Topology Descriptions
## For the Network Services Interface

Network Services Interface

Dynamic circuit services have recently been introduced in many R&E networks. The Open Grid Forum Network Service Interfaces Working group (OGF NSI-WG) has been working to define an open interface standard to make such a service interoperable among networks. Here we show how topology descriptions are supporting the NSI demonstration.

Automated GOLE Demonstration

The Automated GOLE demonstration shows that we can have automated dynamic exchange points that can provision virtual circuits, without manual intervention, initiated by the end-user through the standard Network Services Interface. In the demonstration we are using a simplified version of NDL to exchange network topologies. This provides all participants with a common view of the network, and also supports the visualizations.
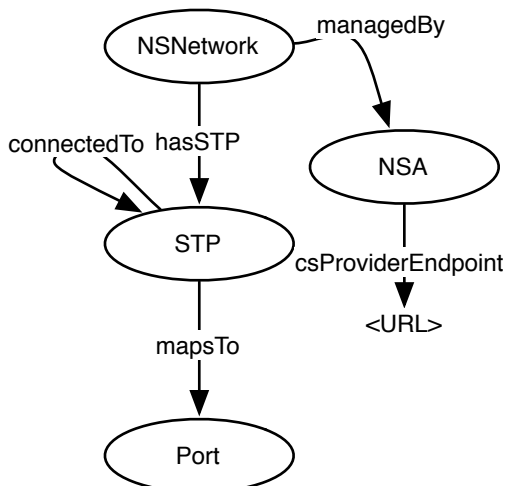
Demonstration Topology
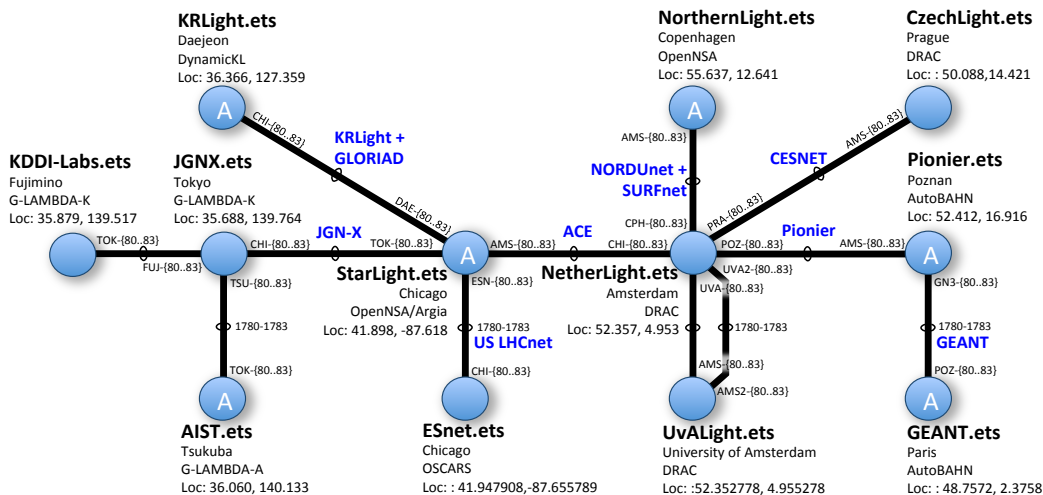
Network Description Language

The Network Description Language (NDL) is an ontology created by the University of Amsterdam for describing computer networks and connecting resources. NDL can describe topologies of different layers, and how the layers and networks interact. This allows network domains to exchange topology information for path computation in circuit-based networks. NDL is also an important tool for fault detection and visualization.

Simplified NDL schema
Classes and properties defined for the demo

Example Description

```xml
<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>

<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"/>
    <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ps-83"/>
    <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ams-80"/>
    <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ams-81"/>
    <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ams-82"/>
    <hasSTP rdf:resource="urn:ogf:network:stp:uvalight.ets:ams-83"/>
```

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http://www.science.uva.nl/research/sne/ndl/

SURF NET

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