Registration Interface Information Model and Data Model (draft-hyun-i2nsf-registration-interface-im-02, draft-hyun-i2nsf-registration-interface-dm-01)

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Introduction

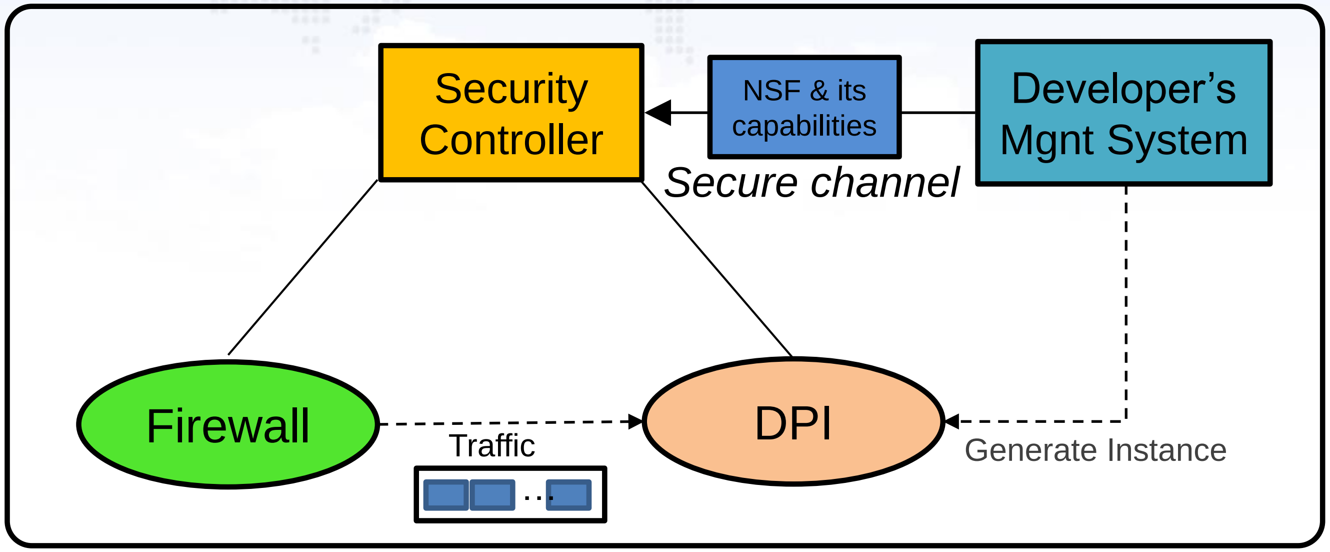
- The Registration interface in the I2NSF framework can be utilized
  - to register NSF and its capabilities into Security Controller
  - to request dynamic instantiation/deinstantiation of NSFs.
- Information model & data model for the Registration interface are required for the following functions:
  - Request Developer's Management System (DMS) to dynamically instantiate/deinstantiate an NSF
  - Register new NSF instances created by DMS
- Secure registration of distributed NSFs via the Registration interface in a centralized manner

Updates from Previous Version

- In draft-hyun-i2nsf-registration-interface-im-02, we further developed the portion of the information model of performance capability.
- In draft-hyun-i2nsf-registration-interface-dm-01, we updated the YANG data model accordingly in order to align with the updates in draft-hyun-i2nsf-registration-interface-im-02.

Registration of a New NSF Instance

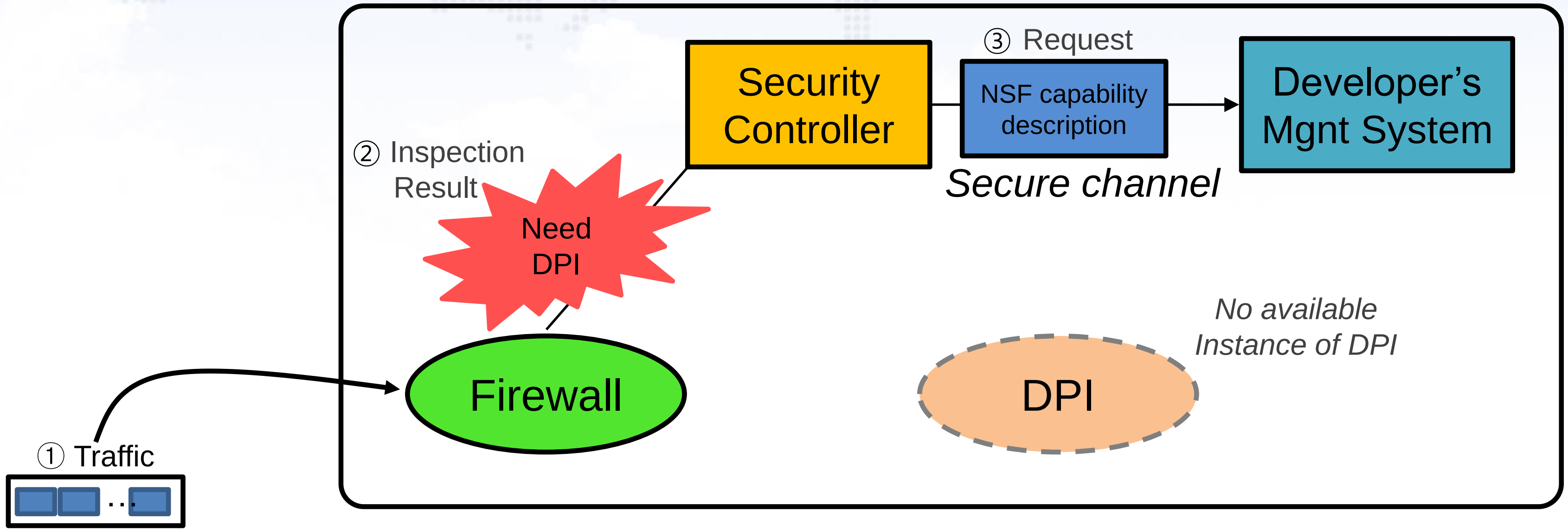
- DMS creates a new NSF instance that has the security capability(s) requested by Security Controller, and registers the created NSF instance to Security Controller via Registration Interface.



