GLIF Evolution and Roadmap

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GLIF

Global Lambda Integrated Facility

Global: whole world
Global Endeavor

Lambda: high-capacity
Circuit w/ deterministic
Characteristics
via optical
Technology

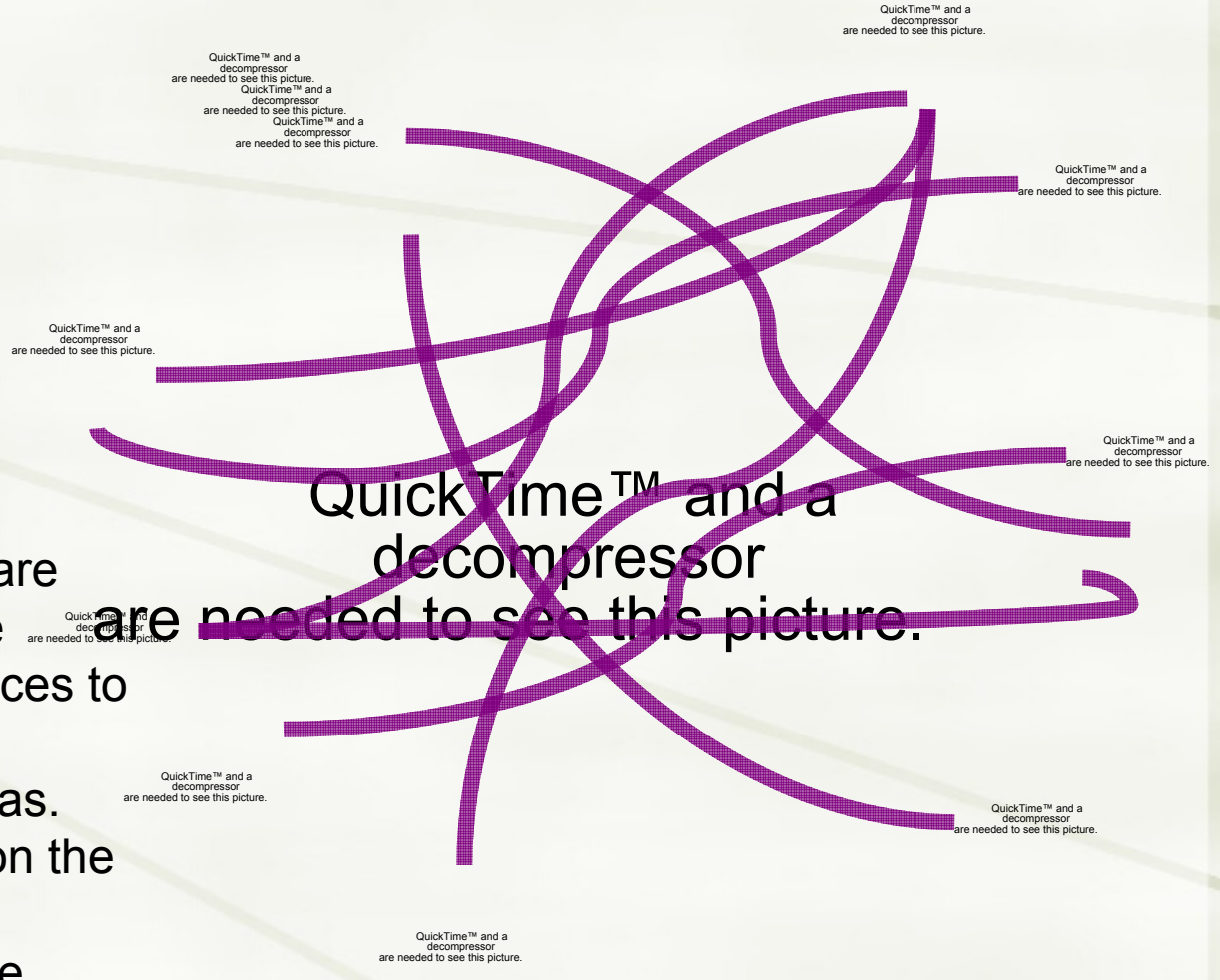
Integrated:To make into a
whole by bringing all
parts together; unify.

