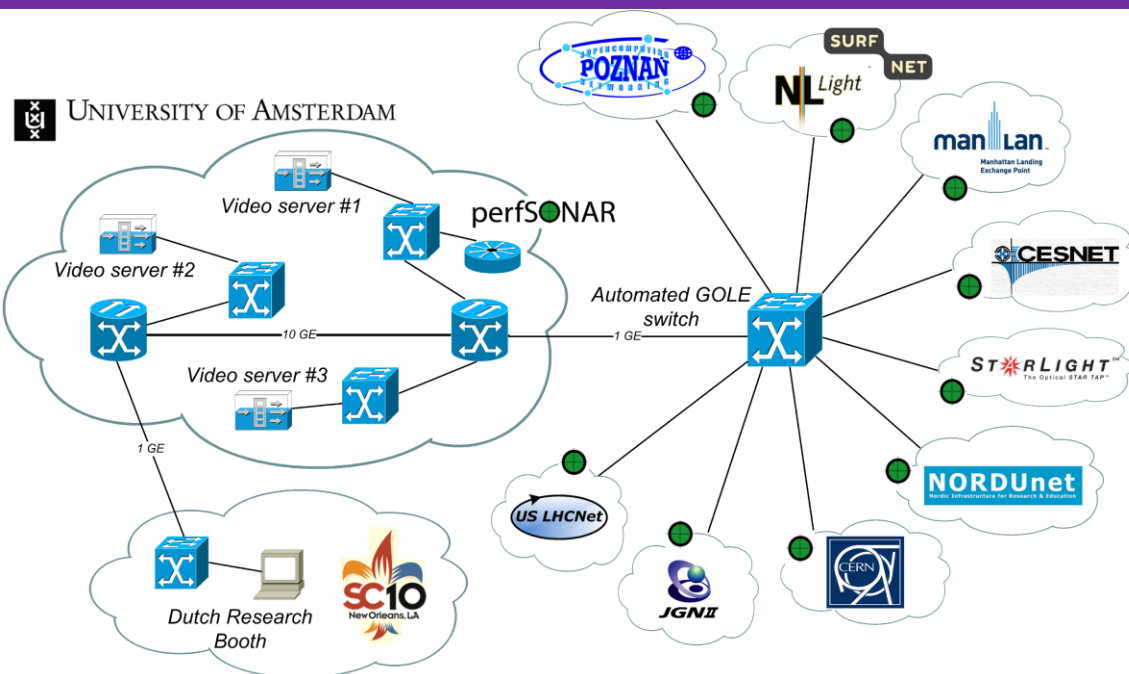


Multi-domain Lightpath Control with the Automated-GOLE Infrastructure



GLIF Open Lightpath Exchanges (GOLEs): locations where lightpaths between multiple NRENs can be set up very effectively.

