

NSI for NBI

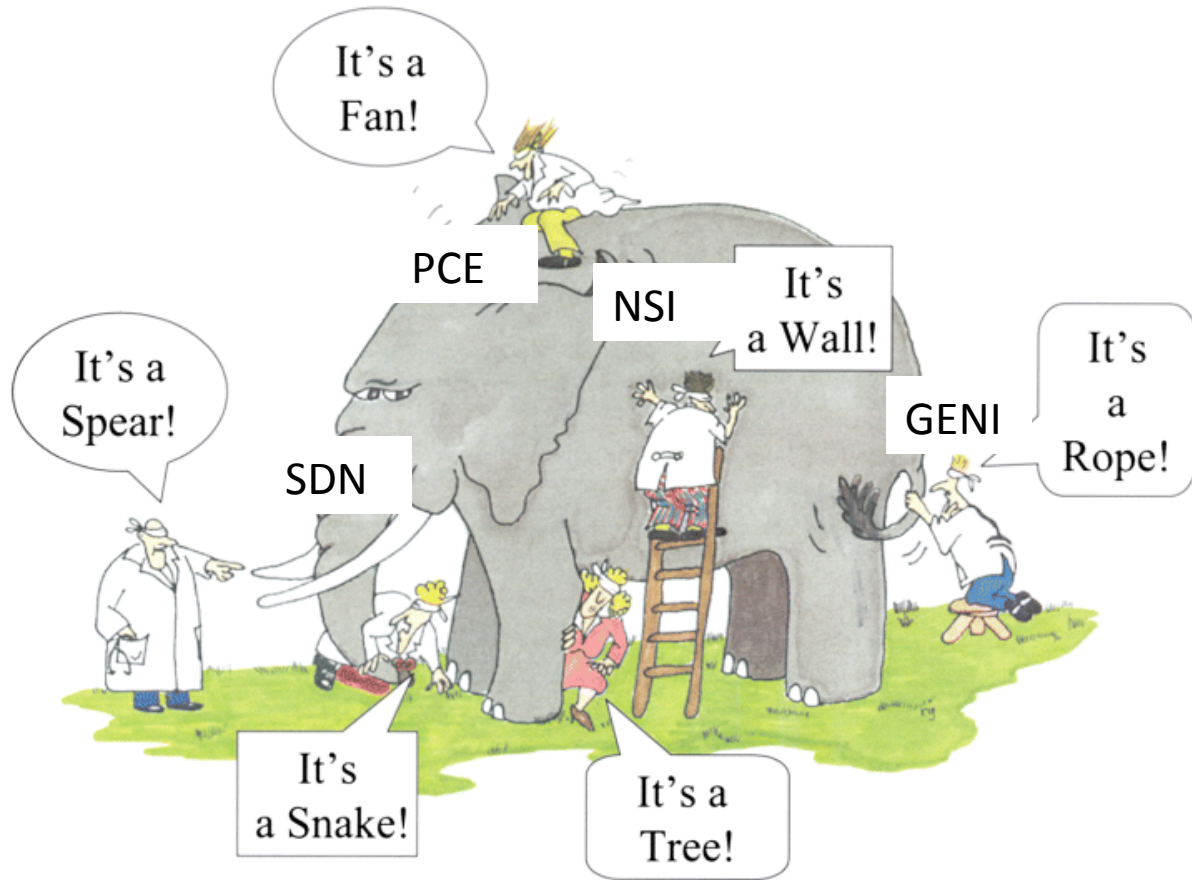
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For NSI group discussion

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Soapbox begin

NSI in the broad context of industry



Do we recreate everything?

