IETF-116

Update Report for I2NSF Consumer-Facing Interface and I2NSF Registration Interface

draft-ietf-i2nsf-consumer-facing-interface-dm-27
draft-ietf-i2nsf-registration-interface-dm-23

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I E T F

I2NSF Consumer-Facing Interface YANG Data Model

draft-ietf-i2nsf-consumer-facing-interface-dm-27

Latest Updates of Consumer-Facing Interface (1/3)

OLD:

```
|   +--rw anti-virus
|   |   +--rw exception-files*   string
```

NEW:

```
|   +--rw anti-virus
|   |   +--rw profile*           string
|   |   +--rw exception-files*   string
```

- The YANG data model adds “profile” to follow the NSF-Facing Interface YANG Data Model, where two leafs for antivirus can be configured, i.e., “profile” and “exception-files”.
- The “profile” is used to configure the “deny-list”, while the “exception-files” is to configure the “allow-list”.

Latest Updates of Consumer-Facing Interface (2/3)

```
case offset {
  leaf offset {
    type int32;
    units "bytes";
    description
      "The field specifies where to start searching for the
       specified content pattern within the payload.
       For example, an offset of 5 means to start looking for
       the specified content pattern after the first 5 bytes
       of the payload. A negative value means to start from
       the last bytes of the payload. For example, an offset
       of -5 means to start looking for the specified content
       pattern from the last 5 bytes of the payload.";
  }
}
```

- The latest YANG data model explains the handling of negative values for offset and distance in payload information.

```
case distance {
  leaf distance {
    type int32;
    units "bytes";
    description
      "The field specifies how far a payload should be
       ignored before starting to search for the specified
       content pattern relative to the end of the previous
       specified content pattern match. This can be thought
       of as exactly the same thing as offset, except it is
       relative to the end of the last pattern match instead
       of the beginning of the packet. For example, a distance
       of 5 means to start looking for the specified content
       pattern 5 bytes after the last byte of the matched
       pattern. A negative value means to start looking before
       the last byte of the previous matched pattern. For
       example, a distance of -5 means to start looking for
       the specified content pattern 5 bytes before the last
       byte of the previous matched pattern.

       Note that this field cannot be used if the content is
       the first order of the list.";
  }
}
```

Latest Updates of Consumer-Facing Interface (3/3)

Comment from Transport Area:

It is not entirely clear from the rest of the context of this document, but if this filtering occurs anywhere other than the destination IP address of these packets, then ICMP messages from routers should be used, not those from hosts.

I.e., if the issue is packets to/from a NFV service, then host errors are appropriate, but if the issue is packets relayed through an NFV service, then router errors should be used instead.

OLD:

```
identity reject {
  base ingress-action;
  base egress-action;
  description
    "The reject action denies a packet to go through the NSF
     entering or exiting the internal network and sends a response
     back to the source. The response depends on the packet and
     implementation. For example, a TCP packet is rejected with
     TCP RST response or a UDP packet may be rejected with an
     ICMPv4 response message with Type 3 Code 3 or ICMPv6 response
     message Type 1 Code 4 (i.e., Destination Unreachable:
     Destination port unreachable).";
}
```

