The Growth & Transformation of Networks across Asia

Singapore – May 21st, 2020

OPEN Compute Project

Stuart Crowley
Editor, W.Media

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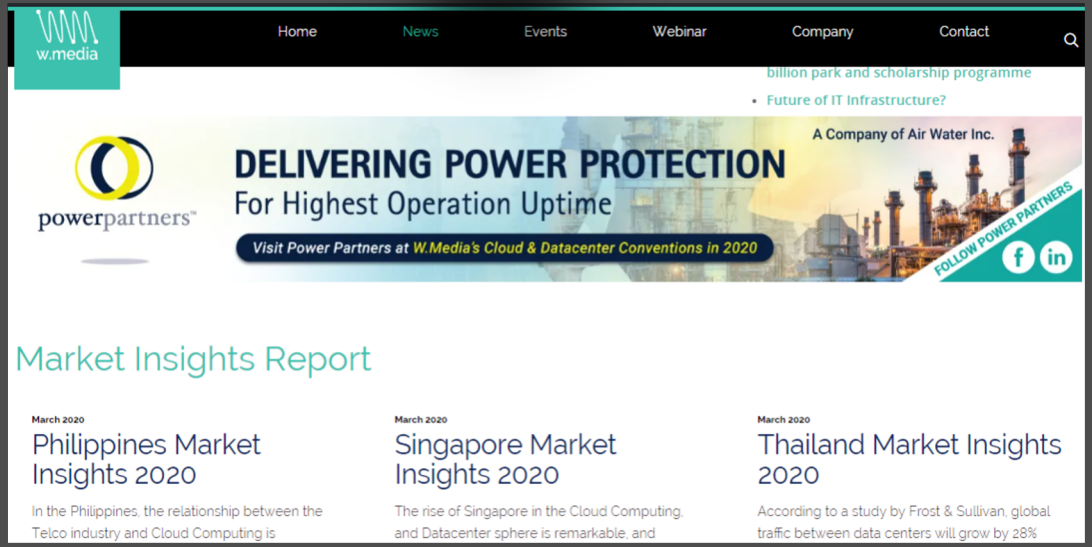

