The STRAUSS Project

Raul Muñoz (EU Project Coordinator)
Ken-ichi Kitayama (JP Project Coordinator)

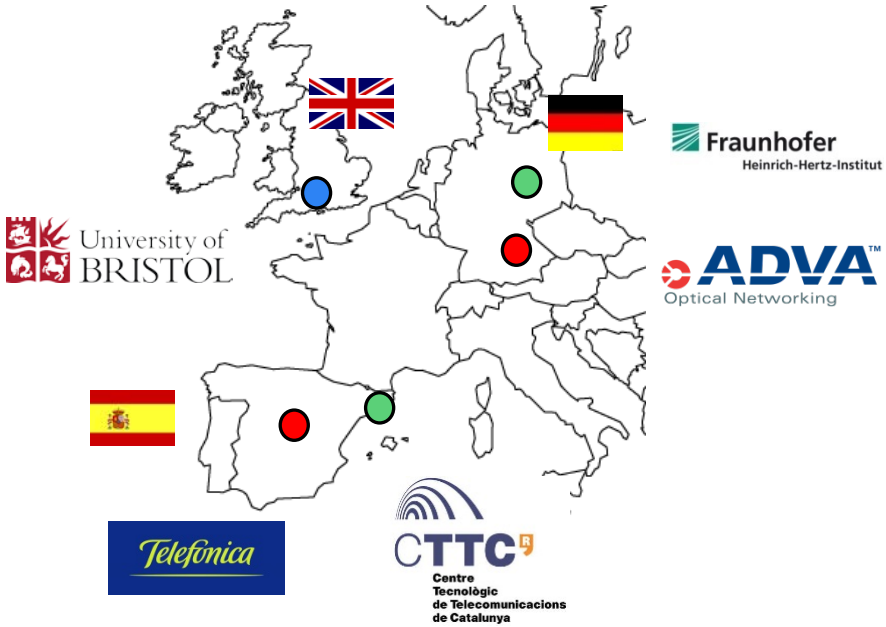
Outline

* Administrative information
* Consortium
* Project motivation
* STRAUSS architecture
* Project objectives
* Work methodology
* Expected Impact

Administrative Information

* **Project Name:** Scalable and efficient orchestration of Ethernet services using software-defined and flexible optical networks.
* **Acronym:** STRAUSS
* **Call identifier**: FP7-ICT-2013- EU-Japan (Coordinated EU-Japan Call)
* **Funding scheme:** STREP
* **EU Project Coordinator:** Dr. Raul Muñoz. Centre Tecnològic de Telecomunicacions de Catalunya (CTTC)
* **JP Project Coordinator**: Prof. Ken-ichi Kitayama. Osaka University
* **Duration:** 36 months (1st June 2013 – 31st May 2016)
* **Total Cost:** € 5.033.882.
* **EC Contribution:** € 1.498.990.
* **JP Contribution:** € 2.820.000
* **Project website:** www.ict-strauss.eu

