

Registration Interface Information Model for Interface to Network Security Functions (draft-hyun-i2nsf-registration-interface-im-01)



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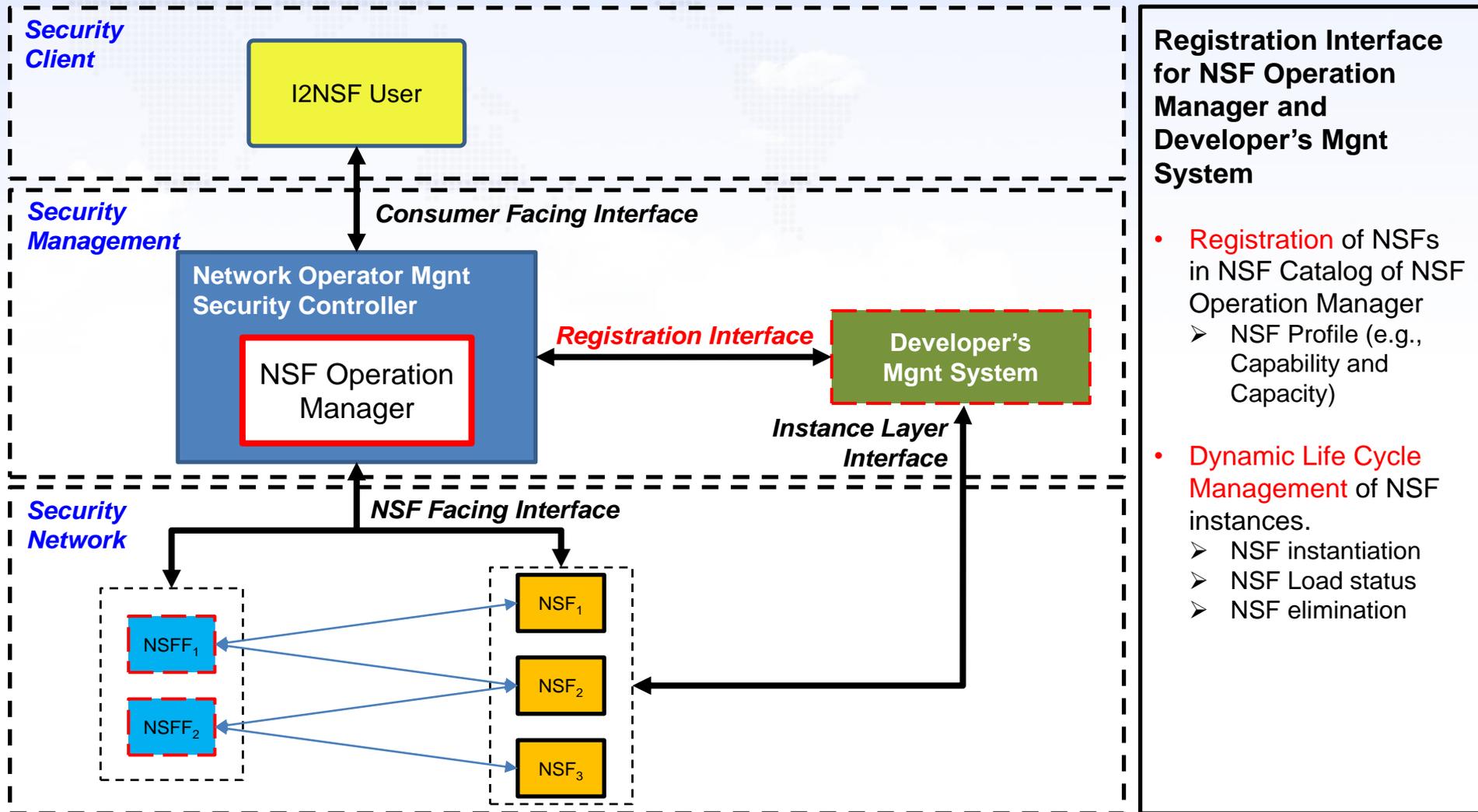
The image features a wide-angle, low-perspective view of a city skyline. The buildings are rendered in a monochromatic, metallic grey style. In the foreground, a grid of light grey lines extends from the bottom edge towards the horizon, creating a sense of depth and perspective. The sky is a pale, clear blue with a few wispy white clouds. On the left side, a small airplane is shown in flight, leaving a long, thin white contrail that stretches across the sky. The overall composition is clean and modern, typical of a corporate or professional presentation.

