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GLIF GOLEs: Attributes

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For newcomers

- GLIF – Global Lambda Integrated Facility

  ”An international virtual organization that promotes and supports optical networking. It is a collaborative initiative of National Research and Education Networks, consortia, institutions and individual research initiatives worldwide that work with lambdas”

- GOLE – GLIF Open Lightpath Exchanges

  Entity responsible for interconnecting and facilitating GLIF resources to be exchanged. GOLEs are usually operated by GLIF participants and are comprised of equipment capable of terminating lambdas and performing lightpath switching.

Objective

- Create a documentation that would help defining the GOLEs' attributes, aiming to:
    - List services, capabilities, and policies available per GOLE
    - Increase the operational comparability and compatibility among GOLEs
    - Guide current and new users in understanding what to expect from each GOLE

Disclaimer: The GOLE Attributes document created is just a set of recommendations, not rules.

What this effort does not?

- This documentation/effort does NOT aim to:
  - Define what a GOLE is, suggest what/if policies should be created or discuss costs
  - Create tiers or a rank among GOLES
  - ”Compete” against the GNA OXP definition

Main Challenges we are facing

- What is a GLIF Open Lightpath Exchange?
  - Existing documentation is too vague
- How much in the TCP/IP stack an GOLE should be involved?
  - Data exchanging happens at multiple layers
- How much does a hosting facility ”defines” a GOLE?
  - Should cross-connect price be a factor?
  - Should only GOLEs in carrier-neutral facilities be considered a GOLE?

We decided not to answer these questions…

Groups of Attributes

1. Network Services
   - Network services that might be offered by GOLE operators
2. Technology Support
   - Types of interfaces available
3. Web Portal/Transparency
   - What information is available online?
4. Measurement and Monitoring
   - List of resources for performance measurement, monitoring and network troubleshooting
5. Principles of Operation
   - How transparent a GOLE conducts its operation and its openness to different users
6. Colocation Facility
7. Contacts

Attributes

Network Services

- Layer 1 cross-connect
- Optical cross-connect
- Optical switching
- Ethernet
- Jumbo Frame
- VLAN translation
- Class of Services
- QinQ
- Dynamic Capabilities (NSI)
- IPv4 Unicast Routing
- IPv6 Unicast Routing
- IPv4 Multicast Routing
- IPv6 Multicast Routing
- SDN/SDX
- Time Synchronization

Technology Support

- 100GBASE-LR4 Ethernet
- 100GBASE-SR10 Ethernet
- 100GBASE-SR4 Ethernet
- 10G WAN-PHY
- 10G LAN-PHY
- 1Gbps
- 100Mbps
- SDH/SONET

Web Portal

- GLIF/GOLE Portal
- Listed on GLIF.is
- Network Information
- NOC contact:
- Dynamic Services
- Generic Monitoring
- Per-User Monitoring
- List of Users
- Policies

Measurement and Monitoring

- 10G perfSonar node
- 100G PerfSonar node
- Static paths to perfSonar
- Dynamic paths to perfSonar
- Looking Glass
- Network Metadata Sampling

Principles of Operation

- Acceptable Use Policy
- Open to R&E
- Open to All
- Privacy Policy Published
- SLA available

Facilities

- Neutral Carrier Space
- Facility Information Gathering

Contacts

What Happens Next?

1. Share the documentation created with the GLIF community
   - Comments are welcome! *Seriously*!
   - Draft:
     - https://goo.gl/SbCy7h
   - Form:
     - http://go.fiu.edu/glif
2. Catalog all existing GOLEs
   - If you are a GOLE operator/admin, please add your contact to the sheet provided
3. Update the GLIF Resource page with all GOLEs
   - Currently the Resource page is broken
4. Discuss/Suggest a new way of keeping the GOLE resources page updated:
   - http://glif.is/resources/GOLE_NAME would be a link to the GOLE Web Portal
     - Avoiding duplicated content – easy to keep just one page updated
   - Each GOLE Web Portal would have a section/page with its attributes using a format:
     - www.gole_name.net/glif or www.gole_name.net/gole
   - Construct a new database with Links and GOLEs.
     - Could be used for the GLIF maps

Thank You

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