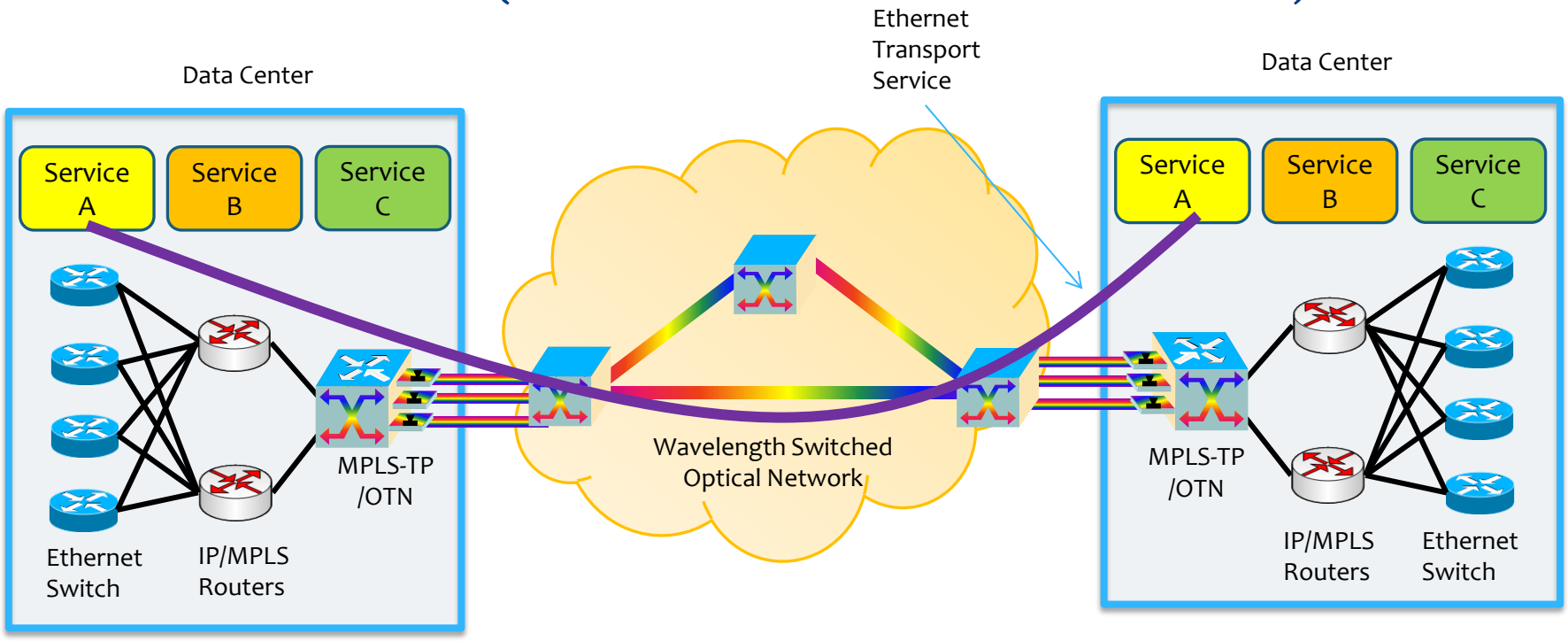
EU and JP Consortia



Industrial Partners Research Centers Universities

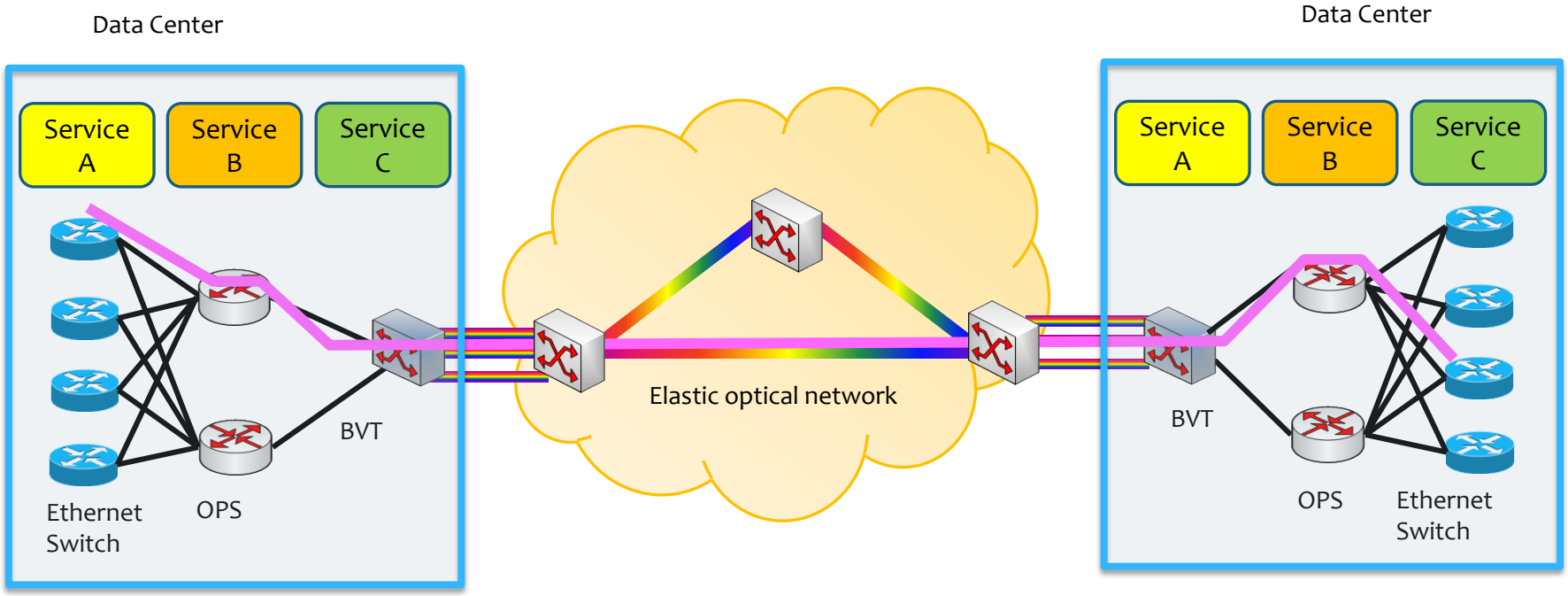
The need for optical Ethernet transport

* The main driver for the development of efficient transport infrastructures for Ethernet services is the adoption of Ethernet as the technology of choice in data centers (both intra- and inter- data center traffic).



