

# NSI Aggregator: Joint SURFnet/ESnet effort

NSI PCE Development Team

LHCONE Workshop

CERN (Geneva, CH)

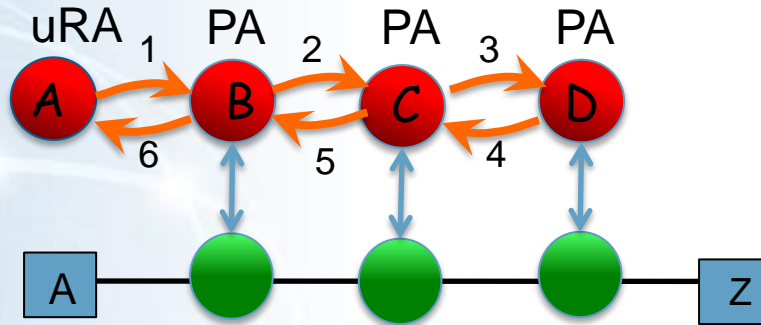
Feb 10-11, 2014



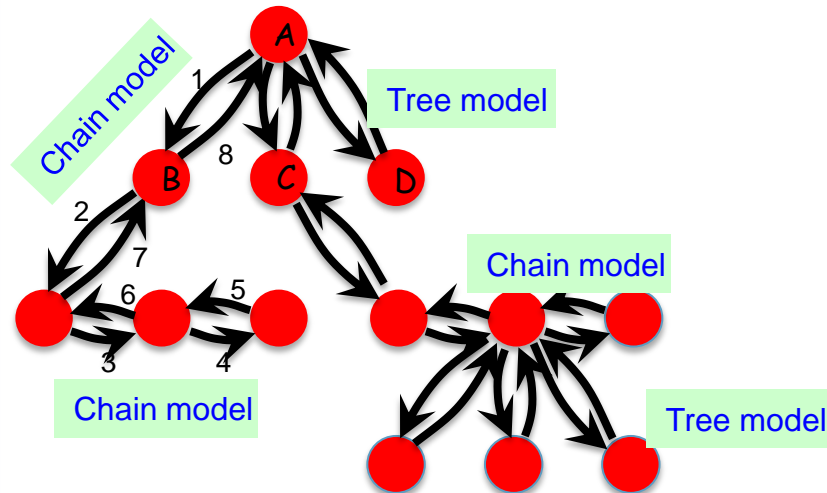
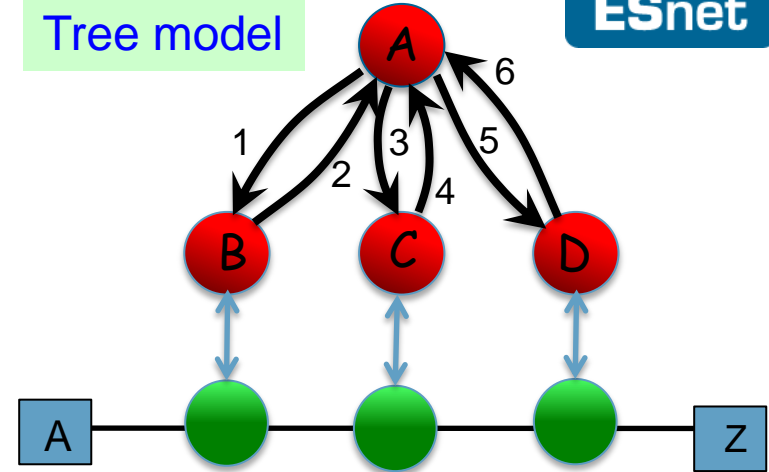
# NSI Connection Segmentation