Soapbox end

NSI is part of SDN: Aligned architecturally

NSI model

1. One NSA/network
2. Tree/Chain model of NSA interaction
3. b/w NSAs/domains
4. Resource policies enforced by NRM
5. Provisioning of end-to-end services
6. Inherits same challenges

Architecture/Function

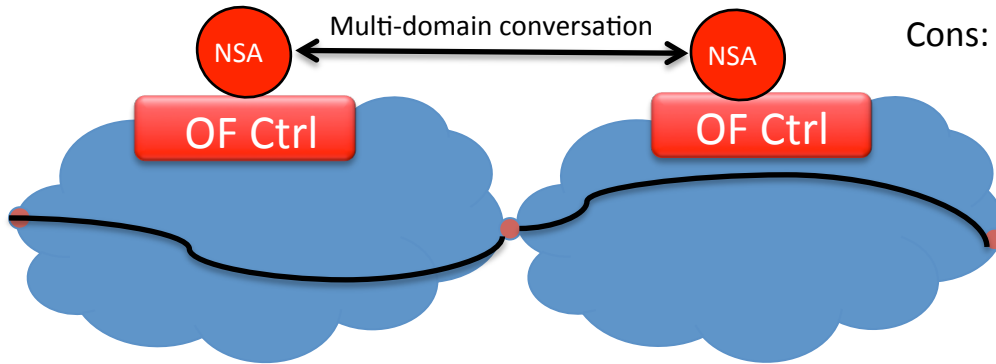
1. Logically Centralized
2. Hierarchical/nested support
3. Trust in control plane
4. Policy Management central to operation
5. Control and Management functions
6. Control plane challenges: Security, partitioning

SDN model

1. One logical Controller
2. Multiple hierarchical controller model (tree)
3. Required b/w controllers
4. Flowvisor, AM, other policy mechanisms
5. Provisioning of end-to-end data flows
6. Inherits same challenges

