NML Progress

OGF 29, Chicago

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Agenda

16:45 • Agenda & note taker & Overview

16:55 • ITU and TMForum – Freek Dijkstra

17:15 • Layer concepts revision – Freek Dijkstra

17:30 • Path / Segment discussion – Martin Swany

Tue. • Cross connect discussion – Jerry Sobiesky and Freek Dijkstra

- Channels discussion
- Use cases
- Virtualization discussion

OGF27: Topical Volunteers

- Device / Node / Port concepts
- Network / Topology / Domain concept Inder, Jeroen
- Adaptation / Layer concept Freek, Jeroen
- Capabilities / Service concept Martin
- Link / Path / Segment concepts Martin, Chin
- Syntax representation, Identifiers Freek
- Cross-connects and channels

OGF28: Topical Volunteers

- Device / Node / Port concepts
- Network / Topology / Domain concept
- Capabilities / Service concept
- Adaptation / Layer refinement Freek, Jeroen
- Link / Path / Segment concepts Martin, Chin
- Syntax representation, Identifiers Freek
- Cross-connects and channels Jerry, Freek

OGF27: Service Example Volunteers

- Adaptation Service Jeroen
- Switching Matrix Service Jeroen
- Segment Concatenation Service John
- Multicast Service Petr
- Label Conversion Service Freek
- Data Transport Service Freek
- Measurement Point Service
- Virtualization Service
- Lookup Service Gigi
- Path Finding Service

Long Term Progres

- Decide on terminology
- Merge in schema
- Decide on relations between terms
- Refine based on requirements / use cases
- Create syntax

Layer Terminology Revision

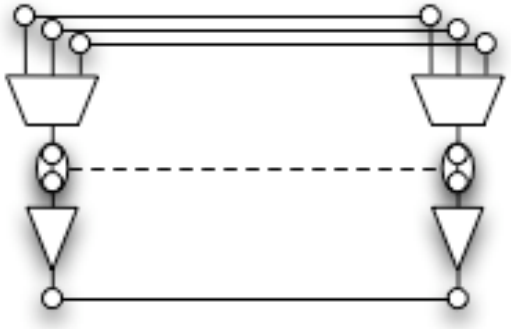
Jeroen van der Ham and Freek Dijkstra

Layer Definition

- ~~**Layer**: A collection of Ports with common Characteristic Information.~~
- **Layer**: A type of encoding, so that a source Port and sink Port of a common layer can be associated together.

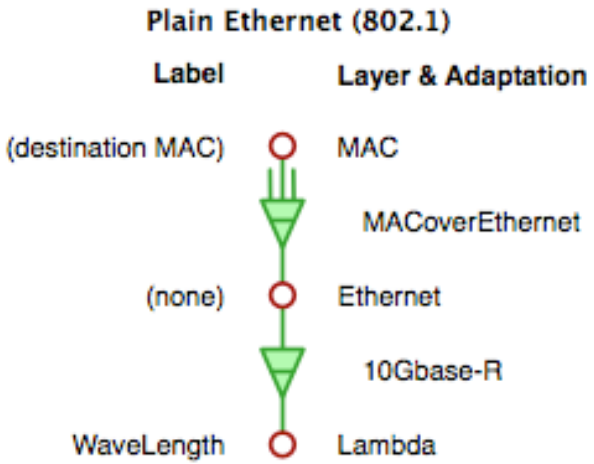
Layer Property Proposal (1)

