Multi-domain Network Virtualization

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Carlos J. Bernardos *(Ed., UC3M),* Luis M. Contreras
(*Telefónica),* Ishan Vaishnavi (*Huawei),* Róbert Szabó
(*Ericsson Research),* Josep Mangues (CTTC), Xi Li (NEC),
Francesco Paolucci, Andra Sgambelluri, Barbara Martini, Luca
Valcarenghi (SSSA), Giada Landi (Nextworks), Dmitriy
Andrushko (Mirantis), Alain Mourad (Interdigital)

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Rationale

- Network Function Virtualization is now being addressed in scenarios with multiple administrative domains

  o Pure infrastructure scenario: usage of network, computing and storage resources of different administrative domains

  o More complex scenario: operation of network functions instantiated in different administrative domains

- Goal: to permit programmability, flexibility and automation, but also agile contracting of services (including VNFs)

  o Significant reduction of the time for provision when invoking and settling of services exceeding the border of a single administrative domain

Multi-domain Problem Statement

- Availability of different infrastructure environments pertaining to distinct administrative domains
  - In consequence, being operated and managed by distinct providers
- There are no established mechanisms for providing access to multi-domain environments in an standardized way
  - E.g., to facilitate portability among NFVI PoPs independently of the owner of such infrastructure
- A solution is needed to deal with both multi-operator and (single operator) multi-domain problem

Status

- Collaboration between 5GEx and 5G-TRANSFORMER projects established
  - ○ Significant changes added in -04 (and more to come)

Virtualization and Control for Multi-Provider Multi-Domain (5GEx view)

- Multi-provider orchestrator (MPO) exposes 3 interfaces:
  - IF1 to the tenant
  - IF2 to other multi-provider orchestrators
 - IF3 to individual domain orchestrators
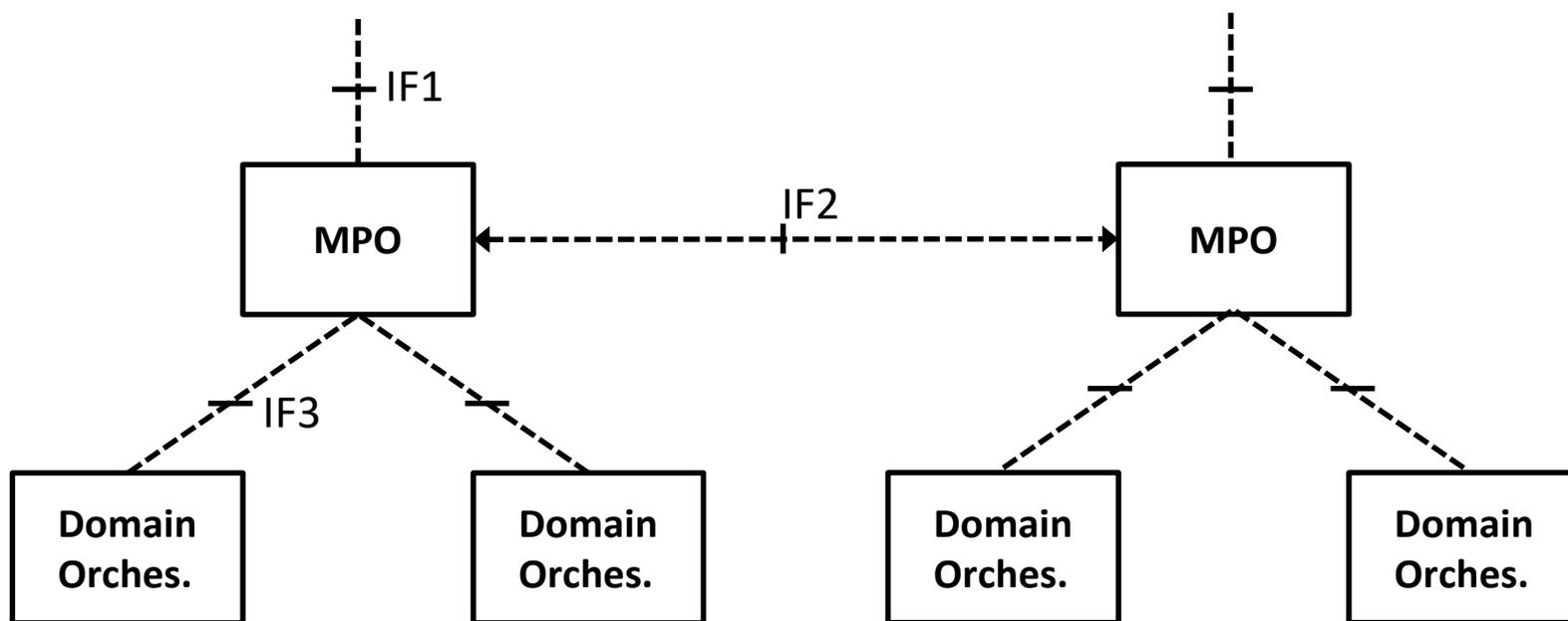
Multi-domain federation (5G-TRANSFORMER view)

