

# IETF-106 Hackathon for I2NSF Framework

**IETF-106, Singapore  
Nov. 16-17, 2019**



# Introduction (1/2)

## Goals of IETF-106 I2NSF Hackathon

1. Previous Implementation of the I2NSF Framework for NSF in OpenStack Environment with
  - ✓ Registration Interface via NETCONF/YANG
  - ✓ Consumer-Facing Interface via RESTCONF/YANG
  - ✓ NSF-Facing Interface via NETCONF/YANG
  - ✓ Security Policy Translation in Security Controller
2. I2NSF NSF Monitoring in IETF-106 Hackathon
  - ✓ NSF Monitoring between NSFs and Security Controller via NETCONF/YANG

# Introduction (2/2)

## Build Environment

### 1. OS

- Ubuntu 18.04 LTS



### 2. ConfD

- 6.6 Version



### 3. OpenStack

- Mitaka



### 4. Suricata

- 3.2.1 RELEASE



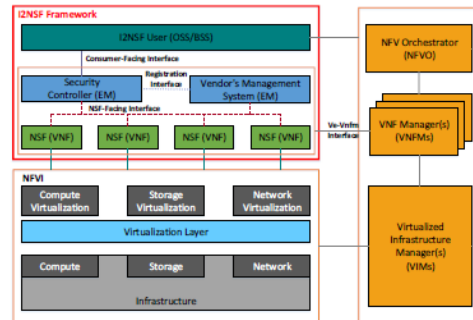
# I2NSF Framework Project

## I2NSF (Interface to Network Security Functions) Framework Project

Champion: Jaehoon Paul Jeong (SKKU)



### I2NSF Architecture in NFV Reference



### Where to get code

- Github – Source Code  
✓ <https://github.com/kimjinyong/i2nsf-framework>

### What to pull down to set up an environment

- OS: Ubuntu 18.04 LTS
- ConFD for NETCONF: 6.6 Version
- OpenStack: Mitaka
- NSF: Suricata

### Manual for Operation Process

- Detailed description about operation process in Manual.txt (It can be found in Open Source Project folder.)

### Professor

- Jaehoon Paul Jeong (SKKU)

### Collaborator

- Jong-Hyun Kim (ETRI)

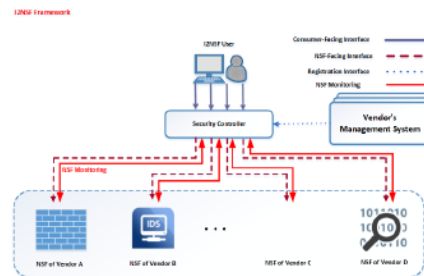
### Student

- Chaehong Chung (SKKU)

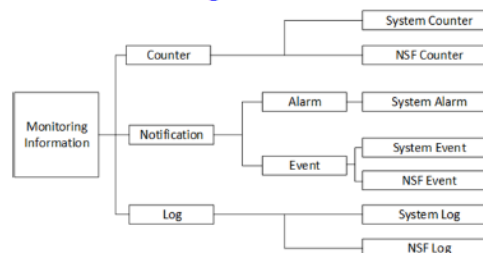
### Participants

- Yongjoon Joe (LSware)
- Duke Moon (Hansol)

