

Automated GOLE TF



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15th Annual Global LambdaGrid Workshop

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SURF NET

Automated GOLE Fabric



AutoGOLE

- **AutoGOLE fabric delivers dynamic network services between GOLEs and networks**
 - Based on NSI Connection Service v2.0 and TLS
 - Using DDS service between aggregators
 - Used for projects
 - FELIX consortium, 2015
 - Open Cloud eXchange (OCX) by GÉANT
 - SC'13 and SC'14 'Portable cloud' by JGN-X
 - NRM with OpenFlow underneath by iCAIR
 - UltraGrid by CESNET
 - NEXPreS by JIVE

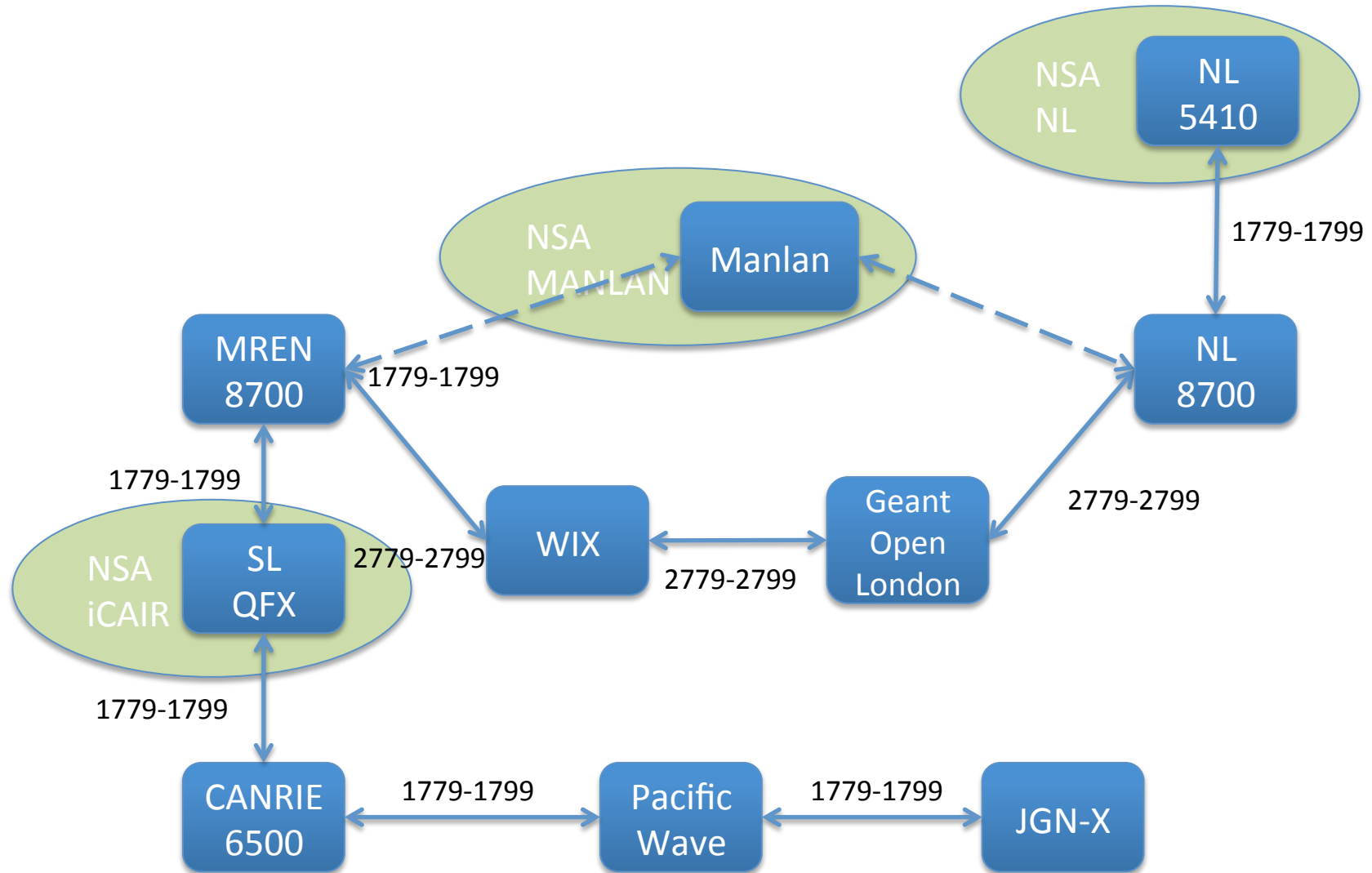
Work items 2015

- **I. Monitoring system for fault finding and troubleshooting**
 - AutoGOLE Dashboard
 - Come and see the demonstration between 18:00-20:00!
- **II. Supporting LHC Sites**
 - Supporting LHC sites that are connecting to the AutoGOLE
- **III. More redundant control plane**
 - Forwarding requests to another aggregator if a certain uPA cannot be reached

