An Architecture for Security Management in I2NSF Framework

(draft-kim-i2nsf-security-management-architecture-01)

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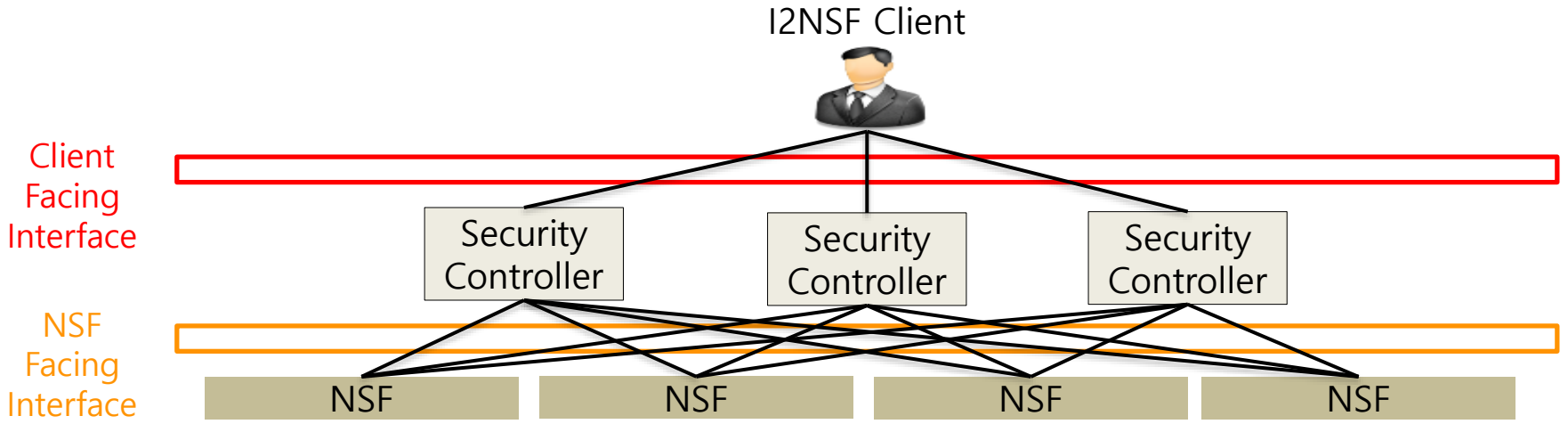
Motivation

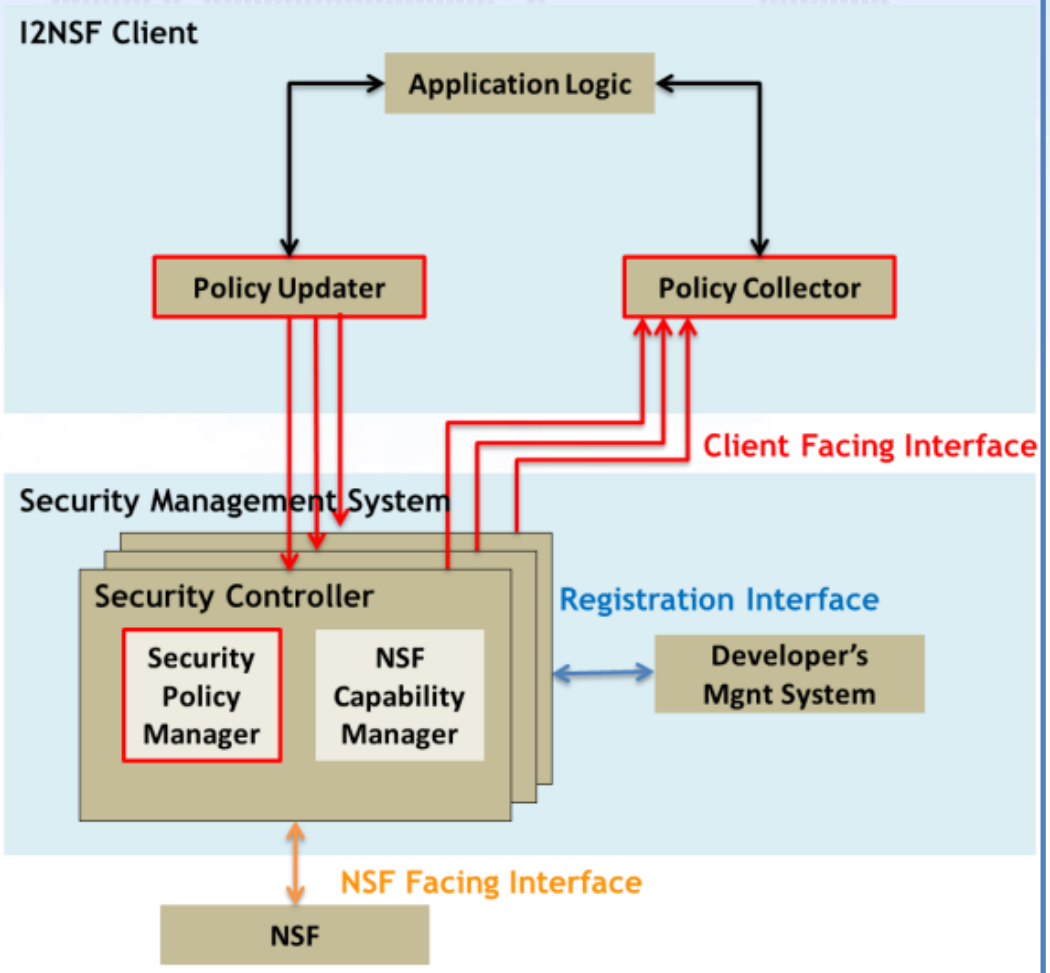
- A service provider controls or governs various security management systems in their cloud data centers.
- **Security Controllers** can be triggered by events at **NSFs** for a high-level policy update at **I2NSF Client**.
- It is hard for an administrator to define low-level action rules at a network level.



