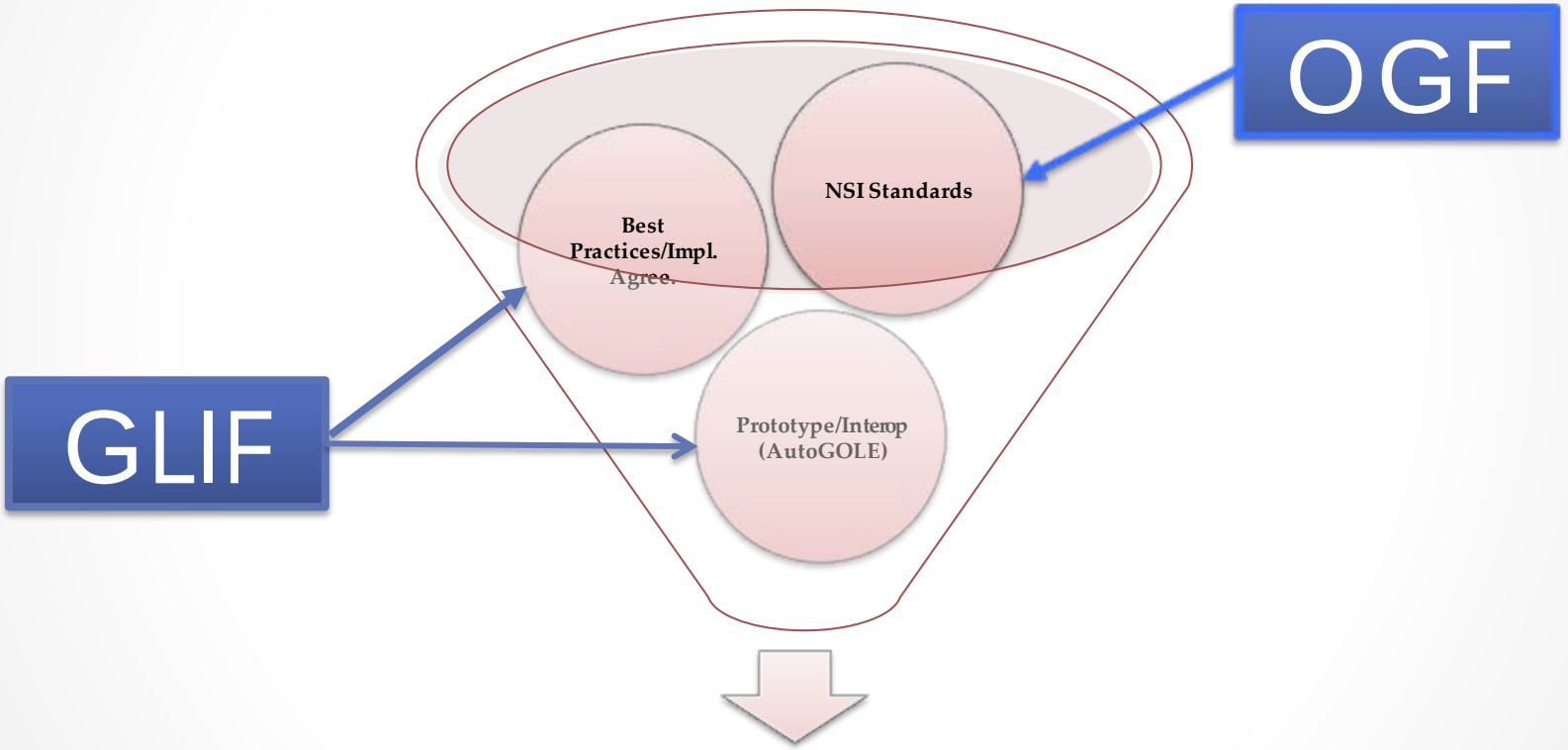
NSI Implementation Task Force

GLIF Technical Working Group Meeting
Winter 2012
Baton Rouge, LA

Inder Monga
John MacAuley

GOAL



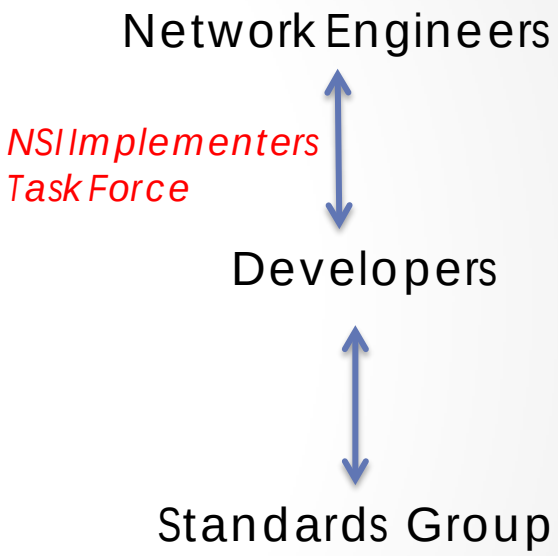
Production deployment of NSI protocols

Standards define a protocol

- Specifies the format of that information
- Carries a lot of information
- Guides behavior of the implementation

Standards do not define…

- Proper process and procedures
- How to debug an interoperability issue? Tools?
- How do you maintain and specify the information needed?
- What policies make sense for security?
- What to do when information is missing?
- What information is discovered versus configured?
- …



Implementation agreements, Best Practices, Operational Guidelines are needed to bridge the gap between standards and production deployment

What is the output?

- GLIF Best Practices documents
  - On topics that need similar service understanding to work, like security profiles
  - To aid new R&E operators to understand the peripheral technologies needed to run a service
  - To help users to work with GLIF using the NSI protocol
- Recommendations to OGF Standards group
  - Protocol extensions will be submitted as GLIF contributions to the OGF
- Implementation Agreements
  - Service Definitions (L2 Ethernet Service) to provide a consistent GLIF service across operators of GOLES/participating networks

Process

- Identify existing gaps between standard specifications and requirements of a production service

- Document and prioritize the list of gaps

Input from R&E Network Engineers participating in the GLIF
Input from potential users of the NSI service

