



Extending Coherent Technology to the Radio Unit with P2MP Intelligent Coherent Pluggables

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**Workshop: Moving from Optical Components in RAN
to Optical Components for RAN**

September, 18th, ECOC 2022, Basel,
Switzerland

Motivations and application scenario of coherent

Why

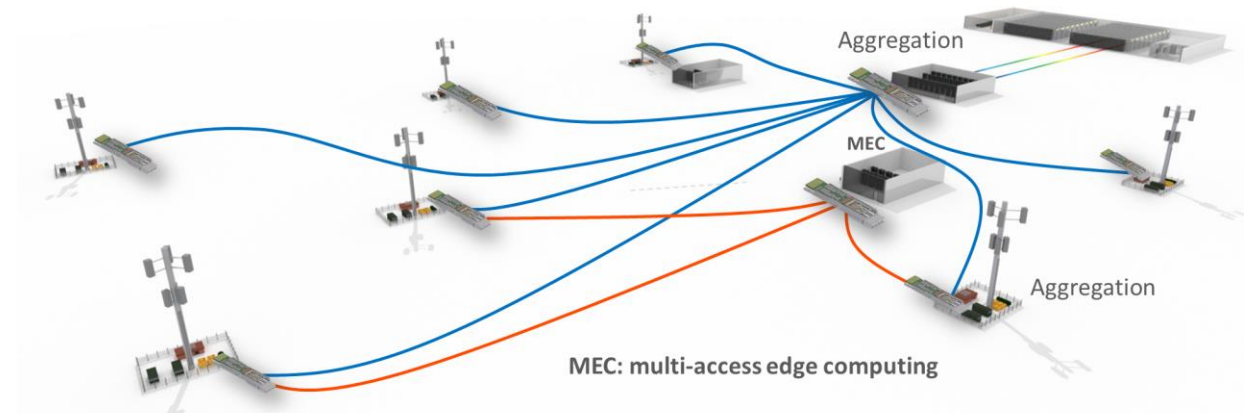
- Traffic growth has been constantly above 30% / year
- Traffic pattern resemble hub-and-spoke in the fastest growing market

How

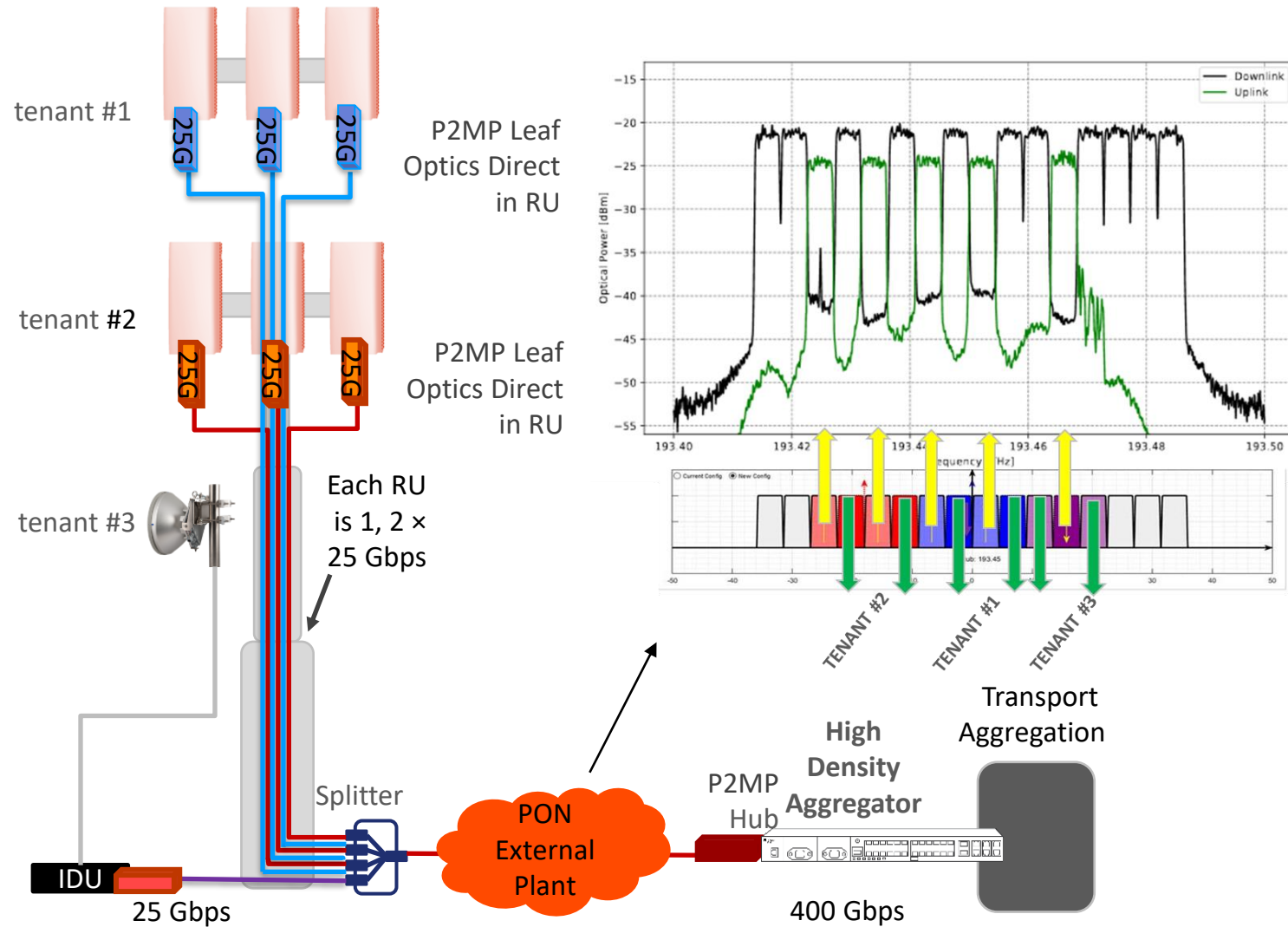
- Coherent Point-to-multipoint (P2MP) enabled by digital subcarrier

