SURFnet on Demand

GLIF NSI Implementation Task Force



John MacAuley Hans Trompert



BoD and NSI at SURFnet

2008:

- Production BoD service with OpenDRAC
- Customers used proprietary OpenDRAC API or Web GUI 2009:
- Joined GLIF automated GOLE
- Switched from proprietary OpenDRAC API to Fenius for inter-domain 2011:
- NSI Connection Service 1.0 on production network

2012:

- Ciena integrates NRM functionality in own NMS
- Federated authentication and group based authorization for endpoints
- Using Three-Legged OAuth with NSI for Authentication and Authorization
- First two customers with inter domain BoD reservation requests 2013:
- Production BoD with NSI framework with Connection Service 2.0, Topology Exchange 1.0 and Discovery 1.0 will be the sole inter-domain API



Historical Issues

- Network resource segmentation between OpenDRAC and management systems
- Authentication of users using single sign-on
 - Requirement for both web and programmatic interfaces
- Resource allocation, access control, policy enforcement, and resource delegation
 - Provider versus organization versus end user
- Technology hurdles
 - Deploying extra ports for service segmentation on edge
- Hard finding users that needed bandwidth
 - Understood the need for bandwidth on demand
 - Willing to integrate networking capabilities with applications



Short term hurdles

- Need separate end-user facing API
 - Firewall and NAT save
 - So simple that application programmers can quickly adapt with minimal experience
- Need to define additional service definitions
 - Between end users and between operator domains to allow transparent user services
- Need ways to internationally authenticate and authorize users (from Virtual Organizations) against endpoints
 - Do we want to consider application or community specific authentication mechanisms (i.e. eduGAIN)?
- How do networks authorize user bandwidth usage between peering domains?



Short term hurdles

- Need quick adaptation of NSI by all BoD domains to avoid BoD islands
 - Need to make more end user domains BoD capable to enable true end to end BoD service
- Need to stimulate integration of NSI into existing user applications and frameworks
 - Make applications bandwidth aware, but not network aware!





hans.trompert[at]surfnet.nl john.macauley[at]surfnet.nl



www.surfnet.nl



Creative Commons "Attribution" license: http://creativecommons.org/licenses/by/3.0/

