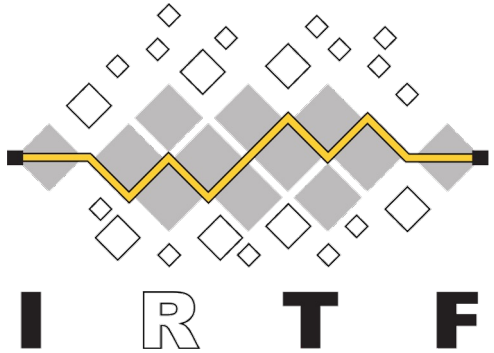

Interconnection Intents

<draft-contreras-nmrg-interconnection-intents-04>

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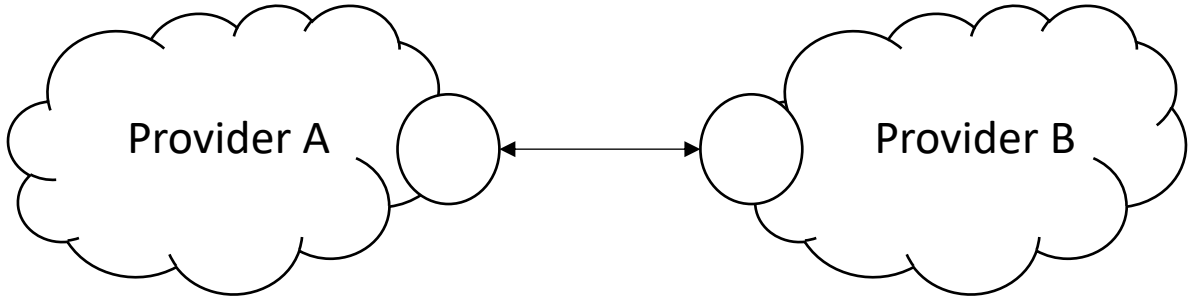
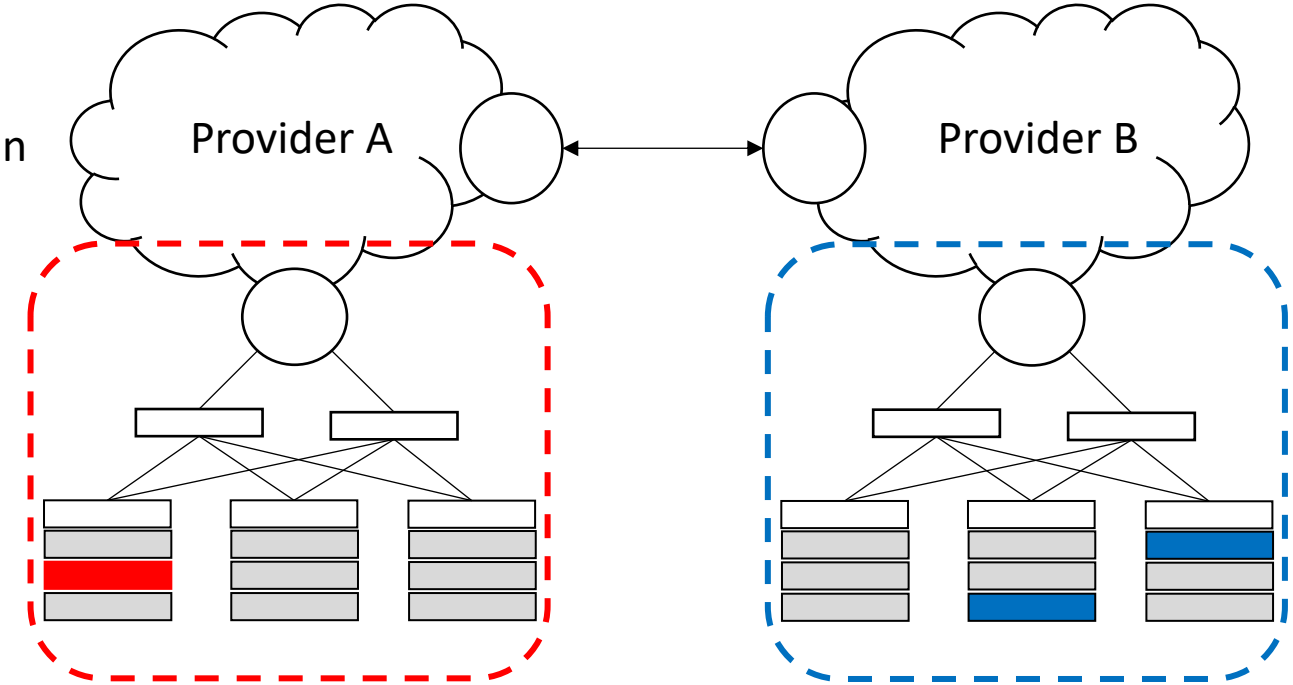
Motivation and objectives (reminder)

