GLIF - perfSONAR link status monitoring demo

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Outline

- Lightpaths monitoring challenges
- Why perfSONAR?
- perfSONAR Demo overview
- New enhancement
- Next steps

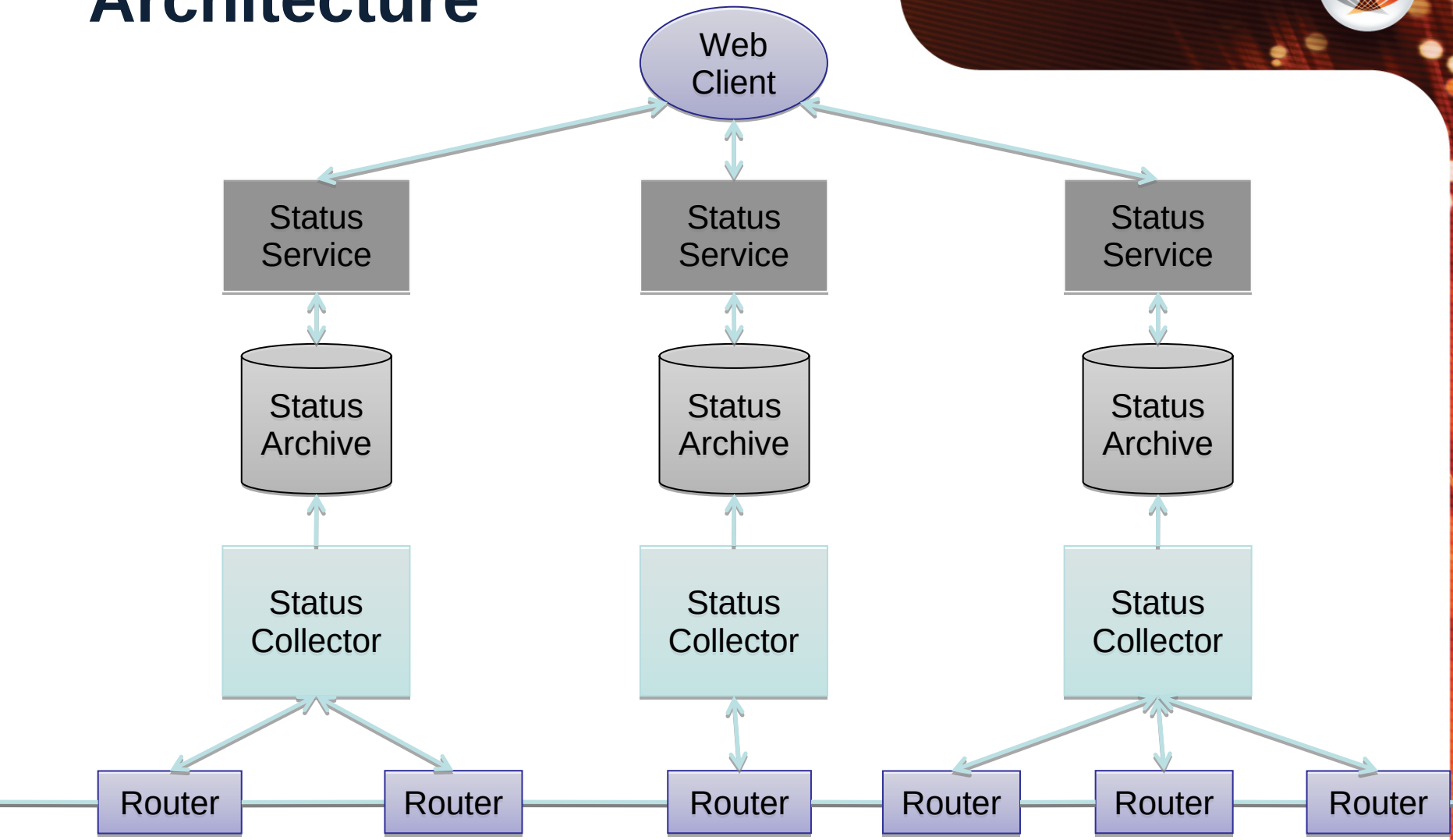
Cross domain end-to-end Lightpaths monitoring challenges

- End-to-end Lightpaths often cross multiple domains
- Network domain operators
  - control and monitor only over a section of a lightpath.
  - manual, semi-automated, and fully automated processes
  - Have no complete view of the lightpath status information
- When an outage hits, alarms could raise for the entire path
- The operator who first notices the outage would broadcast emails globally to notify lightpath participants.
- Time zone and operating hours differences, responses might take hours or days.

Why perfSONAR link status service?

