

Accton

E **d** **g** **e** **-** **c** **o** **r** **E**
NETWORKS



Open – Disaggregated Networking

OCP Japan Meet Up

George Tchapanian, CEO Edgecore Networks

June 27, 2019

Tokyo

- Briefly: What is Open – Disaggregated Networking?
 - Open Networking Value Proposition
- Why OCP and “More of” Open Networking?
- Edgecore Networks – Who are we?
 - Edgecore Open Networking Value Proposition
 - Few New (sample) Products Introduction
- Q&A

Switch, Component Ecosystem and OCP

Mgmt
Software

Network OS

Drivers

Box /
Mechanical

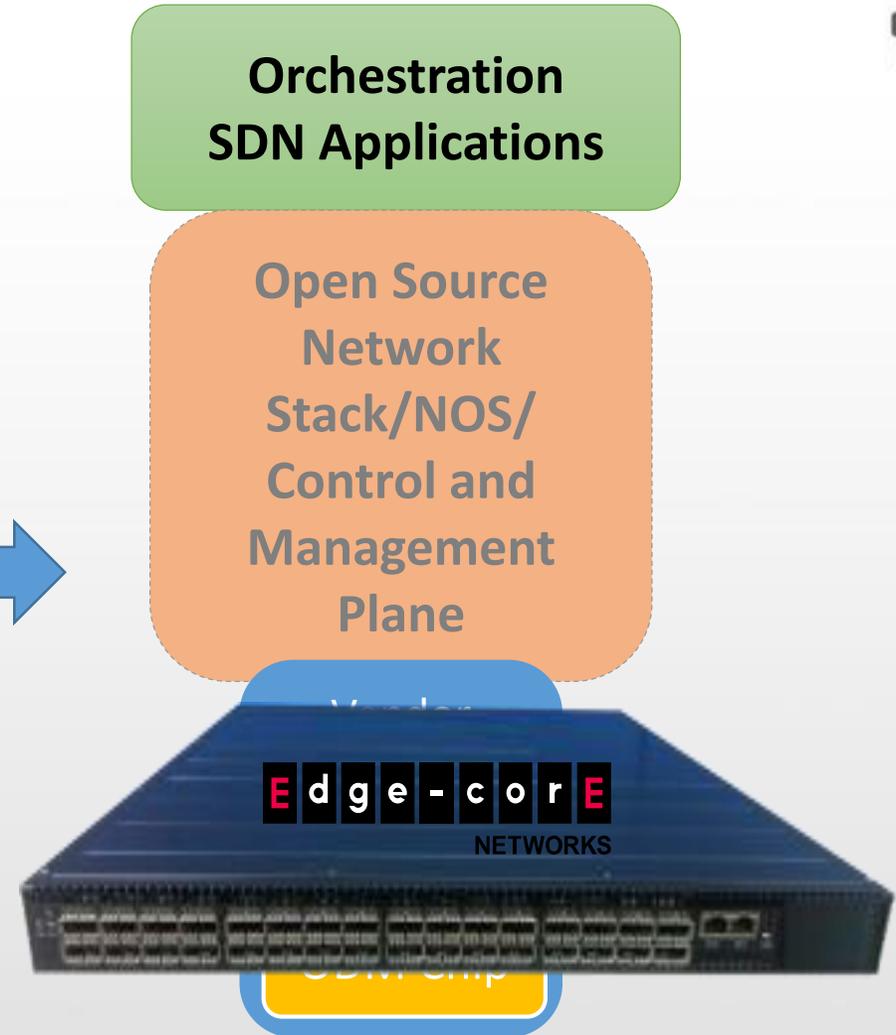
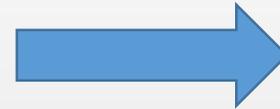
Silicon



Legacy Networking (Past)



Traditional Networking (Today)



Bare Metal – White Box (Market ShiftTomorrow)