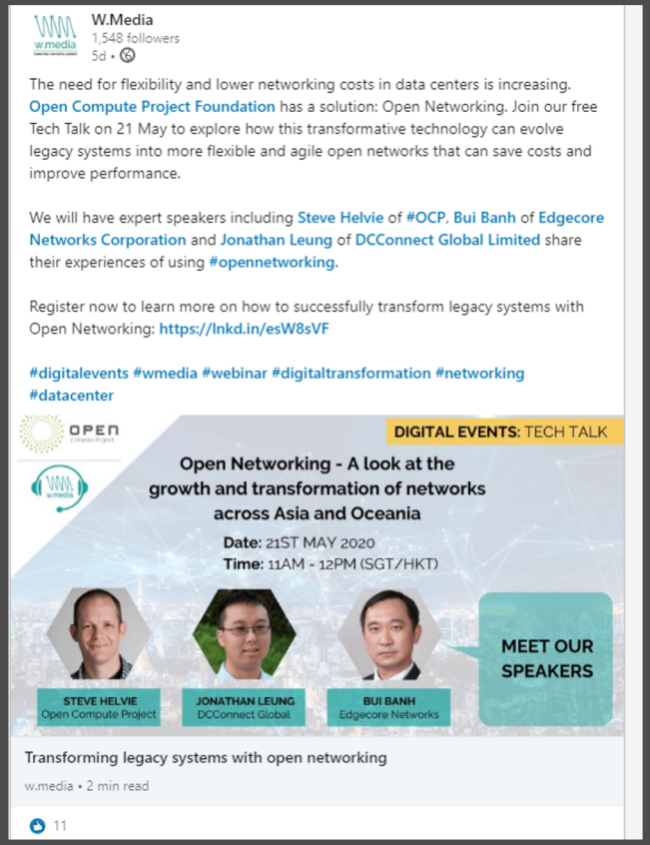

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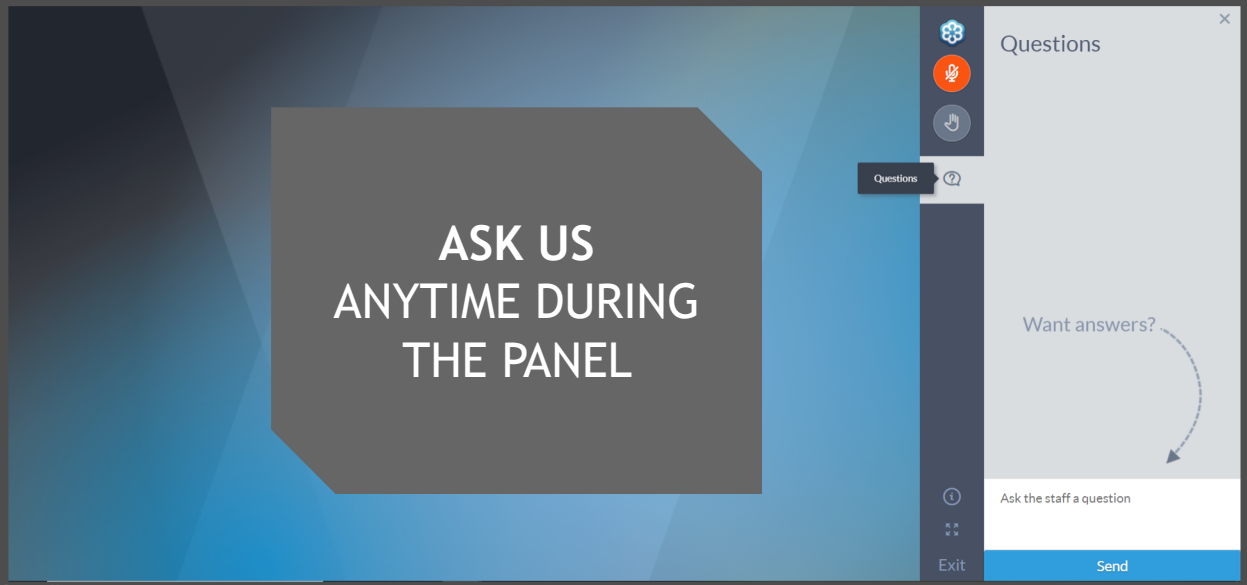

Speakers

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DCconnect Technology

OPEN Compute Project

Today's Agenda

Time	Topic
11.00am	Welcome Address
11.05am	Brief overview of the Open Compute Project (OCP) and introduction to Open Networking
11.10am	Open Networking in telco and data centers 1. Key drivers and benefits 2. Transformation challenges and leveraging on vendors' expertise 3. Open networking technologies
11.20am	Story from Asia: Transformation from traditional legacy system to an agile open network – DCConnect
11.40am	Q&A

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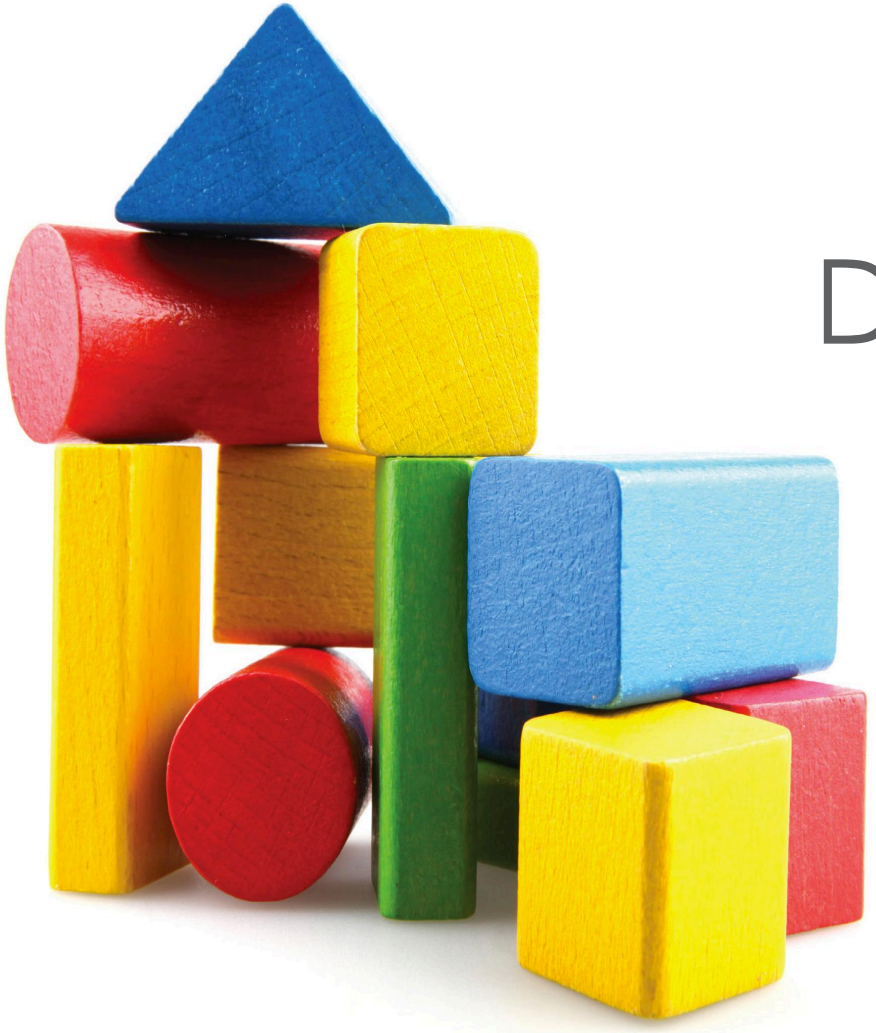