What

- Develop a solution that can enable flexibility, high-capacity, that you case a the Infinera booth #16, with several demos

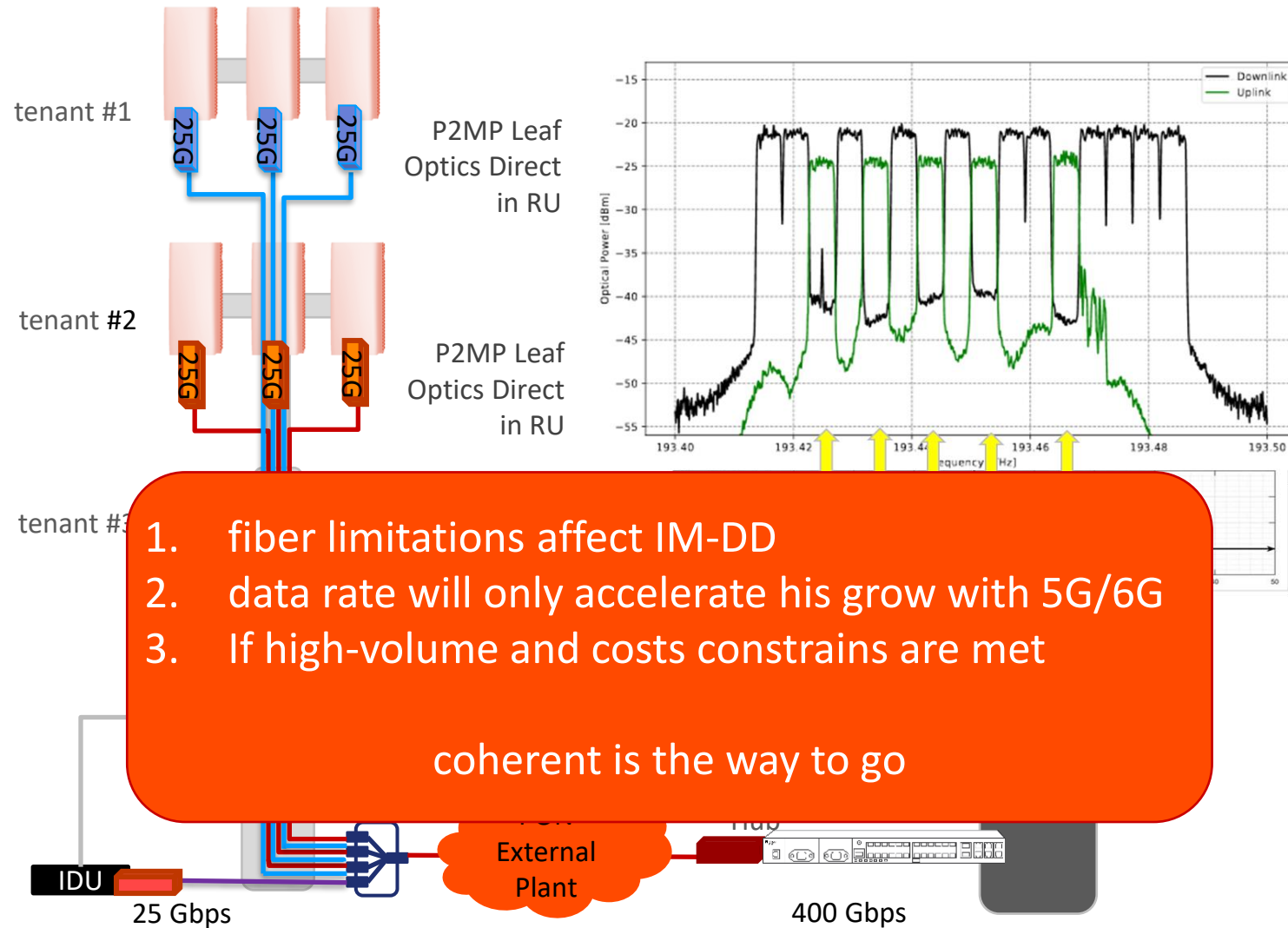


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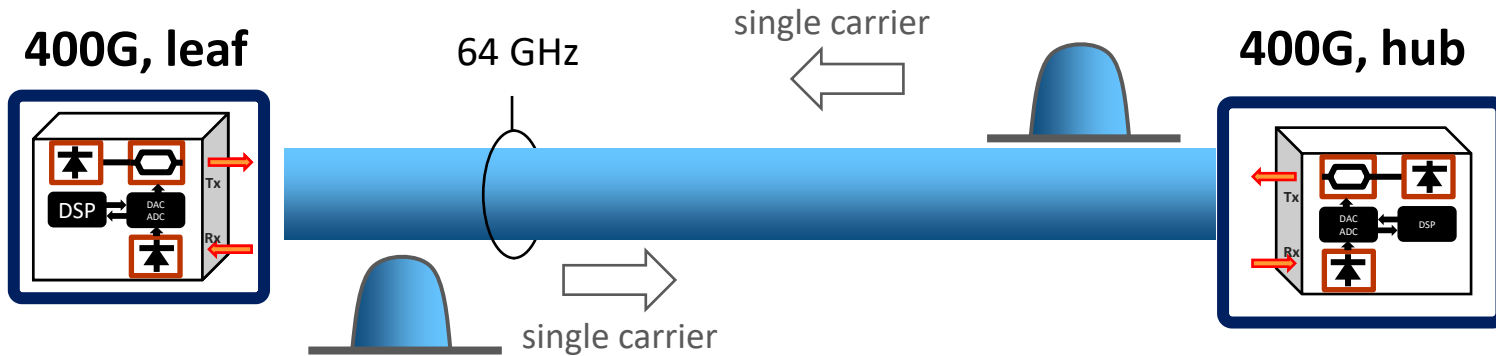
