

AutoGOLE MEICAN Pilot



18th WRNP • Workshop RNP

15-16 May • Belém, Brasil

Gerben van Malenstein

18^o WRNP
Workshop RNP
15 | 16 MAIO
Belém | PA
25 anos de internet no Brasil

SURF NET

- **National Research & Education Network of the Netherlands**

- Connecting around 200 institutions at 350+ locations
- Serving approximately 1 million end users
- 11.000 kilometers of dark fiber, DWDM/CWDM

- **Network**

- Routing: IPv4 and IPv6
- Guaranteed bandwidth: Lightpaths
- NetherLight
 - ANA, GNA, GÉANT, GLIF
- Cross Border Fibers
- SURFwireless

- **Collaboration**

- SURFconext

London (Stratford)

Amsterdam

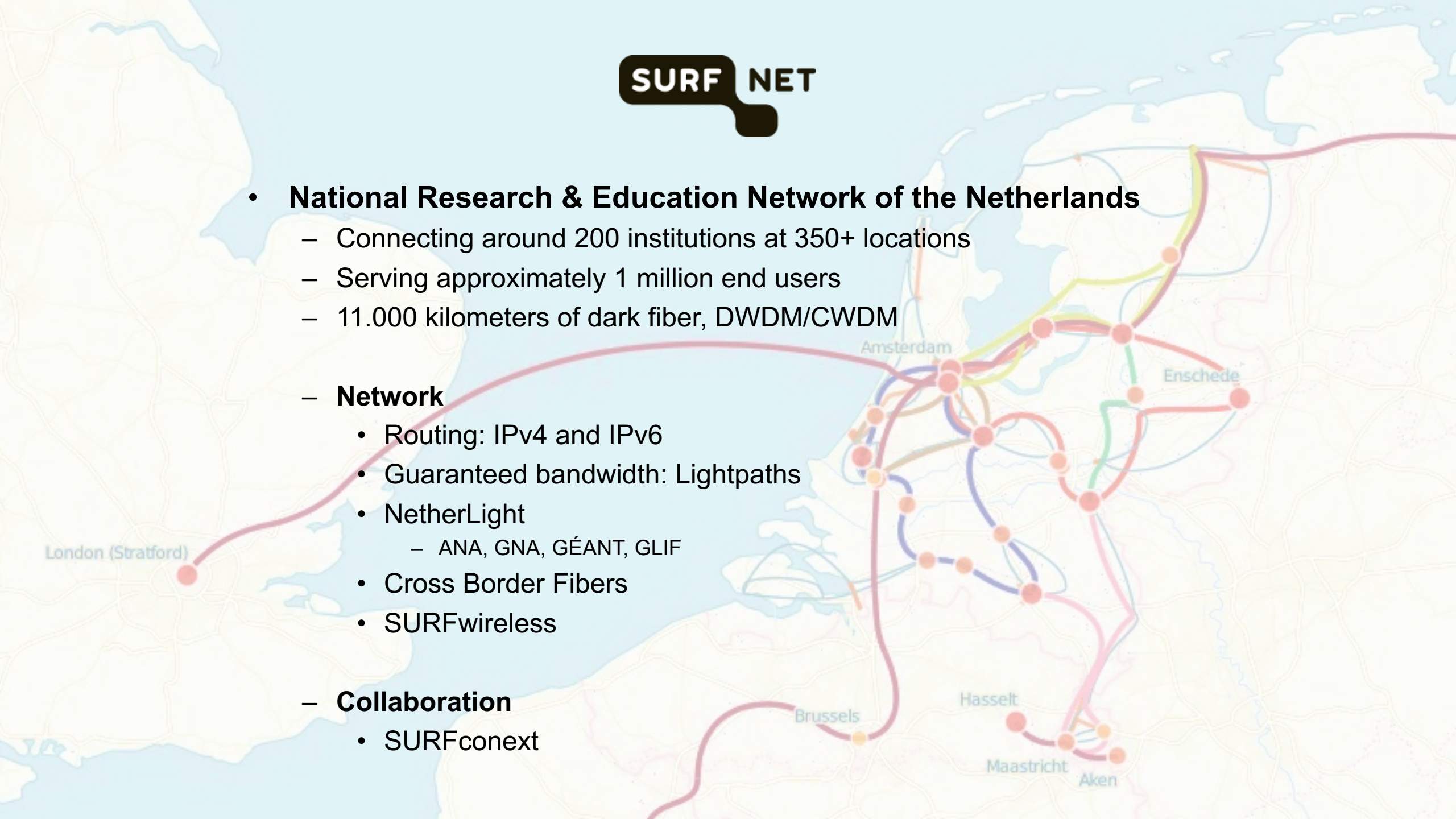
Enschede

Brussels

Hasselt

Maastricht

Aken



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



KRLight
KISTI

JGN

KDDI Labs

SINET

AIST

PacificWave

ESnet

Caltech

StarLight

MAN LAN

AMPATH

GÉANT

NetherLight

Pionier

UvA

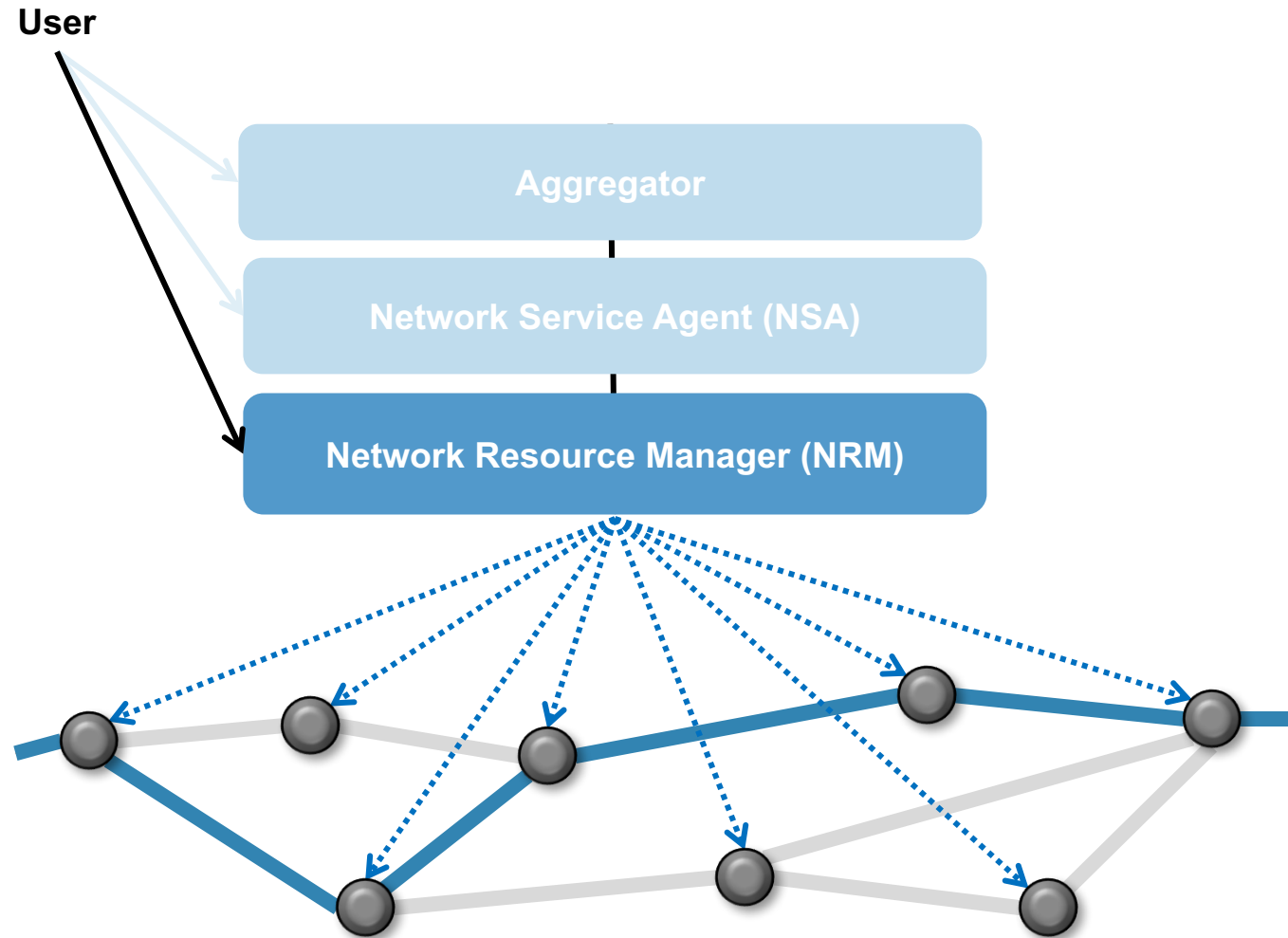
CERN

CzechLight

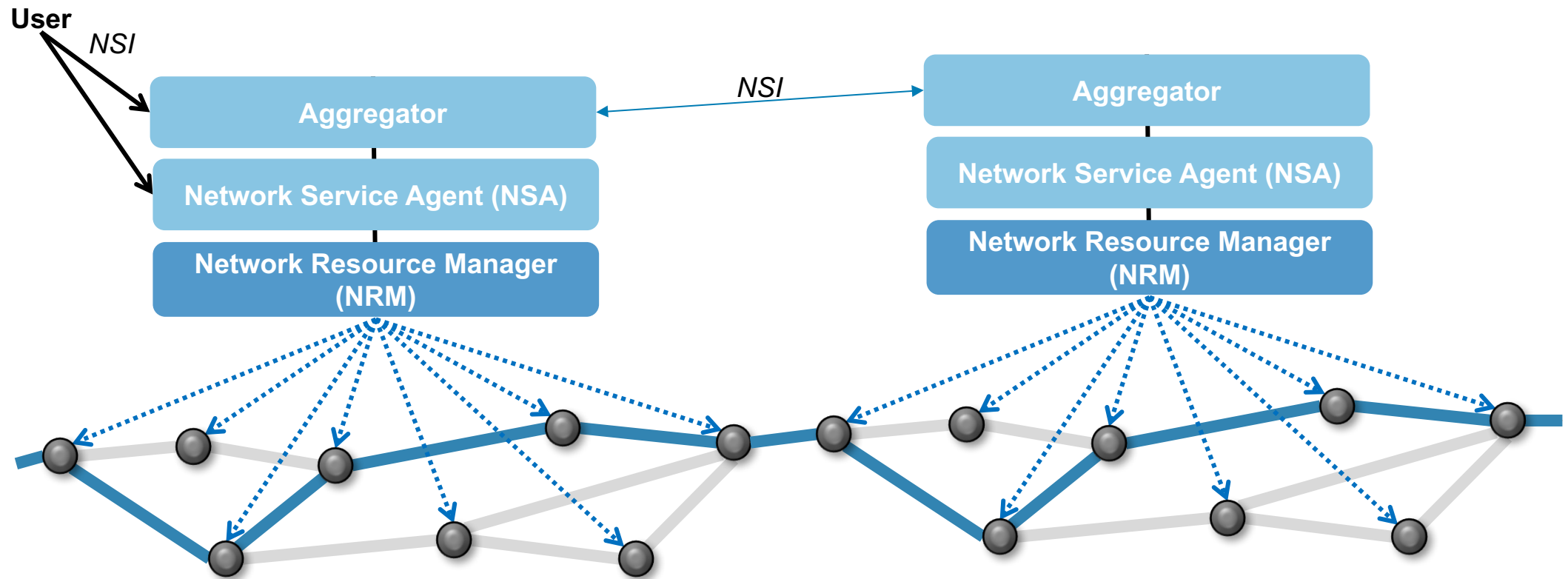
SouthernLight

RNP

OnDemand services single-domain



OnDemand services multi-domain



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

Conclusion: MEICAN is the most mature tool for multi-domain network service provisioning

Timeline 2016-2017 MEICAN pilot



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

Phase 3

Try-outs of MEICAN by production NOCs.

Phase 4

Phase 4

Facilitate collaborations and research projects.

Show the difference between regular IP connectivity and on-demand circuits.

