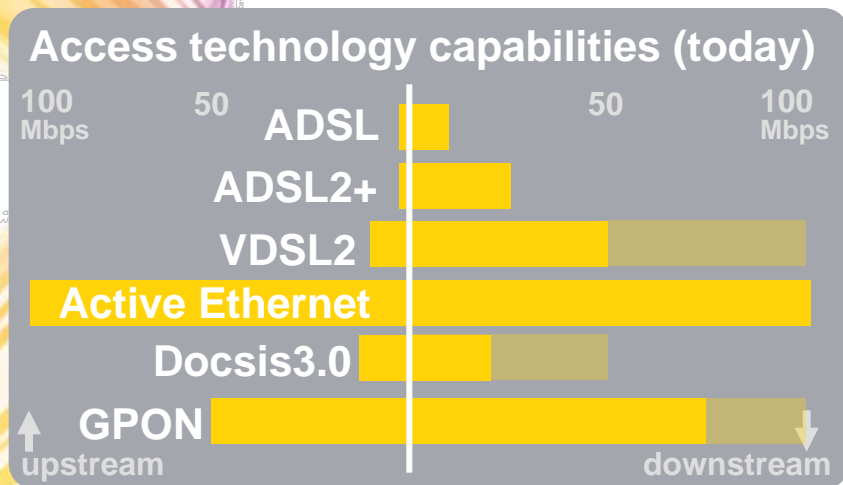
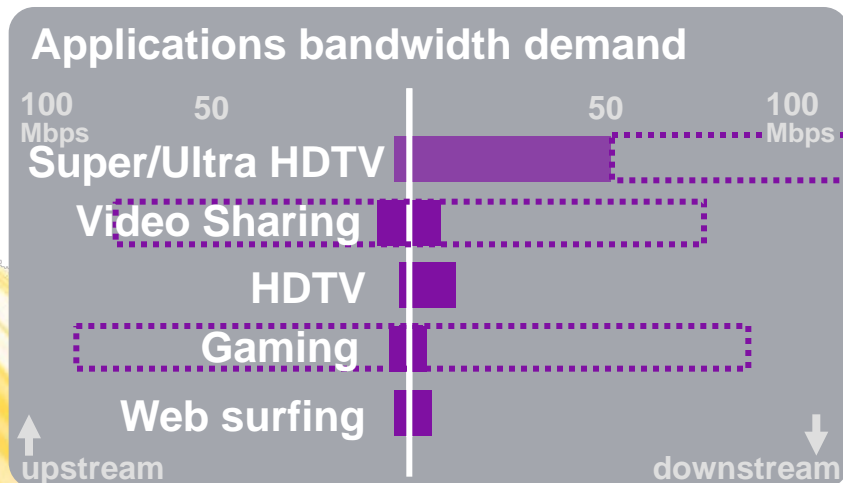


Wellenlängenmultiplexing im Access

Sigurd Schuster
Nokia Siemens Networks
CTO, Head of Technology Roadmapping

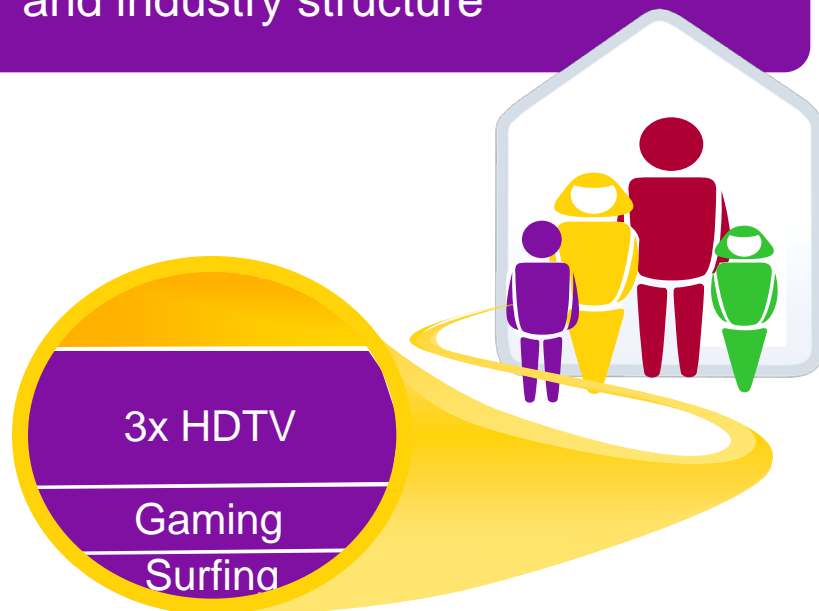
8. Sitzung des NGA-Forums am 8. Dezember 2010