A. Napoli et al. "Live network demonstration of point-to-multipoint coherent transmission for 5G mobile transport over existing fiber plant., ECOC, 2021

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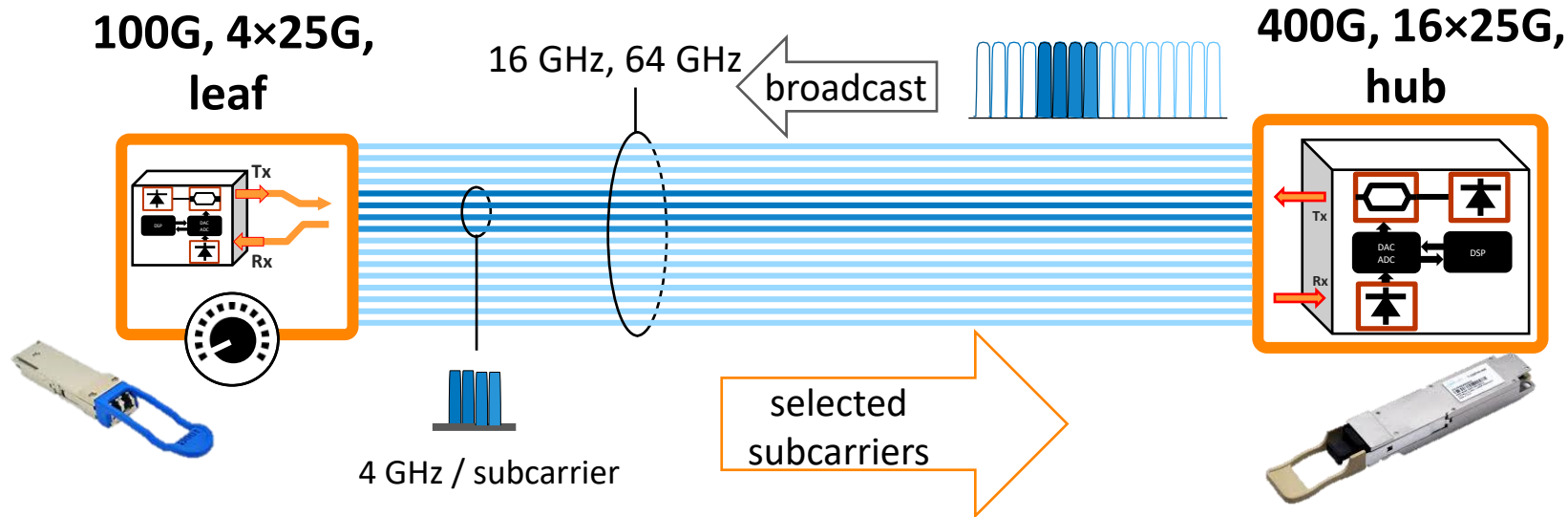


