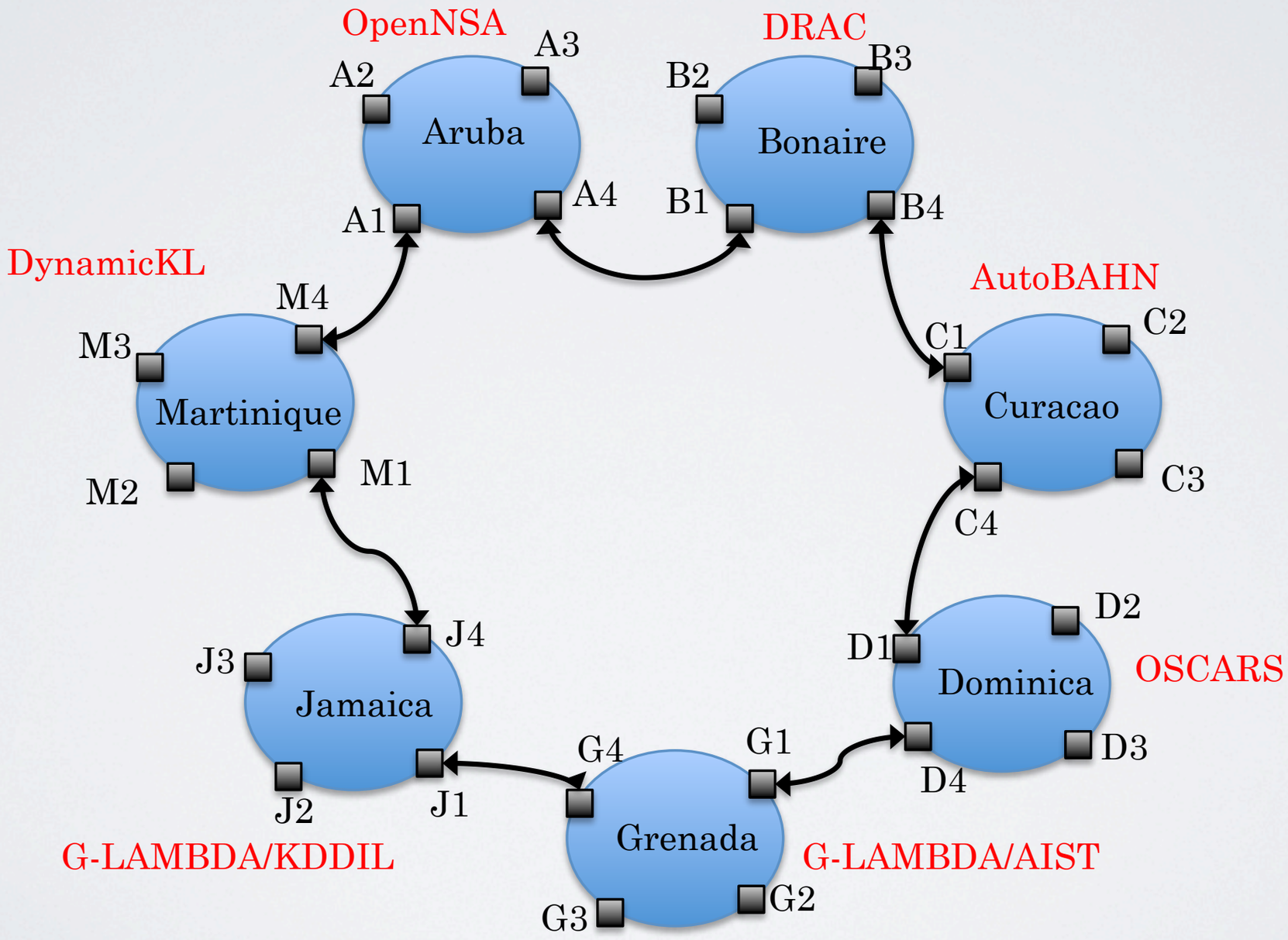
Distributed Topology Exchange (DTOX)

