

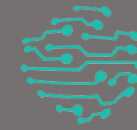
Information Architecture

Welcome to the GNA Meeting at the Internet2
Global Summit 2016

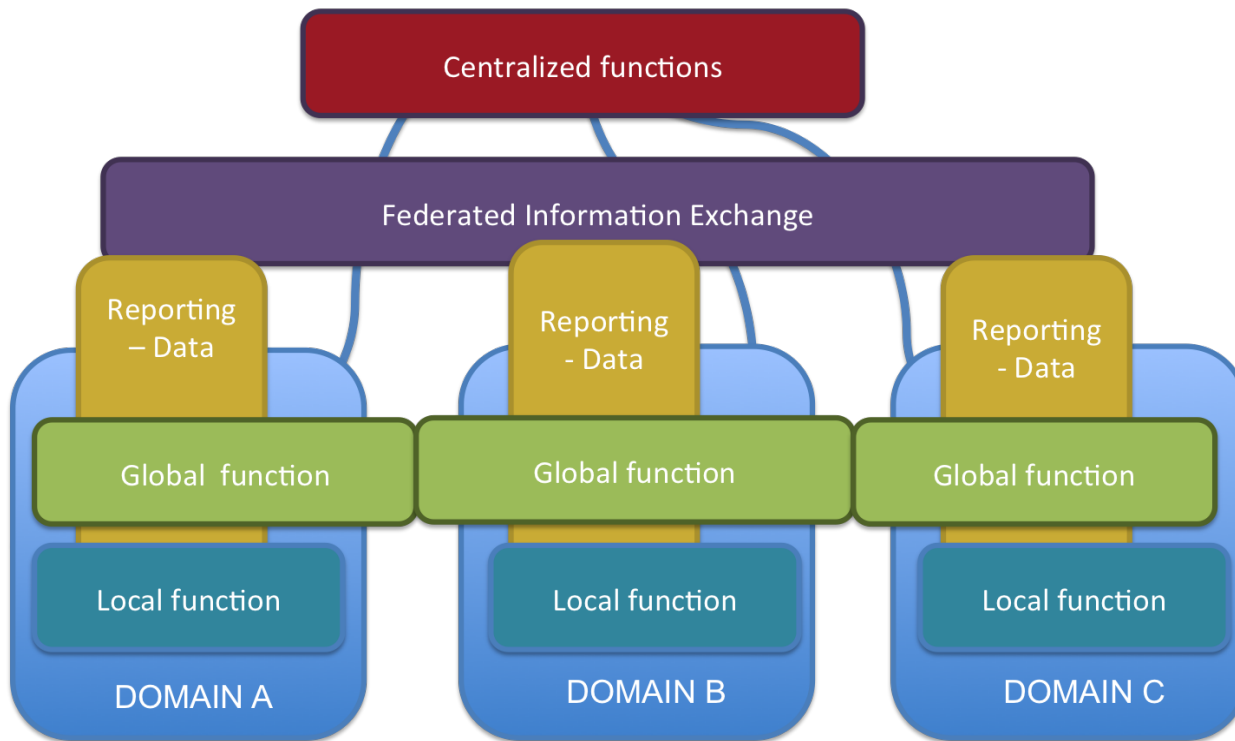
Jon Dugan, Ed Balas, Inder Monga



Context: Operations in GNA

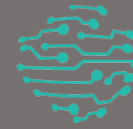


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Q. What information needs to be shared to enable an end-to-end lifecycle management of a service across multiple domains?

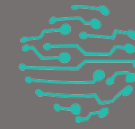
Federated Operations



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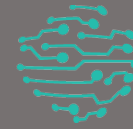
- Today
 - Email based workflows
 - NOC calling NOC's
- In the world of automation, what information we need to exchange between networks to improve the efficiency of federated operations when running and operating virtual network overlays over a multi-domain infrastructure?
- Tomorrow
 - Machine consumable data exchanged between NOCs
 - Automated processing of alerts and updates
 - Authorized and authenticated access to certain monitoring information
 - Less stress on NOCs in case of emergencies as information flow is managed and automated

Four categories of data exchange



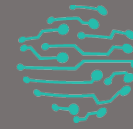
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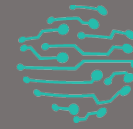
Provides canonical data about what is available and how it is ideally configured.

- Examples
 - Services
 - Capability
 - Topology



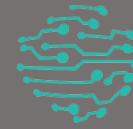
Provides information about the operational state of the network. Monitoring data may be used here to create issues or notifications.

- Examples
 - Issue tracking
 - Maintenance calendar
 - Notifications



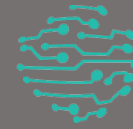
Measurements of various parts of the system.
Usually this is a time series of such measurements.