It becomes difficult to satisfy bandwidth hunger with today's access technologies



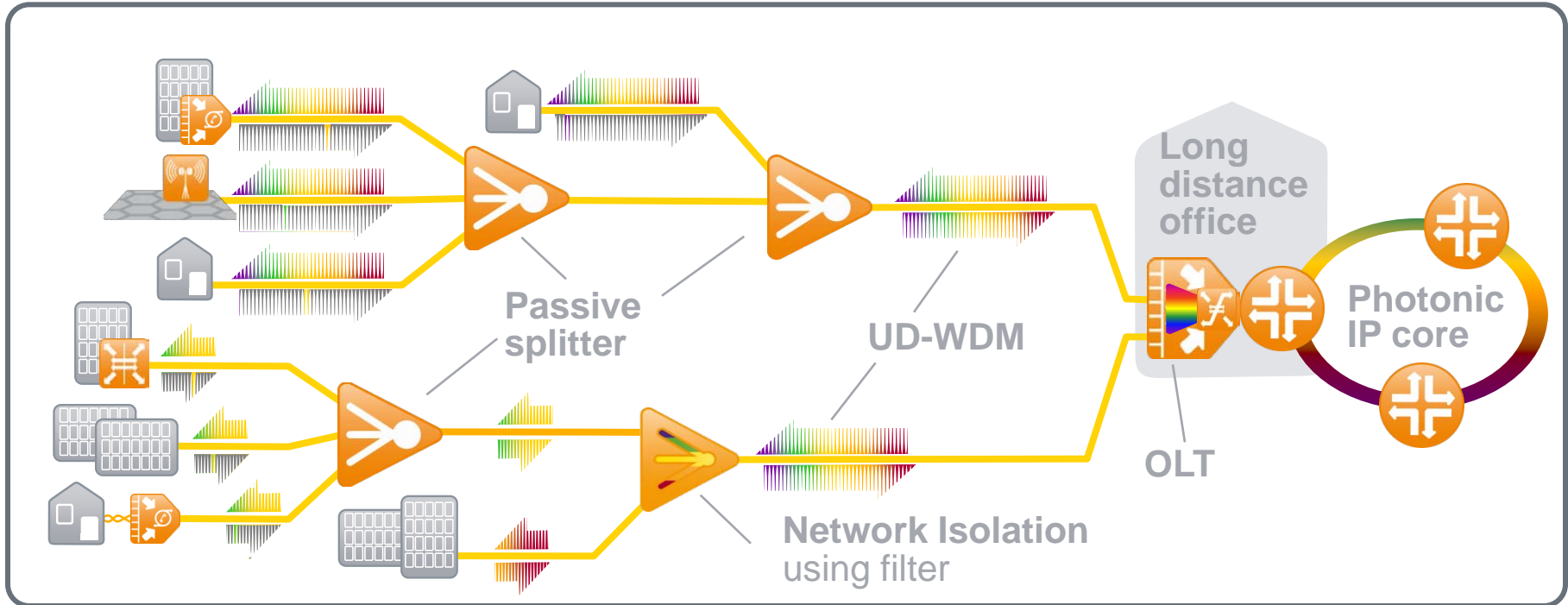
Next Generation Access:

