

UvA Activities Overview

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UvA Activities

- Information Models in EU Projects:
 - GEYSERS – FP7 (<http://geysers.eu>)
 - NOVI – FP7 (<http://fp7-novi.eu>)
- Information Model in Automated GOLE/NSI Interop
 - GLIF DTOXTF – (<http://glif.is/>)

Invitation for SC11 BoF: Semantic Resource Descriptions in Advanced Cyberinfrastructures

Wednesday 16 Nov. 12:15 - 13:15 – TCC 102
http://sc11.supercomputing.org/schedule/event_detail.php?evid=bof116



GENERALISED ARCHITECTURE
FOR DYNAMIC INFRASTRUCTURE SERVICES

GEYSERS Information Model

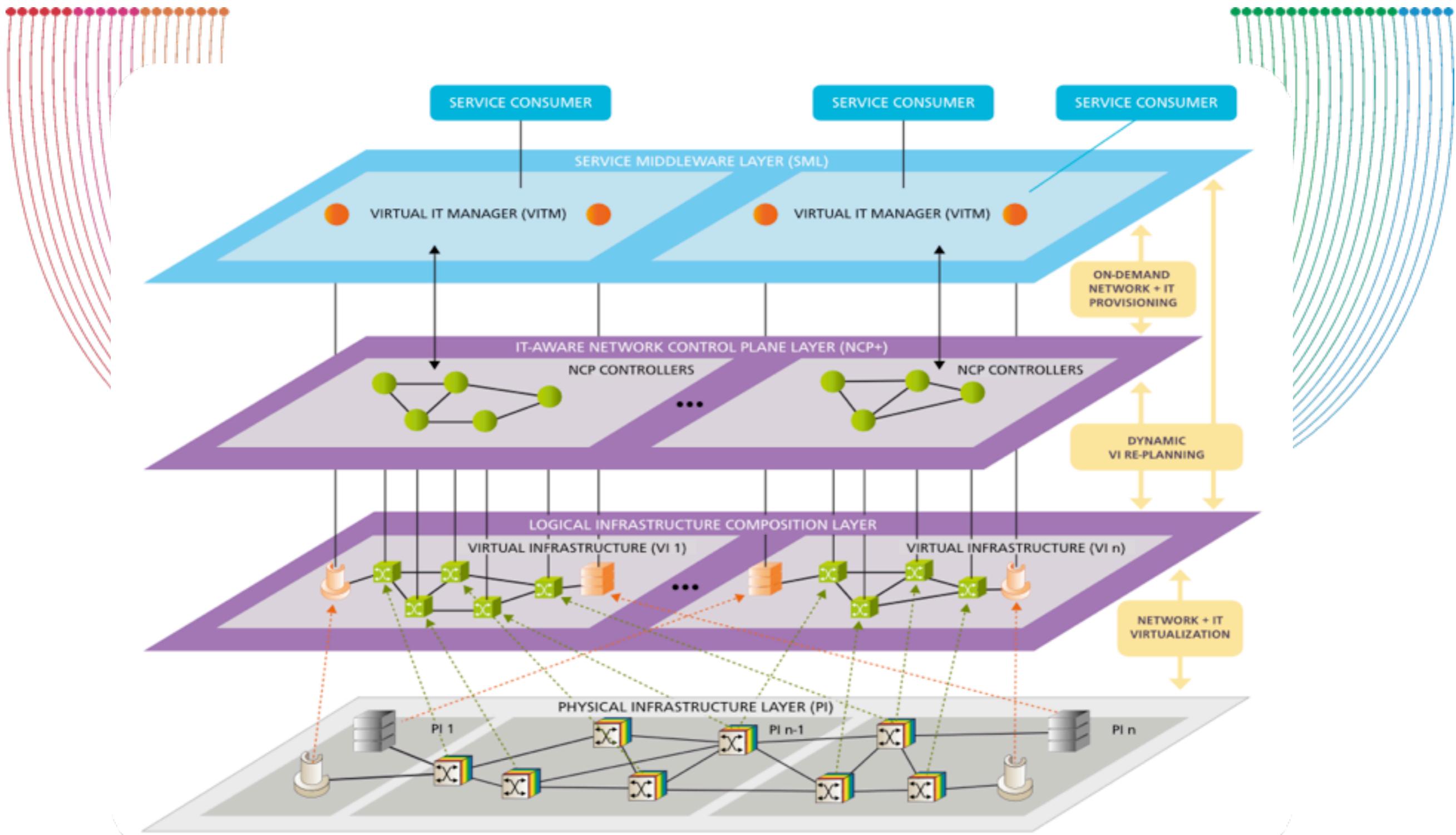
v1.1

09/19/11

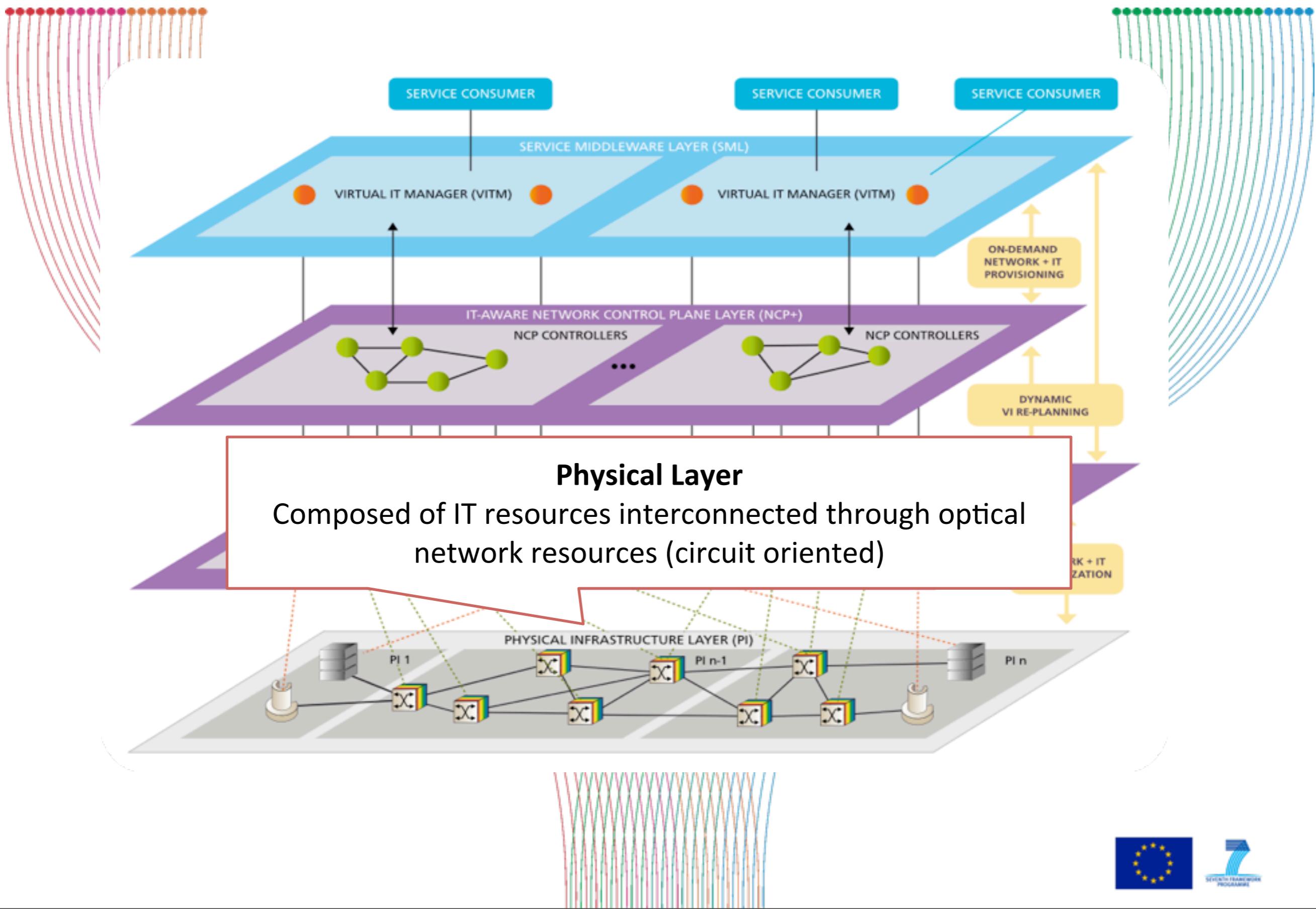
Grant agreement n°248657



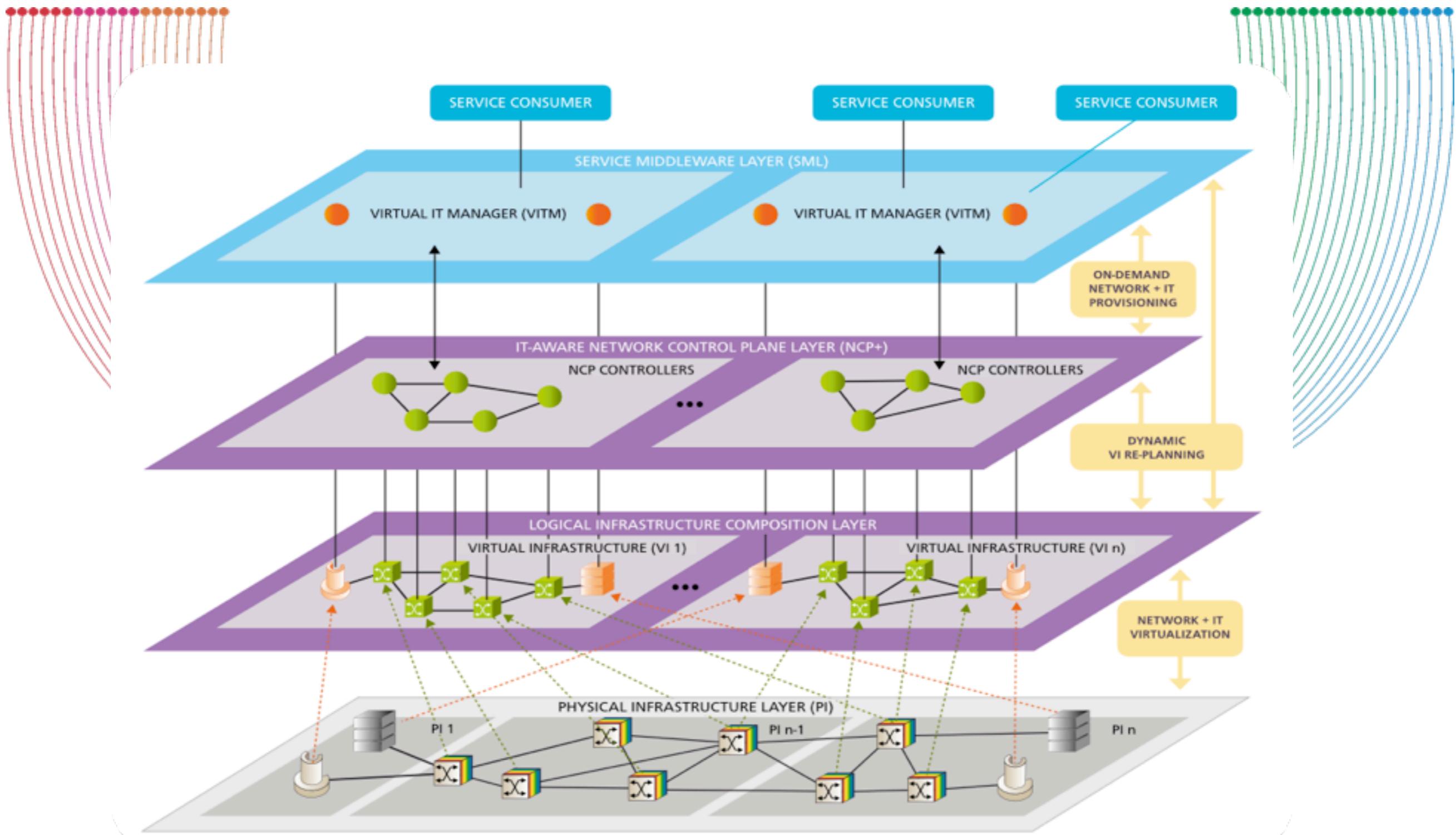
GEYSERS Layered Architecture

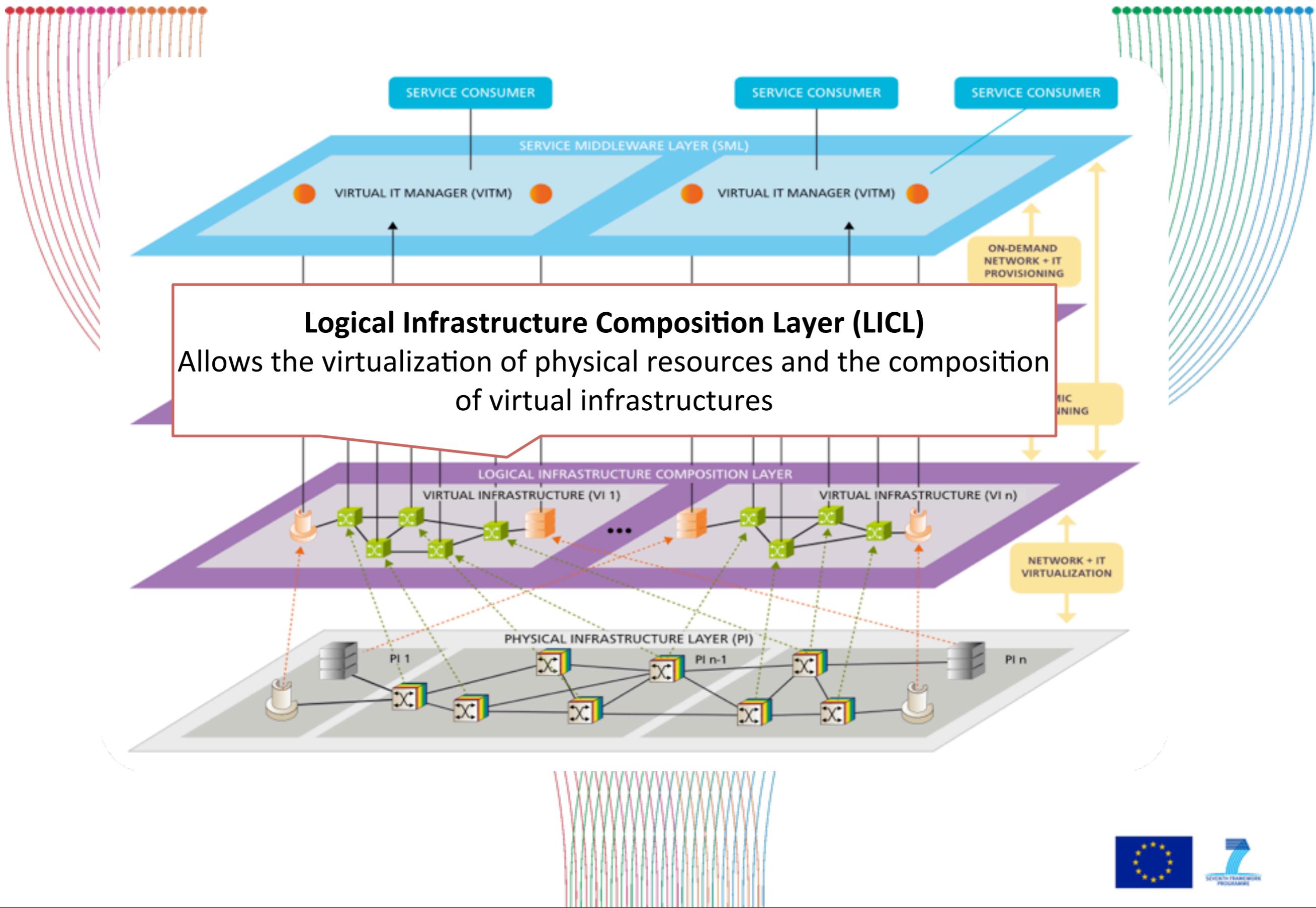


GEYSERS Layered Architecture

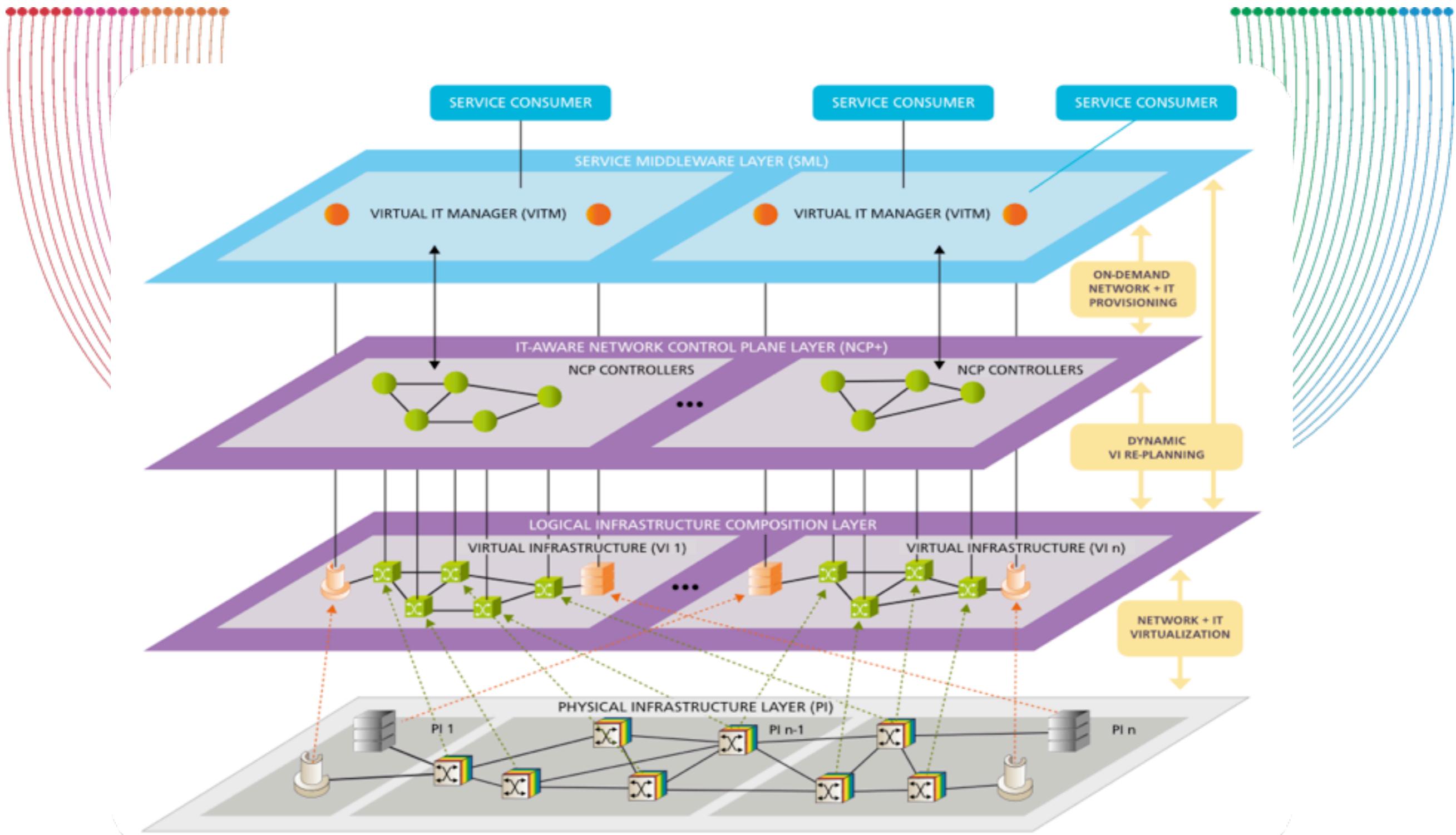


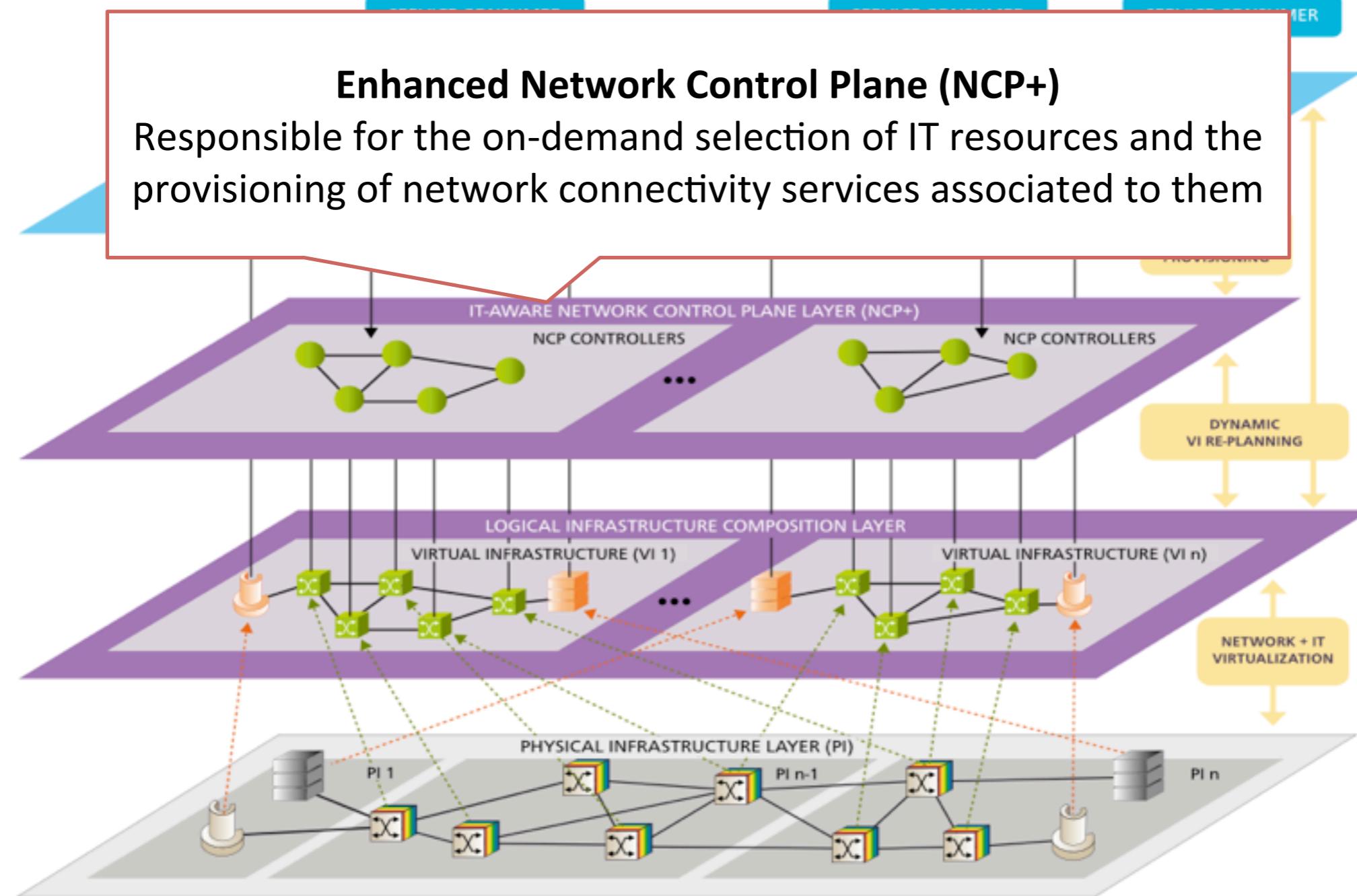
GEYSERS Layered Architecture



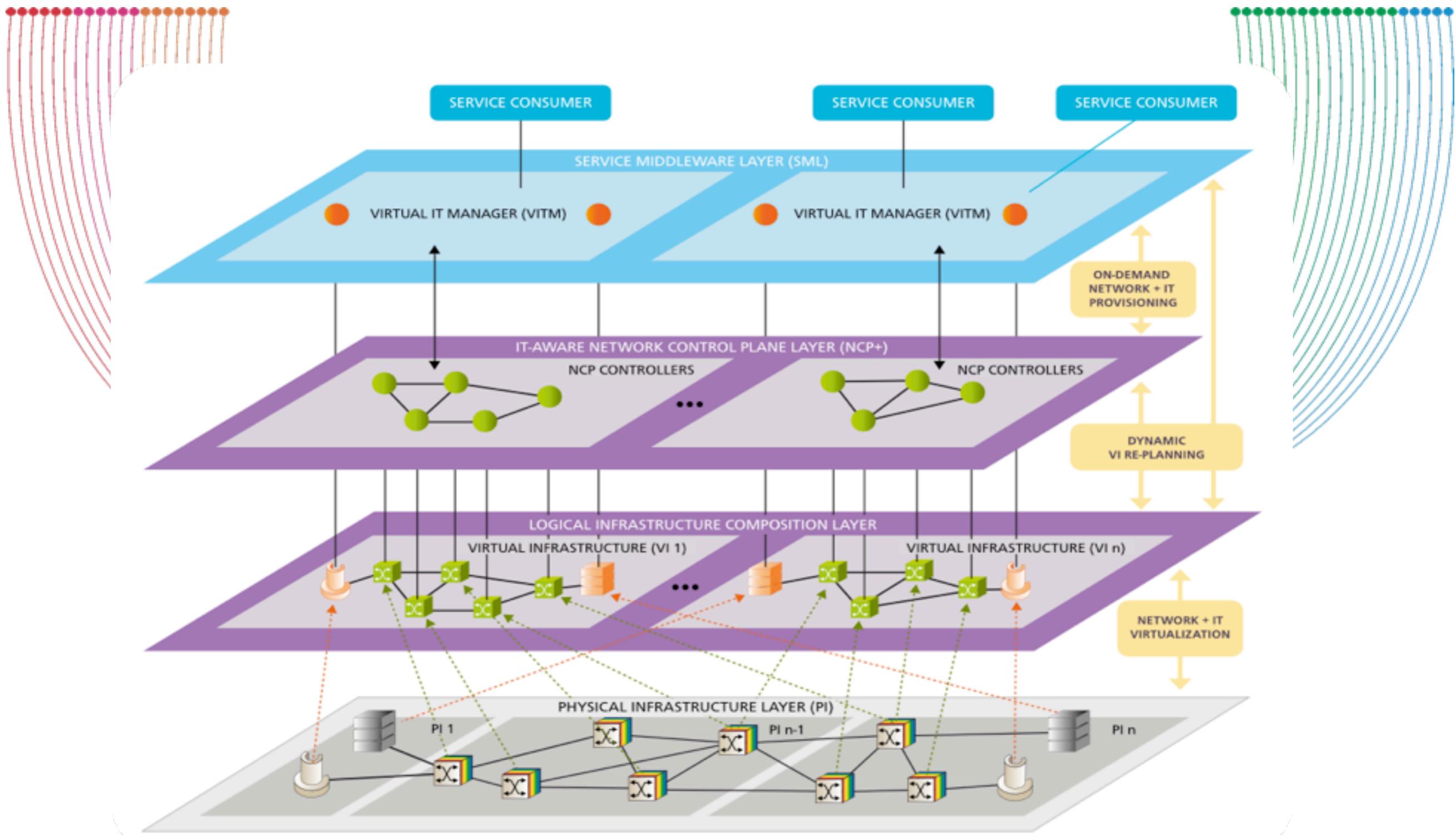


