

Overview UvA/SNE Activities in GigaPort INT

Ralph Koning

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System and Network Engineering

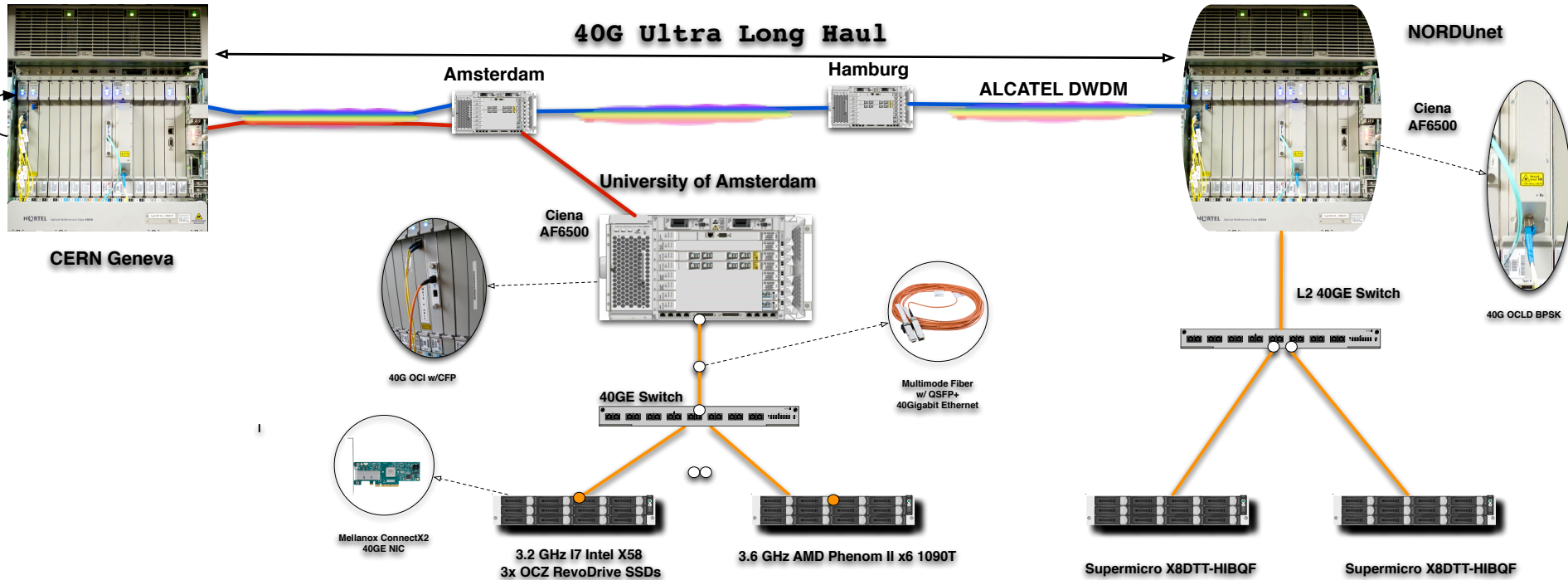
Research Group

Universiteit van Amsterdam

Activities 2011

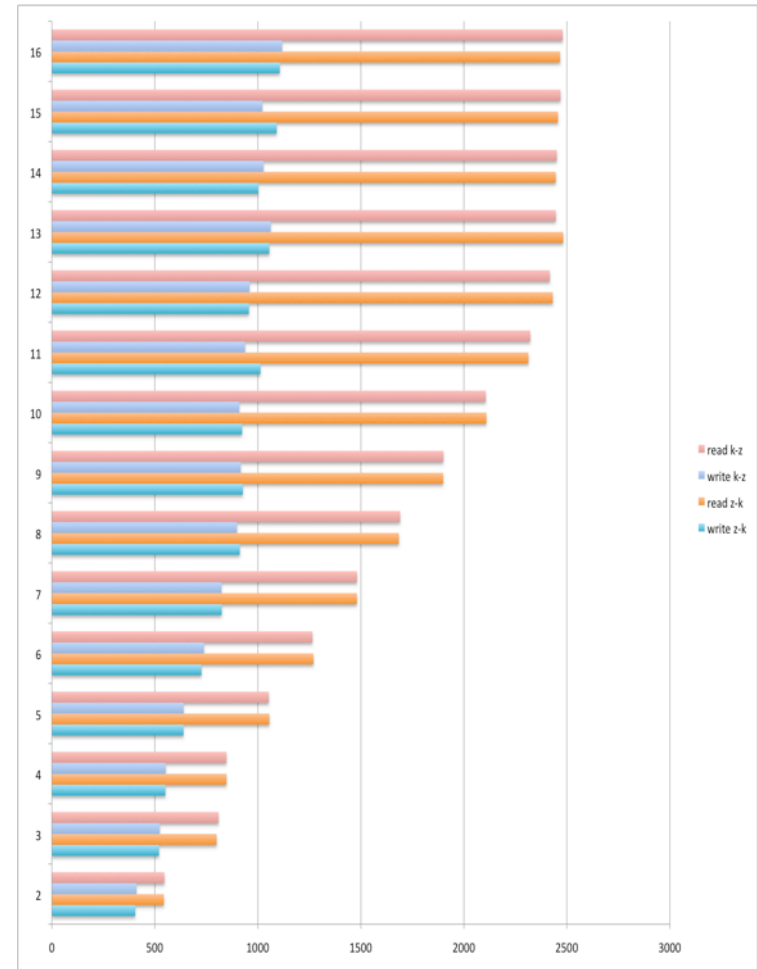
- **40G+100G Transatlantic (Ralph)**
 - Demo TNC2011
 - ‘Playing with Light’ Demo at SC11
- **Automated GOLEs (Ralph, Jeroen)**
 - DTOX Demo at GLIF
 - Demo at SC11
 - Standardization
- **Dissemination and outreach (Ralph, JP, Cees)**
 - CineGrid Amsterdam (Ralph)
 - SC11 supporting 6 demonstrations (Ralph)
 - Participated in SCinet (JP)
 - I2 Spring meeting + various keynotes (Cees)