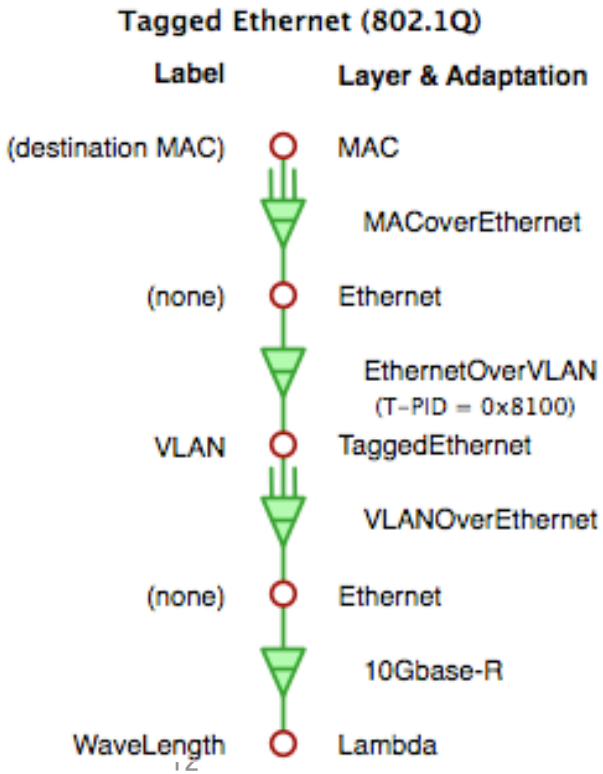
- A label is part of the layer
  - Con: In G.800, it is part of the adaptation. Only the termination (“layer information”) is part of the layer. The combined “layer information” (e.g. checksums) and “adaptation information” (e.g. labels) is the “characteristic information”.
  - Pro: No need to distinguish between adaptation and termination; no need to define trails.
  - A channel is just another (sub)layer



Layer Property Proposal (2)

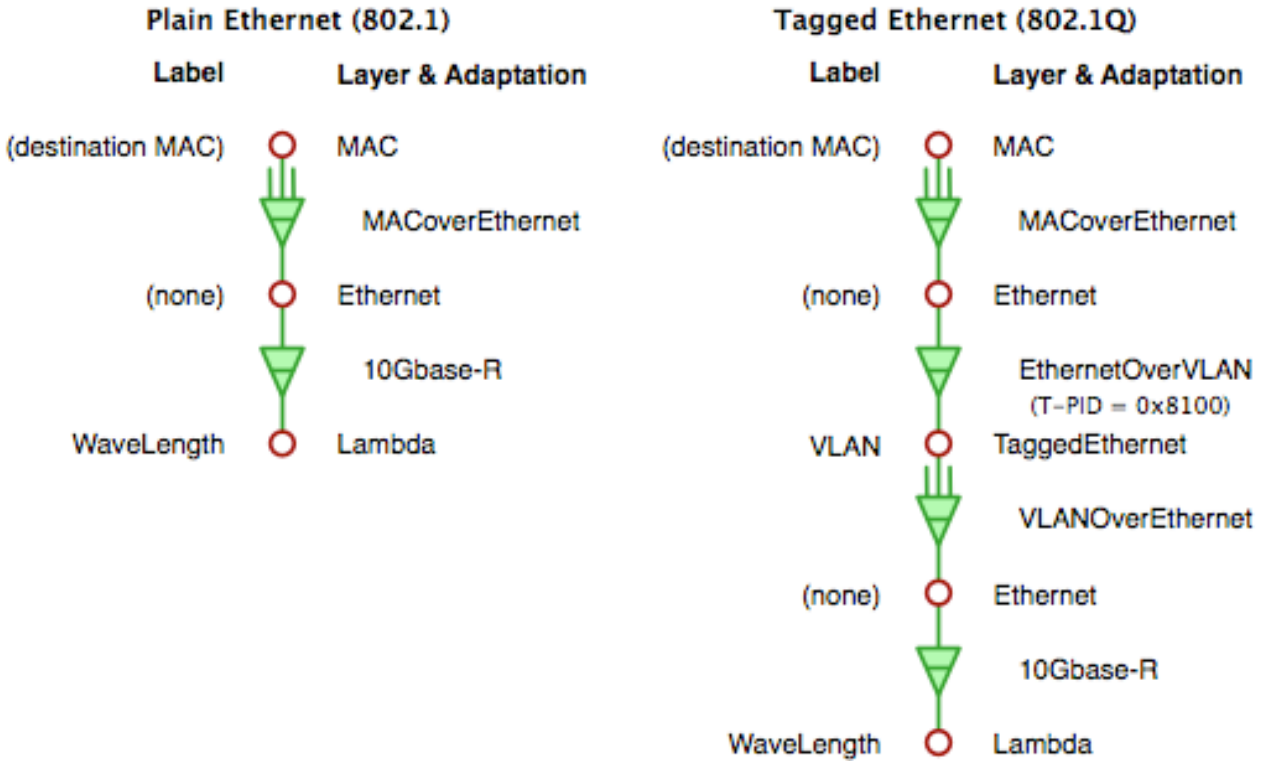
- A layer may contain at most 1 (one) label
  - Pro: this greatly simplifies layers and channel concept
  - Con: Ethernet, VLANs and I-SID are all distinct layers