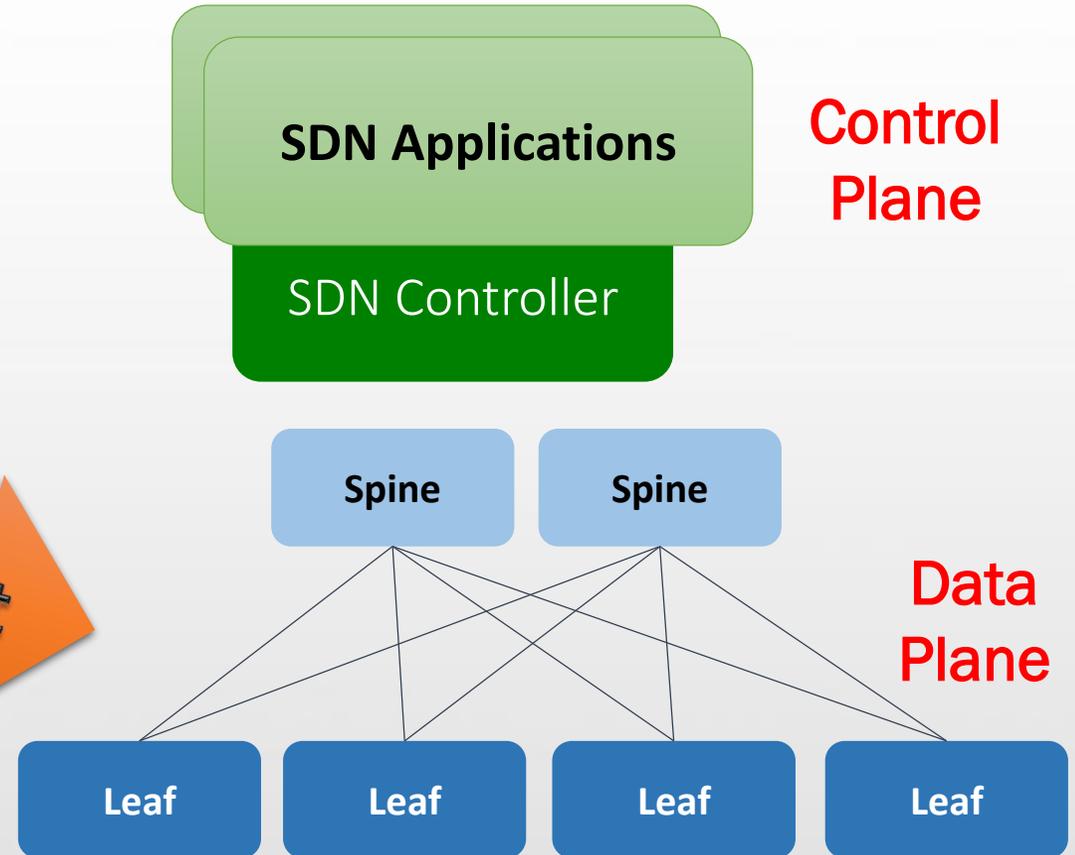
Cost Reduction ...and more!

Proprietary Chassis



- Proprietary Stack (ASIC, HW, SW)
- Expensive
- Complex /Slow
- Scale UP
- Vendor Lock In

30%-50% Lower Cost



Folded Clos

Open Virtual Chassis

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- **AI & Edge Computing in 5G Era**
- The adoption of **5G**, **AI**, and **Edge Computing** will drive new expectations for:
 - always-on,
 - low to no latency,
 - high quality network and,
 - services,
- Which will lead to operational efficiency (OPEX reduction) and boost ultra-low latency and intelligent applications.
- To honor the promise with the right CAPEX, it is vital to have the proper compute infrastructure in place, aligned to the right strategy, like, **Openness**, **Whitebox**, **Disaggregation**, **Automation**, etc.



What upgrades are needed for 5G ?

