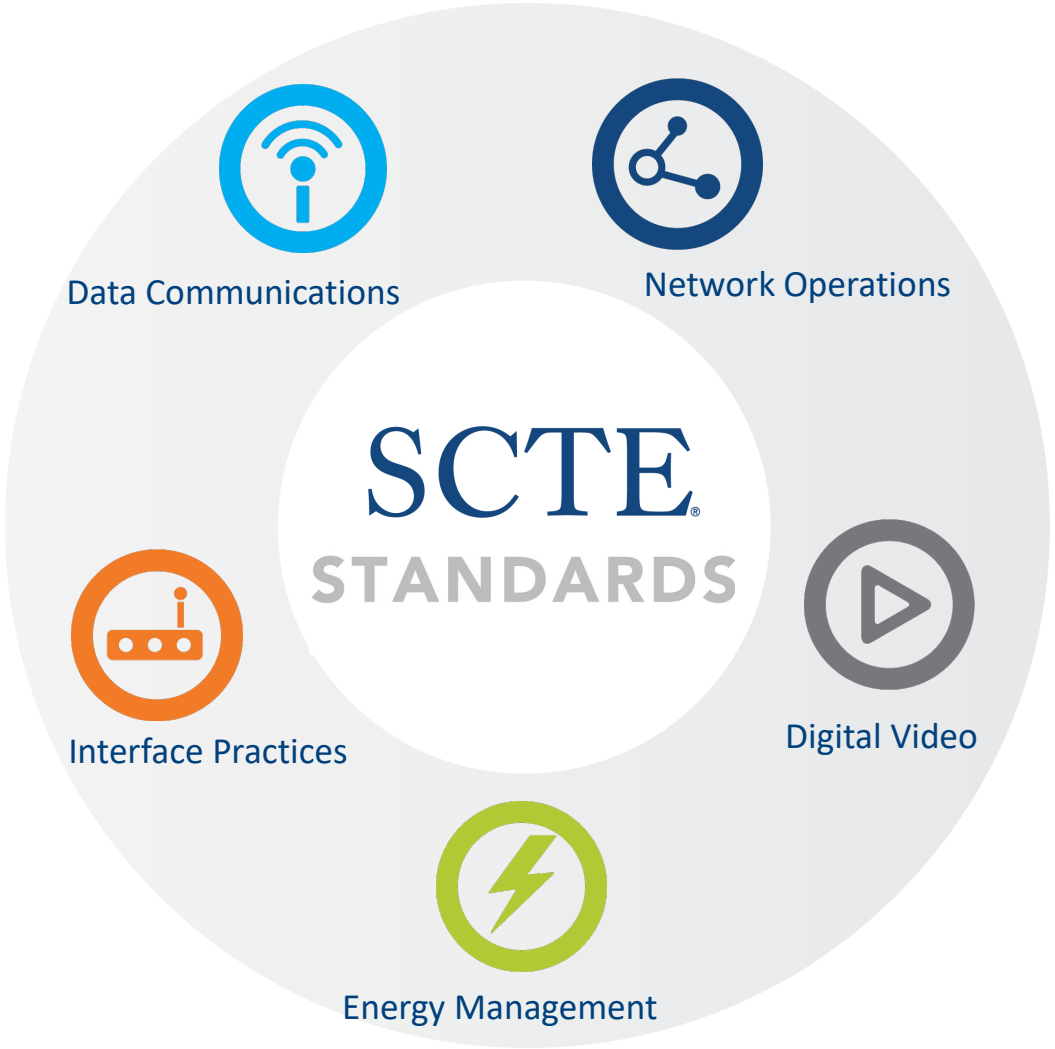
SCTE's Award Winning Standards Are Leading the Cable Telecommunications Industry



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Chairman & CEO,
Corning, Inc.

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Panel Discussion

- How does the cost of deploying virtualized CMTSs compare with the cost of deploying physical CMTSs? What kinds of savings can be achieved?
- Where does the cable industry stand with testing and deploying virtualized CMTs?
- What trends are you seeing with cloud platforms for enabling edge computing?
- Which cloud technologies are emerging to help the cable ecosystem partners?
- What lessons can cable learn about edge computing from other industries?

Audience Q & A

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Next Months Webinar

Engineering the DOCSIS 4.0 Network (FDX and ESD

9/23/2021 11:00 am New York / 8:00 am Los Angeles

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