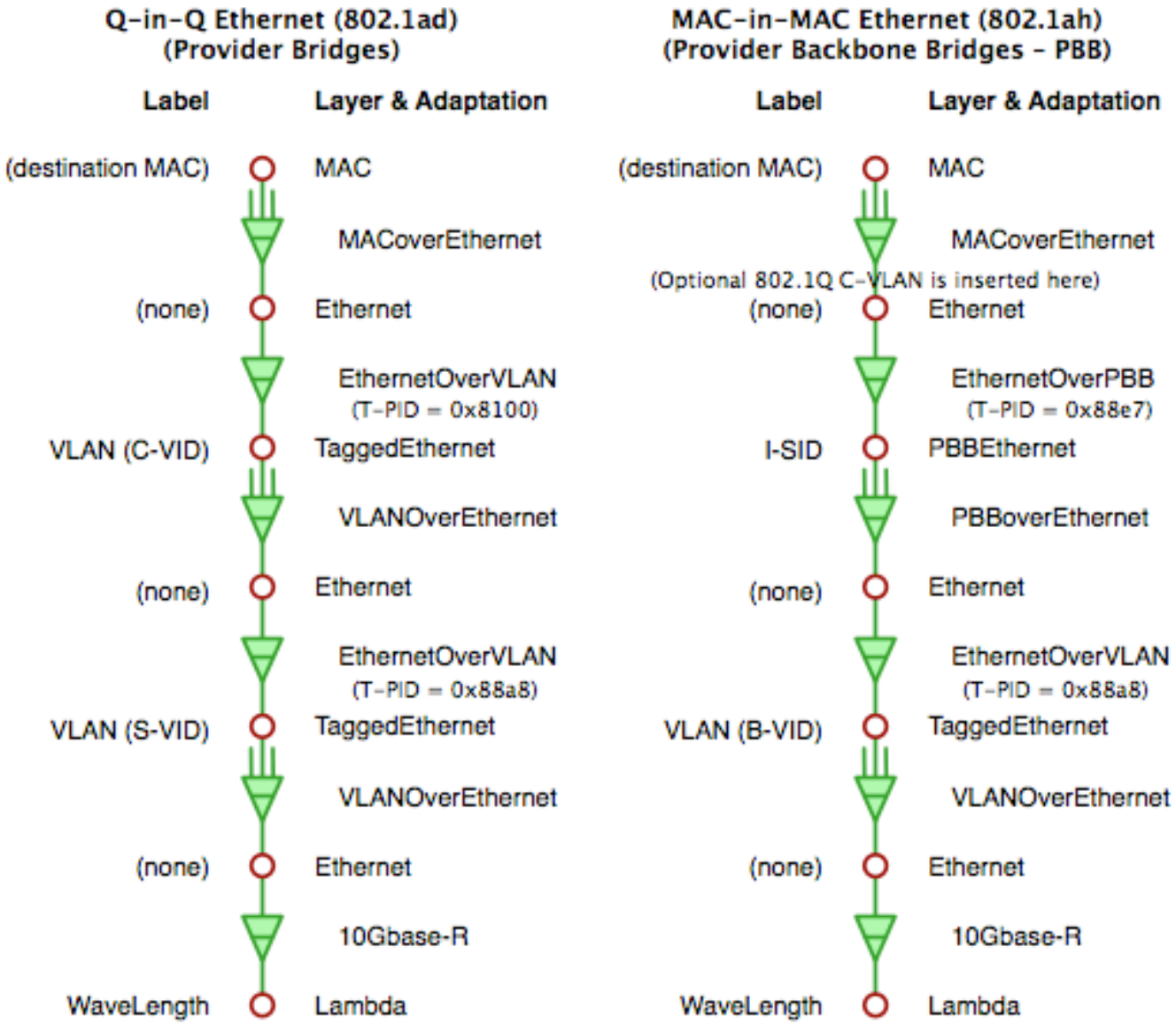


Ethernet Sublayer Example (1)

- Early NDL defined internal and external labels, optional labels, and source/destination labels.
- Alternative: define multiple layers, each with its own label.