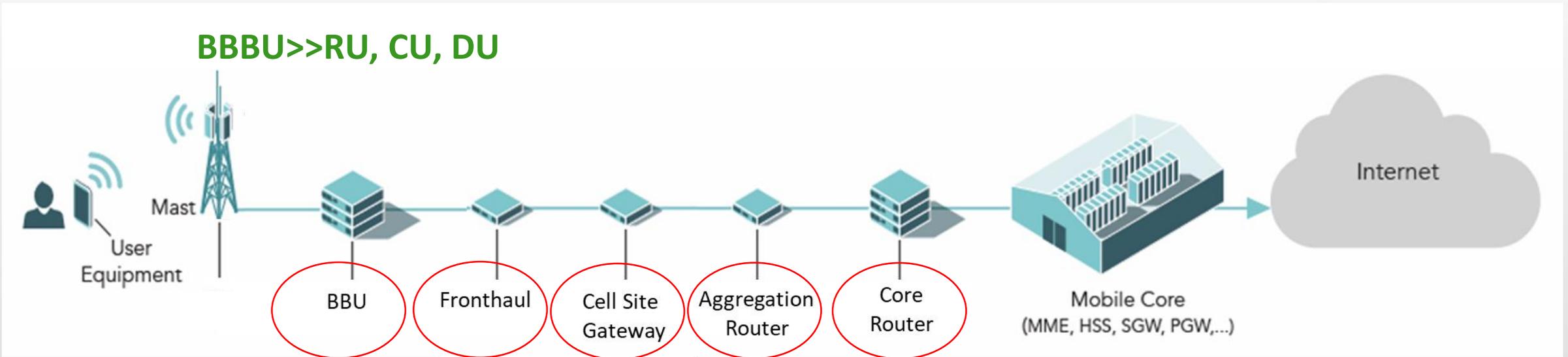
Core >> 400G... +

Aggregation >> 100/400G

Cell Site Gateway >> 10/25G/100G

Fronthaul >> RoE

BBU >> RU, CU, DU



How will these product upgrades be delivered ?

