Framework for Abstraction and Control of Transport Networks

draft-ceccarelli-teas-actn-framework-01

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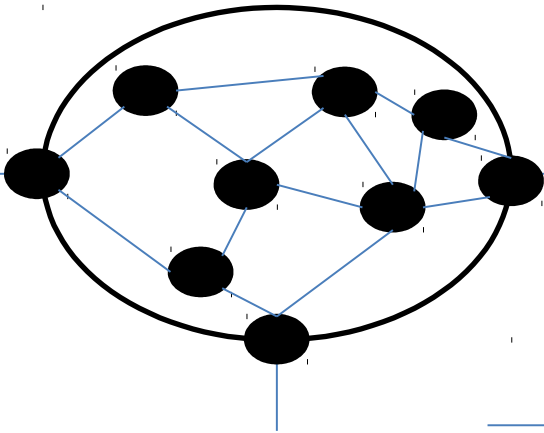Luyuan Fang (Microsoft)
Dhruv Dhody (Huawei)
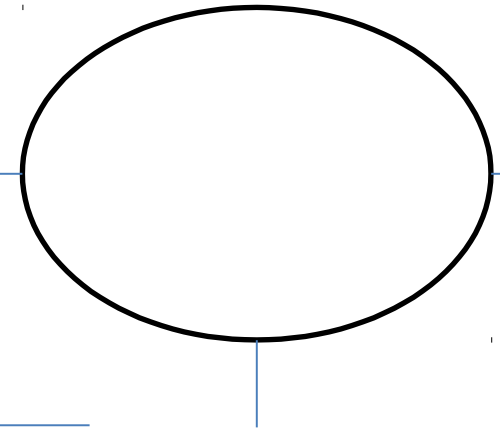Diego Lopez (Telefonica)

Draft-status

- New terminology section
- New section describing the VN creation phases
- New section introducing the concepts of
  - Access Point
  - Virtual Network Access Point
- New section describing virtual end point mobility

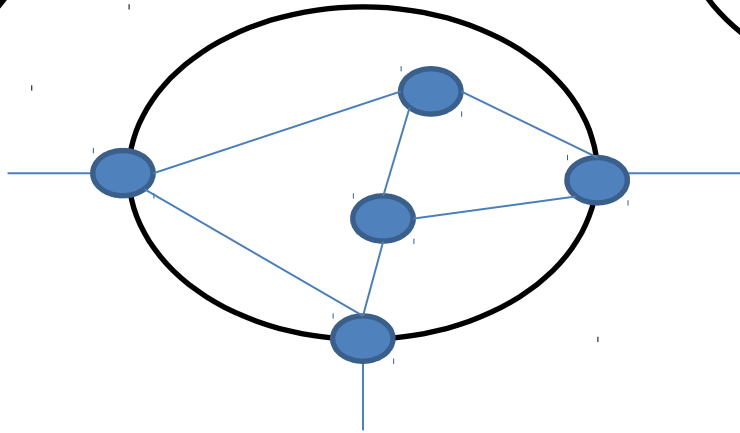# VN creation process: abstraction level

No abstraction: Black

Total abstraction: white

Shades of grey

Topology Abstraction Level

VN creation process: phases

- **Negotiation (optional)**: In the case of "shades of grey" topology abstraction, there is an a priori phase in which the customer agrees with the provider on the type of topology to be shown, e.q. 10 virtual links and 5 virtual nodes with a given interconnectivity. This is something that is assumed to be **preconfigured by the operator off-line**, what is online is the capability of modifying/deleting something (e.g. a virtual link). In the case of "white" abstraction this negotiation phase does not happen. Only access points are shown.

- **Implementation**: In the case of **white topology** abstraction, the customers can ask for connectivity with given constraints/SLA between his own access points and LSPs/tunnels are created by the provider to satisfy the request. What the customer sees is only that his CE are connected with a given SLA. In the case of "**shades of grey**" the customer creates his own LSPs as he wants accordingly with the topology that was presented to him.

