



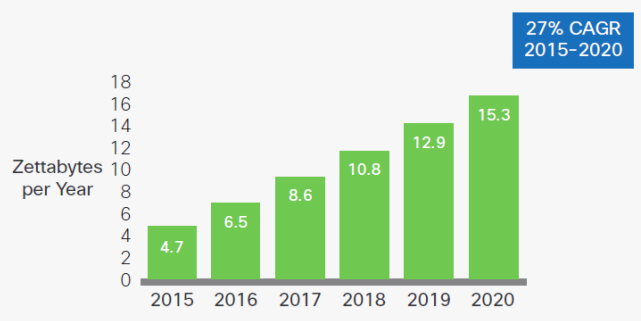
How Data Center Traffic is Changing Your Network

Lim Kok Chen

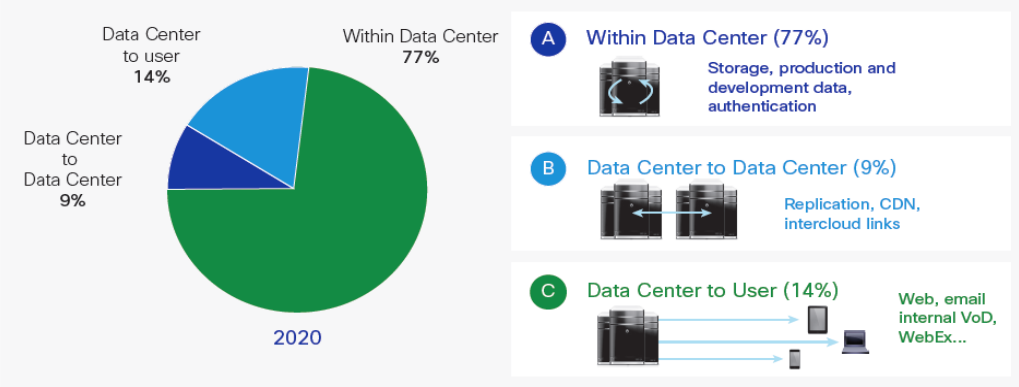
Market – Traffic Growth



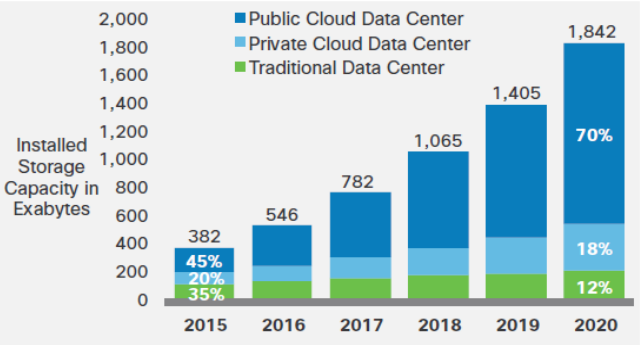
Global Data Center IP Traffic Growth¹



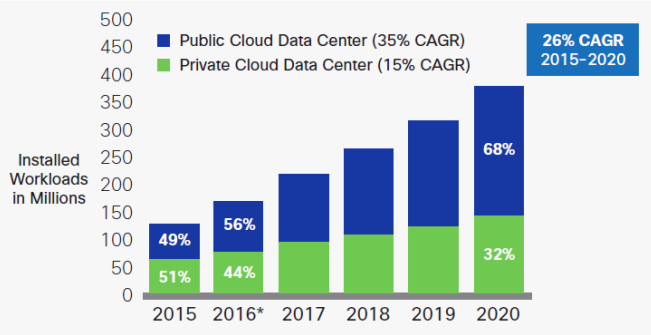
Global Data Center IP Traffic by Destination¹



Global Data Center Storage Capacity¹



Public vs Private Cloud Growth¹



¹<https://www.cisco.com/c/dam/en/us/solutions/collateral/service-provider/global-cloud-index-gci/white-paper-c11-738085.pdf>