Ethernet Sublayer Example (2)



Link / Path / Segment Concepts

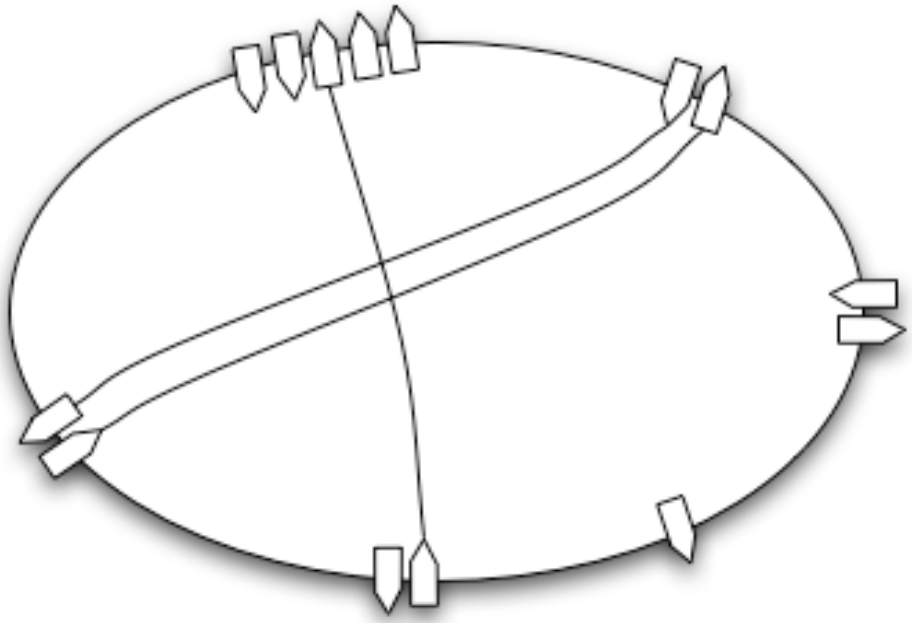
Martin Swany and Chin Guok

Cross Connect Discussion

Jerry Sobiesky and Freek Dijkstra

Basic Properties

- Input Ports
- Output Ports
- Transport Function



Functions

- **Transport Function**: Move data, but do not change it.
- **Transform Function**: Change data (adaptation, label conversion), but do not move it.
- **Transfer Function**: You tell me!?
  (this was used in NML/NSI discussion yesterday)

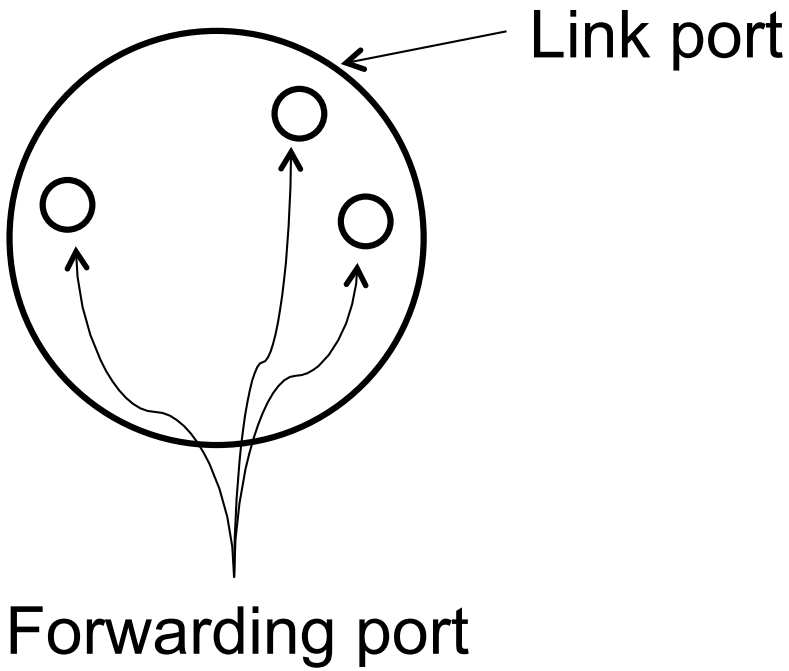
Questions

- Are input and output ports distinct?
  - Do they have a different name, even for bidirectional physical ports?
- Where does (de)multiplexing take place?
  - Is it part of the Switch Matrix, or separate?
- What Functions does a Switch Matrix have?
  - Transport Function
  - Label Conversion
  - Adaptation

