SURF

ANA-GRAM:
Federating the ANA links through automation

Arno Bakker, Chris Wilkinson

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Who Am I?

Arno Bakker

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New SURF Technical Product Manager

- NetherLight
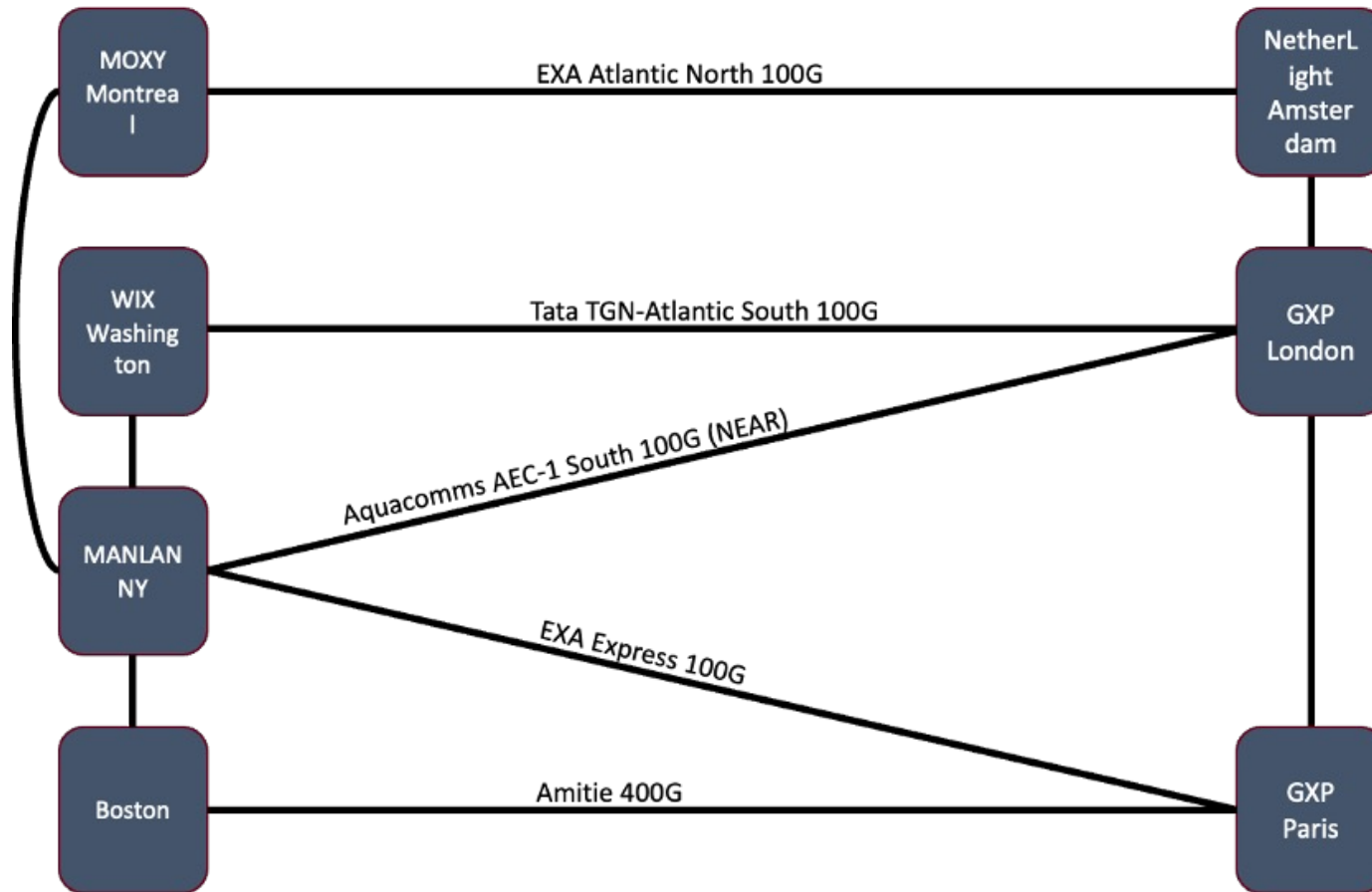
- International Connectivity