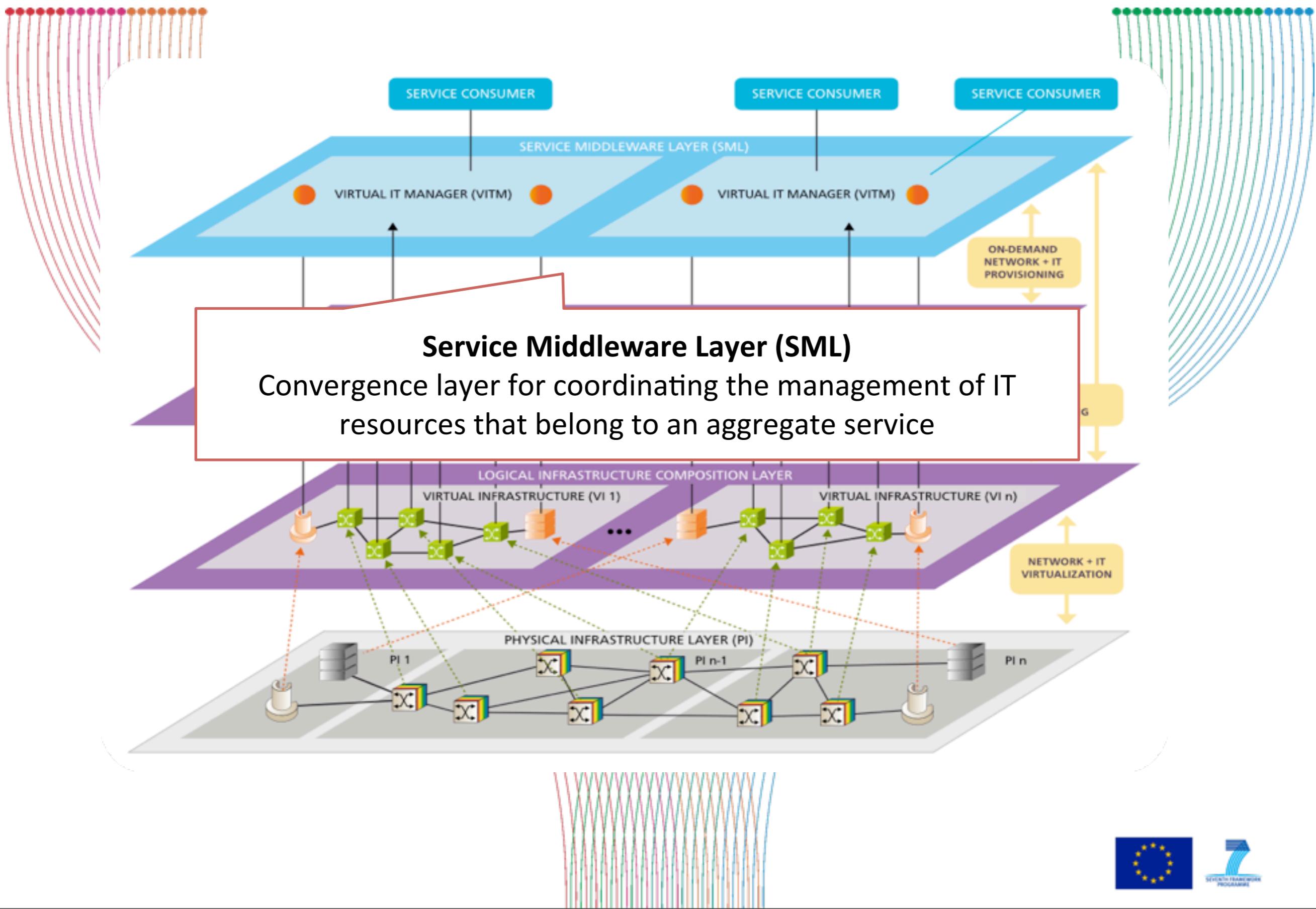
GEYSERS Layered Architecture



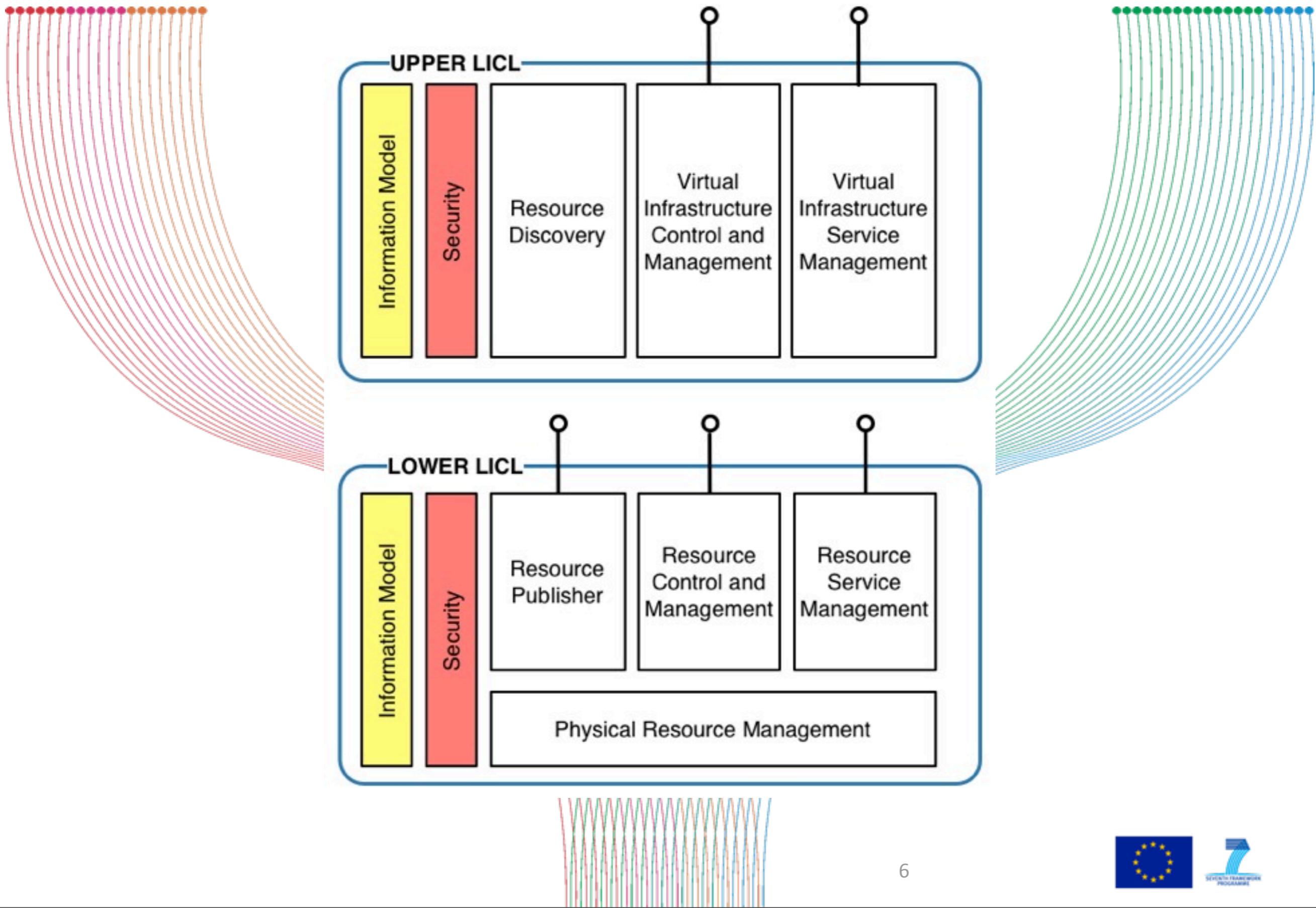


GEYSERS Layered Architecture





LICL Architecture



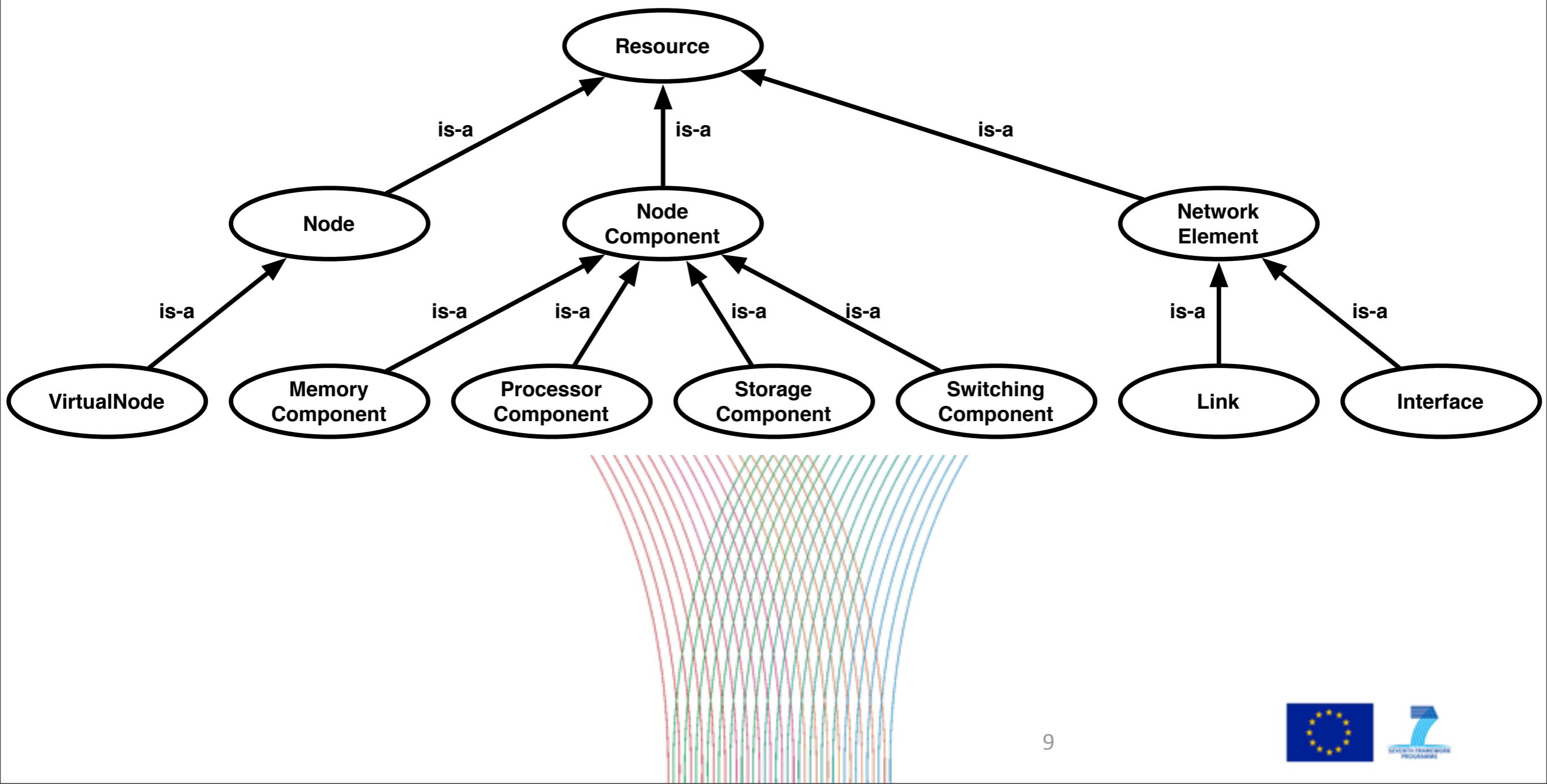
Information Model

- Modeling Tools:
 - Protégé Ontology Editor
 - Geysers-editor
- Input:
 - NDL, NML, VXDL, internal GEYSERS Deliverables, ...
- Information Modeling Framework:
 - Ontology (OWL file)
 - Software components enabling creation, storage and manipulation of concepts in the ontology

