

Scaling edge packet networks to 100Gbit/s

Fighting bandwidth bottlenecks

There are good reasons why communication service providers (CSPs) are evolving their current 10Gbit/s access and metro packet networks to 100Gbit/s. Innovation in mobile technologies, the digitization of cable networks, cloudification of businesses or simply bandwidth-hungry customers in multi-tenant business parks; all of these share the need for high-bandwidth connectivity. But to benefit from this growing demand CSPs need to scale their metro networks to 100Gbit/s.

It's quite a step

100Gbit/s signals are more sensitive to fiber impairments, less tolerant to noise, and the interfaces consume more power. Coherent interfaces must be applied in order to remove distance restrictions caused by fiber dispersion. What's more, high-bandwidth interfaces frequently come with lower port density and higher power consumption, impacting operational cost but also requiring additional investment in site construction and air conditioning. Those challenges must be considered when planning the network evolution. Luckily, technological innovation can help CSPs take this vital step.

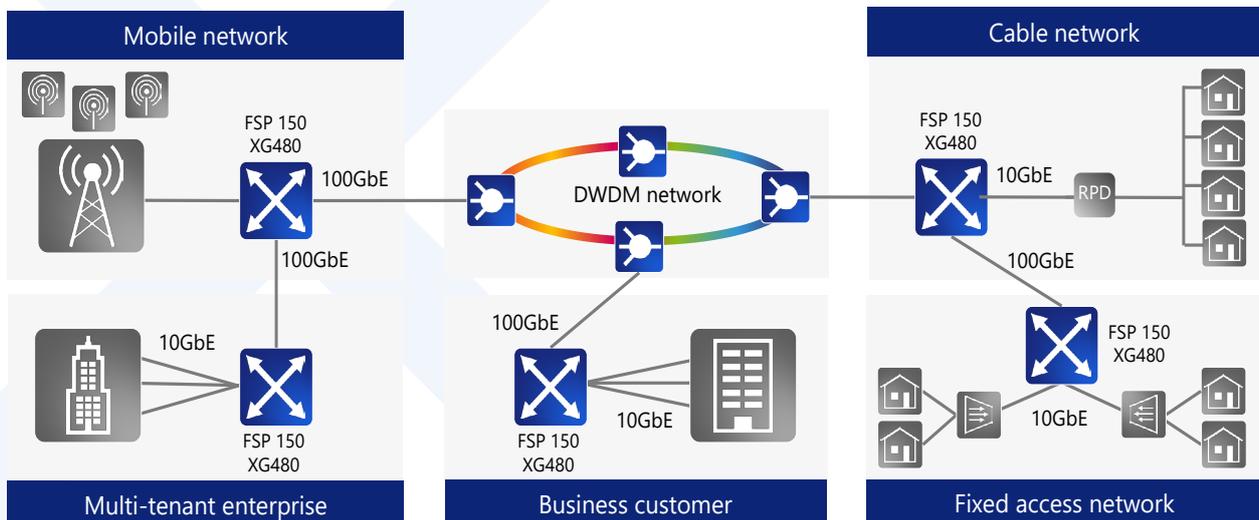
Ease of use makes the difference

Our compact and powerful FSP 150-XG480 aggregator with high 1, 10 and 25Gbit/s port count is an essential component for growing metro networks to 100Gbit/s. By supporting the same OAM capabilities as existing network gear, the move to higher bandwidth does not impact operational processes. With fully MEF 3.0-compliant interfaces, service activation in 100Gbit/s metro networks follows proven and well-established processes of existing CE networks.

Driving metro networks to 100Gbit/s

- ✘ Ever increasing numbers of mobile base-station sites demand powerful 100G backhaul networks
- ✘ Cable networks evolving to disaggregated access architecture create a need for 100Gbit/s aggregation hubs
- ✘ Multi-tenant business sites attract enterprises with especially lucrative, high-bandwidth communication services
- ✘ Converged multi-service networks aggregate traffic for efficient use of network resources on 100Gbit/s links

A small footprint enables equipment to be installed in addition or as a substitute to existing network gear, in many cases without the need for additional racks. While power consumption will grow, the environmentally hardened design allows operation even without air conditioning. This offloads CSPs from installing air-conditioning in shelters at the edge of their networks, minimizing the required infrastructure investment while significantly reducing power consumption.