Chain model



Tree model

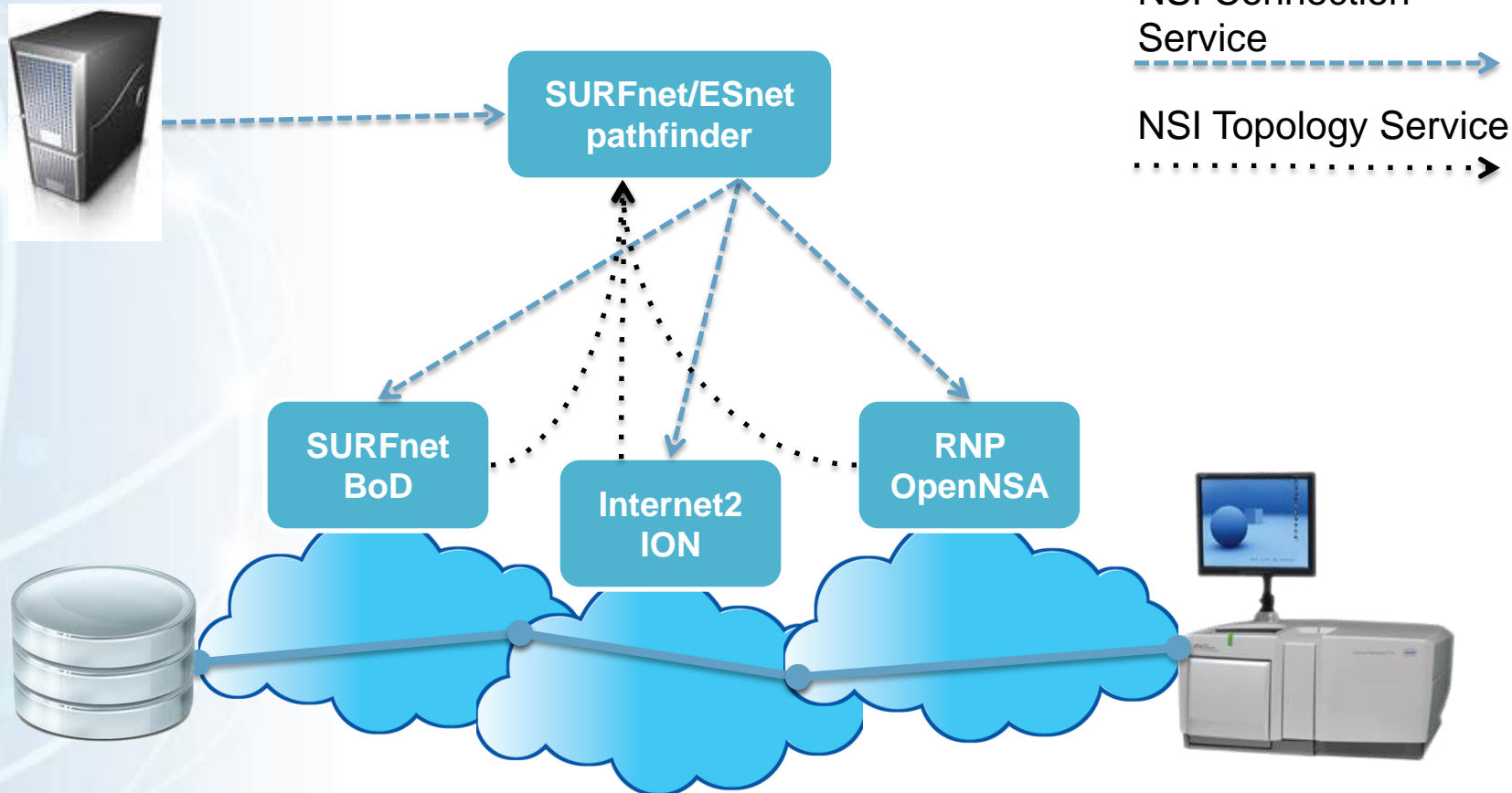




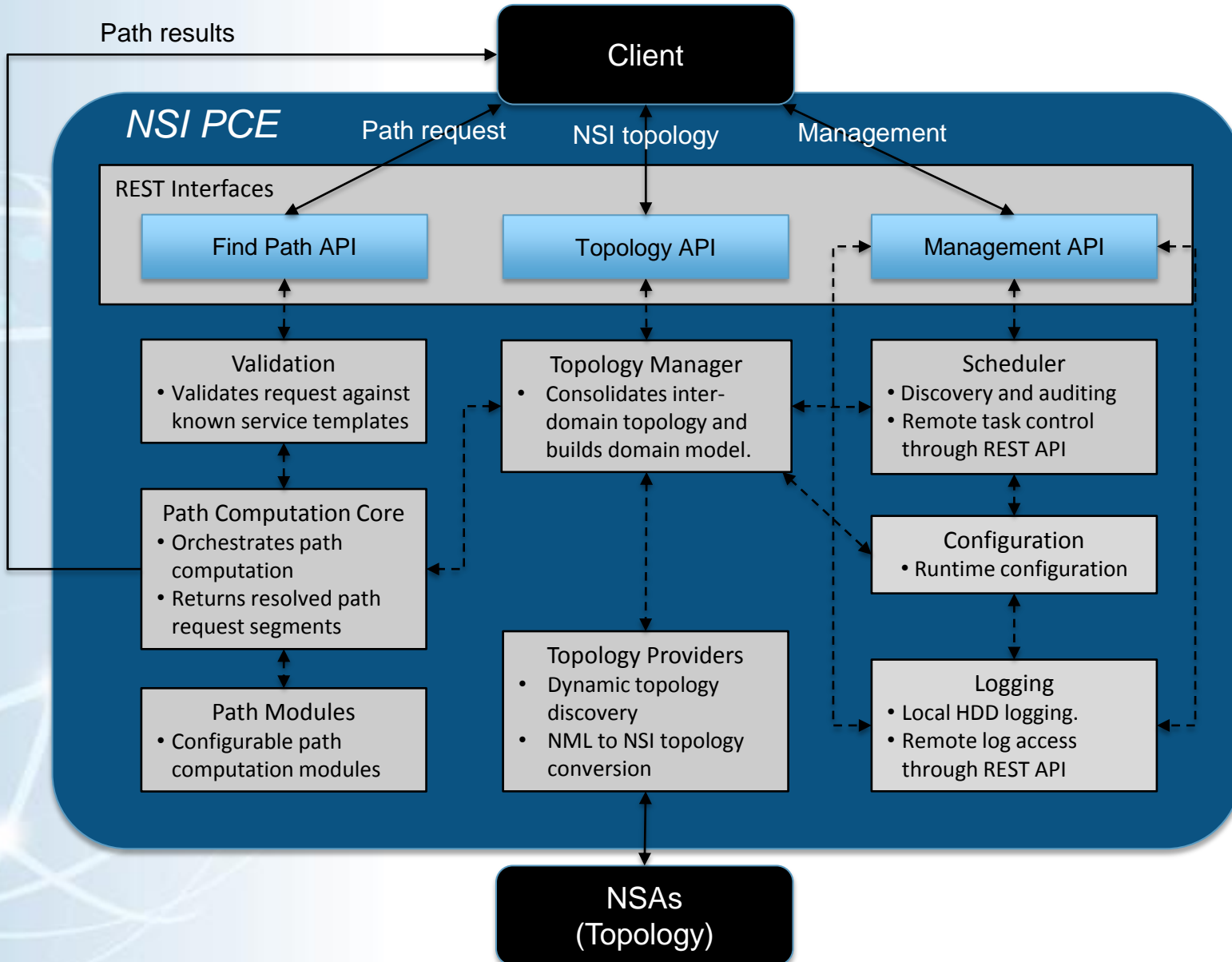
# NSI Aggregator Implementation

- SURFnet BoD and OSCARS are uPA only
- Will depend solely on this Aggregator for inter-domain services
- NSI Aggregator
  - can be deployed in different environments and functionality can be tuned to these environments by build time selection of modules
  - At this time, the different environments include ESnet, NORDUnet+SURFnet+GEANT, the A-GOLE
  - Has a simple administrator web GUI for monitoring and debugging
  - Does *\*not\** have a user web GUI, use the GUI of your network's uRA

