Optical Packet and Circuit Integrated Network (OPCI Net)
National Institute of Information and Communications Technology (NICT), Japan

Fig. An image of optical packet and circuit integrated network (OPCI Net)

Characteristics of OPCI Net

1. Both packet- and circuit-switching on the same fiber network infrastructure → Providing diverse services
2. Dynamic wavelength-resource allocation to OPS & OCS → Autonomous distributed resource allocation
3. Path control messages are transferred by means of optical packets → Unified control interface for OPS & OCS
4. Advanced optical switching technologies → Contribution to higher energy efficiency


Optical Node for OPCI Net

Stable simultaneous transfer of both optical packets and optical path signals
Interworking between OPCI Net control and OpenFlow

Flow Mapping Table:

<table>
<thead>
<tr>
<th>Physical port number</th>
<th>Destination MAC address</th>
<th>VLAN ID</th>
<th>Destination IP address</th>
<th>Destination L4 port number</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>192.168.2.2</td>
<td>25 (SMTP)</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>192.168.3.3</td>
<td>123 (NTP)</td>
</tr>
</tbody>
</table>

For each flow, our OpenFlow controller defines the switching method (OPS or OCS) & route & wavelengths on OPCI Net … Simple & Flexible control

Demonstration - a part of Interworking between OCS control & OpenFlow -

* Matching Rule … Source MAC address + VLAN ID

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