



AUTOGOLE & LHCONE POINT-TO-POINT SERVICE

18th Annual Global LambdaGrid Workshop
Helsingør (Elsinore), Denmark
20-21 September 2018
Gerben van Malenstein

SURF



STATUS

SURF

INGREDIENTS

RESEARCHERS

SCIENTIFIC INSTRUMENTS

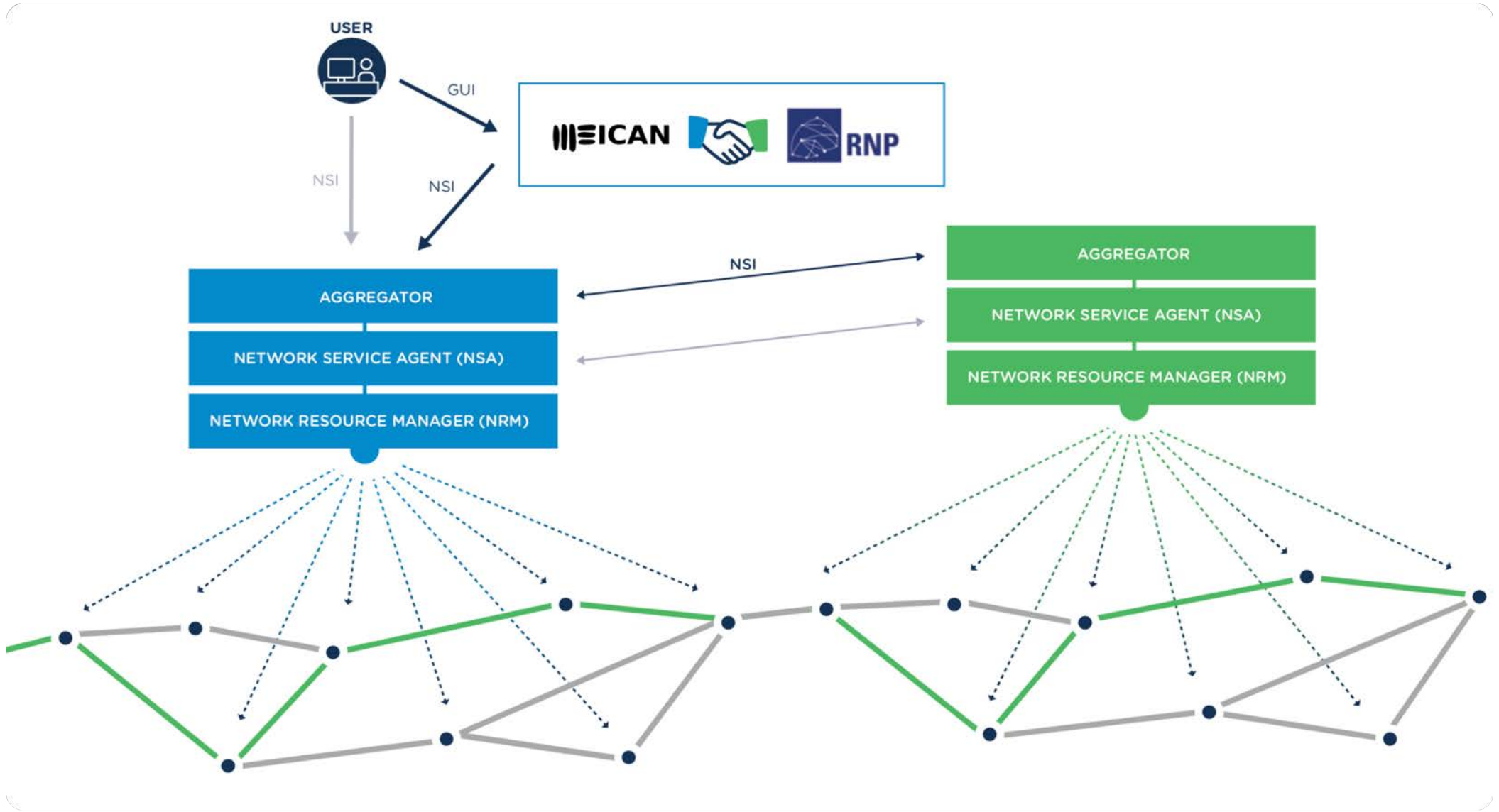
DATA

FAST NETWORKS

AUTOMATED PROVISIONING

DTNs





GLIF Automated GOLE Fabric 2018



Status AutoGOLE

- CESNET and MOXY have now enabled NSI on their Open Exchanges, congrats!
- GÉANT upgraded to their new CCS
- Now using MEICAN as its front end
 - == a graphical web interface for managing NSI-based connections
 - also for NOC engineers to manage ports and services
- How about its usage?
 - ... I don't mean numbers here ...
- How do we fund international software development?