Disaggregate Networking

OPEN Compute Project

FierceTelecom

AI TELECOM TECH PLATFORMS

Telecom

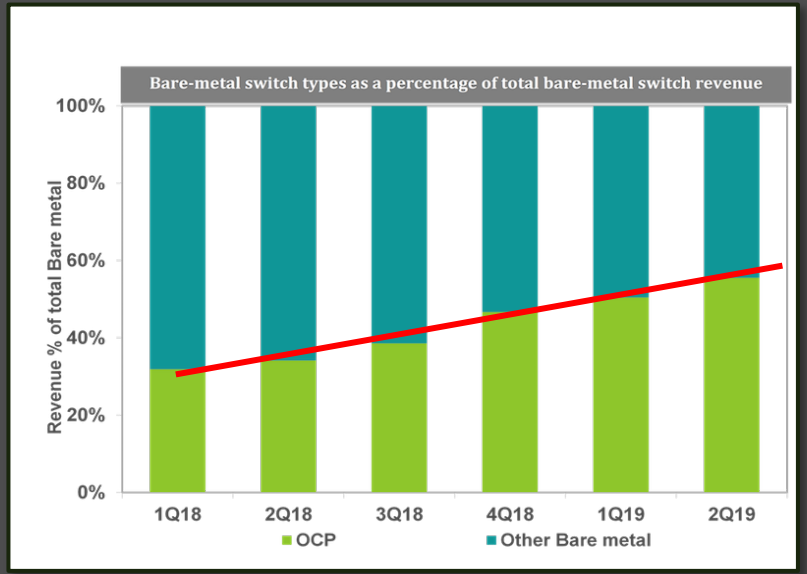
Open Compute Project switches rule the data center bare metal roost - report

by Mike Robuck | Oct 24, 2019 11:33am

1. Data Center CAPEX reduction initiatives
2. Increase in SDN offerings
3. Rise in merchant-based silicon

"OCP-certified switches have moved past the trial and wait-and-see phases"

Devan Adams, principal analyst at *Omdia Inc*



https://www.fiercetelecom.com/telecom/open-compute-project-switches-rule-bare-metal-roost-report

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OPEN Compute Project


Goldman Sachs
intel
rackspace
Open Compute Project
A collaborative community focused on redesigning hardware technology to efficiently support the growing demands on compute infrastructure.

150+ companies
190+ contributions
6K engineers

150+ OCP Accepted™ & OCP Inspired™ Products

OCP Ready™ Facilities

OCP ACCEPTED™ OCP INSPIRED™ OCP READY™

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OPEN Compute Project

Our Projects

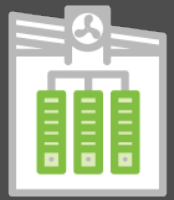
Networking

Server

Storage

Rack & Power

Advanced Cooling



Data Center

Telco

HW Mgmt

Open System Firmware

HPC

Security

Modular DC

openEDGE

https://www.opencompute.org/projects

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Open Networking in Telco and Data Centers