Access Point - Before VN creation

Domain 1

Domain 3

CE1

1.A

1.B

3.A

3.B

CE3

AP1

2.A

AP2

CE2
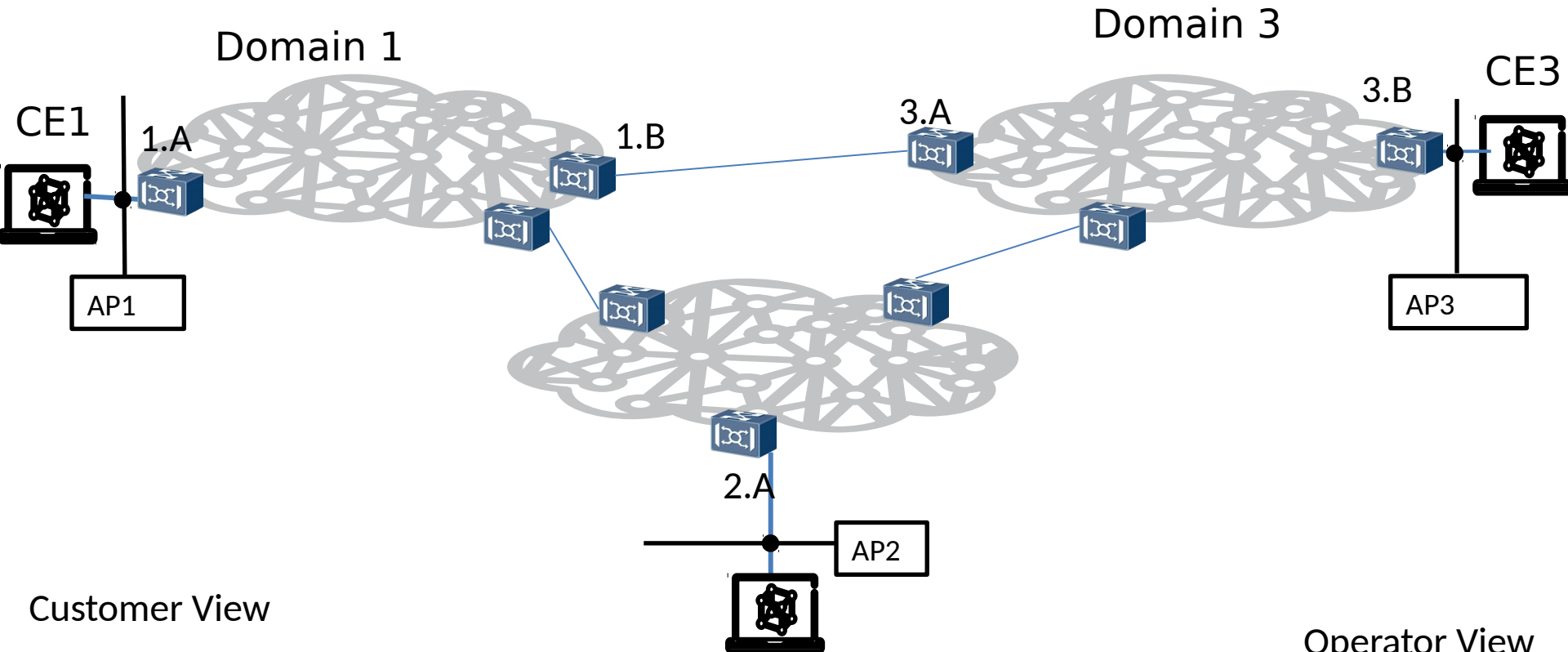
Customer View

AP Id	MaxResBwd	Total Bwd	CE, port
AP1	20Gb	20Gb	CE1, portX
AP2	10Gb	10Gb	CE2, portY
AP3	100Gb	100Gb	CE3, portX

Operator View

AP Id	MaxResBwd	Total Bwd	PE, port
AP1	20Gb	20Gb	1.A, portX
AP2	10Gb	10Gb	2.A, portY
AP3	100Gb	100Gb	3.B, portX

