NSI Working group update

2015 Global LambdaGrid Workshop

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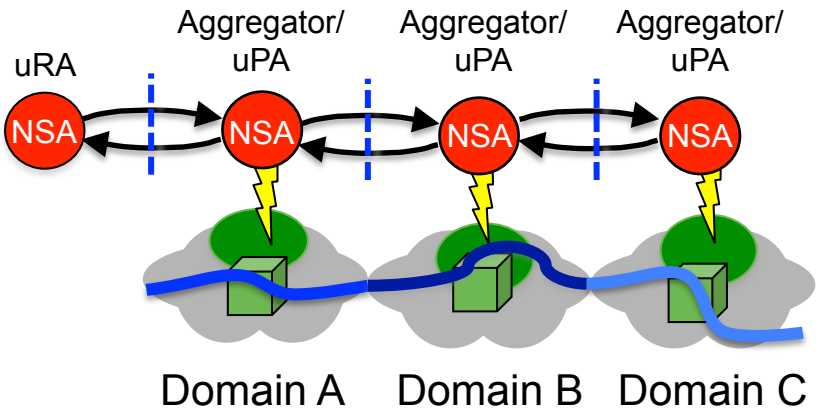
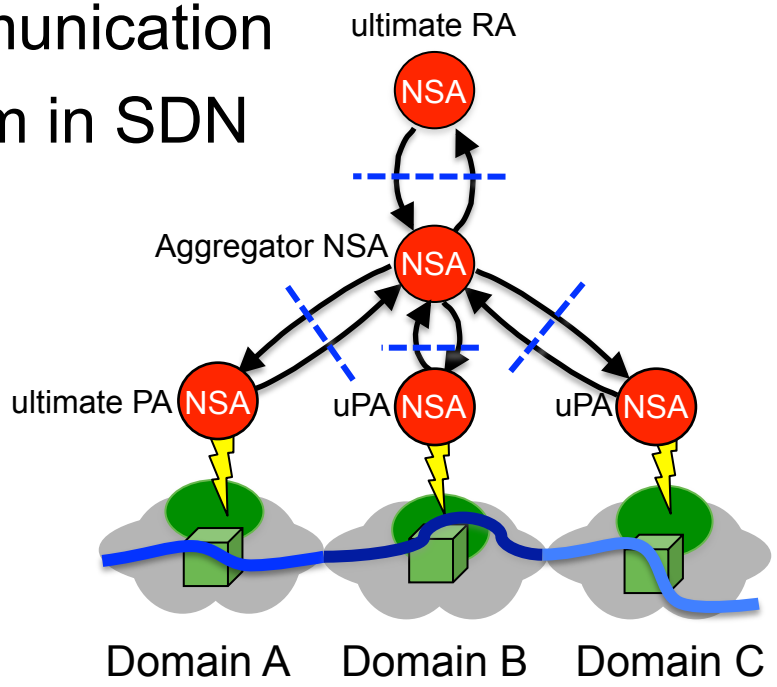
29 Sept 2015

NSI Principles

- Provides a web service interface to request services from network providers
- Defines requester to provider messages and state machines
- Peer trust model with transitive trust
- Supports **Tree** and **Chain** communication
- Solves the multi-domain problem in SDN





NSI document status matrix

Document	Agreed?	Draft?	Sent to editors?	Submitted for public comment?	Completed public comment?	publish?	Waiting on
NSI CS v2.0	Yes	Yes	Yes	Yes	Yes	Yes	
NSI Framework	Yes	Yes	Yes	Yes	Yes	Yes	
NSI Signalling and pathfinding	Yes	Yes	Yes	Yes	Yes	Yes	
NSI Policy	Yes	Yes	Yes				Pending review at GLIF15
NSI NSA description	Yes	Yes	Yes	Yes	Yes		Jens to publish
NSI DDS	Yes	Yes	Yes				Review feedback from Richard and send comments to list – Chairs to review
NSI AA	Yes	Yes	Yes				Jens to review and send top public comment
NSI Topology	Yes						John M to draft
NSI use cases							Revisit once we have user experience
NSI Operation best practices							Revisit once we have user experience
NSI CS v2.1	Yes						Pending review at GLIF 15
NSI Error messages	Yes						Pending review at GLIF 15