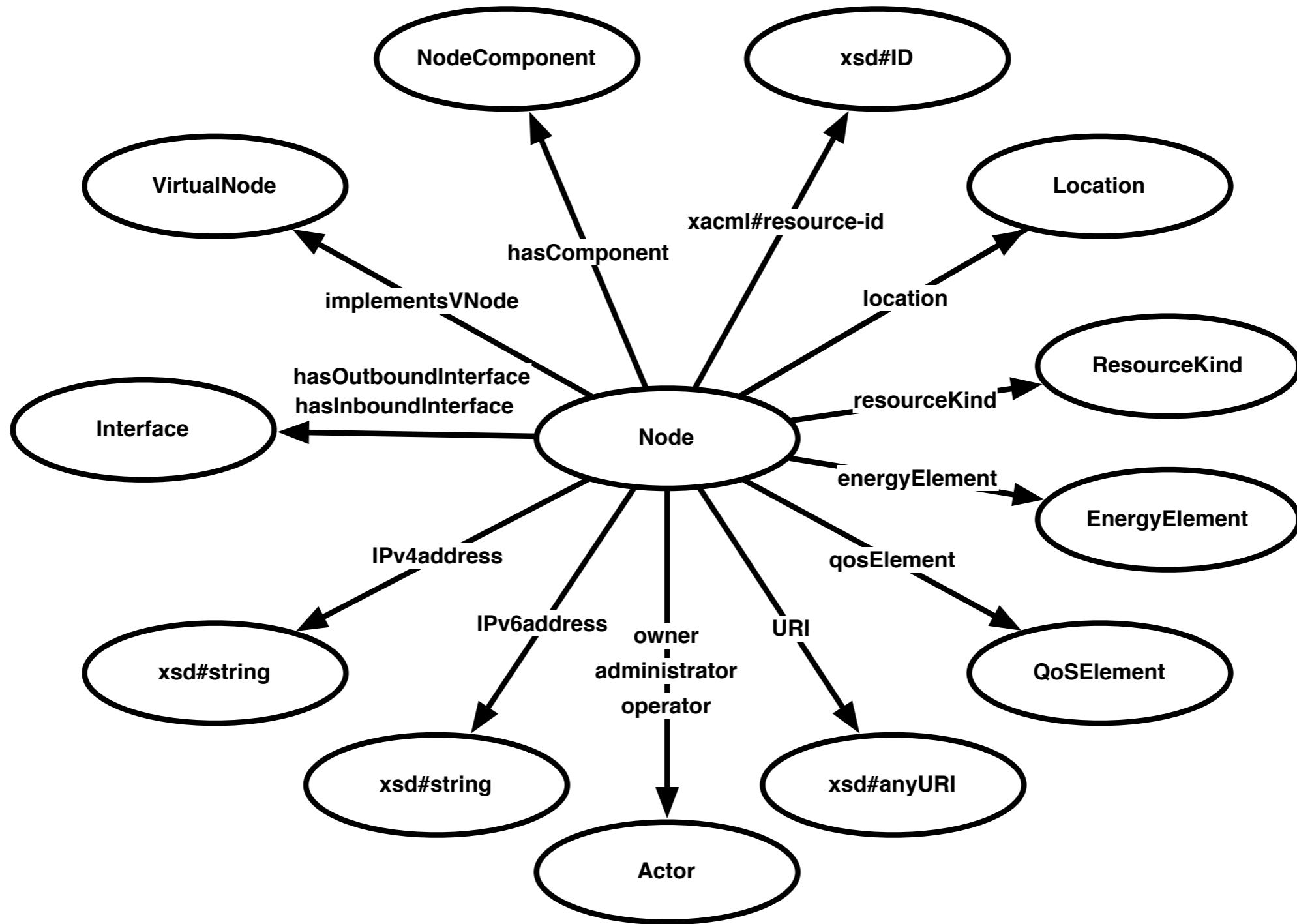
Information Model

- Ontology Components:
 - concepts for describing resources
 - topological concepts
 - energy concepts
 - QoS concepts
 - security concepts
- Result:
 - Version 1.0: <http://www.geysers.eu/imf.owl>
 - GEYSERS Deliverable D3.2

