



## **Romanian Nren Network Evolution Towards Dwdm**

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The RoEduNet network was started in 1991 in a bottom-up approach to build the Romanian NREN (National Research and Education Network) with participation of the most important Universities in Romania. The network has been officially recognized by the government in 1998. Since 2001, RoEduNet is member of the GEANT consortium.

The role of the NREN is to provide services as requested by research and education community and, also, to act proactively as national focus on designing and implementing advanced and innovative projects that rely on the research and education community itself. In order to fulfill its role, each NREN needs stable and advanced infrastructure and services to provide support for the future needs of this community. It is not possible to rely only on market offers for the provisioning of necessary communication services and it is necessary a strong, dynamic and stable not-for-profit organization in order to build maintain and develop the necessary state of the art communication infrastructure.

To provide the national communication infrastructure for the research and education community in Romania, in 2006 we started the RoEduNet2 project. The aim of this project was to build a national network based on dark fiber and DWDM technology. According to the feasibility study elaborated by RoEduNet, a number of technologies and specific requirements were identified to fulfill the specific needs of the research community. These technologies were necessary to provide dynamic reconfigurable lambda paths in the network, operation of the network on standard and relatively old optic fiber, support for the future growth of the necessary communication capacity and support for own research on the optical infrastructure. On top of these, the infrastructure total cost of ownership should be as low as possible.

The RoEduNet2 project has been realized within a joint project with state owned company Telecomunicatii CFR, which owns the optic fiber, the result being a state of the art DWDM national network with 55 nodes and a total length of more than 4000 km of fiber. Starting with late 2008, RoEduNet2 infrastructure provides to the research and education community multiple 10 Gbps circuits and support for future 40 Gbps and 100 Gbps lambdas, but also a test-bed for modern optical communications.