- Being future-proof and allowing reuse of installed infrastructure
- Providing operational effectiveness and efficiency
- Enabling evolution of biz models and industry structure



Next Generation Optical Access (NGOA)

Principle of coherent PON



One wavelength per customer: unshared 1Gbps symmetrical

Scalable network:

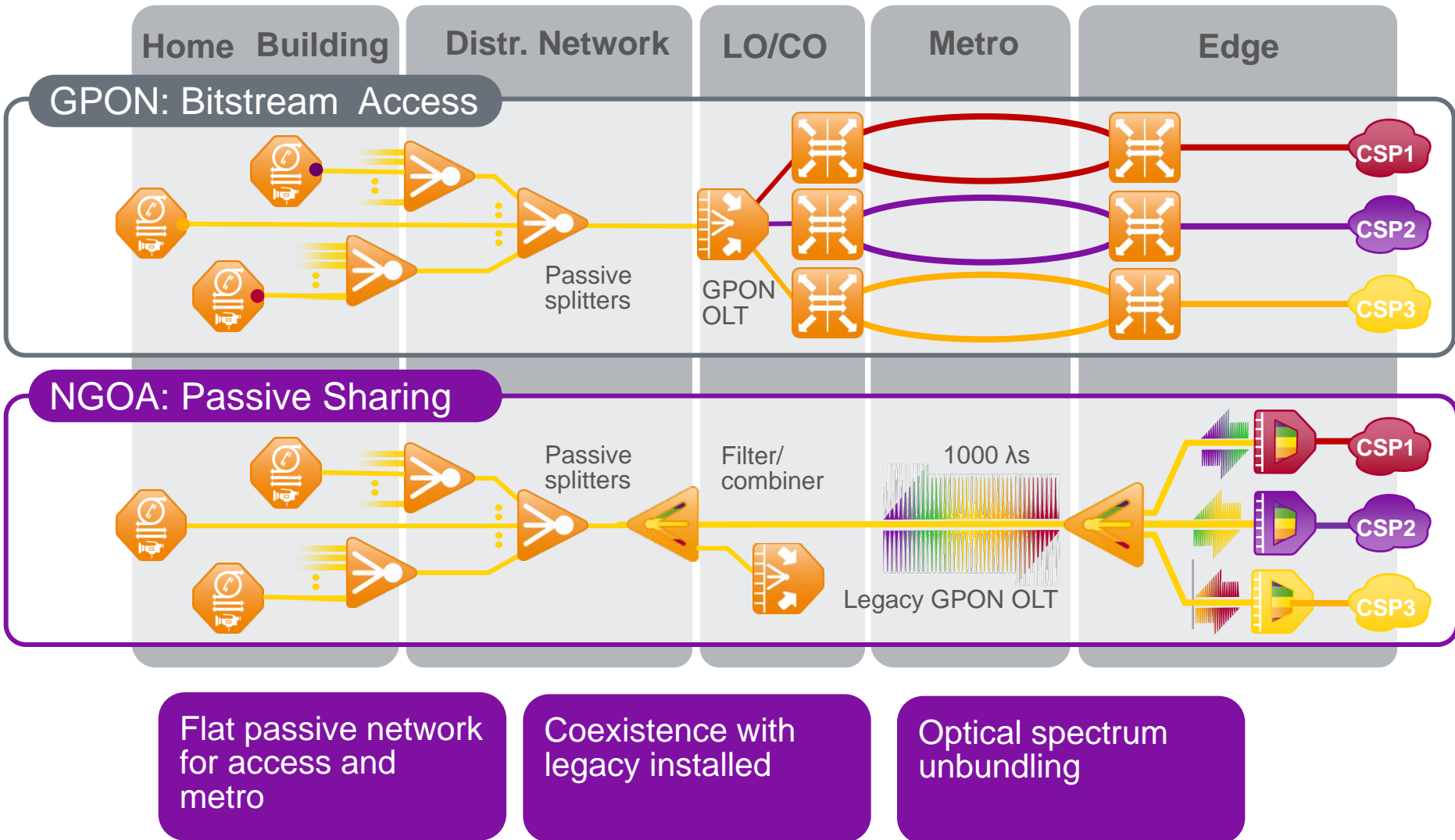
- Up to 100 km reach¹⁾
- High splitting factor of ≤ 1000 1)

