GLIF Control Plane WG Meeting

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Chair: Gigi Karmous-Edwards

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September 17th, 2007
Prague, Czech Republic

MCNC

ControlPlane Agenda

Monday 18 September

14.00 - 14.10 Welcome and agenda bashing
(Gigi Karmous-Edwards, MCNC)
14.10 - 14.40 GMPLS token mechanisms
(Leon Gommas, UvA)
14.40 - 15.10 Control plane architecture and technology for managing lightpaths for optical multicast
(Joe Mambretti, Northwestern University)
15.10 - 15.35 Discussion
15.35 - 16.00 Break

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ControlPlane Agenda

Tuesday 18 September

08.00 - 08.30 Phosphorus and DRAGON methods of interdomain path setup (Inder Monga, Nortel /Bram Peeters, SURFnet)

08.30 - 09.00 Round table: All the attendees are invited to provide an update on their controlplane activities

09.00 - 10.00 Open discussion: Network Control Architecture and summary of discussion.
What are the next steps?

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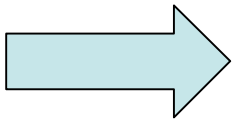
Why is the Control Plane wg effort important to GLIF?

Today

End-to-end Optical connections between two laboratories across the Globe:

- **takes "lots of phone calls"**
- **takes "lots of emails"**
- **tens of people**
- **connection becomes relatively static**
- **over three weeks!!!!**
- **Failed link may result in days of out-of service**