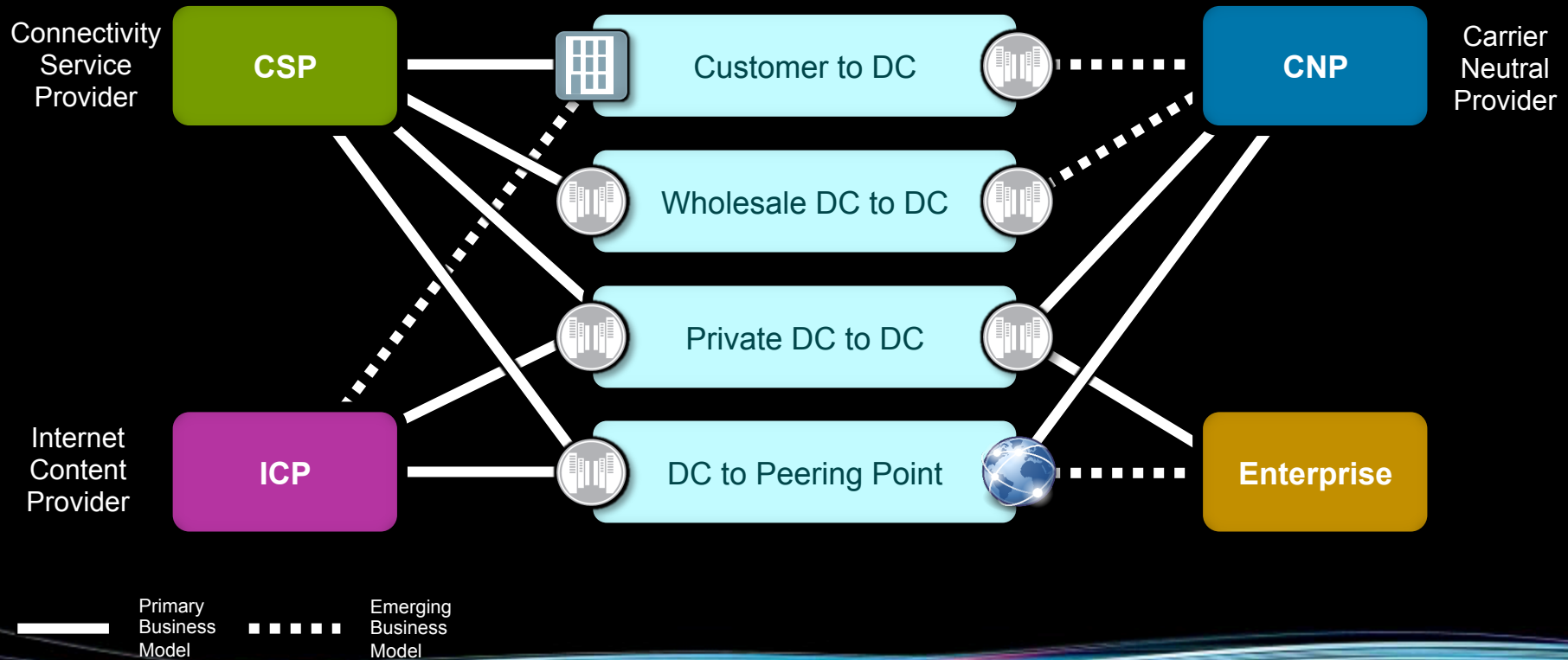
My Day

Coriant

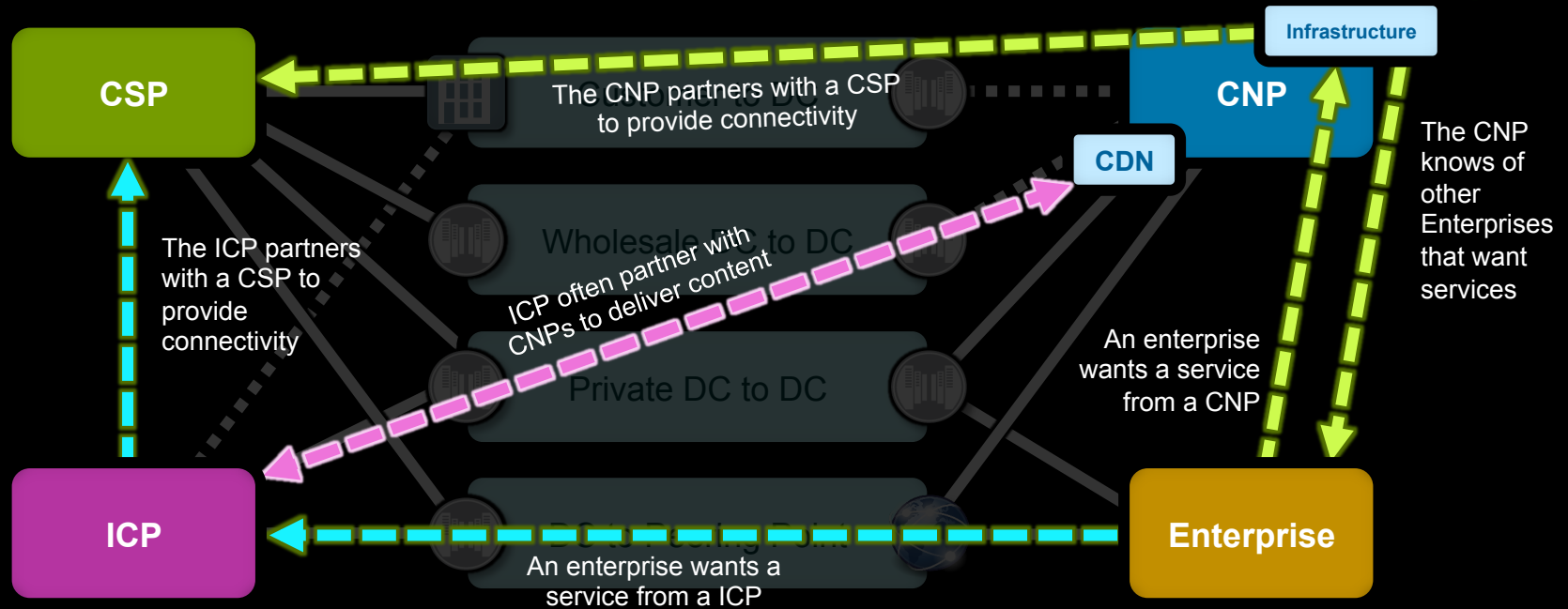
A central circular portrait of a man with glasses is surrounded by several logos. Clockwise from the top, the logos are: WeChat (green square with white speech bubbles), WhatsApp (green speech bubble with white telephone handset), Apple (grey silhouette), Samsung (blue oval with white text), TIME (pink square with white text), TMI (blue stylized letters with an orange swoosh), celcom (blue text with a colorful geometric icon), Microsoft (four colored squares: red, green, blue, yellow), Google (multi-colored text), Facebook (blue square with white 'f'), LinkedIn (blue square with white 'in'), and an orange stylized logo.

Capitalizing on the DCI Market

Who are the customers and how do we win?

