What GEYSERS offers?

- Novel architecture and tools for **virtual infrastructure composition** over shared optical network + IT resources
- Enhanced control plane (ASON/GMPLS + PCE) to provision advanced transport services with integrated IT services
- New business roles for legacy infrastructure providers, network + IT providers, application providers
- Enabling **dynamic optical network services in cloud computing**

**Network + IT Services**

**Virtual Infrastructure**

**Physical Infrastructure**

**Network Control Plane +**

GMPLS/PCE enhanced to provide on-demand joint connectivity + IT services for IT service providers

- New connectivity paradigms:
  - Unicast: traditional service between two network end-points
  - Assisted unicast: quotations of network services between multiple pairs of network end-points
  - Anycast: joint path computation & selection of IT end-points
  - Advance reservations for scheduled network services
- Network service monitoring and recovery with
  - Automatic service restoration
  - Cross-layer escalation procedures
- NIPS UNI for the service-to-network interfacing
  - RESTful request & network services monitoring for the service middleware
  - IT resources advertisement into the network control plane

**Logical Infrastructure Composition Layer**

- The Logical Infrastructure Composition Layer acts as a middleware aiming at decoupling infrastructure resource management from the actual service provisioning
- The Logical Infrastructure Composition Layer brings the innovation at the infrastructure level by virtualizing the infrastructure resources:
  - Introduce the lastS paradigm to the telco environment
  - Compose mixed infrastructures, from optical network and IT resources
  - Expose virtual resources control and management interfaces to network operators
  - Enables dynamic infrastructure planning and re-planning upon NCP+ or SML request.
- The LICL is based on three main pillars:
  - Resource abstraction and composition
  - Information Modeling Framework + Security Framework
  - Virtual infrastructure provisioning and management
- LICL is responsible for the creation and maintenance of virtual resources as well as virtual infrastructures
  - LICL provides WS-based interfaces to control, manage, and operate the composed resources