Bui Banh
Vice President - Edgecore Networks

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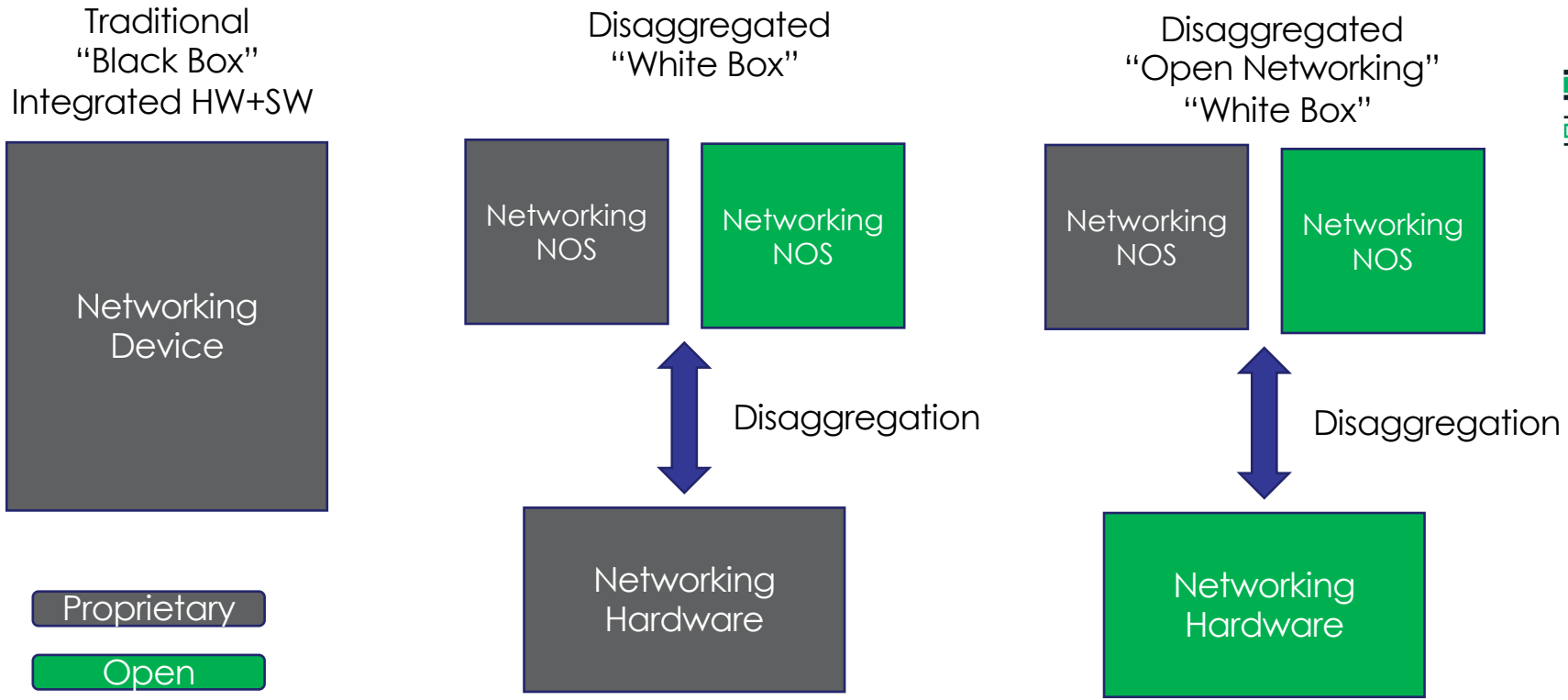

What is Open Networking?

OPEN
Compute Project

Freedom Control Innovation

- Open Networking
- Open Software
- Open Hardware

} Disaggregation & Open

Benefits:

- Disaggregation provides **FREEDOM** of choice and removes vendor lock-in
- Greater **CONTROL** over Network Infrastructure through open software platforms
- Rapid **INNOVATION** through a community & develops approach
- Reduced **CAPEX** and **OPEX**

Attributes:

- **Open Hardware:** Standard Configurations, White-Box, Bare-Metal, Brite-Box Open Designs
- **Open Software:** Open Source and Commercial Software with Open Interfaces and Agents
- **Software Controlled Infrastructure:** SDN, NFV, Automation, Analytics, and Orchestration

Why Open Networking?