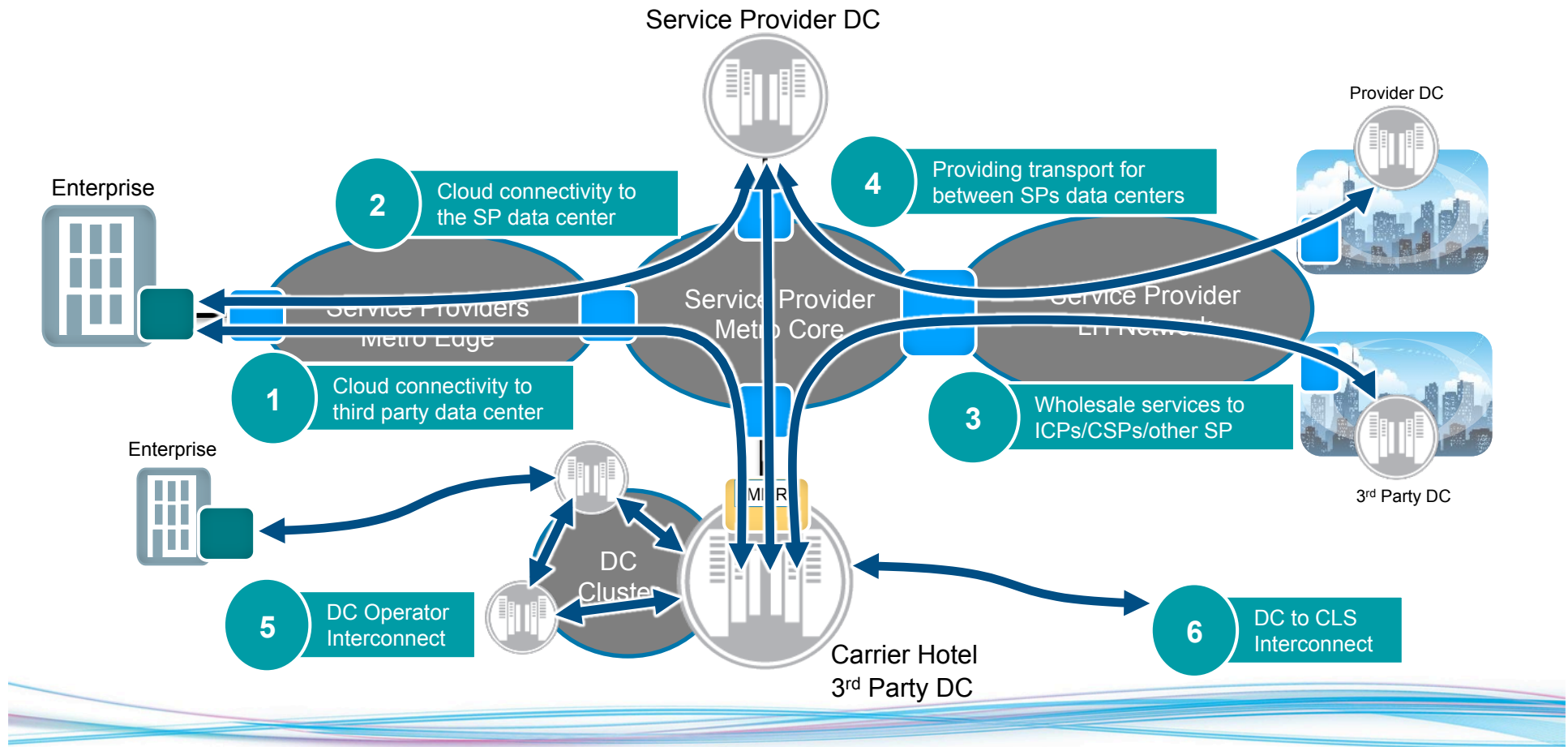


Data Center Ecosystem



Strong Ecosystem Relationship Between Certain Segments
- One opportunity can often lead to another -

Data Center Connectivity

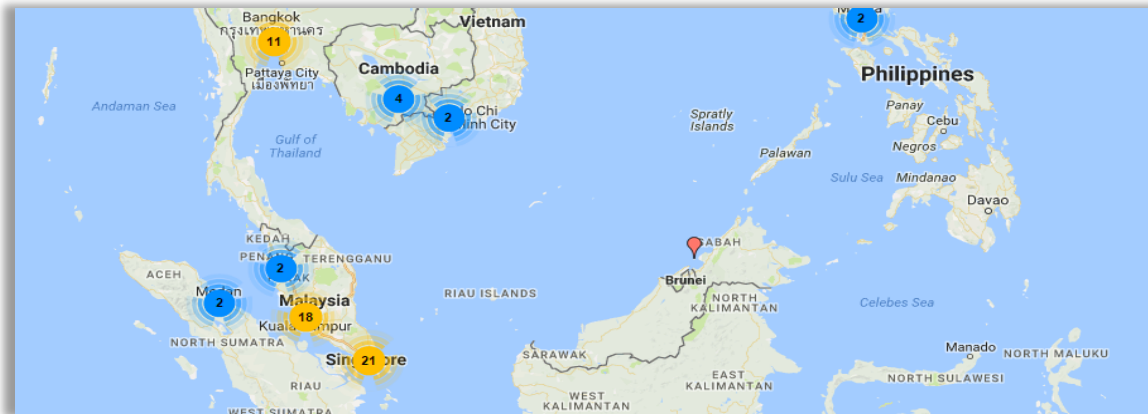
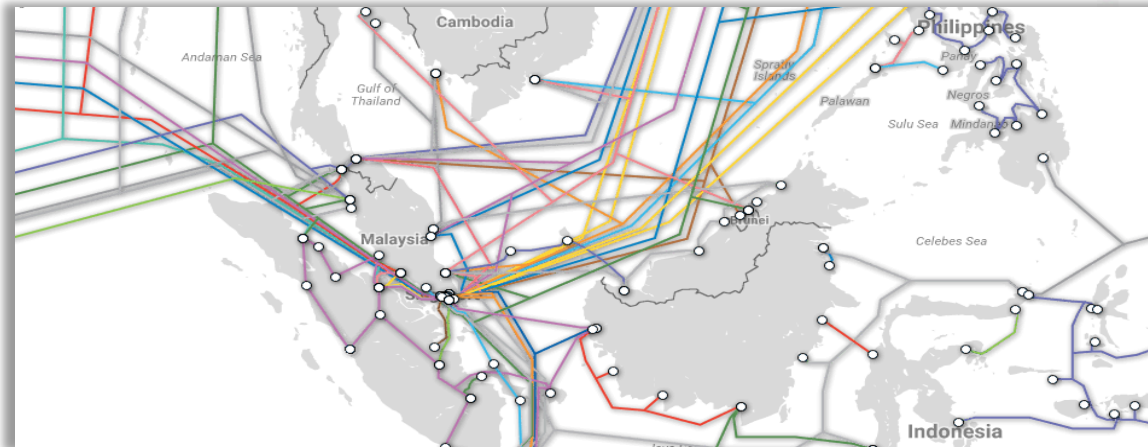


Data Center Interconnection Malaysia



Key Participants in the DCI Ecosystem

- Telcos / local carriers / ISP
- Dark fiber service providers
- Colocation providers
- Web2.0 or content or cloud providers
- Internet Exchange (IX)