TNC2011 40G Demo setup



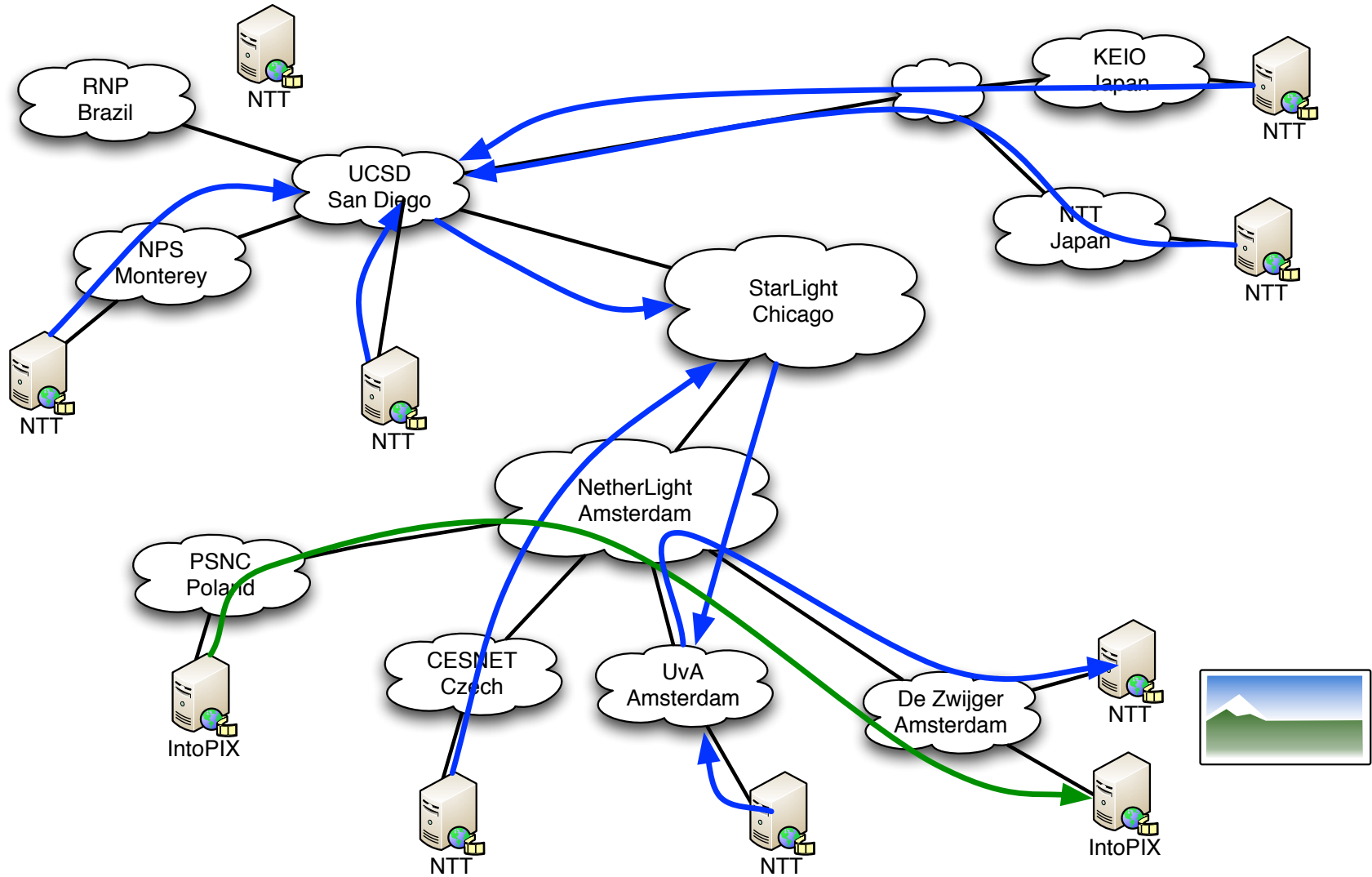
TNC11 40G file transfer

- SSD to Memory
 - 4x OCZ Revo X2 240GB on x8 PCI-e
 - Aligned XFS on mdraid, filesize > 1GB
- Local
 - No performance increase with more than 12 disks (3 revo's)
 - Read 19 Gbit/s Write 8Gbit/s
- Over network
 - LAN Distance 12Gbit/s
 - WAN Distance 12Gbit/s
- Bottleneck is still in the host system not in the network.