Facility:something
that is built,
installed, or
established to
serve a
particular purpose

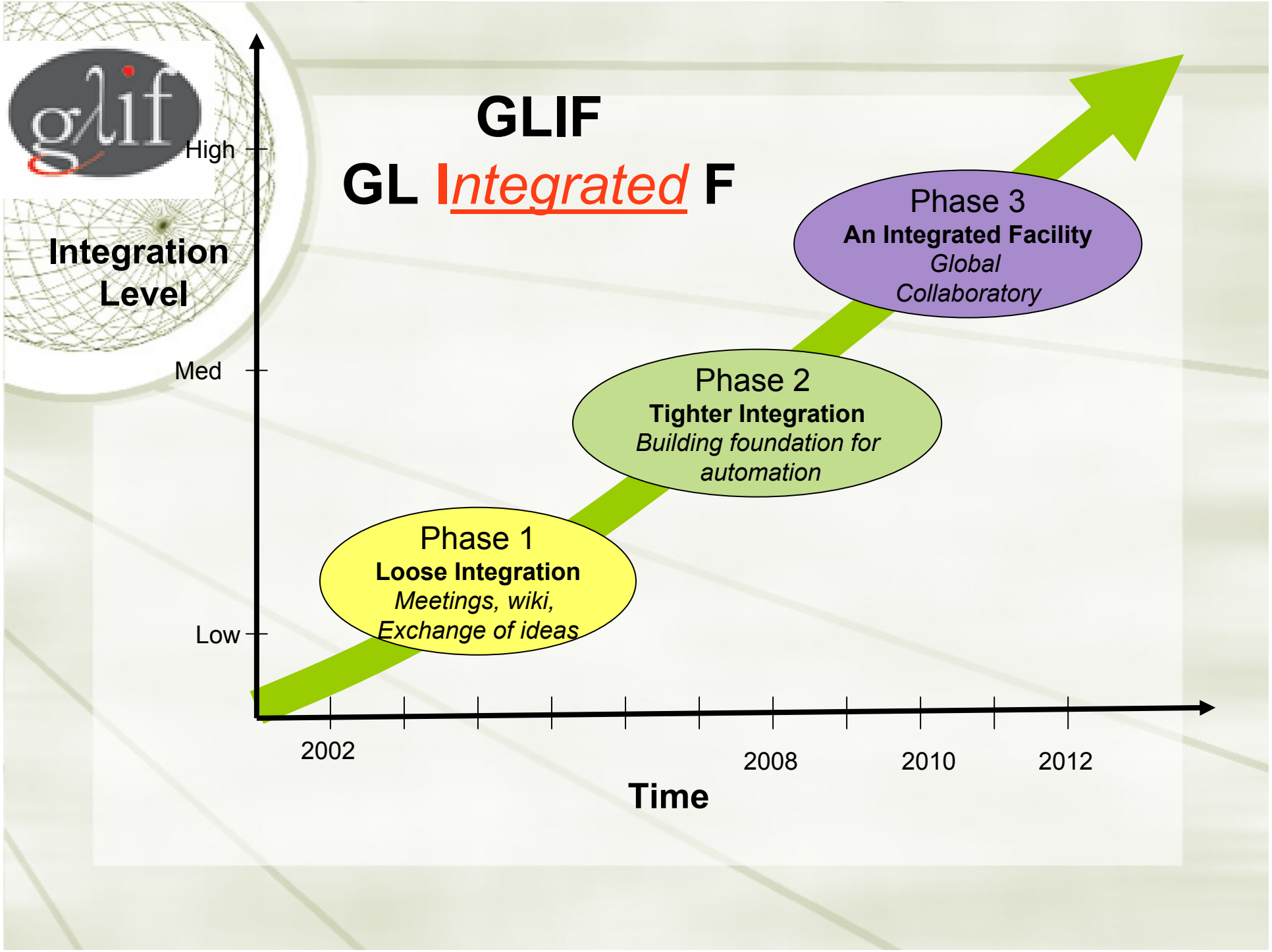
QuickTime™ and a decompressor are needed to see this picture.