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Accton Technology

- The Leading Network ODM - Servicing Tier-1 Customers
- Founded 1988, IPO Taiwan 1995 (TWSE: 2345)
- $1.8B USD Revenue 2019, 5,145 Employees Worldwide
- 9 R&D Locations with more than 1,000 Engineers
- State-Of-The-Art High-Volume Manufacturing in Taiwan and China

Accton
Making Partnership Work

Edgecore Networks

- Brand launched in 2004, wholly owned subsidiary of Accton
- Go-to-market business to network operators - DC, Telecom, and Enterprise
- Manages customer, partner and open community relationships
- Leading contributor of network designs to OCP, TIP participant, ONF – Charter Partner
- **More than 10M Ethernet Ports shipped in 2019!**

Edge-corE NETWORKS

OPEN PLATINUM

OPEN Compute Project SOLUTION PROVIDER

ONF Open Networking Foundation

TELECOM INFRA PROJECT

Accton Technology and Edgecore Networks

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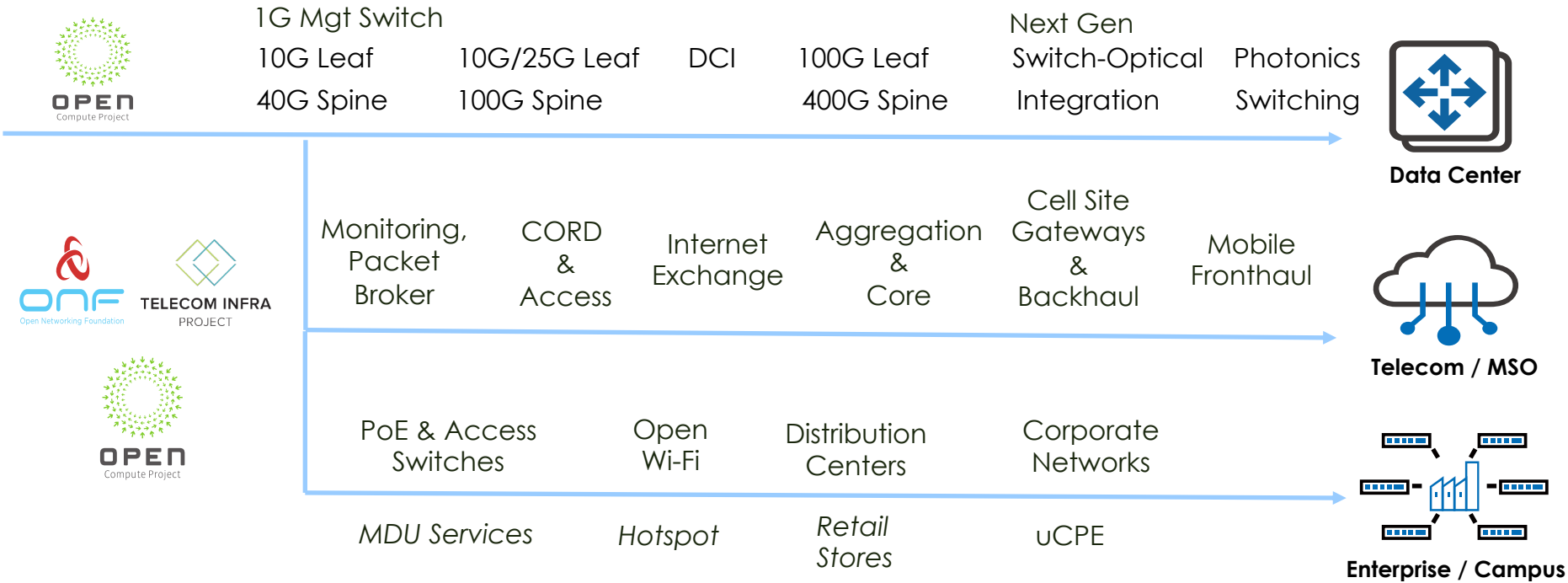

Most Design Contributions to Open Source

Industry 1st: 10G to 400G DC switches, New Telco /MSO Use Cases

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COMMERCIAL SOFTWARE

Data Center

- BIG SWITCH NETWORKS
- CUMULUS NETWORKS
- IP INFUSION
- PLURIBUS NETWORKS
- BROADCOM ICOS

CSP

- RTBRICK
- DRIVENETS
- IP INFUSION
- ARRCUS
- RADISYS
- VOLTA NETWORKS

Enterprise

- PICA8
- PLURIBUS NETWORKS
- CUMULUS NETWORKS

Disaggregated

- APSTRA
- NETRIS (FORMALLY XCLOUD)