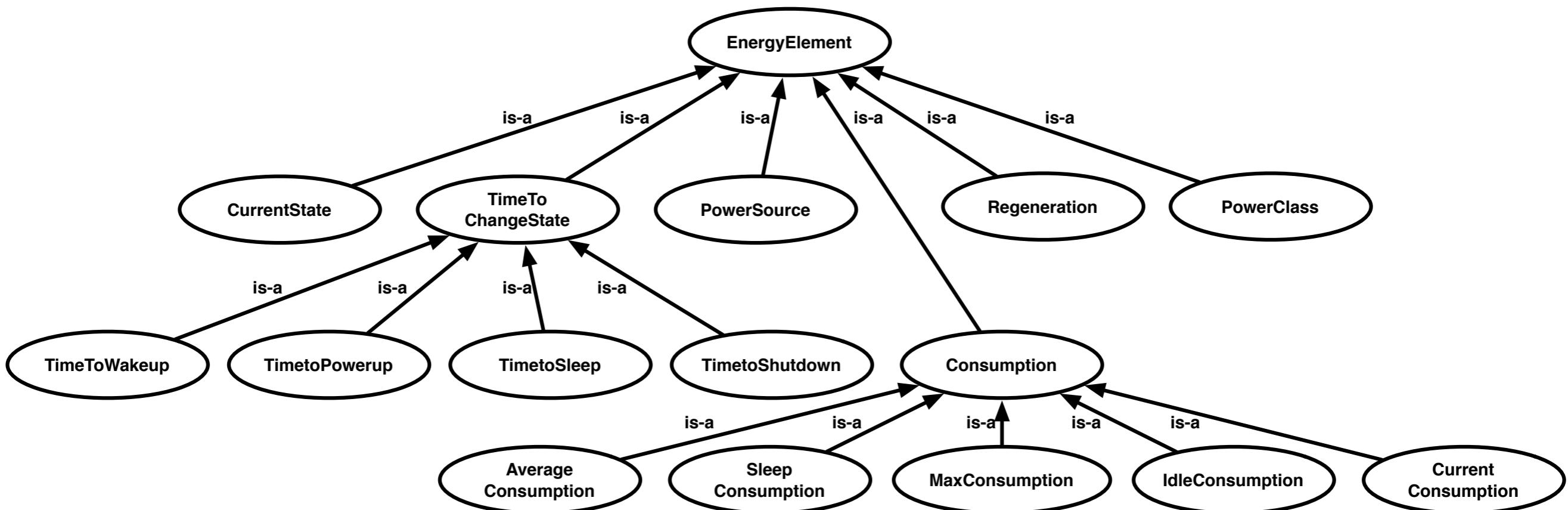
Information Model



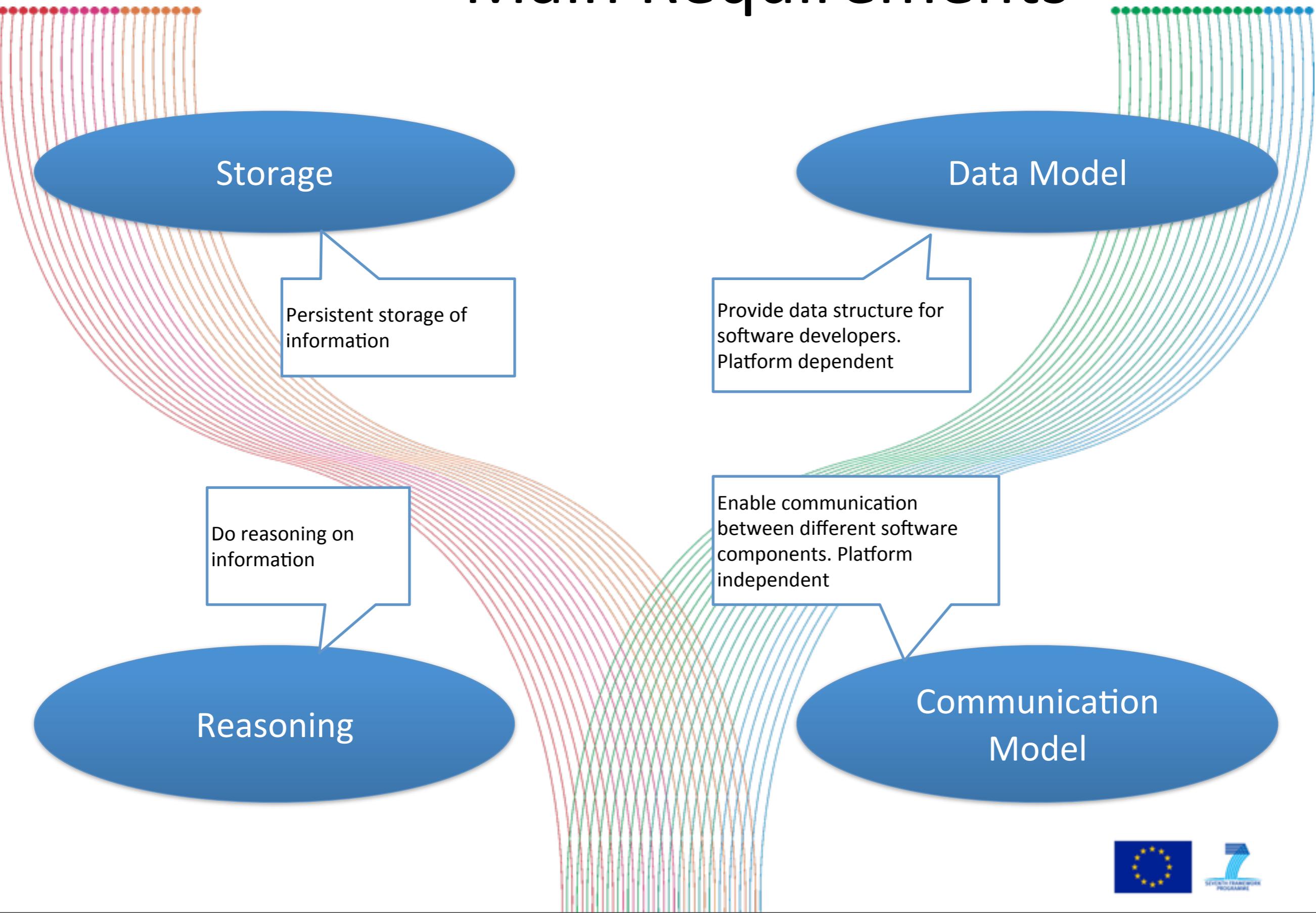
Information Model



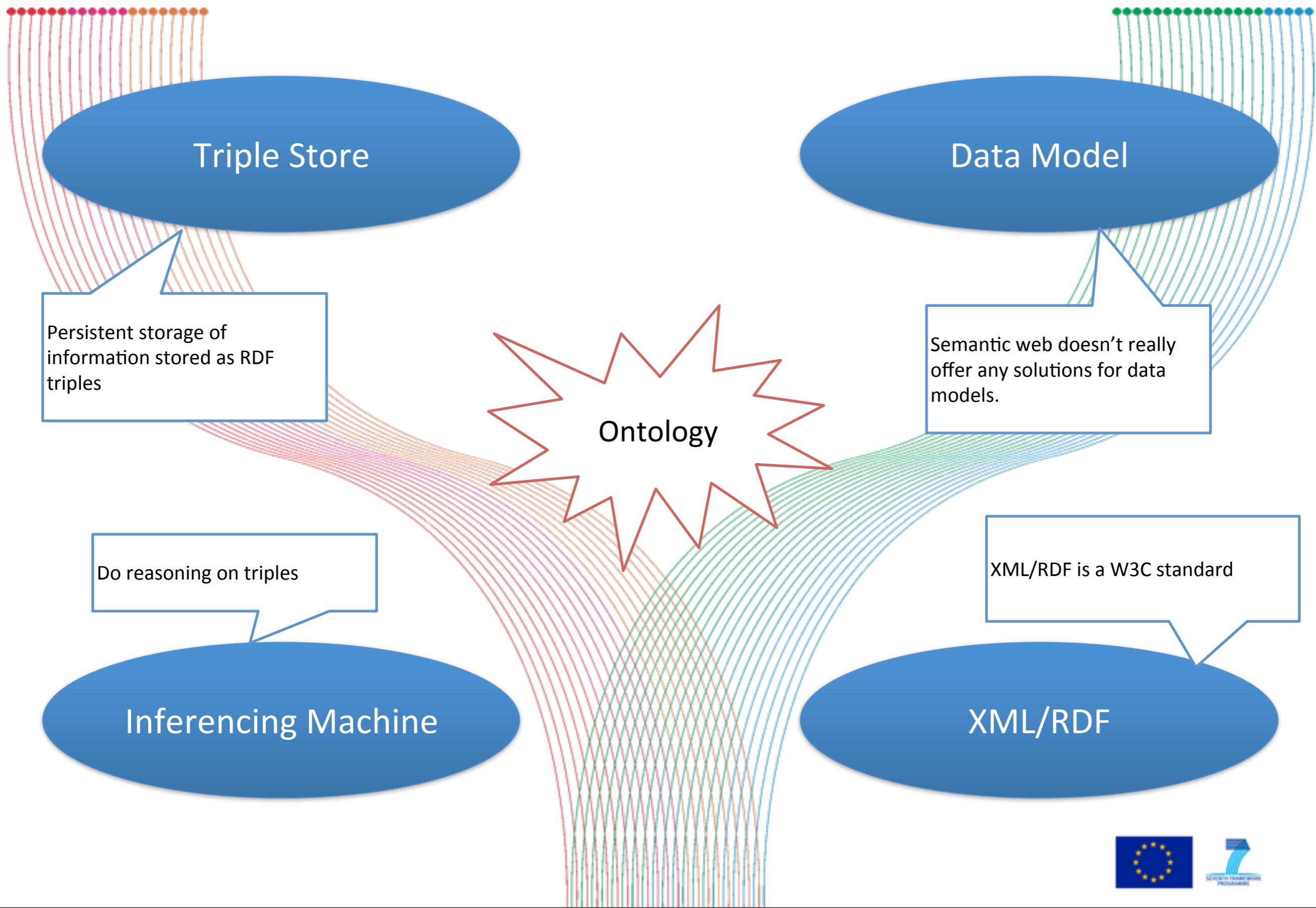
Information Model



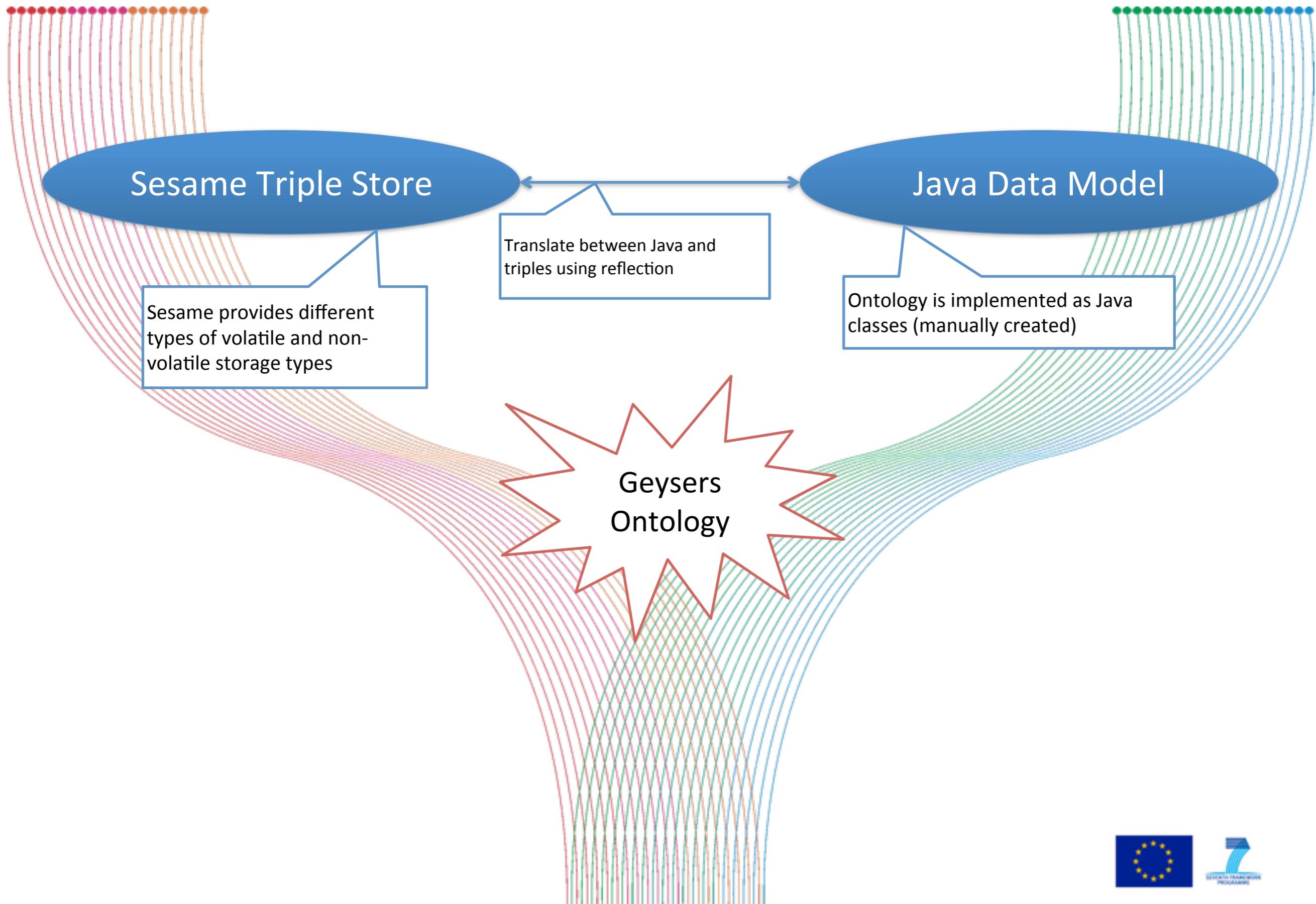
Main Requirements



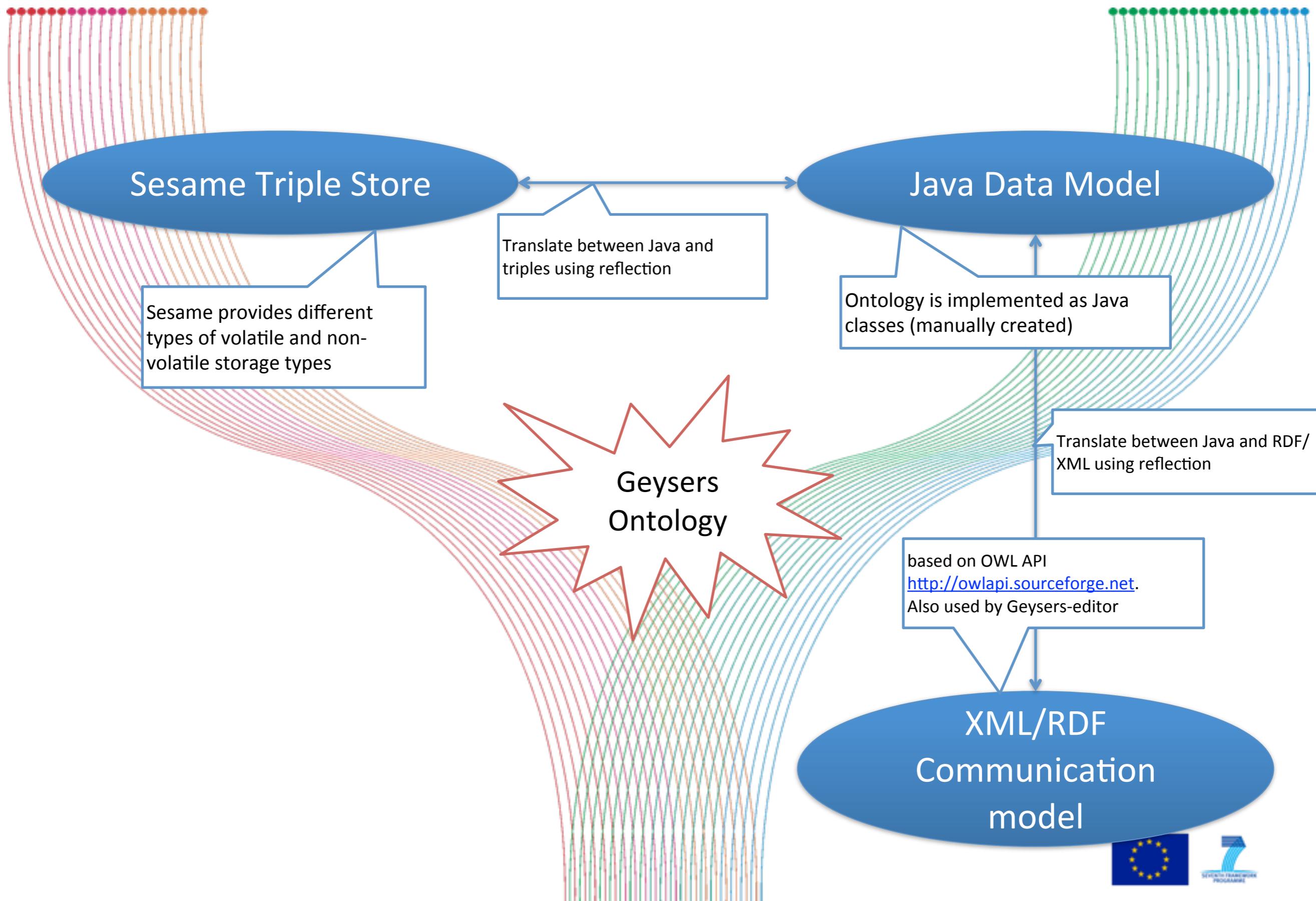
Semantic Technology



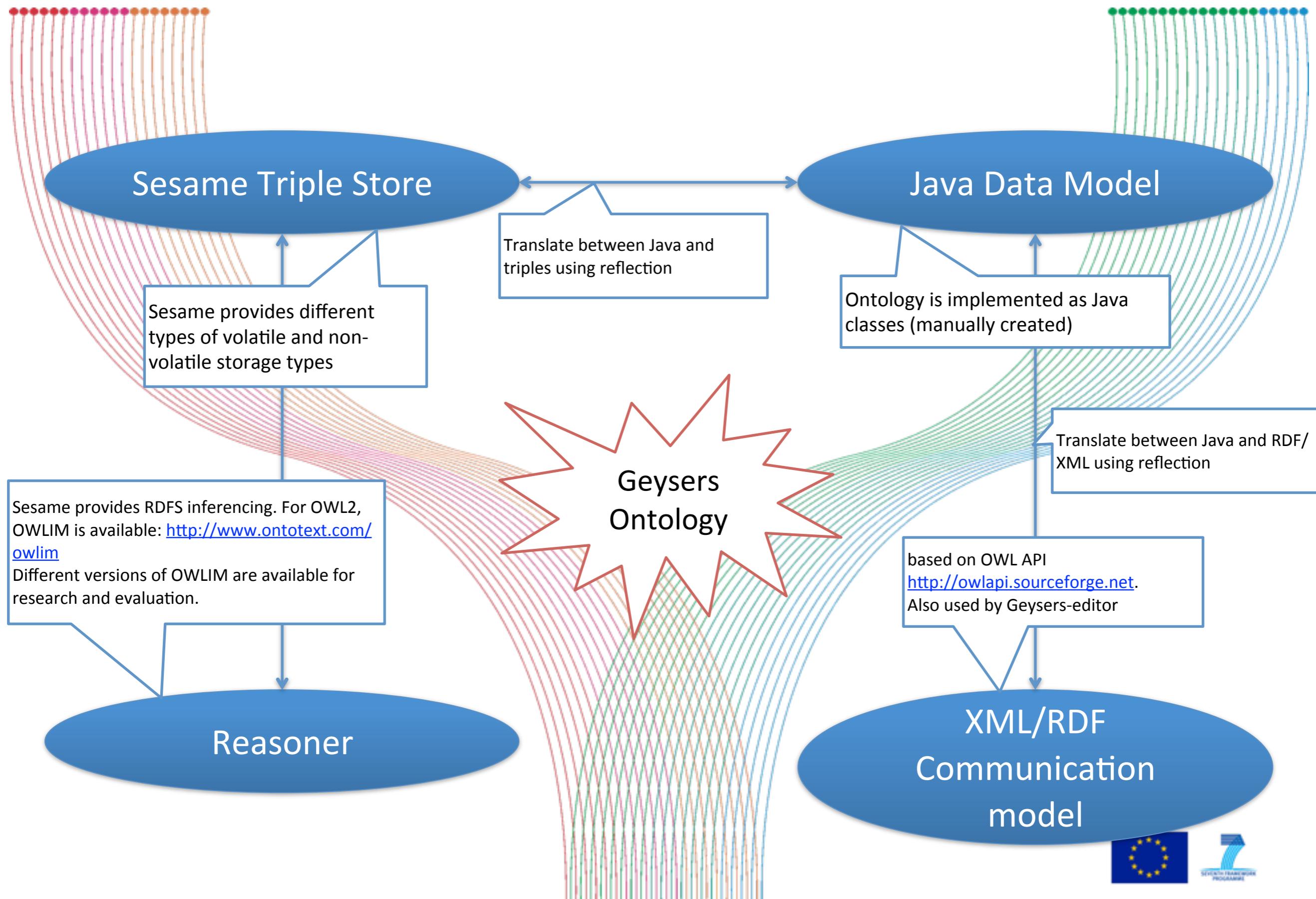