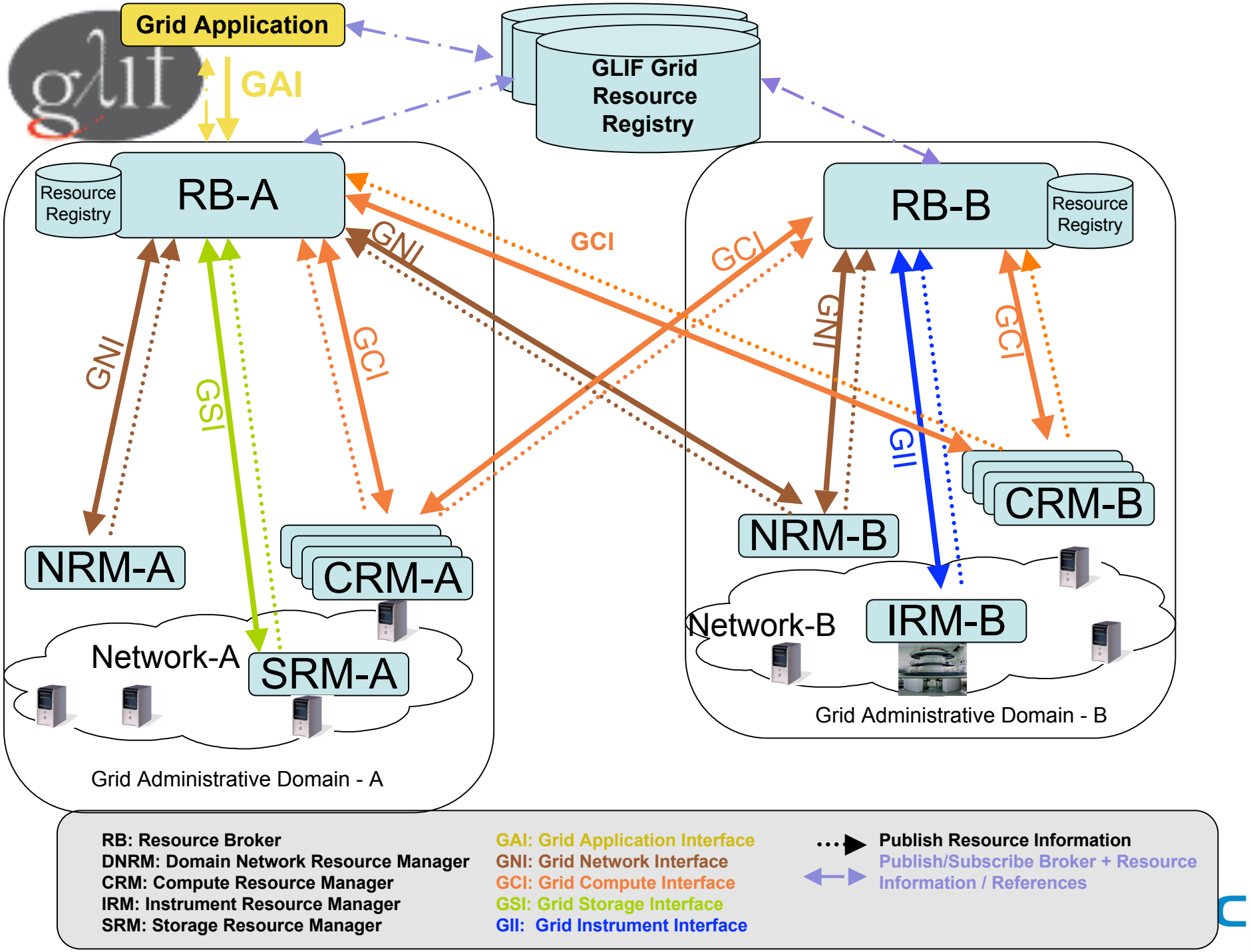
We want to…

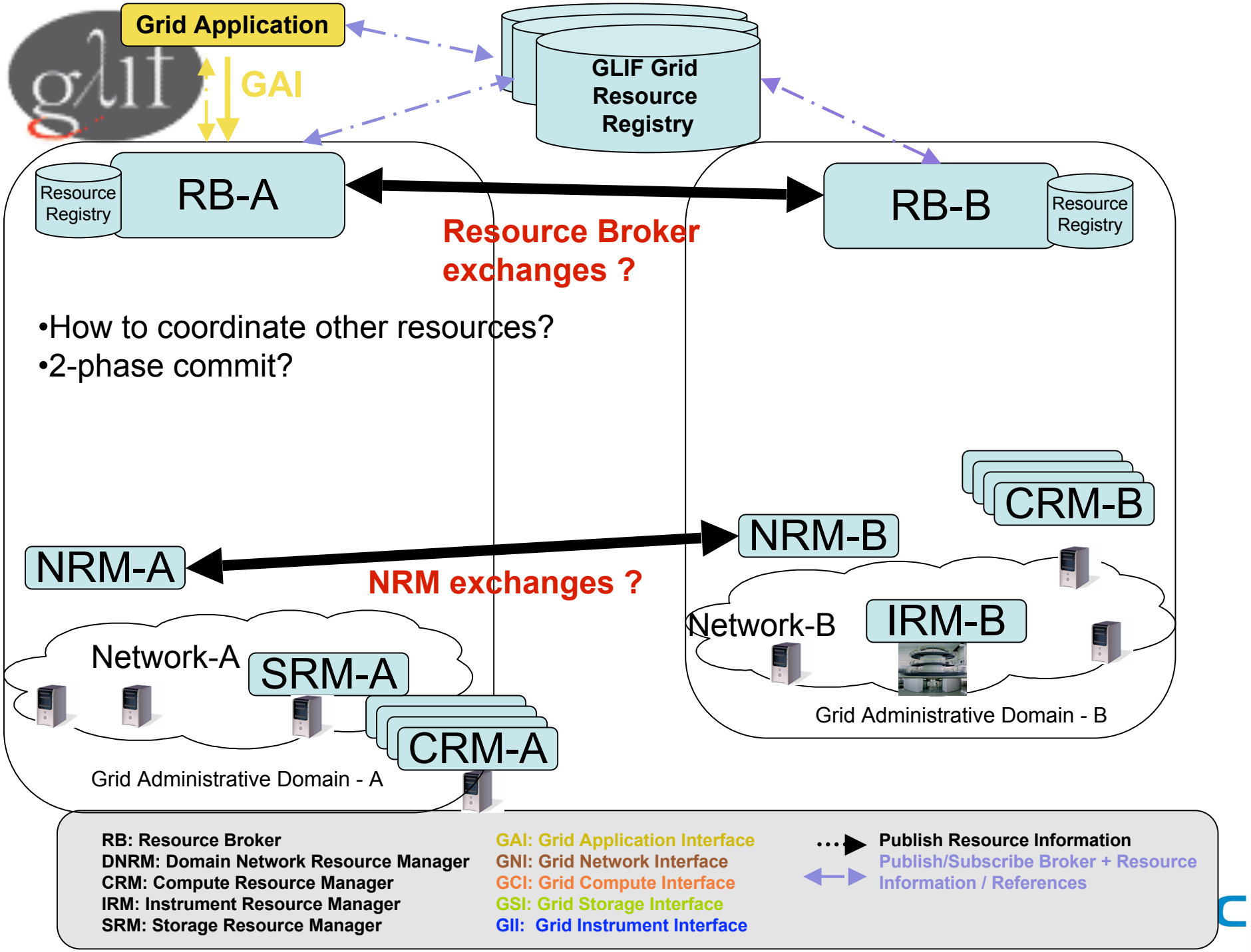
- **applications/sensors/end-users/instruments to initiate an end-to-end connection in coordination with other resources**
- **Resources for short periods of time or long depending on application**
- **We want automatic recovery - restoration/protection**