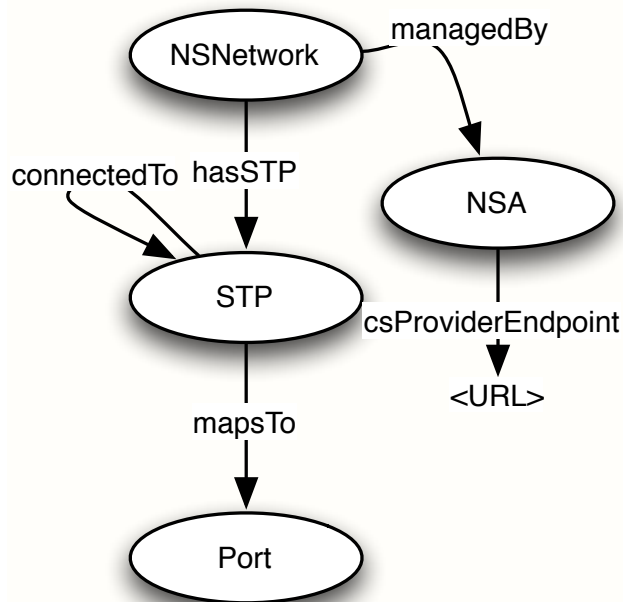


CineGrid Amsterdam



NSI Ontology

- Based on NDL/NML concepts



```

<owl:NamedIndividual rdf:about="urn:ogf:network:stp:uvalight.ets:ams2-83">
  <rdf:type rdf:resource="http://www.glif.is/working-groups/tech/dtox#STP"/>
  <connectedTo rdf:resource="urn:ogf:network:stp:netherlight.ets:uva2-83"/>
</owl:NamedIndividual>