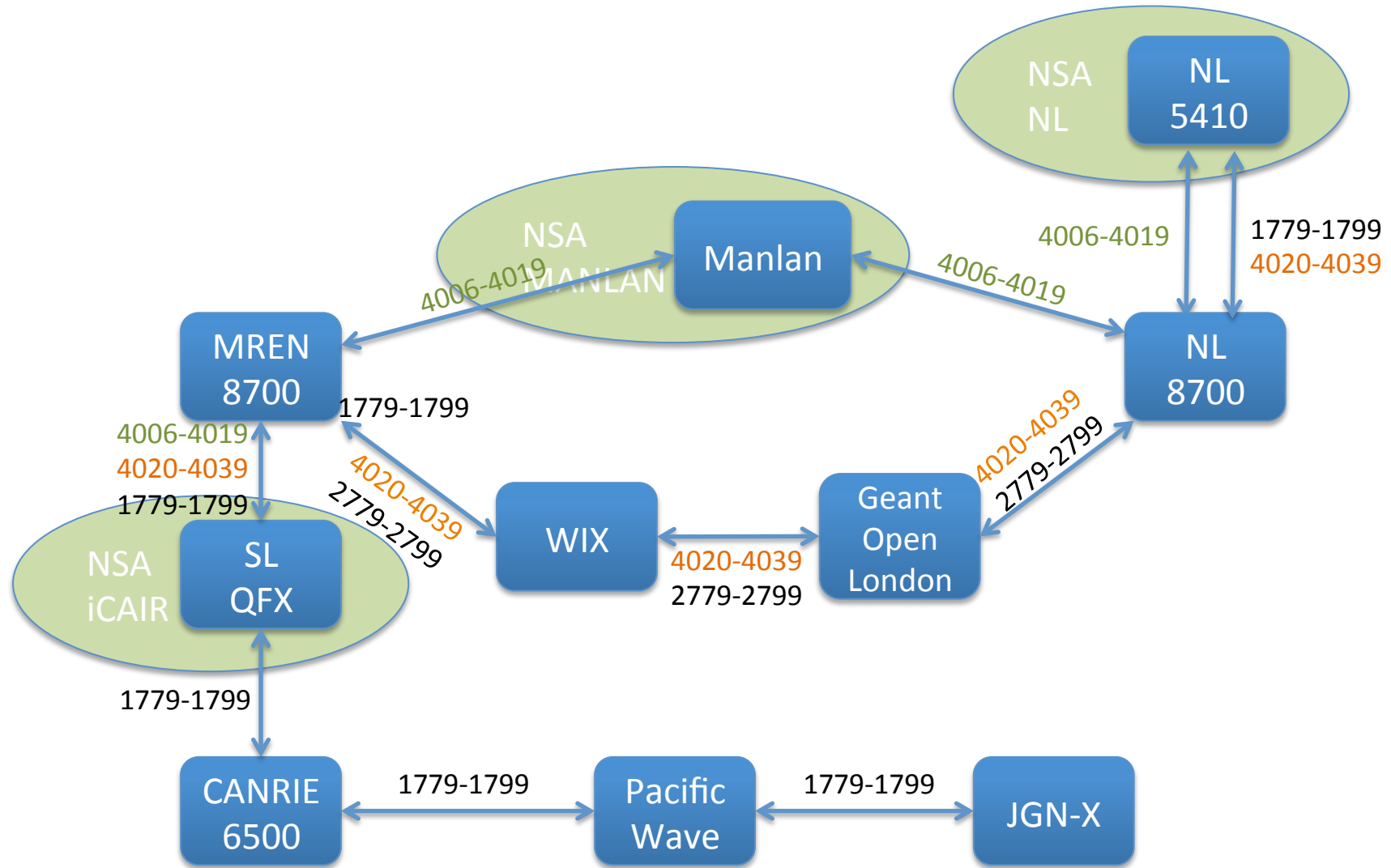
Status

- Clear call for automation from plenary discussion morning
- First prototype of the AutoGOLE Dashboard
- Setup of 100G interconnect to ESnet's EEX in Amsterdam for dynamic circuits
- Facilitated two projects over the past months:
 - 'SURFsara-BNL' for LHCONE:
 - Brookhaven connects to ESnet and then through EEX to NetherLight
 - SURFsara connects to NetherLight via SURFnet
 - FELIX
 - Service between Japan and Poland for connecting OpenFlow testbeds

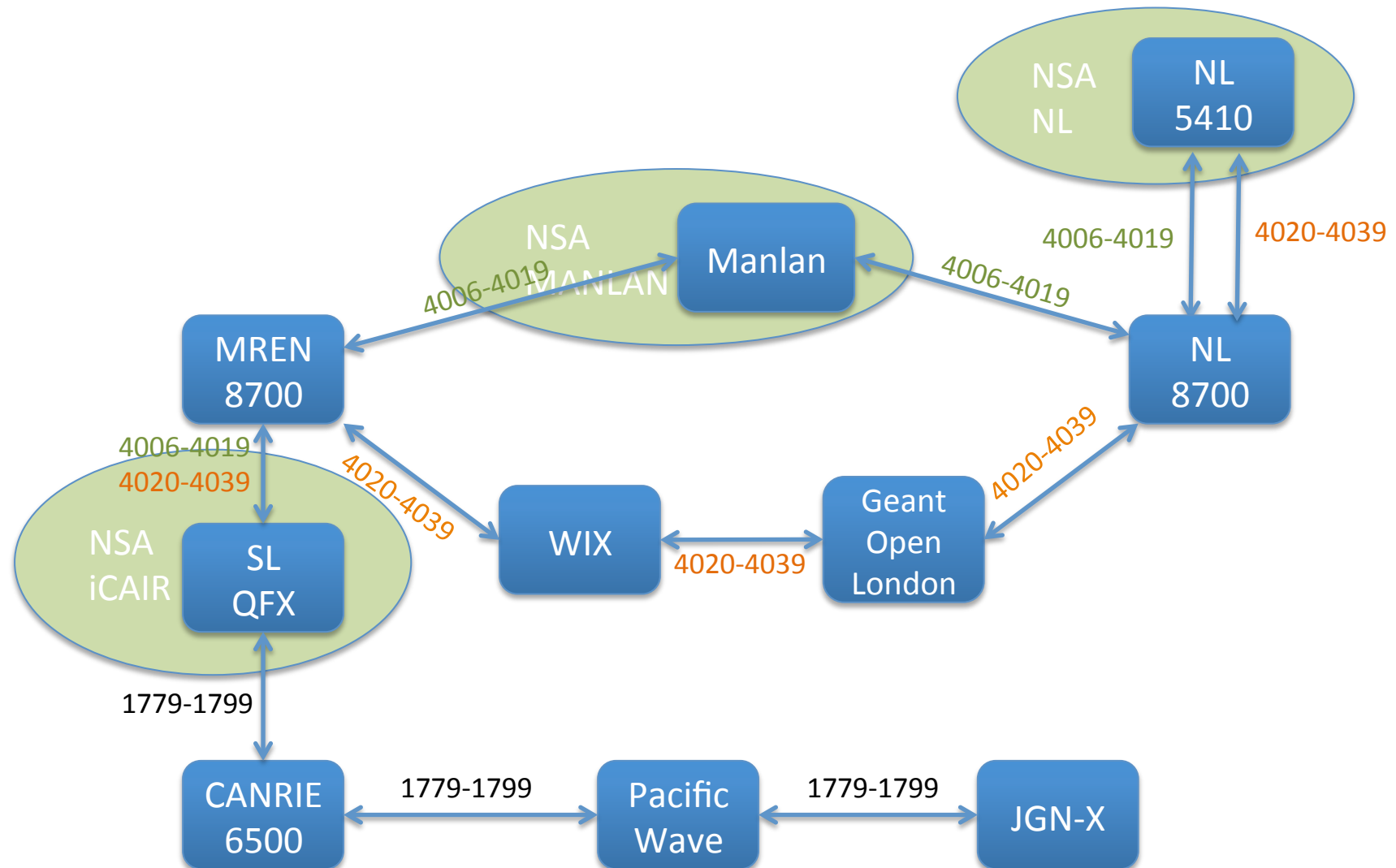
Current setup for FELIX / EU-Japan project



