

GEYSERS

GENERALISED ARCHITECTURE FOR DYNAMIC INFRASTRUCTURE SERVICES



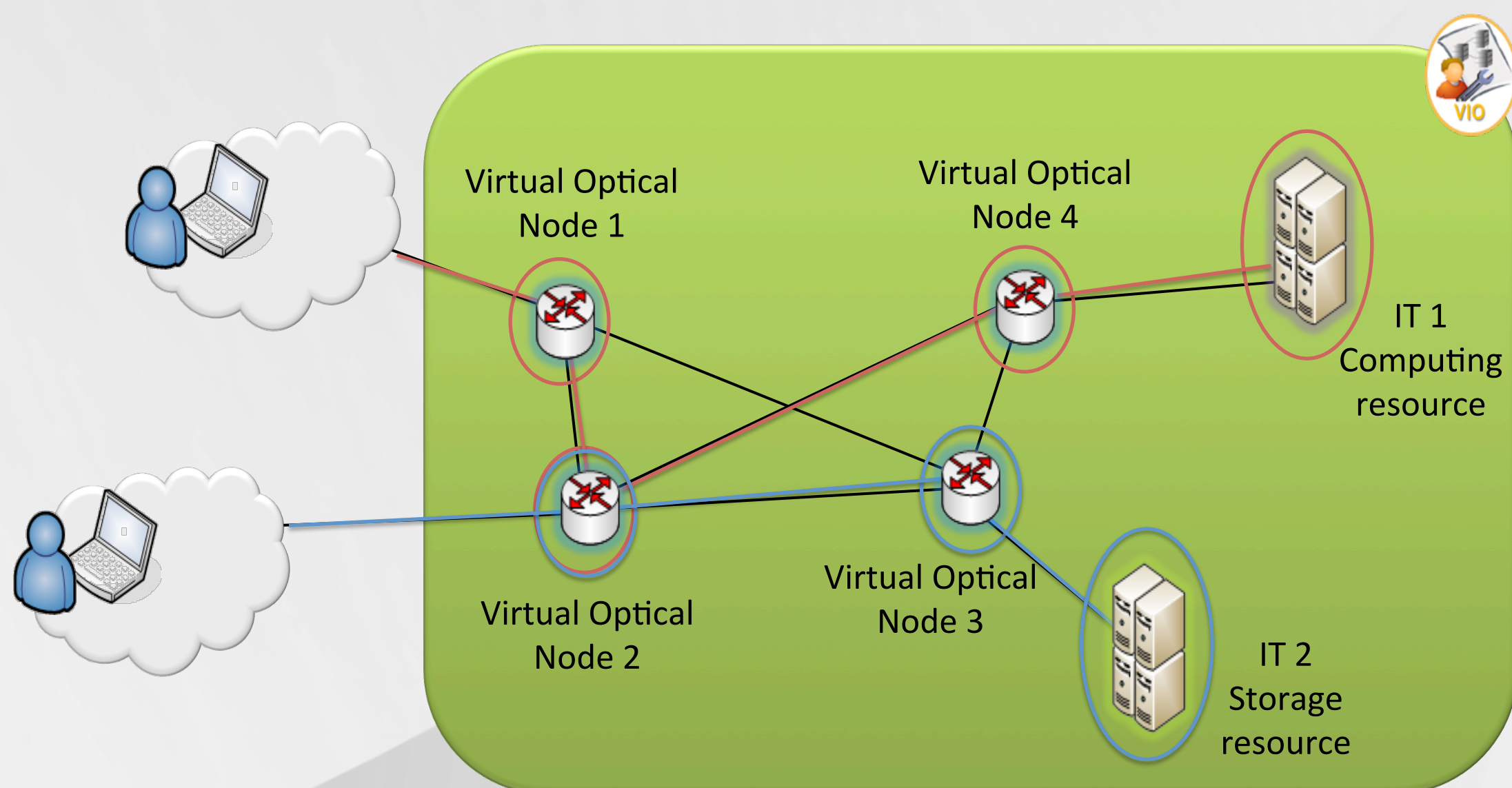