```

```

<owl:NamedIndividual rdf:about="urn:ogf:network:nsa:uvalight">
  <rdf:type rdf:resource="http://www.glif.is/working-groups/tech/dtox#NSA"/>
  <managing rdf:resource="urn:ogf:network:nsnetwork:uvalight.ets" />
  <csProviderEndpoint rdf:datatype="http://www.w3.org/2001/XMLSchema#string">
    http://nsa.uvalight.nl:8080/nsi-v1/ConnectionServiceProvider
  </csProviderEndpoint>
</owl:NamedIndividual>

```

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<owl:NamedIndividual rdf:about="urn:ogf:network:nsnetwork:uvalight.ets">
  <rdf:type
    rdf:resource="http://www.glif.is/working-groups/tech/dtox#NSNetwork"/>
  <rdfs:label xml:lang="en">uvalight.ets</rdfs:label>
  <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ps-80"/>
  <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ps-81"/>
  <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ps-82"/>
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```



Auto-Gole Editor

Click to go back, hold to see history
https://auto-gole.appspot.com

SNE Editor SNE Editor for AutoGOLE

New Upload Download Help

Auto GOLE

- Edgeport
- EndPoint
- GOLE
- Location
- NSA
- NSNetwork
- Node
- Port
- STP
- SwitchMatrix

Graph View OWL View

NSA
Data properties of NSA
Name: urn:ogf:network:nsa:uvalg
BaseAddress: []

Location
Data properties of Location
Name: urn:ogf:network:nsnetwork
long: 4.953
lat: 52.357
BaseAddress: []

NSNetwork
Data properties of NSNetwork
Name: urn:ogf:network:nsnetwork
BaseAddress: []

STP
Data properties of STP
Name: urn:ogf:network:stp:uvalg
BaseAddress: []

Properties
File Name: SC2011-Topo-v5f-shorter.owl
Base Address: SC2011-Topo-v5f-shorter.owl
Description: Ontology(<http://www.glif.is/worki ng-groups/tech/dtox> [Axioms: 96] [Logical axioms: 46])