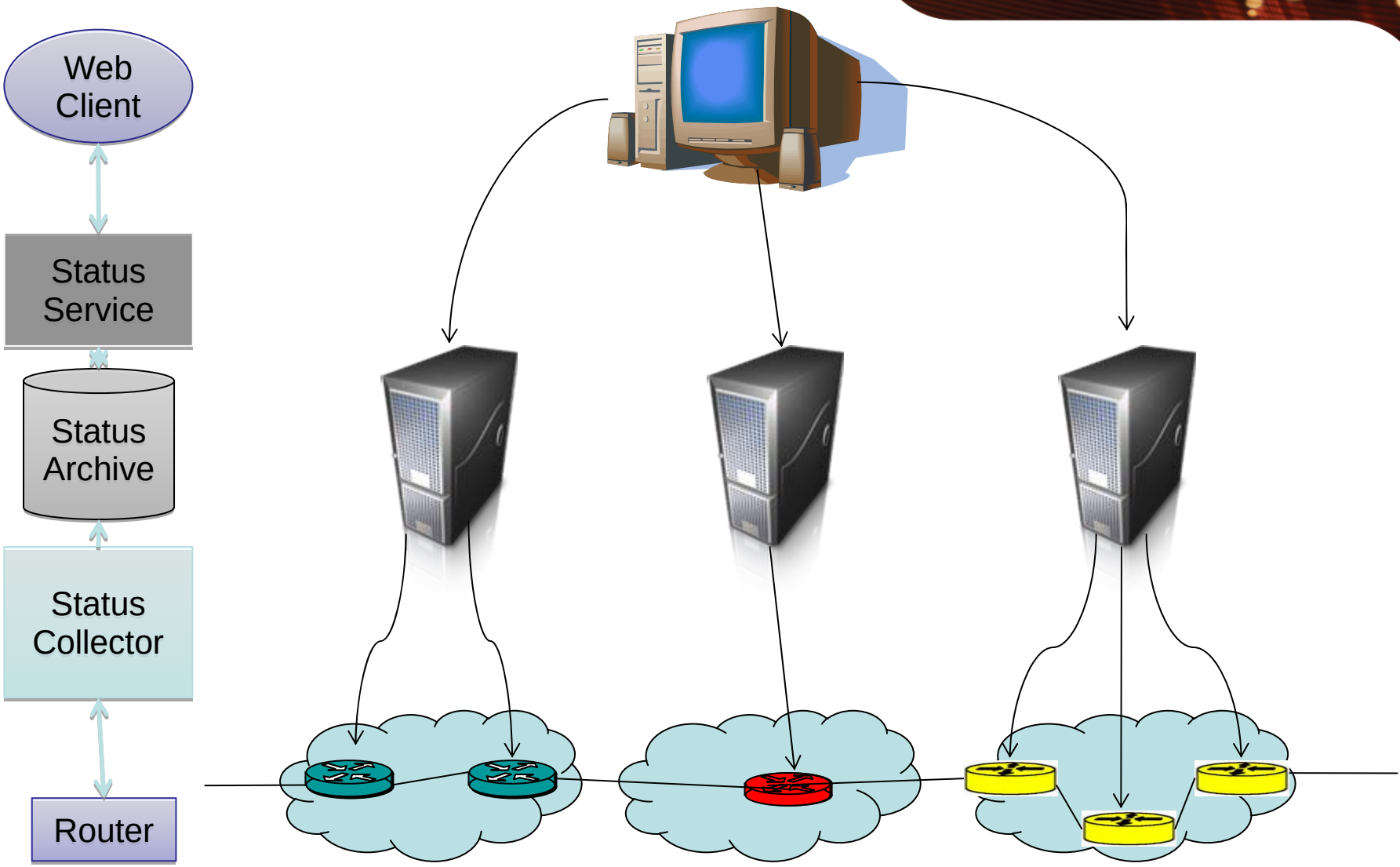
- perfSONAR features and architecture
  - Modular
  - Web services-based
  - Decentralized
  - Locally controlled
  - Services Oriented Architecture (SOA)
  - Collaboration tool
- perfSONAR middleware seems to fit in well in multi-domain environment.
- perfSONAR could help the NOCs manage cross-domain lightpaths effectively.
- PerfSONAR provides up/down, and maintenance/normal operation link statuses.

