100GRIA

100Gbit/s Réseau Internet Adaptif

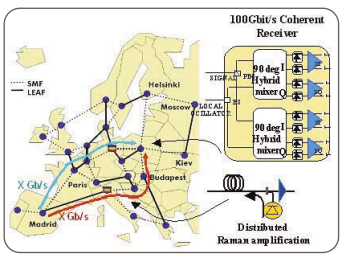
ON GOING PROJECT

The objective of 100GRIA is to design, assemble and test a prototype of the new generation of 100 Gb/s terminals and to redefine rules of conception and exploitation for 100 Gb/s optical networks. The goals of the project are to optimize new technologies which are mandatory for this high bit rate transmission: new integrated photoreceiver compatible with advanced modulation formats, pump modules integrating powerful semiconductor diodes for distributed Raman amplification, planning and dimensioning tools with new engineering rules enabling at least 1 500 km reach. One of the important outcome of the project will be the test of a photoreceiver on an Alcatel-Lucent product platform.

TECHNOLOGICAL OR SCIENTIFIC INNOVATIONS

Design and assembly of a new generation coherent receiver prototype, achieving better integration and compatibility with new modulation formats which will increase the reach of the transmission systems. The prototype will be tested on an Alcatel-Lucent product platforms.

- Powerful diodes (→ 500 mW) to allow for higher power Raman amplifiers, and to simplify the architecture and lower the cost of existing Raman amplifiers.
- Rules of conception of the connections at 100 Gb/s at least 1 500 km reach, with and without Raman amplification, which will allow the migration from systems operating at 10 Gb/s and 40 Gb/s towards 100 Gb/s systems.



- Develop tools able firstly to dimension the network thanks to routing which optimizes the usage of resources, while taking into account the physical impairments for 100?Gbit/s signal; and secondly to estimate the influence of packet aggregation and its interaction with the 100 Gb/s optical layer.

STATUS - MAIN PROJECT OUTCOMES

- The project will begin mid 2010
- Expected main outcomes:
  - New engineering rules for optical network with 100 Gb/s channels enabling ultra-long reach, compatiblity with 10 Gb/s systems;
  - A Packaged photoreceiver integrating Wideband (28 GHz) and linear (up to 10 mA) photodiode and Differential Trans-Impedance Amplifier will be test on a product platform;
  - A Packaged pump module with 1.2 W output power integrating the high power semiconductor diodes (550 mW) developed in the project.

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TELECOM SUDPARIS, UNIVERSITE DE NANTES

PROJECT DATA

Coordinator:
ALCATEL-LUCENT BELL LABS FRANCE

Call:
FUI9

Start date:
June 2010

Duration:
27 months

Global budget (M€):
5.4

Funding (M€):
1.6