Outline

Info

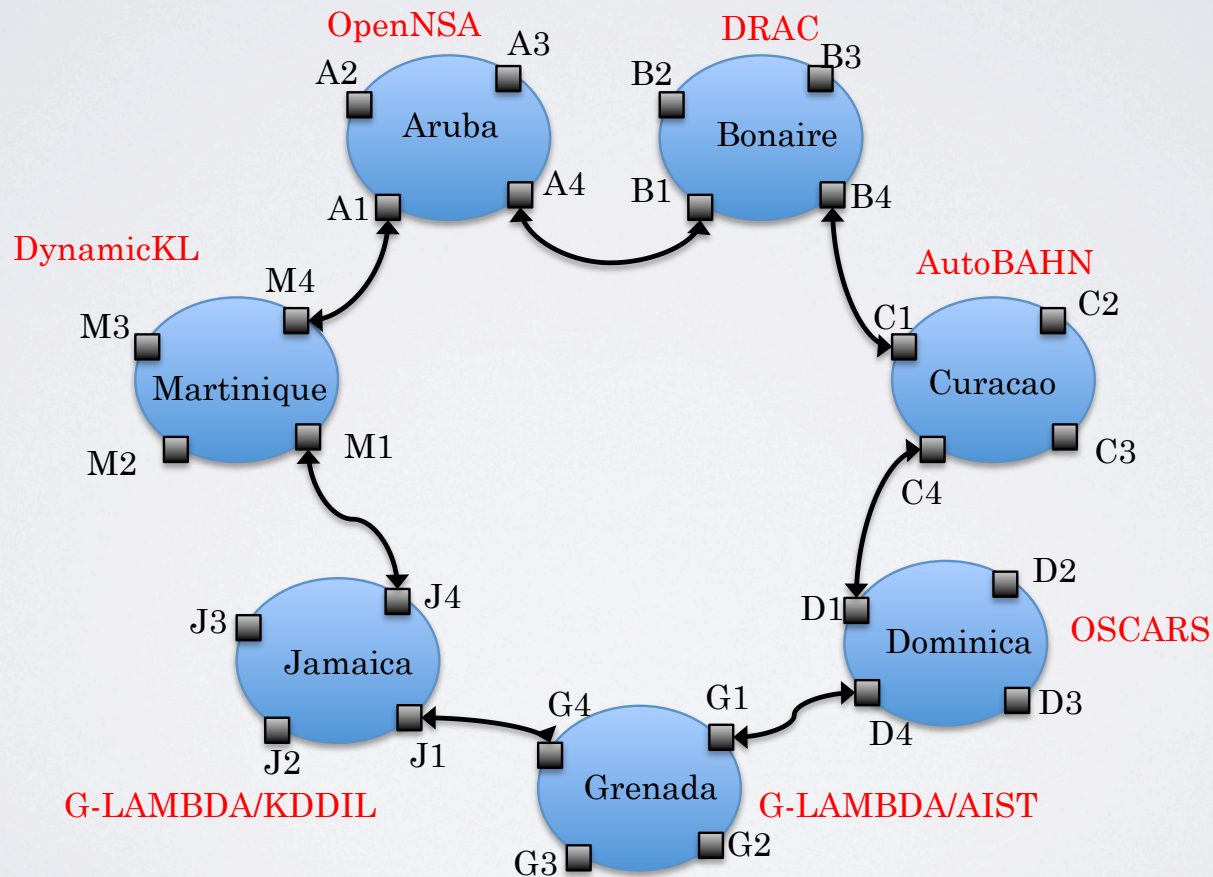
This editor is designed to allow user to compose logical infrastructure allowing semantic exchange of resources information within GLIF Auto GOLE project.