After creation of VN red and blue

VN red:ID=9

VN blue:ID=5
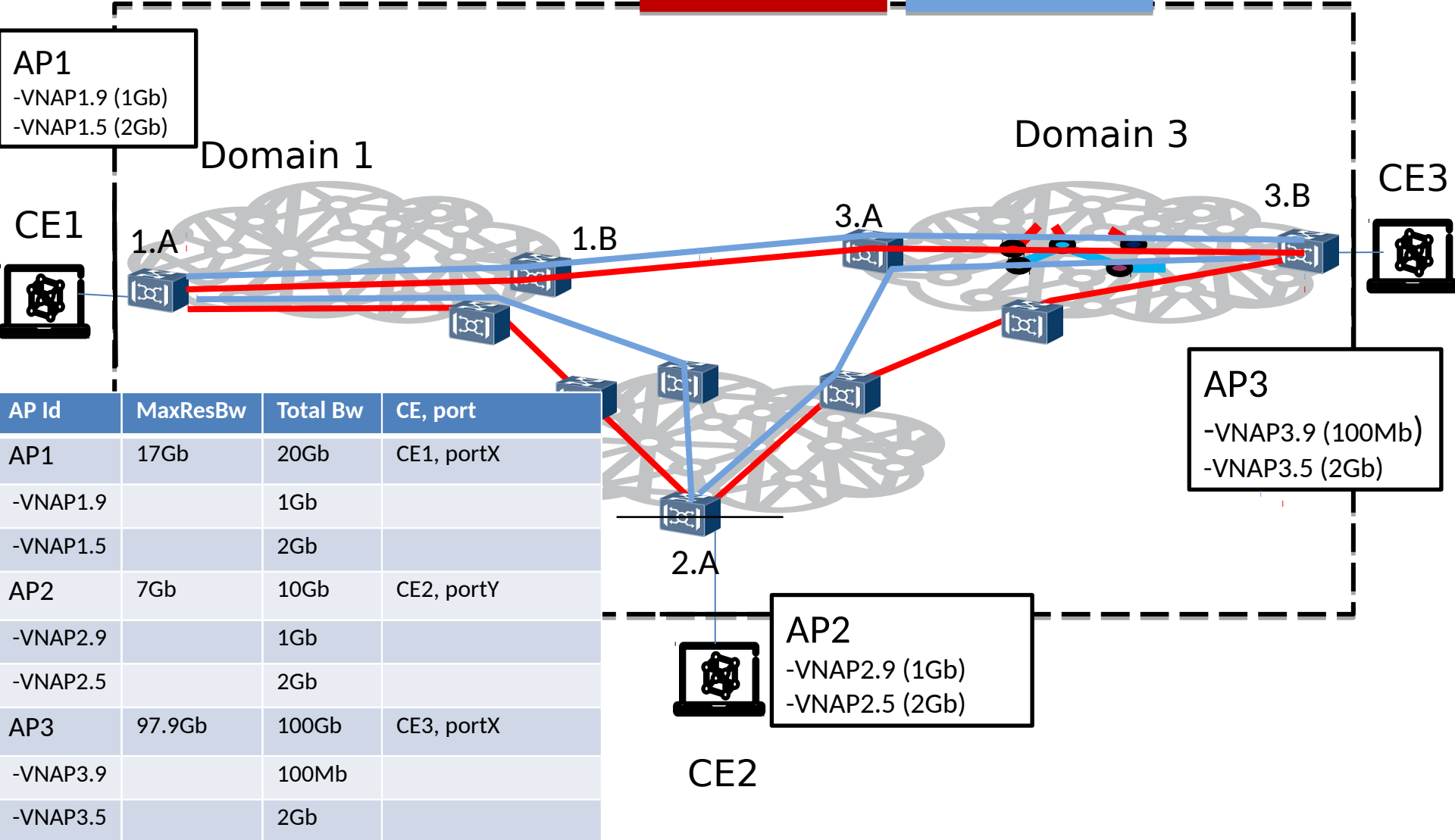
AP1
-VNAP1.9 (1Gb)
-VNAP1.5 (2Gb)

Domain 1

Domain 3

CE3

CE1

1.A

1.B

3.A

3.B

AP3
-VNAP3.9 (100Mb)
-VNAP3.5 (2Gb)

2.A

AP2
-VNAP2.9 (1Gb)
-VNAP2.5 (2Gb)