Updated matrix lives here: https://redmine.ogf.org/dmsf_files/13426

NSI Network Services Framework

- **NSI Network Services Framework** was published as GFD.213 in June 2014
- https://www.ogf.org/documents/GFD.213.pdf
- Describes the NSI architecture and concepts
  - Network service agents (NSA) and its functions
  - NSA requester and provider roles
  - Tree and chain models
  - Topology and Service Termination Points
- These core concepts remain stable, but have since been augmented by NSI Policy, Topology, AA etc.

NSI Connection Service

- **NSI Connection Service v2.0** was published as GFD.212 in June 2014 https://www.ogf.org/documents/GFD.212.pdf. Contains:
  - Connection service messages and associated schema
  - Connection service state machines
  - Message coordinator functions
  - Security framework

- A new version of the CS v2.1 will incorporate minor changes:
  - Errata to correct typos and clarifications to text and diagrams
  - Resource availability feedback to provide information of which resources are available.
  - Explicit routing object (ERO) usage explanation.

NSI Signalling and Pathfinding

- **NSI Signalling and Pathfinding** was published as GFD.217 in April 2015
- Available to download here: https://www.ogf.org/documents/GFD.217.pdf
- Informational document that provides guidelines on performing tree and chain based signalling in NSI.
- Describes how chain and tree signalling are done.
- Chain performs path computation in hop-by-hop way.
- Tree performs source based path computation.

NSI Policy

- The **NSI Policy** document is in draft form: draft-gfd-r-nsi-policy-public-comment
- Available for download here: https://redmine.ogf.org/dmsf_files/13420
- Describes how local networks can apply local policy
- When an agent accepts a reservation, it adds the NSA id to a list.
- This allows an end-to-end list of transited networks. This information can be used by networks to apply policy to incoming connection requests.

NSA description document

- The **NSA description document** is in draft form: gfd-r-nsi-nsa-description-document
- Available for download here: https://redmine.ogf.org/dmsf_files/13338
- This recommendation provides syntax for describing metadata for the purpose of NSA self-description
- Includes information such as which NSI services are supported and their versions.
- Document is ready and waiting to be published.

NSI document distribution service

- The **NSI document distribution service** (DDS) is in draft form: draft-gwdrp-macauley-document-distribution-service-public-comment
- Available for download here: https://redmine.ogf.org/dmsf_files/13423
- Describes a mechanism for distributing NSI documents between NSAs.
  - Documents such as the NSA description or the NSI topology can be distributed using the DDS
  - The DDS is a peer-to-peer flooding protocol. It supports both polling and subscription based notification mechanisms.
- This has been reviewed by the OGF area director and is now being updated by John and Guy

NSI Authentication and Authorisation

- The **NSI Authentication and Authorization** document is in draft form: draft-gwdi-trompert-nsi-aa-public-comment
- Available for download here: https://redmine.ogf.org/dmsf_files/13424
- Describes how security attributes are used to deliver integration with end-user authentication and authorization mechanisms:
  - Based on transitive trust
  - Peer NSA authenticate each other using Client Authenticated TLS
  - Authorization based on local policy and security attributes in SOAP header
- The document is currently in review by the OGF VP of Standards

Future documents

- The **NSI Topology** document is still being drafted
- The **NSI Error messages** document is still being drafted
- The **NSI use cases** document will be come out of user experience, such as the GLIF AutoGole
- The **NSI Operation best practices** document will be come out of user experience

Looking further into the future

- **Short term**: wrap up nsi-cs-v2.x by the end of this year
- **Medium term**: spend some time gaining more operational experience.
- **Longer term**: NSI CS v3.0 is not yet being considered, but lessons from operation will determine if there is a community demand for this.

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