Previously Lecturer in Security and Network Engineering at University of Amsterdam
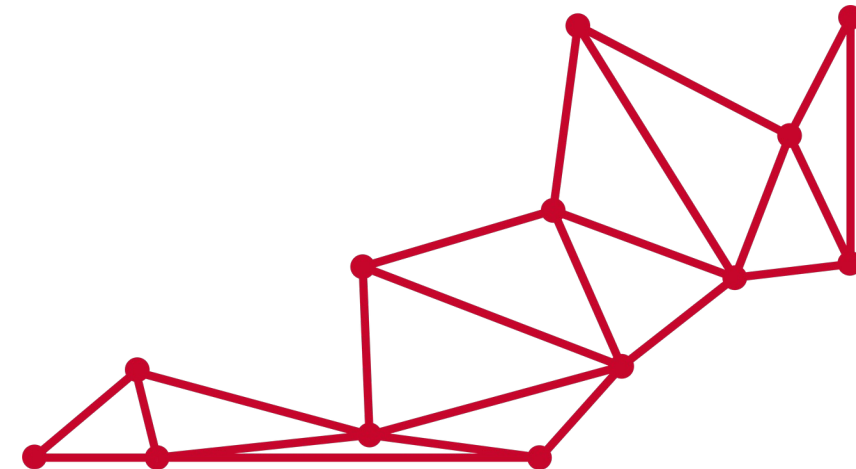
- IETF RFC7574 ;o)

Current ANA links
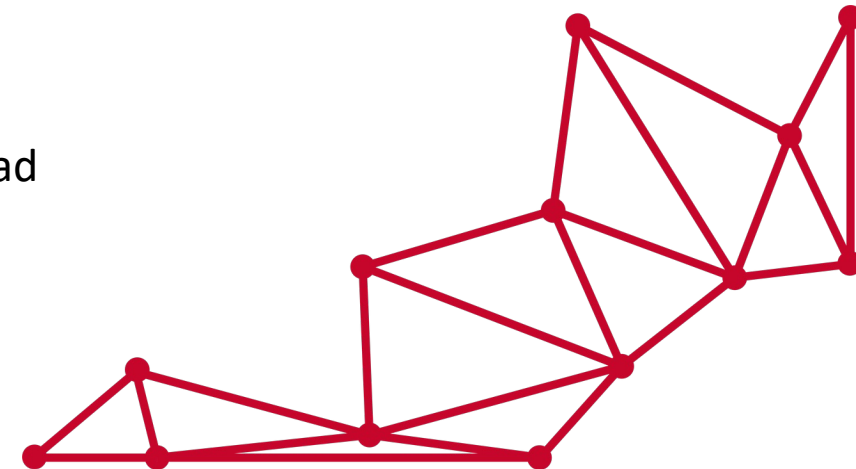

--- From "ANA Prototype v1.3", Mian Usman (GEANT)

Current ANA links: 3 Problems

1. **Documentation and Manual Management of VLANs**: The process for documenting and managing virtual LANs (VLANs) is inefficient, lacks clarity, and heavily relies on manual updates. This approach is prone to errors, lacks scalability, and can be inefficient, especially during urgent network reconfigurations in response to issues or changes. This results in significant operational inefficiencies and risks misalignments in deploying network resources.

2. **Inadequate Tools for Decision-Making**: The consortium struggles with converting VLAN data into actionable insights. This deficiency affects the ability to visualize data effectively and undermines strategic and engineering decision-making processes.