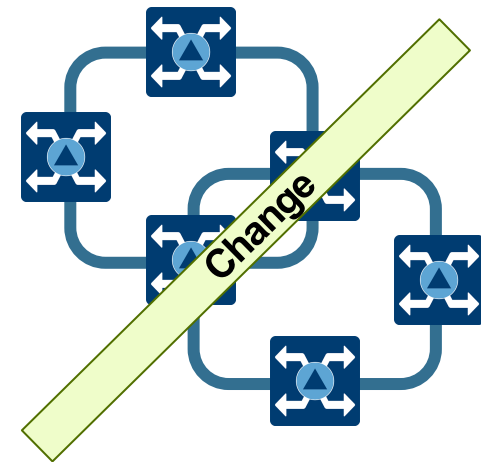
Customer Requirement – Business / Network Implications



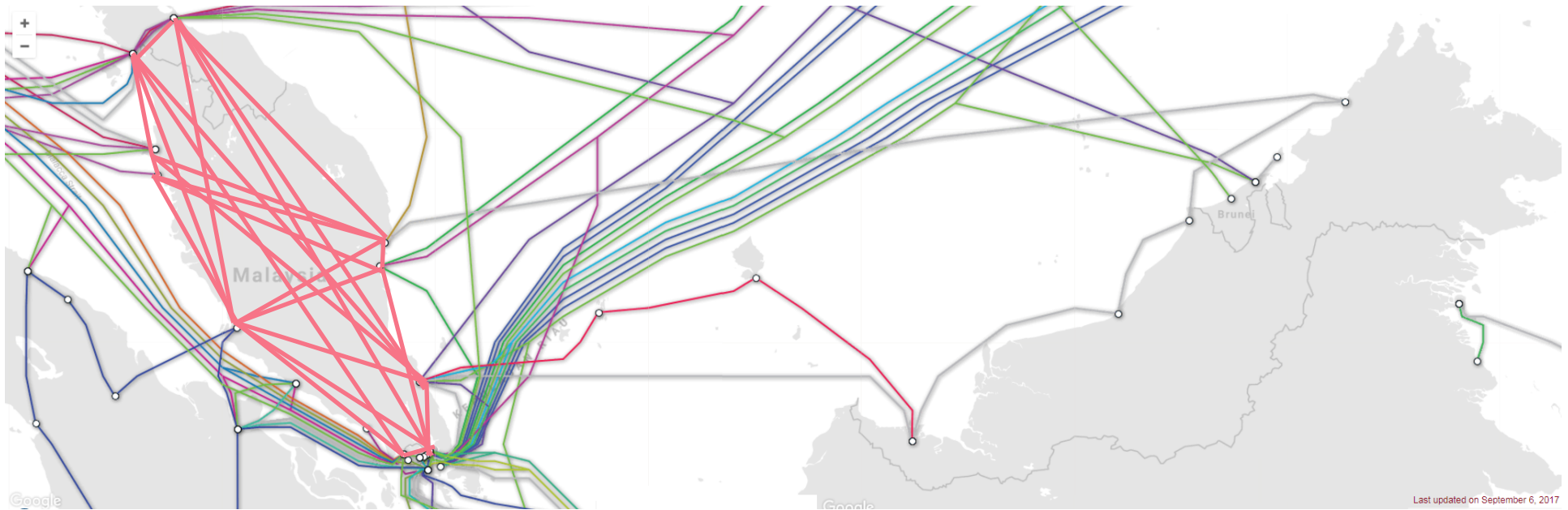
Requirement
Larger Bandwidth
Cost Reduction
High Agility
Quick Time to Service

Business Implications
Larger Network
Quick response time
Lower Capex/Opex
Improve ROI
Rapid deployment
Highly scalable

Network Implications



Malaysia DCI



Asia-American Gateway (AAG), TGA-Intra Asia (TGA-IA) and SEA-ME-WE3 (SMW3) cables all have suffered damages in September 2017.
Terrestrial network as alternate routes?



Malaysia DCI Common Requirement



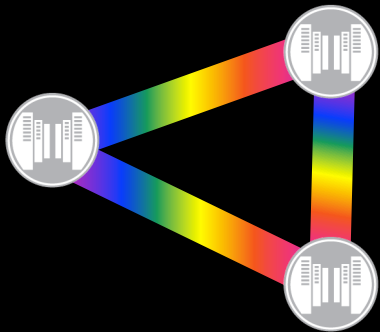
- POP at Borders, CLS, and DC
- Large transit traffic
- High ports density, Low power consumption
- High OSNR performance, Less traffic regeneration
- Open Line System (OLS), Alienwave friendly
- Pluggable Optic (POL) for reach extension



