Multi-domain Network Virtualization

draft-bernardos-nfvrg-multidomain-00

Carlos J. Bernardos
Universidad Carlos III de Madrid (UC3M)
Luis M. Contreras
Telefónica

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Rationale

• Network Function Virtualization has not been yet addressed in scenarios where multiple administrative domains are involved
  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
NFV reference framework

- Multi-domain interfaces not present in NFV architecture original definition
Multi-domain Problem Statement

• Availability of different infrastructure environments pertaining to distinct administrative domains
  o 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
  o E.g., to facilitate portability among NFVI PoPs independently of the owner of such infrastructure.
Multi-domain approaches

• Hierarchical
  o The provider facing the customer as a single entry point for the service request will maintain relationships with other providers in order to complete the service.
  o The Entry-Point Provider (EPP) will produce the service split among parties, ensuring adequate levels of coordination to offer the service as provided by a single domain to the customer.

• Cascading
  o The EPP partially satisfies the service request but complements the service by using resources external to its own domain.
  o The EPP will trade such resources with some other provider's offering capabilities at disposal of external domains.
Hierarchical

Requesting Party

Entry-Point Provider

Blue Provider

Green Provider
Cascading

Requesting Party

Entry-Point Provider

Blue Provider

Green Provider
5G Exchange

Mission:
• enable business and technical cross-domain service orchestration over multiple administrations,
• realize composite services by combining cross-domain network, computing and storage resources,
• develop suitable business models for operators to optimally buy, sell, and integrate 5GEx services,
• build and deploy a proof-of-concept system prototype, implementing the “Sandbox Exchange”,
• contribute to relevant standard forums and Open Source communities.

Duration: Oct., 2015 – Mar., 2018
**Next steps**

- Keep working and improving the draft
  - Gap analysis considering latest developments in ETSI NFV -> identifying missing pieces
  - Including architectural proposals from 5GEx and other relevant efforts
- Implement concepts and obtain early experimental results (from 5GEx project)
- Gather feedback from the group