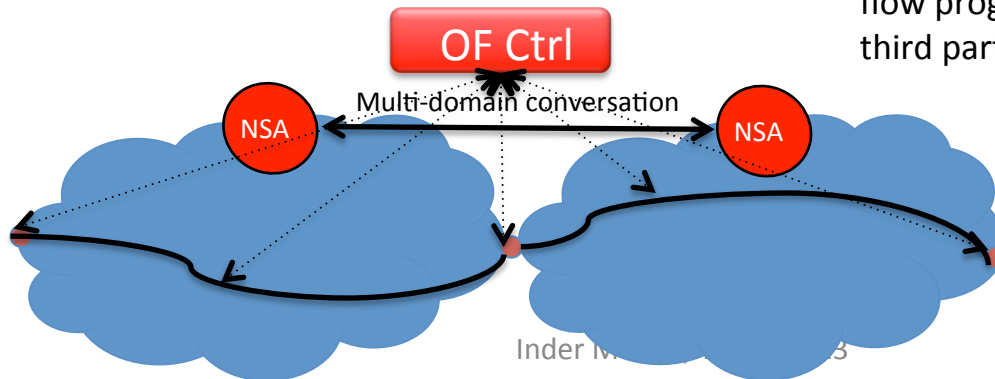
Multi-domain SDN models

1. Simplest case: Use SDN to provision multi-domain VLAN/Circuit



Cons: No multi-domain flow management

2. Create multi-domain virtual topology and flowspace partition manage using OpenFlow/SDN (slice)

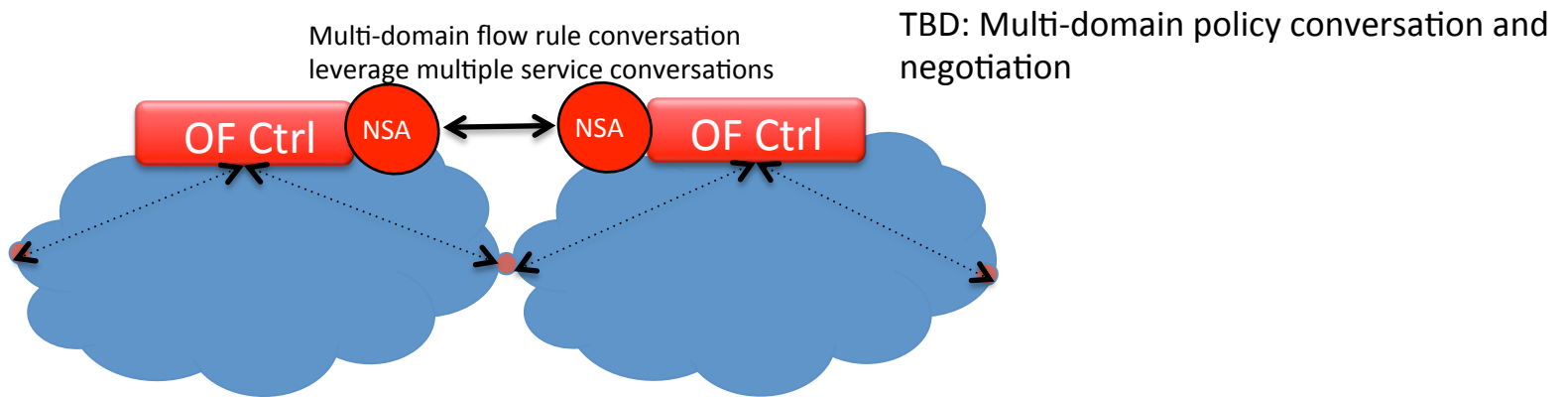


Cons: service providers do not want to allow flow programmability in their switches by third party controllers (trust and security issues)

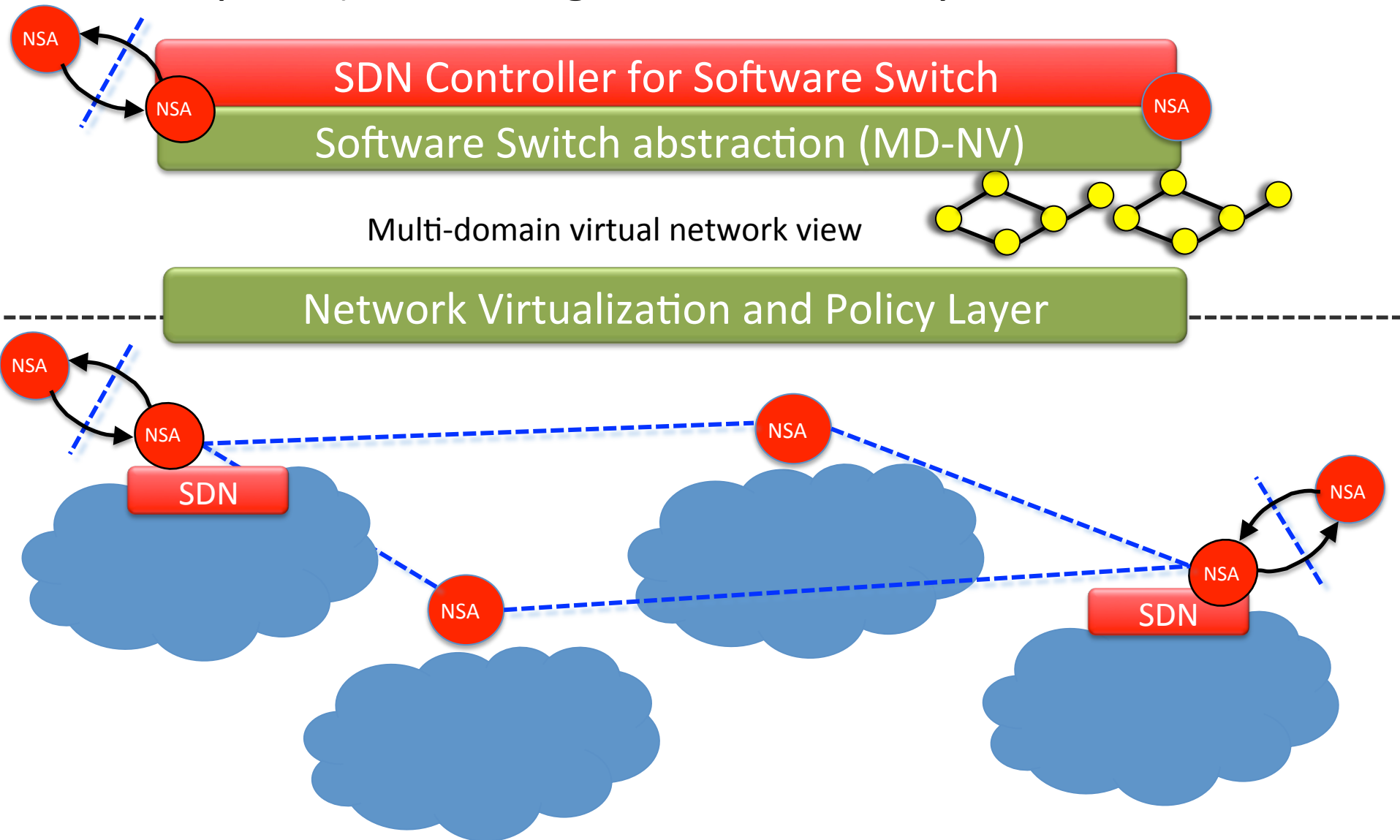
Cons: flowspace separation is static and not programmable

