AutoGOLE update

HEPiX Fall/Autumn 2017
October 2017 • Tsukuba, Japan
Gerben van Malenstein (SURFnet), John Hess (Pacific Wave) & Joe Mambretti (Northwestern University)
AutoGOLE (GLIF Open Lightpath Exchange)

- **AutoGOLE fabric delivers dynamic network services between Open Exchanges and networks**
  - Based on Network Service Interface (NSI) Connection Service
  - Hub and spoke architecture
  - 29 Network Service Agents (6 aggregators, 23 uPA) advertising 30 networks worldwide
  - Using DDS service for NSA discovery and document propagation between aggregators
- **Advanced capabilities**
  - Experimenting with new path finding and signaling algorithms
  - Additional network modeling for optimizations
  - Reducing old-school multi-domain human provisioning lead times
- **Introduction of multi-domain possibilities for monitoring, troubleshooting and provisioning**
  - AutoGOLE Dashboard (former prototype)
  - MEICAN Pilot
OnDemand services single-domain

User

Aggregator

Network Service Agent (NSA)

Network Resource Manager (NRM)

Network diagram showing connectivity between users and network resources via Aggregator and NRM.
OnDemand services multi-domain
OnDemand services multi-domain

User → GUI → Network Service Agent (NSA) → Network Resource Manager (NRM) → Aggregator

Network Service Agent (NSA) → Network Resource Manager (NRM) → Aggregator
Why MEICAN for the AutoGOLE?

• Looking for 1 provisioning tool for NOCs and users, a front-end for the AutoGOLE

• Comparison of multi-domain provisioning systems after GLIF AutoGOLE meeting in May 2016

• MEICAN
  - Interface offers support for creation, modification and deletion of multi-domain services
  - Interface is intuitive, easy access to world-wide (true multi-domain) provisioning of service
  - Offers features such as user roles, authorization and workflows
  - Monitoring of services becomes possible
  - Debugging for NOCs possible
  - Supporting the Network Service Interface
  - Active development by RNP, supporting a collaborative devOps-lite environment

Conclusion: MEICAN is the most mature tool for multi-domain network service provisioning
Phase 1
Form a coalition of AutoGOLE partners that want to join. These are: PacificWave, SINET, StarLight, RNP, NetherLight/SURFnet. AutoGOLE is open to others joining this effort.

Phase 2
Create and test an implementation with MEICAN.
Engage NOC engineers and put them into the Playground first, then production system, get their feedback.

Phase 3
Try-outs of MEICAN by production NOCs.

Phase 4
Facilitate collaborations and research projects.
Show the difference between regular IP connectivity and on-demand circuits.
MEICAN Topology
MEICAN Circuit reservation
MEICAN Circuit reservation – details
# MEICAN Circuit reservation – path info

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### Details
- **Circuit ID**: 19761174-3775-4846-ac00-c8f27a82f444
- **Name**: Isanca - netherlight p6 — yet again
- **Bandwidth**: 300 Mbps
- **Start**: 02/21/2017 14:45
- **End**: 02/22/2017 06:00
- **Version**: 1
- **Type**: NSI
- **Provider**: RNP Aggregator

### History

**Traffic monitoring**
MEICAN Experiences and Results so far

- RNP provides active participation and support to the AutoGOLE project
- Although compatibility issues were found during the testing phase (still ongoing)
  - RNP fixed a lot of these items already, hence
  - Offering a useable front-end to the AutoGOLE
- Several international circuits have been created already
- Some circuit statistics for the *.pacificwave.net NSI domains:
  - 143 circuit reservations since 20 September 2016 (55 provisioned / 88 failed)
  - 10 unique NSI domains as either Source or Destination (including the three PWave domains)
- We have begun involving NOC Engineers in the MEICAN Playground (Phase 2) and are working toward the next phase
- https://wiki.rnp.br/display/secipo/AutoGOLE+MEICAN+Pilot