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:
    - A set of “top layer” VFs (L4-L7) including both network appliances (L4-L7 VNFs) or vertical application components (L7 applications)
    - 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)

IETF Hackathon - A Multi-Level Approach to IBN
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
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

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First timers @ IETF/Hackathon: All of us

Session recording: