Consiglio Nazionale delle Ricerche

CNR-Istituto di **Elettronica** e di **Ingegneria** dell'**Informazione** e delle **Telecomunicazioni**

Thursday seminars

Taking a Look at the Future: a cocktail hour event!

Consiglio Nazionale delle Ricerche

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SDN control of disaggregated optical networks

The utilization of disaggregated equipment in optical transport networks is emerging as an attractive solution to bring flexibility and prevent network operators from vendor lock-in dependencies. The disaggregation concept can be applied vertically (as in the most traditional SDN approach) to separate the control plane from the data plane, and horizontally aiming at decomposing the optical data plane in its single components. The first step for enabling a vertically disaggregated optical network is the standardization of well-defined interfaces between the data plane and the network controller, thus bypassing proprietary network management systems. To this end, relevant work is ongoing in the definition of multi-source agreements and YANG models for disaggregated devices. This way, an SDN controller could build on standard YANG models and procedures to consistently control, configure and monitor the optical network. This approach also enables operators and service providers to rapidly innovate the offered services through the implementation of specific applications on the top of the SDN controller. The first level of horizontal disaggregation ipresents the data plane as a set of terminal devices (i.e., transponders) and Optical Line Systems (OLS). With this solution, the operators are enabled to independently upgrade transponders, which typically have a shorter technological life-cycle. Alternatively, the data plane can be disaggregated in transponders and reconfigurable optical add-drop multiplexers (ROADMs), and, going deeper in the disaggregation process, each ROADM can be further decomposed in a set of ROADM degrees or even more elementary components (e.g., optical filters and optical amplifiers). As an example, there are already commercially available products disaggregating the optical nodes in single node degrees. This talk reports on the state-of-art, current trends, potentials and limitations of the SDN control applied to disaggregated optical networks.

Registration form

Teams Webinar • 9 March 2023 – 17:30

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