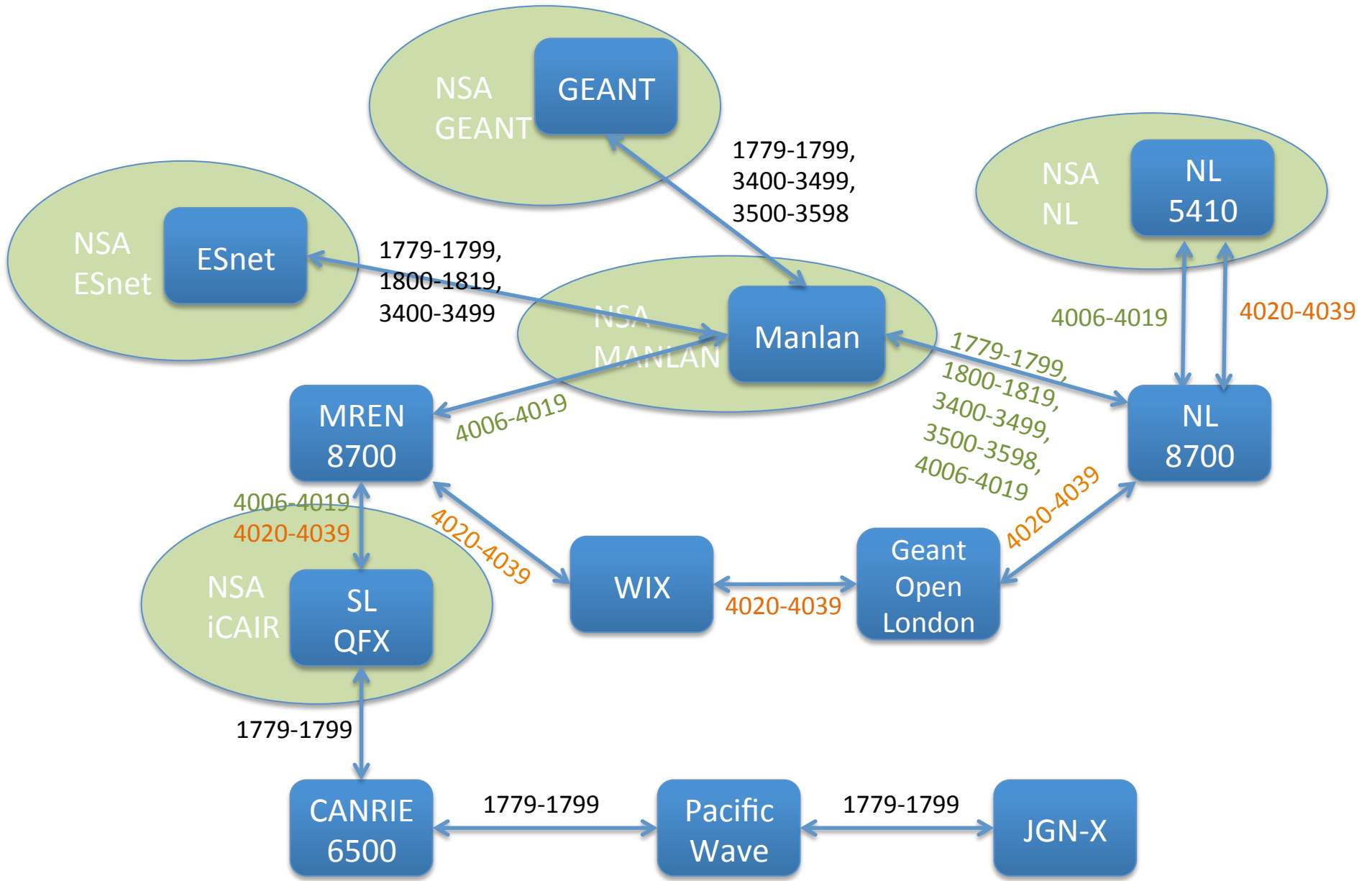
Proposed Next Step after Demo and NL-SL Auto-GOLE vlan translation
Edited by Gerben, May 31, 2015, vlan range change on June 17 2015