### Application of I2NSF Monitoring



### NSF Monitoring Information Model

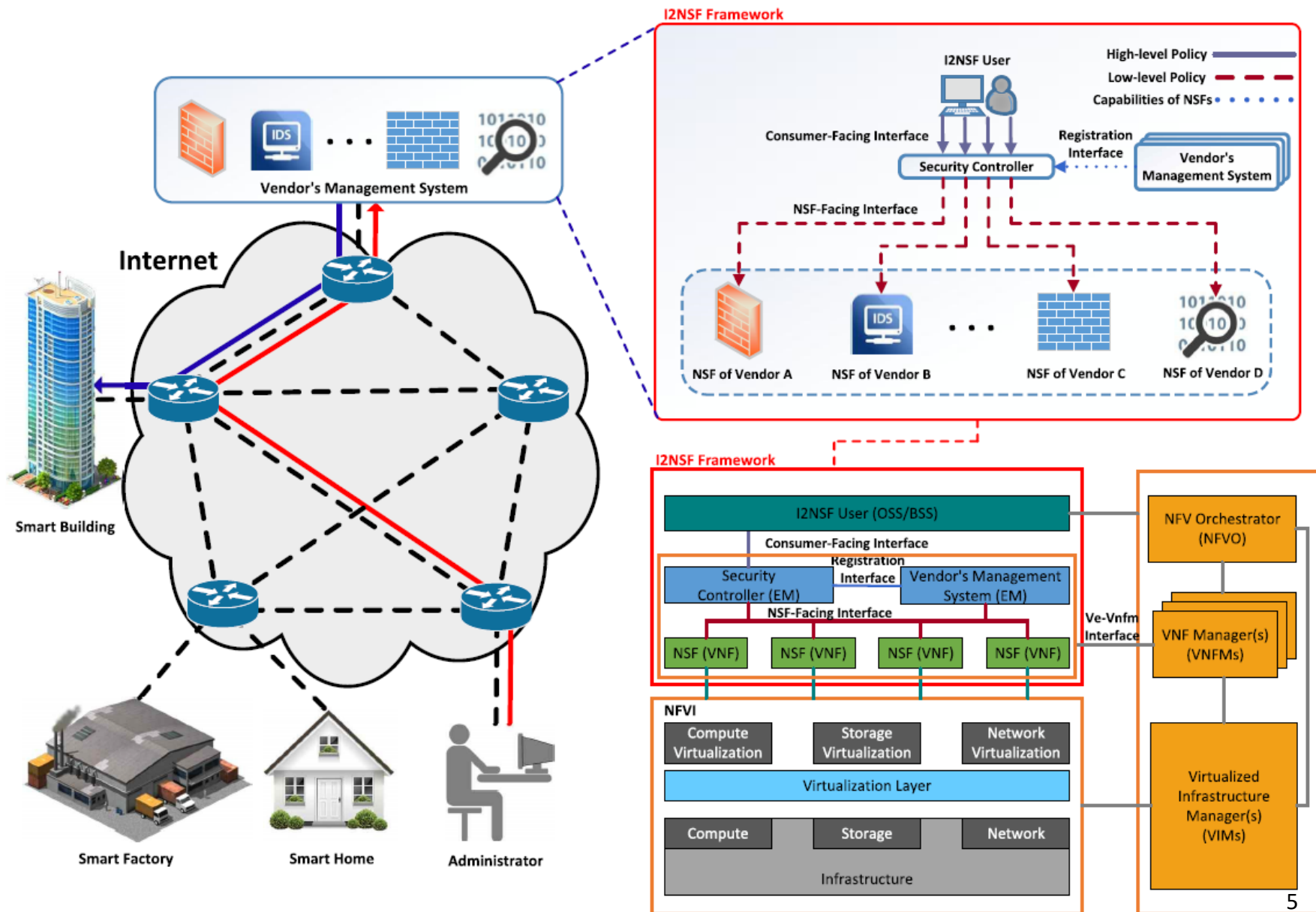


### Contents of Implementation

- I2NSF Framework for Network Security Functions (NSFs)
  - ✓ Registration Interface via NETCONF/YANG
  - ✓ NSF-Facing Interface via NETCONF/YANG
  - ✓ I2NSF Framework in OpenStack NFV Environment
  - ✓ NSF Database Management via Consumer-Facing Interface
  - ✓ Interface Data Model Auto-Adoption
- Network Security Functions
  - ✓ Firewall and Web-filter using SDN and Suricata
- Advanced Functions
  - ✓ Security Policy Translation
  - ✓ NSF Monitoring via NETCONF/YANG (New Feature)