MEICAN Dashboard

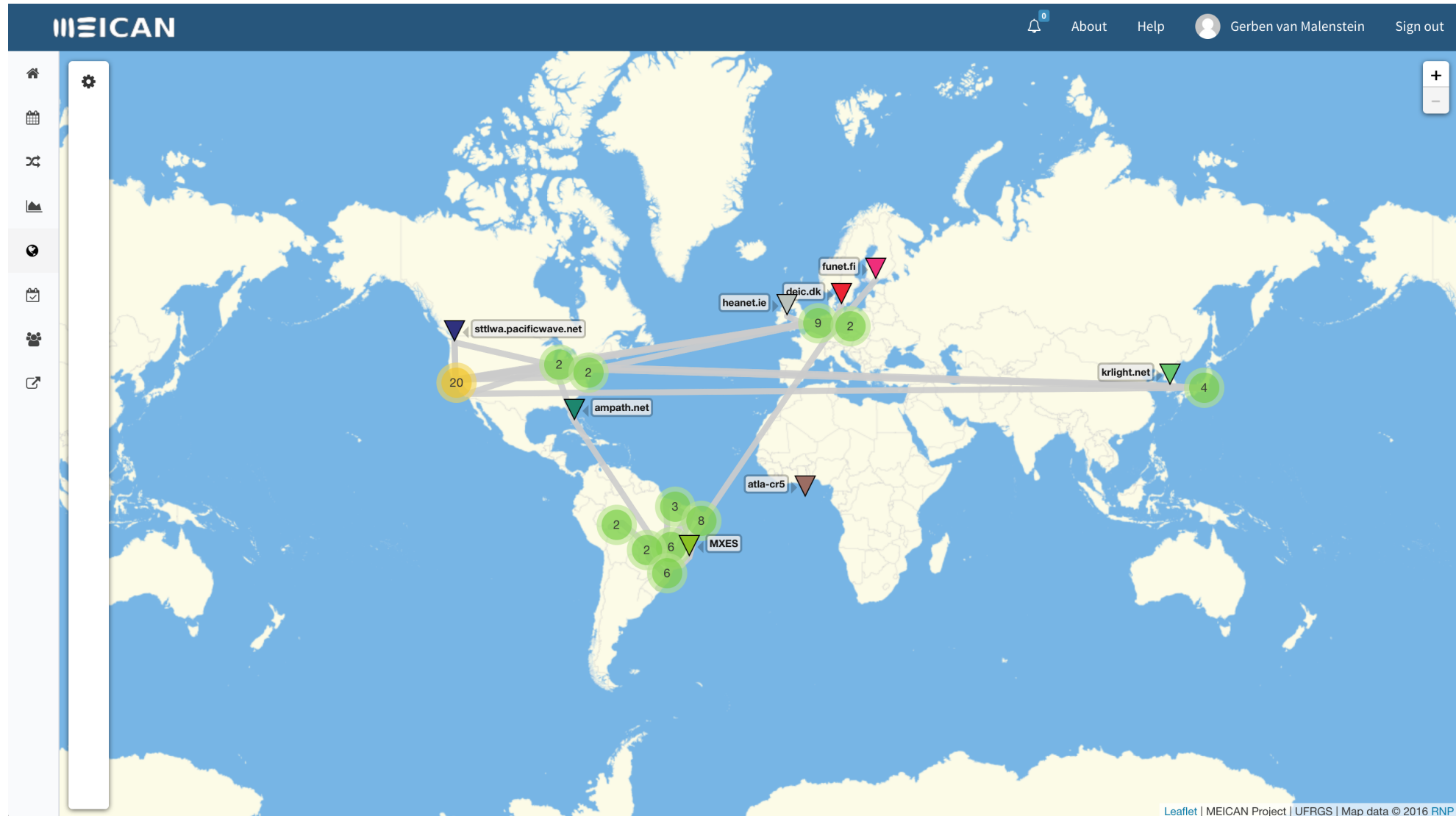
The screenshot displays the MEICAN Dashboard interface. At the top, a dark blue header contains the MEICAN logo on the left, a hamburger menu icon, and on the right, a notification bell with a '0' badge, and links for 'About', 'Help', a user profile for 'Gerben van Malenstein', and 'Sign out'.

A left-hand sidebar lists navigation options: Dashboard (selected), Circuits, Workflows, Monitoring, Topologies, Tests, Users, and External Access. Each item is accompanied by a small icon and a chevron symbol.

The main content area, titled 'Dashboard', features four large, light blue tiles with icons and labels: 'Reserve' (map icon), 'Circuits' (clouds and circuit icon), 'Users' (group of people icon), and 'Authorizations' (clipboard icon).

At the bottom of the page, the footer contains the copyright notice '© 2016 RNP' on the left and the version number 'Version 3.0.0' on the right.

MEICAN Topology



MEICAN Circuit reservation

The screenshot displays the MEICAN web interface for circuit reservation. The interface is divided into a left sidebar and a main map area.

MEICAN Header: The top left features the MEICAN logo. The top right includes a notification bell with '14', and links for 'About', 'Help', 'John Hess', and 'Sign out'.

Step 1: Path Panel (Left Sidebar):

- Source:**
 - Location: `lsanca.pacificwave.net`
 - Device: `lsanca.pacificwave.net`
 - Port: `irnc-10g02.lsanca`
 - VLAN: `1779`
- Destination:**
 - Location: `netherlight.net`
 - Device: `netherlight.net`
 - Port: `Asd001A_8700_07 5/15 iperf1 eth3`
 - VLAN: `1779`

A 'Next step' button is located at the bottom right of the path configuration panel.