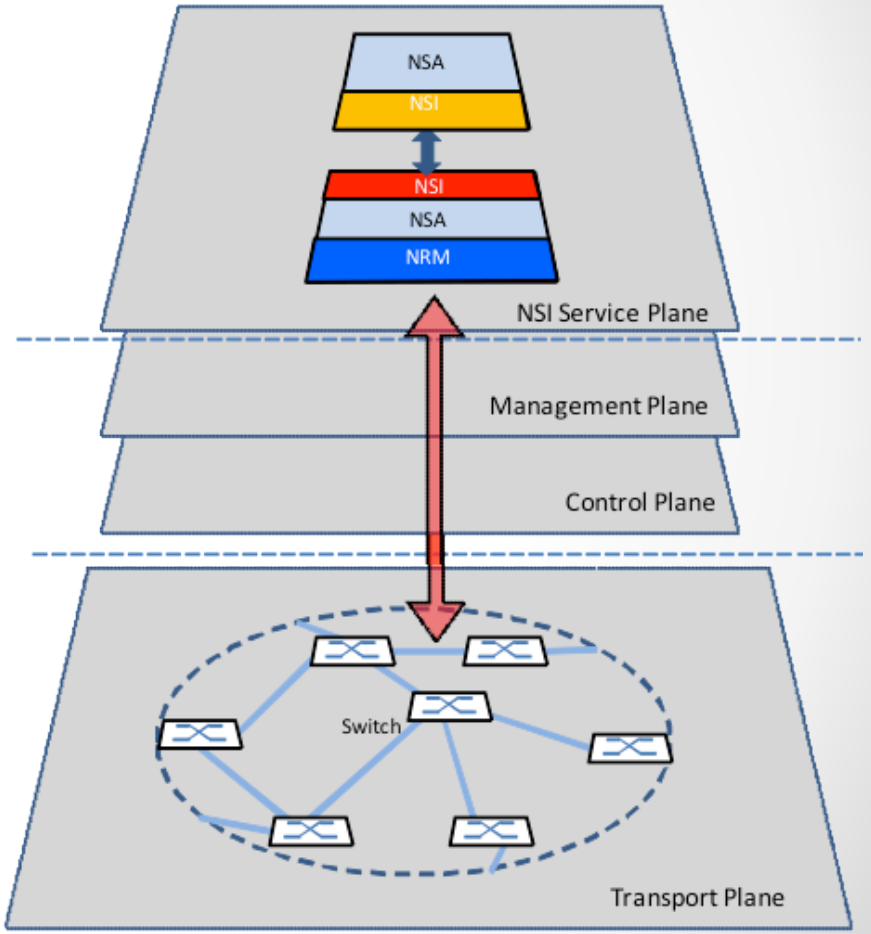
Process

- Form small teams of volunteers to make recommendations
  - Discussion within mailing list of GLIF
  - Tiger teams on topics of interest
  - NO BROAD CALLS → EMAIL DISCUSSIONS encouraged
- Work with NSI implementers in the GLIF / Automated GOLE group to vet and prototype solutions

Publish agreements in documents

Network Services Framework

- Community driven collaboration effort
- Defined concept of Network Service Plane
- Simple technology agnostic view of the network

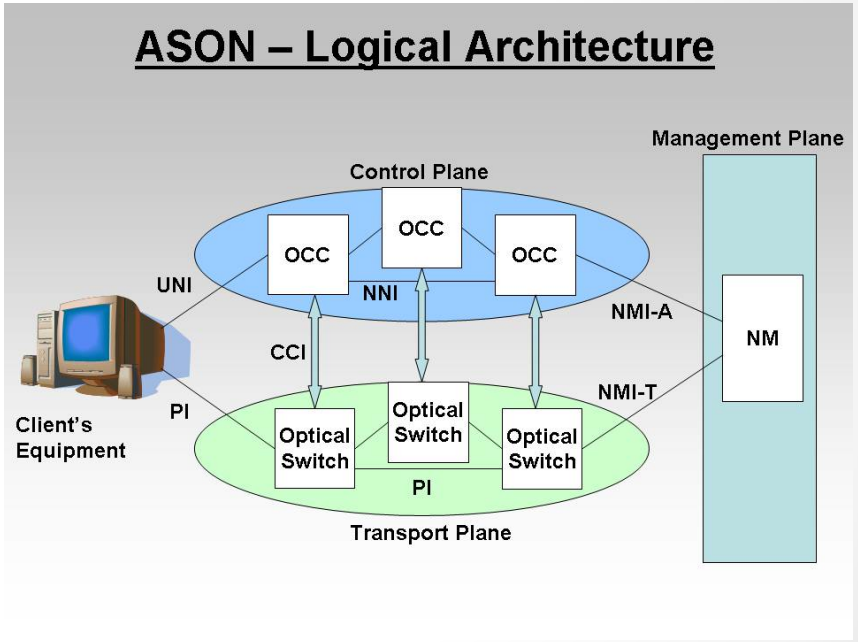


NSI Connection Service Protocol

- NSI-CS key deliverable of working group
- Validated in 2011 through prototype activities and interoperability demonstrations (AGOLE)
- Discovered issues with the base protocol
- Operational issues were also identified
-