OPEN SOURCE SOFTWARE

- SONiC from Microsoft
- Open Networking Linux (ONL) from OCP
- OpenSwitch from the Linux Foundation
- Stratum from ONF
- ONOS from ONF
- Broadcom's ICOS
- DANOS from the Linux Foundation

Strong Software Ecosystem

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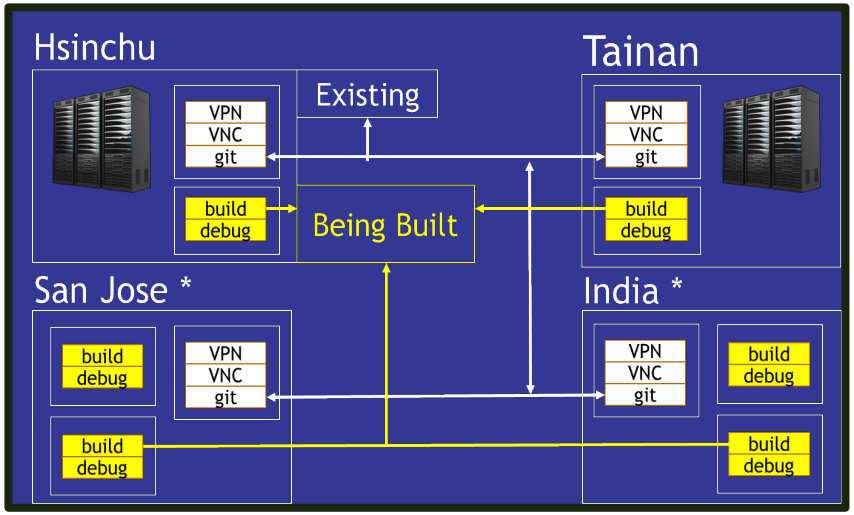
Edgecore Global
LAB (LAAS)



Mobile Labs available across APAC & Europe

Leaf & Spine

Central Office – 10G PON

Where can you try Open Networking?

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Transformation to Open Networking

Jonathan Leung
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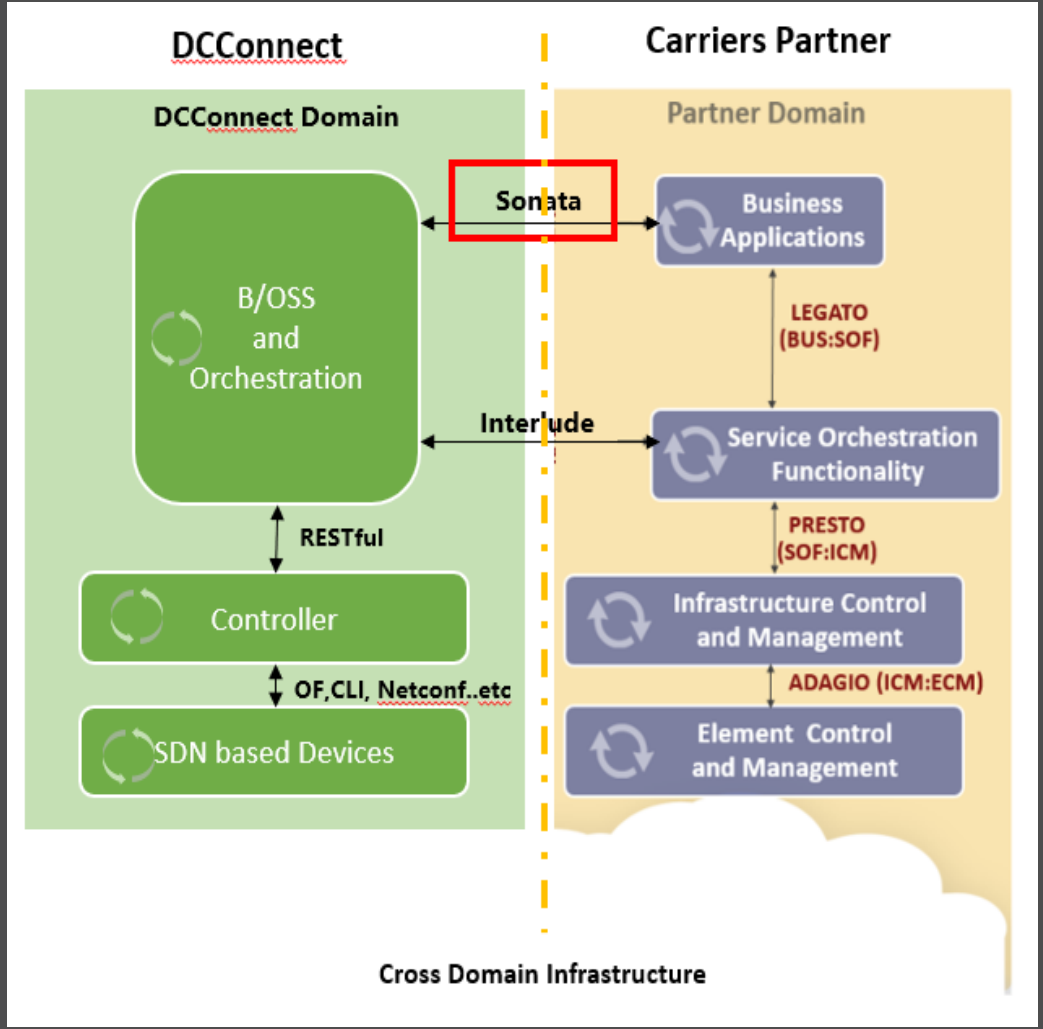
Hong Kong based carrier who has built orchestration software to help other Telcos convert their legacy business to Overlay based SDN network.