CE2

AP Id	MaxResBw	Total Bw	CE, port
AP1	17Gb	20Gb	CE1, portX
-VNAP1.9		1Gb	
-VNAP1.5		2Gb	
AP2	7Gb	10Gb	CE2, portY
-VNAP2.9		1Gb	
-VNAP2.5		2Gb	
AP3	97.9Gb	100Gb	CE3, portX
-VNAP3.9		100Mb	
-VNAP3.5		2Gb	
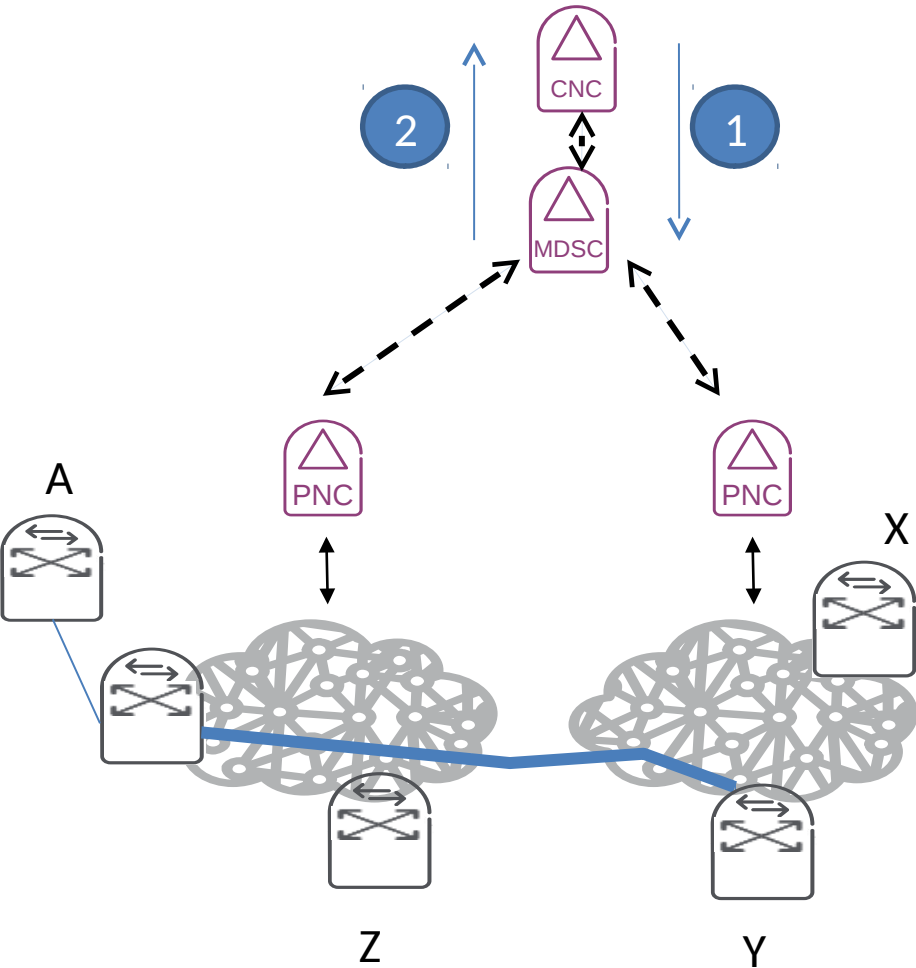
End point mobility

- **End point mobility**

  1 I need connectivity between site A and a function that can be deployed in X, Y, Z. Please tell me which to use accordingly to my constraints, polices and network status.

  2 The best is A-Y (setup and notification to CNC)

- **End point mobility preplanned**
  - See draft

- **End point mobility on the fly**
  - See draft

Other open issues

- AP: better definition needed
- VNAP: needed for dual homing and bandwidth reservation on access links. Better definition?
- MDSC to PNC relationship
  - 1:N (Default)
  - M:1
  - M:N (Work Load Partitioning)
- ...

Next Steps

- Keep alignment with requirements draft and info model draft

- Refine AP and VNAP concepts

- WG adoption