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Single- vs. Multi-carrier coherent pluggable for PON

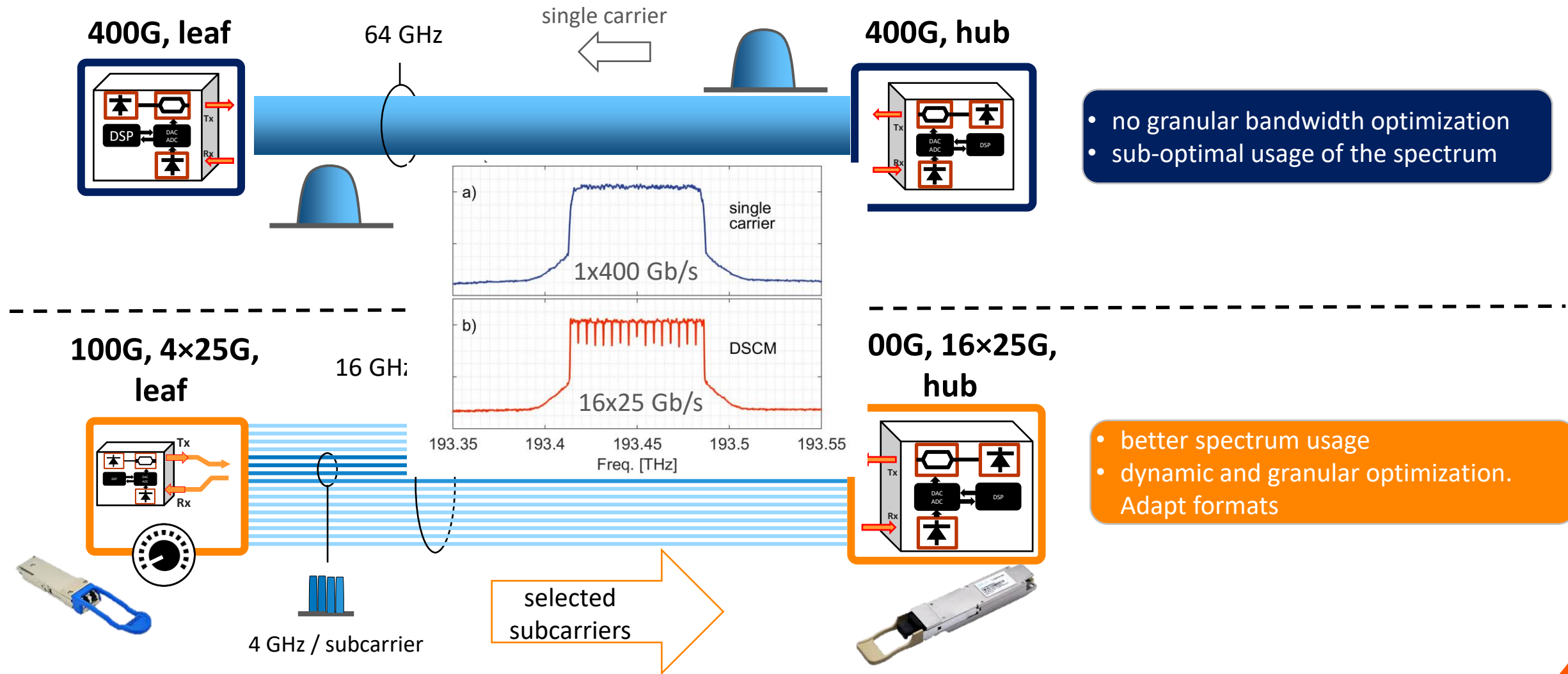


- no granular bandwidth optimization