Jeroen van der Ham
vdham@uva.nl

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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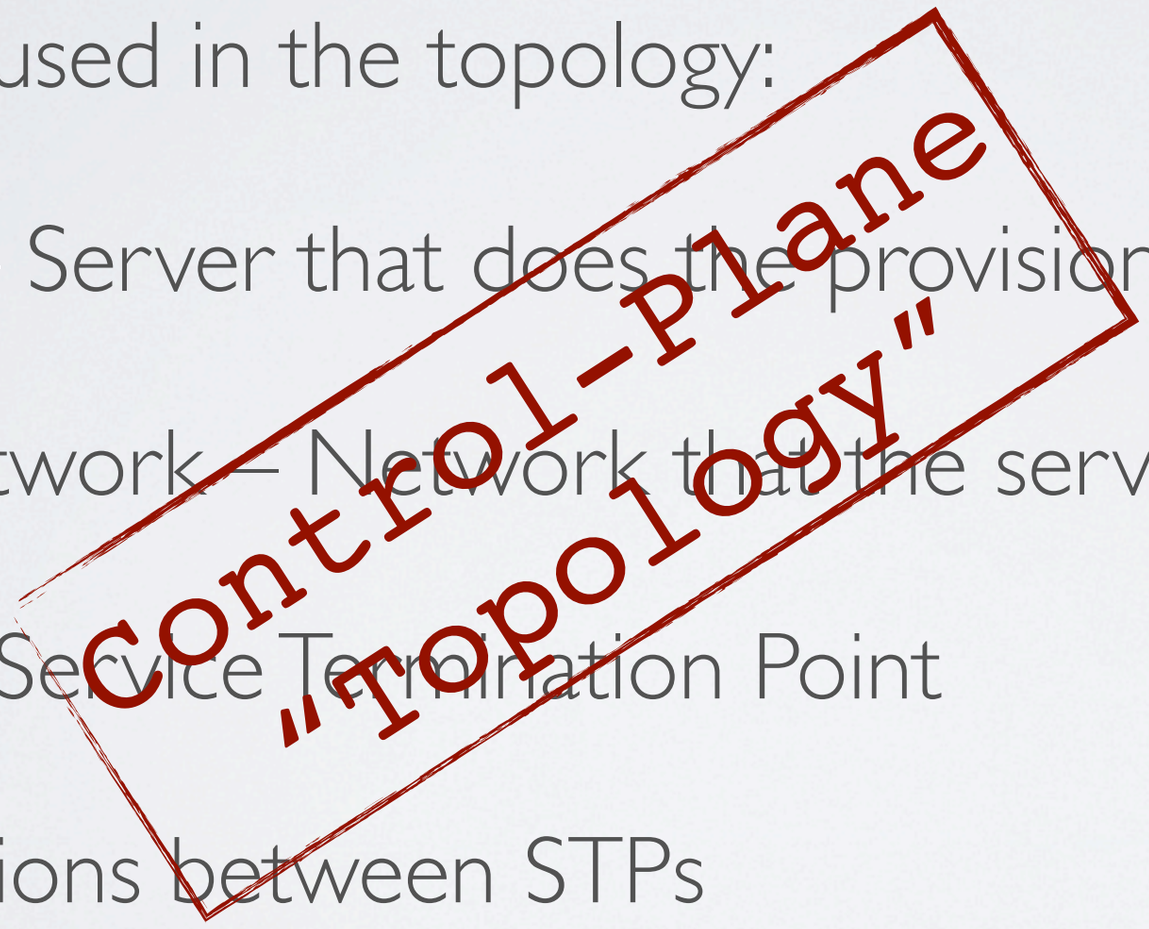