- Openness
- Disaggregation
- Whitebox
- OCP Work Groups / Community DevOps

Open Community



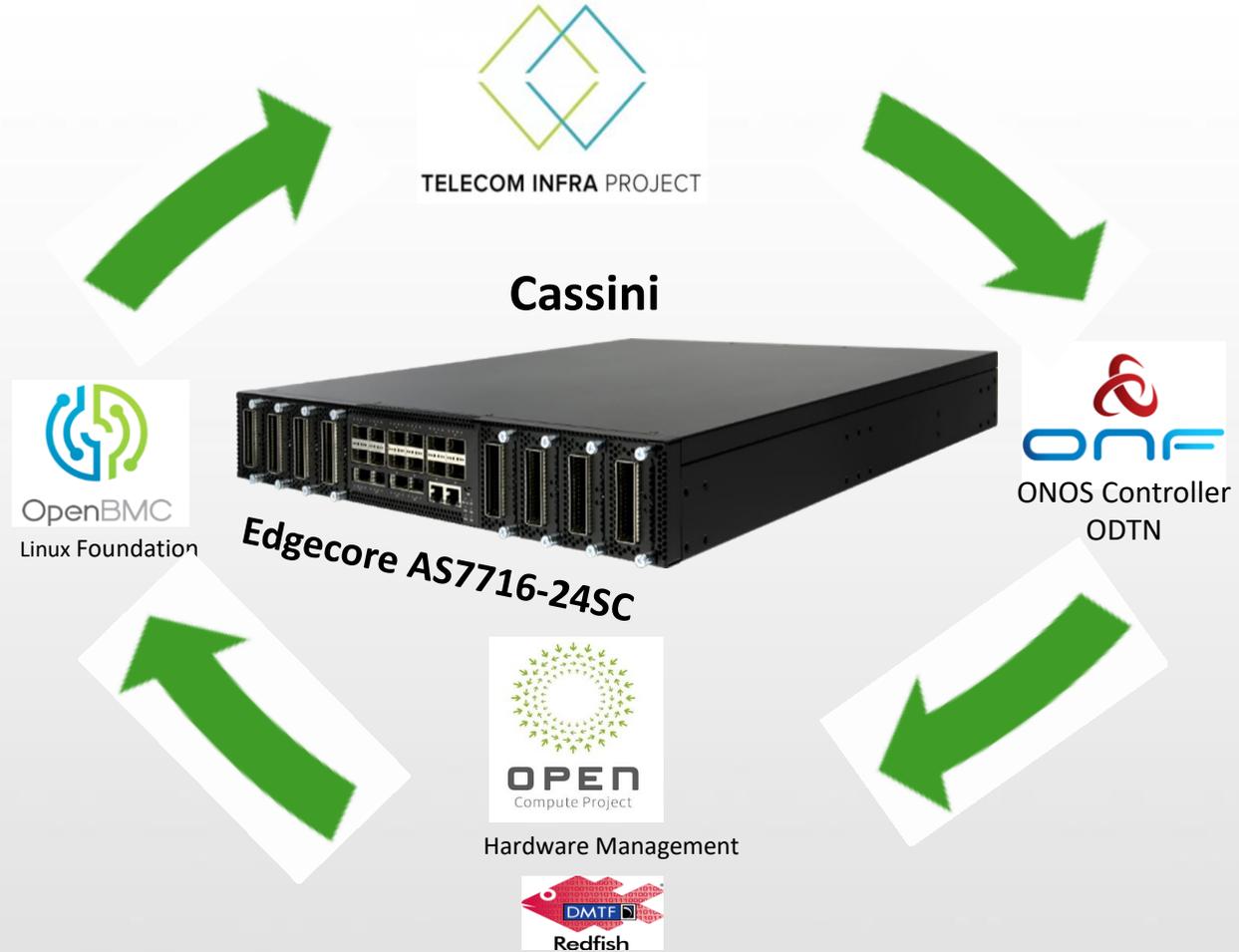
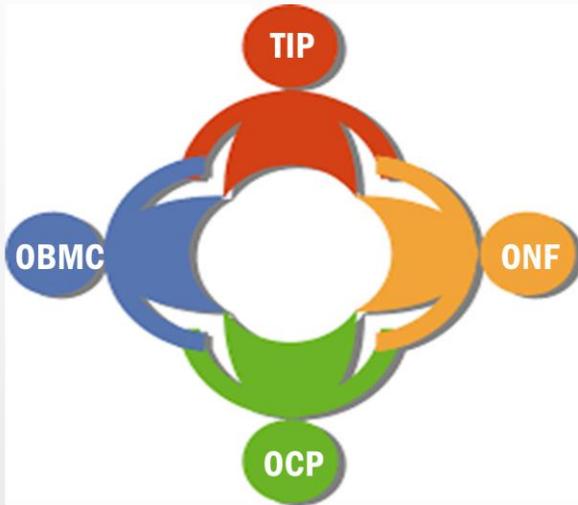
Active Community Members



OCP Community Work At Work !



Open Communities and Cross Pollination



Cross Pollination = “A sharing or interchange of knowledge, ideas, etc., as for mutual enrichment;

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Accton and Edgecore

- **#1 Network ODM**
- Founded 1988, IPO Taiwan 1995
- ~ 700 network engineers
- Manufacturing: Taiwan (TAA Compliant) and China



- **Edgecore Accton's brand business**



- Wholly owned subsidiary of Accton Group
- Go-to-market business to network operators - DC, Telecom, and Enterprise
- Manages SW Dev. R&D, customer, partner and open community relationships
- Leading contributor of network designs to OCP
- TIP and LF Active participant – contributor
- ONF – Charter Partner and leading ONF Strategic Initiative – Building Reference Designs (HW and SW).