Channels

Channels

- G.800:



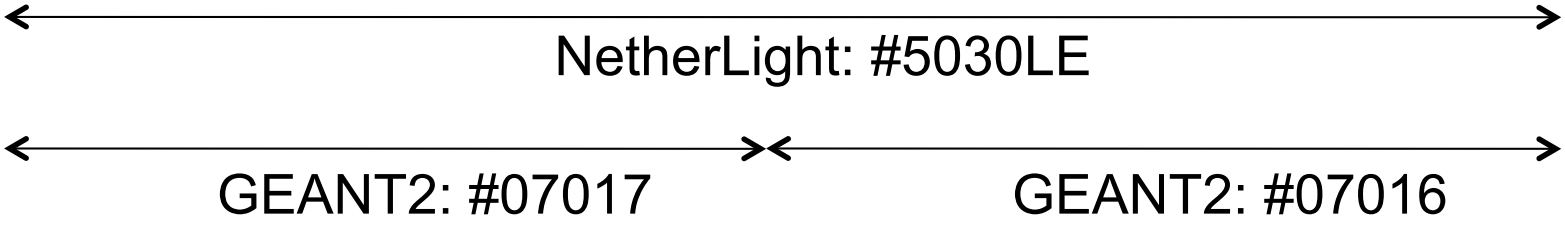
- How does this map to NML “Port”?
- How does this relate to NSI “STP”?

Multi-Layer Path Use Cases

Freek Dijkstra

Use Case 1: Horizontal Partitioning

- Phosporous circuit (now dismantled)
- Geant2 used two names for two sections
- NetherLight used one name for whole path



London

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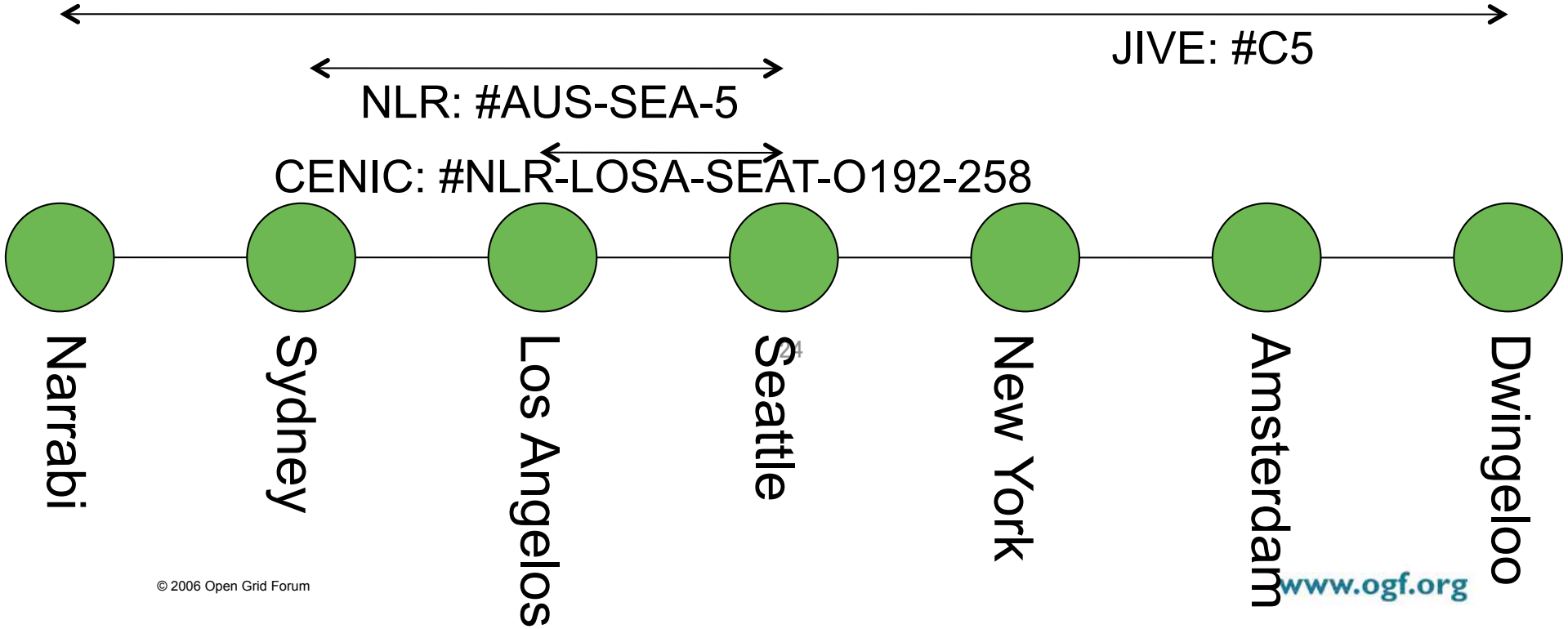
Use Case 2: Vertical Partitioning