Distributed Status Architecture



Distributed Status Architecture

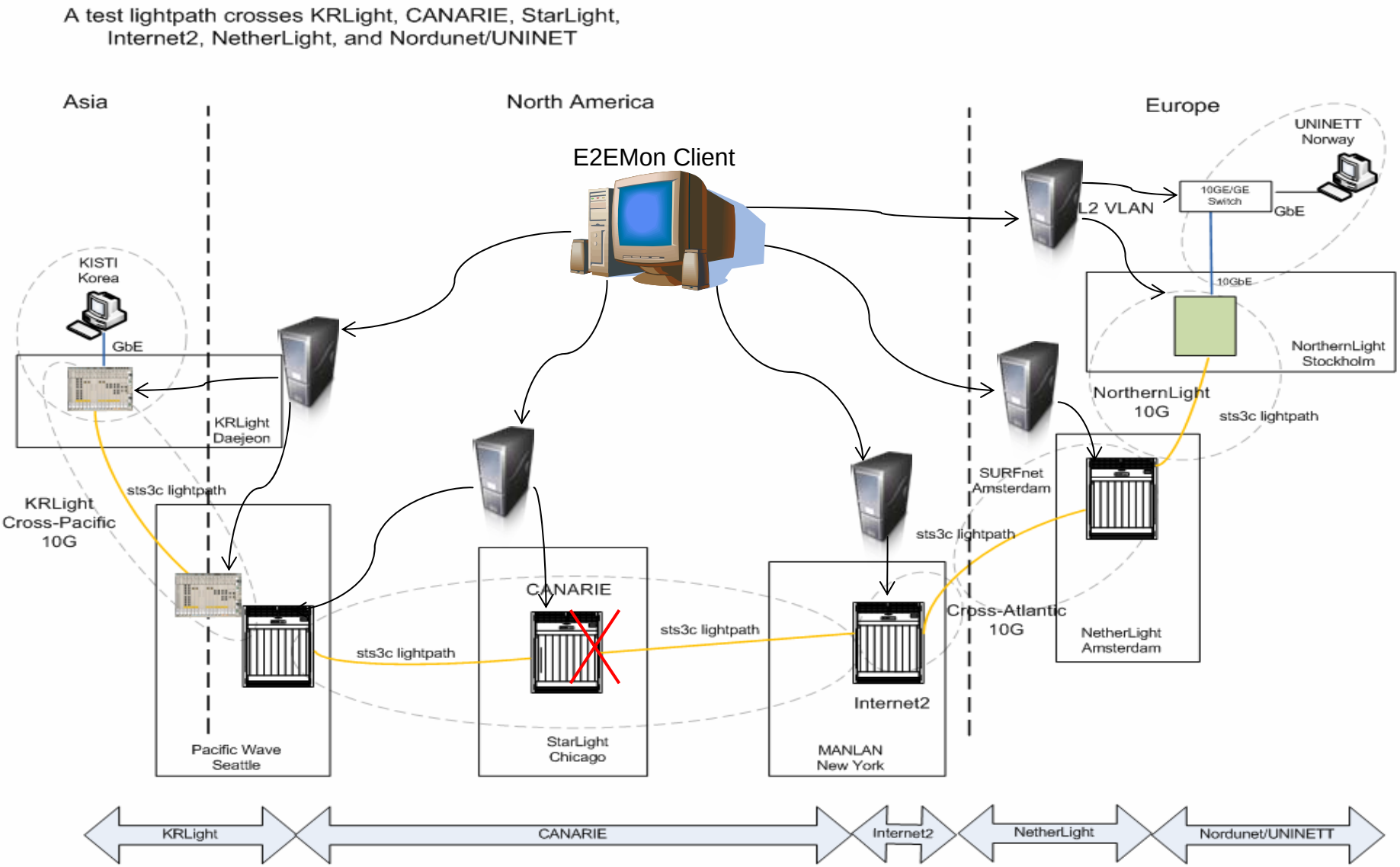
canarie



Demo setup

- The demo lightpath spans 6 network domains
  - KRLight/KREONet, CANARIE, Internet2, Netherlight, Nourdnet, and UNINETT
- The perfSONAR link monitoring system consists of 5 instances.
  - KRLight/KREONet, CANARIE, Internet2, Netherlight, and Nordunet/UNINETT
- Collecting link status
  - KRLight/KROENet: SNMP
  - CANARIE: mix of TL1/Scripingt/SNMP
  - Internet2: TL1 pulling
  - Netherlight: Scripting
  - UNINETT: SNMP
- Single web client

Demo setup


A test lightpath crosses KRLight, CANARIE, StarLight, Internet2, NetherLight, and Nordunet/UNINET
Asia
North America
Europe
E2EMon Client
KISTI Korea
GbE
KRLight Daejeon
KRLight Cross-Pacific 10G
sts3c lightpath
Pacific Wave Seattle
CANARIE
StarLight Chicago
Internet2
MANLAN New York
SURFnet Amsterdam
Cross-Atlantic 10G
NetherLight Amsterdam
NorthernLight 10G
NorthernLight Stockholm
10GbE
L2 VLAN
10GE/GE Switch
UNINETT Norway
KRLight
CANARIE
Internet2
NetherLight
Nordunet/UNINETT

E2EMon Web Client

- Single E2EMon Web client
  - http://packrat.internet2.edu/~aaron/E2EMon/G2_E2E_view_e2elink_urn:ogf:network:canarie.ca:KISTI-UNINETT-GLIF-001.html

New enhancement

- Extension of the XML schema
- Expose a URL referral through web service interface with the Operation and Administration states.
- Could link to other NOC tools
  - Ticket system – maintenance and outage
  - Performance Monitoring counters
  - Existing MRTG graphs
  - Existing link monitoring system, e.g. SPOTLIGHT

Deployment Challenges

- Monitoring metrics vary from domain to domain
- Network operations require time to integrate their existing tools to perfSONAR service
- Network operations might have time
- Would existing monitoring tools easily adapt into perfSONAR service?
- It is only one Web GUI available
- Standard information vs non standard

perfSONAR link status service development plan

- ???

Enhance usability

- New E2EMon web client
  - Semi-constructed naming, global-id friendly
  - Expose Measurement Archive information
  - Integration of the lightpath information from existing tool
- Further expand the schema for new functionalities

Next steps

- What ???
- Participate in perfSONAR working group to express our interest on the tool?
- Involve few more network operators
- Develop new gui