

-----StarPlane Meeting Notes -----

Time: 26-01-2006

Place: SURFnet, Utrecht

Goal:

- Open discussion meeting for project formation idea generation
- Identify the need and work items for a possible integration GMPLS code in StarPlane clusters.

Part1: Discussion with Nortel

◆ Discussion Points

Eric Bernier (Nortel) presented "StarPlane integration with Potential GMPLS". This could be a way to interact with the photonic nodes in use by SURFnet.

There will be a deployment in experimental form of GMPLS in the SURFnet6 network (**The research proposal need Nortel executive approval**). The operating system and the operation mode developed for StarPlane may be an interesting starting point for the global GMPLS deployment on the whole of SURFnet6. GMPLS would provide a standard format for the control of CPL equipment.

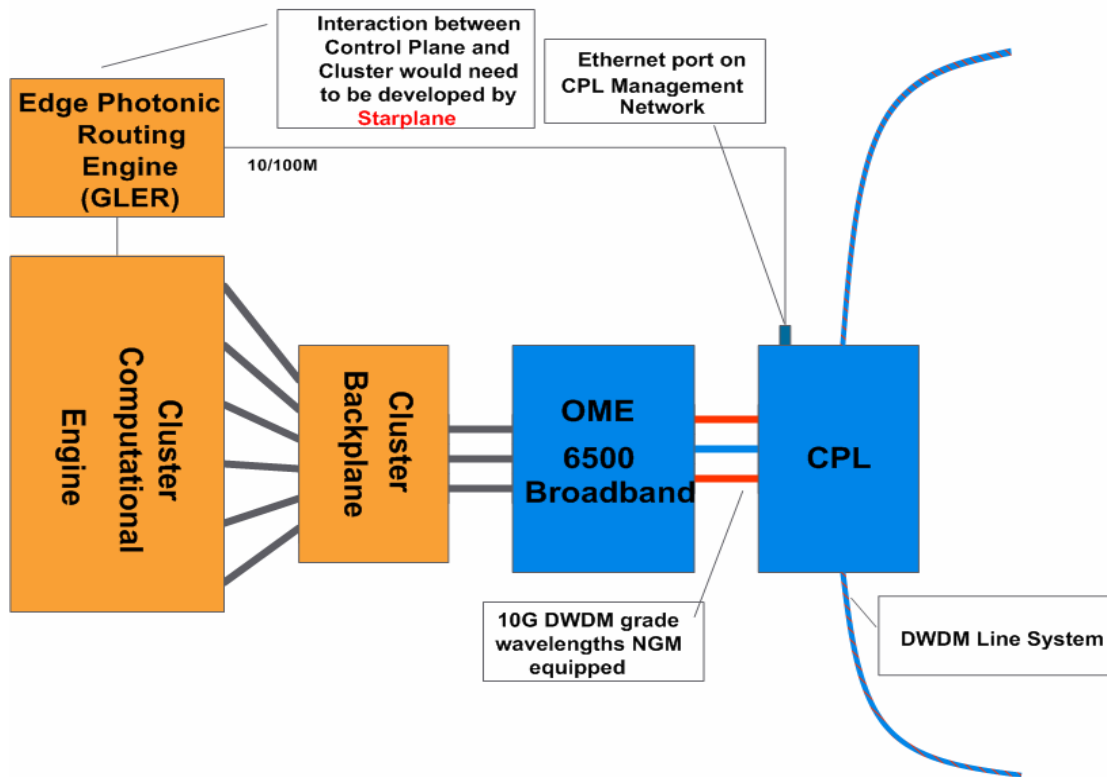
Evelyn (Nortel), the control plane expert developing the code, will provide the technical support.

◆ Proposed plan:

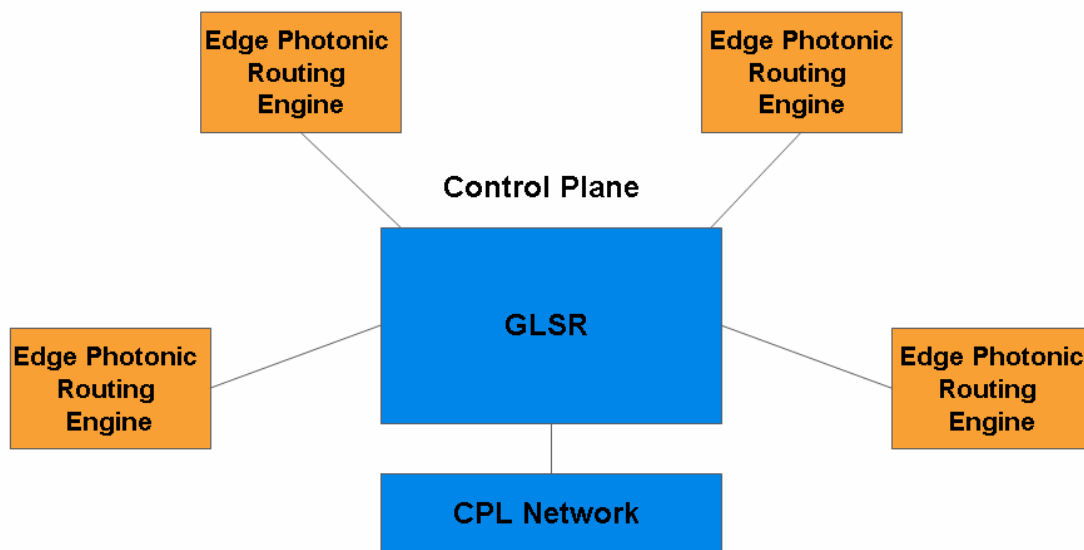
Phase	Nortel	StarPlane
I	<ul style="list-style-type: none"> - Deliver 4 WSS (Wavelength Selective Switch) by March 2006. - Simulation validates the design - Help to setup the testbed in lab (to be discussed) - Provide sample code & APIs for developing the interface - Provide more information on the technique used in GMPLS (e.g. RSVP message) 	<ul style="list-style-type: none"> - Install hardware that supports high-bandwidth could provide static connectivity via the OXC that connect the end nodes at each site to the OME 6500.. - Setup the same development & simulator platform (Nortel uses a GLER simulator on Windows PC. VxWorks simulation tools can be used on Windows and Linux) - Development and support for integration procedure
II	<ul style="list-style-type: none"> - CPL v3.0 available - Deliver extra 2 WSS by Nov 2006 - Technical support 	<ul style="list-style-type: none"> - Development and support for integration procedure(continued) - Providing the edge GLER, the associated GLSR stack - GMPLS support StarPlane to control the WSS nodes