Where we are heading…

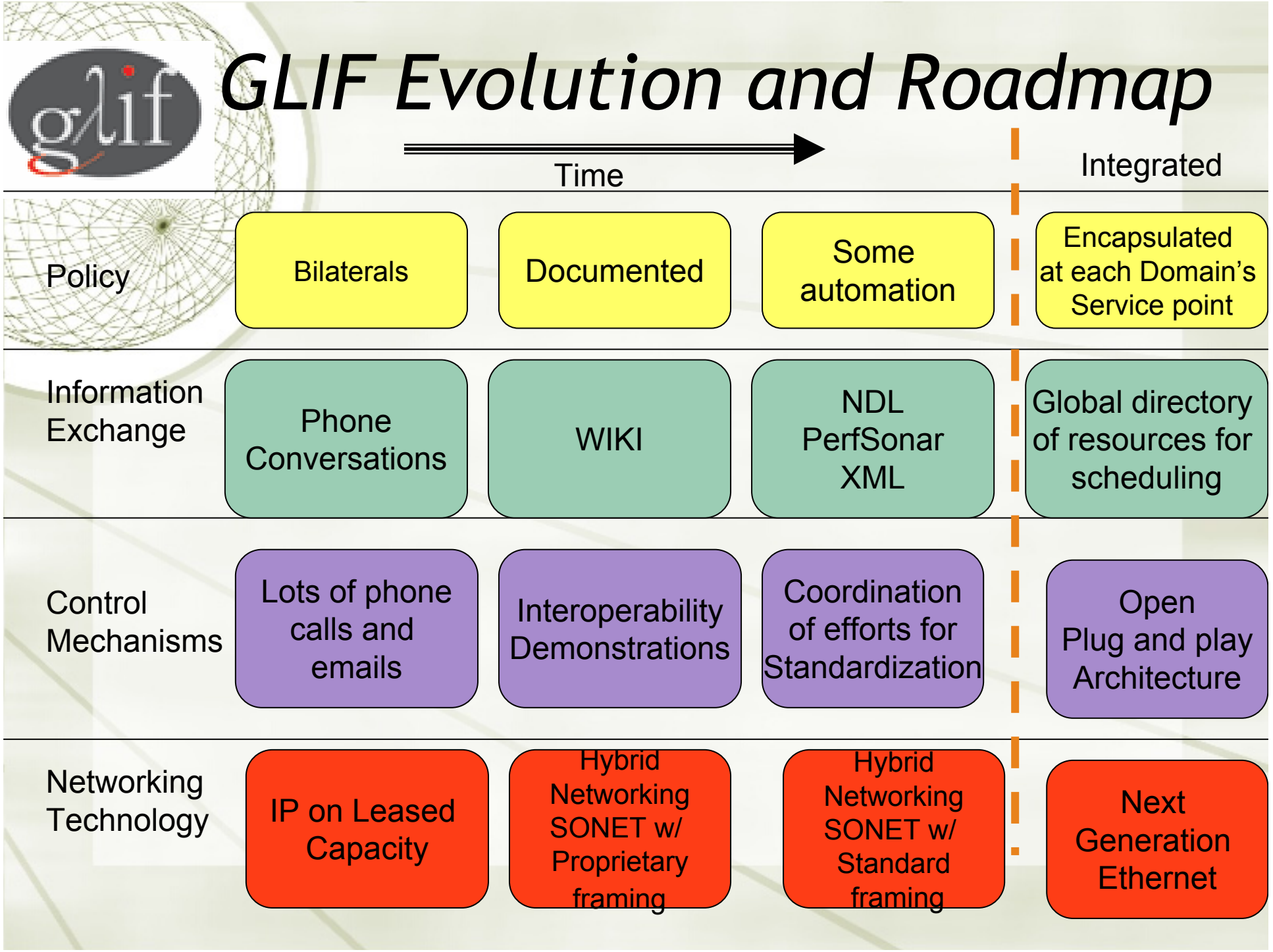
An **Integrated**
Global
ColLaboratory



- Global unique resources are accessible and searchable
- Users can use WEB services to reserve heterogeneous, resources including lambdas.
- Resources are reserved on the fly and in advance.
- Policy/Security at resource