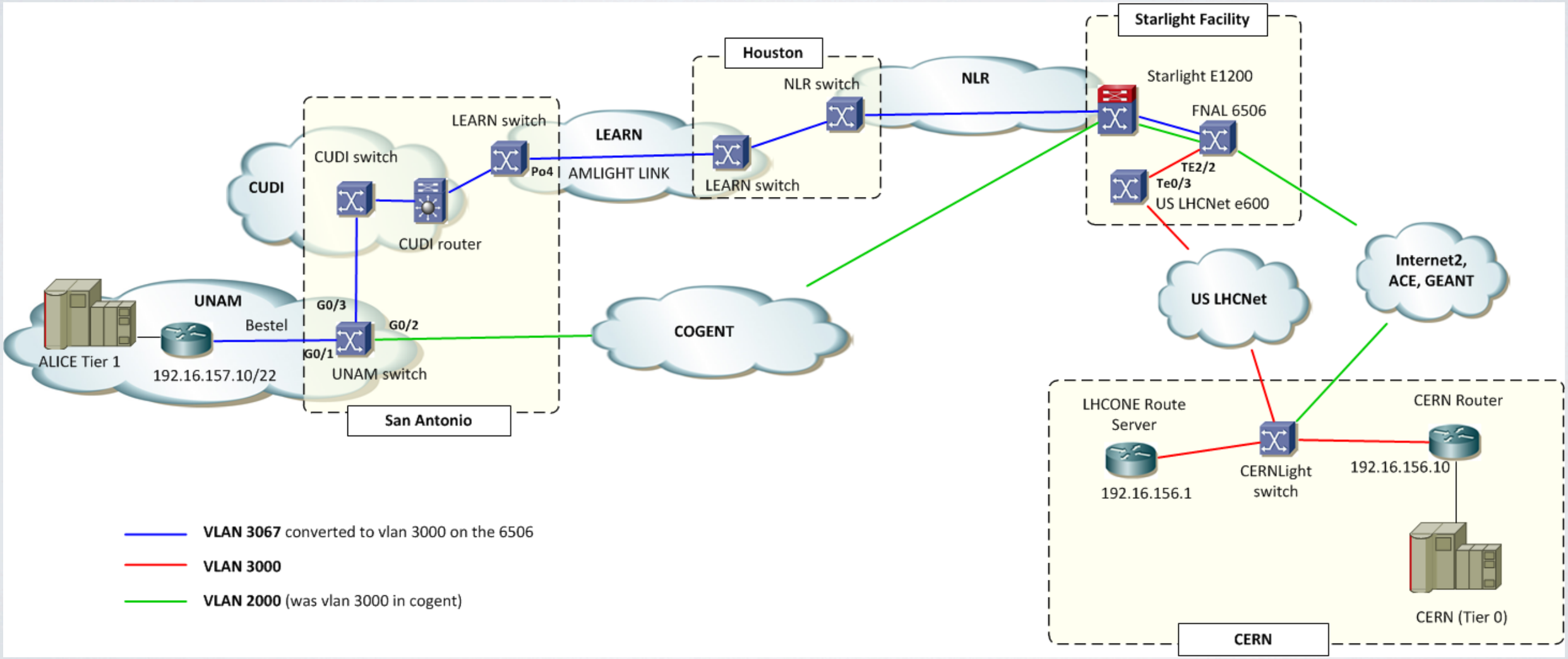
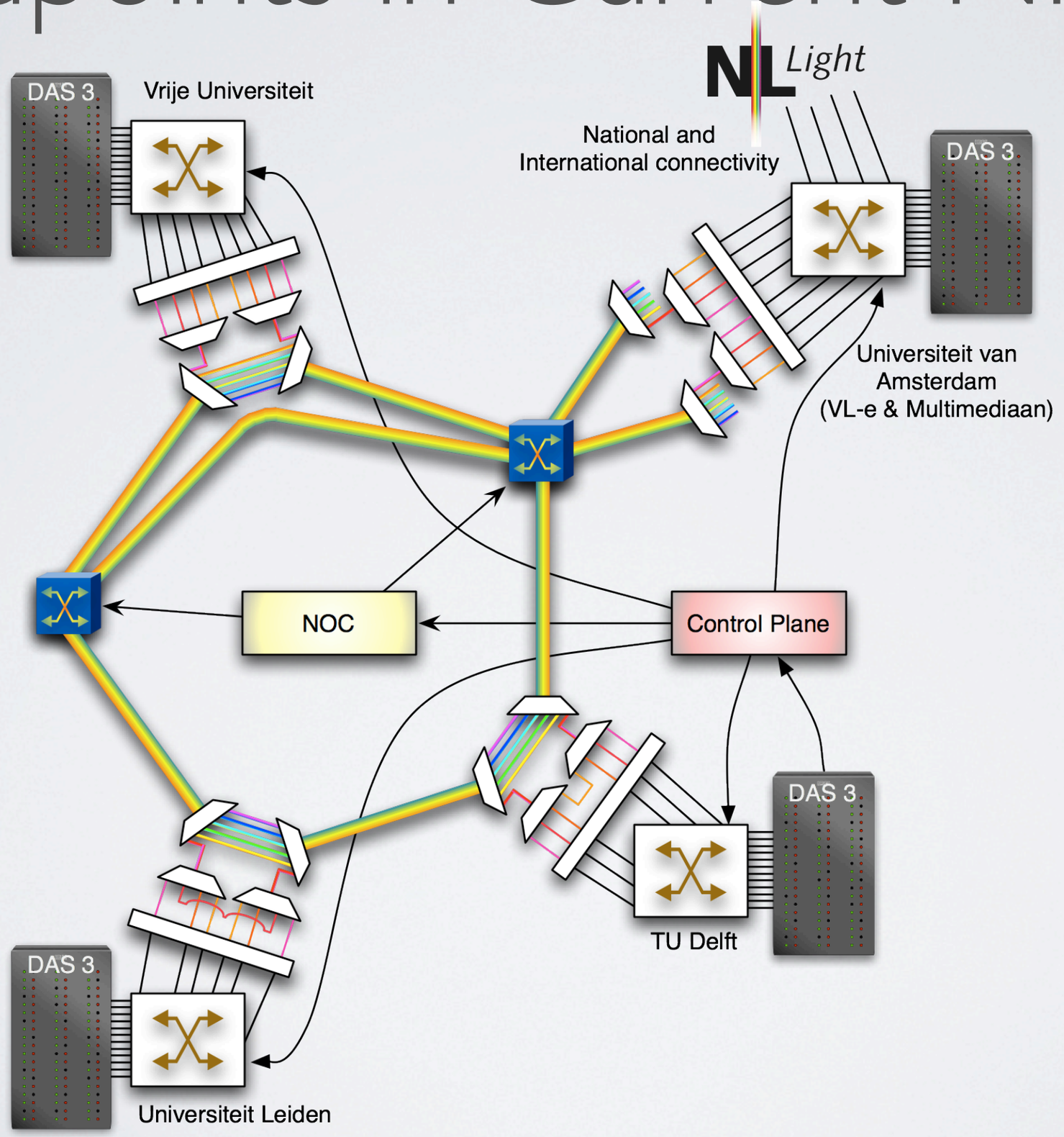


