

Experiences with Fault Resolution Process

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- *The ordering and fault resolution process for multi-domain Lightpaths across hybrid networks*
 - ▶ Rene Hatem (CANARIE)
 - ▶ Almar Giesberts (SURFnet)
 - ▶ Erik-Jan Bos (SURFnet)
- GLIF Technical Workgroup Document
- July 2006, time to evaluate

- The following parties are involved in the ordering and fault resolution process:
 - ▶ End-sites (the scientists)
 - ▶ NRENs and their NOCs
 - ▶ GOLE operators
 - ▶ Carriers (OC192 providers)

Ordering Processes

- The *Fault Resolution Document* describes 2 ordering processes:
 - ▶ parallel Master Contractor
 - ▶ serial Peering Relationship

- Current ordering process usually does not follow *Master* or *Peering* process
- Often no clear sourcing organisation
- Long email thread with many people involved

- Similar to ordering process
- i.e. email to all parties involved in the ordering process
- No per lightpath email list as suggested in the *Fault Resolution Document*

Problems Encountered

- No clear provider/consumer relationships
- Little to none sub-tasking
 - ▶ everybody on the same email list
- GOLE operators do not care about IP addresses at end sites
- End sites do not care about ports and timeslots

- Not clear who to contact in case of outages
- 24x7 support difficult during setup and debug phase (many alarms on the NEs)

- Some suggestions for improvement:
 - ▶ make fault resolution not dependent on ordering process (use one procedure for all lightpaths)
 - ▶ lightpath source and destination organisations are the only ones who interact with end-users

- Setup effective information flow between GOLEs
(broadcasting not the best way)
- Setup good monitoring system
 - ▶ topology (domains involved)
 - ▶ (alarm) status
 - ▶ where did fault occur

- Separate planning and provisioning better
- Debugging tools
 - ▶ easy way to set loopbacks
 - ▶ dump of MAC tables
 - ▶ Ethernet traffic statistics
- How are we going to deal with dynamic lightpaths?

Comments? Suggestions?

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