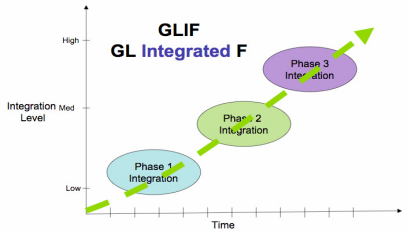

GLIF
GL Integrated F
Integration Level
High
Med
Low
Phase 1
Loose Integration
Meetings, wiki,
Exchange of ideas
Phase 2
Tighter Integration
Building foundation for
automation
Phase 3
An Integrated Facility
Global
Collaboratory
2002
2008
2010
2012
Time

GLIF Evolution and Roadmap



Phase 1 - Loose Integration

Fall of 2001 - a few scientists, network engineers, and network researchers, got together and shared ideas about interconnecting via lambdas. September 2001: first Lambda Workshop in Amsterdam followed by open Lambda Workshop organized by TERENA beginning of GLIF.



- Exchange of ideas, and phone numbers
- Set up a cross Atlantic lambda for demonstration
- Created the GLIF name space
- collaborate to identify and solve challenges for a Global facility
- Set up a Wiki w/ administration information
- Identified equipment used and documented on Wiki
- Agreed to use GFP-F as the framing procedure for Ethernet over SONET
- Documented best practices

Phase 2 - Tighter Integration

This is the stage we are operating in currently - the community is collectively working towards more automation:

GLIF Resources

- Technical information on contributed resources documented in a centralized Wiki
- Developed the concept of Glif Open Lambda Exchange (GOLE)
- Developed best practices and issues for Hybrid Networking (GLIF Report)
- Developed best practices document for fault resolutions (GLIF Report)
- Hold monthly resource update calls
- Share Open source toolkits such as TL1 toolkit
- Identified the requirements and characteristics of a Global identifier for lightpaths
- Identified requirements and tools for exchanging network monitoring information

Phase 2 - Tighter Integration (cont'd)

This is the stage we are operating in currently - the community is collectively working towards more automation:

Control and Management of GLIF Resources

- Developed an open automated control architecture
- Developed initial NDL specification for standardizing ontology of global networks working w/ OGF wg
- Demonstrations of automated resource reservation across continents from various global projects
- Initialized task force to develop a security/policy plan for lightpath reservation
- Initialized task force to develop an automated fault management plan
- Developed initial specification for the required GNI API
- Work closely with OGF standard body for standardization efforts : NML wg, NM wg, GHPN rg, and now the NSI wg.
- Develop an open source GLIF project to help promote global control interoperability

Phase 3- Global CollLaboratory

Global, large scale scientific collaborations are now easily enabled through distributed computational and communication infrastructure in an integrated fashion for global end-users. Users can make both on-demand as well as in advance reservation of key resources including dynamic lightpaths.

- Connecting labs/computers/storage/ etc are via dynamic use of optical lightpaths.
- Coordination of network resources and other Grid/key resources
- Two phase commit for all involved resources for reservations, on the fly and in advanced
- Topology Abstractions - including end points - or services of available networks and resources
- Meta data is searchable for finding global resources
- Monitoring information exchanged as necessary and within policy guidelines

What steps can we take to accelerate progress towards Phase 3? One idea….

The community made some progress (thanks to lots of hard work from task teams), however, we need to speed it up! - and we need to rely on existing knowledge and experience from this community

- Proposal: New GLIF funded open source development project
- How to contribute to this effort?
  - contribute developers with real time commitments to this project - not just as an extra volunteer basis
  - Contribute funds to pay for time of developers
  - Contribute to specification and architecture
- Secretariat Support: TERENA
- Steering Committee: Representatives of existing NRMs

- If the community agrees, then, we will develop a project plan with timelines and milestones, demonstrations, towards the agreed upon goals.