# SURFnet/ESnet Inter-domain pathfinder (NSI Aggregator)



# NSI Path Computation Element v1.0

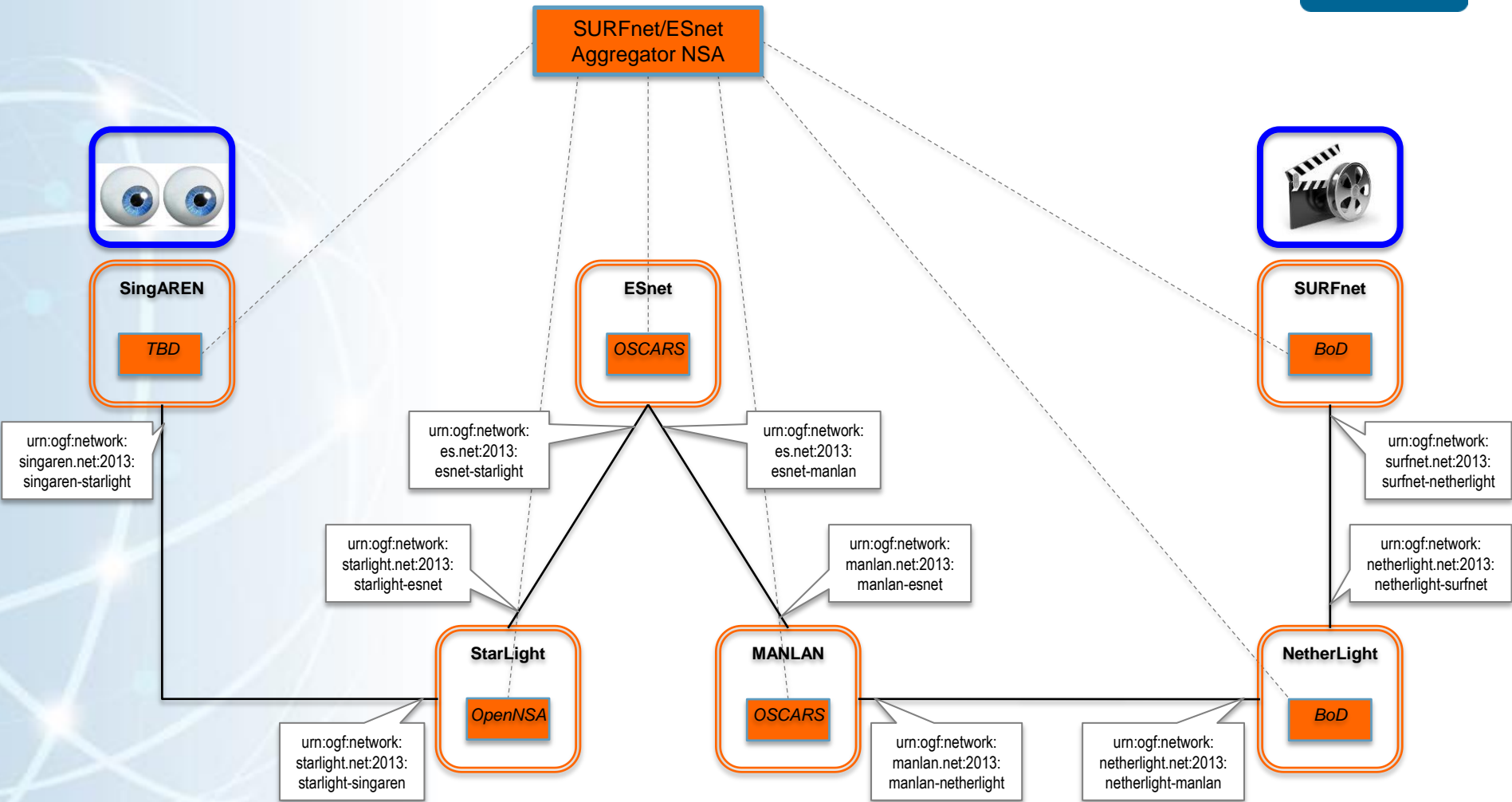




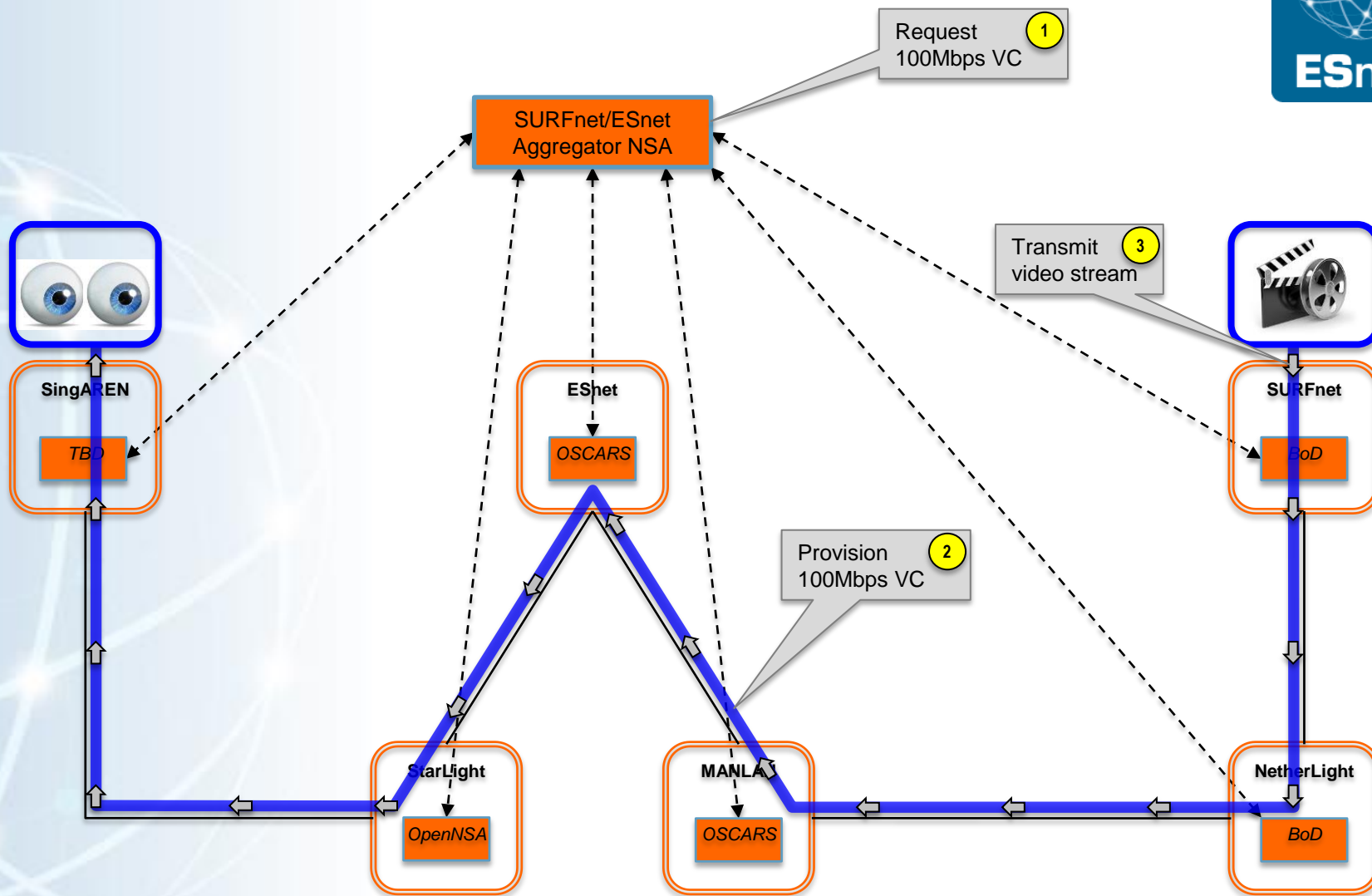
# What is it?

- Standalone path computation engine built for use by the SURFnet/ESnet aggregator NSA.
- 100% Java server implemented using the lightweight Grizzly HTTP container, Jersey 2.2 for JAX-RS, Spring for IoC, and Jung for graphing.
- Provides a REST-based path finding, NSI topology, and management interfaces supporting both JSON and XML encodings.
- Supports both local file and GitHub-based HTTP discovery mechanisms for NML topology.
- Utilizes configurable path finding modules allowing for different algorithms and custom data handling to be incorporated.