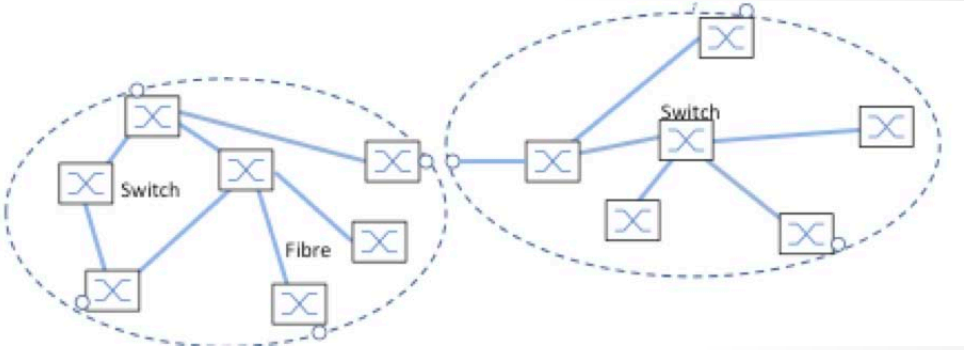
Strategy

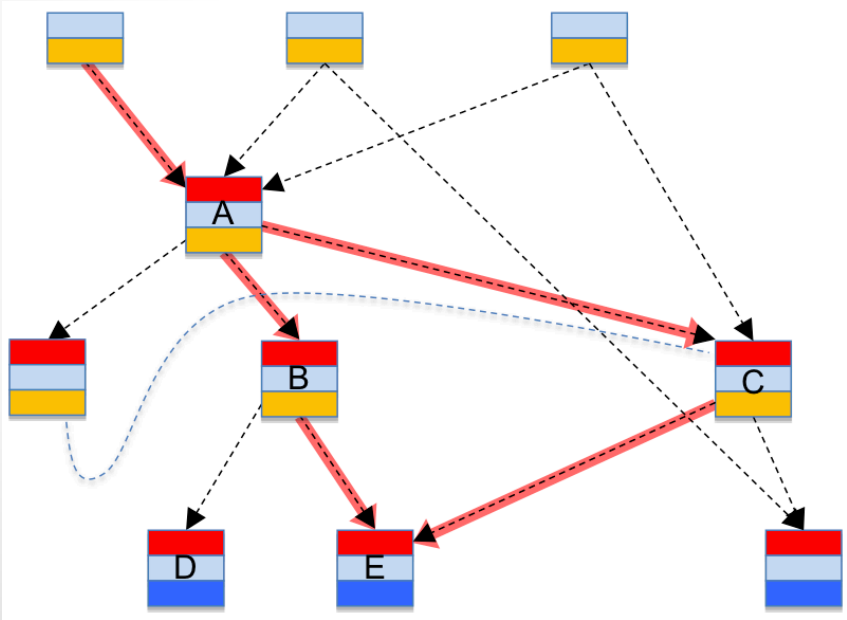
- Identify solutions to similar problems
- Understand common design patterns/best practices
- Evaluate applicability to new problem based on new goals and requirements



Topology

- Data plane topology and discovery





- Signaling plane topology and discovery

Security

- Signaling plane security (NSA-to-NSA)
- End user authentication and authorization (client-to-NSA)
- Multi-domain policy enforcement
- Protection of network resources from unauthorized access
- Protect integrity of data plane
-

Protocol Enhancements

- Interaction with Data Plane errors
- Connection protection/restoration
- Traffic engineering
- Protocol extensions
- Protocol capabilities and version discovery

User Network Interface

- NSI-CS is equivalent to E-NNI (network-to-network) protocol definition
- UNI is a demarcation point between network service provider and the subscriber or end user
- Need to consider a light-weight protocol definition for end users (signaling, network utilization, management, authentication, and authorization)

Management and Administration

- Monitor health of NSI service plane
- Troubleshooting (fault isolation and debug)
- Operational measurements
- Configuration
- Support for “verifiable” and “billable” services

Additional Information

- Building a Production Connection Service using NSI-CS protocol
  - http://code.google.com/p/ogf-nsi-project/downloads/detail?name=TNC12-operationalization.pdf

Questions?