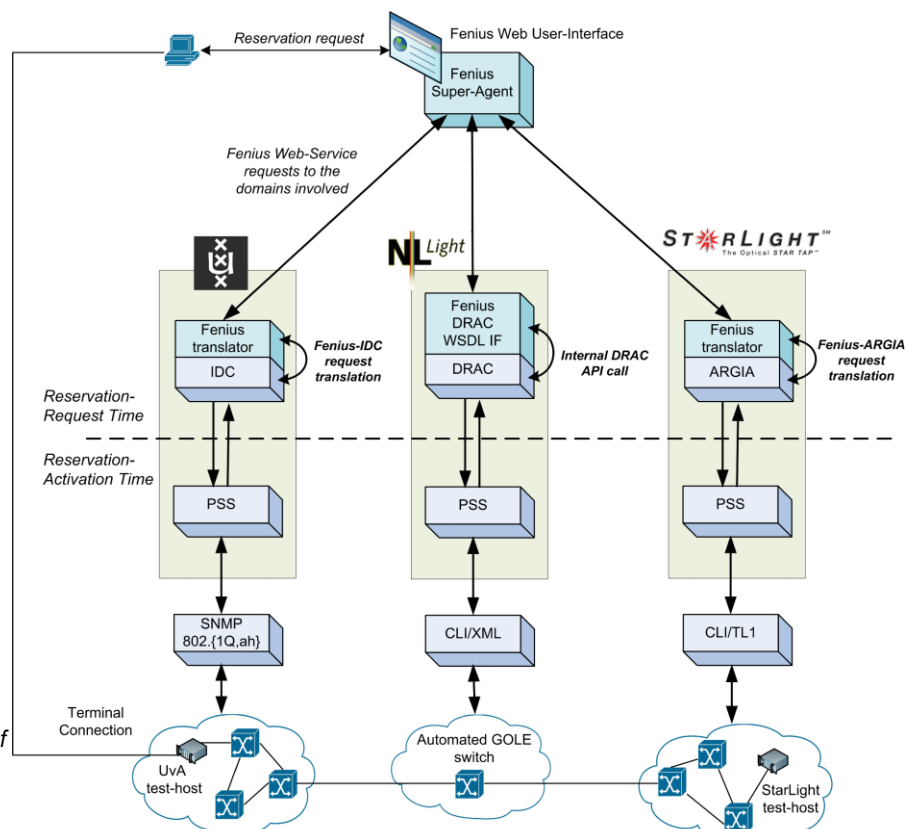
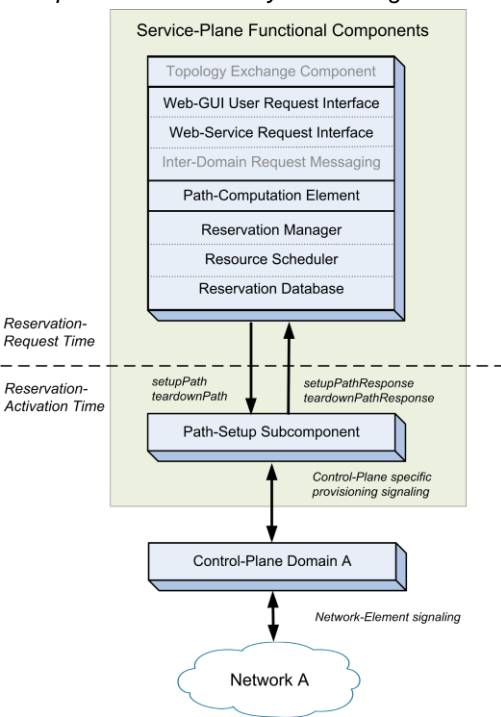
Network Resource Provisioning Systems (NRPSs) among NREN operators differ, one of the reasons making it impossible for a user to reserve a multi-domain path with a single request.

In the GLIF community, a software architecture has been developed that presents the user with a single request interface for reserving multi-domain lightpaths.

Fenius, the name of this system, translates the request in the formats that the NRPSs of the domains involved require.

SC10 demo setup. This demonstration shows the dynamic setup of lightpaths through the Automated-GOLE infrastructure. Each domain has a PerfSONAR instance deployed that signals when domains are connected and is visualized in a pinger-matrix. Additionally, dynamic lightpath setup is demonstrated by connecting to different streamers showing distinct videos.

The Super-Agent is a component that calculates inter-domain paths, and calls the Fenius translator instances of the domains through which the path traverses.



The functional components of NRPSs. Fenius is a solution for NRPSs that lack the highlighted inter-domain components. A better solution would be the standardization and integration of these components in NRPSs, enabling the exchange of topology information and status-notifications, and handle inter-domain requests through a common interface.

An example scenario of the interoperating Fenius – and NRPS systems. In this scenario a request for a path is made from an endpoint in the UvA network to an endpoint in StarLight traversing through the Automated GOLE infrastructure.

In the near future, NRPSs will move to the pre-standard Network Services Interface of the OGF, soon after to be replaced by full NSI implementations as soon as this emerging open standard has been ratified.