- Similar approach, also adding a component facing the "verticals":
    - Vertical Slicer (VS): common entry point for verticals
    - Service Orchestrator (SO): similar to MPO, does service and resource orchestration and federation
    - Mobile Transport and Computing Platform (MTP): provides control to underlying resources
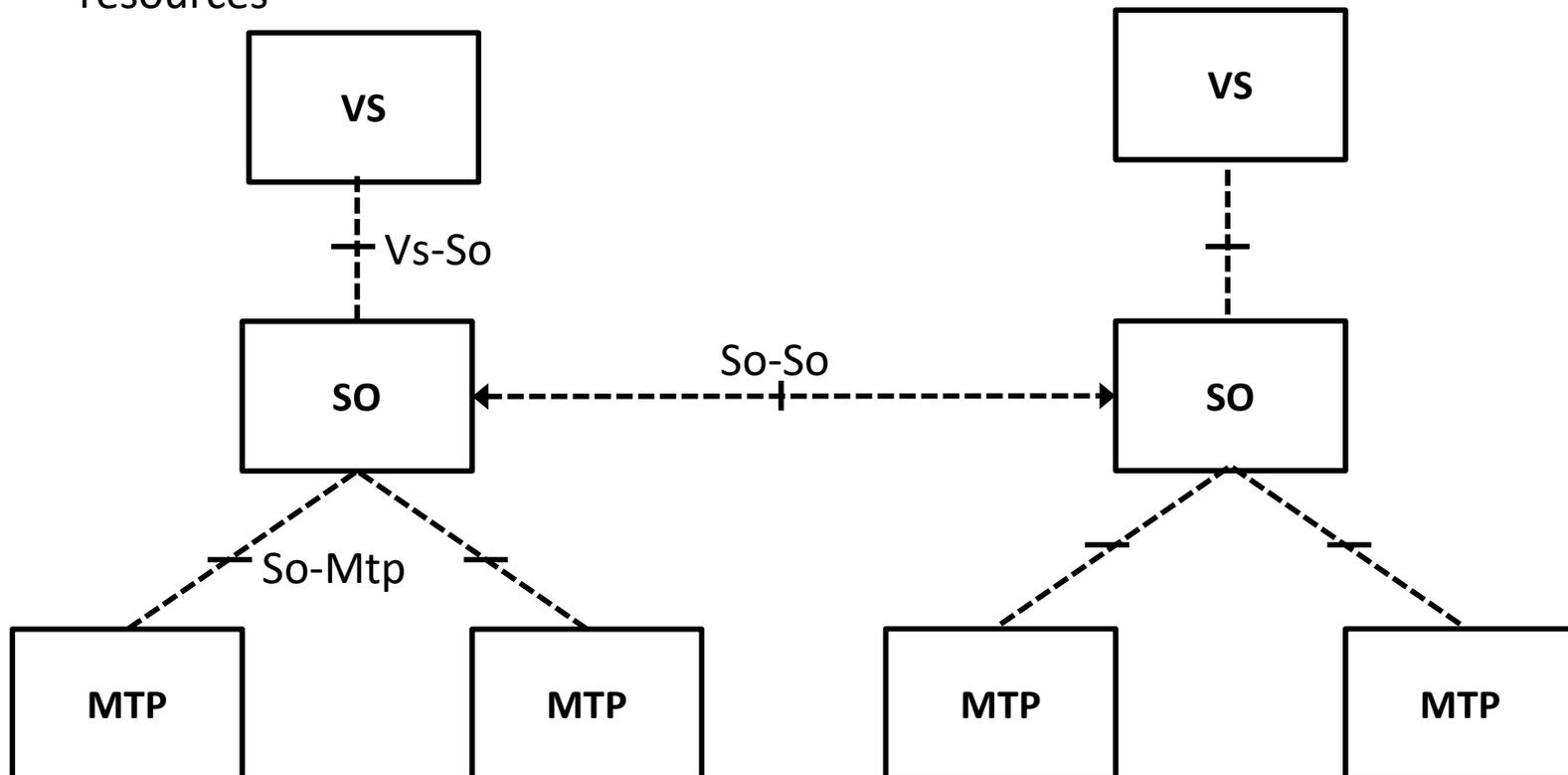
Next steps

- Report on 5GEx architecture validation results from implementation and experimentation

- Continue evolving the architecture definition
  - Extensions from 5G-TRANSFORMER

- Gather feedback from the group
  - We believe this is an item that could be adopted

http://www.5gex.eu   http://www.5g-transformer.eu