TELECOM INFRA
PROJECT



Edgecore Open Networking

- Open Hardware Leadership
- Open Software Value / Enablement Leadership (Ecosystem Partnership)
- Integration (Ecosystem Partnership)

Most Network Design Contributions to Open Source

Industry Firsts: 10G to 400G DC switches, New Telco /MSO Use Cases

OCP-Accepted™ Designs & Products

- 1G Rack Mgmt Switch *Helix4*
- 10G TOR Switch *Trident II*
- 40G Spine Switch *Trident II*
- 100G TOR & Spine Switch *Tomahawk*
- 100G TOR & Spine Switches *Trident3*
- 64 x 100G Spine Switch *Tomahawk II*
- 32 x 400G *Tomahawk III*
- 10G/100G Edge Switch *Qumran*
- Open Rack Switch Adapter

Design Contributions in OCP Review

- 100G OMP800 Chassis *Tomahawk*
- 100G OMP1600 Chassis *Tomahawk*
- 25G TOR Switch *Tomahawk*
- MiniPack AS8000 *Tomahawk III*

Partner Designs, Edgecore OCP-Inspired™ Product

- Wedge40-16X *Facebook*
- Wedge100-32X *Facebook*
- Wedge100BF-32X *Barefoot*
- Wedge100BF-65X *Barefoot*

OCP Telco Working Group

- ASXvOLT16 10G OLT *BCM Qumran & Maple*
- AS7316-26XB Cell Site Gateway *QumranAX*
- AS7926-40XK and -80XK Aggregation Routers *Jericho2 in OCP Review*

OCP-Accepted™ Access Products

- 1G PoE Switch *Helix4*
- 802.11ac Wave1 Wi-Fi APs *BCM*
- 802.11ac Wave2 Wi-Fi APs *QCA*