Objectives

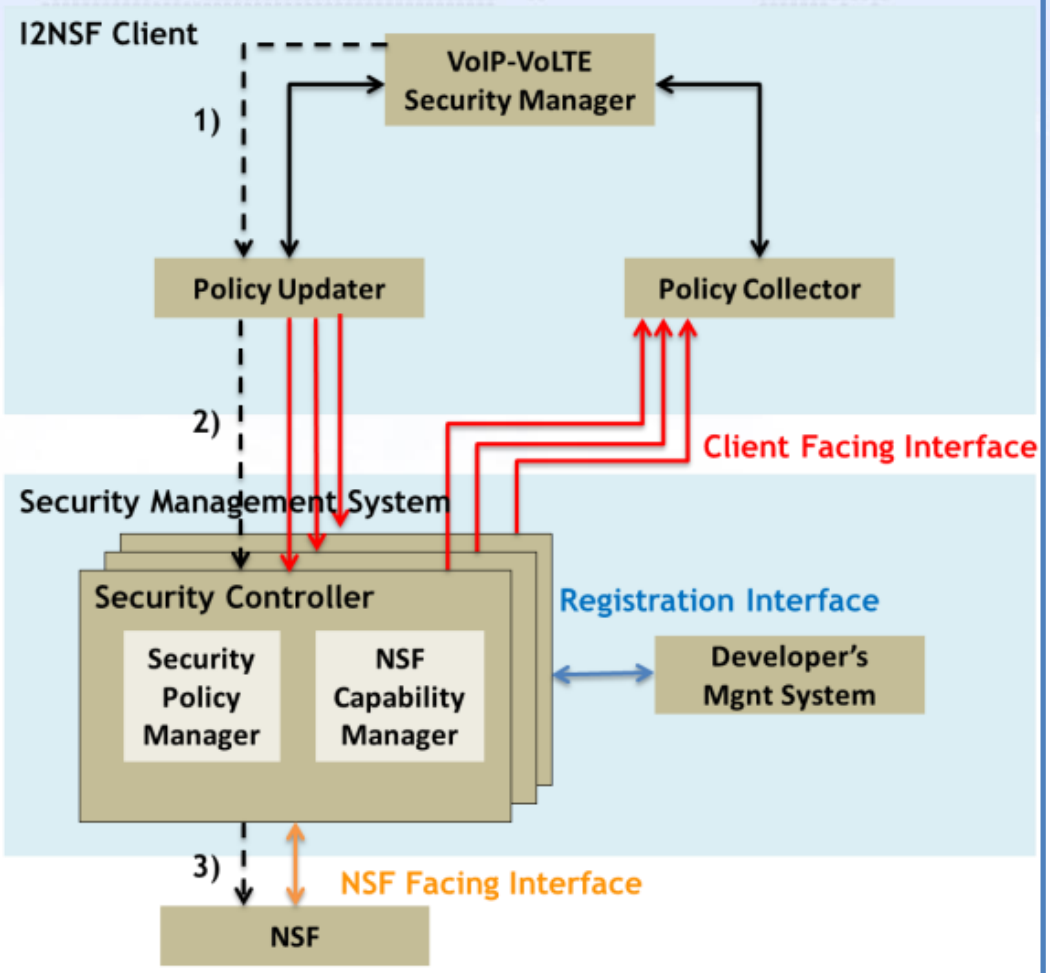
- We propose a **security management architecture** that integrates additional components for security management into the I2NSF framework.
  - Propose the design of a **generic security management architecture** to support the enforcement of flexible and effective security policies in NSFs.
  - Provide the reflection of the updated low-level security policies for new security attacks for **the corresponding high-level security policies**.