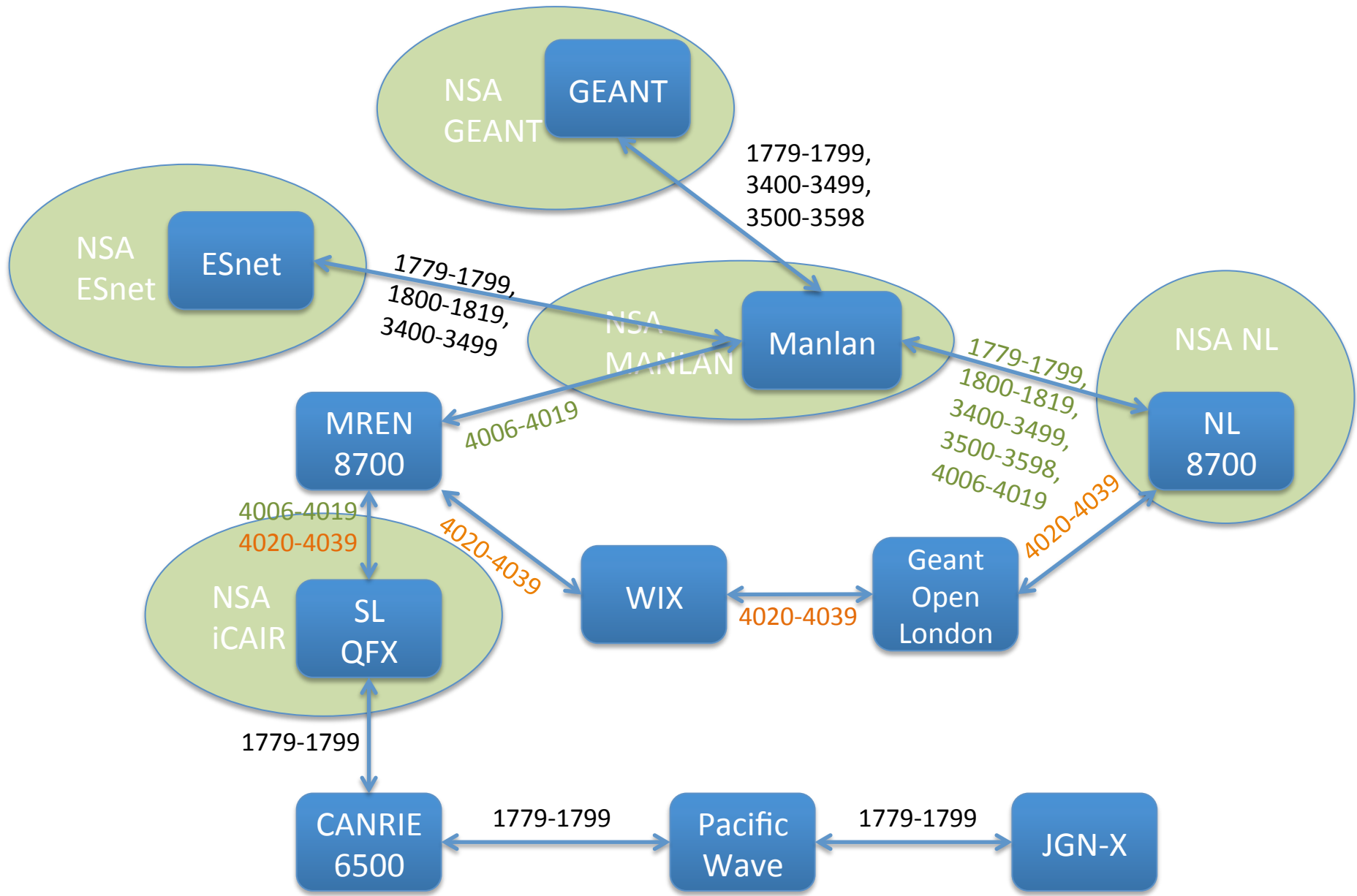
Propose June 2015 final NL-SL Auto-GOLE vlan translation
June 19 2015