Classical Interconnection



- Interconnection today is conceived only as pure IP traffic interchange
- BGP as base protocol for this (sessions advertising reachability of IP prefixes)

Evolution of Interconnection



- New models for interconnecting SDN/NFV/Edge enabled networks are required (E.g., for deploying or requesting specific VNFs and service graphs, ie. SFCs)
- Apart from IP prefixes can be required advertisement of Service Functions and/or DATA Center capabilities

Summary of the draft (reminder)

- Target: to leverage on IBN technologies to handle enriched interconnection requests (i.e., traffic interchange and beyond)
- Scenarios of applicability:
  - Interconnection of non-public to public Networks in 5G
  - Multi-domain Network-as-a-Service requests (see e.g. sec.4.4 in RFC8568)
  - Multi-domain Network Virtualization (draft-bernardos-nmrg-multidomain-01)
- Modes of usage for interconnection intents
  - only IP traffic interconnection (i.e., traditional peering / transit)
  - service (e.g., CDNi as defined e.g. by IETF CDNI or Streaming Video Alliance)
  - VNFaaS (e.g., packet core capabilities for MVNOs), for instance leveraging on draft-ietf-teas-sf-aware-topo-model
  - Computing capabilities (for instantiating functions/containers on top), for instance leveraging on draft-llc-teas-dc-aware-topo-model
  - Any combination of the ones before
- Benefits:
  - Establish a common, normalized method among service providers for automated interconnection
  - Simple way of expressing enriched interconnection request further than pure IP traffic interchange

Updates from -03 version

- Proposal of structure for the intents based on the approaches followed in ETSI ZSM, ETSI NFV or 3GPP, through objects containing:
  - Expectation: it refers to the expectation(s) of an intent including the requirements, goals, constraints and context that apply to it
  - Target: it refers to the behavioral outcomes resulting from the configurations derived from the intent expectation. A given intent expectation may include various targets
  - Condition: it applies to the value of the target.
  - Context: It describes constraints or conditions applicable to the intent expectation.

Example - interconnection of service functions in different domains

- IntentExpectation: SF_interconnect
  - IntentTarget: ServiceFunction
    - IntentTargetValue: SF2
    - IntentContext: SForigin = SF1
  - IntentTarget: Location
    - IntentTargetValue: Zone_X
  - IntentTarget: SLO_Bandwidth
    - IntentTargetValue: 1 Gbps
    - IntentTargetContext: 90%
  - IntentTarget: SLO_Latency
    - IntentTargetValue: 10 ms
    - IntentTargetCondition: lower than

Chairs' questions

- Next steps and objectives beyond the draft itself:
  - Definition of intents in line with the work in ETSI ZSM, ETSI NFV and 3GPP (TMForum approach is a bit different).
  - For this intents in particular, Telefonica is working on the implementation of a framework of intents within EU research projects, and it will be released as opensource
  - Alpha version here, by now focused on the connectivity part -> https://gitlab.eclipse.org/eclipse-research-labs/nemo-project/nemo-infrastructure-management/federated-meta-network-cluster-controller/intent-based-system/-/tree/develop?ref_type=heads
- Design choice when you investigate the use –case:
  - We are following the kind of intends defined in ETSI ZSM, ETSI NFV and 3GPP. While similar, they are not exactly the same.
  - Some differences could apply also here. Investigating augmentations / adaptations.
- Encountered problems / lessons learned:
  - One concern is the scalability of the intents. The current approach in all that SDOs is monolithic. That is, the intents are not modular. Ongoing discussions for modular intents
- Positioning regarding IBN propositions in other SDOs
  - We are trying to follow similar approach, even though will would not as simple as just copy and paste
  - Following a common approach could facilitate the reusability of intents defined in other SDOs.
- Remaining challenges / problems
  - The main one is the completion on the definition of the exemplary intents, then the work on scalability
  - Also the composition / decomposition of intents.

Next steps

- Discuss on the proper structure of intents for this use case (and others)
- Collect feedback on the approach followed
- Keep working on the intent framework