Geysers IMF Current State



Geysers IMF in Progress

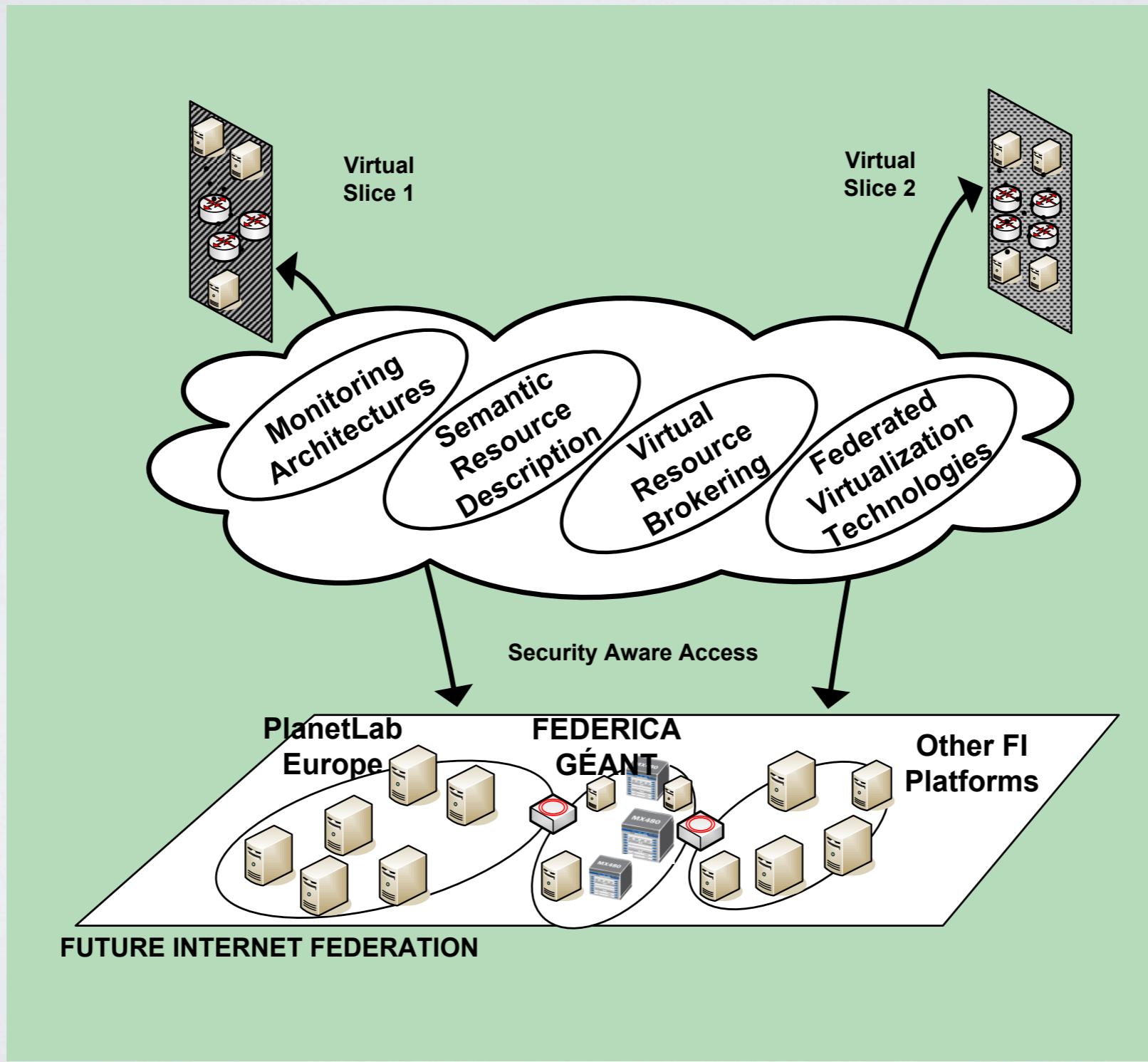


Geysers IMF Planned

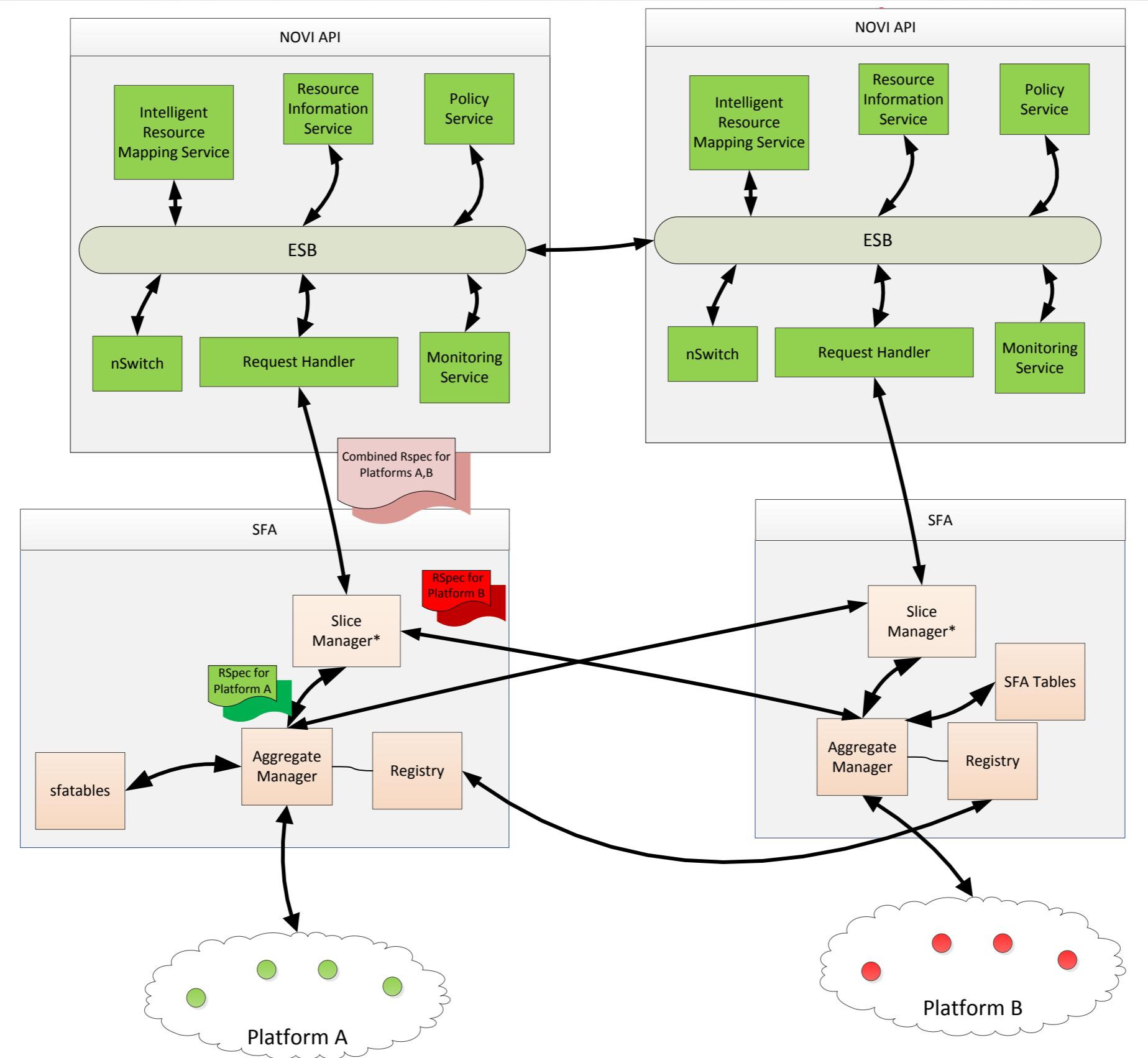


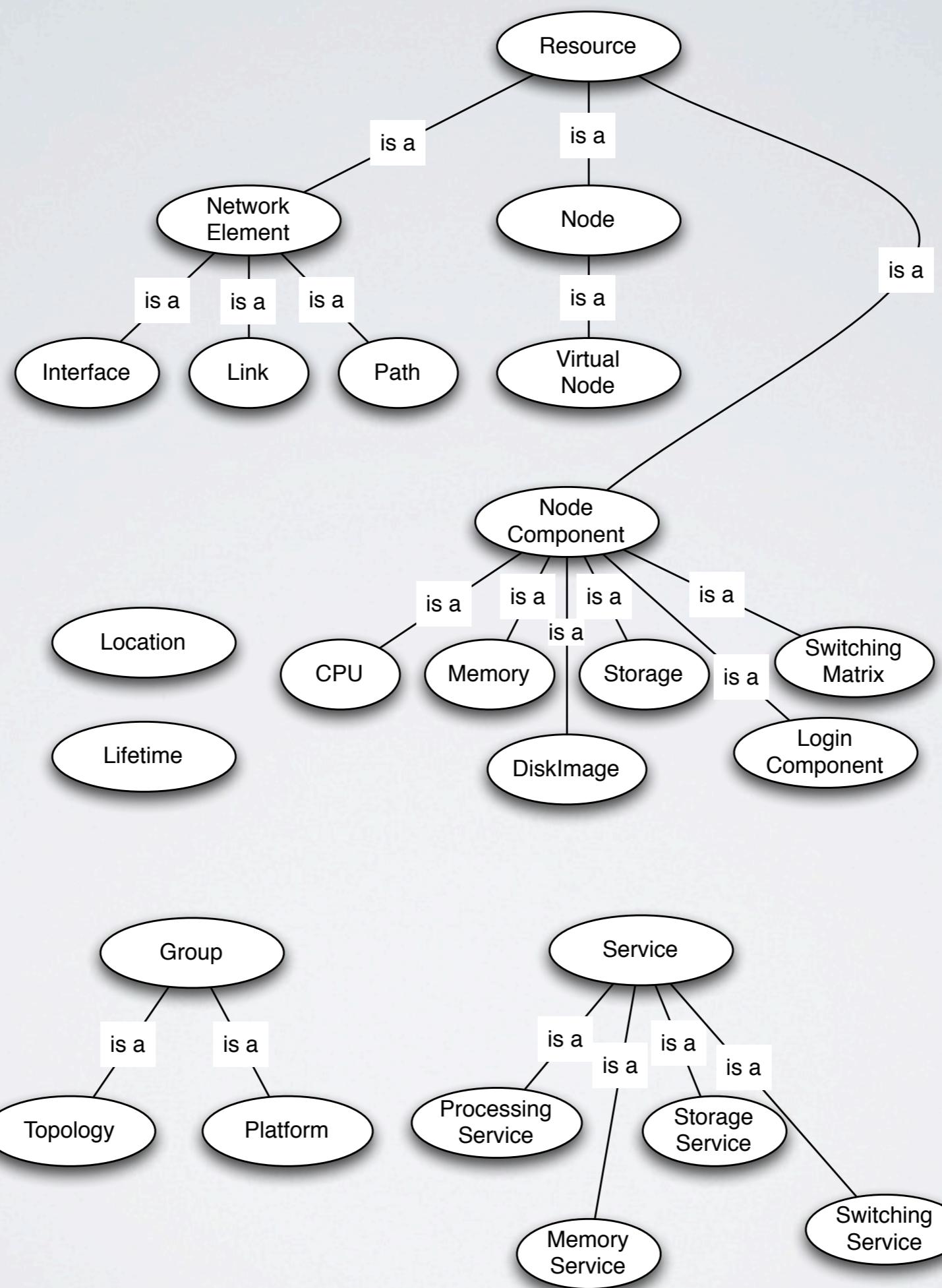
NOVI Information Model

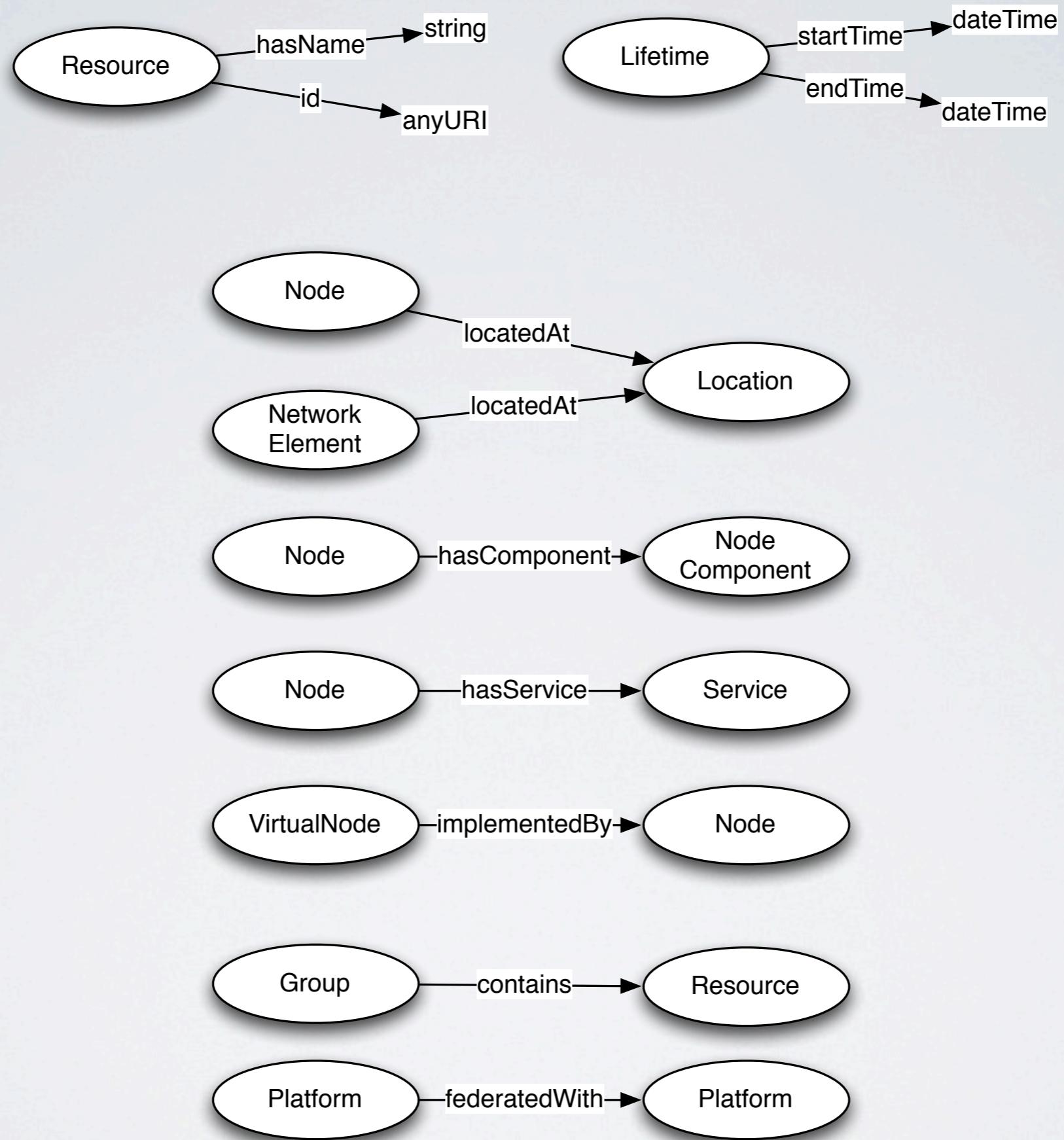
Networking innovations Over Virtualized Infrastructures