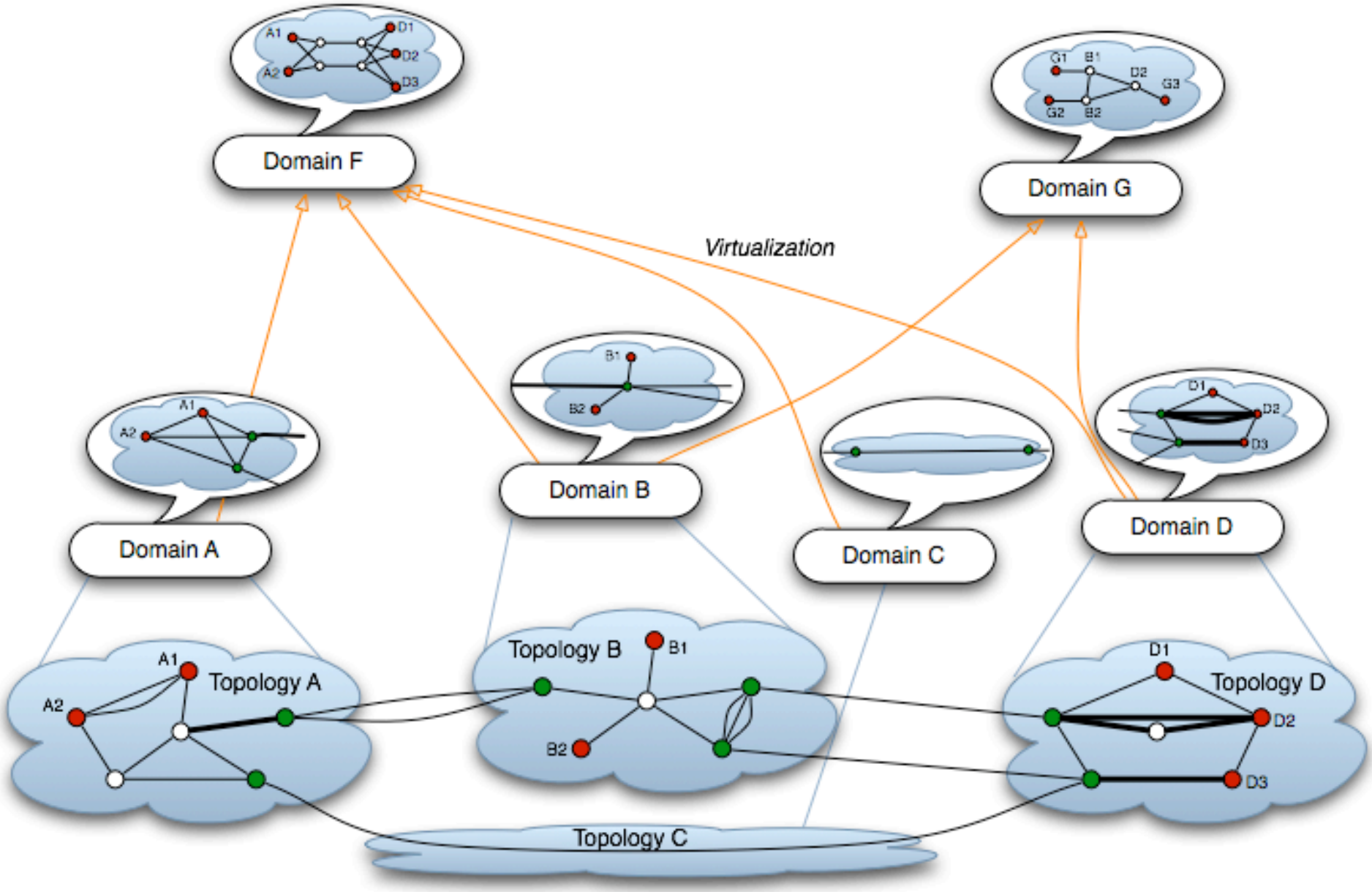
- JIVE circuit C5
- Runs over AARnet, CENIC, CANARIE, SURFnet, and others.
- “CENIC service is provided by NLR”