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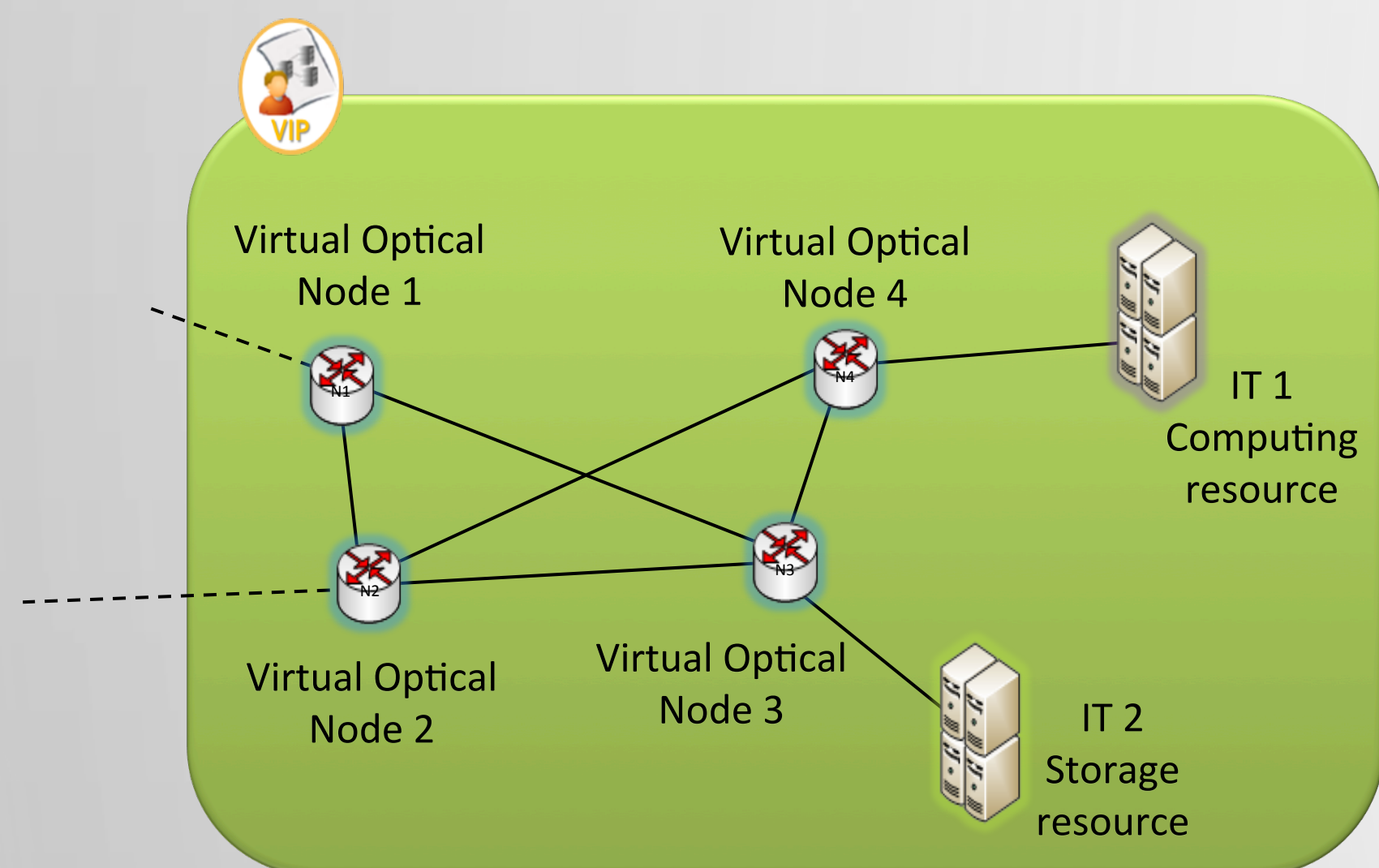
What GEYSERS offers?