Reuse of existing optical distribution network (ODN) – seamless interworking with existing infrastructure

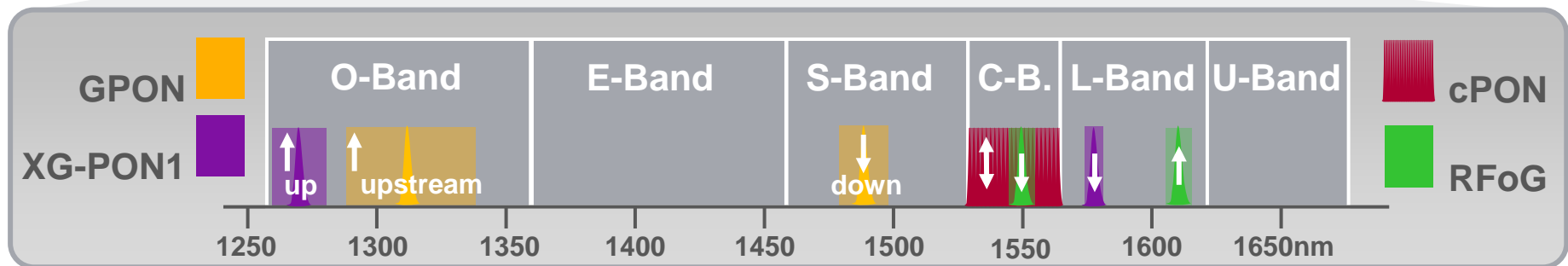
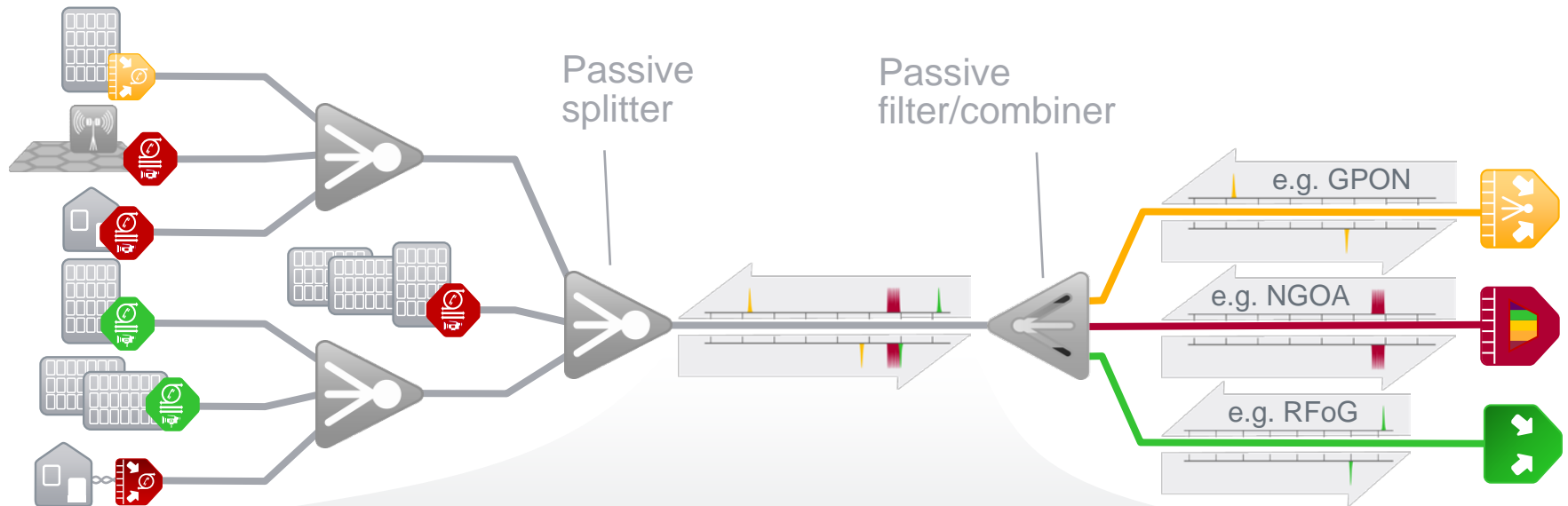
1) depending on choice of cascaded splitter / filter design