Introduction

Introduction (1/2)

- Dynamic Life Cycle Management of NSFs is important for efficient network resource utilization.
- Information Model & Data Model for Registration Interface is required for the following purposes:
 - To Request Developer's Management System (DMS) to create a new NSF, and
 - To Register new NSF instances by DMS
- Secure Registration of distributed NSFs via Registration Interface can be performed in a centralized manner.

Registration Interface in I2NSF Framework



Registration Interface for NSF Operation Manager and Developer's Mgmt System

- **Registration** of NSFs in NSF Catalog of NSF Operation Manager
 - NSF Profile (e.g., Capability and Capacity)
- **Dynamic Life Cycle Management** of NSF instances.
 - NSF instantiation
 - NSF Load status
 - NSF elimination

Introduction (2/2)

- As an Information Model for registration interface, draft-hyun-i2nsf-registration-interface-im-01 has been updated from draft-hyun-i2nsf-registration-interface-im-00.
- As a Data Model for registration interface, draft-hyun-i2nsf-registration-interface-dm-00 has been proposed newly.

The image features a stylized city skyline with various skyscrapers in shades of gray, positioned along the horizon. Below the skyline is a large, white grid pattern that recedes into the distance, creating a sense of depth. In the upper left portion of the sky, a small jet airplane is shown in flight, leaving a long, thin white contrail that extends towards the center of the frame. The sky is a light, clear blue with a few small, white clouds scattered across it. The overall composition is clean and modern, with a focus on geometric shapes and perspective.

Update of Version

Update of Version

- The changes from draft-hyun-i2nsf-registration-interface-im-00:
 - Miscellaneous expressions in the whole descriptions are corrected.
 - The description of NSF Access Information and Performance Capability is specified in more detail than the previous version.
- draft-hyun-i2nsf-registration-interface-dm-00 defines a YANG data model based on the information model in draft-hyun-i2nsf-registration-interface-im-00.

Data Model of Registration Interface

- draft-hyun-i2nsf-registration-interface-dm-00
 - The capability data model has been referenced from draft-hares-i2nsf-capability-data-model-01.

```
module : ietf-i2nsf-regs-interface
  +--rw regs-req
  |   uses i2nsf-regs-req
  +--rw life-cycle-mgmt-req
  |   uses i2nsf-life-cycle-mgmt-req
```

NSF Profile

```
+--rw i2nsf-nsf-profile
  +--rw i2nsf-capability
  |   uses ietf-i2nsf-capability
  +--rw performance-capability
  |   uses i2nsf-nsf-performance-caps
```

NSF Performance Capability

```
+--rw i2nsf-nsf-performance-caps
  +--rw cpu-num uint16
  +--rw disk-size uint16
  +--rw ram-size uint16
```

NSF Access Information

```
+--rw i2nsf-nsf-access-info
  +--rw nsf-address inet:ipv4-address
  +--rw nsf-port-address inet:port-address
```

Life-Cycle Management Request

```
+--rw i2nsf-life-cycle-mgmt-req
  +--rw req-level uint16
  +--rw req-id uint64
  +--rw (req-type)?
  |   +--rw (req-creation-type)
  |   |   +--rw nsf-profile
  |   |   |   uses i2nsf-nsf-profile
  |   +--rw (req-elimination-type)
  |   |   +--rw nsf-access-info
  |   |   |   uses i2nsf-nsf-access-info
```

Registration Request

```
+--rw i2nsf-regs-req
  +--rw nsf-profile
  |   uses i2nsf-nsf-profile
  +--rw nsf-access-info
  |   uses i2nsf-nsf-access-info
```

Next Steps

- We will design the functionalities to create and register new NSF instance(s) via I2NSF Registration Interface.
- We will implement the following two roles of Registration Interface in OpenStack Platform:
 - Registration of NSFs in the NSF Catalog of Security Controller
 - Dynamic Life Cycle Management of NSF Instances through Developer's Management System