Architecture of Security Management



- **Application Logic** generates a high-level policy in accordance with new security attacks.
- **Policy Updater** distributes such a policy to Security Policy Manager.
- **Security Policy Manager** maps the high-level policy into several low-level policies relevant to NSF capability.
  - ✓ Security Policy Manager delivers those policies to NSF through NSF Facing Interface.

Use Case: Security Management for VoIP-VoLTE

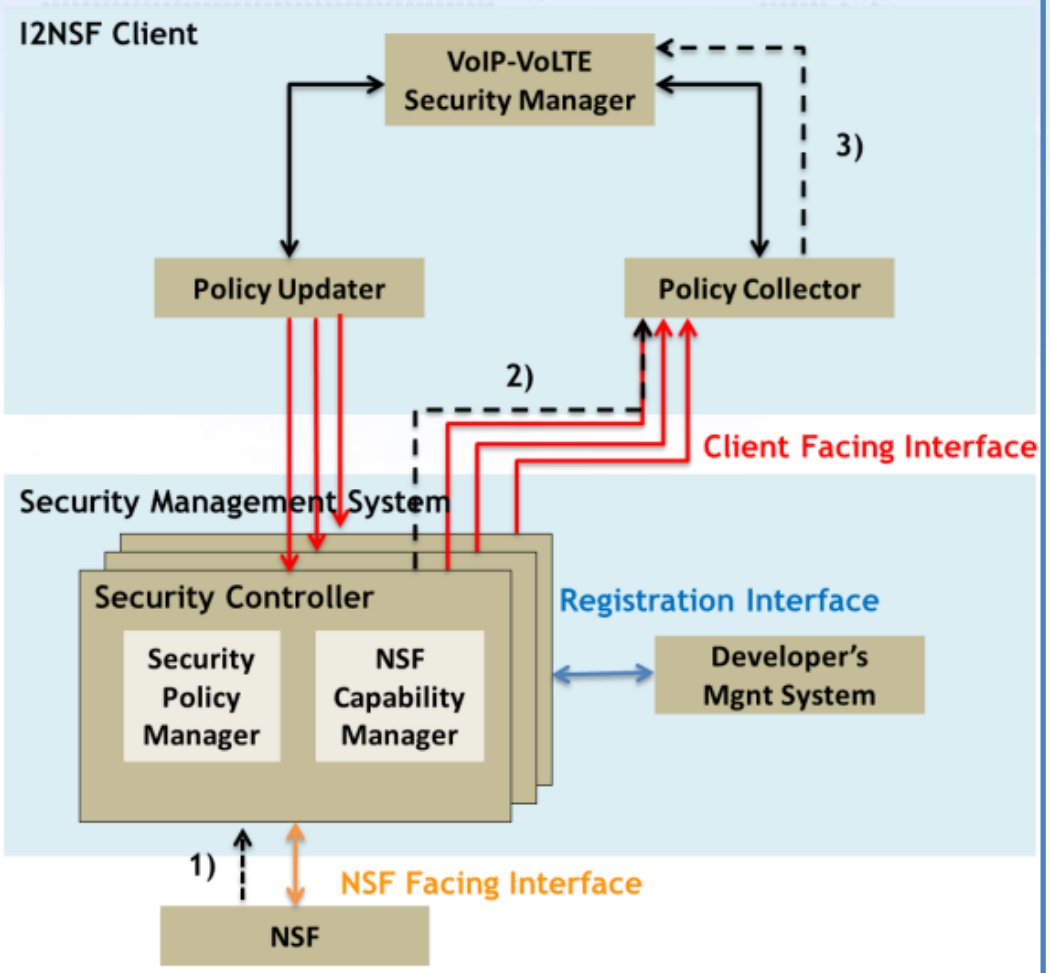


1) **VoIP-VoLTE Security Manager** generates a new high-level security policy and sends it to Policy Updater.
   - Blocking the list of illegal devices using IP address, source ports, etc.

2) **Policy Updater** distributes the high-level policy to Security Controller(s).

3) **Security Policy Manager** maps the high-level policy into several low-level policies and sends them to NSF.

Use Case: Security Management for VoIP-VoLTE



1) **NSF** detects an anomalous message transmitted from an IP address and sends the IP address to Security Controller via NSF Facing Interface.

2) **Security Controller** delivers the IP address to Policy Collector.

3) **Policy Collector** forwards the IP address to VoIP-VoLTE Security Manager and VoIP-VoLTE Security Manager adds it to a blacklist.

Next Steps

- We will make the **information and data models of Client facing interface** at security management by referring to SUPA information model.
- We will develop a **reference implementation for our architecture**.
- We will prepare for our reference implementation as **Hackathon in IETF 97 Seoul Meeting** in November, 2016.