Virtualisation Discussion

NSI discussion, really

Virtualization



Identifiers

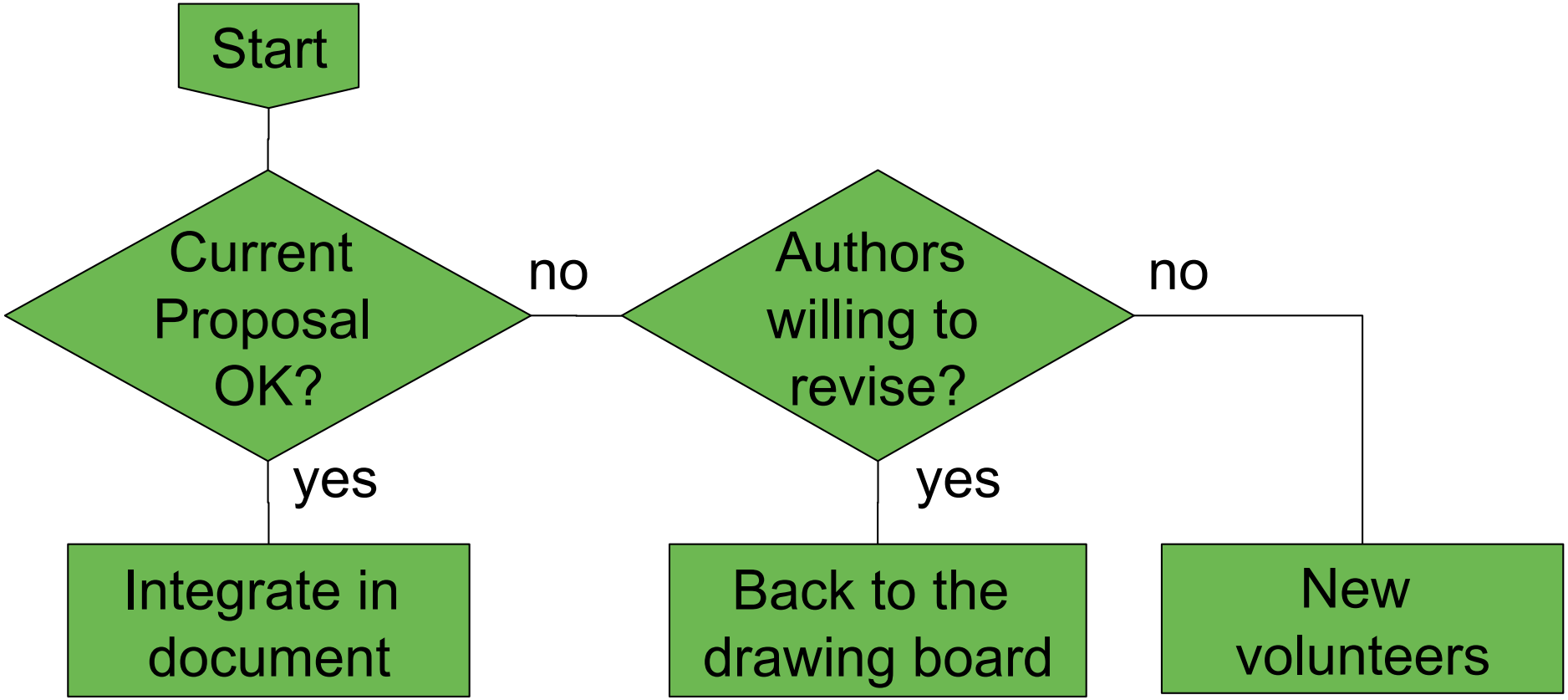
Freek Dijkstra

Identifiers

- –

Addenda to Proposals

Yeah or Nay



Some Questions

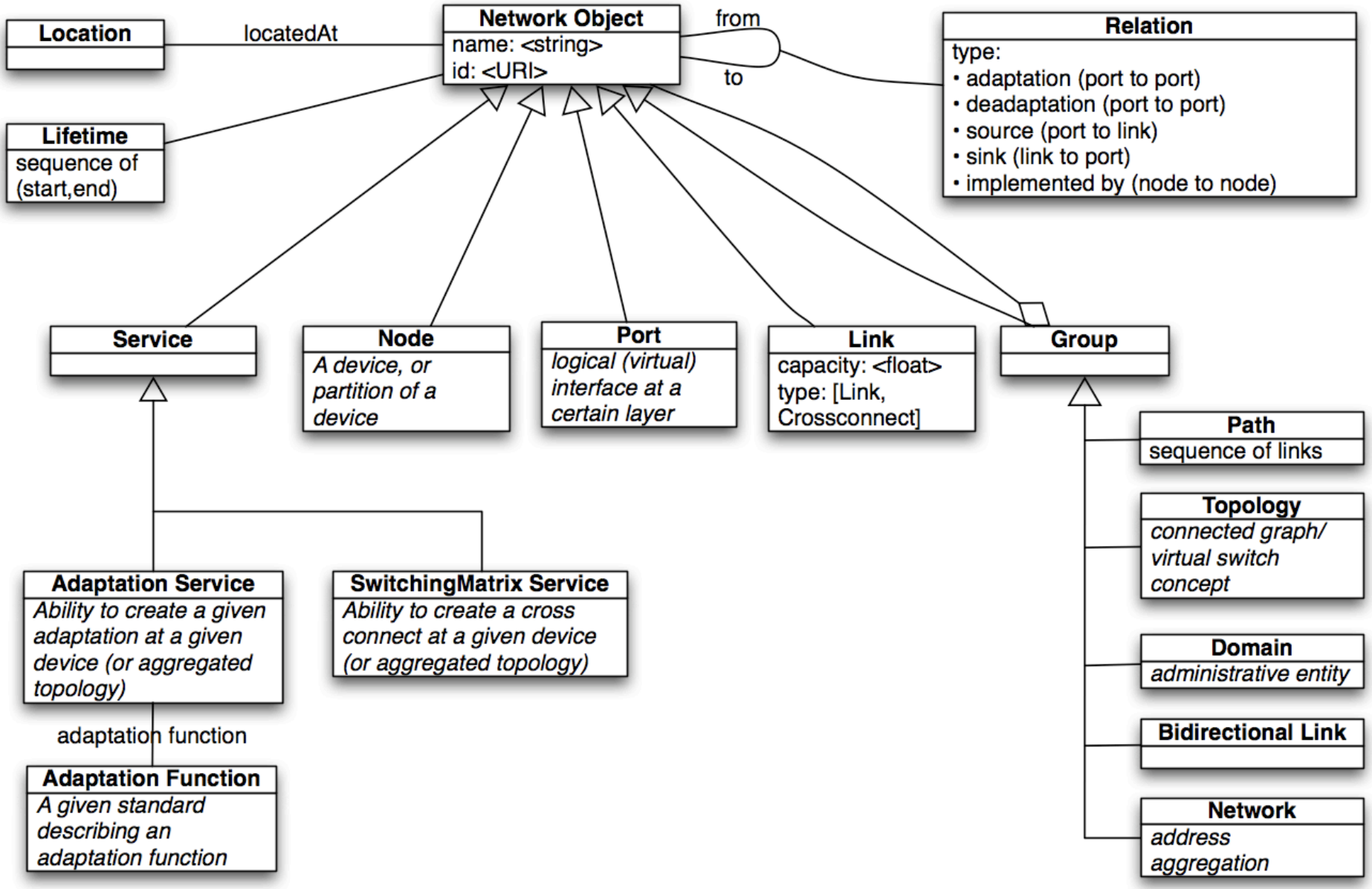
Network

- Relation topology:domain 1:1, many:1 or 1:many?
- Why is domain only for a network, considering the "any IT" mention in infrastructure service BoF?
- Is there input from the recent topology discussion in the NSI?

Adaptation

- no multiplexing/inverse multiplexing
- Layer definition contains “collection of port”

Current Schema



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