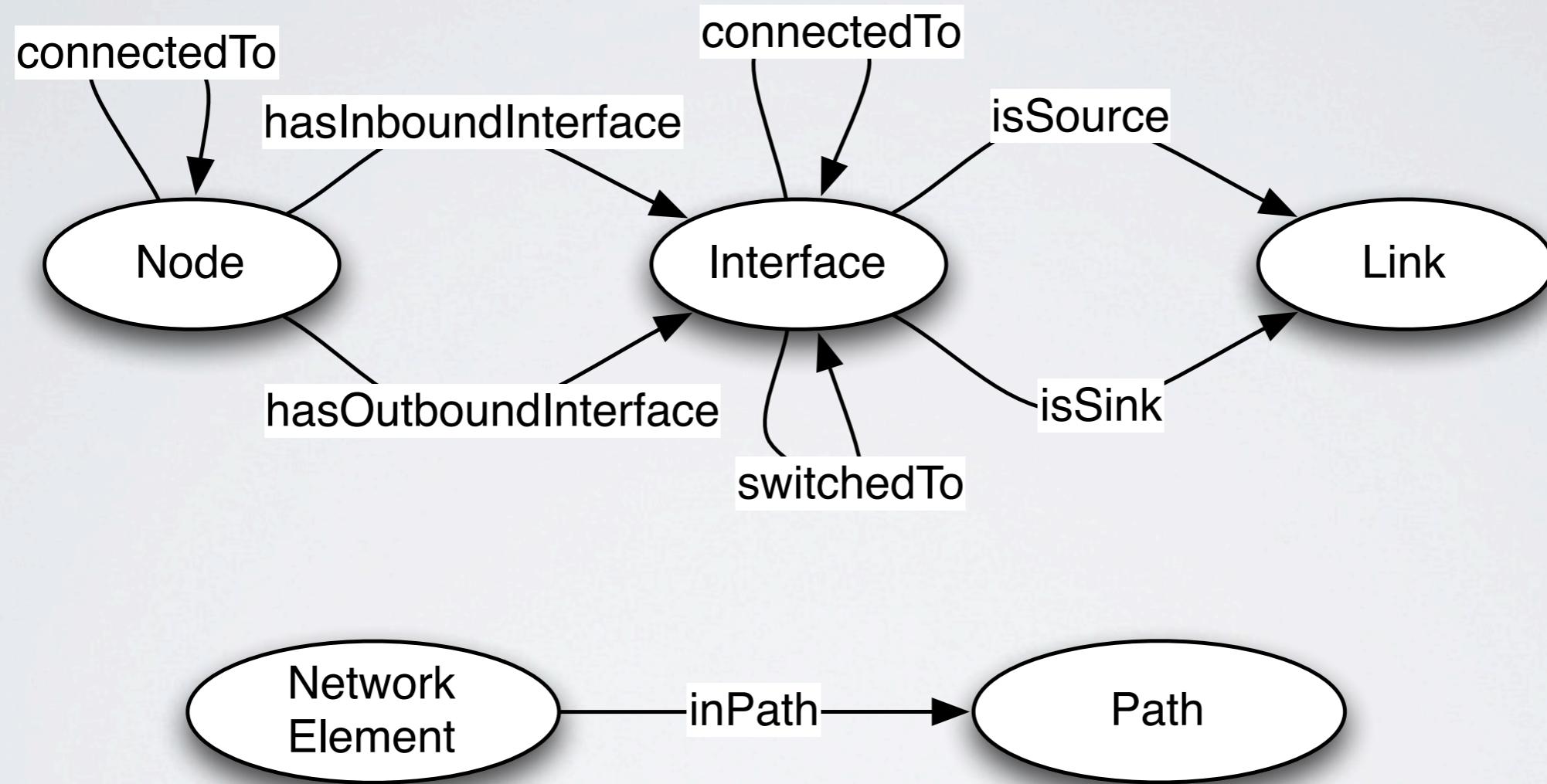


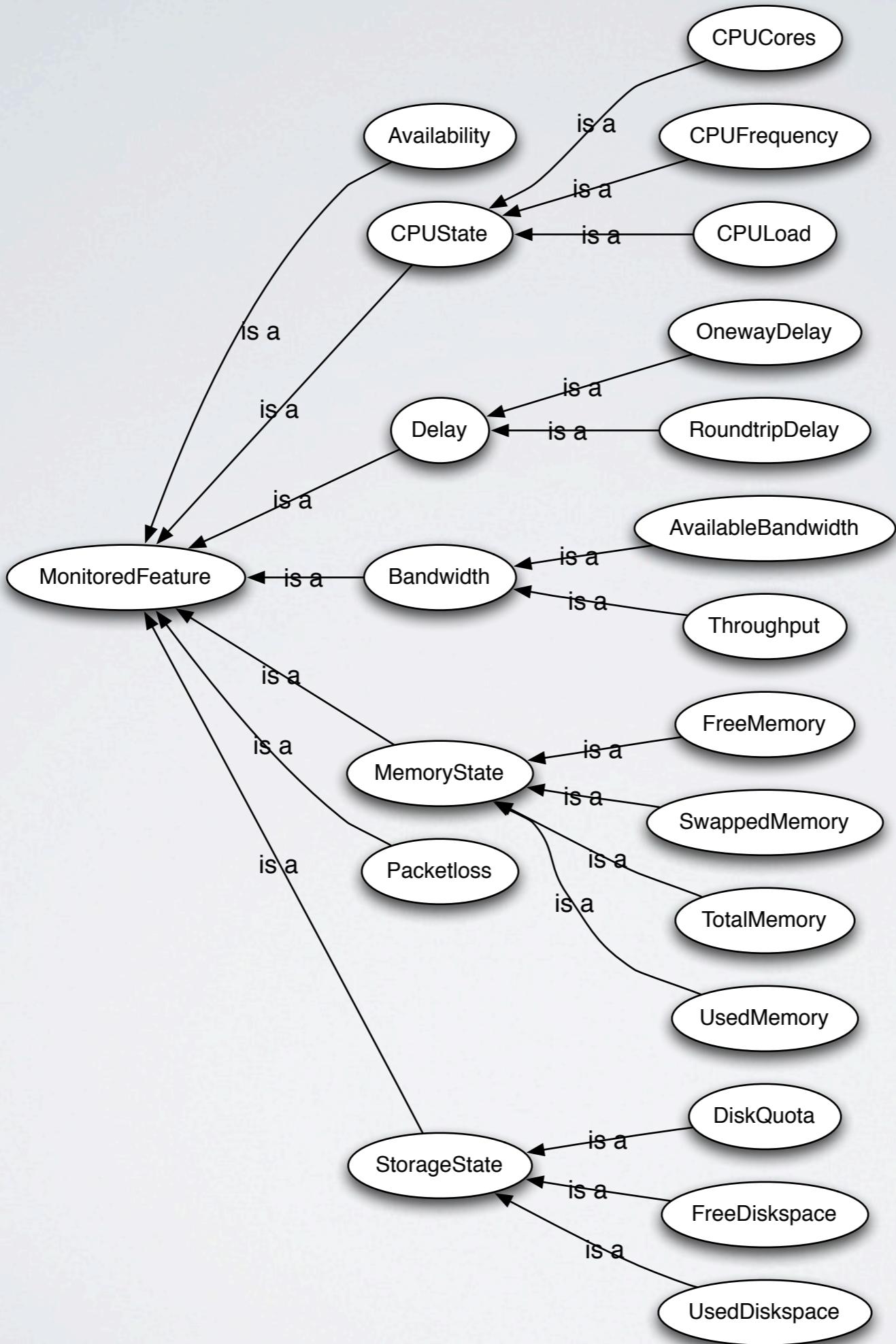
NOVI Architecture

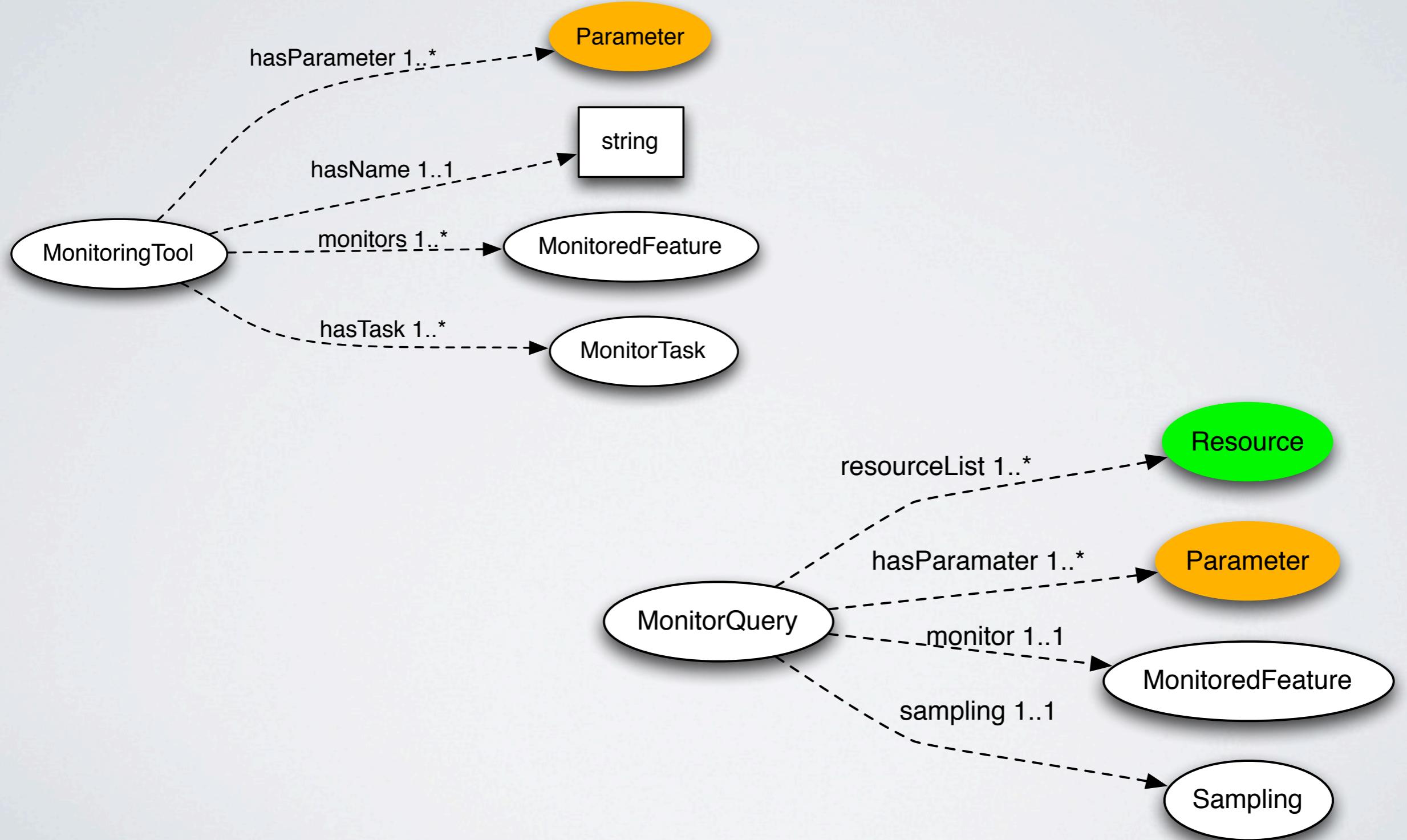












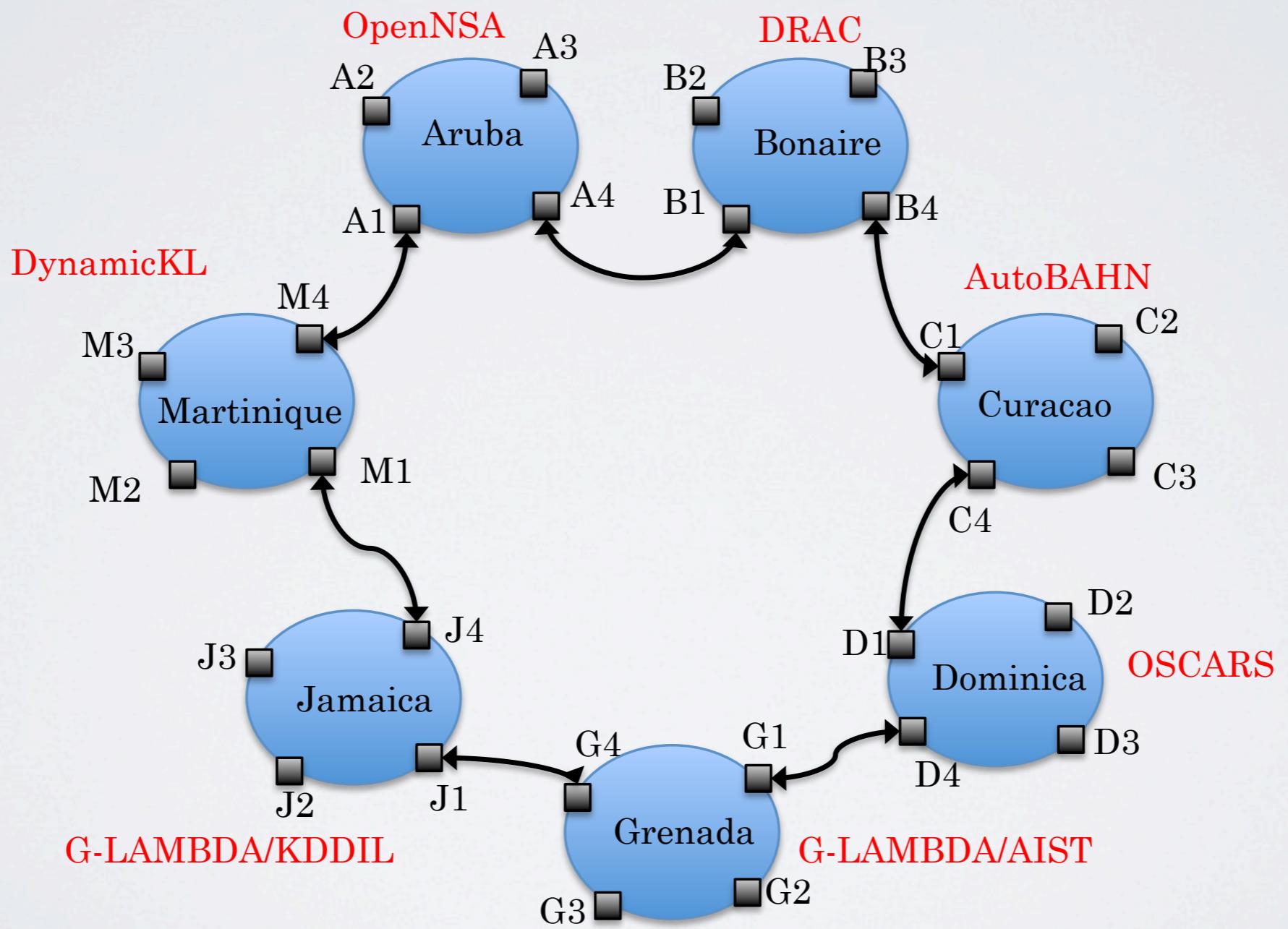
Distributed Topology Exchange (DTOX)

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Agenda

- Topology in the Automated GOLE demo& NSI Interop test.
- Requirements on topology descriptions for GLIF

