

SCTE CABLE-TEC
EXPO'15
OCTOBER 13-16 **NEW ORLEANS**

Improving 10G Optical Transport Efficiency By Deploying Node Located 10G Ethernet Switches

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Business and Network Challenges

Desire to grow revenues

- Larger share of the medium to large business
- Grow cellular backhaul services

The *market* need for new consumer services

- Data speeds ≥ 1 G
- IP video over DOCSIS via R-Phy, etc.

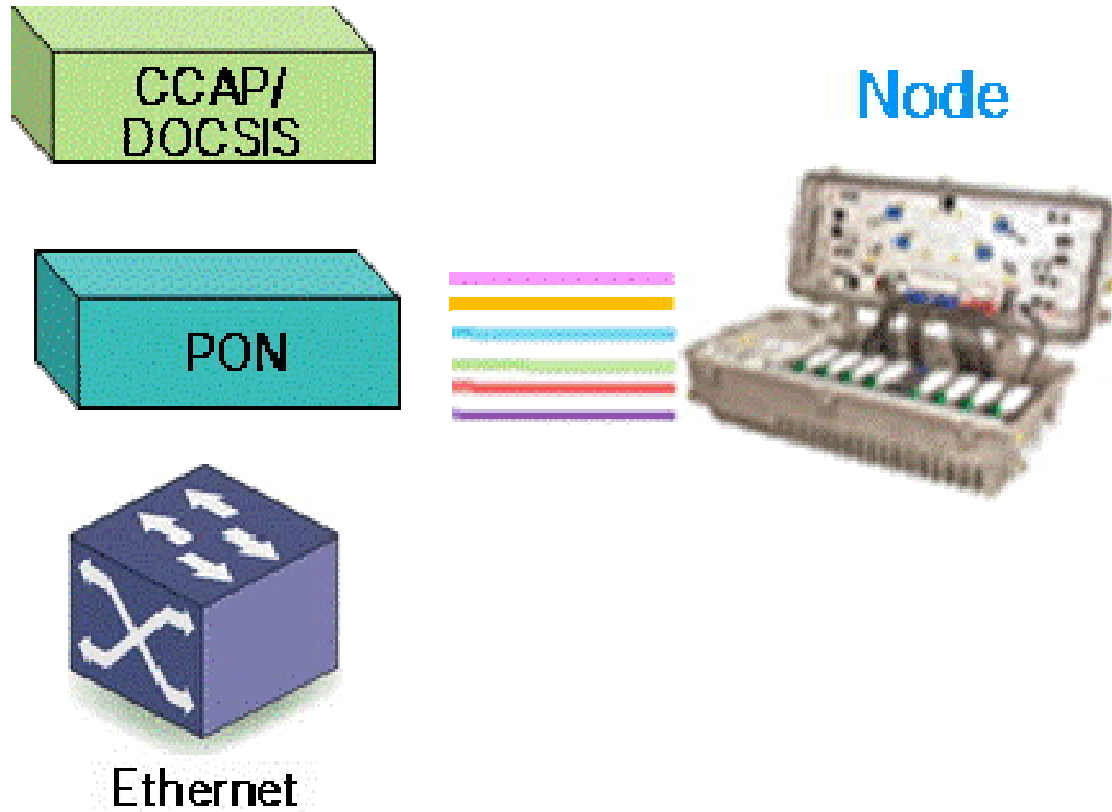
Implementing 10G PON

- Challenge of @ >25 km

Hub Consolidation

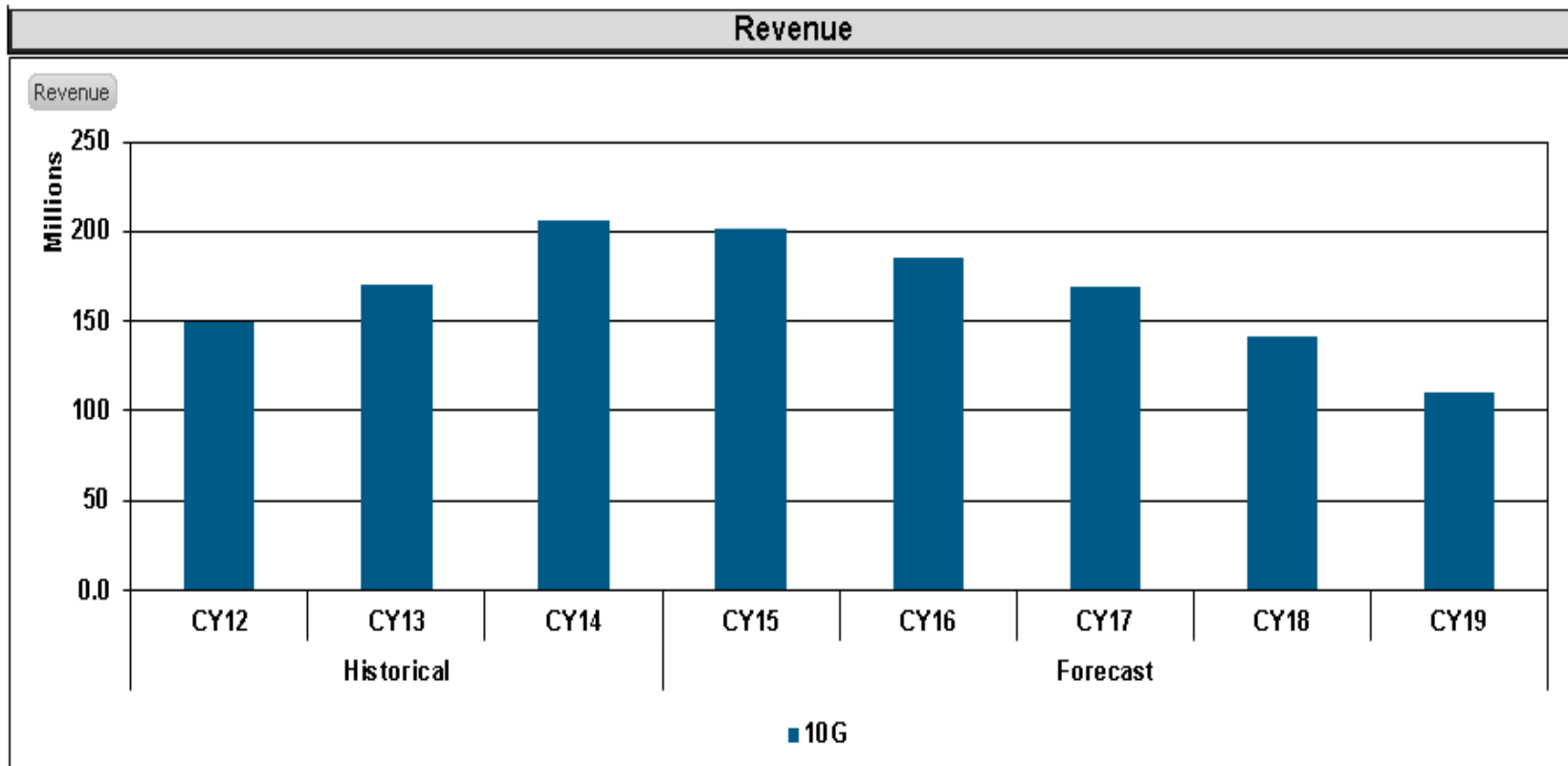
- Operational efficiency
- Distances, fiber availability

