Service Function Chaining-Enabled I2NSF Architecture

(draft-hyun-i2nsf-nsf-triggered-steering-05)

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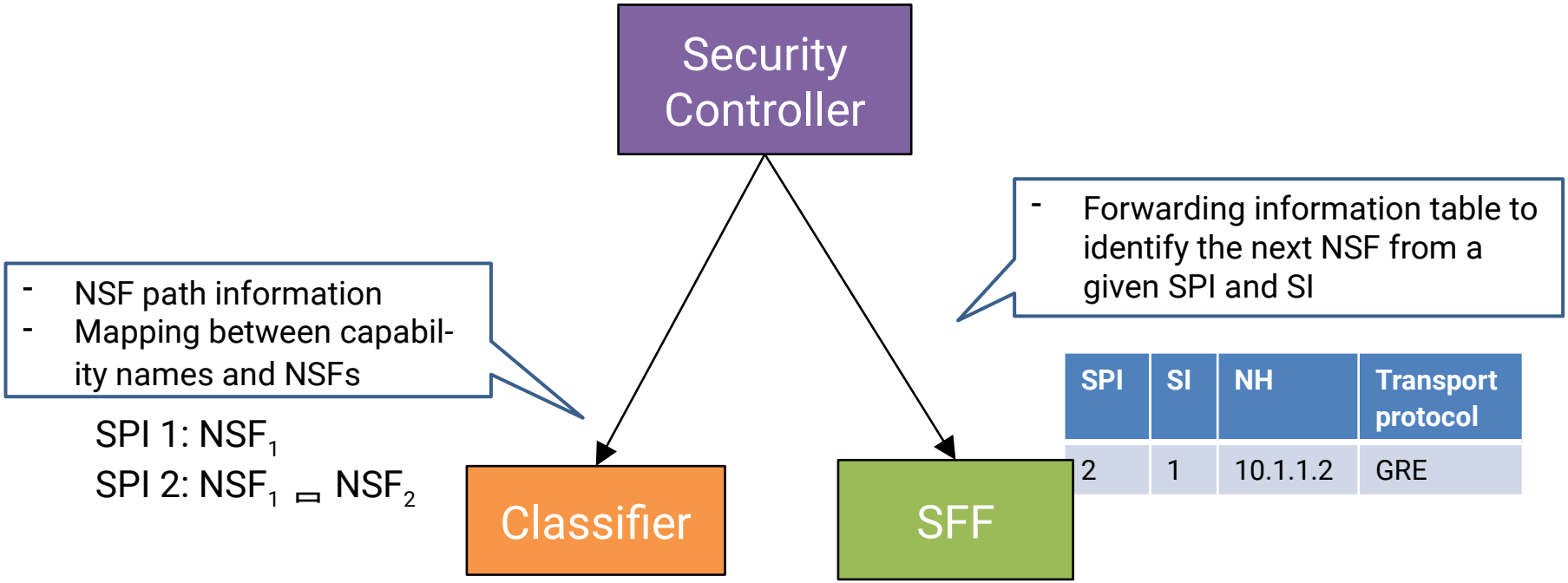
Updates from the Previous Version

- Changes from draft-hyun-i2nsf-nsf-triggered-steering-04:
  - Section 7.4 has been added in order to discuss the implementation considerations of a Service Function Chaining (SFC)-enabled I2NSF Architecture.
    - This section discusses the implementation of traffic steering by using OpenDaylight Controller supporting SFC.
  - The references have been updated to reflect the latest documents.