- 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**

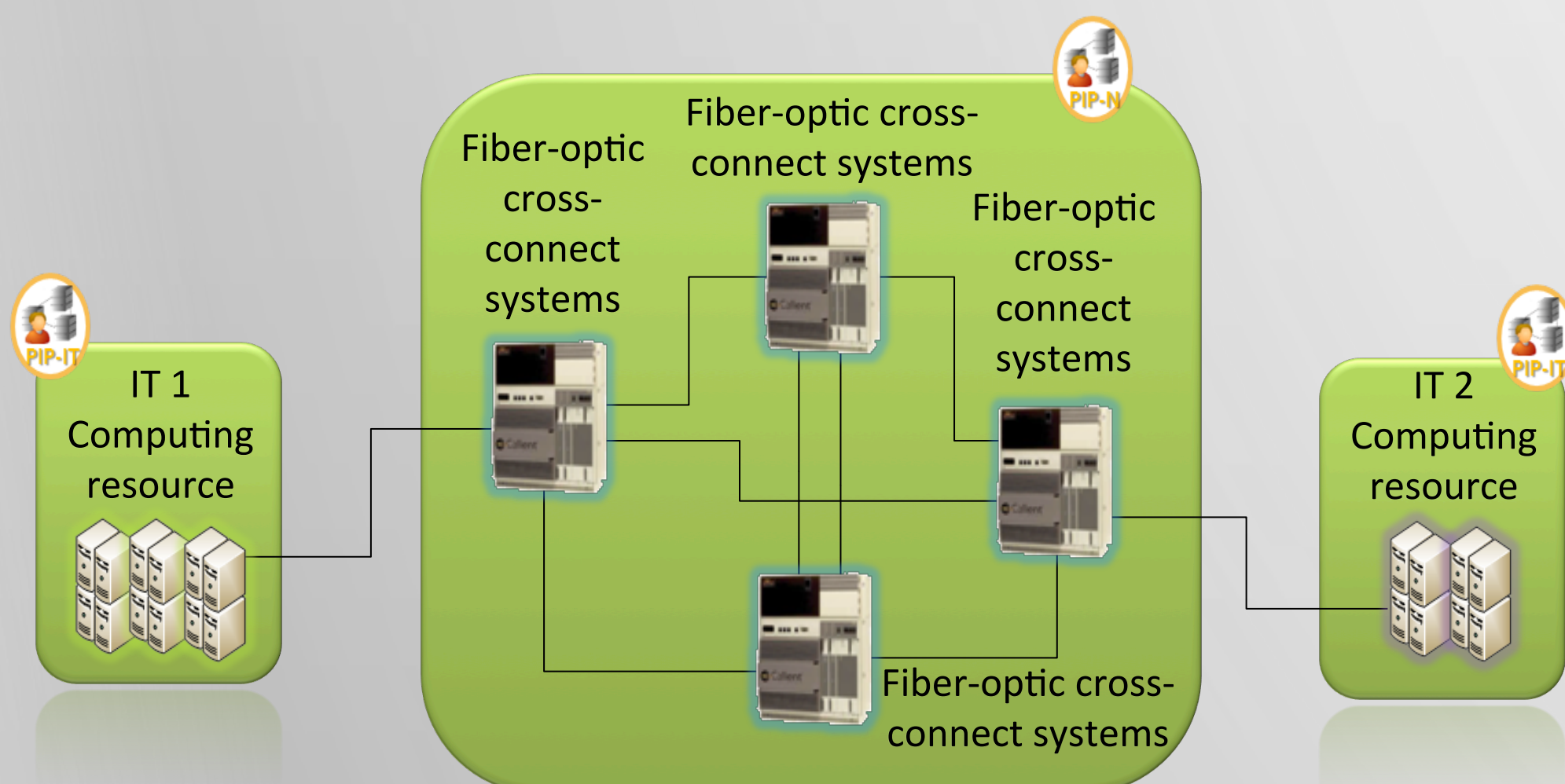
Network + IT Services



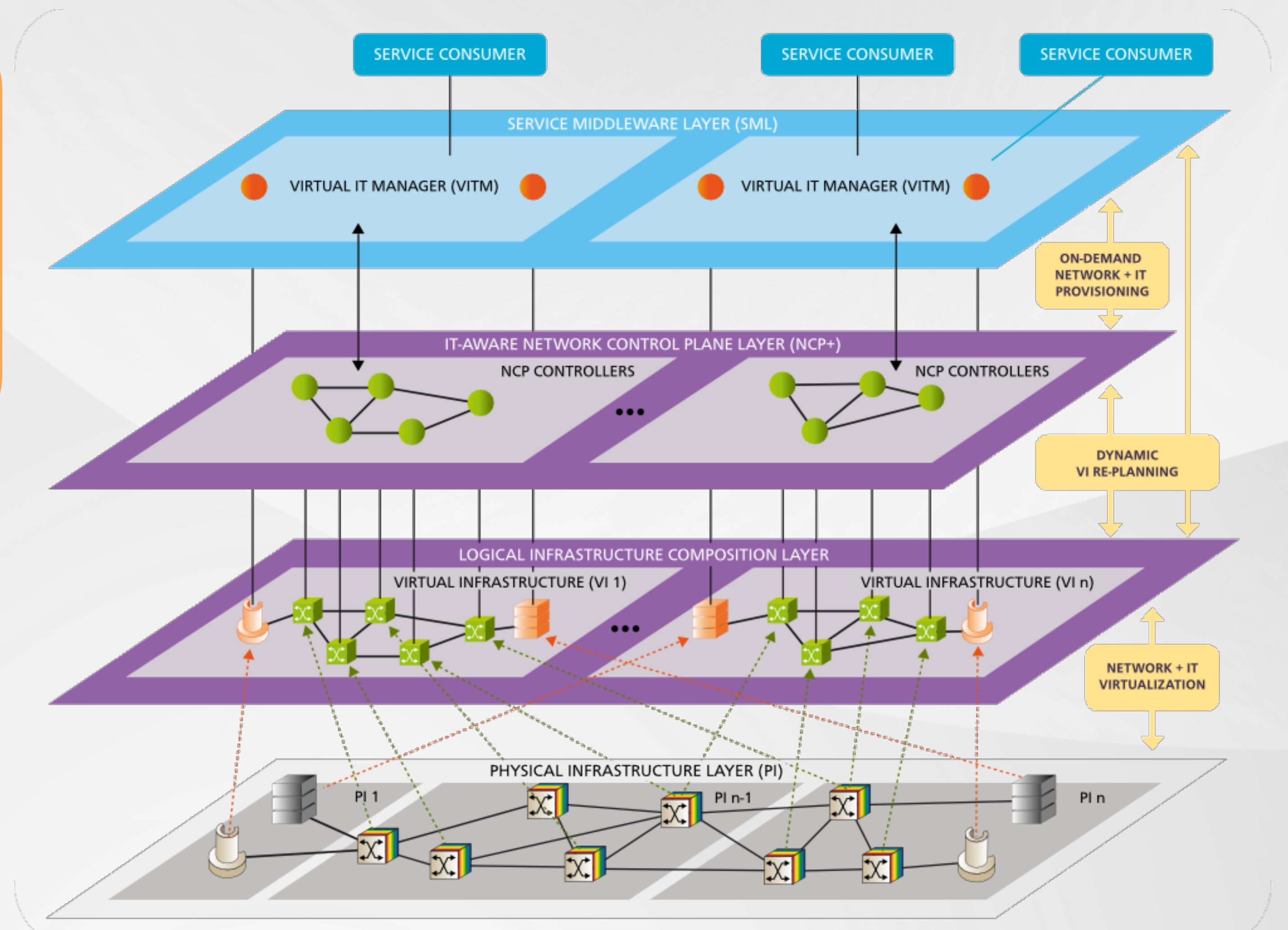
Virtual Infrastructure



Physical Infrastructure



GEYSERS Architecture



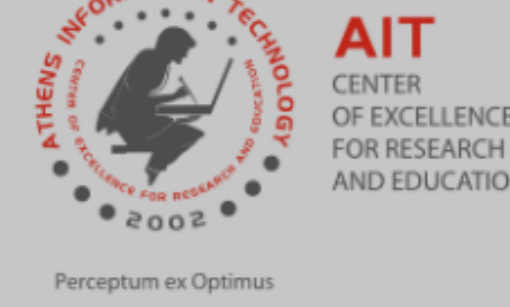
Network Control Plane +

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 **laaS 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



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