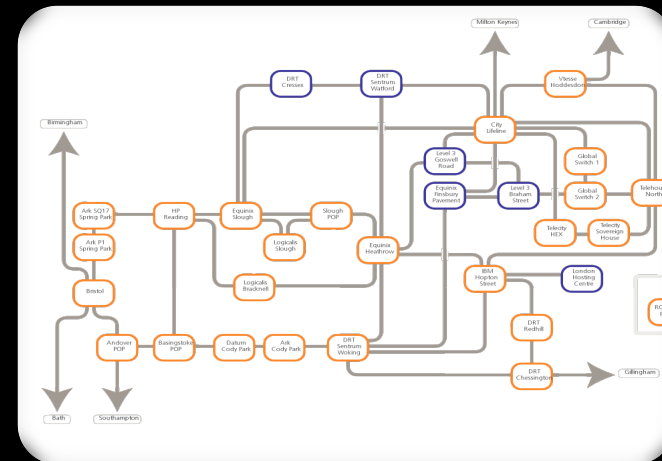
DCI is Still DWDM Transport Network



Pt-Pt



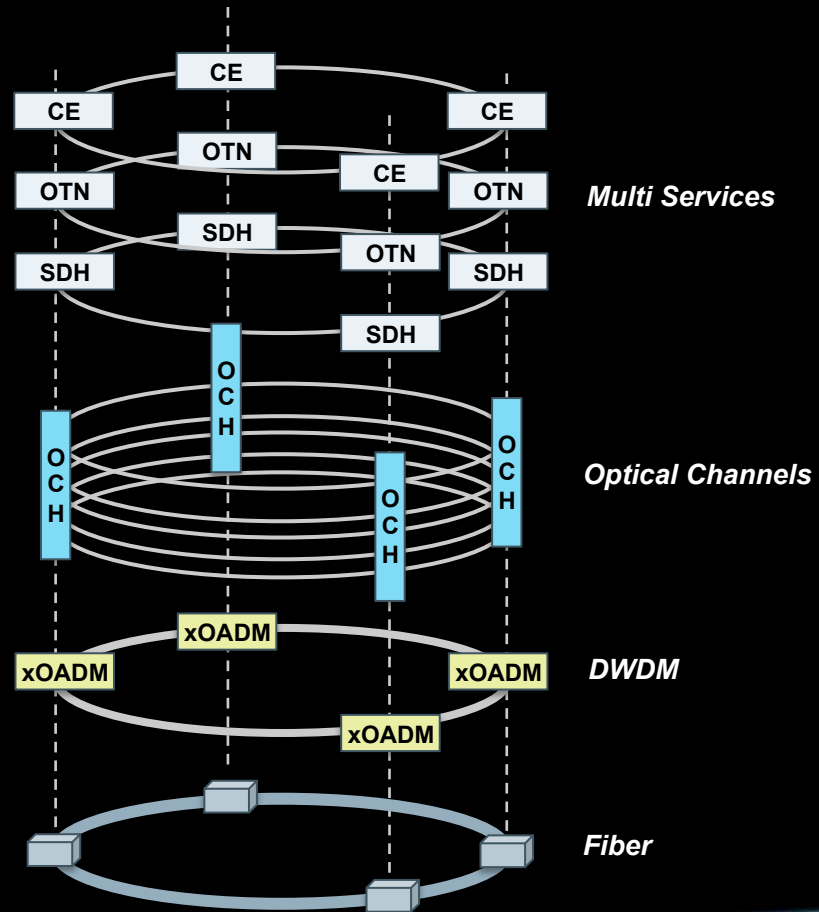
Ring



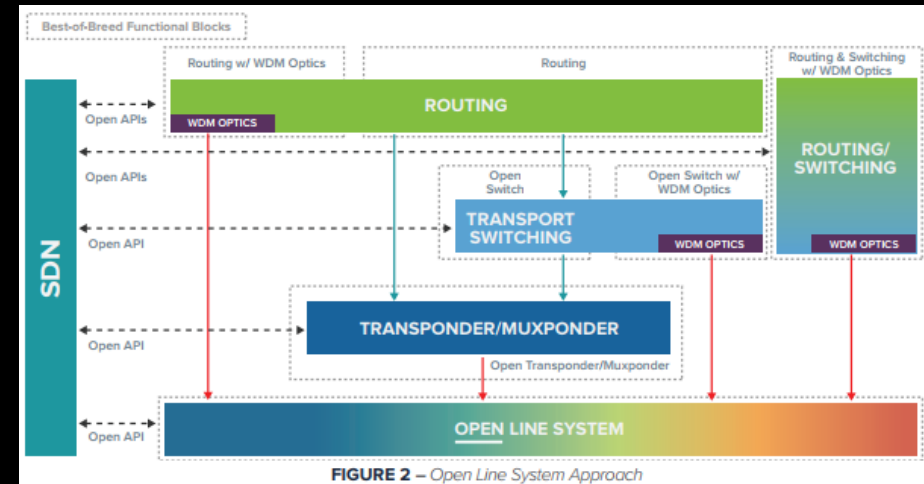
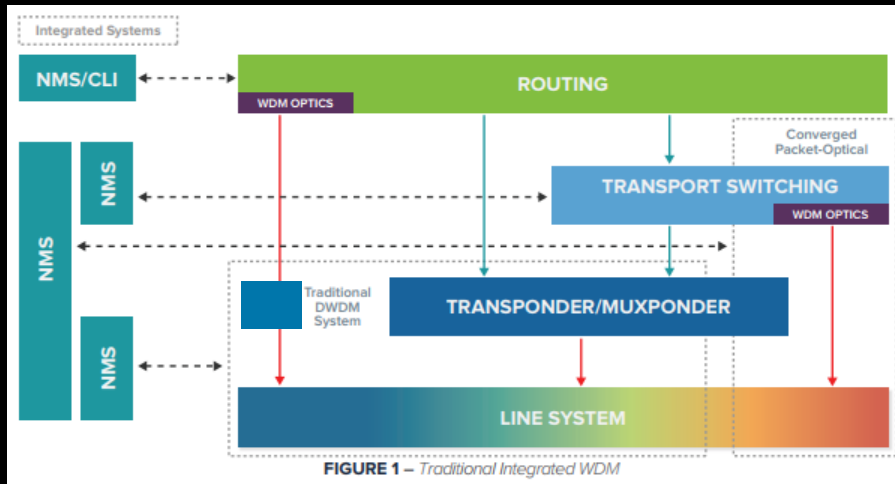
Mesh