Deliver fully automated carrier ethernet service through self-service portal

Connectivity to 120+ data centres in Asia and USA, including 100% of the 30+ major data centres in HK

API integrations with other carriers and cloud providers like Azure, AWS, Alibaba



Original State

120+ pops using H3C switches running Comware 7 OS

This met our immediate need to hyperscale our network by programmatically creating and managing VXLAN tunnels

Proprietary hardware and NOS is integrated into the switch

Problems with Original State

Vendor lock-in to H3C proprietary controller; similar problem as if we had deployed Cisco NX-OS or IOS

Limited feature set and limited API's

Inability to develop new features and limited support

Current State

Move to Cumulus Linux and Edgecore switches

Choose from different hardware vendors (Edgecore and others) while maintaining the same software interface

Great advantage in allowing developers to use Linux!

Control the switches using Ansible, Puppet, Chef, without need for proprietary controller software

Problems with Current State

The middleware between the hardware ASIC and the NOS is still proprietary

Existing H3C devices means the controller/automation system has to be able to control both H3C and Cumulus simultaneously

What's next for DCConnect?

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OPEN Compute Project®

About Marketplace Contributions Projects Events SP/Reseller

- Integrated Solutions
- Products & Facilities
- Circular Economy

Open. For Business.

The Open Compute Project (OCP) is reimagining hardware, making it more efficient, flexible, and scalable. Join our global community of technology leaders working together to break open the black box of proprietary IT infrastructure to achieve greater choice, customization, and cost savings.

https://www.opencompute.org/solutions

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OPEN Compute Project

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OCP
VIRTUAL
SUMMIT

OCP Virtual Global Summit

https://www.opencompute.org/summit/virtual-summit

https://onlinexperiences.com/Launch/Event.htm?ShowKey=86206&DisplayItem=E372669

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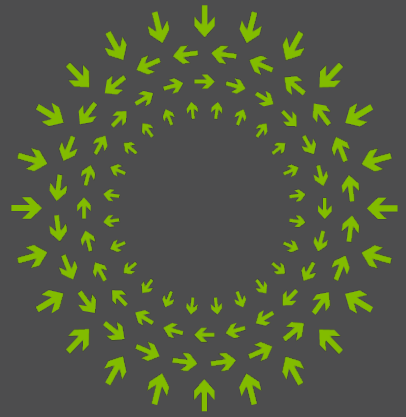

OCP Marketplace

https://www.opencompute.org/products

Past Events (recordings and slides)

https://www.opencompute.org/events/past-summits

https://www.opencompute.org/events/past-events

Social

https://www.youtube.com/user/OpenComputeProject

https://www.linkedin.com/groups/4152886/

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June – July 2020

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Questions?

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Thank You