

Possible Governance Framework for Open LightPath Exchanges (GOLEs) and Connecting Networks

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Background

- Number of Open LightPath Exchange points increasingly significantly with facilities in Asia, Europe and North America
- Number of optical network connections between GOLEs also increasing significantly
- New major eScience programs such as LHCONE will further favor development of Open LightPath Exchange points
- New network initiatives from Internet 2, Renater, etc will further drive demand for this type of infrastructure e.g.
 - Internet 2 proposed “distributed” lightpath exchange points
 - Renater optical network connection between Lyons and CERN
- Future global eInfrastructure will be built around open lightpath exchange points and federated optical networks

History

- GLIF has a governance working group addressing GLIF issues such as funding, organization etc
- Individual GOLEs have advisory and technical committees
- GLIF has developed best practices and documents for escalation and service description
- No consistent practice at each GOLE in terms of support, responsibility, funding, etc
- Inter-GOLE lightpaths, for the most part are owned by GOLEs and access/policy established by GOLE at either end
 - In future may have a pool of “federated” inter-GOLE lightpaths with common policy
- Many issues similar to creation of Internet after NSFnet wth establishment of NAPs

Why Governance?

- As number of GOLEs increases and demand for lightpaths increases the need to have some broad frameworks and policies becomes important
- Governance framework will help minimize questions on AUP policies, escalation procedures, who to contact, etc
- Organizations may wish to donate resources such as international links to a common “federated” pool of resources with a commonly agreed policy and who can use the resources, priority of access, etc
- Governance body can address governments, external users, funding agencies with a single voice and policy
- Governance can help provide input and direction to technical and application committees

Governance does not mean central management or control

- Open Lightpath exchanges and interconnecting links will be a “federation” of exchange points and links
- Some links and exchange points may be dedicated to a federated common pool
- Some links may be dedicated to specific community or VO e.g. LHC
- “governance” in this framework refers to issues of governance of a federation of resources
 - Similar concept to Eduroam or Internet “governance”
- No central organization manages or controls Internet or Eduroam
 - Instead participants get together in technical and policy meetings to agree on how parties will interact to provide end to end solutions
 - Policy principles are agreement to support end-to-end principle, IPv6, etc

Some typical governance issues

- AUP at GOLES and optical links
 - Can commercial organizations get access?
 - Any restrictions on who can use GOLE or given lightpath?
- Who can be a GOLE or what defines a GOLE?
 - Can commercial facilities be GOLES?
 - Does a GOLE have to interconnect to other GOLES?
- What are “distributed” open lightpath exchange points?
 - How do they fit into the overall scheme ?
- Who has access to lightpaths at a GOLE when demand exceeds supply – who gets priority?
 - Tributary access connections to GOLES usually controlled and managed by 3rd party
- What are the escalation procedures, specifications and contact procedures for a given GOLE?
 - Should a GOLE be non-blocking
 - Should a GOLE allow user owned boards?
- Many GOLES have different switches and equipment that are managed by separate organizations with no consistent policies on access, etc
- Etc

Further reading

- SURFnet Position Paper for GEANT High Level Expert Group
 - <http://www.surfnet.nl/Documents/SURFnet%20Position%20Paper%20for%20GEANT%20High%20Level%20Expert%20Group.pdf>
 - Presentation:
 - <http://www.surfnet.nl/Documents/Presentation%20SURFnet%20Position%20for%20GEANT%20High%20Level%20Expert%20Group.pdf>
- Bill St. Arnaud “Future Perspective on R&E networks”
 - <http://goo.gl/FxUsD>