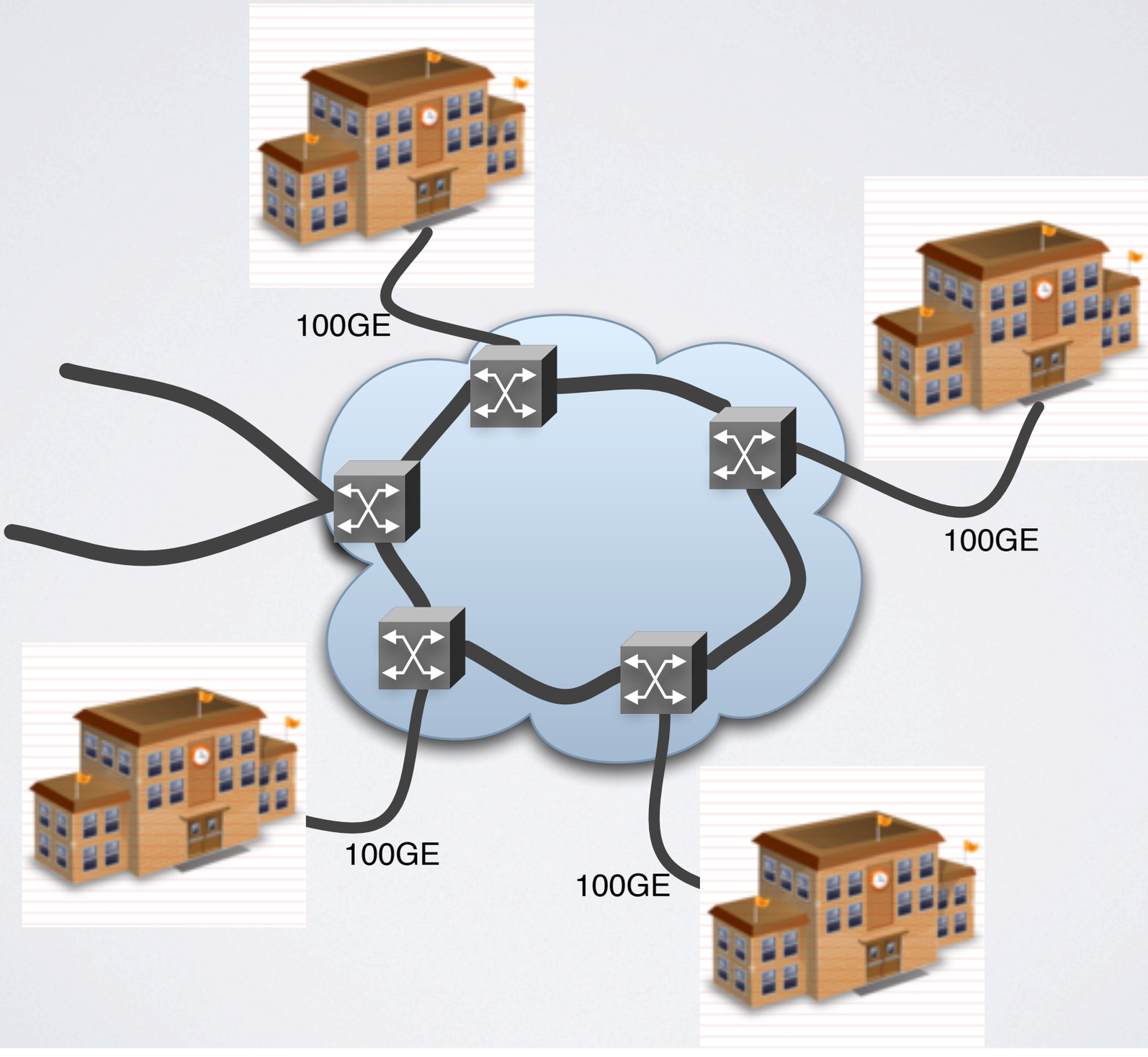
LHCONE Use-Case



Endpoints in Current NRENs

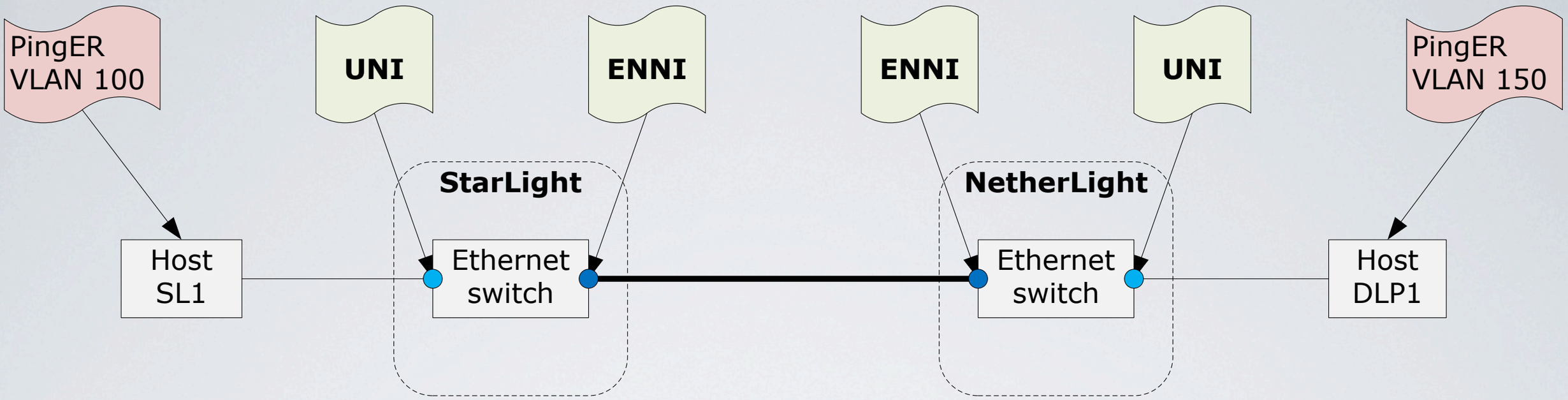


Future NRENs



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