Accepted Design Contribution

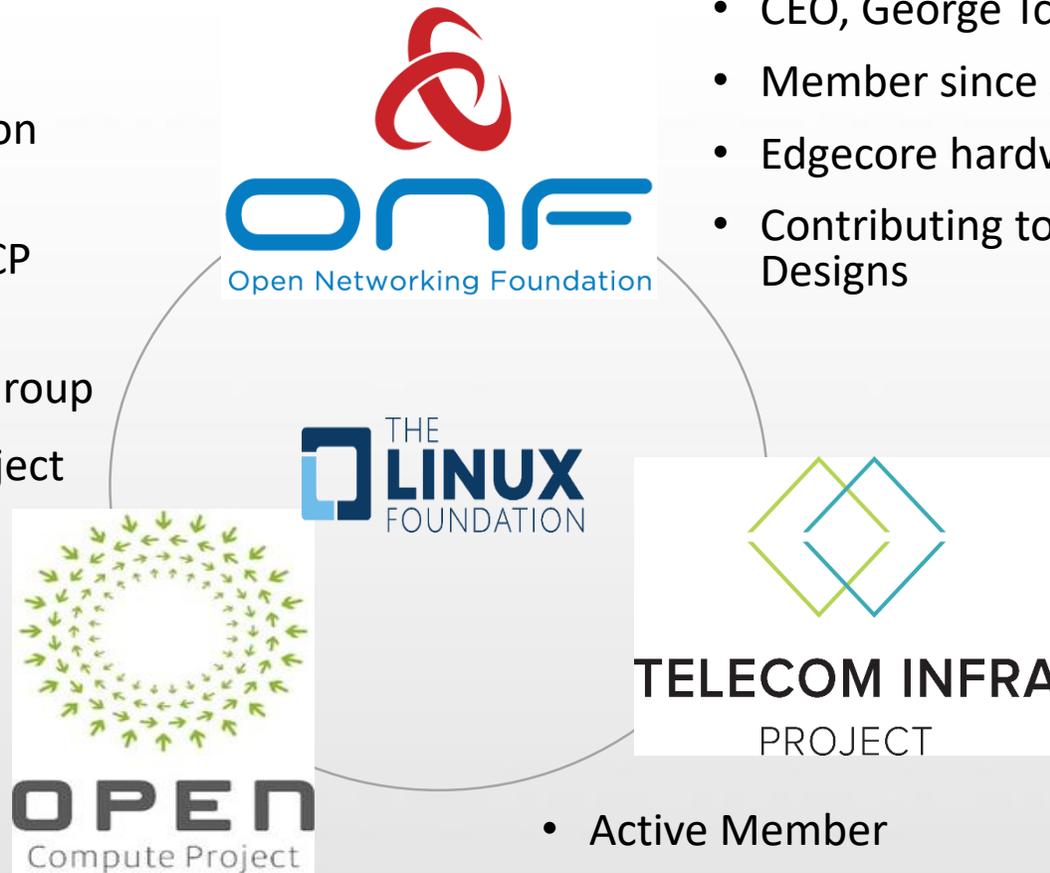
Cassini Packet Transponder

Designs in Process

DCSG Cell Site Gateway

Leadership in Open Networking Community

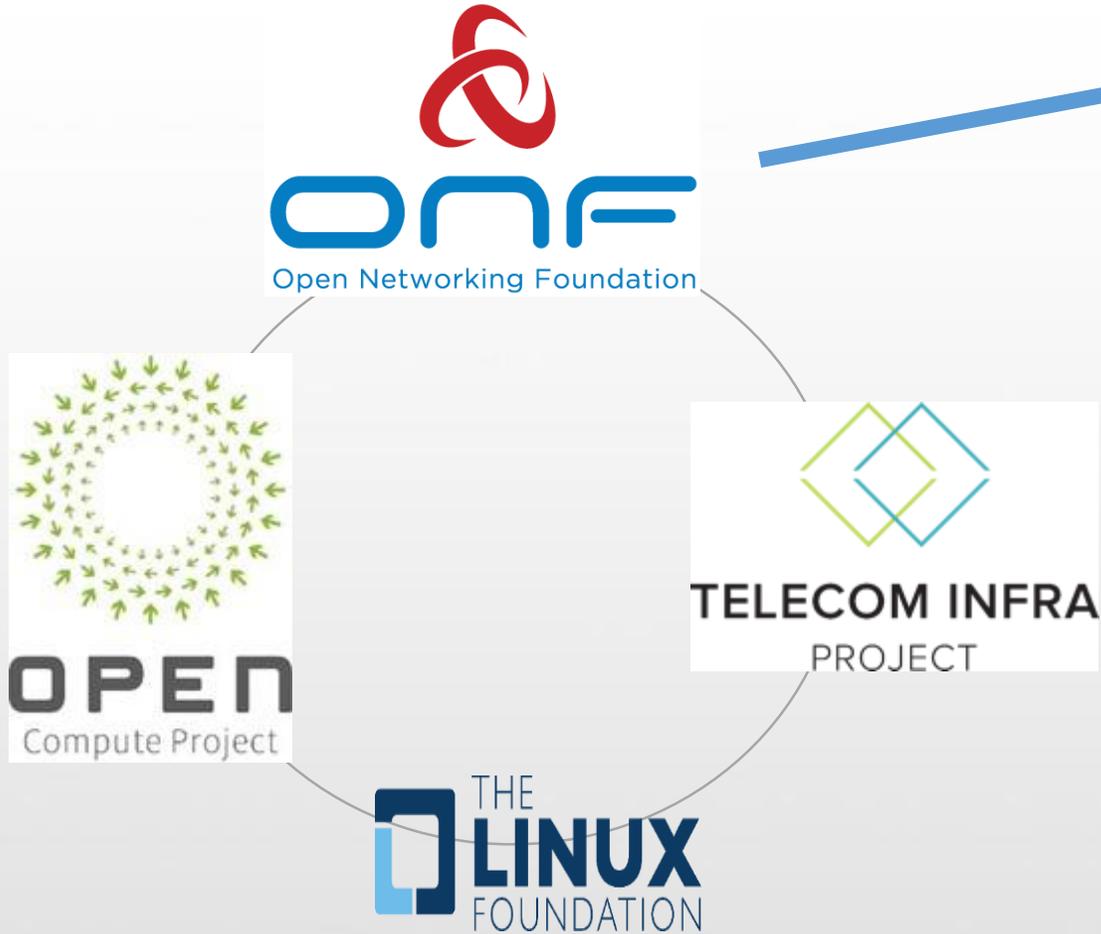
- VP Technology, Jeff Catlin on Incubation Committee
- CEO, George Tchapanian co-chair of OCP Taiwan
- 1st & leading contributor to Network Group
- Designs for new use cases in Telco Project
- Support all OCP Software/Firmware