download (1).owl

RoN meeting 29 nov

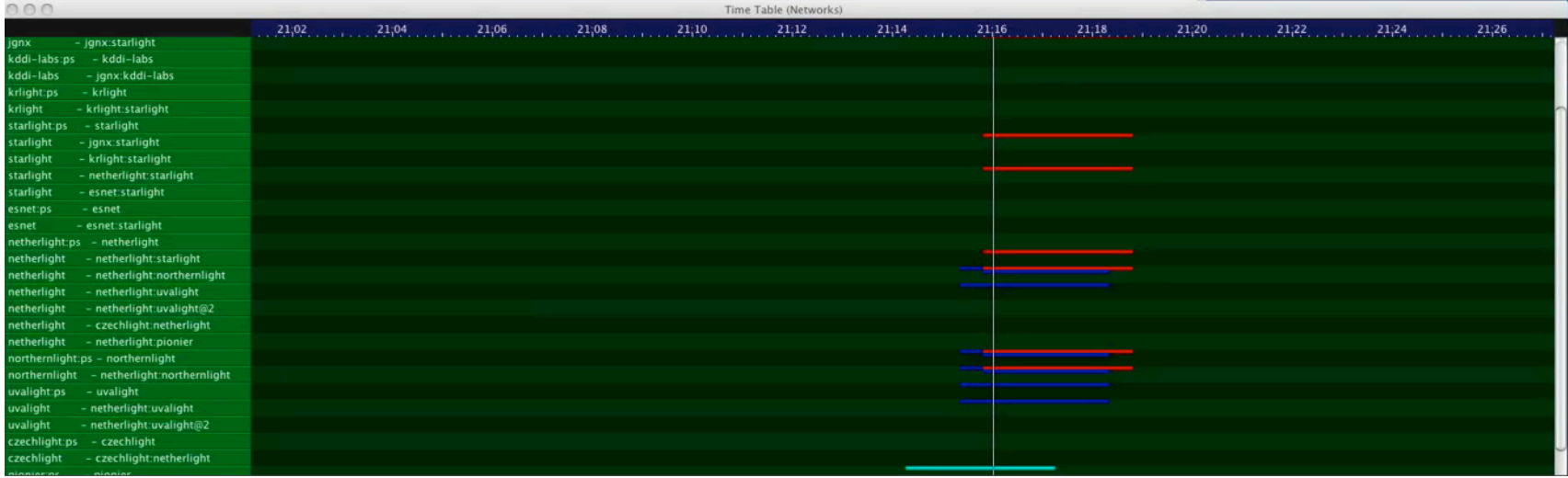
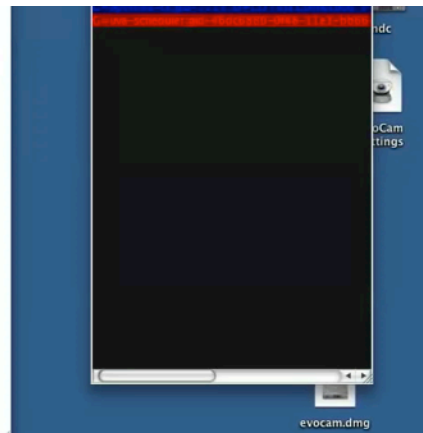
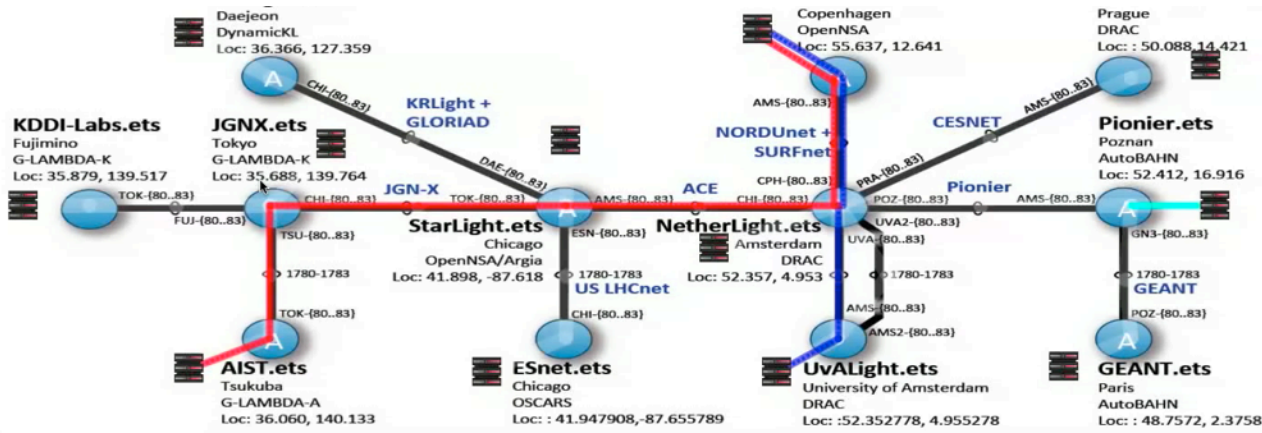
Show All

