

Interconnection Intents

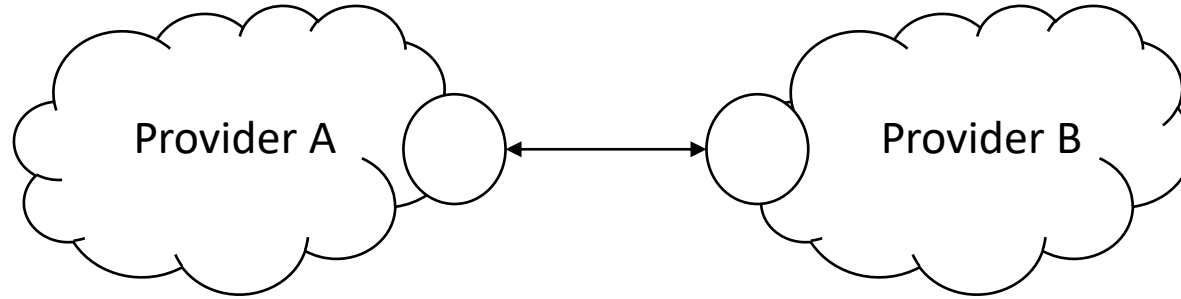
<draft-contreras-nmrg-interconnection-intents-05>

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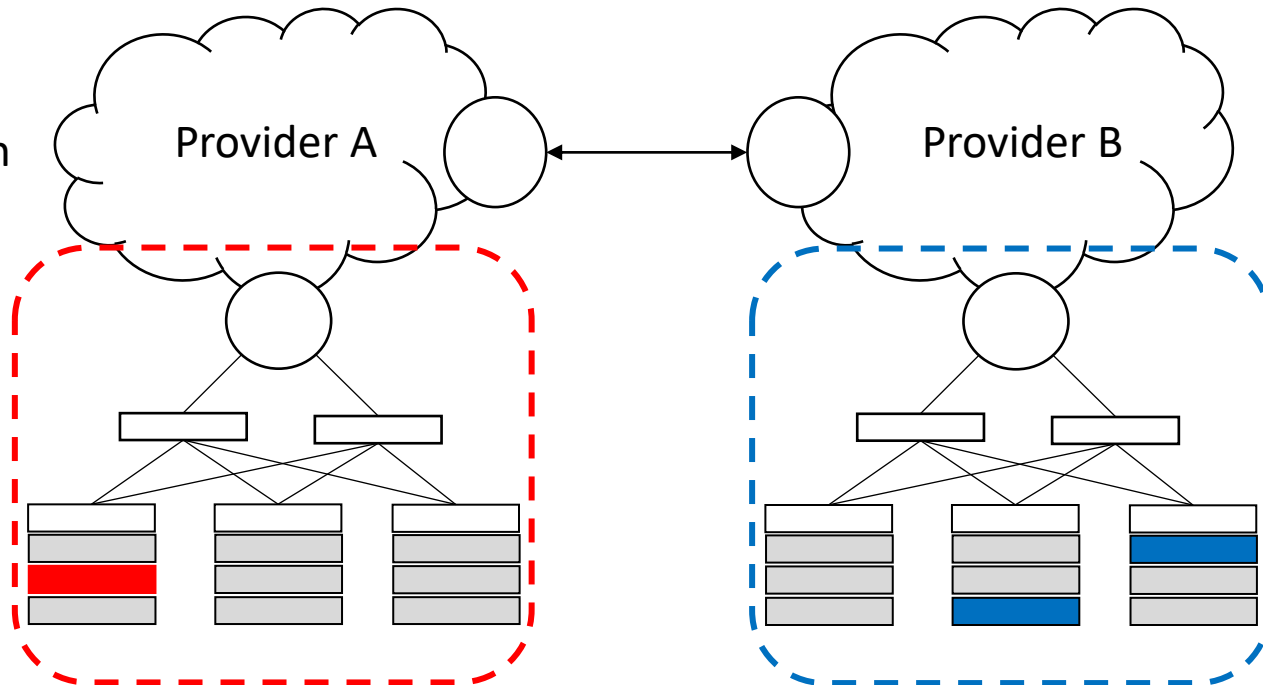
Motivation and objectives (reminder)

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, **it 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)
 - Provision of services in the edge-cloud continuum (workload deployment and interconnection)
- 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.
 - Microservices deployment and connection in the edge and cloud continuum
 - Any combination of the ones before

Updates from -04 version

- Extension of the scenarios to include Edge-Cloud Continuum
- Added new example of intent for delivery of composite service functions at the Edge-Cloud continuum (see slide #6)
 - Pointer to a repo with some initial implementation
- Added reference to [I-D.ramseyer-grow-peering-api] as potential result of the intent for the case of conventional IP peering
 - The detailed translation is left for next version
- New section on “Lessons learned” (see slide #5)
- New co-author (T. Velivassaki) and contributors

Lessons Learned

- New services imbricate an interplay of cloud and network technologies. Furthermore, such services typically involved more than one provider, and could span multiple administrative domains. Finding proper ways of **automating service deployment** and operation is a must, and **requires the possibility of triggering actions in cloud and network**. Intents can play a relevant role there, because their level of abstraction
- **Multiple adaptors could be required due to the different technologies underneath, both at cloud and network levels**. Different cloud managers (e.g., Kubernetes, Openstack, etc) and network automation capabilities (e.g., SDN controller, Network Slice controller, overlay solutions, etc) could participate of a single service.
- Common, abstract **intents should be defined and agreed among parties** so to enable automation **in multi-domain scenarios**. This **implies common understanding and expectations of the intents, as well as negotiation capabilities and monitoring**, for intent assessment in this scenarios where contractual relationships will happen.

Example 3. Delivery of composite service functions at the edge and cloud continuum

IntentExpectation: SF_continuum

IntentTarget: ServiceFunction

IntentTargetValue: SF2

IntentContext: SFcomposite = SF0

IntentTarget: NodeType

IntentContext: EdgeCloud

IntentTarget: SLO_Vcpu

IntentTargetValue: 2

IntentTargetCondition: greater than

IntentTarget: SLO_Vram

IntentTargetValue: 4

IntentTargetCondition: greater than

IntentTarget: SLO_Bandwidth

IntentTargetValue: 1 Gbps

IntentTargetContext: 90%

IntentTarget: SLO_Latency

IntentTargetValue: 10 ms

IntentTargetCondition: lower than

Next steps

- Discuss on the proper structure of intents for this use case (and others)
 - It aligns with current efforts in IETF and 3GPP, but is that adequate for IRTF(/IETF)?
- Collect feedback on the approach followed
- Keep working on the intent framework