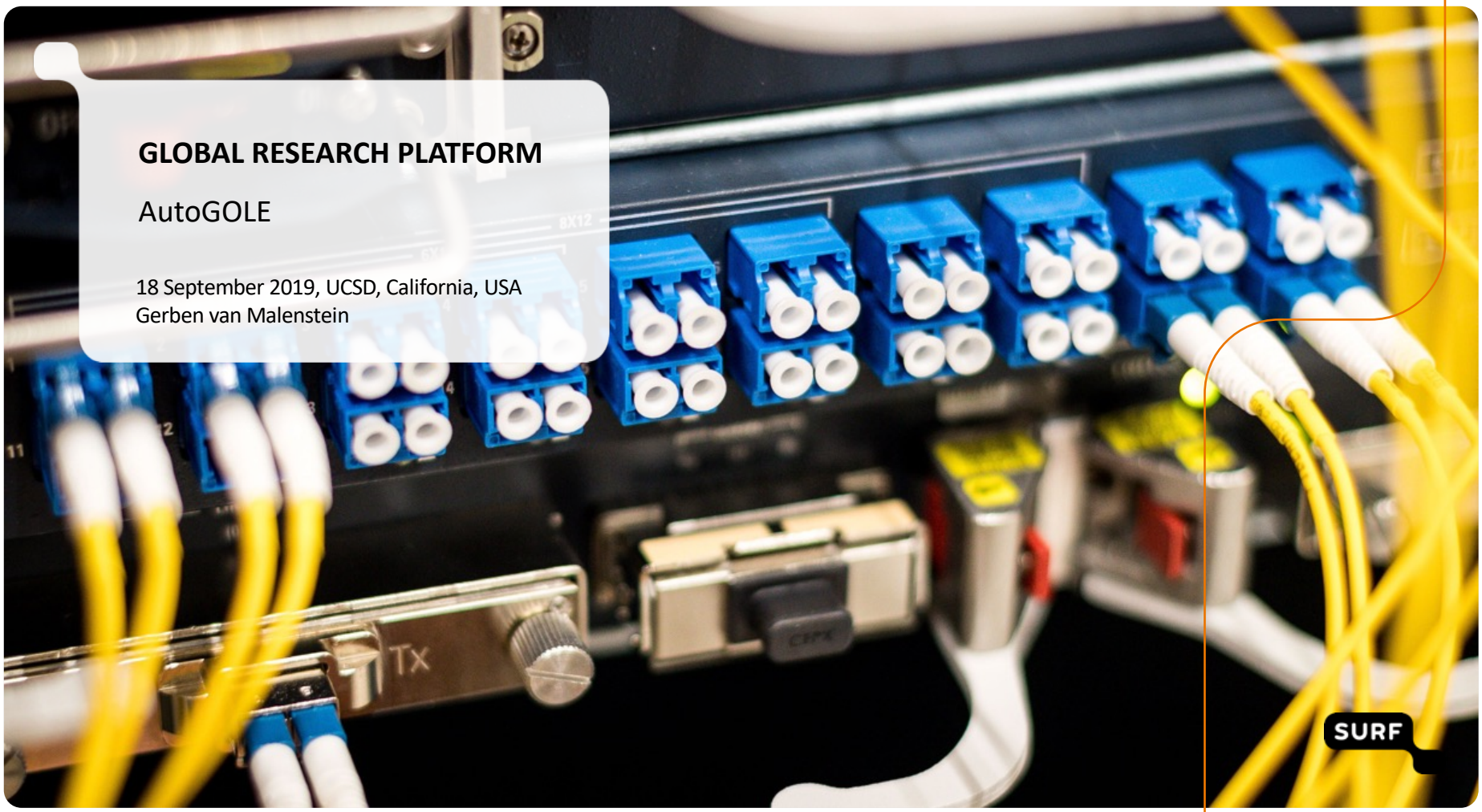


GLOBAL RESEARCH PLATFORM

AutoGOLE

18 September 2019, UCSD, California, USA