10GE Links Will Likely Multiply



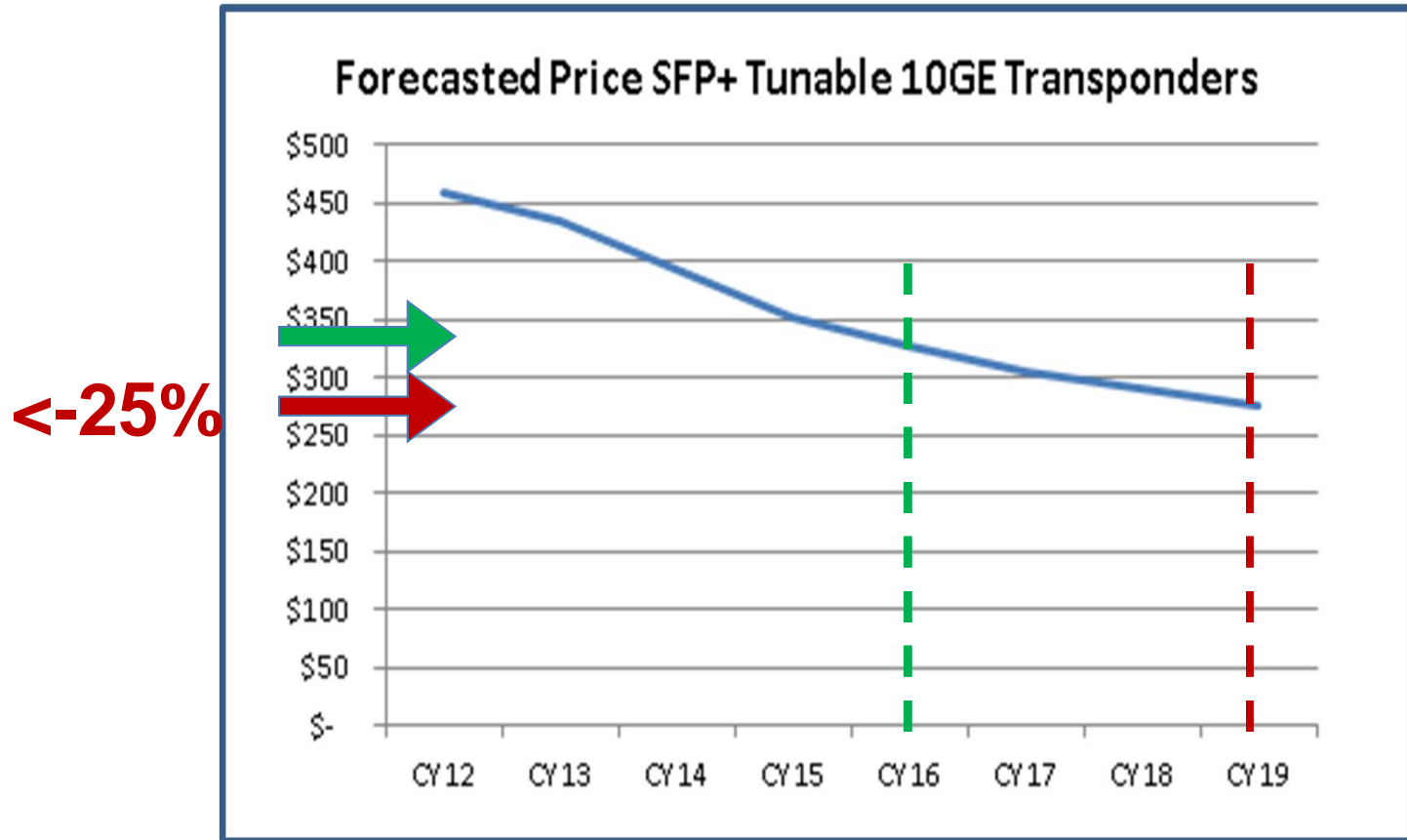
...in the face of very limited fibers