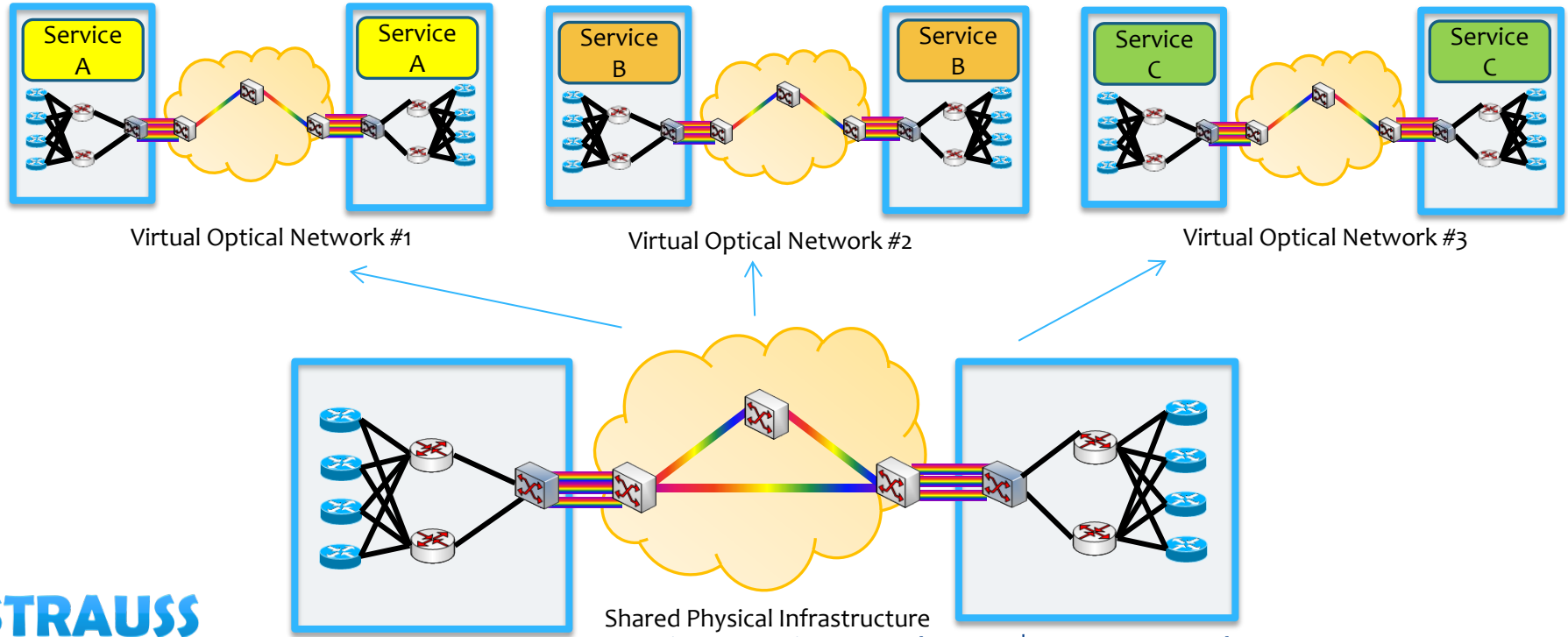
The need for flexible optical networks and OPS for data rates beyond 100 Gbps

* Fixed-grid DWDM transport networks, electrical packet switching and aggregation technologies are not efficient for data rates beyond 100 Gbps.
* Elastic optical networks (EON) and optical packet switching (OPS) are key technologies for addressing these issues