Gerben van Malenstein

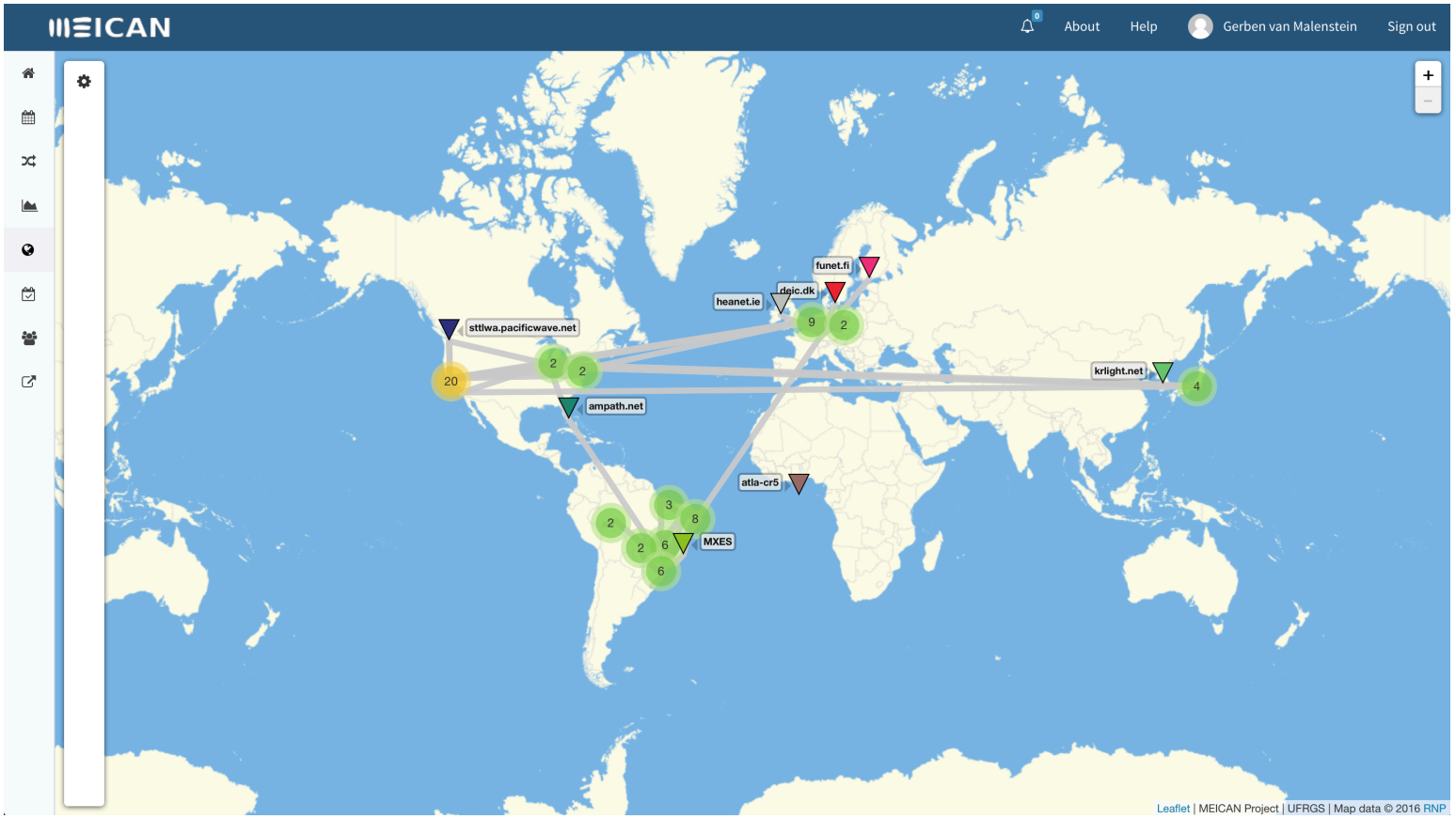
Automated GOLE – what is it?

- **AutoGOLE fabric delivers dynamic network services between open exchanges and networks**
- Currently delivering VLANs, but certainly not limited to L2, ie. may also incorporate L3VPN
- Based on NSI Connection Service v2.0
- Redundant Aggregator backbone with a leaf uPA per network
- Network Service Agents (with aggregators) advertising networks
- Using DDS service for NSA discovery and document propagation between aggregators
- Introduction of monitoring, troubleshooting, and provisioning tools
- Dashboard, MEICAN, DDS Portal, et cetera
- Advancing multi-domain network capabilities
- Experimenting with new path finding and signaling algorithms
- Additional network modeling for optimizations

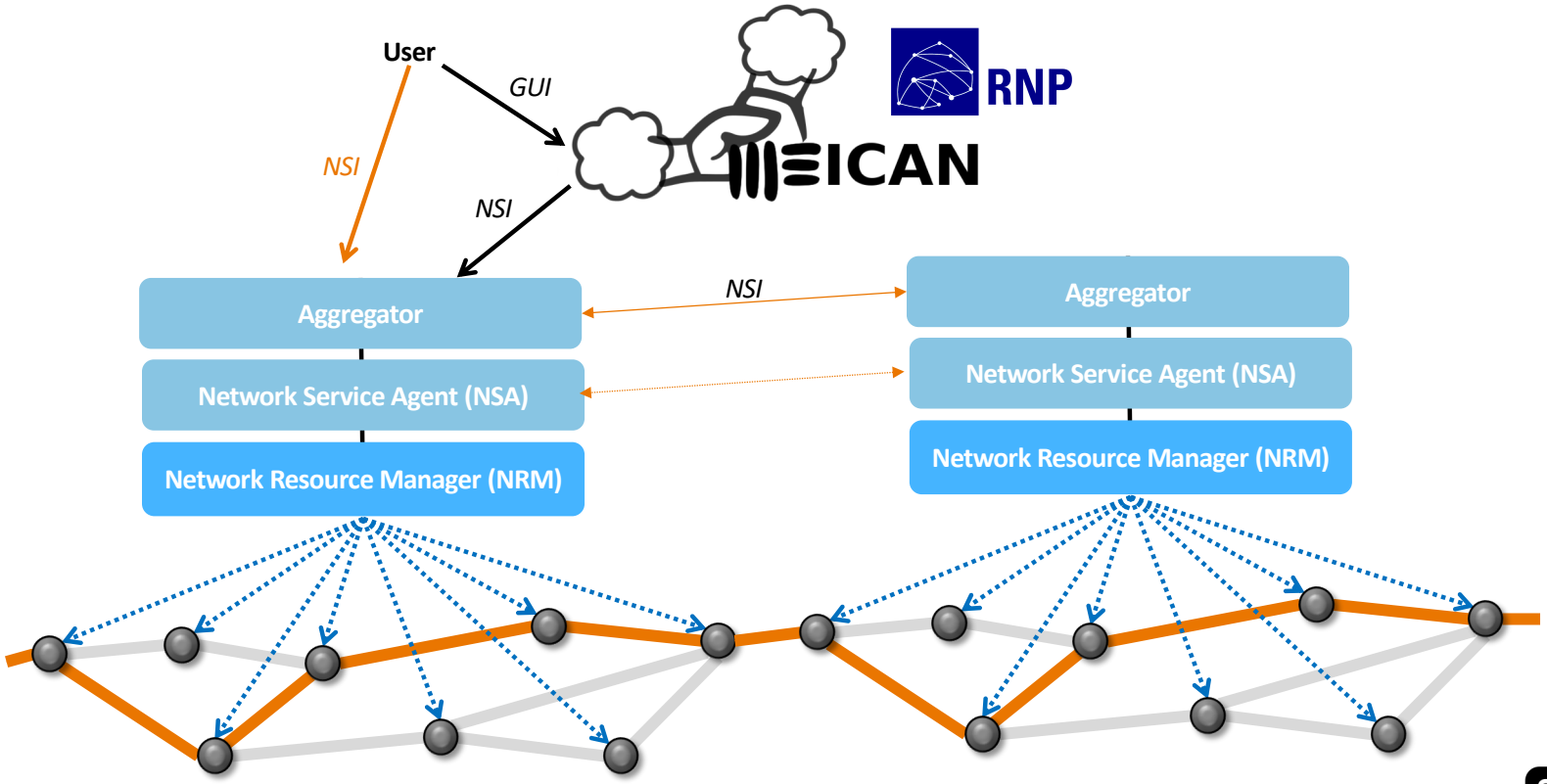
- **True international collaboration**


global network architecture
KRLight
KISTI
JGN
KDDI Labs
SINET
AIST
Pacific Wave
ESnet
Caltech
StarLight
MOXY
MAN LAN
WIX
AMPATH
GÉANT
NetherLight
Pionier
UvA
CERN
CzechLight
SouthernLight
RNP
Schematic overview of the AutoGOLE

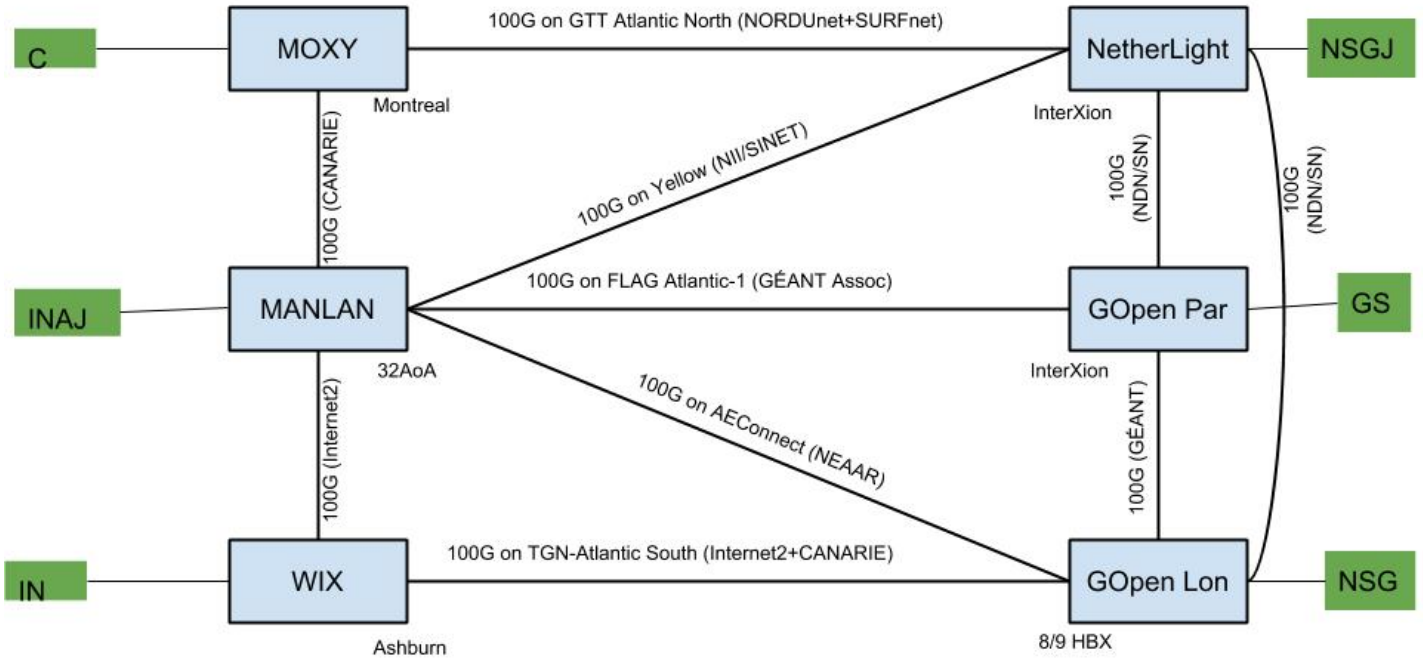
MEICAN: AutoGOLE front-end UI



AutoGOLE: multi-domain network services on-demand



The pathfinder expands: ANA-300G growing to 900G



Automated GOLE activities 2019

- Connecting more networks around the globe using NSI
- Dynamic ANA planned for this year, expecting scaling up to other regions
- Starting by segment CHI-MON-AMS
- MEICAN software development by RNP

Automated GOLE activities 2020

- Expanding Dynamic ANA project 2019 to all ANA links
- Being a substrate for Data Mover Challenge 2020
- Expanding AutoGOLE with connectivity to DTNs

  might be through SENSE
- **Urgent need to research and implement**

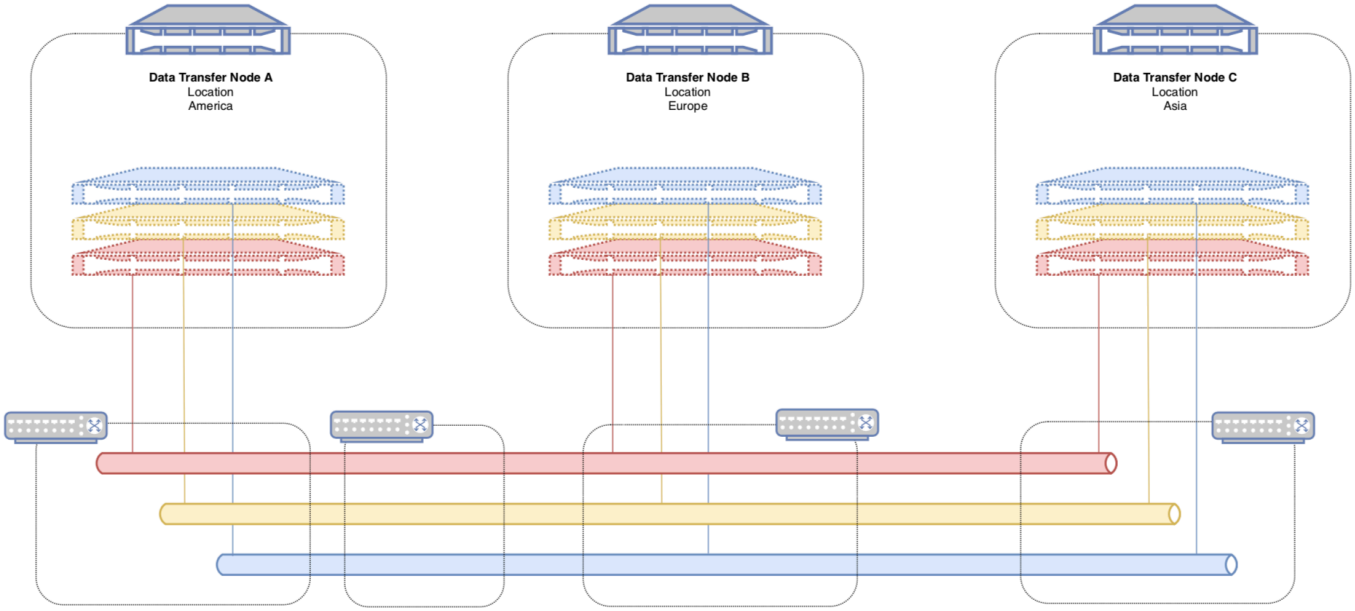
  open multi-resource standard(s) to achieve inter-domain compatibility

Automated GOLE activities 2020 – disclaimer: draft!

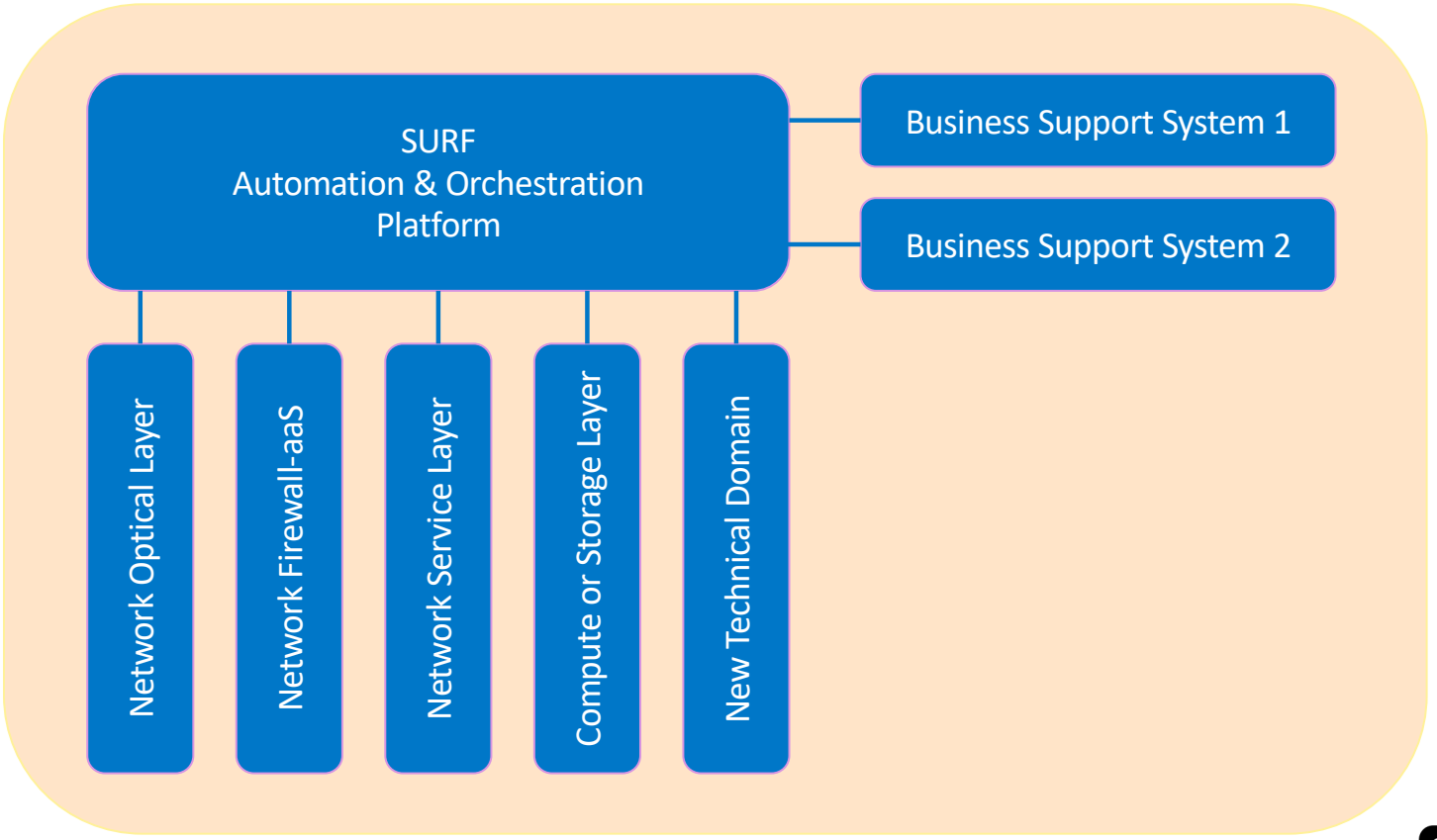
SENSE

SENSE

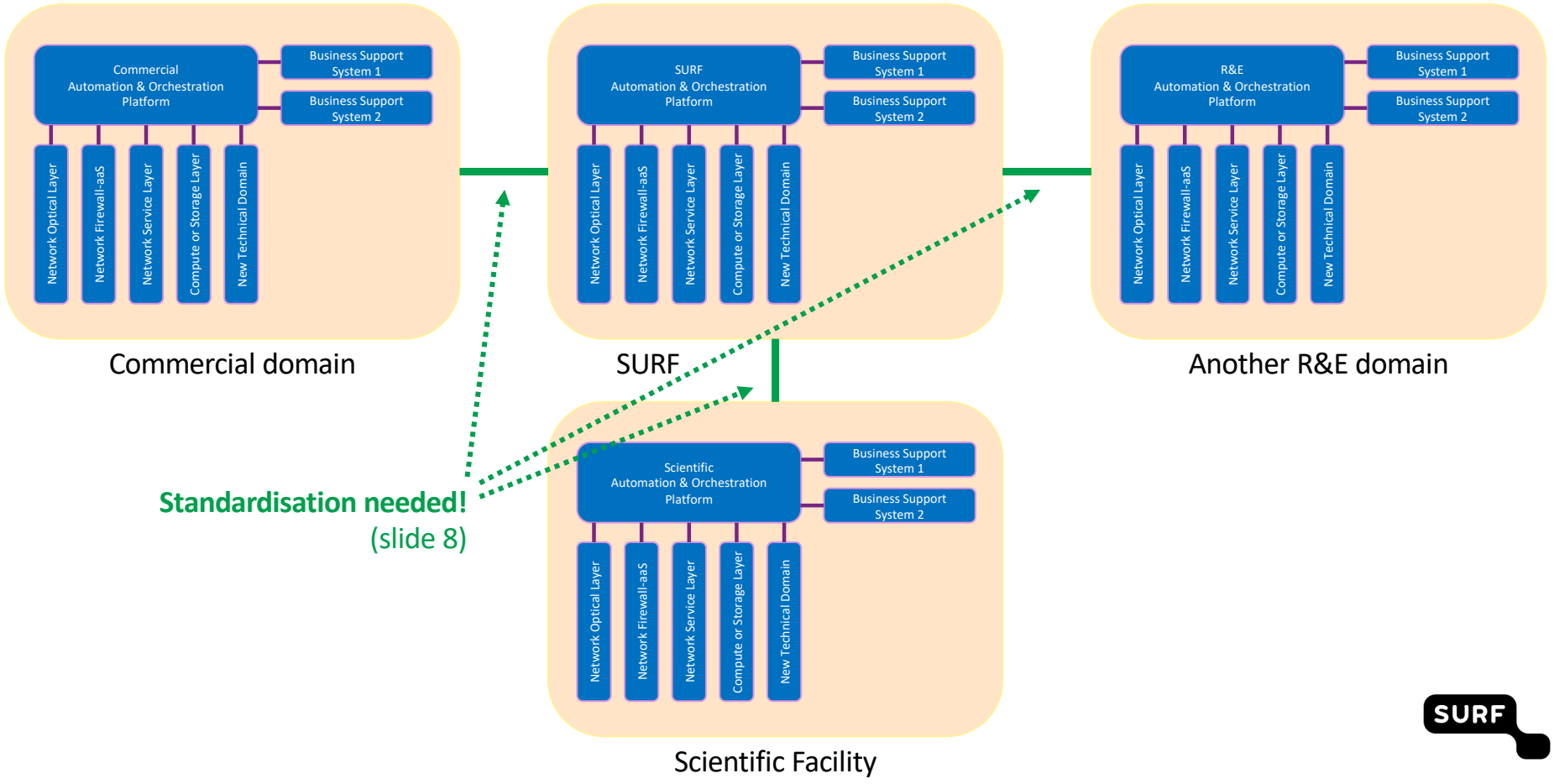
NSI



Automation & Orchestration at SURF

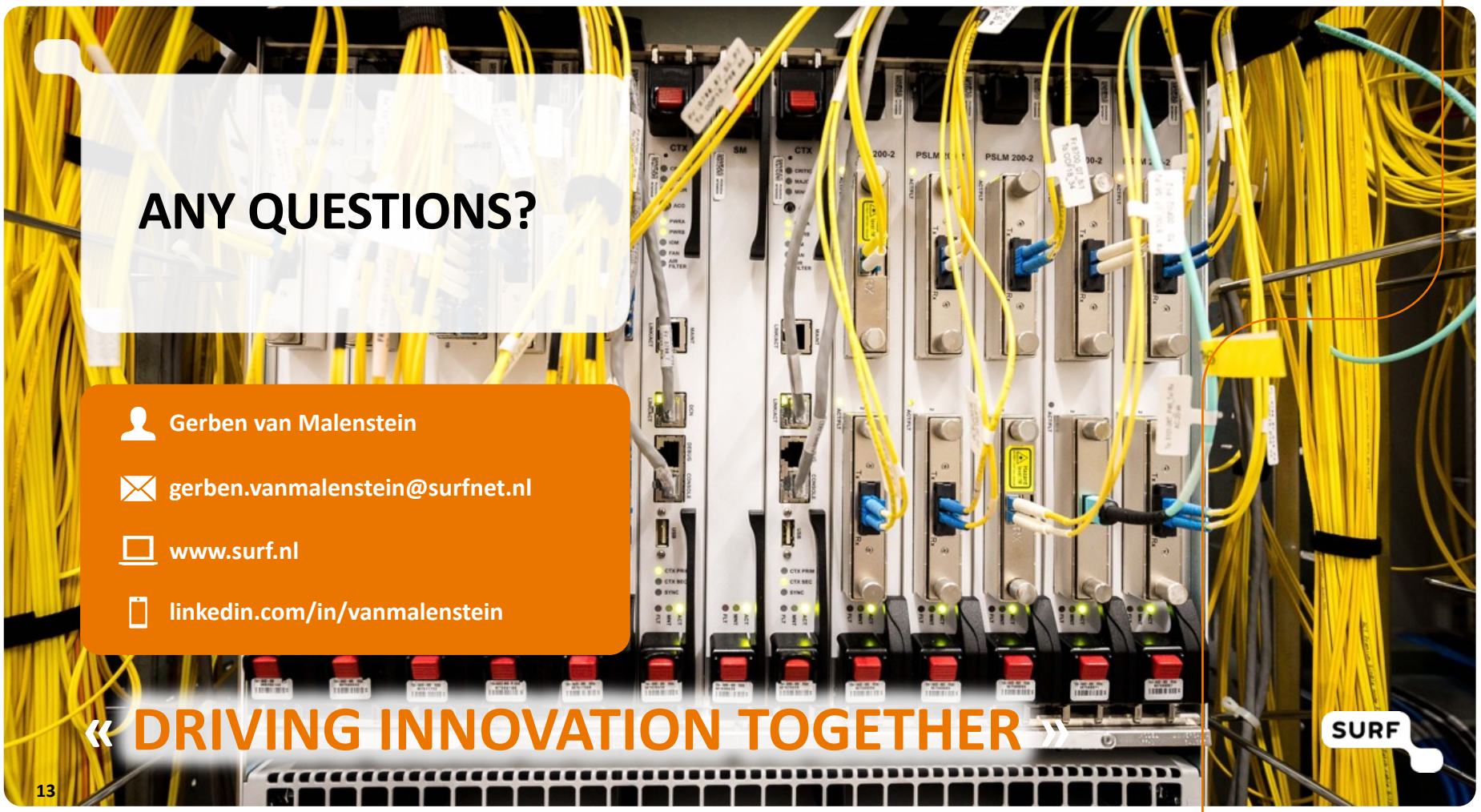


Vision on Automation & Orchestration: multidomain interoperability, R&E + Commercial + Scientific Facility



AutoGOLE Workshop – tomorrow

- 1:00 - 1:20 Overview of AutoGOLE Workshop, AutoGOLE Update, Themes and Directions (Gerben van Malenstein)
- 1:20 - 1:40 GRP update on previous days related to the AutoGOLE (Joe Mambretti)
- 1:40 - 2:00 NSI Update, Themes and Directions (John MacAuley)
- 2:00 - 2:20 NSI As a Production Service and Dynamic ANA (Gerben van Malenstein)
- 2:20 - 2:40 MEICAN Project Status, Themes, and Directions (Marcos Schwarz)
- 2:40 - 3:00 NSI Implementations, multi-node OpenNSA at SDX (Jim Chen & Michal Hažlinský)
- 3:00 - 3:30 Coffee Break
- 3:30 - 3:50 ESnet6 and SENSE Project Update, interactive (John MacAuley)
- 3:50 - 4:10 International Networking for Data Transfer Nodes (John Hess)
- 4:10 - 4:30 SURFnet Orchestrator Project Update (Gerben van Malenstein)
- 4:30 - 4:50 Discussion slot on resource discovery and related topics (all)
- 4:50 - 5:00 Summary and Next Steps (all)


ANY QUESTIONS?
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« DRIVING INNOVATION TOGETHER »
SURF