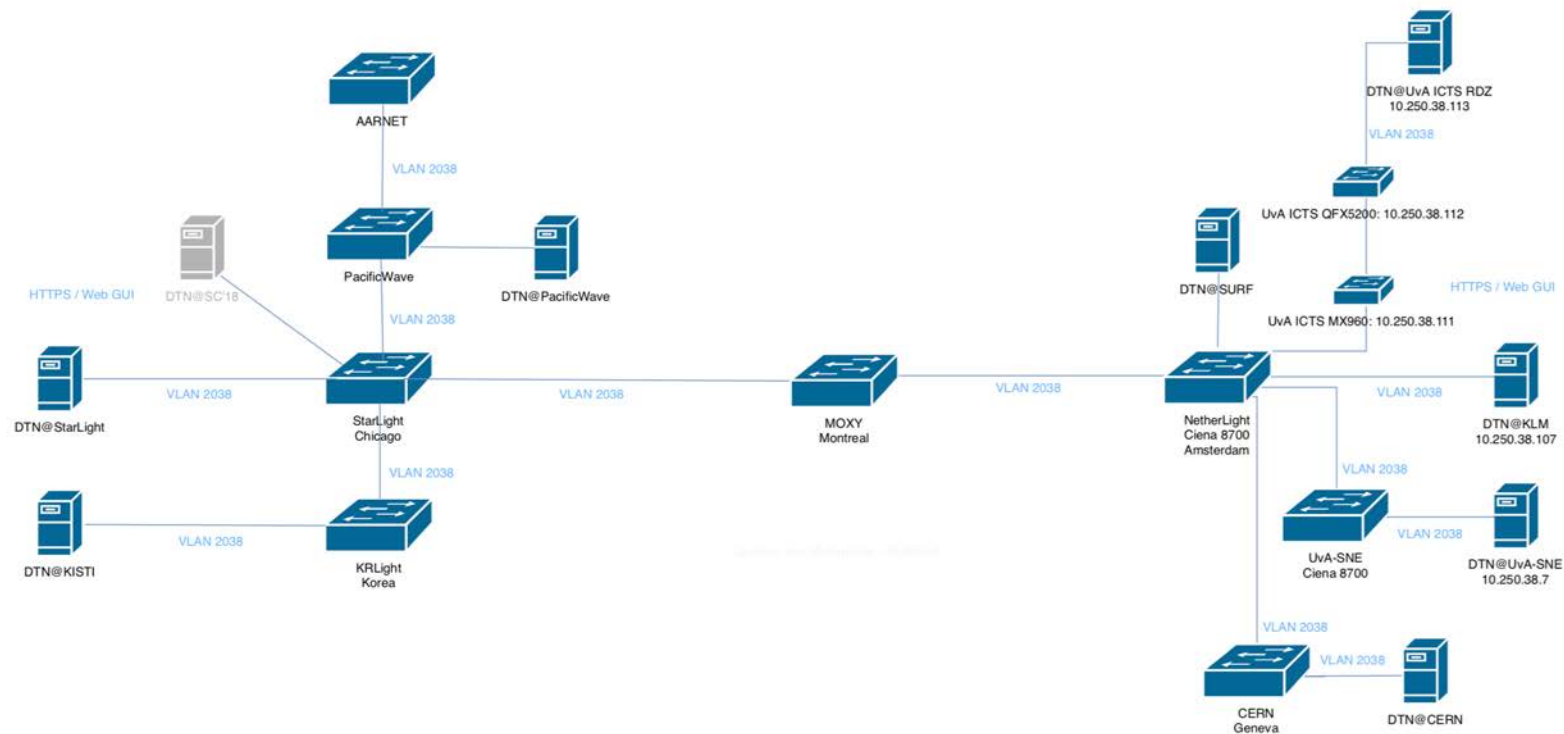
Status LHCONE Point-to-Point Service / DTN effort

- Layer 2 circuits into LHC sites
 - turns out to be site-specific L2 <-> BGP implementations
- Else {
 - connect Data Transfer Nodes, worldwide;}
- Using 2038 VLAN as a first implementation
- Demonstration by University of Amsterdam this evening

Status LHCONE Point-to-Point Service / Current DTNs in this project

International Connectivity for Data Transfer Nodes

Version 7, September 2018, Gerben van Malenstein, SURFnet



Status LHCONE Point-to-Point Service / ongoing DTN effort

```
/dev/nvme0n1 - 1.0 TB NVMe Device  
/dev/nvme1n1 - 1.0 TB NVMe Device  
/dev/nvme2n1 - 1.0 TB NVMe Device  
/dev/nvme3n1 - 1.0 TB NVMe Device  
SCSI1 (2,14,0) (sda) - 126.7 GB ATA SuperMicro SSD  
SCSI2 (2,0,0) (sdb) - 40.0 TB LSI MR9361-8i
```

```
read: 1929.64826086  
write: 1204.70601751  
write: 930.909070734  
write: 131.831348851  
avg throughput reads: 15914.0818901 MiB/s  
avg throughput writes: 2470.21871144 MiB/s  
18384.3006015 MiB/s
```

- IBM POWER9 w/4 NVMe drives as well as 40TB of spinning disks





OBSERVATIONS

Observations

- AutoGOLE as in ‘the broad implementation of multidomain provisioning’ not getting enough uptake in all of our R&E network domains
 - although system is technically working
 - this is not a technical problem
- Connecting dynamic network services to automated systems on a worldwide scale is not here yet
 - NSI is a connection request protocol
 - evolving automation through descriptive languages as NML
- There’s no such thing as ‘the DTN’, standardization needed
- Nationally: stuff works. Internationally: !@#\$%^&*()
- Don’t want to bother researchers and other end users with our “internal server errors, HTTP 500”
 - want to collaborate and facilitate

COMMON GOAL



Common Goal

- A heterogeneously compatible production-grade system supporting research and education
 “Research Platform”
- Connecting automated network services to systems, users, each other, ...



TOGETHER

Together

- Proposed first step

full production implementation of dynamic provisioning across ANA

no human configuration of network equipment anymore

... open to any other suggestions, as long as the word 'production' is present

- AutoGOLE working group is always open to new participants, please join us!



ANY QUESTIONS?



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