Updated MANLAN VLAN range proposal by Hans, July 10, 2015



NL 5410 is removed, update by Hans, August 27, 2015

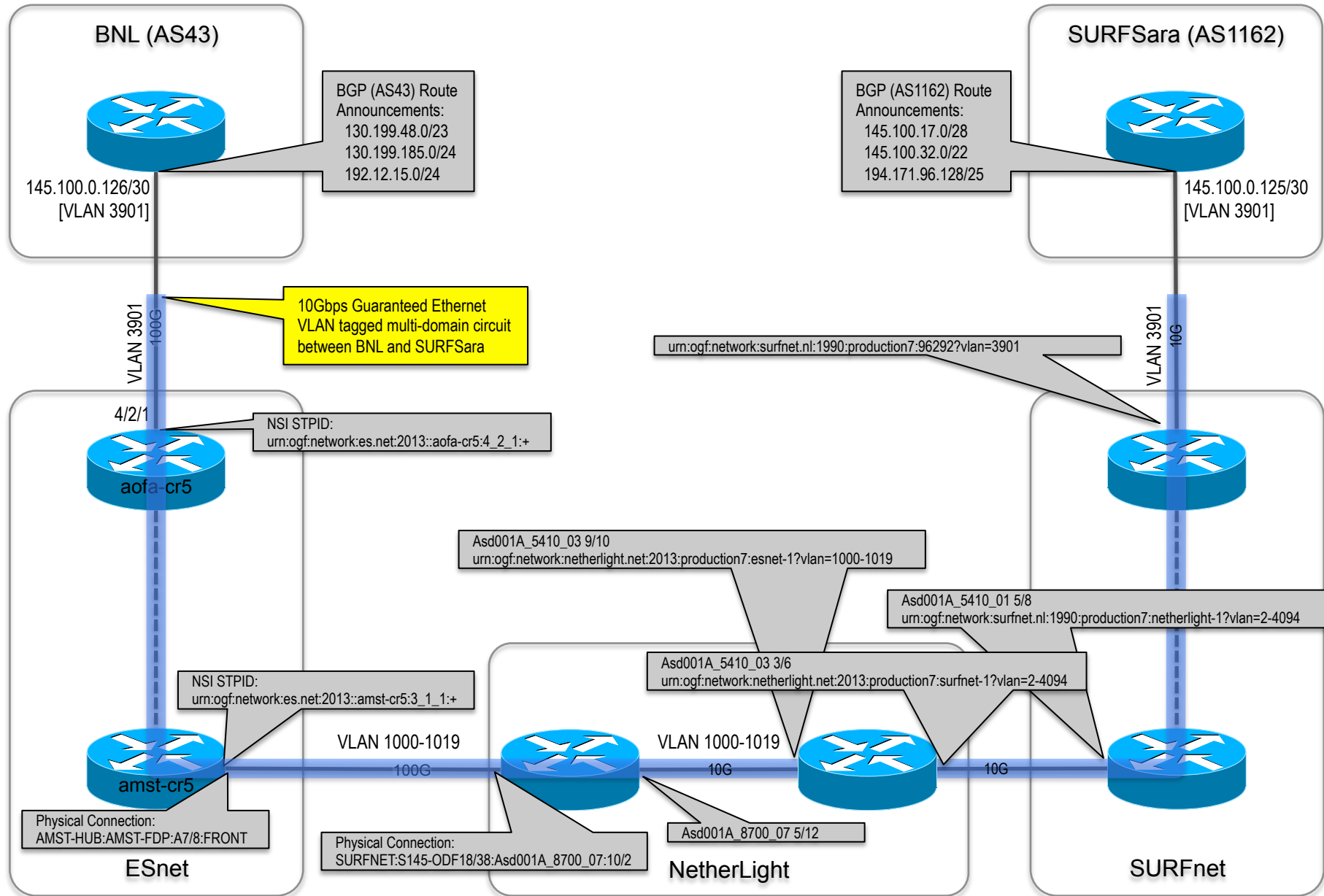


Example LHCONE Point2Point Service

- Exchanging production traffic between Brookhaven National Laboratory (US) and SURFsara/NL-T1 (NL) via a dynamic layer 2 path while using BGP to put traffic into the path.
- Test was executed last week of May 2015, successfully, since LHC production traffic was routed over the created dynamic path.

