

Invited paper

**Optical access evolutions and their impact on
the metropolitan and home networks**

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Abstract

This paper describes broadband optical access networks including high speed home interfaces for fixed and mobile services. Access technical challenges are also discussed, namely concerning extended budget, 10 Gbit/s as well as the impact of the metropolitan network.

Extended Abstract

The advantages of Passive Optical Network (PON) have been largely recognized. Already standardized G-PON (Gigabit-capable Passive Optical Networks) are being deployed in many countries since they are a promising technology for cost-effective user-shared system infrastructure. Recent developments in PON technologies offer solutions to operators to increase the splitting ratio or the optical budget dedicated to the reach. These facts will allow operators to gradually optimize the number of central office. Fixed and mobile services could also be merged in the same optical network in order to optimize systems co-location. Such evolution and 10Gbit/s PON have also a strong impact on metropolitan networks concerning architectures and connectivity model. Finally, even if 100Mbit/s or 1Gbit/s interfaces are now feasible for FTTH users, the bottleneck could become the high speed connectivity in the home network. In order to deliver such high speed interfaces coming from the access everywhere in the domestic area, different solutions have been analyzed in terms of easiness and future capability.



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Philippe Chanclou received the Ph. D. degrees from Rennes University, France in 1999. In 1996, he joined FT R&D where he was engaged in research on active and passive optical telecommunications functions for access networks. In 2000, he joined the University of ENST-Bretagne as a senior lecturer where he was engaged in research on optical switching and optical devices using liquid crystal for telecommunications. From 2001 to 2003, he has participated to the foundation of Optogone Company. Since 2004, he joined FT R&D where he is engaged in research on the next generation optical access networks.