The 10GE Long Haul Market ...it has peaked

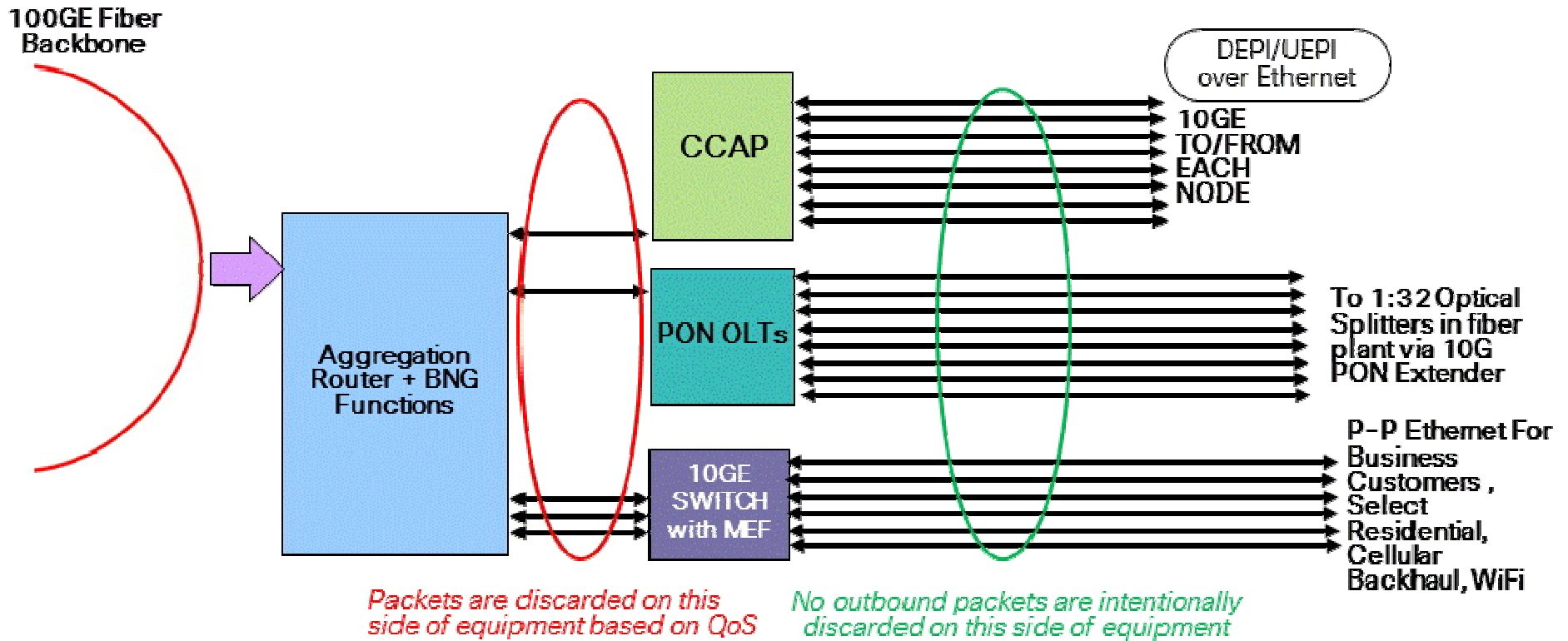


10GE SFP+ Tunables market now declining

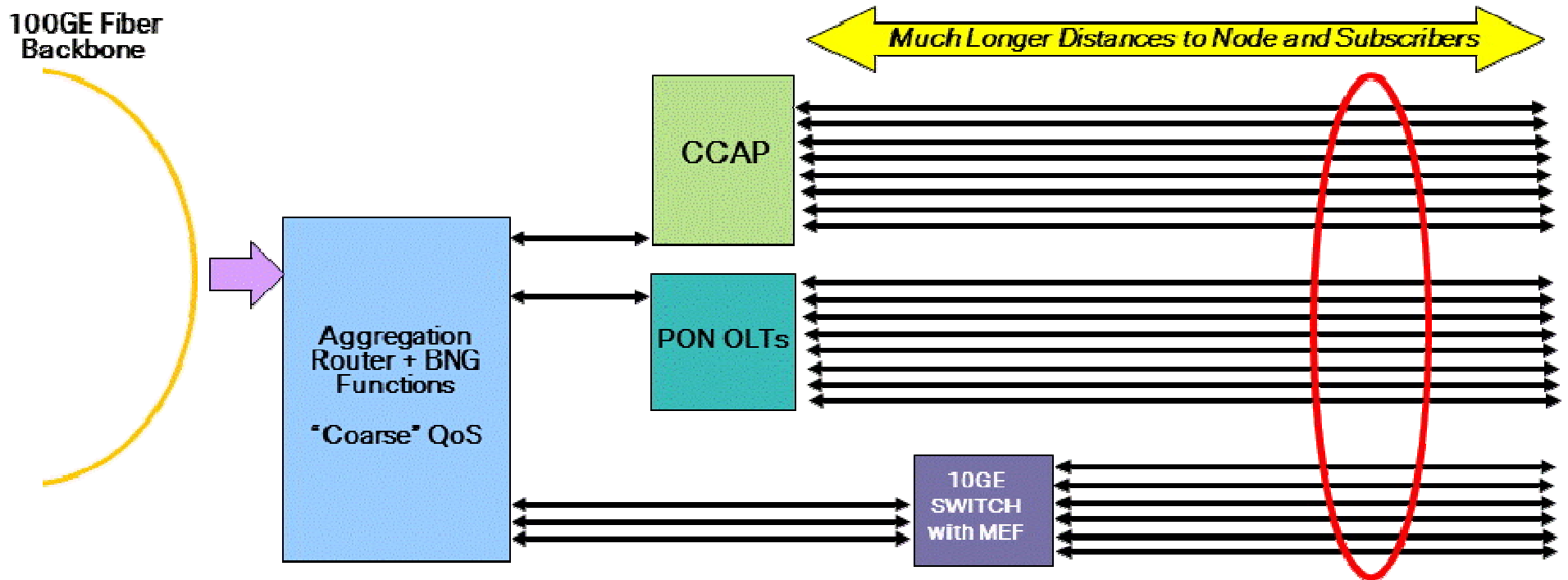
