Flexible Optical Cross-connect nodes enabling next generation flexible optical networking – FOX-C

Program/Call Reference, Strategic Priority, Grant Agreement Number, Project Type
FP7/ ICT-2011-8-1.1– Future Networks, Grant Agreement No 318415, STREP

Project Objectives
Flexible optical networking is widely proposed today by major vendors and operators as the solution that offers smooth system upgradability towards Tb/s capacities and optimized use of network resources. Latest research and development efforts proposed a variety of multi-carrier signal transmission methods with significantly increased spectral efficiency, (compared to legacy WDM), allowing the transport of ultra-high capacity channels and the adaptive filling of wavelength channels according to the demands and the required performance on a link distance basis. These developments enable the flexible bandwidth utilization of the optical links but are limited to the point-to-point transport of data. The key network element required to truly enable the realization of a flexible optical networking system is a flexible switching node capable to adaptively add, drop and switch tributaries with variable bandwidth characteristics from/to ultra-high capacity wavelength channels at the lowest switching granularity.

The FOX-C project proposal aims to design, develop and evaluate the first functional system prototype of flexible add-drop multiplexers and flexible optical cross-connects, with fine switching granularity at the optical subcarrier level with the purpose to enable the end-to-end network routing of any tributary channel with flexible bandwidth down to 10Gb/s carried over wavelength superchannels, each with an aggregated capacity beyond 1Tb/s. Moreover, the project will define and evaluate the flexible transmission solutions and their exact characteristics, thus providing a holistic flexible optical networking approach applicable in next generation networks.
The FOX-C project consortium consists of industrial partners with leading position in the field of optical node design and development, as well as academic partners with worldwide recognised research on flexible transmission solutions, forming together a strong research team capable of meeting the project objectives.

Project Starting Date and Duration / Total Cost – Total EU Contribution
01/10/2012, 36 Months/ 3.641.564 € - 2.567.000 €

AIT’s Role/Principal Investigator
Technical Management, Leader of the experimental evaluation activities/Prof. Ioannis Tomkos (itom@ait.gr)

AIT’s Main Work
Definition and evaluation of system requirements, Techno-economic evaluation, Performance evaluation of developed devices

Main Partners

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<thead>
<tr>
<th>Partner Name</th>
<th>Role</th>
<th>Funding</th>
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</thead>
<tbody>
<tr>
<td>1 Optronics</td>
<td>Coordinator</td>
<td>153.361 €</td>
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<tr>
<td>2 AIT</td>
<td>Technical Manager, Research, Technology</td>
<td>392.500 €</td>
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<tr>
<td>9 Partners in total</td>
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<td>2.567.000 €</td>
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