Multi-domain SDN models

3. Leverage NSI multi-domain conversation to exchange flow-rules, exchange topology, and apply policies



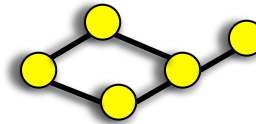
Combine NSI (service plane) and SDN (control plane) technologies hierarchically



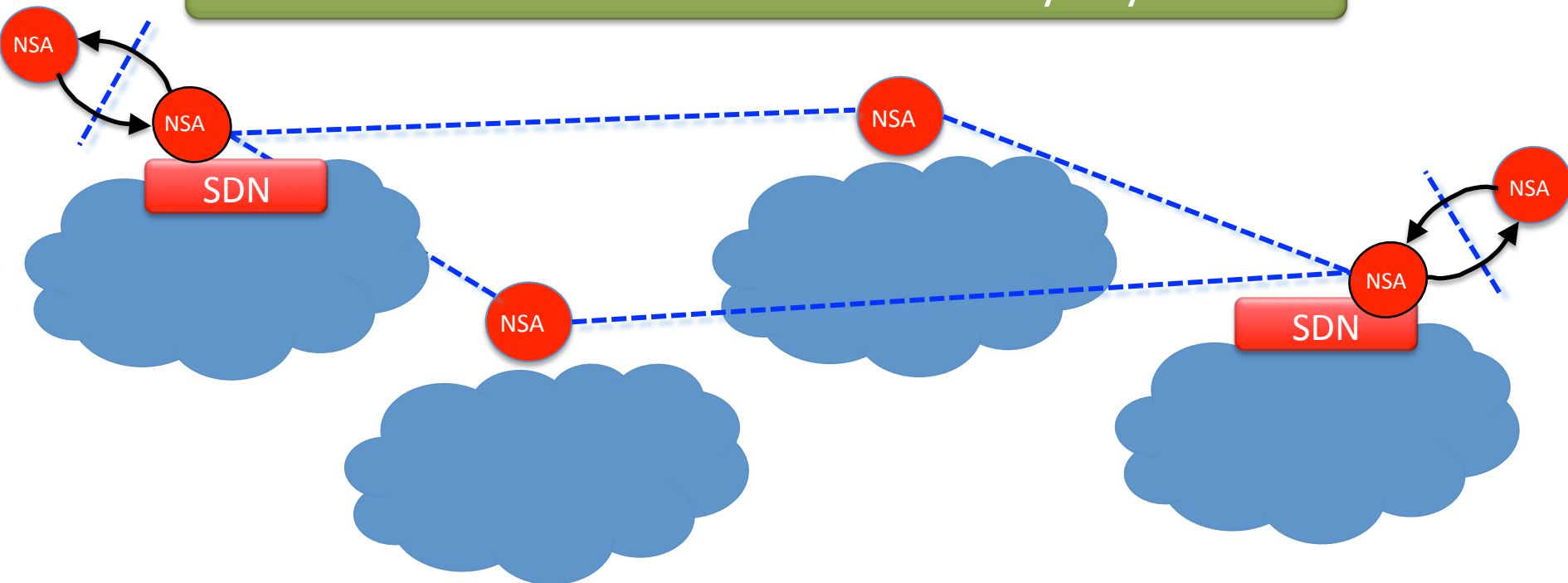
NSI as NBI for SDN

Network Services Interface

Multi-domain virtual network view



Network Virtualization and Policy Layer



Next Steps

- Write-up for ONF
- Align on messaging
- Identify gaps
 - Japan-EU project
 - Others?
- Part of NSI or separate from NSI?