- sub-optimal usage of the spectrum

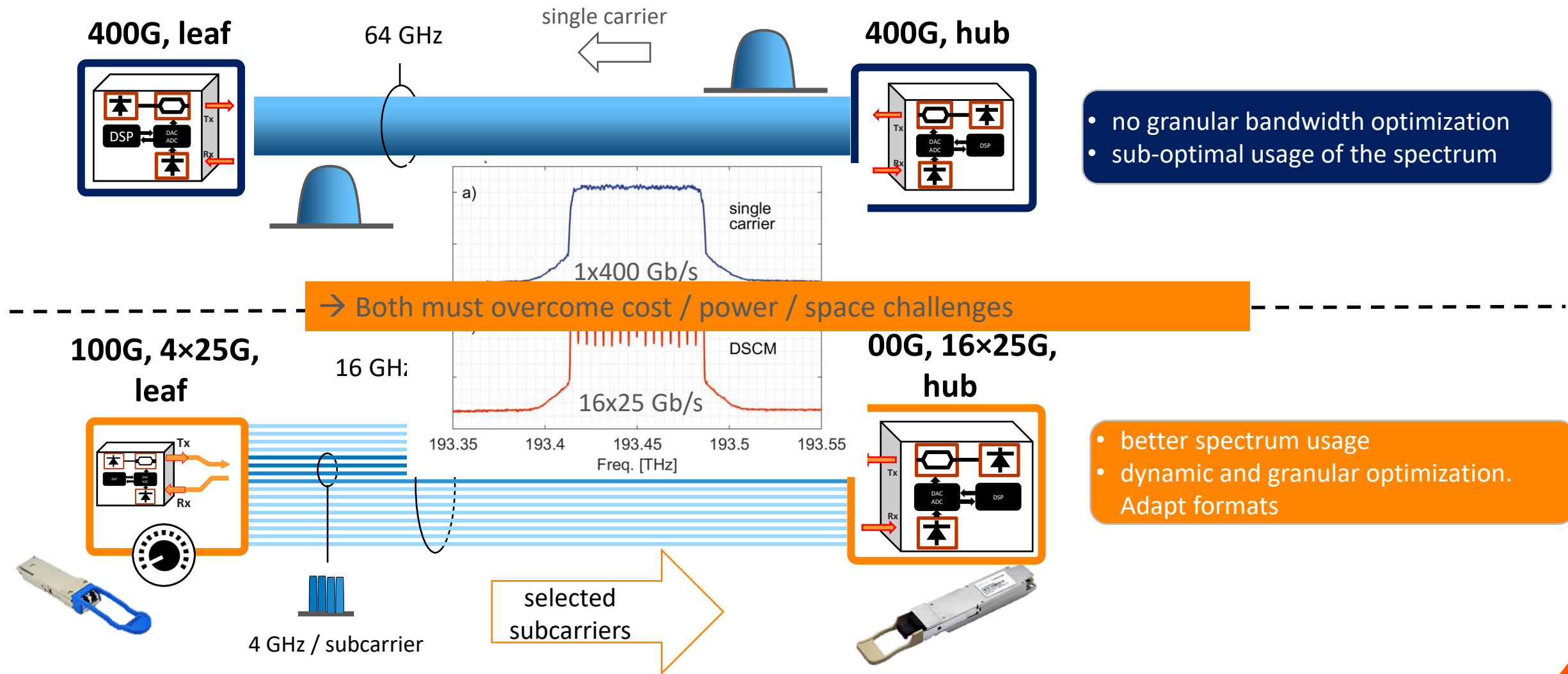


- better spectrum usage
- dynamic and granular optimization. Adapt formats