Price Decline Will Be Modest



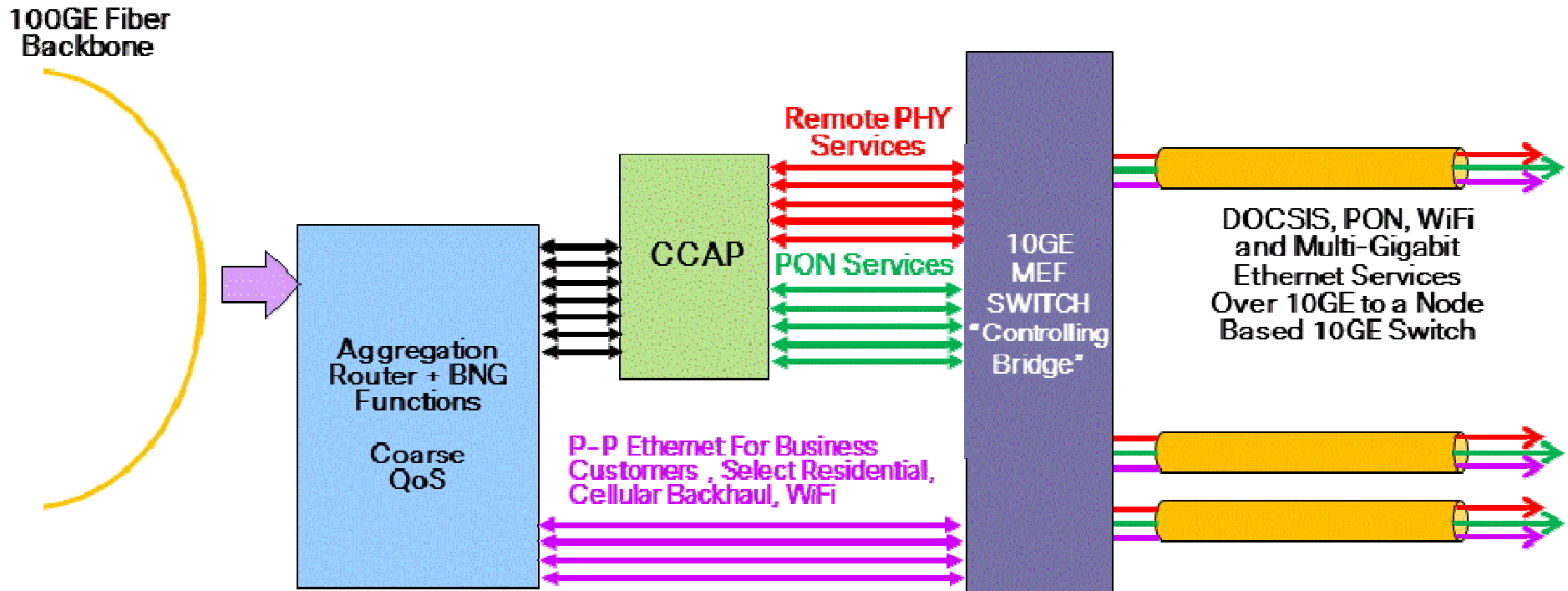
Hub Functionality: Ripe For Consolidation