Different ways of access sharing

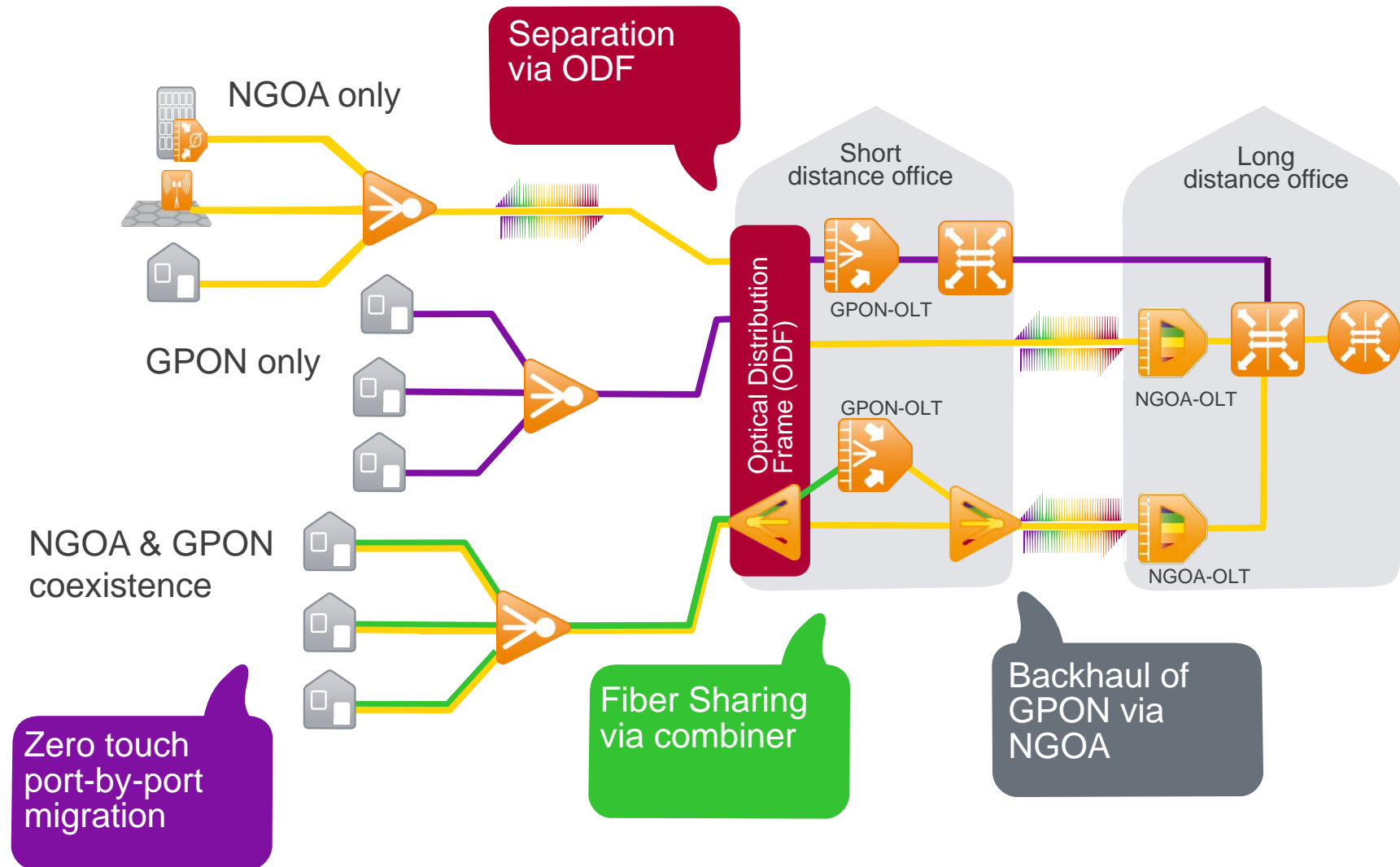
Ways to realize open access and loop unbundling