LHCONE P2P Experiment (BNL – SURFSara)

(Test Setup May 2015)



Dynamic circuit created for LHC

https://bod.netherlight.net/noc/reservations/filter/active/search?search=surfsara 4*

SURF NET Bandwidth on Demand Hans Trompert [Logout](#)
NOC NOC Engineer

Overview Reservations Teams Organizations Virtual Ports Physical Ports Events Report

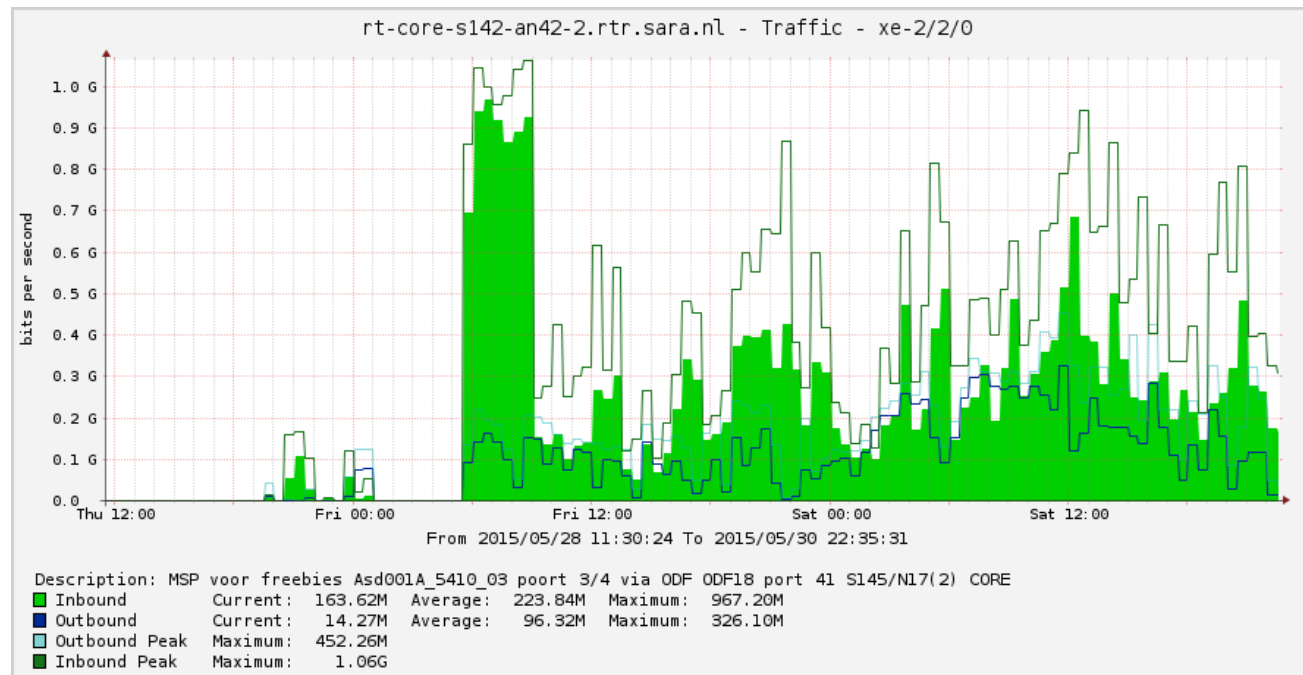
Reservations Time zone: Europe/Amsterdam UTC +02:00

Active

Extra info	Label	Team	Bandwidth	Starts	Ends	Status	Actions
	SURFsara to BNL @ 4 gb/s #3	-	4000 Mbit/s	2015-05-28 18:53:00	2015-06-28 19:08:00	Provisioned, Active	

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LHC traffic over dynamic circuit



- ~ 200M steady over dynamic circuit
- Most traffic from BNL to SURFsara, while expected opposite

Other topics / Moving forward / Discussion

- Getting rid of old common VLAN range
 - Support for VLAN retagging needed in all GOLEs and networks
 - Ultimately using ENNI ports between networks (requires a new service definition)
- Further data plane improvements, e.g. full dynamic control over longhaul links
- Shifting from manual/NOC operation to ‘dynamic provisioning by default’



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