Consolidation = Longer Distances

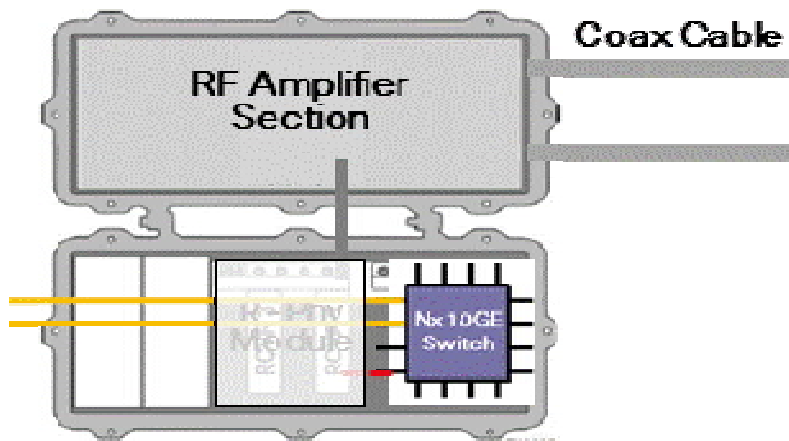


Consolidation of Service Layer and Transport Layer

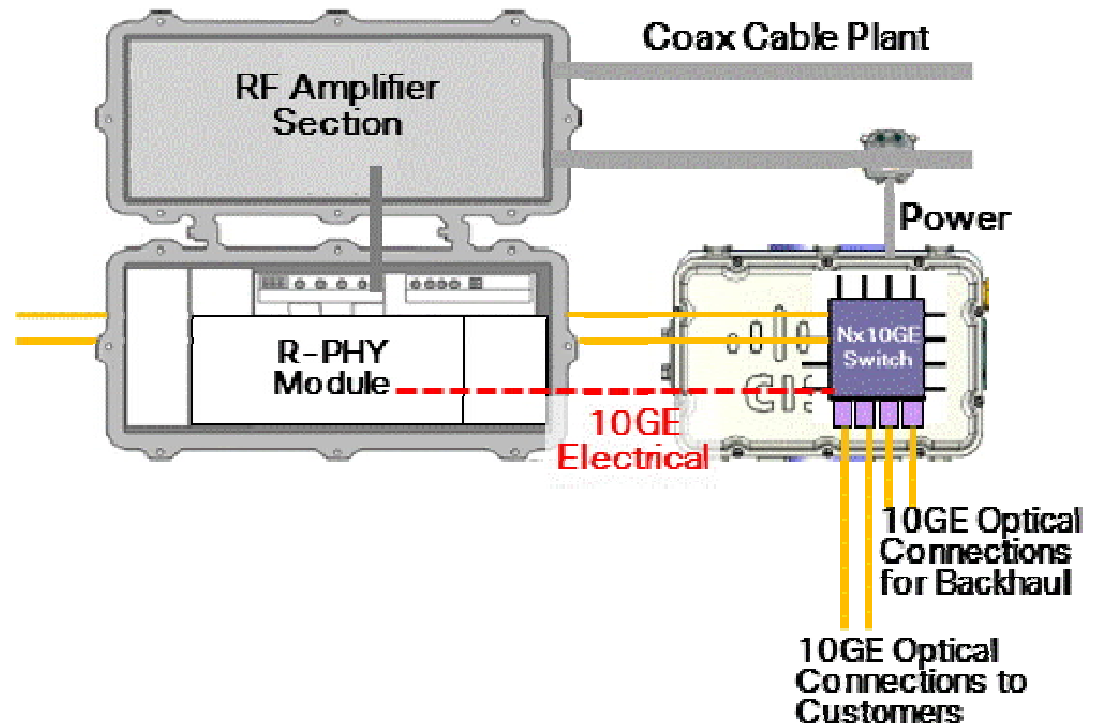