Map Area:

- The map shows a route from the West Coast of North America to Europe.
- North America:** A yellow circle labeled '17' is on the West Coast, and a green circle labeled '3' is on the East Coast. A path line connects them.
- Europe:** A path line extends from the East Coast of North America to a cluster of nodes in Europe.
- Nodes:** Various network nodes are marked with colored triangles (green, red, blue) and labels: `stlwa.pacificwave.net`, `f10-dynes.dcn.umt`, `sw.net.manlan.internet2.edu`, `sw.net.wix.internet2.edu`, `ampath.net`, `heanet.ie`, `ja.net`, `deic.dk`, `plonier.net.pl`, `cze`, `geant.net`, `funet.fi`, `MXAC`, `MXPA`, `MXTO`, `MXMT`, `MXBA`, `MXCE 2`, and `6`.
- Map Controls:** A search bar with a magnifying glass, a location pin icon, and a document icon are at the top left of the map. A zoom control with '+' and '-' buttons is at the top right.

Footer: The bottom right corner of the map area contains the text: 'Leaflet | MEICAN Project | UFRGS | Map data © 2016 RNP'.

MEICAN Circuit reservation – details

MEICAN 16 About Help John Hess Sign out

Dashboard Circuits Workflows Monitoring Topologies Tests Users External Access

Circuit #182

Home > Circuits

STATUS Active

RESERVATION Provisioned

AUTHORIZATION Approved

UPDATED AT 02/21/2017 14:45 by Provider

Path Map Info

Map showing circuit path between **Isanca.pacificwave.net** and **netherlight.net**.

Details Refresh Edit Cancel

Circuit ID	19761174-3f75-4846-aca0-c8ff27a82144
Name	Isanca - netherlight pS -- yet again
Bandwidth	100 Mbps
Start	02/21/2017 14:45
End	02/22/2017 00:00
Version	1
Type	NSI
Provider	RNP Aggregator

Traffic monitoring Last hour Refresh History

MEICAN Circuit reservation – path info

The screenshot displays the MEICAN web interface for Circuit #182. The top navigation bar includes the MEICAN logo, a menu icon, a notification bell with '16', and links for 'About', 'Help', 'John Hess', and 'Sign out'. The left sidebar contains navigation options: Dashboard, Circuits, Workflows, Monitoring, Topologies, Tests, Users, and External Access. The main content area is titled 'Circuit #182' and includes a breadcrumb 'Home > Circuits'. Below the title are four status cards: 'STATUS Active', 'RESERVATION Provisioned', 'AUTHORIZATION Approved', and 'UPDATED AT 02/21/2017 14:45 by Provider'. The 'Path' section features a table with columns 'Order', 'URN', and 'VLAN', and tabs for 'Map' and 'Info'. The 'Details' section on the right includes fields for 'Circuit ID', 'Name', 'Bandwidth', 'Start', 'End', 'Version', 'Type', and 'Provider'. At the bottom, there is a 'Traffic monitoring' section with 'Last hour' and 'Refresh' buttons, and a 'History' section.

MEICAN 16 About Help John Hess Sign out

Circuit #182 Home > Circuits

STATUS Active

RESERVATION Provisioned

AUTHORIZATION Approved

UPDATED AT 02/21/2017 14:45 by Provider

Path Map Info

Order	URN	VLAN
0	urn:ogf:network:lsanca.pacificwave.net:2016:topology:irnc-10g02.lsanca	1785
1	urn:ogf:network:lsanca.pacificwave.net:2016:topology:losa2-pw-sw-1_e1_1	1785
2	urn:ogf:network:snvaca.pacificwave.net:2016:topology:snvl2-pw-sw-1_e7_2	1785
3	urn:ogf:network:snvaca.pacificwave.net:2016:topology:esnet-sunnyvale	1785
4	urn:ogf:network:es.net:2013::sunn-cr5:8_1_1:pacwave	1785
5	urn:ogf:network:es.net:2013::amst-cr5:3_1_1:+	1002
6	urn:ogf:network:netherlight.net:2013:production7:esnet-1	1002
7	urn:ogf:network:netherlight.net:2013:production7:iperf1-3	1785

Details Refresh Edit Cancel

Circuit ID 19761174-3f75-4846-aca0-c8ff27a82144

Name lsanca - netherlight pS -- yet again

Bandwidth 100 Mbps

Start 02/21/2017 14:45

End 02/22/2017 00:00

Version 1

Type NSI

Provider RNP Aggregator

Traffic monitoring Last hour Refresh

History

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
- First international circuits have been created already
- MEICAN is ready for next phase, involving NOC engineers
- <https://wiki.rnp.br/display/secipo/AutoGOLE+MEICAN+Pilot>



gerben.vanmalenstein@surfnet.nl

Cover image by Sam-H-A
<https://flic.kr/p/SMSaPd>



<https://www.surf.nl>



<https://www.linkedin.com/in/vanmalenstein/>

WHAT **SURF** CAN DO