NSI Interop Topology



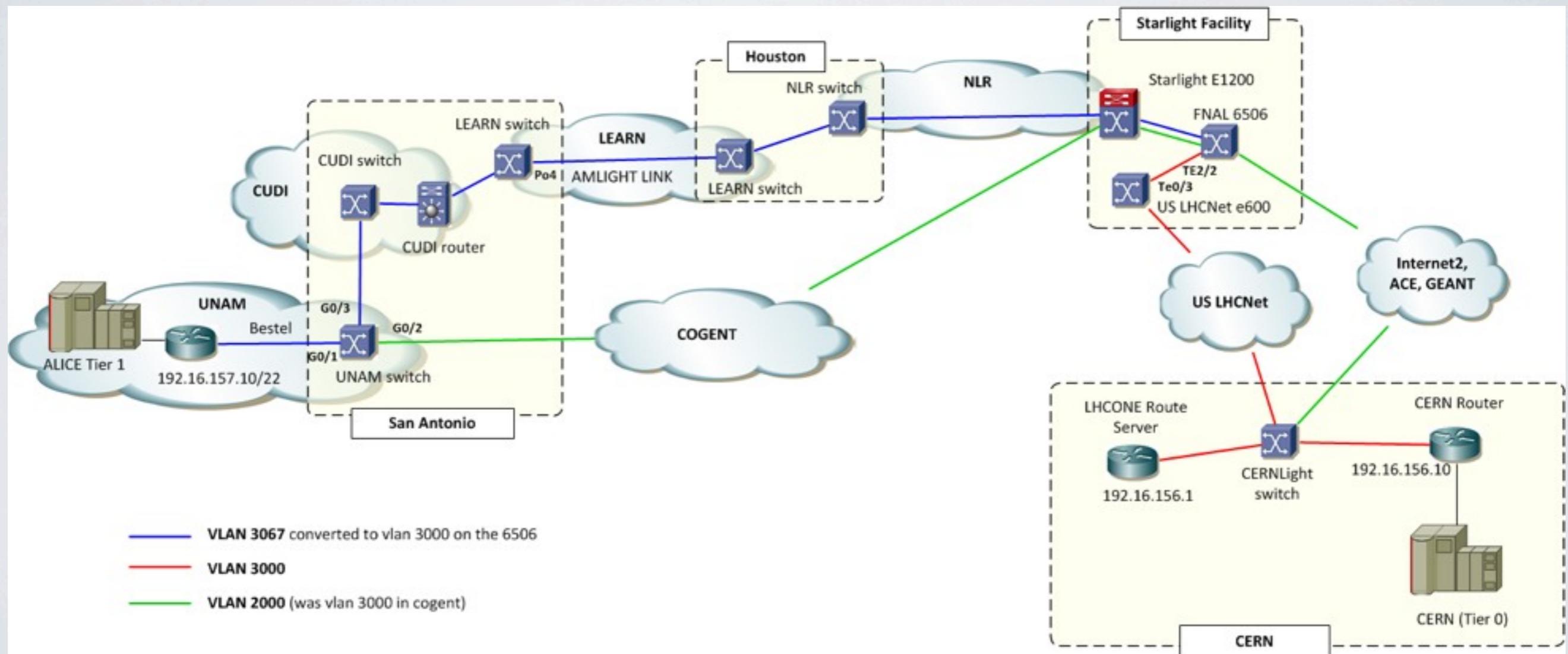
NSI Interop Topology

- Objects used in the topology:
 - NSA – Server that does the provisioning
 - NSNetwork – Network that the server is provisioning for
 - STP – Service Termination Point
- Connections between STPs

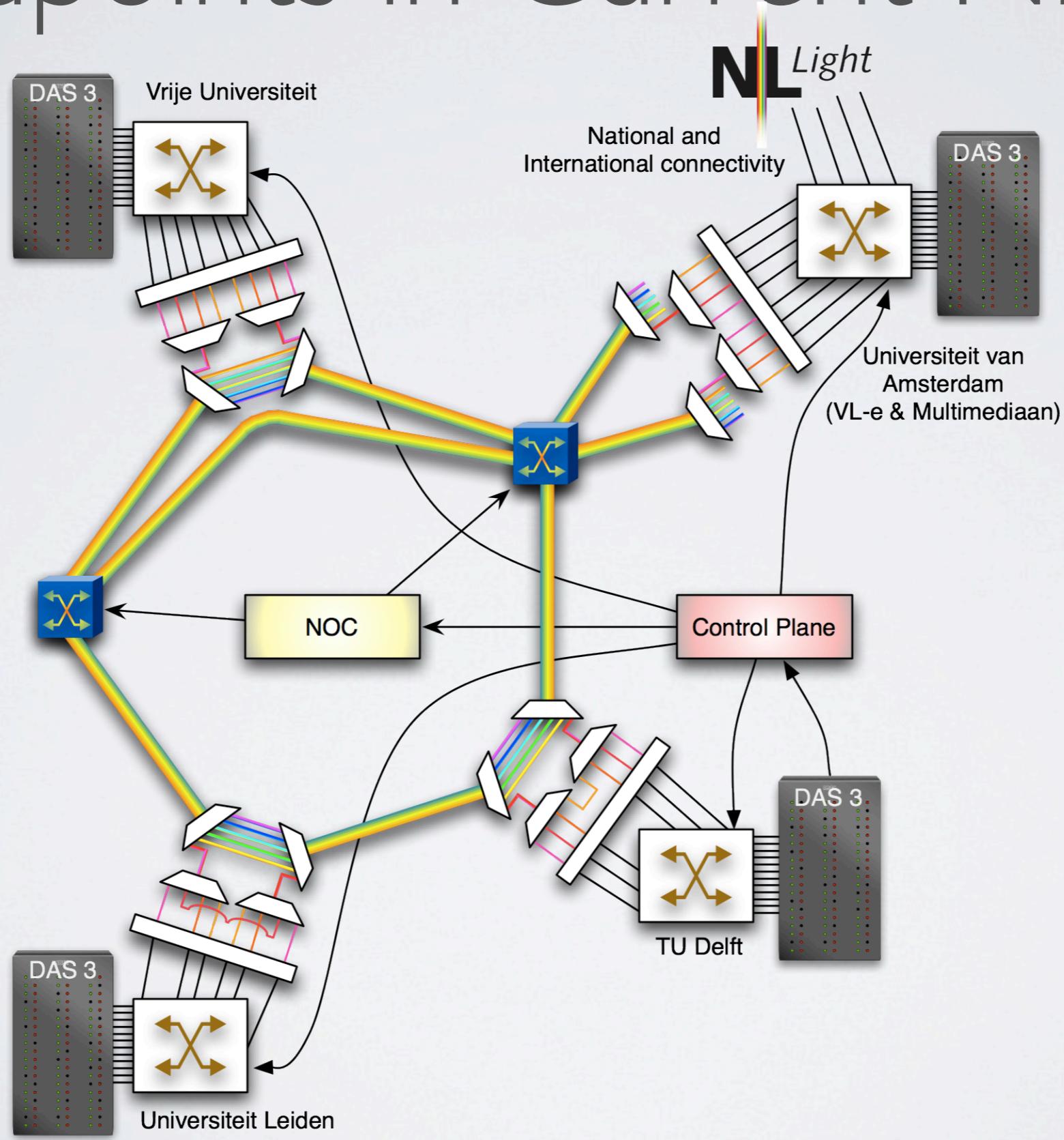
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- Control Plane
Topology*

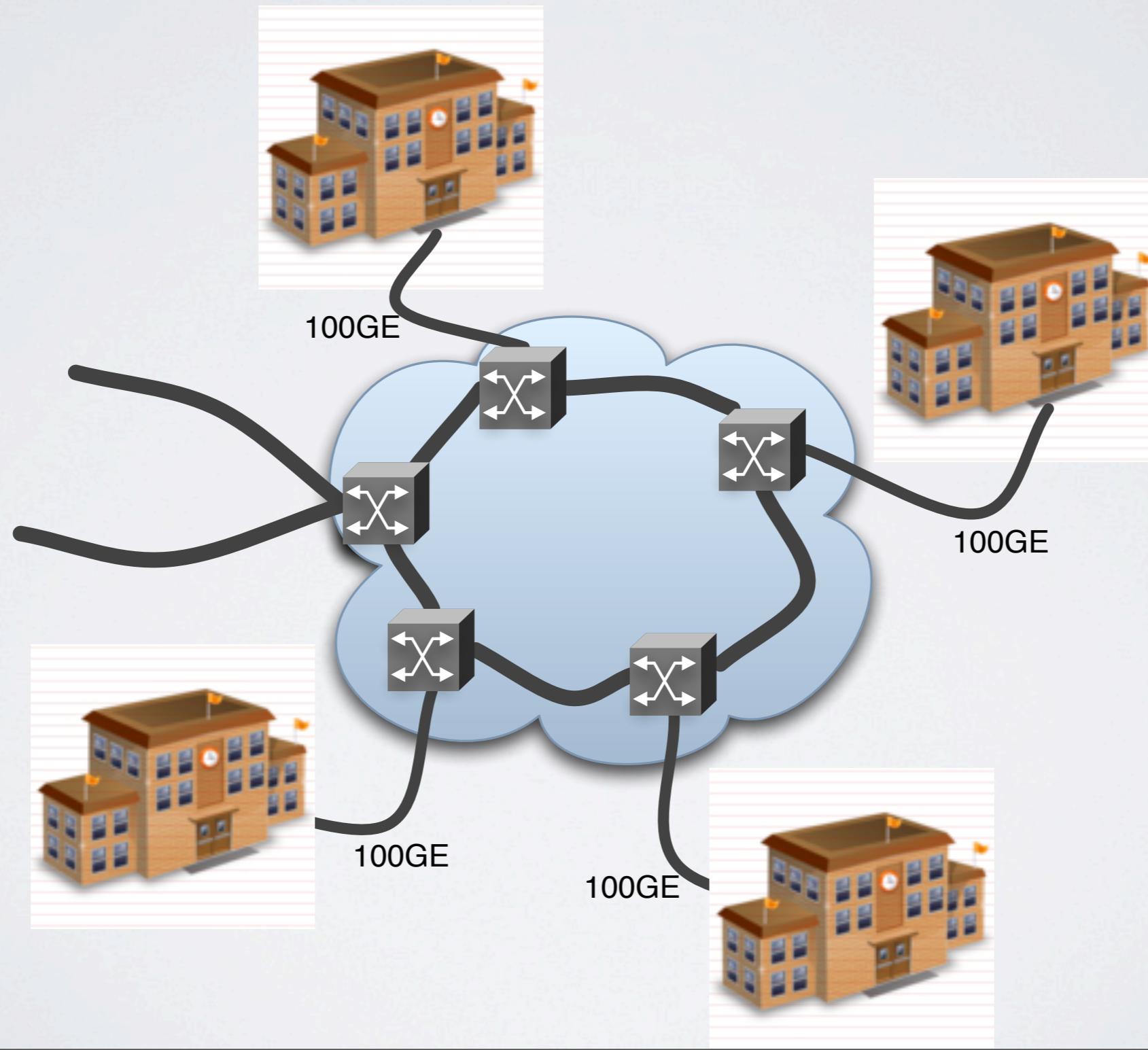
LHCONE Use-Case



Endpoints in Current NRENs

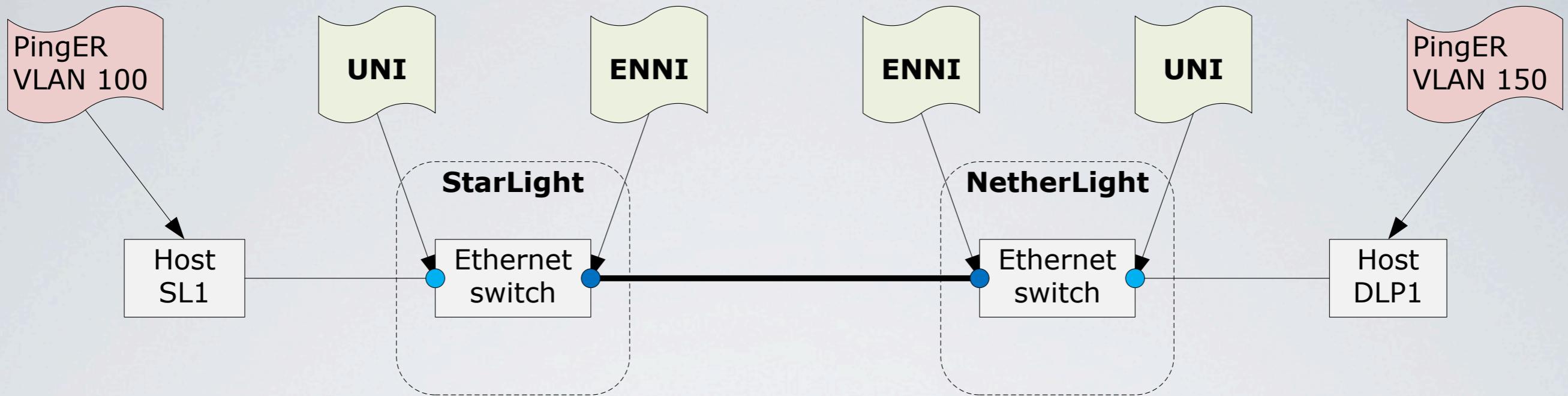


Future NRENs



Labels in Topologies

- Labels are becoming a necessary ingredient for endpoint determination
 - VLANs in LHCONE
 - Labels on 100GE connections
- Label swapping is not universal (yet)



1

Q: Where do I want to go?

A: Look at all hosts and services in the Red phonebook, choose two endpoints:

pingER StarLight has URN A and VLAN 100

pingER NetherLight has URN B and VLAN 150

2

Request interdomain pathfinding,

based on GOLE Topology URN's matching Red Phonebook URN's:

From URN A at VLAN 100 at StarLight to URN B at VLAN 150 at NetherLight

Result: success, requested path has been setup (in this case, with retagging somewhere)

3

Link Local & Service Discovery

For example Bonjour - consists of ZeroConf for IP address configuration + multicast DNS for advertising and finding host's services – implemented for OS X, Windows, Linux, BSD and Solaris

4

Client-Server interaction

Next GLIF meeting

- Fully automated provisioning through NSI
- Demonstration of topology exchange
- Endpoint discovery?

Topology Aggregation