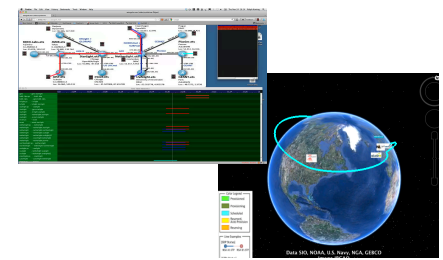
GLIF DTOX demo





SC11 Automated GOLE monitoring

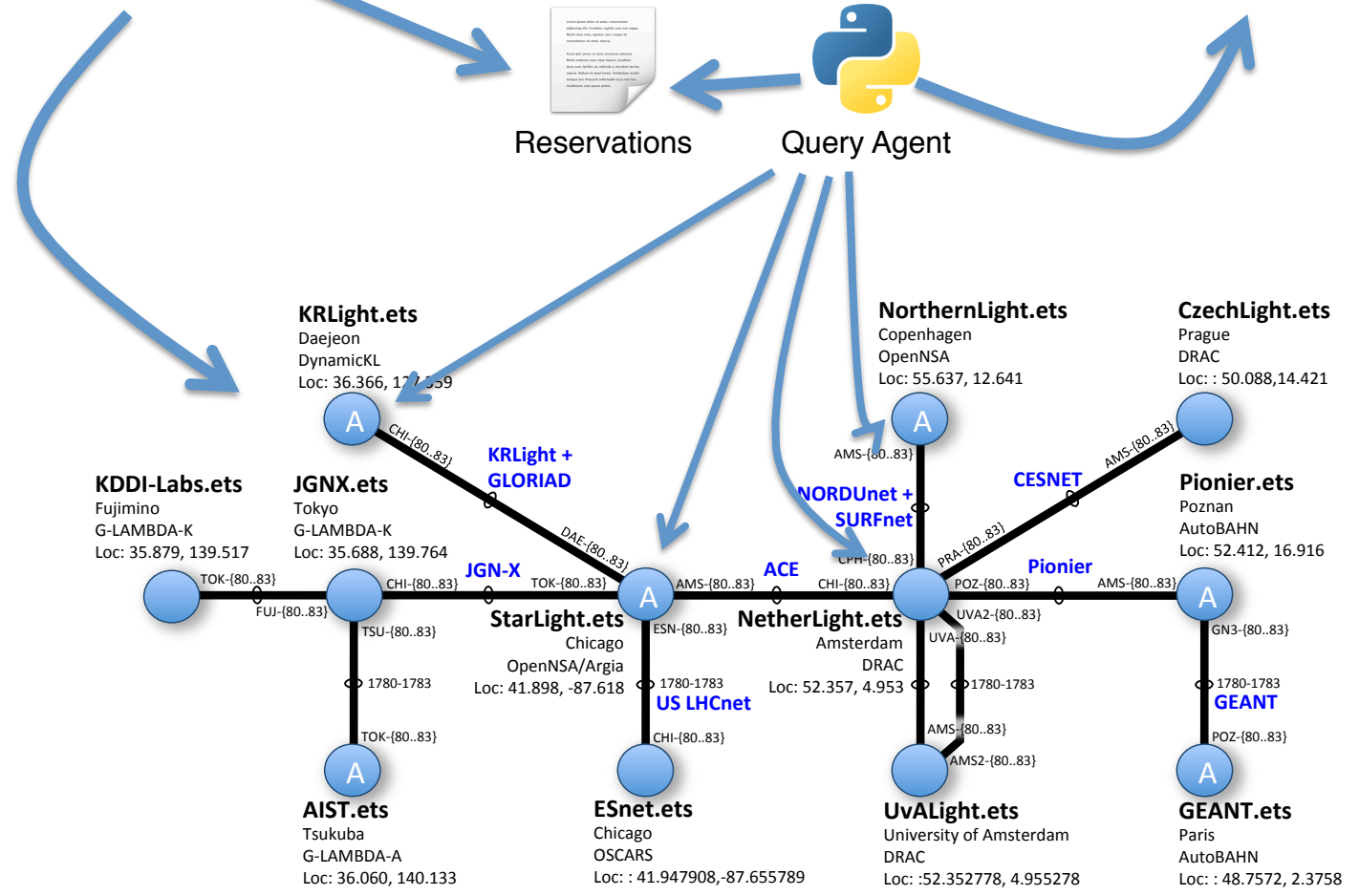




NSI Clients

Visualizations

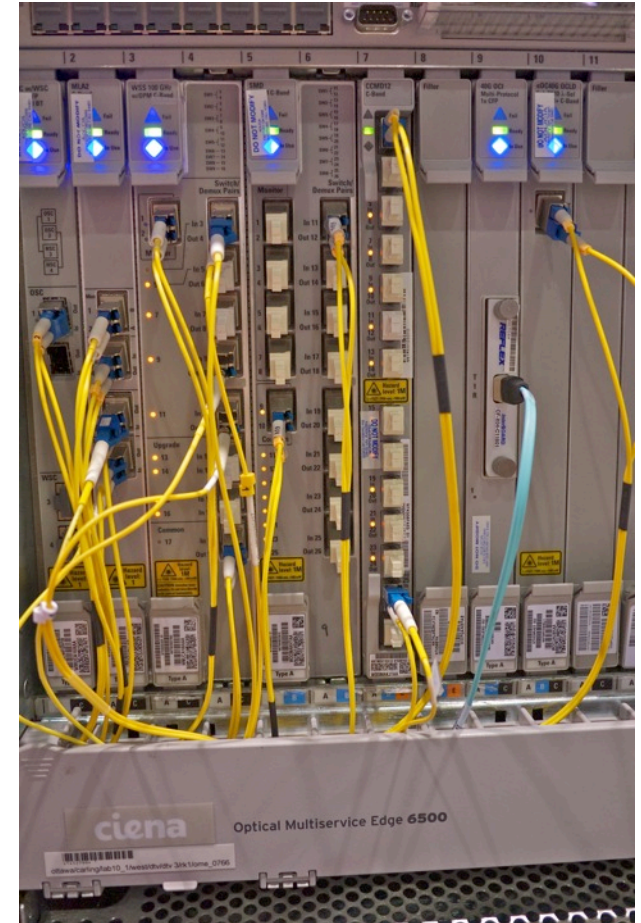
Reservations Query Agent



Standardization

- Network Service Interface
 - Connection Service standard
 - Used for communication between NSI agents.
 - Final draft
- Network Markup Language
 - NML Schema
 - Schema is now frozen
 - Creating example topologies

SC11: Playing with Light



Playing with Light

red blue



Booth #635 Ciena

Booth #42 Dutch



Next steps

- Automated GOLE
 - Improve overall stability
 - Dataplane demonstrations
 - Better distribution
- End to end 40G Ethernet
 - PCI Express Gen3
 - Not limited by PCI-e x8 (32Gbps) bottleneck on NICs
 - Increased overall bandwidth on PCI-e bus
 - Transatlantic?

Presentations in related to INT

- 11-15 SC11 BOF "Towards a Unified Cyberinfrastructure", Seattle: "Back to the Future!"
- 11-13 Holland Avond SC11, Seattle: "Back to the Future!"
- 10-26 CNSM2011, Paris: "QoS in e-Infrastructure for Science the GLIF System. "
- 09-30 SNE Mater Graduation, UvA: "System and Network Engineering; Internet Innovation to support Science".