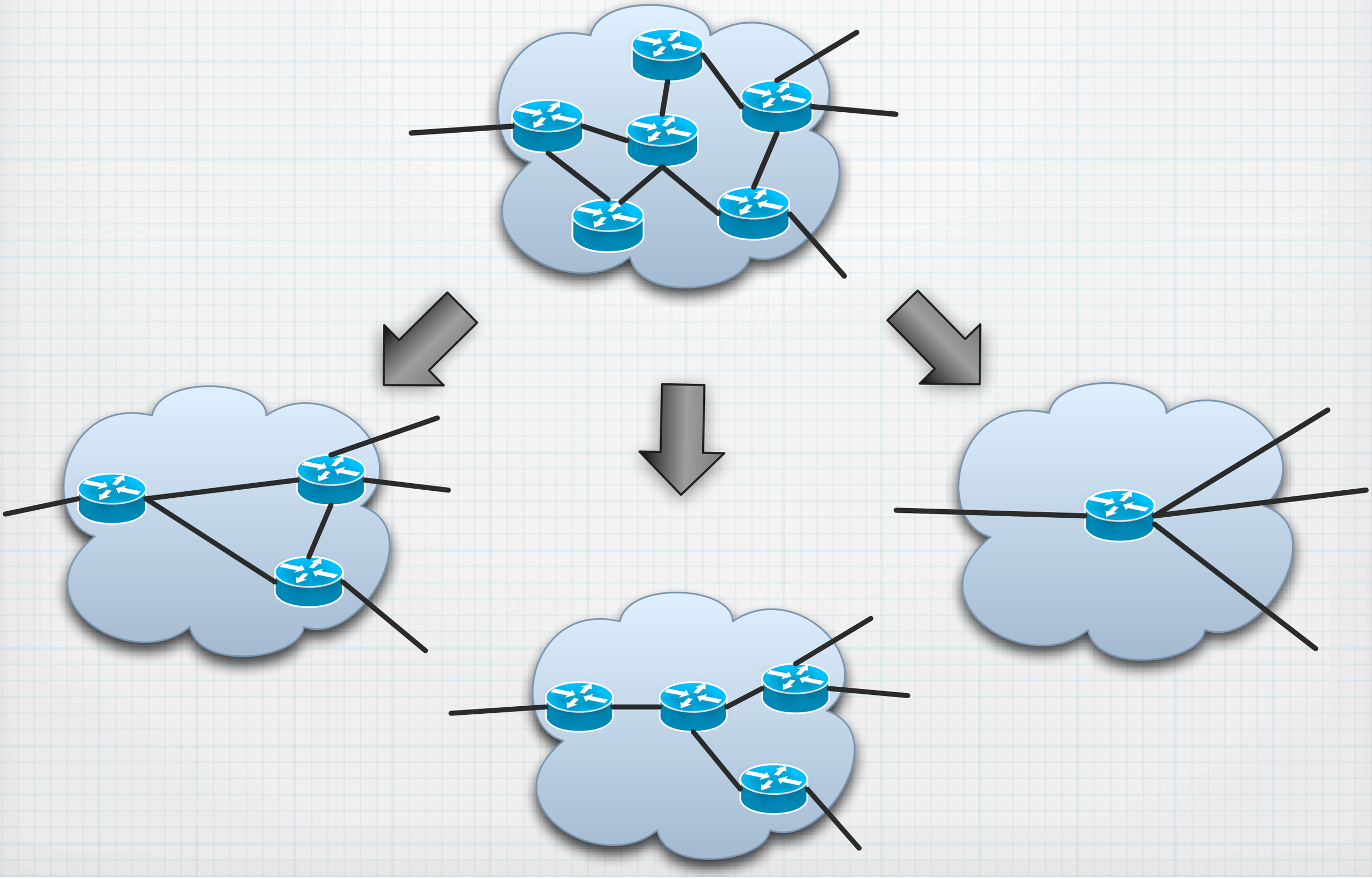
4

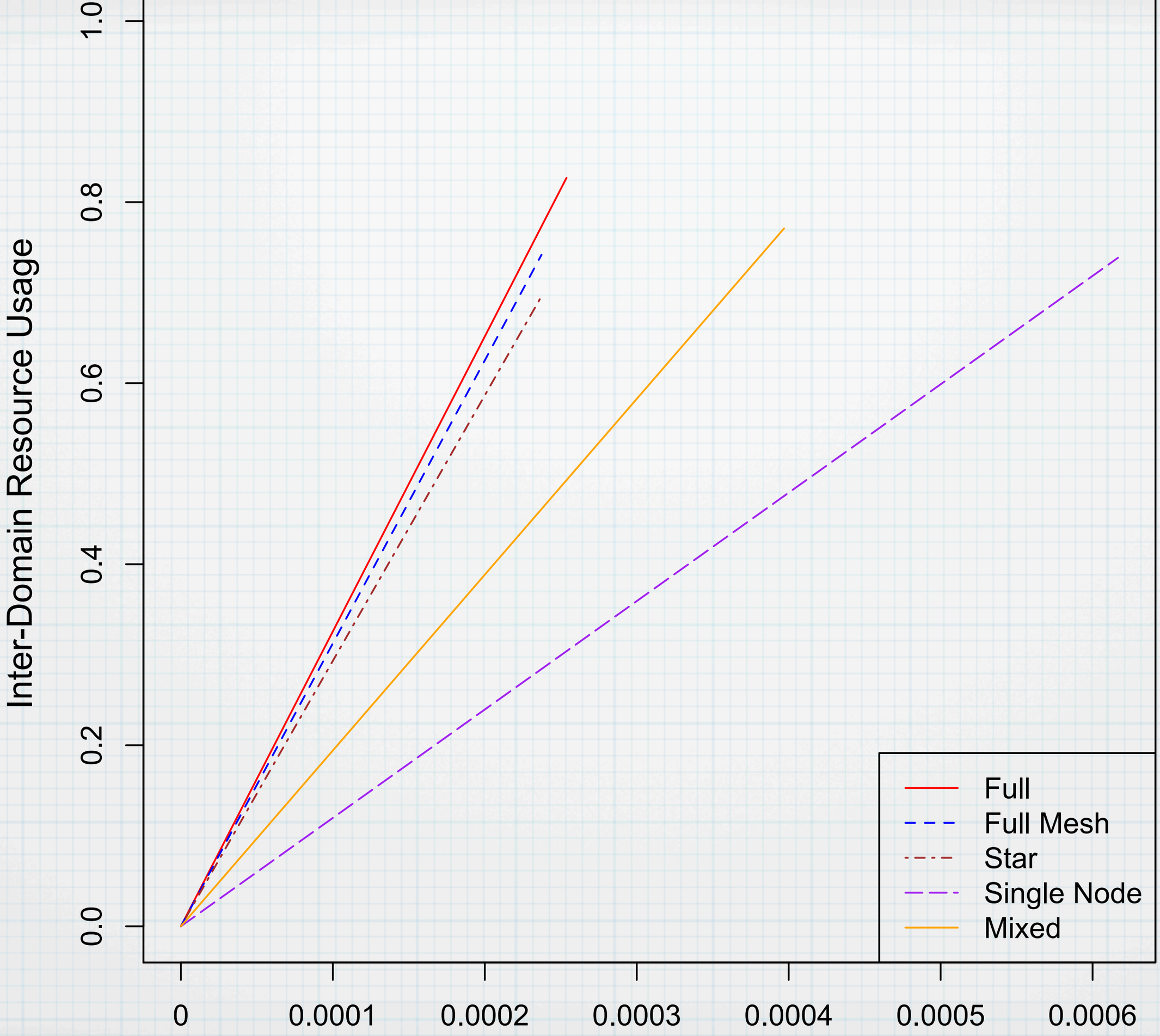
Client-Server interaction

Next GLIF meeting

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

Topology Aggregation




Inter-Domain Resource Usage
0.0
0.2
0.4
0.6
0.8
1.0
0
0.0001
0.0002
0.0003
0.0004
0.0005
0.0006
Full
Full Mesh
Star
Single Node
Mixed