# GLIF Singapore Video Streaming Demo (Resource Layout)

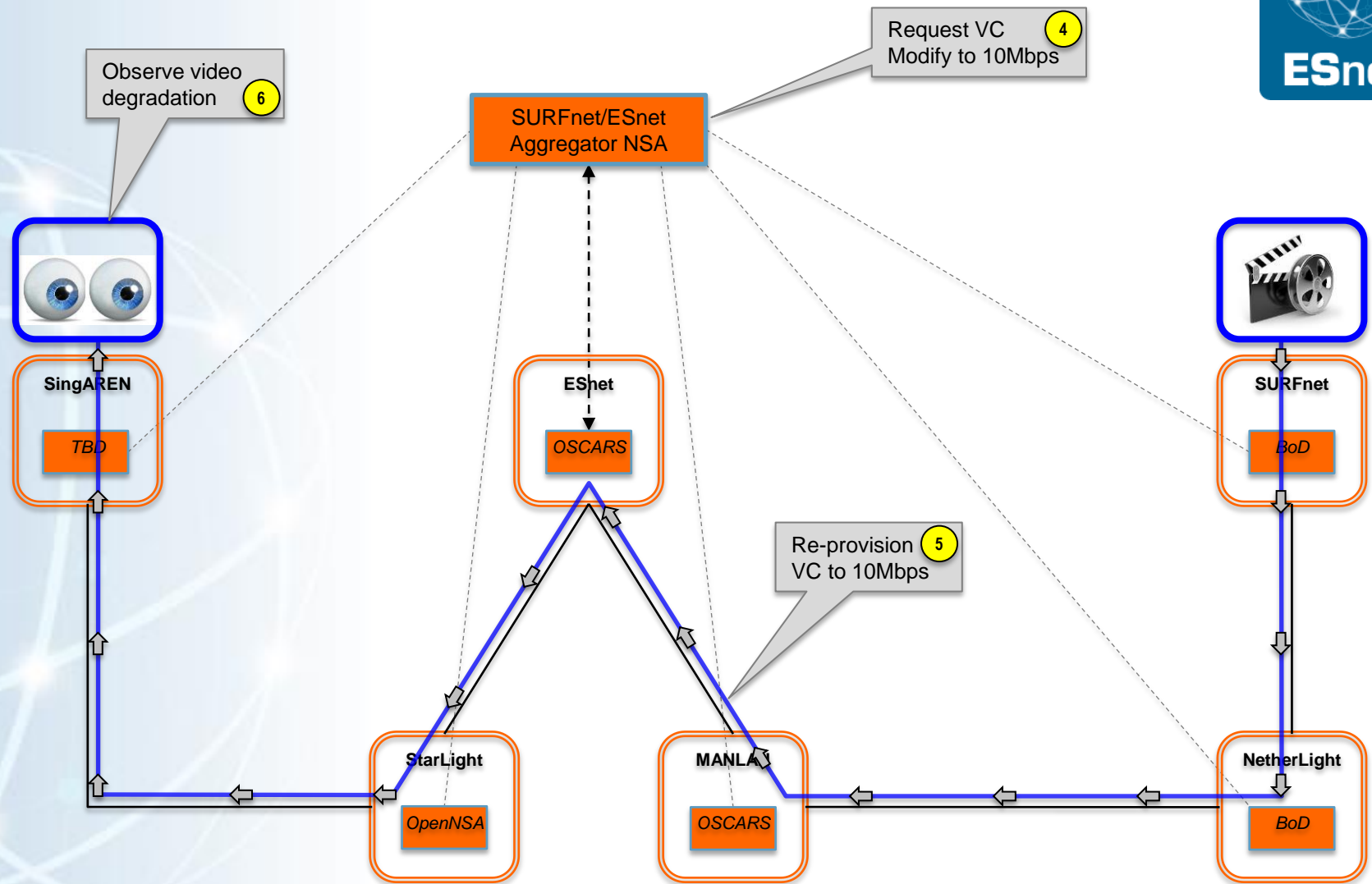


# GLIF Singapore Video Streaming Demo (Demo Sequence)

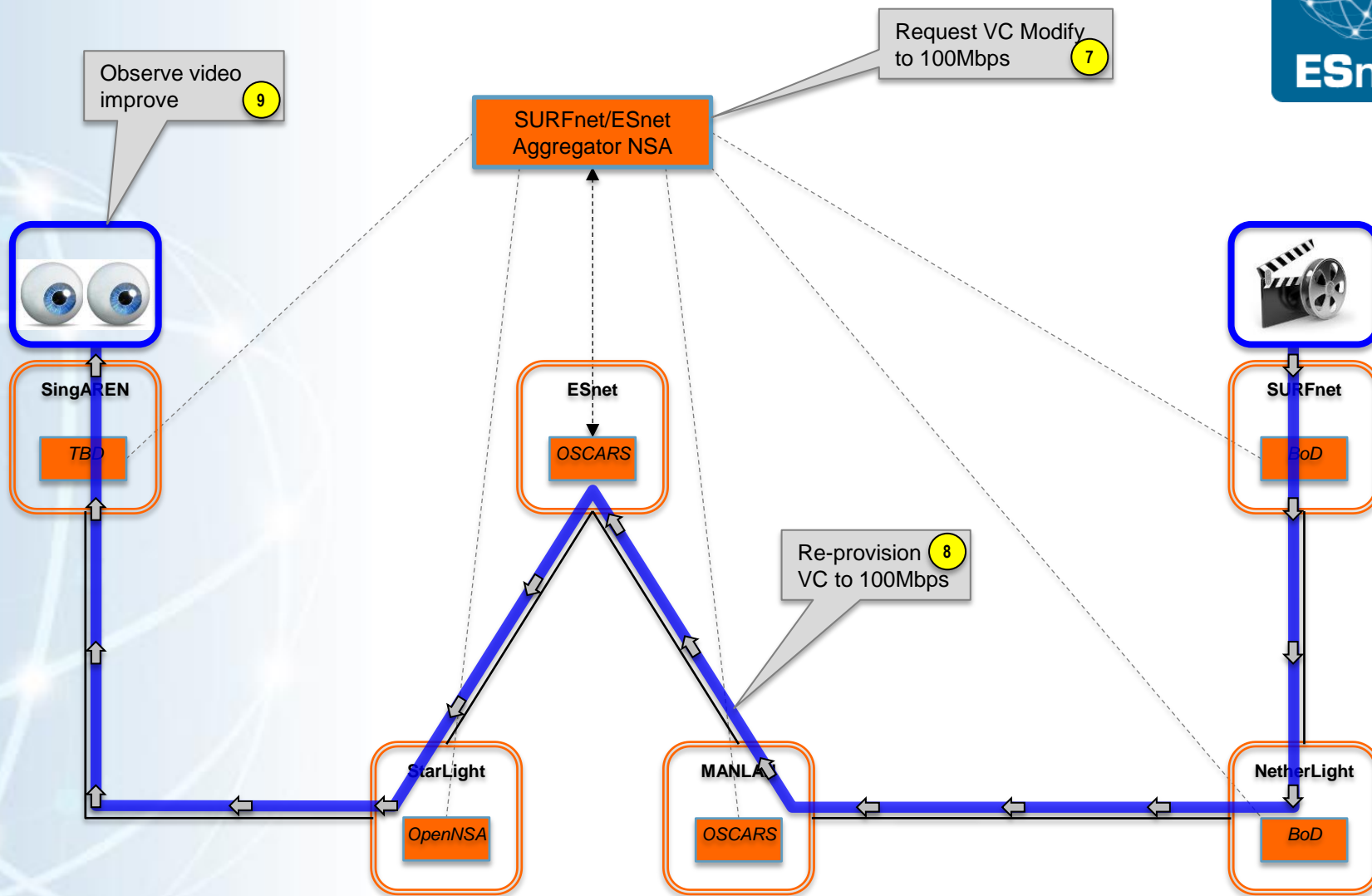




# GLIF Singapore Video Streaming Demo (Demo Sequence)



# GLIF Singapore Video Streaming Demo (Demo Sequence)





# What is next?

- Support final NSI v2.0 service schema.
- Add support for path constraints and exclusions based on error feedback.
- Support path results based on control plane signally topology.
- Enhanced path computation workflows allowing for parallel evaluation.
- More complete Service Definition support.
- Unidirectional services.