How do we as a community go from where we are today to what we really want?

Issues and Challenges

- Interoperation of existing control software - no need to change current implementations -UCLP, GMPLS, etc.
  - Both control and Management planes and Grid middleware
- Coordination of network resources and other Grid resources
- Two phase commit for all involved resources - KISS
- Topology Abstractions - including end points - or services
- Monitoring - MonALISA, PerfSONAR….
- Advertising resources globally - agree on what and how to represent resources… NDL etc.
- Policy
- Different implementations of each component (no need to standardize on how things are done)
- Agree on Functional components
- Focus on a couple of KEY interfaces (low set of options - use lowest common denominator) Prioritize - GNI …


Grid Application
GAI
GLIF Grid Resource Registry
RB-A
Resource Registry
RB-B
Resource Registry
GNI
GCI
GSI
GII
NRM-A
CRM-A
SRM-A
Network-A
Grid Administrative Domain - A
NRM-B
CRM-B
IRM-B
Network-B
Grid Administrative Domain - B
RB: Resource Broker
DNRM: Domain Network Resource Manager
CRM: Compute Resource Manager
IRM: Instrument Resource Manager
SRM: Storage Resource Manager
GAI: Grid Application Interface
GNI: Grid Network Interface
GCI: Grid Compute Interface
GSI: Grid Storage Interface
GII: Grid Instrument Interface
Publish Resource Information
Publish/Subscribe Broker + Resource Information / References