Coexistence of technologies and services on different wavelengths

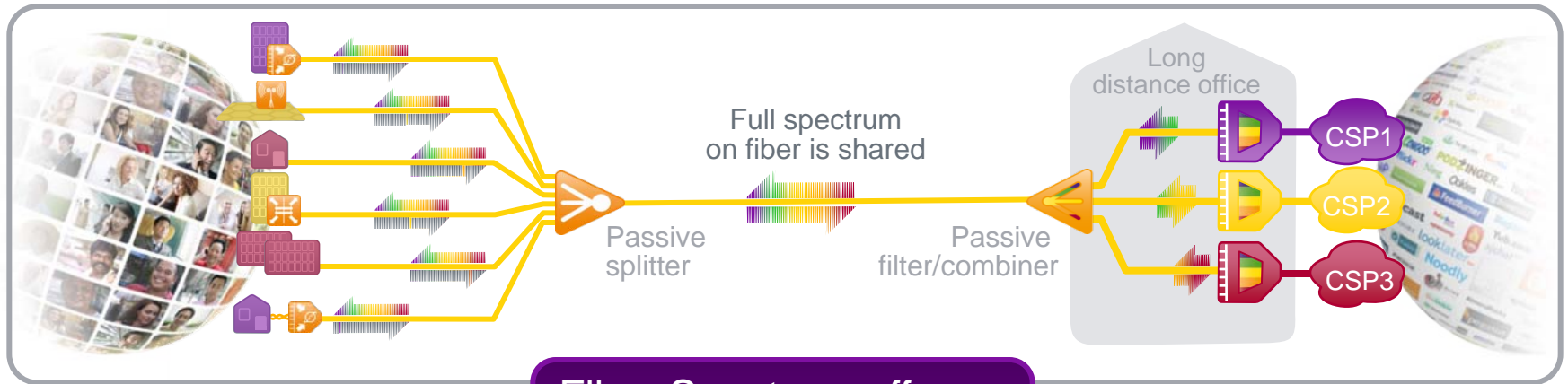


Coexistence and migration



Next Generation Optical Access – NGOA

The economic choice for fiber



Sharing of infrastructure
minimizes the
investment risk
*Up to 80 % of fiber
investment is OSP*

Fiber Spectrum offers
sufficient space for
services

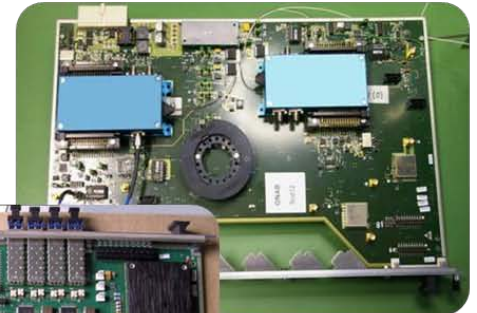
Passive wavelength
unbundling simplifies
operation
*Bit stream unbundling
would be still possible*

Ongoing research project representing highly advanced opto-electronic component integration



- Lab demonstrator actually used for proof of concept tests and measurements
- Lab testing of the integrated optical components is ongoing
- Standardization initiated
- Productization steps are under study

are under study



Future is not something
we travel to...

.... it's something we build together.

Thank you.