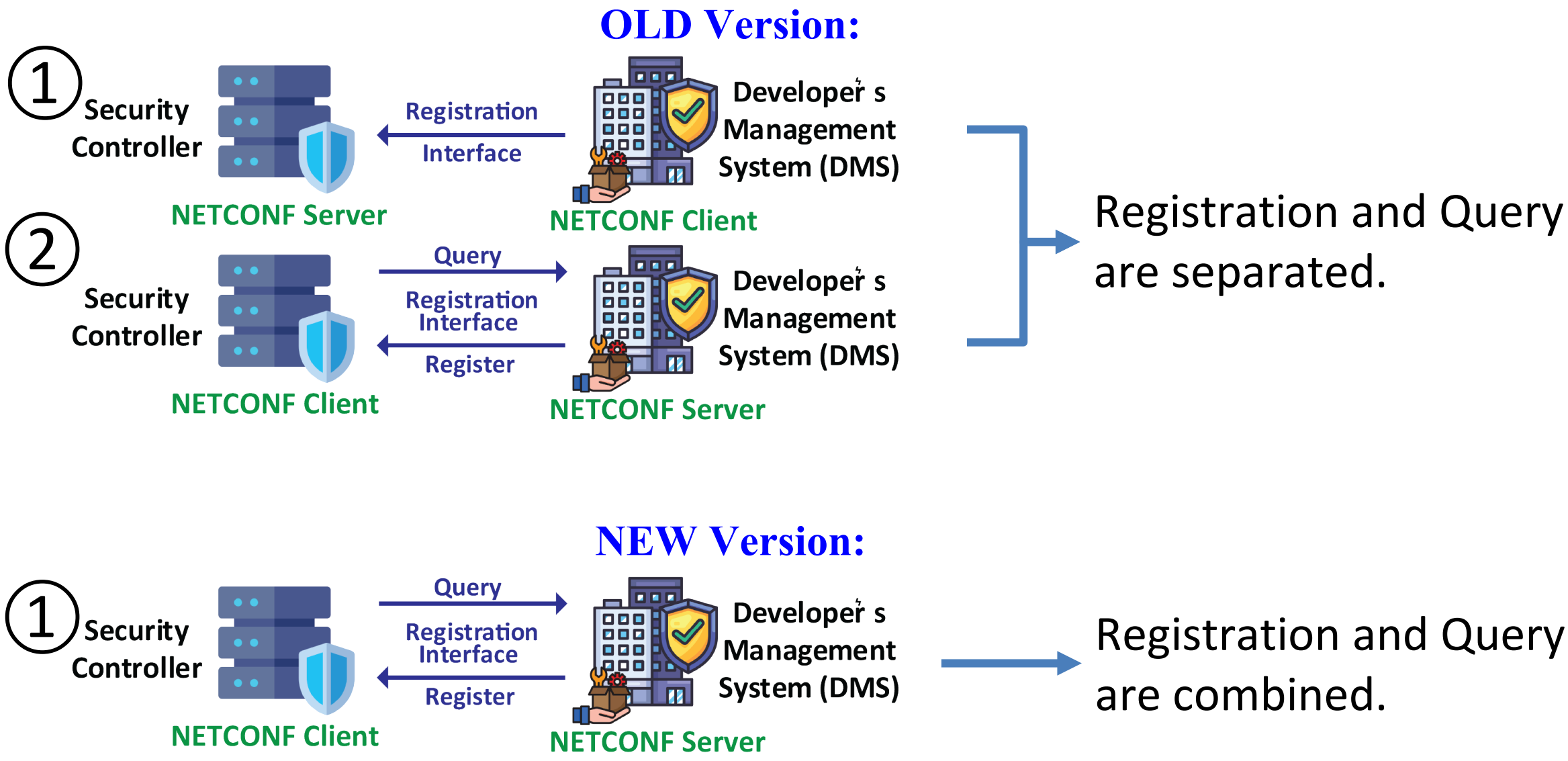
NEW:

```
identity reject {
  base ingress-action;
  base egress-action;
  description
    "The reject action denies a packet to go through the NSF
     entering or exiting the internal network and sends a response
     back to the source. The response depends on the packet and
     implementation. For example, a packet may be rejected with
     an ICMPv4 Type 3 Code 13 or ICMPv6 Type 1 Code 1 reply message
     (i.e., Destination Unreachable: Communication Administratively
     Prohibited) by an administrative purpose (e.g., firewall
     filter).";
}
```

I2NSF Registration Interface YANG Data Model for NSF Capability Registration

draft-ietf-i2nsf-registration-interface-dm-23

Latest Updates of Registration Interface (1/4)



Latest Updates of Registration Interface (2/4)

OLD Capability Registration YANG Tree:

```
 NSF Capability Registration
  augment /i2nsfcap:nsf:
    +--rw nsf-specification
    |  +--rw cpu
    |  |  +--rw model?          string
    |  |  +--rw clock-speed?    uint16
    |  |  +--rw cores?          uint8
    |  |  +--rw threads?        uint16
    |  +--rw memory
    |  |  +--rw capacity?    uint32
    |  |  +--rw speed?       uint32
    |  +--rw disk
    |  |  +--rw capacity?    uint32
    |  +--rw bandwidth
    |     +--rw outbound?    uint64
    |     +--rw inbound?     uint64
    +--rw nsf-access-info
       +--rw ip?                    union
       +--rw port?                  inet:port-number
       +--rw management-protocol?   enumeration
       +--rw name?                  string
       +--rw password?              ianach:crypt-hash
```