Understand Customers Business Model
Leverage Value Propositions

DWDM Network



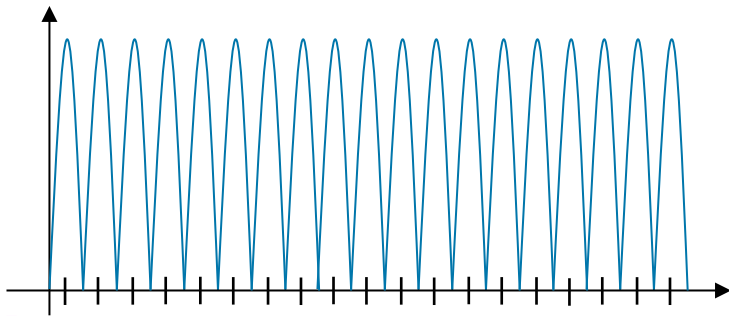
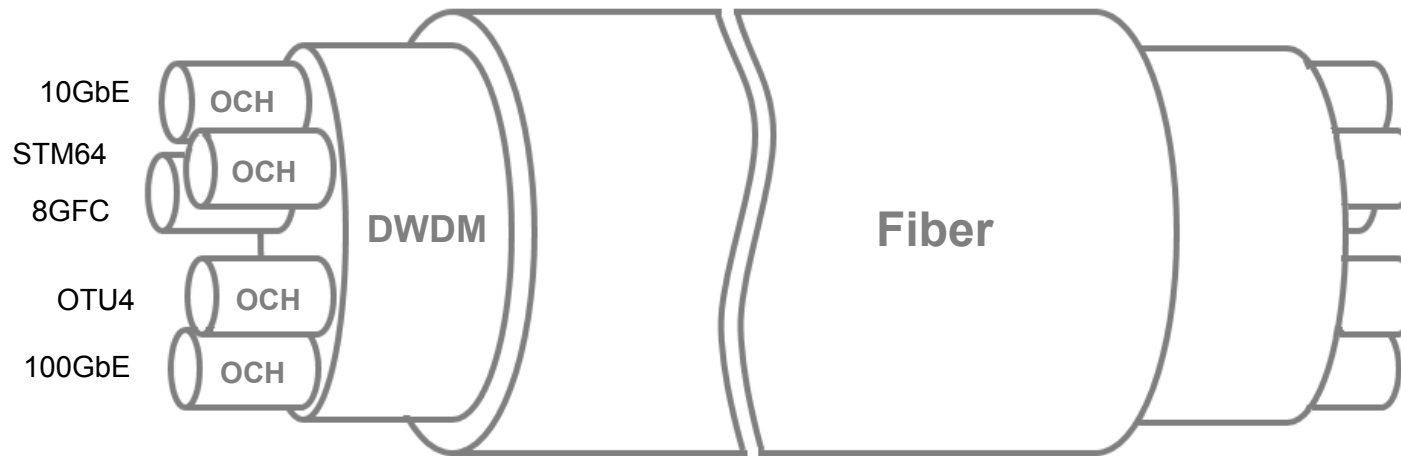
Disaggregation and Open Line System



Disaggregation separates integrated systems into functional blocks, enabling the network operator to select best-in-class products for each functional block.

Each functional block is an open line system (OLS)

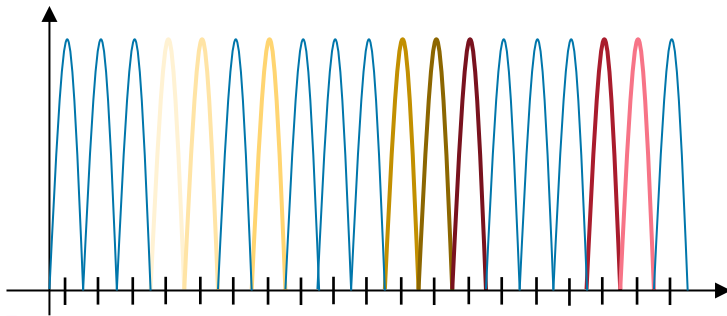
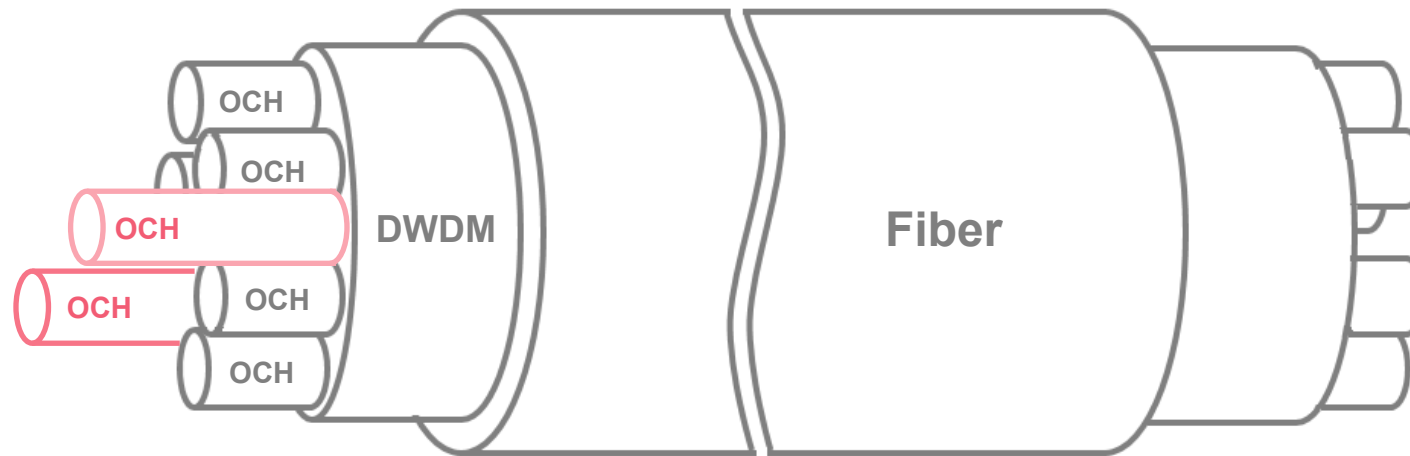
DWDM Network



Accelerating migration of long-haul and metro DWDM networks to 200G+ wavelengths.

Is your network ready?