Potential Housing Alternatives

...in Existing Optical Node

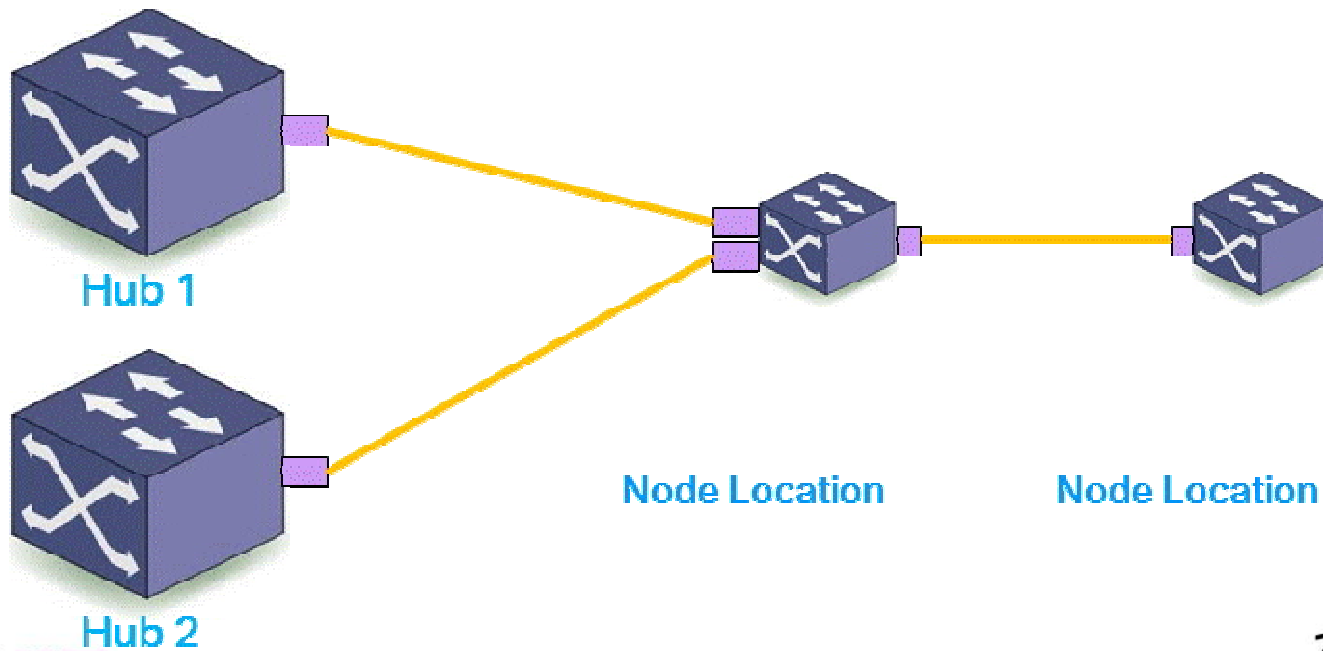
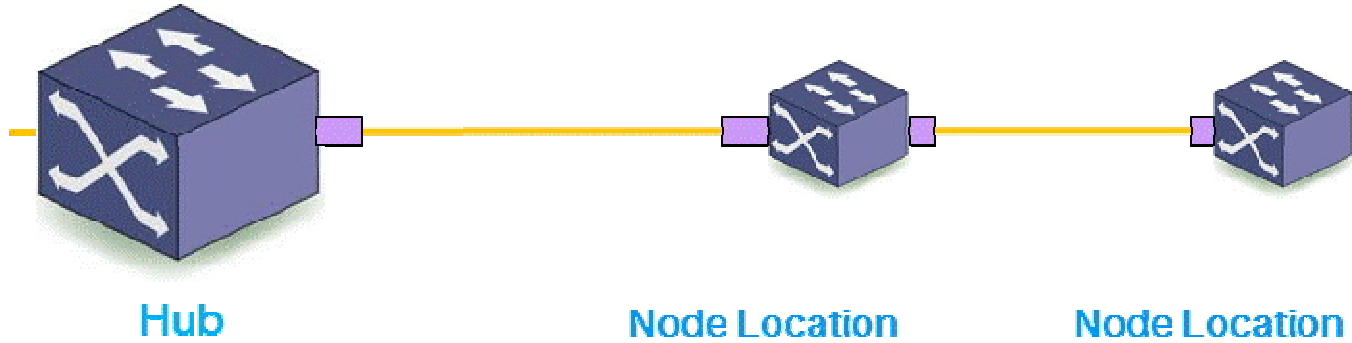