Bandwidth service providers appreciate open control

As CSPs introduce new network elements, they can benefit from standardized NETCONF/YANG SDN interfaces for simplifying system integration. In combination with standard compliant user and network interfaces, our FSP 150-XG480 can be rolled out in the shortest time possible, allowing bandwidth service providers to respond to bandwidth needs in a fast and efficient way. Providing MEF 3.0-compliant OAM as well as service activation and testing features enables their service teams to operate the new network elements with established processes. What's more, there's no need for extensive training or re-engineering of existing workflows.

Synchronization is key in mobile backhaul networks

With any innovation in mobile radio access technologies there's an increasing need for accuracy of base station synchronization. Highly precise time and phase synchronization can only be provided from timing-aware backhaul networks. This is why our FSP 150-XG480 comes with sophisticated IEEE 1588 transparency clock capabilities for significantly improving performance for timing packets as they are forwarded over this high-capacity switch. What's more, our unique SyncJack™ synchronization assurance technology makes the FSP 150-XG480 a monitoring point to constantly control the accuracy of network synchronization. With full on-path timing support, our mobile backhaul solution provides precise synchronization to each and every base station.

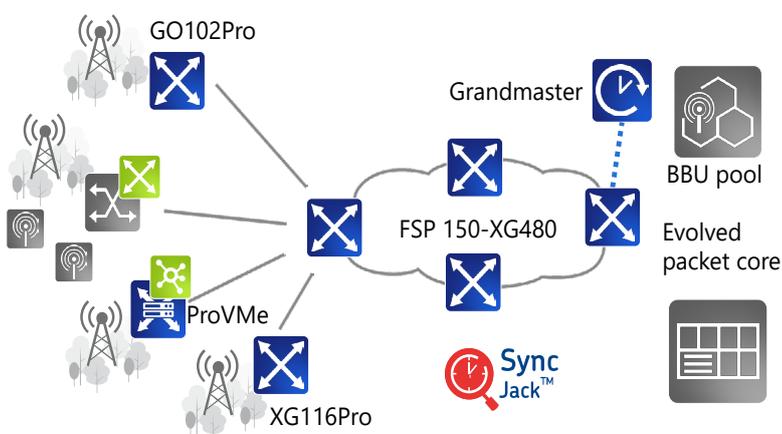
Key capabilities

- ✘ MEF 3.0-compliant interfaces and OAM capabilities for seamless integration into existing networks and established processes
- ✘ Comprehensive set of synchronization delivery and assurance features to meet even the most stringent timing requirement in mobile networks
- ✘ Unique ability to be applied under restricted space conditions at an extended temperature range
- ✘ High-density 1, 10 and 25Gbit/s interfaces for efficient traffic aggregation in converged, mobile, enterprise and cable networks

Cable networks from analog to digital

MSOs / cable network operators evolving their analog fiber networks to digital Ethernet transport creates the need for environmentally hardened, easy to operate 100Gbit/s aggregation nodes. Our FSP 150-XG480 is evaluated with major cable companies as it meets all of their size, environmental and feature needs in a way not matched by any other solution in the market. It connects a high number of remote PHY devices and also provides high-bandwidth connectivity services to business customers, aggregating traffic into 100Gbit/s wavelengths. Its colored interfaces offer a simple way to more efficiently use scarce fiber in the access network. Designed for 300mm ETSI racks, our FSP 150-XG480 is extremely compact, enabling cable network operators to meet key space-restriction challenges.

Connectivity and synchronization in mobile backhaul networks



- ✓ Hardened 100G aggregation
- ✓ Open, standardized interfaces
- ✓ Highly precise synchronization
- ✓ Compact, 300mm ETSI design
- ✓ MEF 3.0 interfaces and OAM
- ✓ 1/10/25 Gbit/s client interfaces