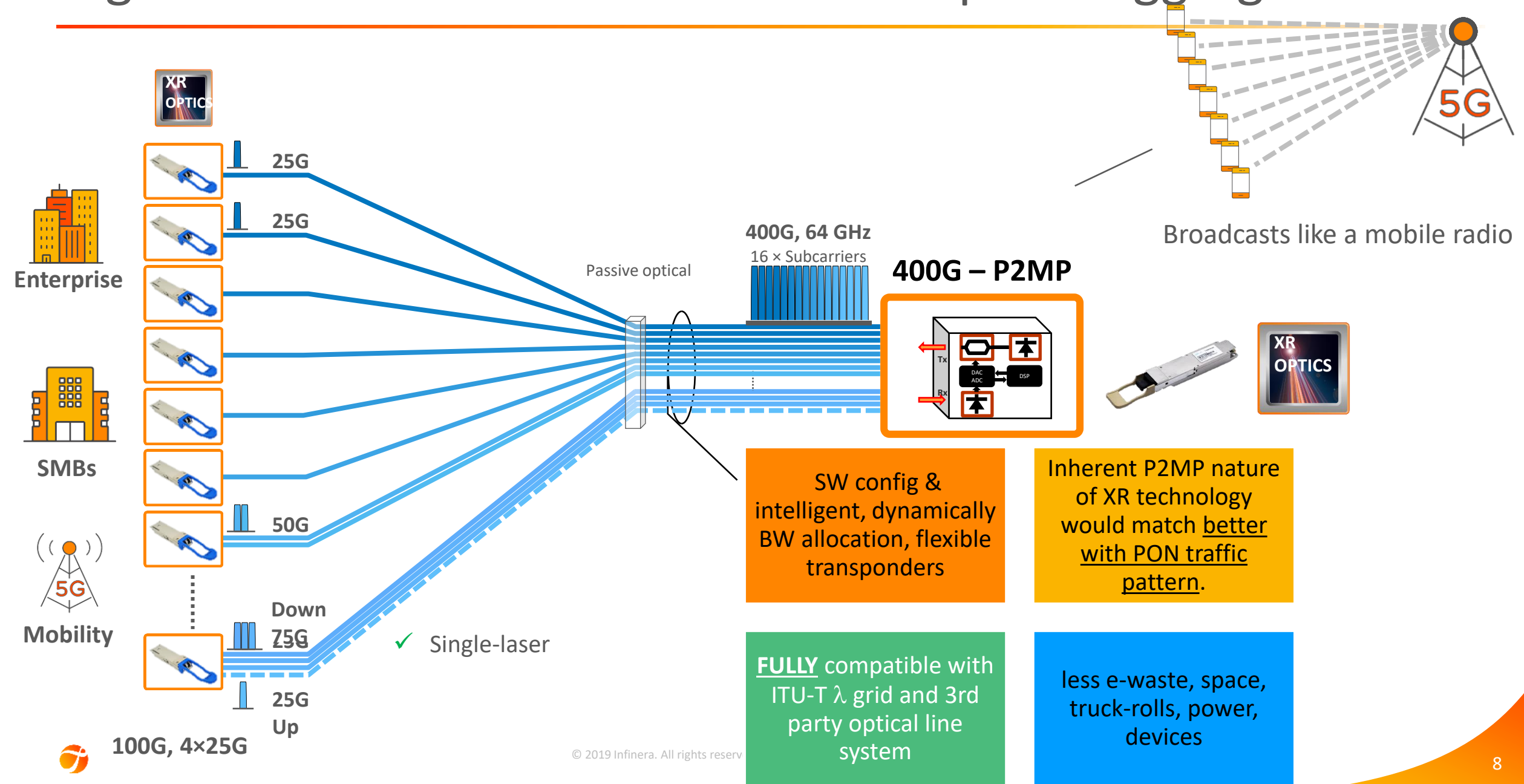
Single- vs. Multi-carrier coherent pluggable for PON



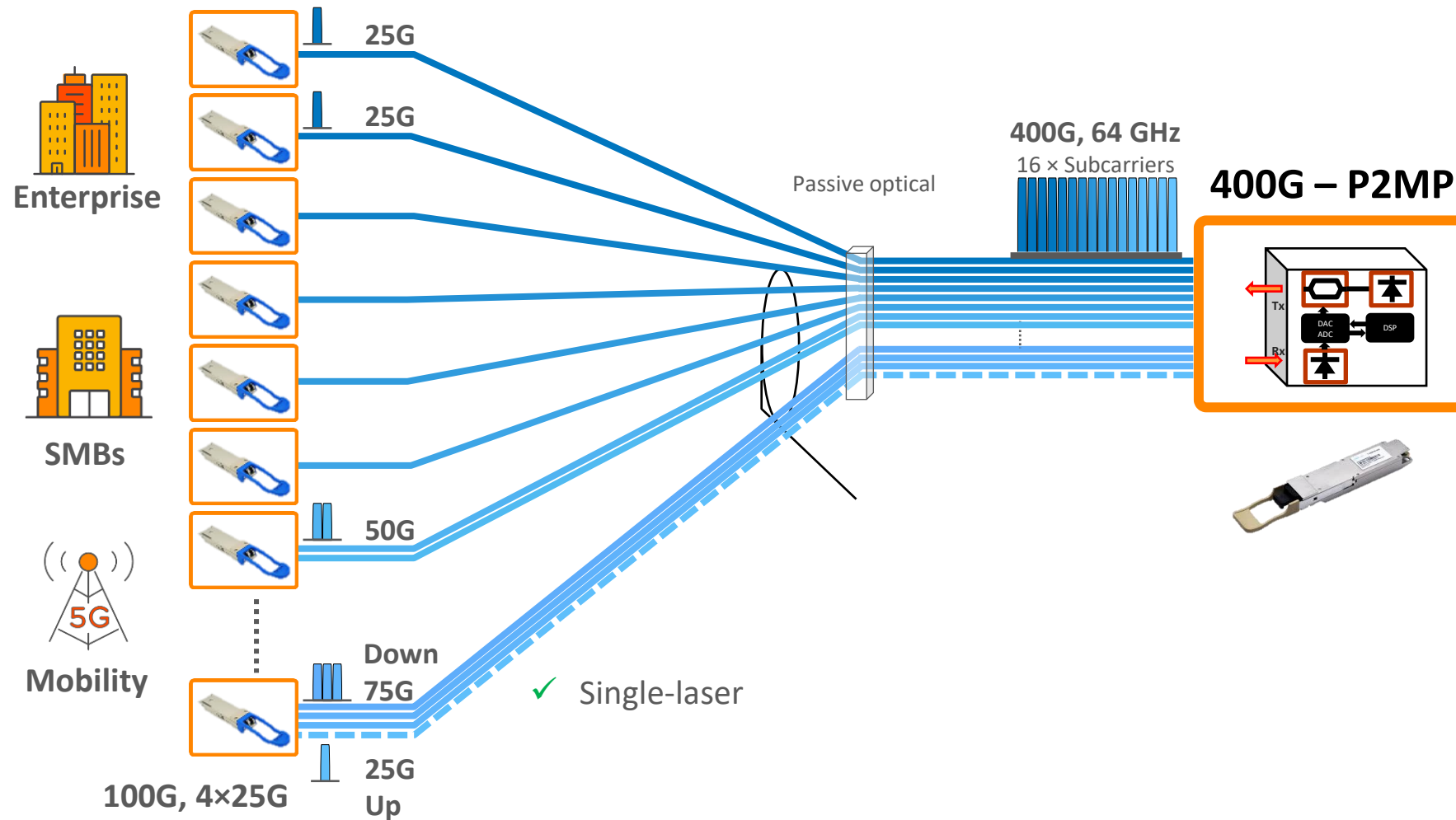
Single- vs. Multi-carrier coherent pluggable for PON



