

Invited paper

Optical Packet Add/Drop Multiplexers for packet ring networks

Dominique Chiaroni
Alcatel-Lucent Bell Labs
Route de Villejust, 91620 Nozay, France

Abstract

The introduction of xPONs creates new needs in the upper network segments. The French National project, ECOFRAME, proposes a WDM metro network concept to offer optical transparency and packet granularity. This paper describes then the different technical directions adopted in this project and will give the more recent technical results.

Extended Abstract

This paper will describe the objectives of the National ECOFRAME project. This three year project partly funded by the ANR (Research National Agency) involves a consortium of 8 partners : 3 from the industry : Alcatel-Lucent France, France Telecom Orange and KLOE, a SME; and five universities and 5 engineering schools : ENST, ENST Bretagne, INT, University of Versailles, University of Limoges. The objective of this project is to design and demonstrate the feasibility of a WDM packet ring network exploiting a new optical technology. The project analyses different aspects like : the physical layer (theoretical and experimental simulations , optical integration, FEC packet), the different protocols required (including an extended MAC) for a pragmatic implementation, technico-economics to position the concepts with respect to other alternatives.

A first part will describe the technical direction adopted. In that perspective, simulations results will be shown to motivate the choices adopted. A technico-economic analysis will show that CAPEX saving can be also a strong argument of the approach. Finally, each technical topic will be addressed to give the most recent results pointing physical simulations, MAC protocol, FEC, etc. A particular focus will be made on the demonstrator realised for the proof of concept.



Dominique Chiaroni

Dominique Chiaroni was born in Ajaccio, Corsica (France), in April 27th, 1962. Graduated by the "Institut National des Télécommunications d'Evry", he has been engaged in 1990 by Alcatel CIT to work essentially on optical switching technologies and related systems and networks. He was particularly involved in many European and National projects as project leader, work package leader or direct contributor, and active in international conferences as co-chair or as member of the technical committees. Distinguished member of the Alcatel-Lucent Technical Academy, he is author and co-author of more than 150 publications and patents including several invited papers and tutorials.