

IETF 108 Hackathon Report

A Multi-Level Approach to IBN

NMRG 58 @ IETF 108
July 29, 2020
Online



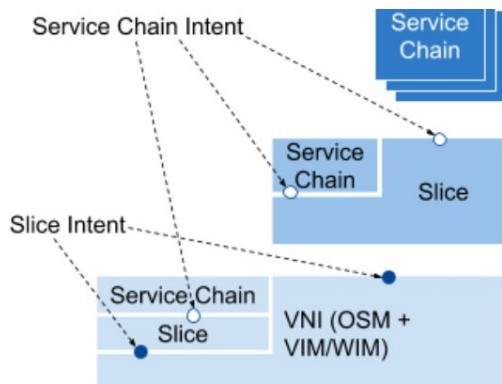
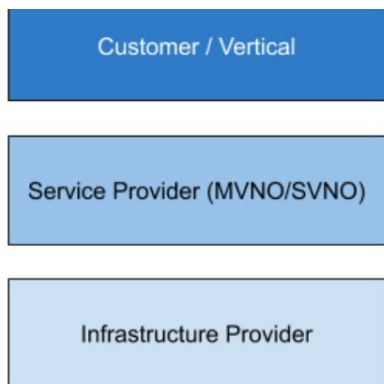
Hackathon Plan 1/2

- Problem we were working on
 - Intent Based Networking (IBN) within IRTF Network Management RG
 - **Intent:** *A set of operational goals that a network should meet and outcomes that a network is supposed to deliver, defined in a declarative manner without specifying how to achieve or implement them*
- Involved drafts/RFC's
 - draft-irtf-nmrg-ibn-concepts-definitions-01
 - draft-irtf-nmrg-ibn-intent-classification-00

Hackathon Plan 2/2

- Specific problem to solve
 - Apply the intent concept at different levels that correspond to different stakeholders
 - Infrastructure provider: provides “slice intent”
 - Service Provider: consumes “slice intent”, provides “service intent”
 - Customer or Vertical: consumes “service intent”
- How we planned to solve it
 - Proof of Concept (PoC) in an NFV framework
 - Demonstration of slice intent setup + service intent setup
 - Simplified scenario (e.g., single VIM or single POP)

Slice Intent vs. Service Chain Intent (NFV scenario)



- Slice Intent

- To express request for a network slice with two kinds of components:
 - i. A set of “top layer” VFs (L4-L7) including both network appliances (L4-L7 VNFs) or vertical application components (L7 applications)
 - ii. A set of virtual switches/routers or L2-L3 VNFs, plus an SDN controller when needed

- Service Chain Intent

- To express request for a service operated through a sequence (i.e., a chain) of service components running in “top layer” VFs (L4-L7)

What got done

- Successful demonstration of PoC
 - Jointly developed by UNIBO and CNIT as part of the NMRG activities
- Fruitful discussion on next steps
 - Integration with high-level intent expression/translation techniques
 - Ferhat Khendek and Navid Nazarzadeoghaz, Concordia University
 - Apply methodology for intent classification
 - Olga Havel, Huawei Technologies
- Link to session video recording
 - <https://bit.ly/nmrg108hackathon>

Intent Classification (1st attempt)

1. **Intent Solution:** Carrier and/or Data Center
2. **Intent User Types:**
 - a. Carrier: Network Operator (*slice intent*) or Service Operator (*service chain intent*)
 - b. Data Center: Cloud Administrator (*slice* and *service chain intent*)
3. **Type of Intent:**
 - a. Carrier: Network Service Intent (*slice intent*) or Customer Service Intent (*service chain intent*)
 - b. Data Center: Cloud Management Intent (*slice* and *service chain intent*)
4. **Intent Scope:** Connectivity, Application
5. **Network Scope:** VNF, Cloud Core + Edge
6. **Abstractions:** Technical (*slice intent*) or Non-Technical (*service chain intent*)
7. **Lifecycle Requirements:** Persistent
8. **New Categories:** (none for the time being)

[draft-irtf-nmrg-ibn-intent-classification-00]

What we learned

- Need to bring together diverse background/expertise
 - Intent translation/refinement beyond simple mapping
 - Intent validation
 - Intent monitoring and observation
 - Interactions with the transport network
 - Extend the implementation to a more complex scenario (e.g., multiple VIMs or multiple POPs)

Wrap Up

Team members:

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First timers @ IETF/Hackathon: All of us

Session recording:

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