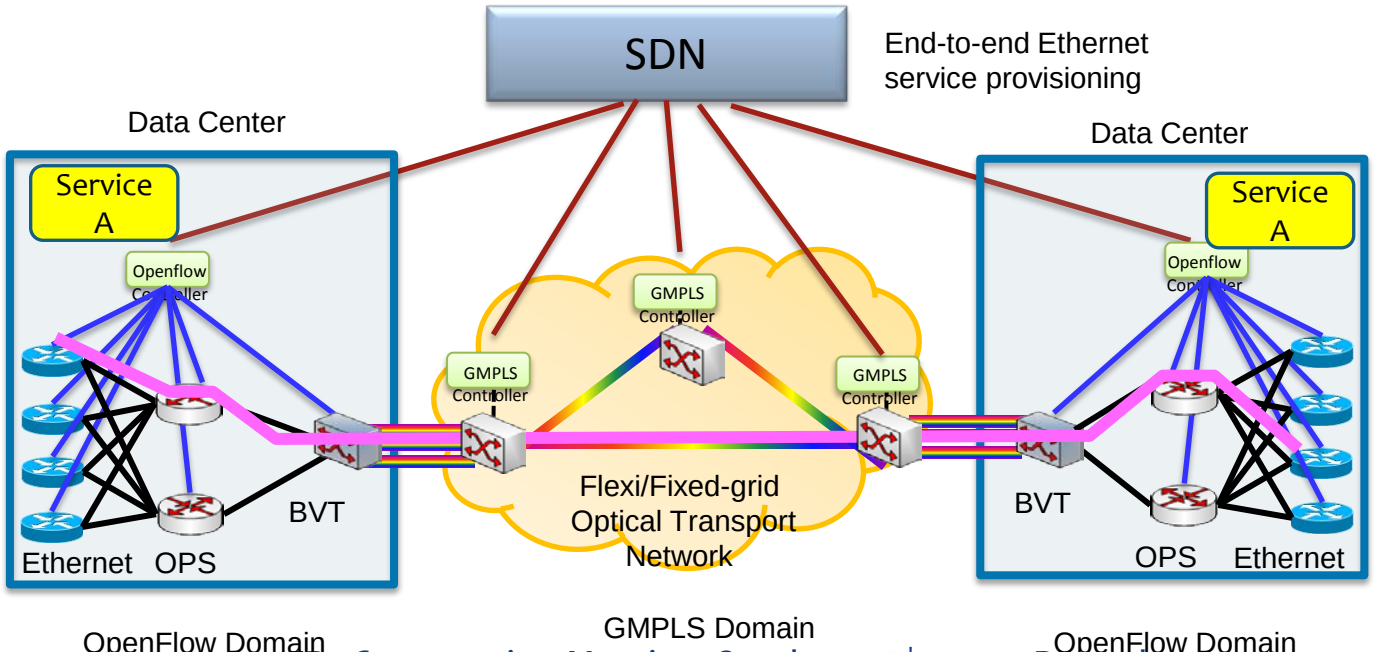
The need for optical network virtualization

* Each data center service has its own specific QoS and SLA requirements.
* Network operators require dedicated and application-specific optical networks.
* Optical network virtualization is a key technology for addressing this issue.