The existing information model (draft-xibassnez-i2nsf-capability-02) & data model (draft-hares-i2nsf-capability-data-model-03) are used to describe the security capability(s) of an NSF.

Dynamic Instantiation/Deinstantiation of NSFs

- Motivations:
  - When an NSF calls another NSF for an advanced security action of the suspicious packet but no instance of the callee is available in the system
  - When an NSF instance is currently under congestion
  - When an NSF instance is in idle



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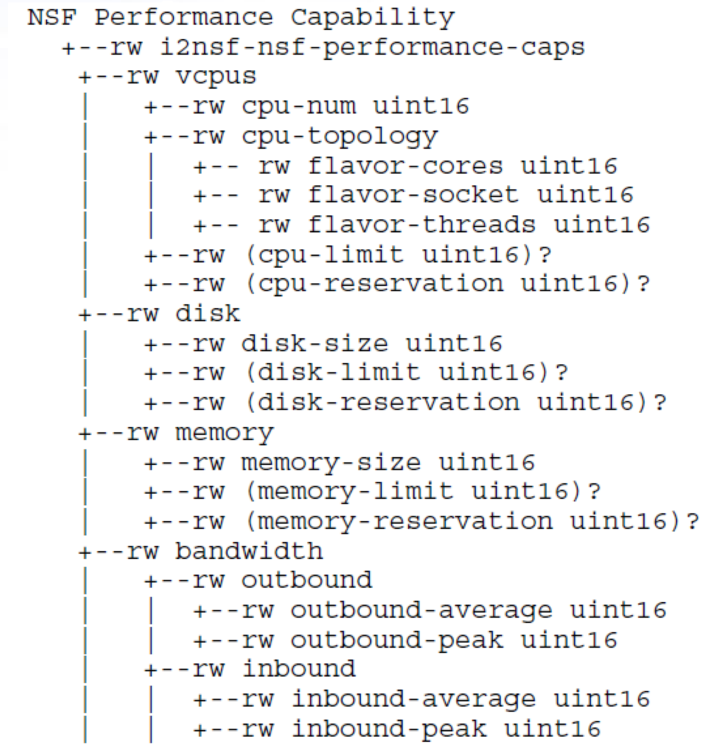
draft-hyun-i2nsf-registration-interface-im-02
draft-hyun-i2nsf-registration-interface-dm-01

- We refined the performance capability portion of the IM and DM to describe the attributes of each type of resource available for an NSF.
  - e.g., processing power, memory, and network bandwidth, etc.



```
NSF Performance Capability
  +--rw i2nsf-nsf-performance-caps
   +--rw vcpus
   |    +--rw cpu-num uint16
   |    +--rw cpu-topology
   |    |  +-- rw flavor-cores uint16
   |    |  +-- rw flavor-socket uint16
   |    |  +-- rw flavor-threads uint16
   |    +--rw (cpu-limit uint16)?
   |    +--rw (cpu-reservation uint16)?
   +--rw disk
   |    +--rw disk-size uint16
   |    +--rw (disk-limit uint16)?
   |    +--rw (disk-reservation uint16)?
   +--rw memory
   |    +--rw memory-size uint16
   |    +--rw (memory-limit uint16)?
   |    +--rw (memory-reservation uint16)?
   +--rw bandwidth
   |    +--rw outbound
   |    |  +--rw outbound-average uint16
   |    |  +--rw outbound-peak uint16
   |    +--rw inbound
   |    |  +--rw inbound-average uint16
   |    |  +--rw inbound-peak uint16
```

Next Steps

- We will implement the following functions in the next IETF hackathon:
    1) Registration of NSF and its capabilities into Security Controller

    2) Dynamic instantiation/deinstantiation of NSF instance(s) via I2NSF Registration Interface.