3. **Backup and Redundancy Limitations**: Backup arrangements and the configuration of alternative network paths during outages are not fully integrated into the main operational framework. This disintegration can lead to slower response times during critical failures, impacting the network's overall resilience and reliability.
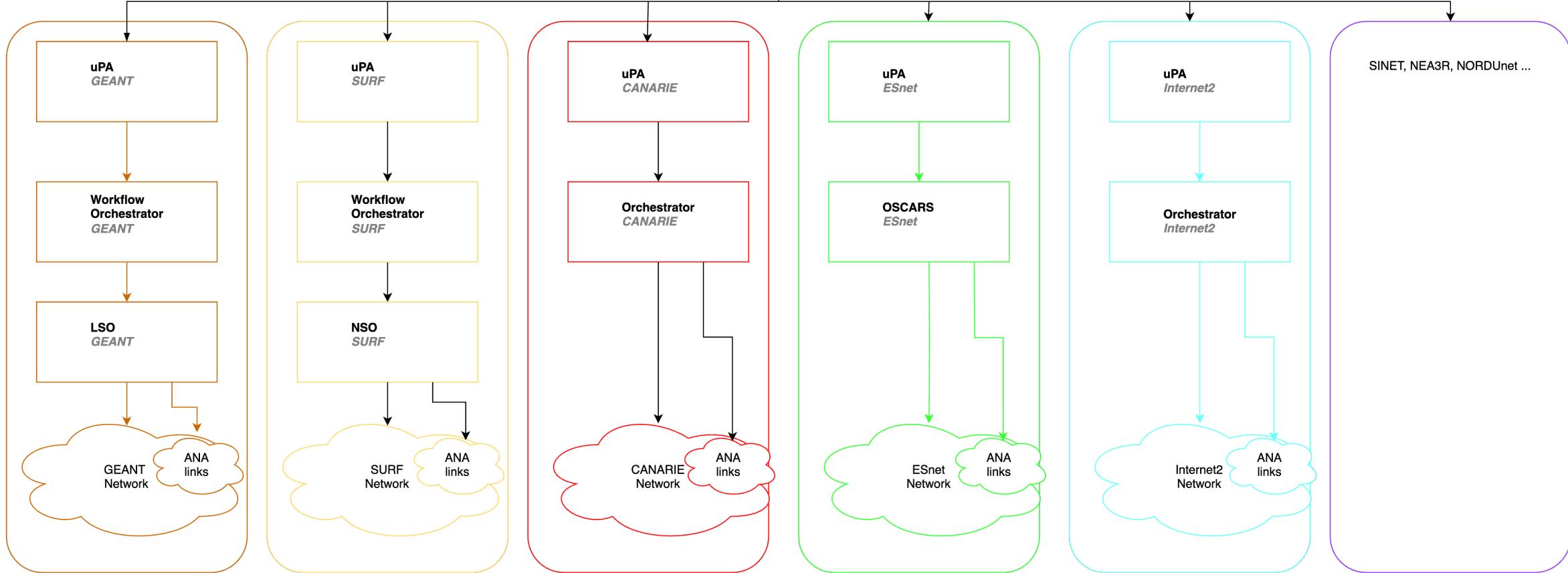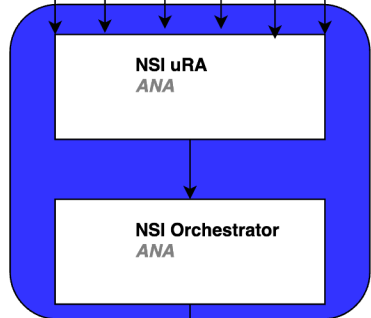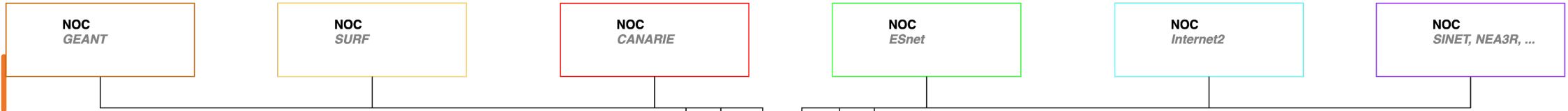
--- From "ANA Prototype v1.3",

Mian Usman (GEANT)

(my highlights)

Orgchart

NOC
SINET

"Provision a VLAN from point A to point Z with bandwidth X"

NSI uRA
ANA

NSI Orchestrator
ANA

uPA
Internet2

Orchestrator
Internet2

MANLAN / WIX / Boston Router
Internet2

uPA
SURF

Workflow Orchestrator
SURF

NSO
SURF

NetherLight
SURF

uPA
SINET

Orchestrator
SINET

Amsterdam Router
SINET

Customer1 CE device

point A

ANA link

point Z

Customer2 CE device

vlan 65   vlan 65

vlan 88   vlan 88
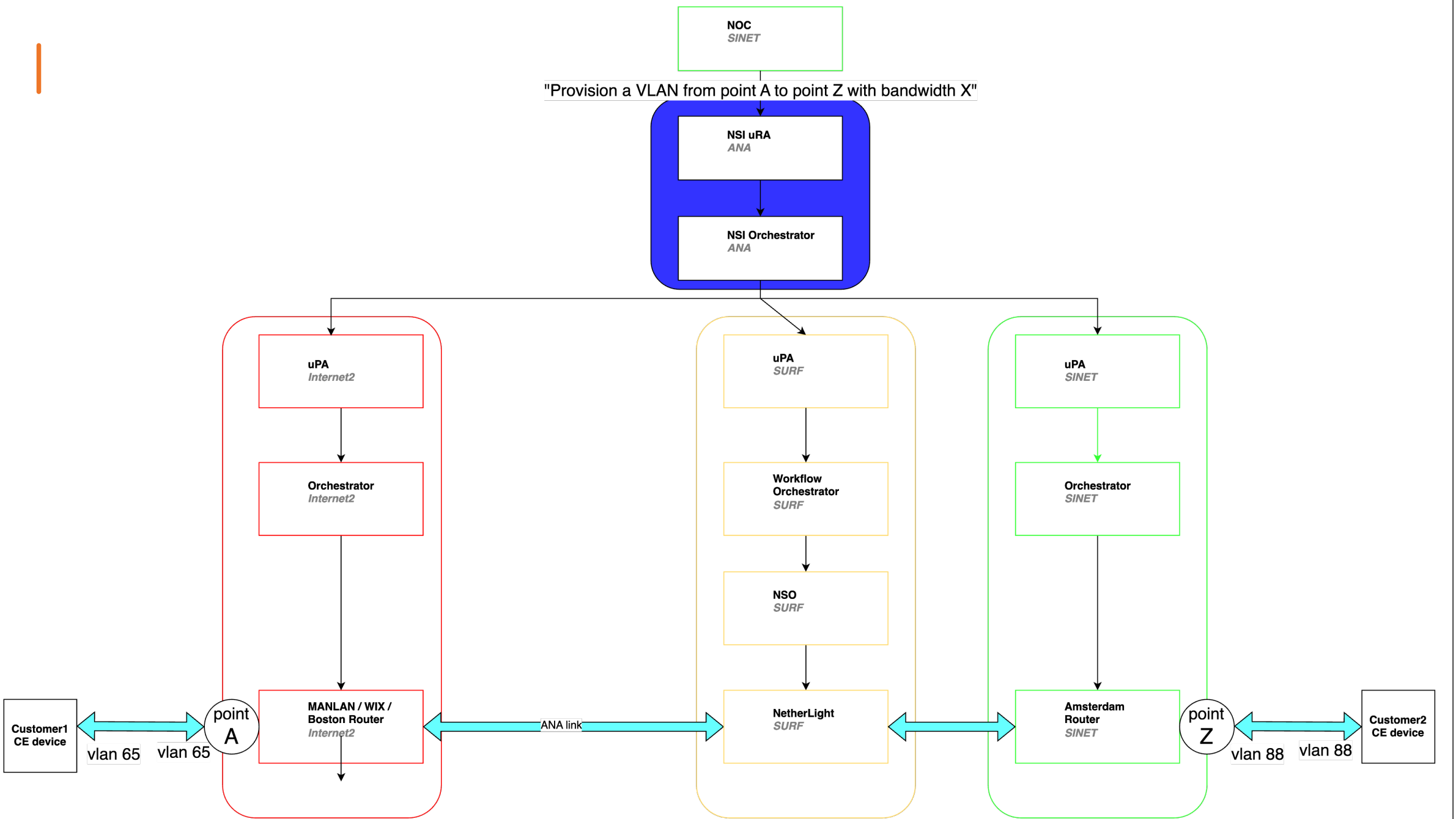
How does NSI solve the 3 problems?

- **P1: NSI automates the process of VLAN creation, and documents it**

- **P2: NSI gives an overview of all currently provisioned VLANs**

- - The usage statistics of these VLANs are not yet accessible and collected globally, but current NSI implementations can be extended

- **P3: NSI can handle failures and redundancy in a number of ways:**

1. Extended to react to notifications of broken paths from the underlying layers, and repair them.

2. Extend the NSI product design where a backup path is also provisioned at the time the primary path is determined.

3. Parties can also provision two separate paths in advance and handle fail-over at a different layer.
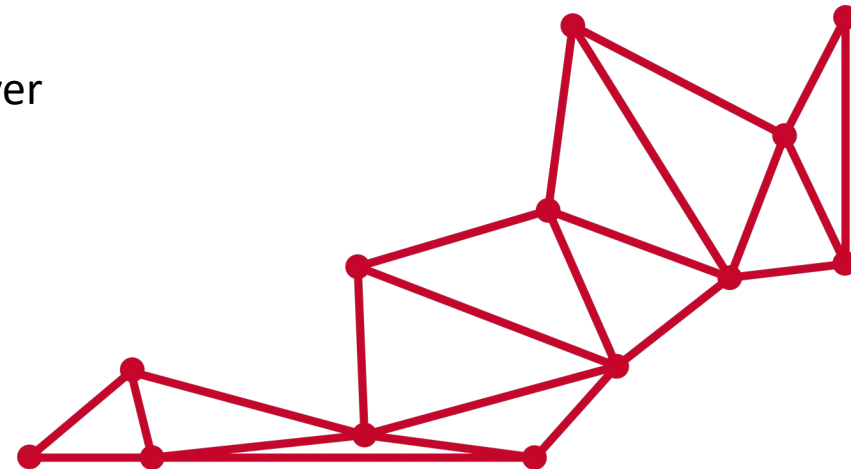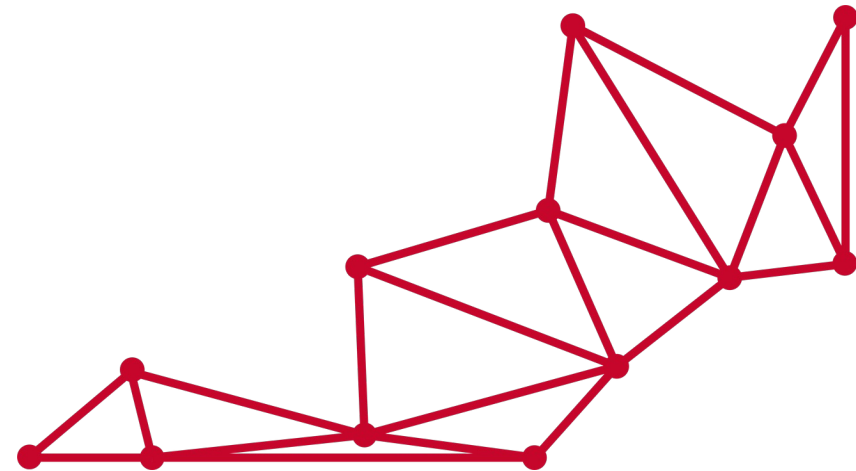
DEMO!

In summary

- **Want to go from Proof of Concept to Production**

- - Starting with a Pre-Production Environment that can grow

- **Please join by running a NSI ultimate Provider Agent for your domain**

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Questions?

Technical

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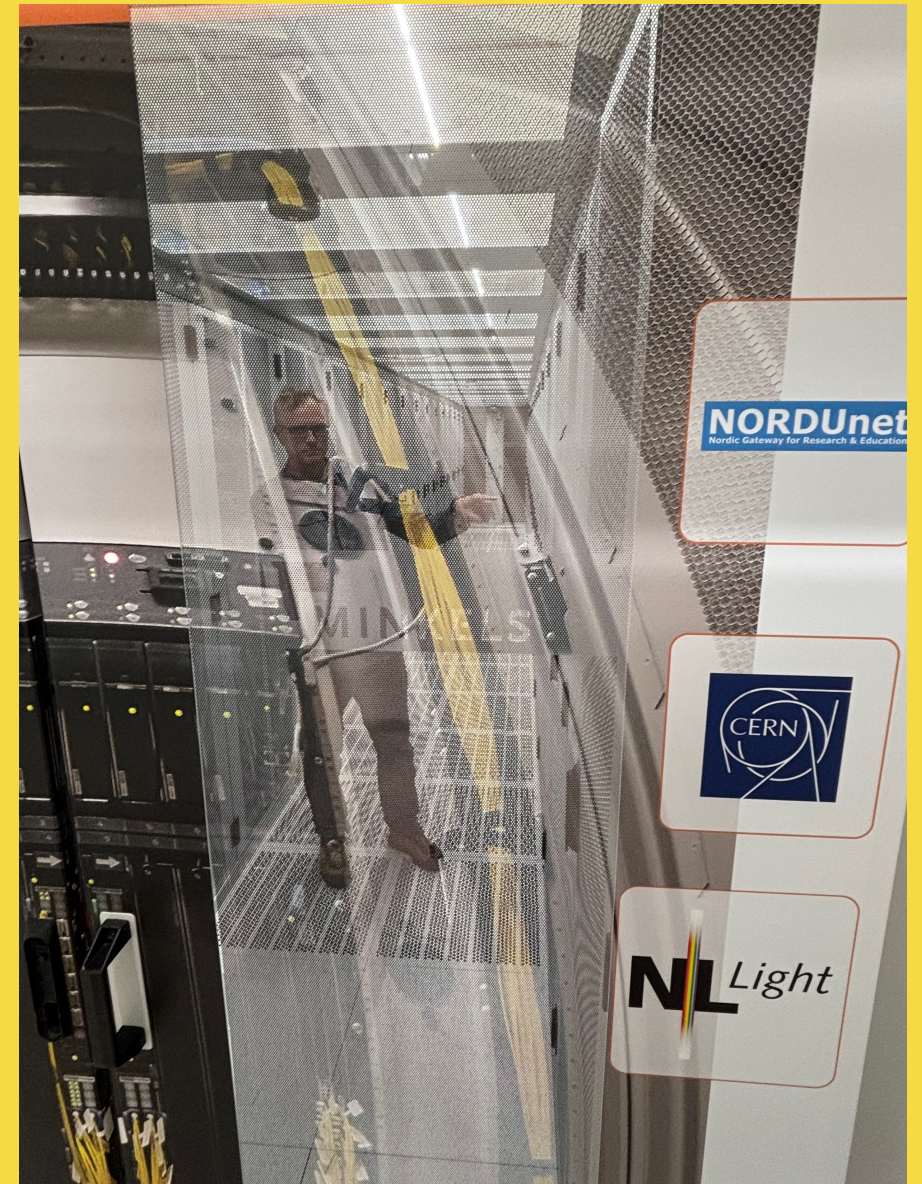**Cooperation / Connecting / Spectrum sharing**