...in Adjacent WiFi Housing

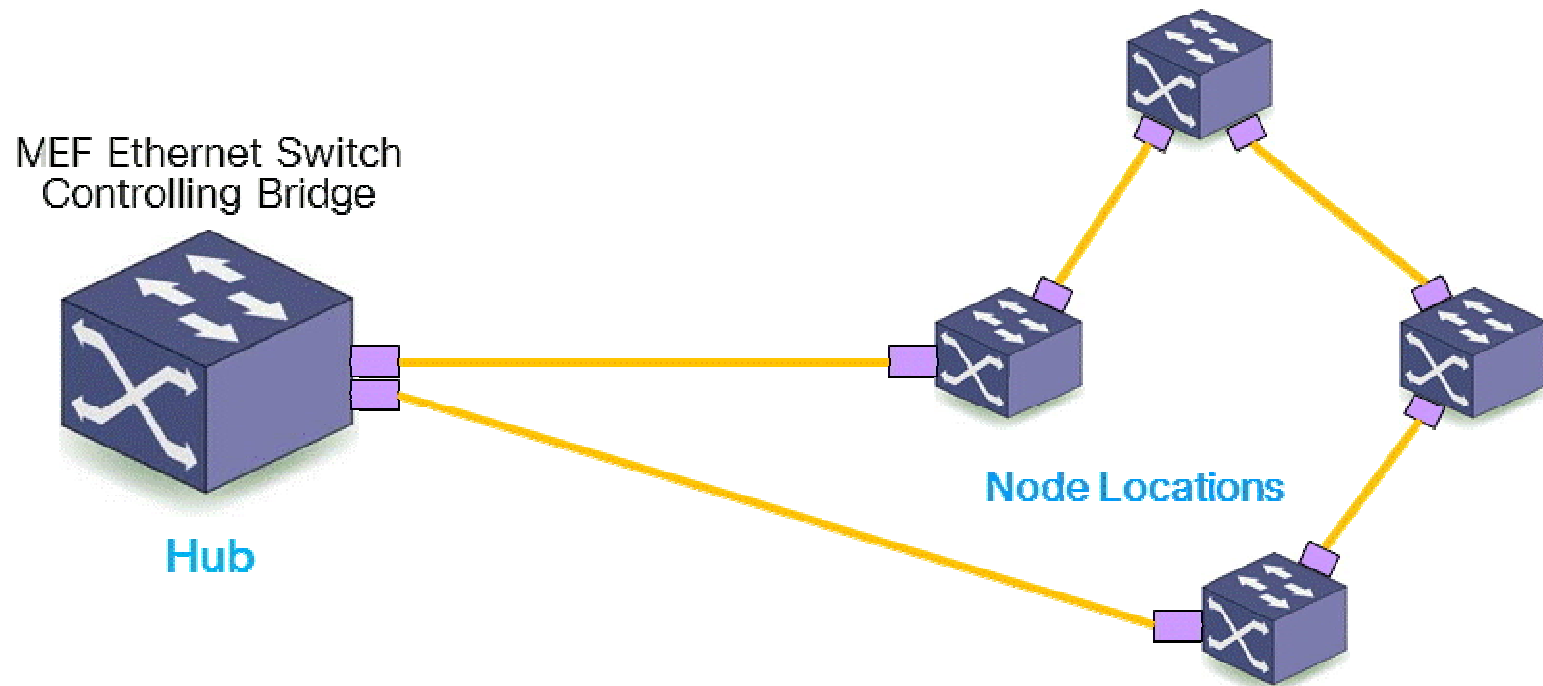


802.1BR “Ethernet Controlling Bridge”