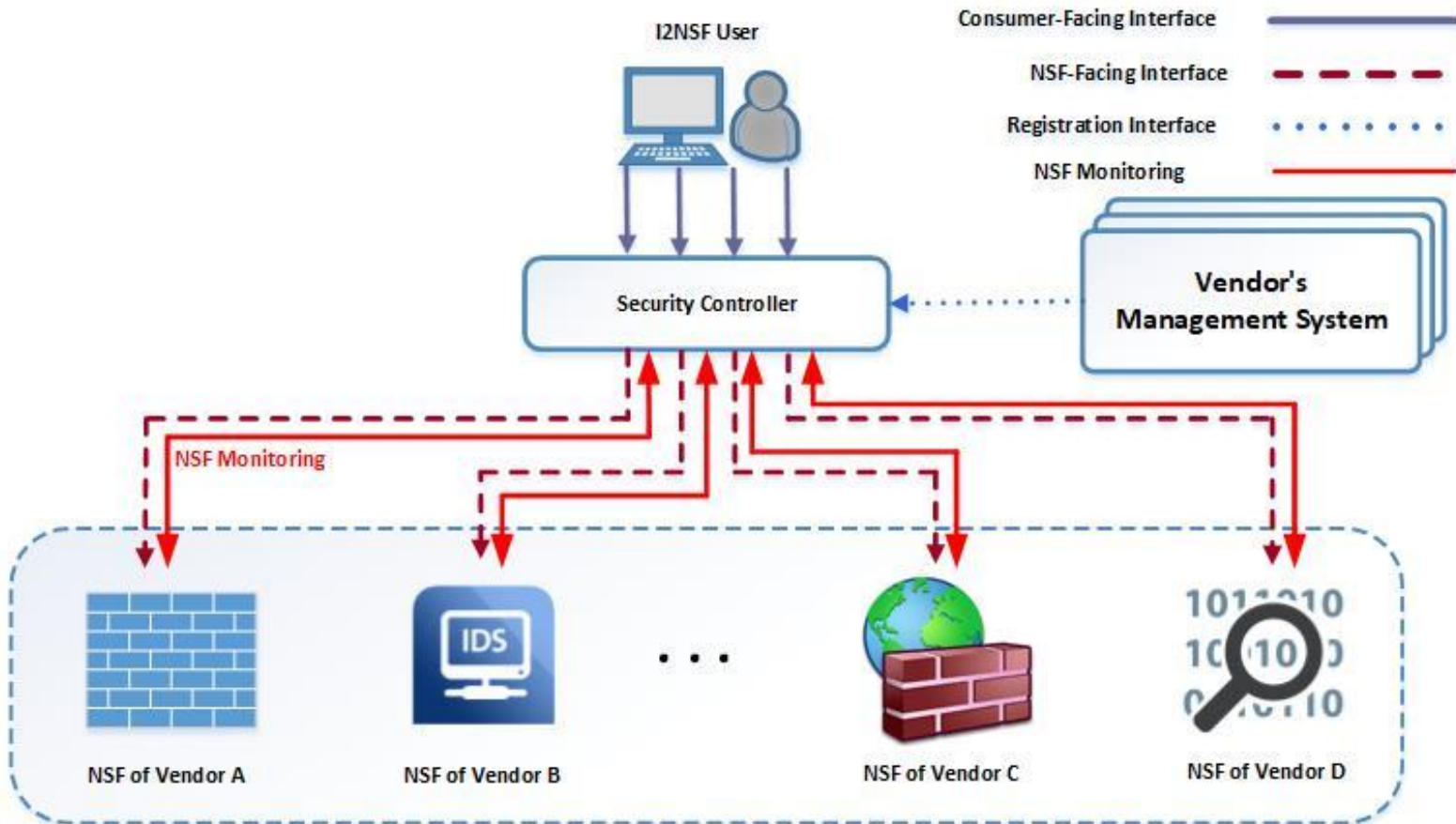


# I2NSF System using NSF Framework



# Implementation of I2NSF Hackathon Project (1/2)

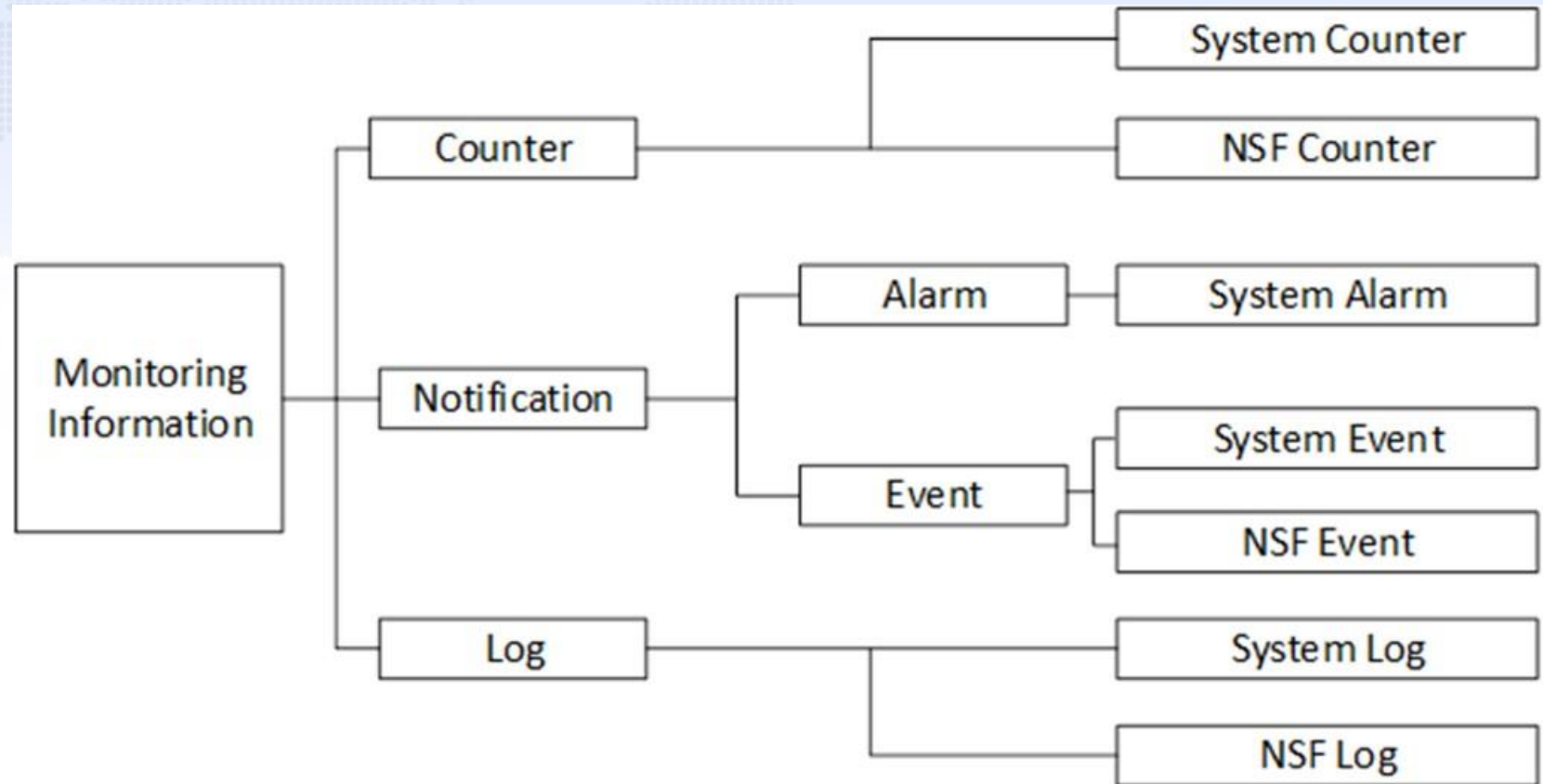
## I2NSF Framework



## 1. Application of I2NSF Monitoring (on going)



# Implementation of I2NSF Hackathon Project (2/2)



## 2. NSF Monitoring Data Model

<https://tools.ietf.org/html/draft-ietf-i2nsf-nsf-monitoring-data-model-02>

# Lessons from IETF-106 Hackathon

- **Proof of Concept (POC) of I2NSF Framework**
  - I2NSF Interfaces (Consumer-Facing, NSF-Facing, and Registration Interface)
  - I2NSF Security Policy Translator
  
- **Direction of NSF Monitoring Implementation**
  - Application of I2NSF NSF Monitoring
  - We got the direction of implementation of NSF Monitoring.
  - This is the last-piece Data Model draft in I2NSF's current charter.