Digital subcarrier Enables P2MP and Optical Aggregation



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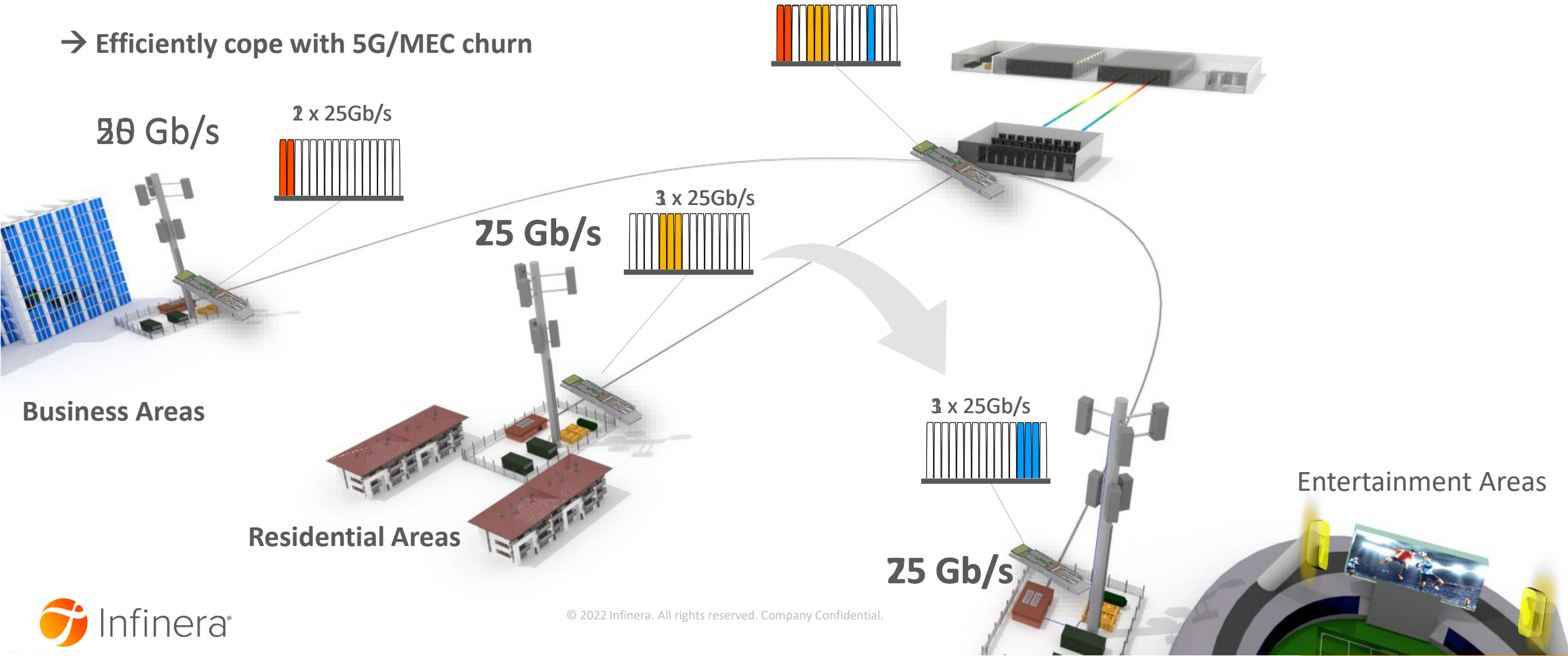