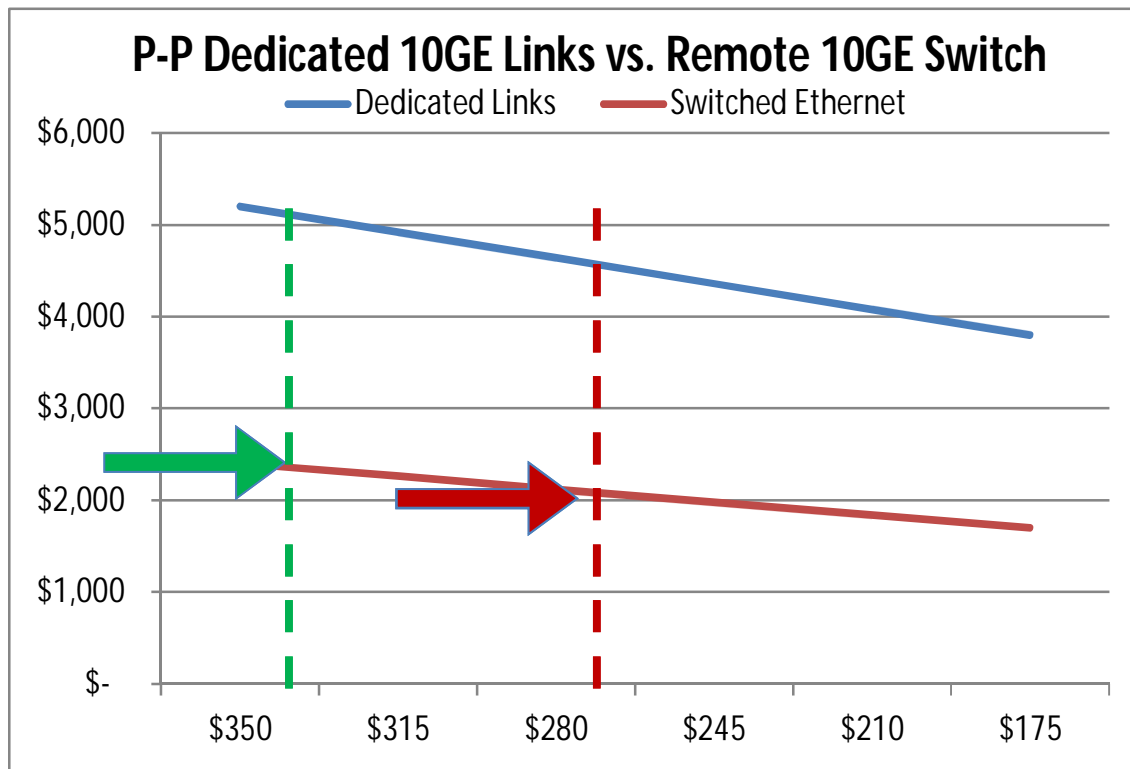
MEF Ethernet Switch
Controlling Bridge



802.1BR Supports Ring Architectures

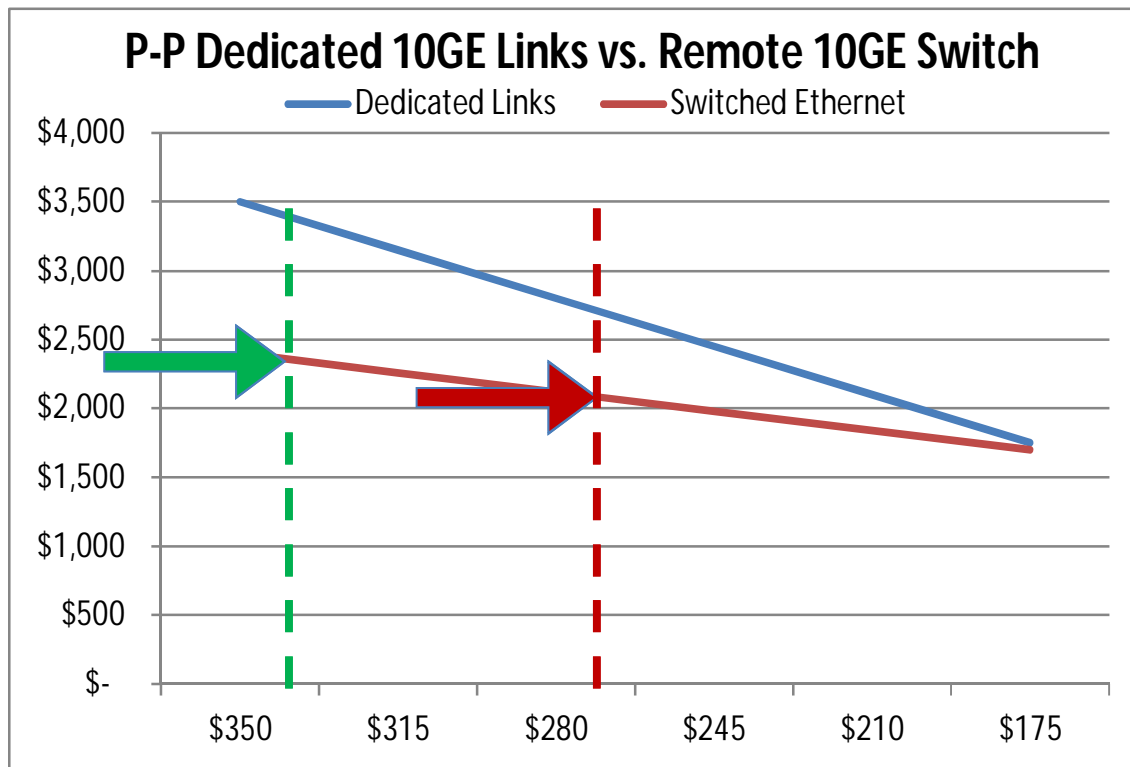


Case 1: 250HHP Service Group with PON



- DOCSIS data services: 1 Gb/s Peak
- Broadcast/VoD: 3 Gb/s
- PON: 90 HHP
- PON data services: 2 Gb/s Peak
- Distance Hub to Nodes: 30 km
- 10GE P-P links required: 4

Case 2: 250HHP Service Group with Business Services



- DOCSIS data services: 1 Gb/s Peak
- Broadcast/VoD: 3 Gb/s
- 2 large businesses; 4Gb/s guaranteed
- 1 large LTE backhaul; 1 Gb/s
- Stadium 802.11ac WiFi @2.5GHz and 5GHz with 4 Gb/s peak

Conclusions

- Hub Consolidation** = **Longer Distances**
+ **Fiber Scarcity**
- NFV + SDN** = **Access Independence**
= **Ubiquitous Transport**
- 10GE Long Optics** > **No Downward Price Drivers**
- 802.1BR Switch** = **Transparent OAM&P**
= **Superior Cost + Flexibility**

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