- 09-26 Ams Platform for Privacy Research, UvA: "Internet Innovation to support Science, Privacy security aspects!".
- 09-21 SNE master, UvA: "Internet Innovation to support Science".
- 09-15 CineGrid@Rio 2011, Rio de Janeiro, BR: "CineGrid Amsterdam".
- 09-14 GLIF 2011, Rio de Janeiro, BR: "GreenClouds".
- 06-27 Introducing SNE research to Chinese delegation, UvA, Amsterdam, NL: "Internet Innovation to support Science".
- 06-24 KLM ICT Architecture department, Amsterdam, NL: "Internet Innovation to support Science".
- 05-19 Cisco Smart and Green Infrastructures Symposium 2011 @ TNC2011, Prague, CZ: "GreenClouds".
- 05-17 TNC2011, Prague, CZ, Keynote talk: "Supporting e-Science".
- 03-22 OGF/ISGC 2011, Taipei, TW: "e-Infrastructure aware Topology handling in the Global Lambda Integrated Facility".
- 03-10 OFC/NFOEC 2011, Los Angeles (CA), USA: "eScience Applications on the SURFnet RE Network".
- 03-02 OnVector 2011, San Diego (CA), USA: "ClearStream; Prototyping 40 Gbps Transparent End-to-End Connectivity".
- 01-10 ARFS11, VU-Amsterdam, NL: "Hybrid Networking for eScience".

Thank You

- SC11
 - <http://sc11.delaat.net>
- Posters
 - <http://ext.delaat.net/posters/>
- Publications
 - <http://www.science.uva.nl/research/sne/publications/>