Figure 5. YANG Tree of NSF Capability Registration Module

OLD Capability Query YANG Tree:

```
 I2NSF Capability Query
 rpcs:
 +---x nsf-capability-query
   +---w input
   |  +---w query-nsf-capability
   |  |  +--uses ietf-i2nsf-capability
   +--ro output
      +--ro nsf-access-info
         +--ro nsf-name?              string
         +--ro ip?                    union
         +--ro port?                  inet:port-number
         +--ro management-protocol?   enumeration
         +--ro name?                  string
         +--ro password?              ianach:crypt-hash
```

Figure 6. YANG Tree of NSF Capability Query Module

Latest Updates of Registration Interface (3/4)

NEW Capability Registration and Query Combined YANG Tree:

```
NSF Capability Registration
 rpcs:
   +---x nsf-capability-registration
    |  +---w input
    |  |  +---w query-nsf-capability
    |  |     +--uses ietf-i2nsf-capability
    |  +--ro output
    |     +--ro nsf* [nsf-name]
    |        +--ro nsf-name                string
    |        +--ro version?                string
    |        +--uses ietf-i2nsf-capability
    |        +--ro nsf-specification
    |        |  +--ro cpu
    |        |  |  +--ro model?          string
    |        |  |  +--ro clock-speed?    uint16
    |        |  |  +--ro cores?          uint8
    |        |  |  +--ro threads?        uint16
    |        |  +--ro memory
    |        |  |  +--ro capacity?    uint32
    |        |  |  +--ro speed?       uint32
    |        |  +--ro disk
    |        |  |  +--ro capacity?    uint32
    |        |  +--ro bandwidth
    |        |     +--ro outbound?    uint64
    |        |     +--ro inbound?     uint64
    |        +--ro nsf-access-info
    |           +--ro ip?              union
    |           +--ro port?            inet:port-number
    |           +--ro management-protocol?   enumeration
```

Figure 5. YANG Tree of NSF Capability Registration Module

- In the **old** version, **the Capability Registration and Capability Query are separated**. It complicates the architecture of Security Controller and Developer Management's System (DMS).

- In this version, the **new YANG data model combines Capability Registration and Capability Query** with the same YANG data model which simplifies the architecture (i.e., **Security Controller** as a NETCONF Client and **DMS** as a NETCONF Server).

- The YANG data model uses an **RPC statement:**
  - The input utilizes **Capability YANG data model to query** the requested capabilities.
  - The output **allows multiple NSFs** (in the case one where an NSF is unable to provide the requested capabilities) to be registered with Security Controller along with their **capabilities, specification, and access information**.

Latest Updates of Registration Interface (4/4)

NEW Capability Update YANG Tree:

```
I2NSF Capability Update
 rpcs:
   +---x nsf-capability-update
      +---w input
      |  +---w nsf-name?   string
      |  +---w version?    string
      +--ro output
         +--ro nsf
            +--ro nsf-name?                          string
            +--ro version?                           string
            +--uses ietf-i2nsf-capability
            +--ro nsf-specification
            |  +--ro cpu
            |  |  +--ro model?         string
            |  |  +--ro clock-speed?   uint16
            |  |  +--ro cores?         uint8
            |  |  +--ro threads?       uint16
            |  +--ro memory
            |  |  +--ro capacity?   uint32
            |  |  +--ro speed?      uint32
            |  +--ro disk
            |  |  +--ro capacity?   uint32
            |  +--ro bandwidth
            |     +--ro outbound?   uint64
            |     +--ro inbound?    uint64
            +--ro nsf-access-info
               +--ro ip?                    union
               +--ro port?                  inet:port-number
               +--ro management-protocol?   enumeration
```

Figure 6. YANG Tree of NSF Capability Update Module

- In this version, a YANG data model to update the NSFs is provided.
- The YANG data model uses an RPC statement:
  - The inputs are the "name" and "version" of the NSF.
  - The output returns the **latest capabilities, specification, and access information**.
- In the case where no updates existed, the DMS can reply with a negative response (i.e., rpc-error with a message).

Next Step

- Currently both drafts are under IESG Evaluation.

- After IESG Evaluation, both drafts can be concluded, and **all five I2NSF YANG Data Model Drafts** can be published as RFCs.
  - Capability, NSF-Facing Interface, and Monitoring Interface
  - Consumer-Facing Interface and Registration Interface.