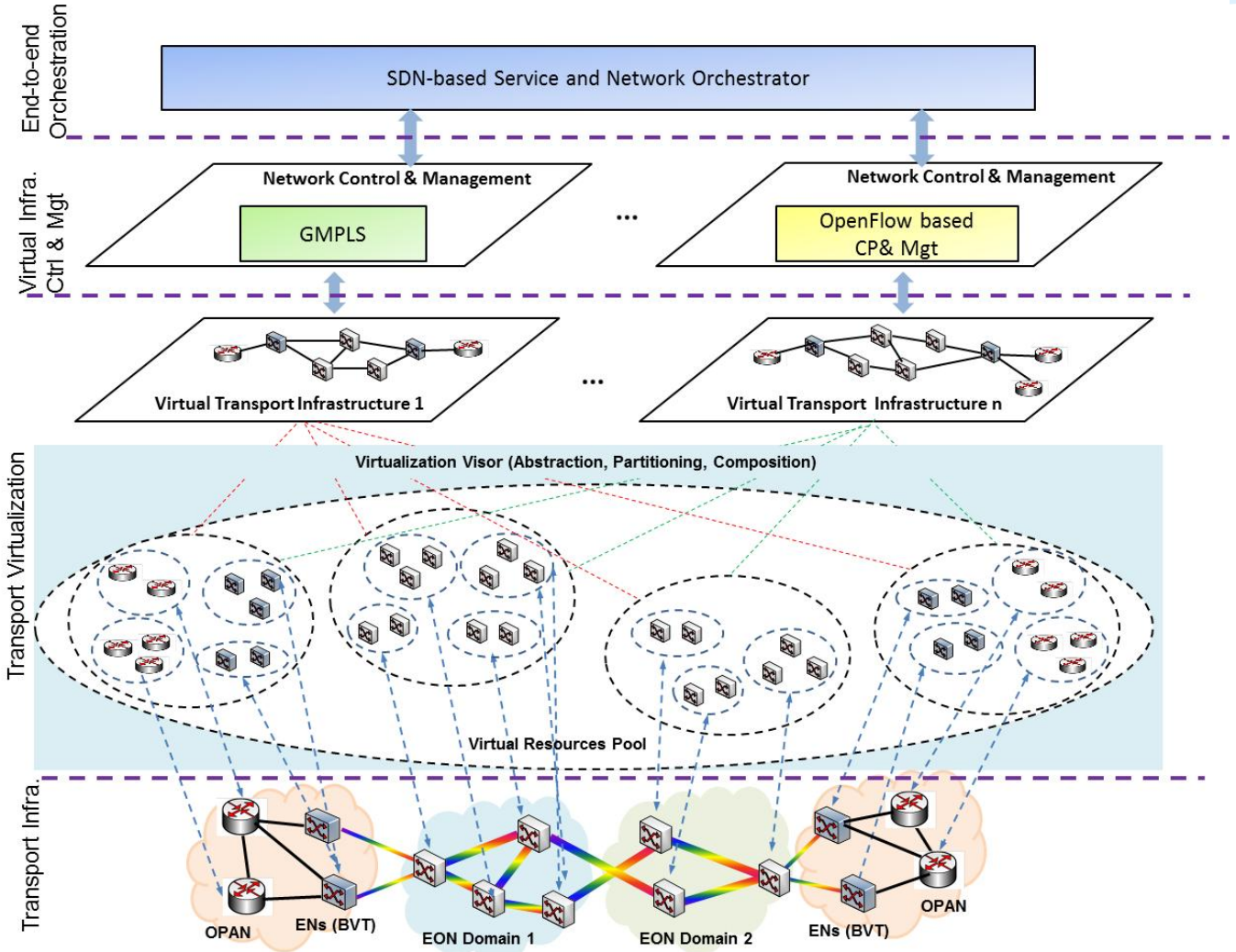


The need for software defined optical network

* Each requires a control plane (e.g. OpenFlow or GMPLS) for the provisioning of dynamic, adaptive and fault-tolerant network services.
* A physical infrastructure comprising heterogeneous optical transport and control plane technologies does not naturally interoperate.
* Software defined Networking (SDN) is a key technology for addressing this issue.