Envisioning Next-Gen 5G Front-Haul Mobile Networks – 2/2

Capacity at each site can be *individually* and *dynamically* increased with additional sub-carriers

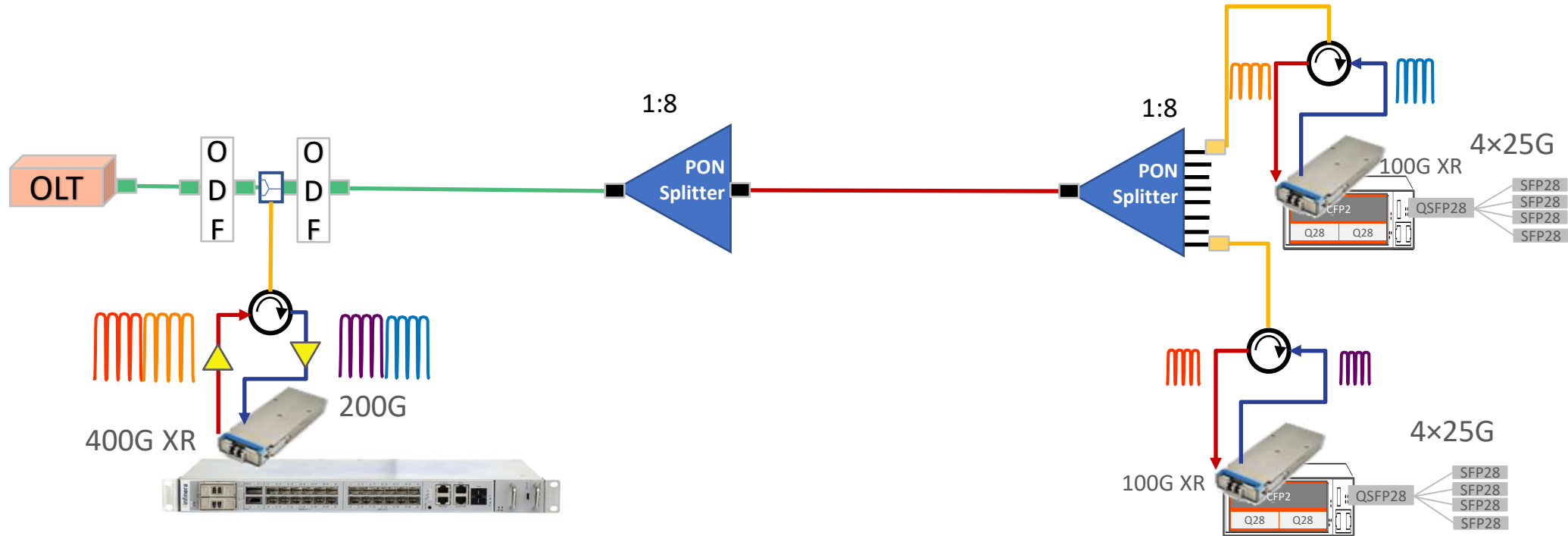
→ No Excessive 400G capacity everywhere

→ Efficiently cope with 5G/MEC churn



Bidirectional single fiber transmission for PON and Mobile transport

- Full-duplex bidirectional transmission will enable a more efficient use of fibers
- Increase the return on investment of fiber infrastructure in access – when scarce,
- Benefits for x-haul mobile networks, i.e., 5G/6G
- Enable deployment of enterprise high-speed services without the need to source dedicated fiber



Conclusions

- XR optics will support and enable next gen mobile networks
- Software configurable optics will be reality
- Enabled by digital subcarriers
- Significant network simplification and cost savings
- Bidirectional single fiber transmission helps operators in case of scarce fiber and it improves spectrum utilization / planning

Enhancing Multi-Sourcing



2021

2022

2023

Service Providers



Equipment Providers



Date: **Tuesday, September 20**

Time: **11:30 to 13:00**

Venue: **ECOC 2022: Congress Centre Basel**

MCH Lounge

Located in the foyer, South section of the City Lounge, directly next to the entrance to the event hall

Component Manufacturers



- Industry Eco System run by the Service Provider Eco System
- MSA and standards Based
- Establishing a High Valued Industry Standard Technology

Thank you for listening

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