- CEO, George Tchapanian on ONF Board
- Member since 2014, Partner since 2018
- Edgecore hardware basis for CORD
- Contributing to all four (4) ONF Reference Designs

- Active Member
- Contributed Cassini packet transponder
- Integrating optical technology from leading partners
- 1st contributor to DCSG (TIP) cell site gateway project

Open Networking Community



ONF Operator Partners



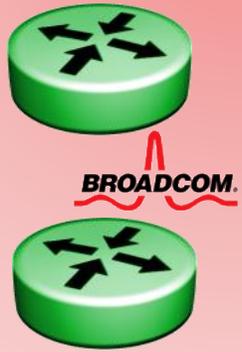


Open Networking Roadmap

Technology Focus- Places in the Network

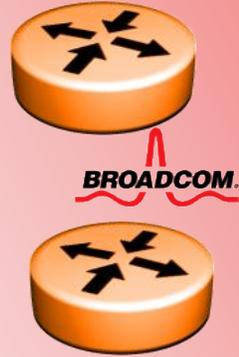


5G Switch



Fronthaul

Cell Gateway



Backhaul

High Scale Deep Buffer Switch



Aggregation/Core

Leaf/Spine & Edge

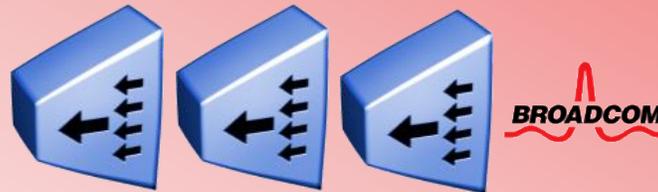


DC and Enterprise



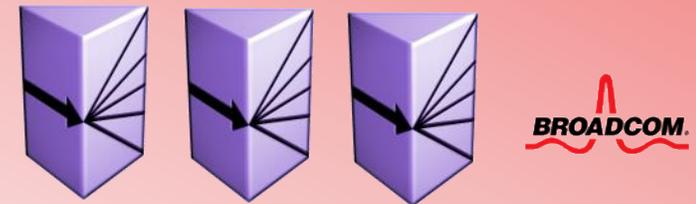
Nephos

PON OLTs



Wireline Access

Optical Packet Transponder



Data Center Interconnect

MINIPACK AS8000

Industry's First 400G Open Network Switch
Optimized for Spine Applications

Features

8 Slot Small Form-Factor
16x 100G QSFP28 / 8x200G QSFP-56 or 4x 400G QSFP-DD
Broadcom XGS Tomahawk III BCM56890 12.8Tb
64MB Packet Buffer
Xeon D-1527 processor 4-Core 2.2 GHz
32GB DRAM, 256MB Flash, 32GB SSD
AC and DC Power Options
4RU
Cumulus, SONiC

*Design Contributed and
In OCP Review*

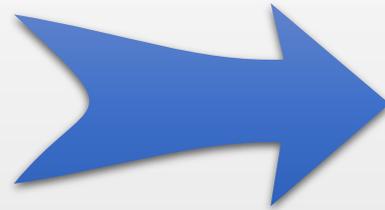


Planning Phase:
100G Available Q3 2019
400G Available Q4 2019

Edgecore Open Networking for Telecom

Data Center – CSP / Enterprises:

Leaf and Spine Fabrics
1GE to 400GE
DCI – Packet Transponder



Telecom/MSO:

Deep Buffer Large TCAM – Edge Switches

Open OLTs, XGS-PON and GPON

Cell Site Gateways – OCP and TIP

Fronthaul / Backhaul Switches

Aggregation / Core Routers



www.edge-core.com

THANK YOU