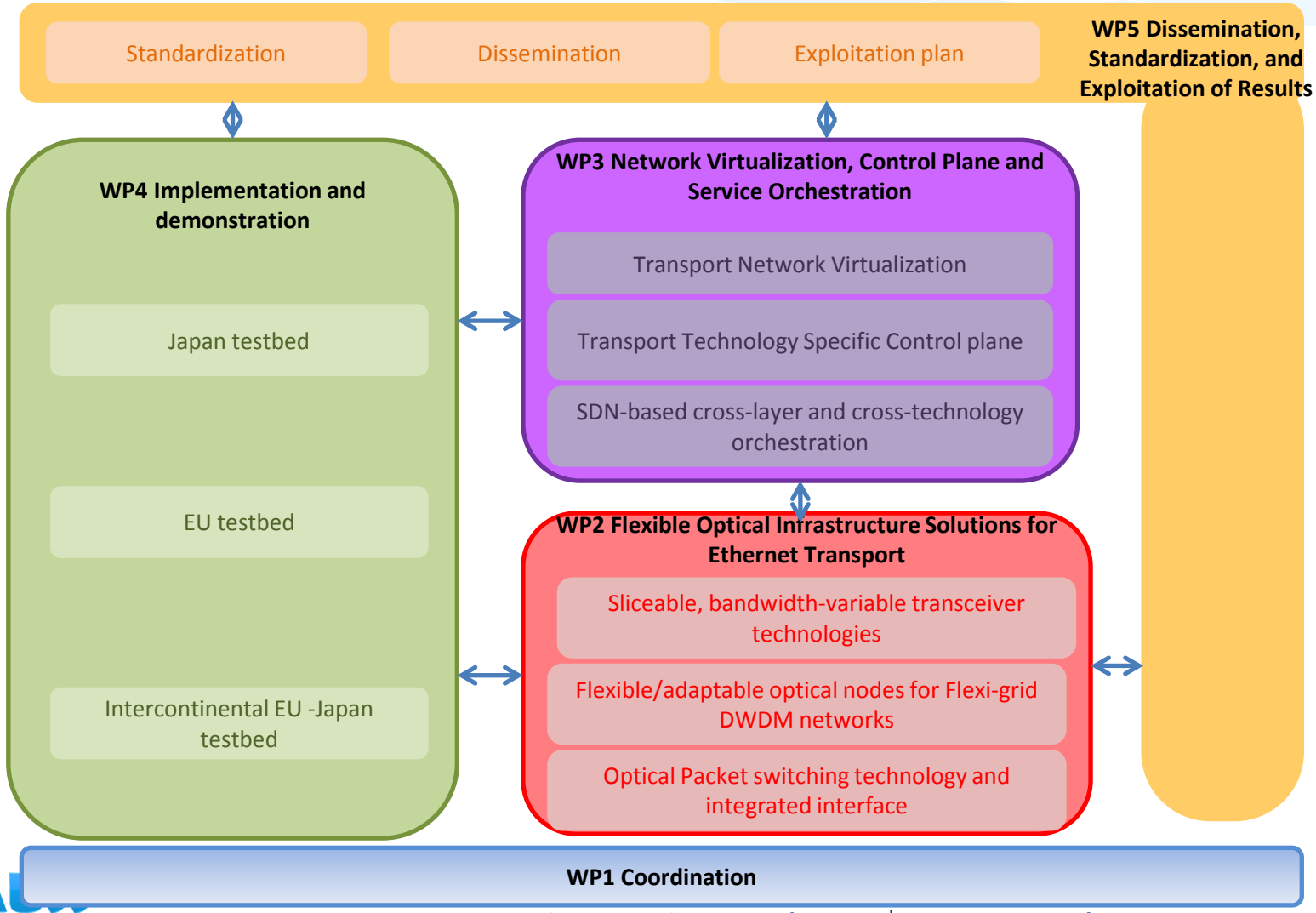
Overall architecture



Project Objectives

* To investigate cost/energy-efficient solutions for transmission and data plane aspects such as the design and development of sliceable transponders, flexible nodes and the integrated interface between fixed-length, variable-capacity OPS and flexible OCS switching nodes.
* To identify the requirements, use cases and architectural and functional design of the transport network virtualization.
* To investigate the OpenFlow protocol extensions and the SDN orchestrator for cross-layer (OPS and flexi-grid OCS) and cross-technology (GMPLS and OpenFlow-controlled) network infrastructures.
* The integration, experimental validation and demonstration of the implemented systems through both standalone EU and Japan testbeds and intercontinental EU-Japan experimental platform.

WP Overview


Standardization
Dissemination
Exploitation plan
WP5 Dissemination, Standardization, and Exploitation of Results
WP4 Implementation and demonstration
Japan testbed
EU testbed
Intercontinental EU -Japan testbed
WP3 Network Virtualization, Control Plane and Service Orchestration
Transport Network Virtualization
Transport Technology Specific Control plane
SDN-based cross-layer and cross-technology orchestration
WP2 Flexible Optical Infrastructure Solutions for Ethernet Transport
Sliceable, bandwidth-variable transceiver technologies
Flexible/adaptable optical nodes for Flexi-grid DWDM networks
Optical Packet switching technology and integrated interface
WP1 Coordination

Expected outcomes

STRAUSS can;

* Become a role model of successful ICT EU-Japan research and development cooperation
* Contribute a future-proof >100G-Ethernet technology to the international standardization bodies such as OIF and IEEE802
* Help shortening time-to-market of a wide variety of networked applications by offering a new paradigm of optical network virtualization and software defined networks based upon cost/energy-efficient Ethernet transport

Thank you!

www.ict-strauss.eu

Follow us on Twitter: @ICTstrauss