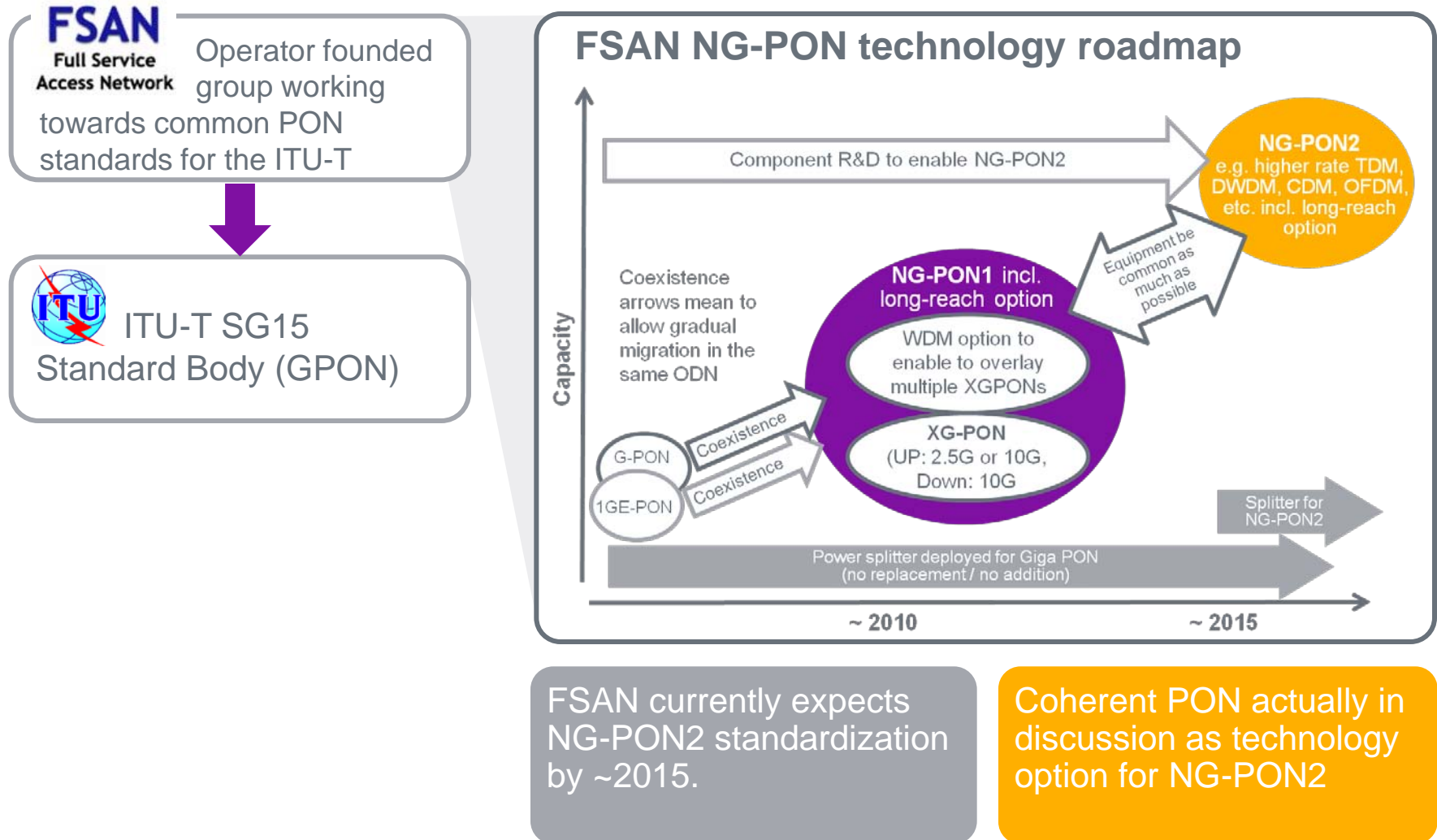
Appendix:

Wellenlängenmultiplexing im Access

Sigurd Schuster
Nokia Siemens Networks
CTO, Head of Technology Roadmapping

8. Sitzung des NGA-Forums am 8. Dezember 2010

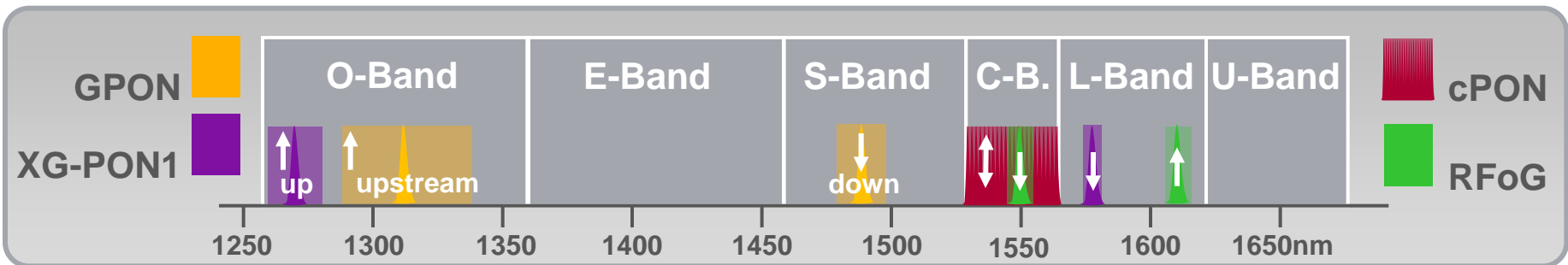
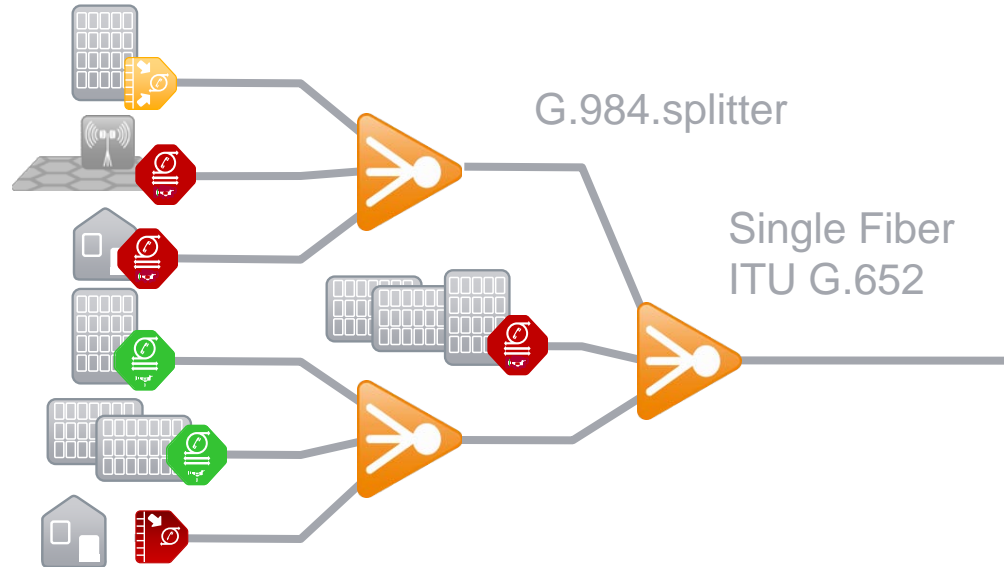
Standardization of the Next Generation Access (NG-PON2) expected by ~2015



Future proof optical distribution network (ODN): Passive network without any filters

Enable flexible sharing of wavelength spectrum in order to allow coexistence of services & technologies today and in the future

➡ Avoid separation of the ODN with filters by consequent use of splitters



How to ensure security, protection and privacy on shared access media like PONs

GPON security today is ensured by means of secure **authentication** and payload **encryption**.

Coherent PON adapts similar, proven mechanisms (but bi-directional) and leverages on **unshared wavelengths** which are centrally and securely managed.

Methods of handling **rogue wavelengths** are under investigation.