- Examples
 - Network statistics like interface counters
 - Compute statistics like CPU load
 - Performance measurements like one-way delay



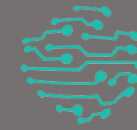
Monitoring of parts of the system to determine their operations status. This may be as simple as watching the up/down status of a device or it may be more complex such as anomaly detection which is derived from analytics on measurement data.

- Examples
 - System status (up/down)
 - Service status
 - Anomaly detection
 - Thresholding

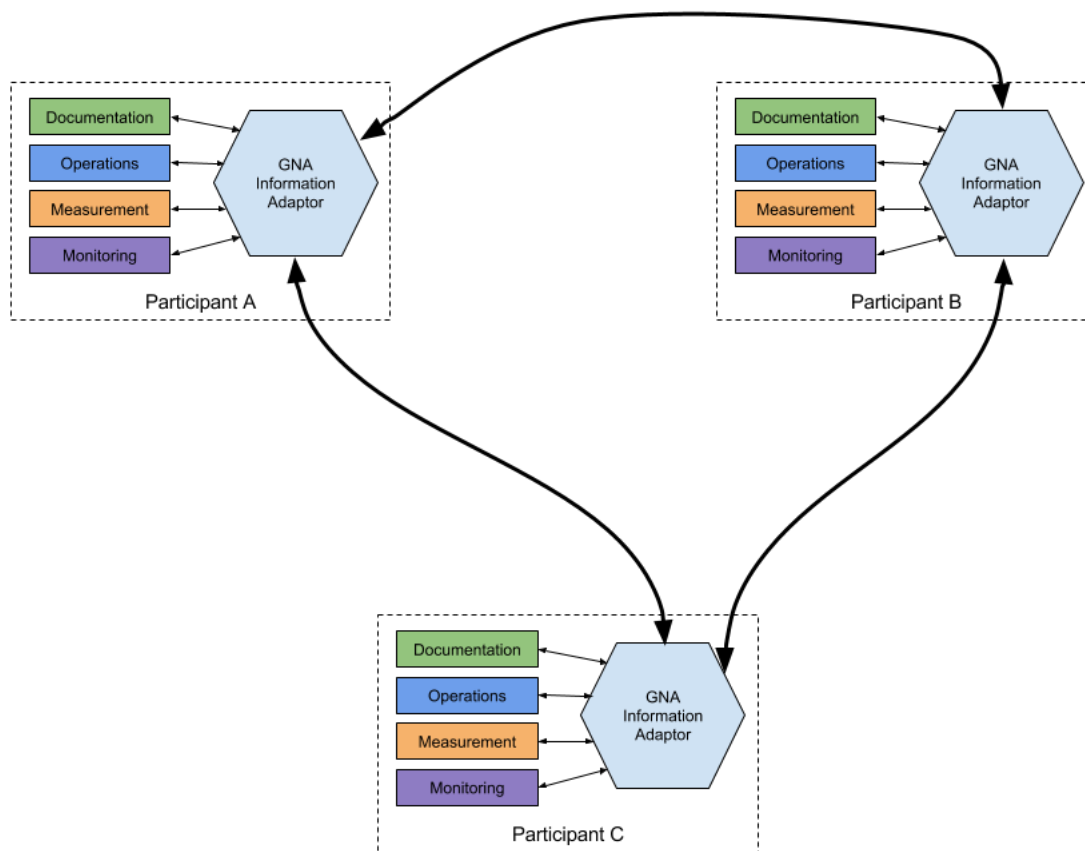


- The **canonical** state describes how we have decided that the network should be
- The **actual** state describes how the network actually is and is often phrased as the current configuration or what is derived from monitoring
- Need to have a perspective on both is important. Canonical state is usually not machine represented, but in visio diagrams on a wiki.

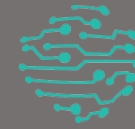
Information Exchange Proposal



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- Each organization has invested, or plans to invest collecting data across the four dimensions
- GNA Information Adaptor translates local schema into a GNA schema
- Information exchange based on AAI and trust between GNA entities



- Focused scope of the Information Architecture
 - Is this complete? Should we add any other perspective?
- Open questions being debated
 - Data Sharing model
 - Push vs. Pull vs. It depends
 - What methods/mechanisms can we reuse?
 - Are there any well accepted schemas that we can leverage?
 - Authz/AuthN
- Pathfinder project
 - Small project to get started, focus on planned/unplanned maintenance events

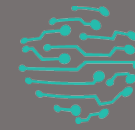
Interested in
working on
this? Please
contact us!

Exchange Model Up for Technical Debate



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- Peer to Peer with different policy filter per trust relationship
- Publish-Subscribe model with no specific P2P customization



Thank you!

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