GLIF end-to-end architecture v2.0

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GLIF: Healthy for you
Use Cases

**Cloud Applications**
- real-time, collab., on-demand
- new applications and workflows

**Big Data (science+)**
- massive, predictable data movement,
  Simulation, Viz., Analysis

**Large sensors**
- reliable, consistent, workflows
  LHC, SKA, Video, Telescopes
Infrastructure capabilities

- **ScienceDMZ**: sustained data-transfer capability
- **nx100G**: dark-fiber assets, extreme scale
- **Packet-Optical open exchange**: multi-layer flexible integration
Software & Services

Identity
- Federation, Trust, multi-domain

Programmable
- SDN, NSI, Policies, Service composition

Middleware
- Globus Online, Co-manage, others
End-to-End scope

Some Challenges to solve:
Increase goodput for all applications
Deliver resilient, interoperable network services
Complexity View

Campus

GOLE

WAN

GOLE

WAN

WAN

Cloud

DC

P = performance host
Challenges

- Break complexity into simple, composable elements
- Common terminology
- Multi-layer, interoperable infrastructure
- Automation and programmability
  - DTOX, NSI Ops, AutoGOLE
- Policy and behavior
- Measurement and Verification
Topics of Discussion

Strawman proposals - brainstorming in GLIF
Choose technology directions with an eye towards implementation

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<thead>
<tr>
<th>Area</th>
<th>Technology WG</th>
<th>Implementation WG?</th>
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<tbody>
<tr>
<td>Campus/DC onramp</td>
<td>SDN/OpenFlow</td>
<td>FW Bypass</td>
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<td></td>
<td>ScDMZ in the WAN</td>
<td>Optical Switching</td>
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<td>IP address assignment (dynamic)</td>
<td>integration with GO, other tools</td>
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<td>misconfig detection tool?</td>
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<td>Multi-Domain WAN</td>
<td>Virtualization</td>
<td>L2/L1</td>
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<td>Support for VO like collaborations</td>
<td>SPB, MPLS, MPLS-TP...</td>
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<td>Service composition</td>
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<td>Policy</td>
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<td>Open Exchanges</td>
<td>Flow switching</td>
<td>Managing Link Policies</td>
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<td>perfSONAR instrumented GOLEs</td>
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<td>Information Exchange</td>
<td>Multi-domain debugging</td>
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<td>privacy issues</td>
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<td>authorization/security challenges</td>
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Next Steps

• Terminology/Terms of Reference
• Green Paper Skeleton
  • Strengths, weaknesses, opportunities
• Use Cases/Prioritize projects to be spawned in GLIF
  • Short-list of topics to discuss and debate as immediate next steps
• Present the short-list of topic identified
• Create a landing site for GLIF Architecture
• Ask the applications group to focus on the campus upgrade/architecture