Open Line Systems

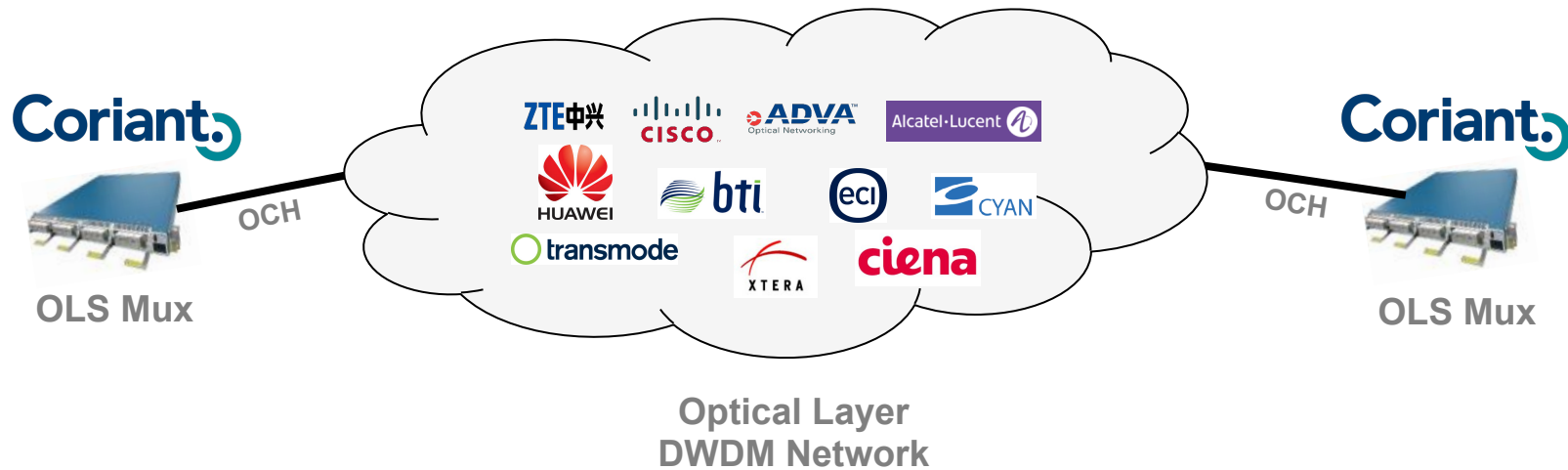


Disaggregated and Open Line System to manage surging data traffic volumes

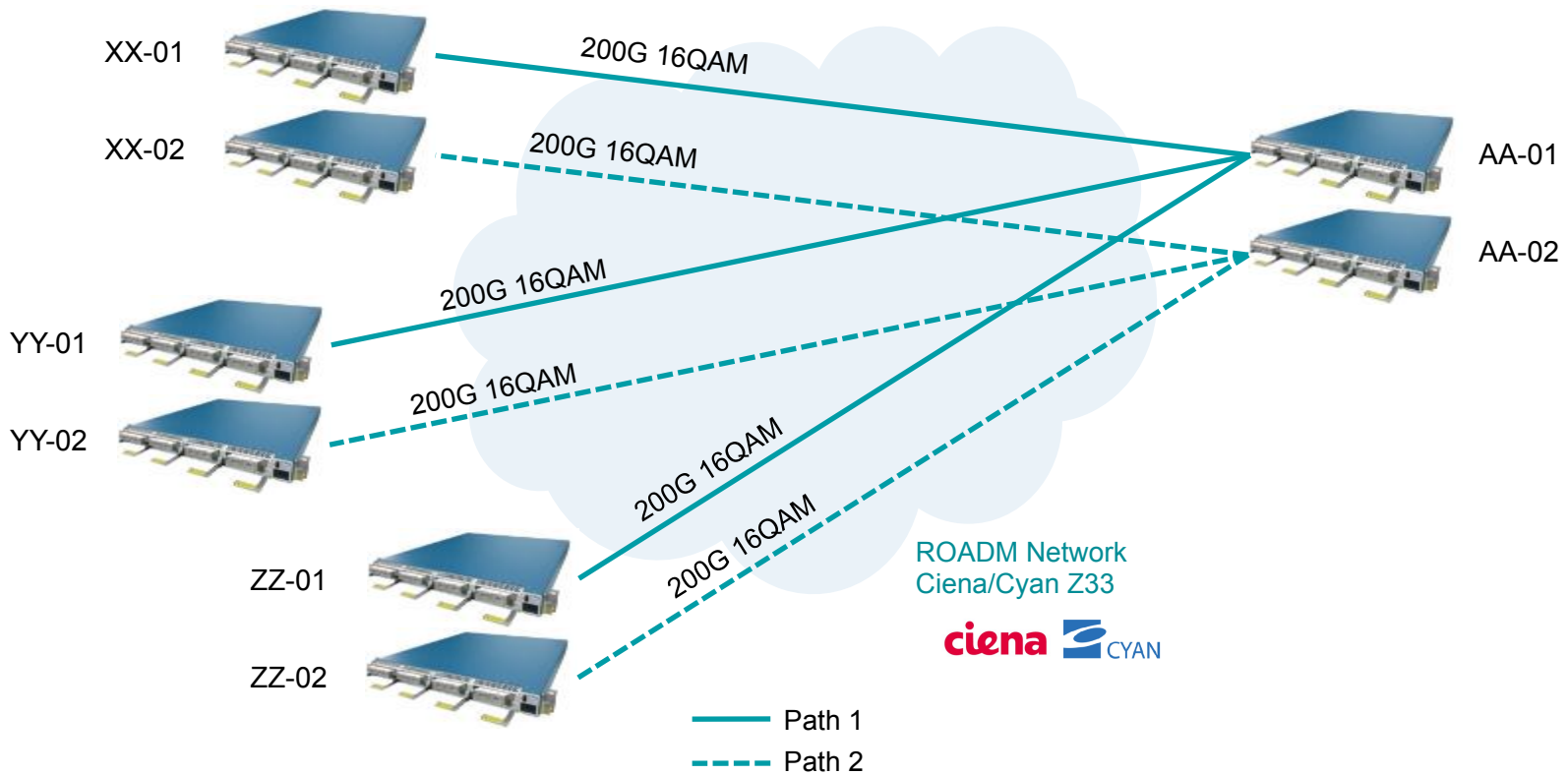
Open Line Systems



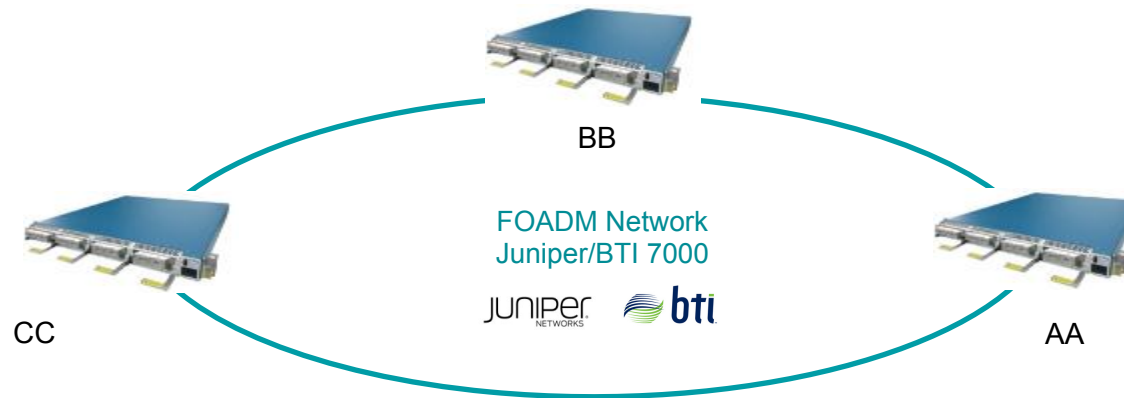
Prevents vendor lock-in by disaggregating the optical layer from the transmission layer.
Open protocols and industry standards to interwork with almost any third-party optical DWDM Network.