Grid Application
GAI
GLIF Grid Resource Registry
Resource Registry
RB-A
RB-B
Resource Registry
Resource Broker exchanges ?
•How to coordinate other resources?
•2-phase commit?
CRM-B
NRM-B
NRM-A
NRM exchanges ?
Network-B
IRM-B
Grid Administrative Domain - B
Network-A
SRM-A
CRM-A
Grid Administrative Domain - A
RB: Resource Broker
DNRM: Domain Network Resource Manager
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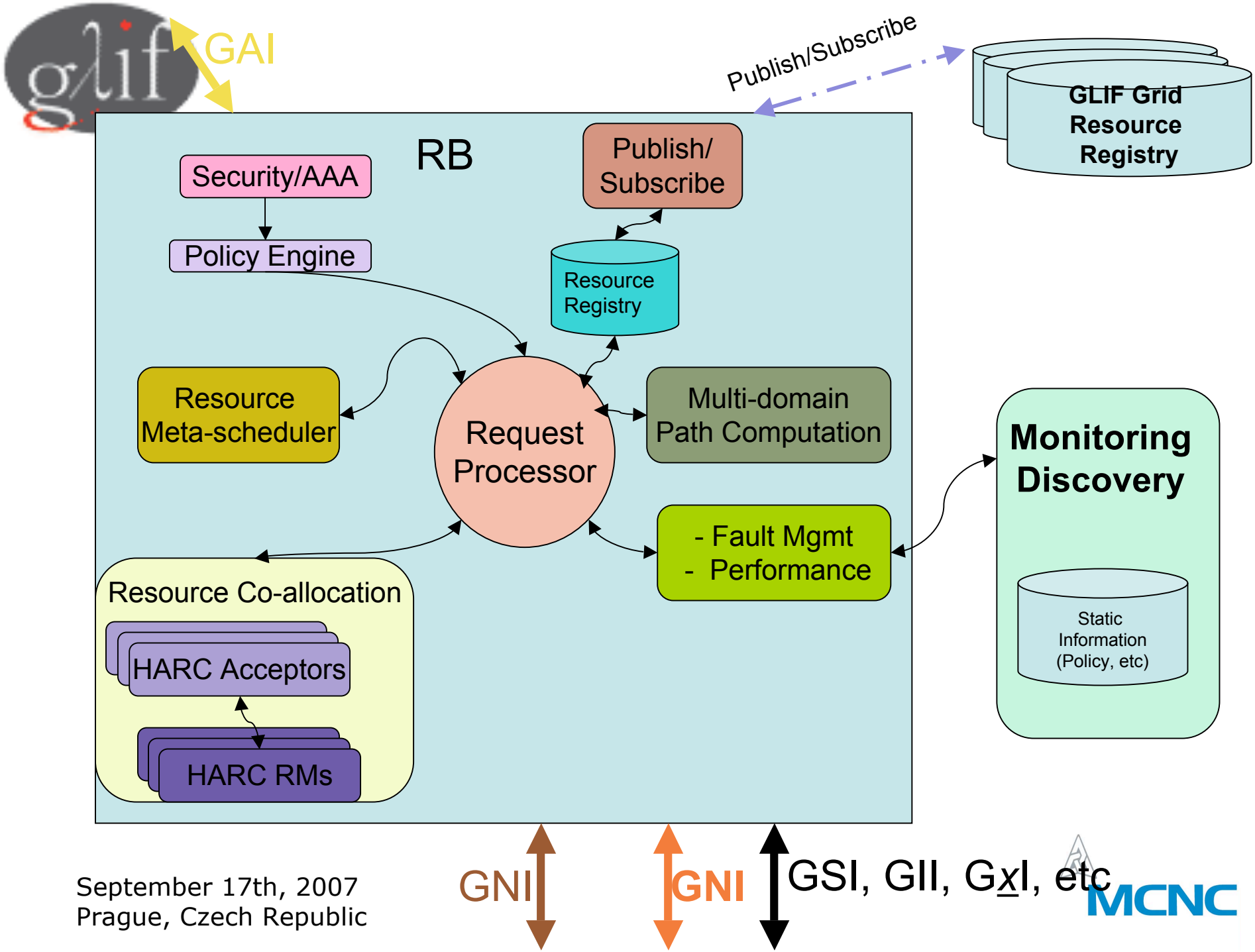