◆ Potential architecture (by Nortel)

Potential Architecture of a Cluster Node



Potential Architecture For the Photonic Switching Control Plane



GLSR = Generalized Label Switch Router

◆ Open Issues

Cees: a testbed in the LightHouse could allow testing both GMPLS and its integration with the ad-hoc StarPlane software. Is that possible?

The GLER (Generalized Label Edge Router) needs to talk to the GLSR (Generalized Label Switched Router). Where (in which realm) is the GLER located? What are the APIs of the GLER? APIs toward the end-user (cluster/application) and toward the network?

The GLSR could be available end of September. Preliminary testing could be possible without the GLSR talking to the CPL equipment underneath.

Failure of the control plane is not too critical for DAS-3, as long as connectivity between sites is not compromised. Is that true?

IF there is a failure of the connection between GLSR we have two options:

1. Do not have persistency at the GLSR level (all parties of the project agreed upon that).
2. Achieve persistency and resiliency at the GLER level (to be discussed).

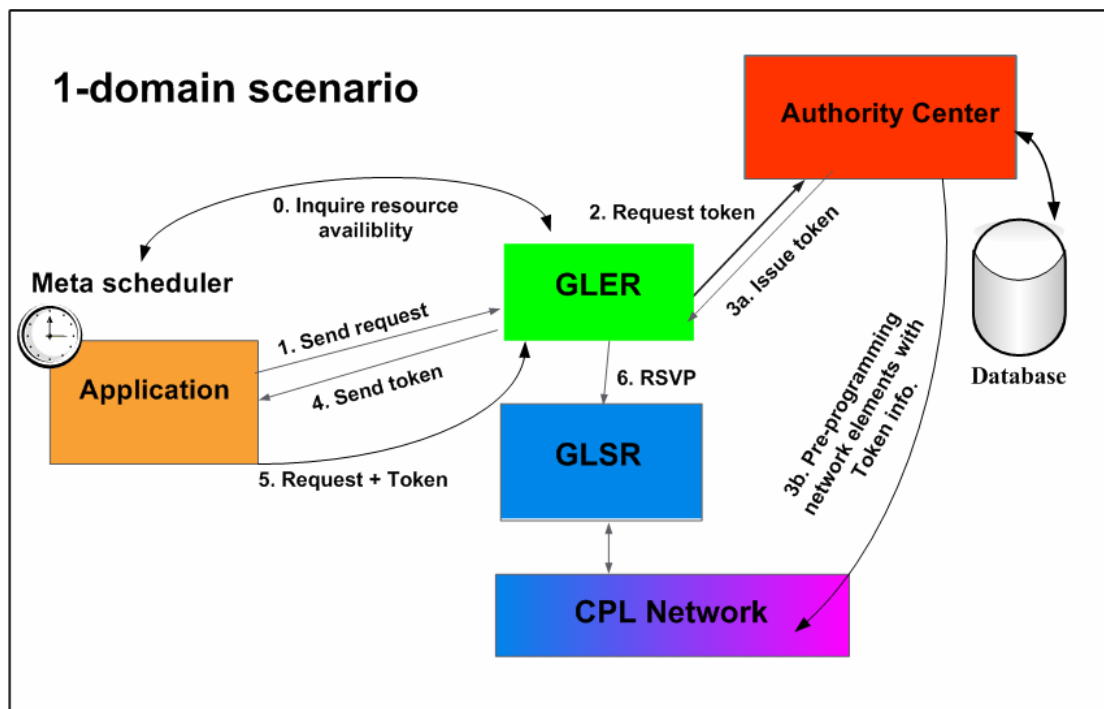
Part2: Discussion within StarPlane developers

◆ Discussion points

- SARA would be the "natural place" for the location of the Authority server/ top level resource manager.

- To achieve mSec reconfiguration of the network we should use token that would pre-program the network ahead of time.

◆ Proposed architecture (by Leon)



◆ Open Issues

- Should we consider an extension to RSVP that handles tokens?
- Should we have advance reservation that allows the booking of resources ahead of time?
- Which APIs do we have toward the application/cluster layer?
- Do we need a meta scheduler that would allow a centralized overview of the network?
- Do we need a GLER at each site or we can do with one single one (with a master/slave model)?
- If we program the element along the way with tokens ahead of time do we need to keep state? Which state do we need to maintain? And where? (at the GLER level or at the authority level).