Alienwave over Ciena/Cyan Z33



Alienwave over Juniper/BTI 7000



Mixed of 10G and 100G Channels without guardband
Reach extension using POL

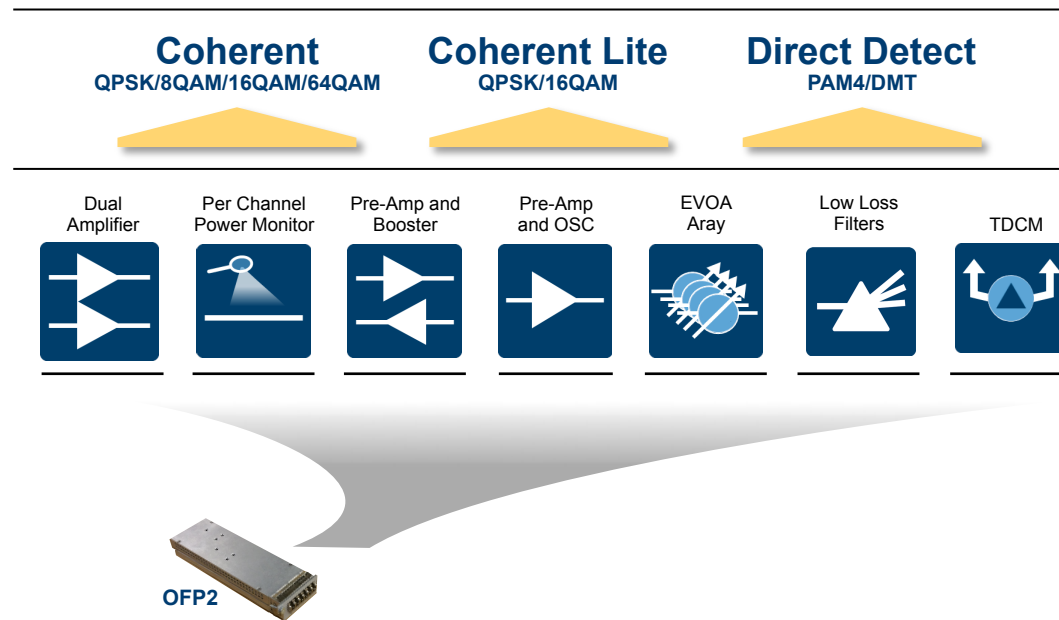
The goal is to reduce cost, footprint, and power consumption by leveraging the latest silicon photonics integration technologies in new OLS.

This solve the issue of innovation depreciation and renewal cycles, and capacity and scalability of integrated system.

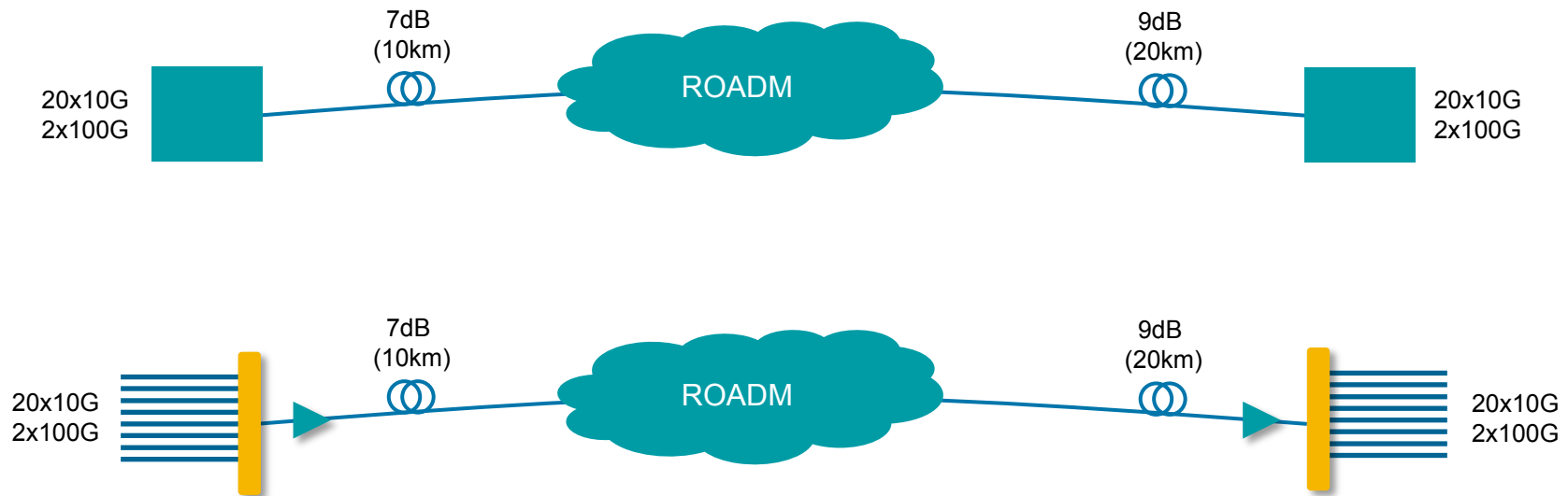
Network Disaggregation Pluggable Optics



Configurable Open Line System



Alienwave over Your ROADM Extended Amplified Mux



Recipe to win deal:

- Low cost on space, power
- Quick service turn-up

DC Market is a Complex Environment with Many Different Connectivity Models
Change in paradigm is creating huge opportunities

What's New

Growth in 10G and
100G Client
Connectivity

DC customers have
some unique
requirements

Open Network
Open API

Disaggregated
Network

Increasing Supply for
High Speed Optical
Component

Improved Coherent
Optics
Performance

Improved
Innovation Speed

Select best-in-class
functional blocks

Thank You.

Coriant