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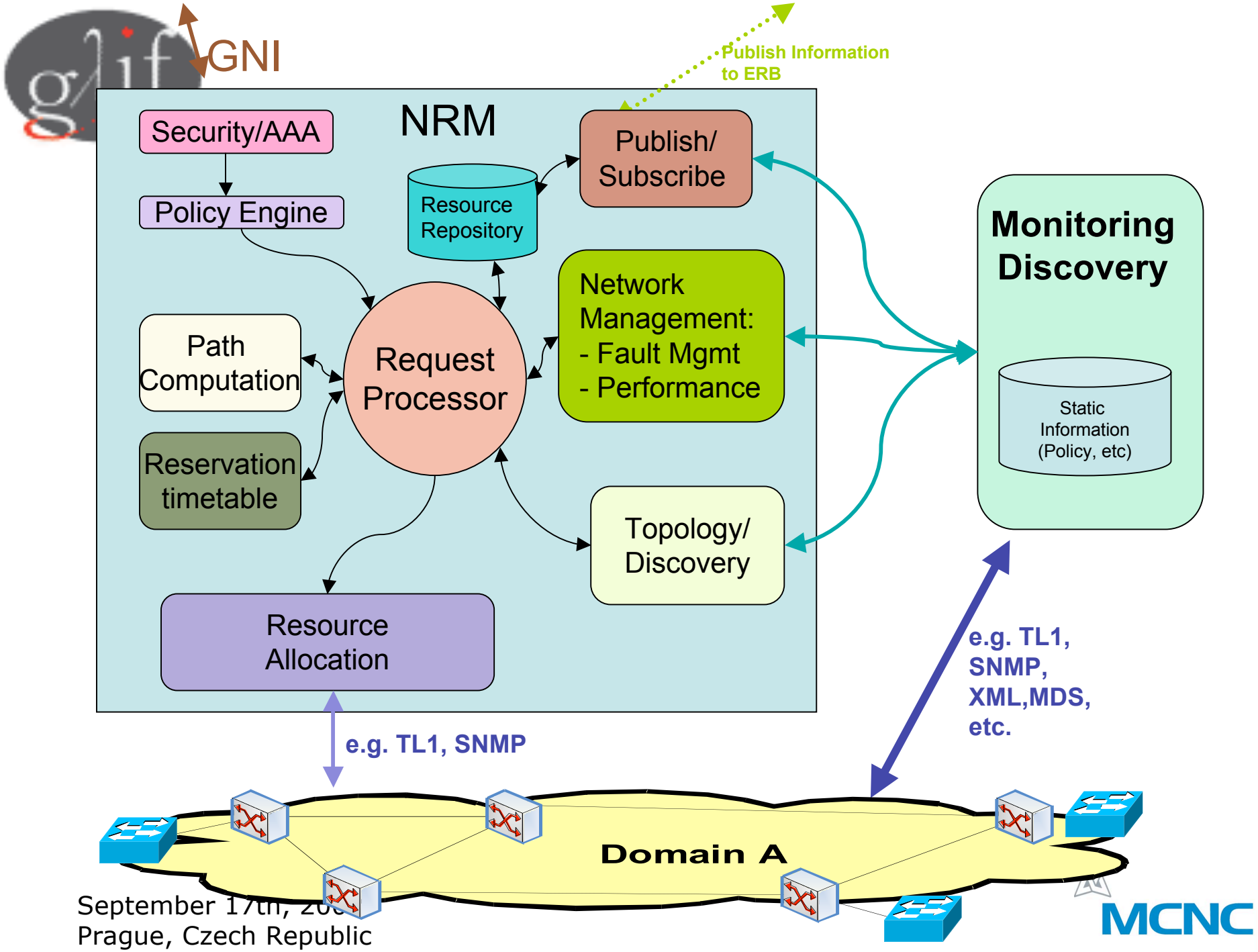
GNI
Publish Information to ERB
NRM
Security/AAA
Policy Engine
Resource Repository
Publish/ Subscribe
Path Computation
Request Processor
Network Management:
- Fault Mgmt
- Performance
Reservation timetable
Topology/ Discovery
Resource Allocation
Monitoring Discovery
Static Information (Policy, etc)
e.g. TL1, SNMP
e.g. TL1, SNMP, XML,MDS, etc.
Domain A

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GLIF Control Plane and Grid Middleware Integration

Mission: **To agree on the interfaces and protocols to automate and use the control planes of the contributed Lambda resources to help users on a global scale access optical resources on-demand or pre scheduled.**

several key areas we need to focus on:

- Define and understand real operational scenarios
- Defining a set of basic/common services:
  - Precise definitions
  - Developing semantics the whole community agrees to for machine to machine communications
- Interdomain exchange of information for both control planes and management planes
  - Determine what information needs to be monitored
  - How to abstract monitored information to share
- Determine what existing standards are useful vs. where Grid requirements are unique and new services and concepts are required
  - How do we standardize mechanisms and protocols that are unique to the Grid community
- Define a Grid control plane architecture
- Work closely with E-science applications to provide vertical integration