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LinkedIn

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Customer1 CE device

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vlan 65   vlan 65

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SURF

Orgchart

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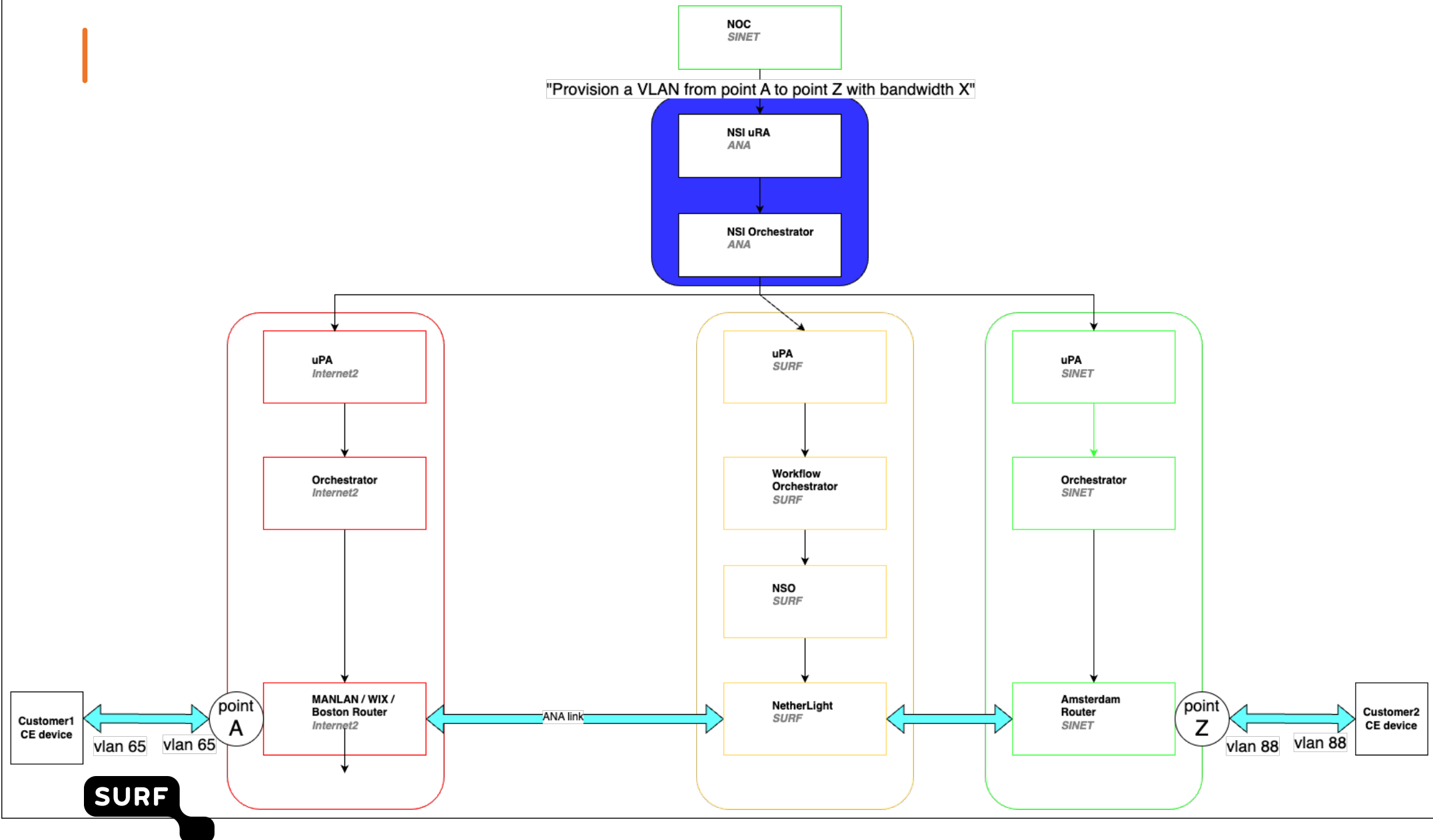
"Provision a VLAN from point A to point B with bandwidth X"

NSI uRA
ANA

NSI Orchestrator
ANA

uPA
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SURF

uPA
SINET

Orchestrator
SINET

**Amsterdam
Router**
SINET

A

B

ANA link