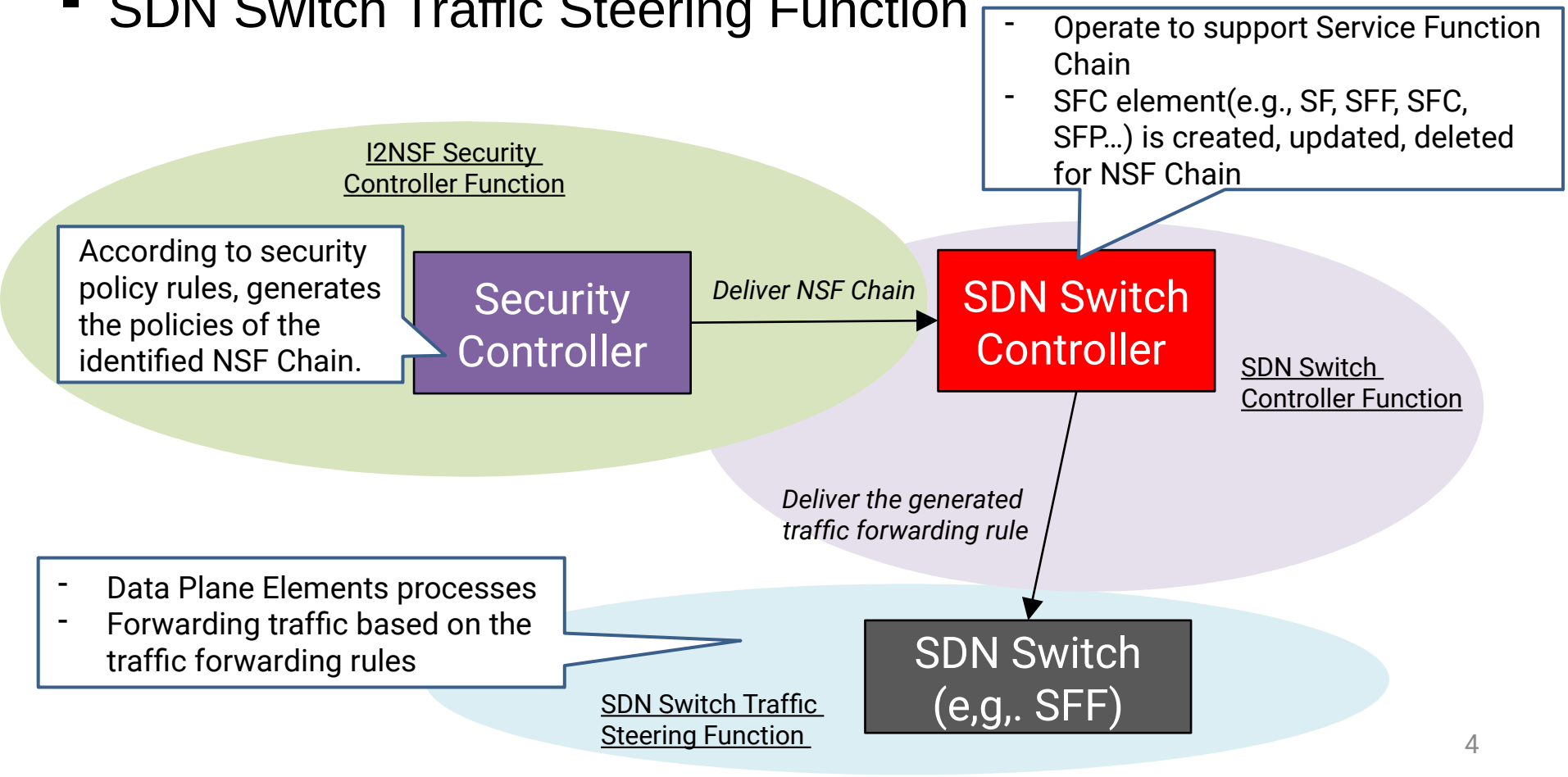
SFC Consideration

- Security Controller configures the classifier with service fun ction chain/path information.
- Security Controller generates the forwarding information tab le of NSFs and configures the SFF with it.



SFC Implementation Consideration

- I2NSF Security Controller Function
- SDN Switch Controller Function
- SDN Switch Traffic Steering Function



Next Steps

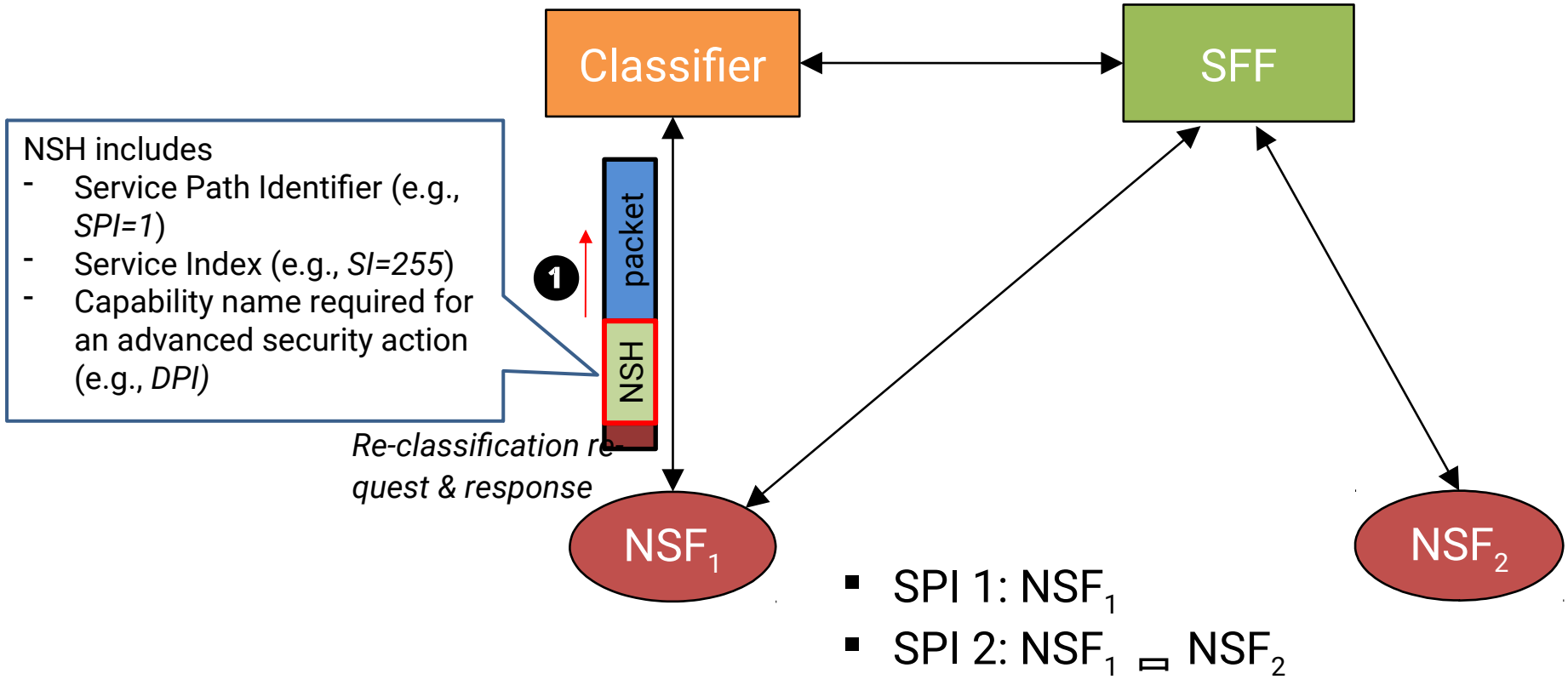
- The Service Function Chaining (SFC) of NSFs chaining wit h capability names (e.g., firewall, DPI, and DDoS attack miti gation) is required to fit into the I2NSF framework.

- For this, we need to consider a new interface called I2NSF-SFC Interface to support the Service Function Chaining (SF C) of NSFs.

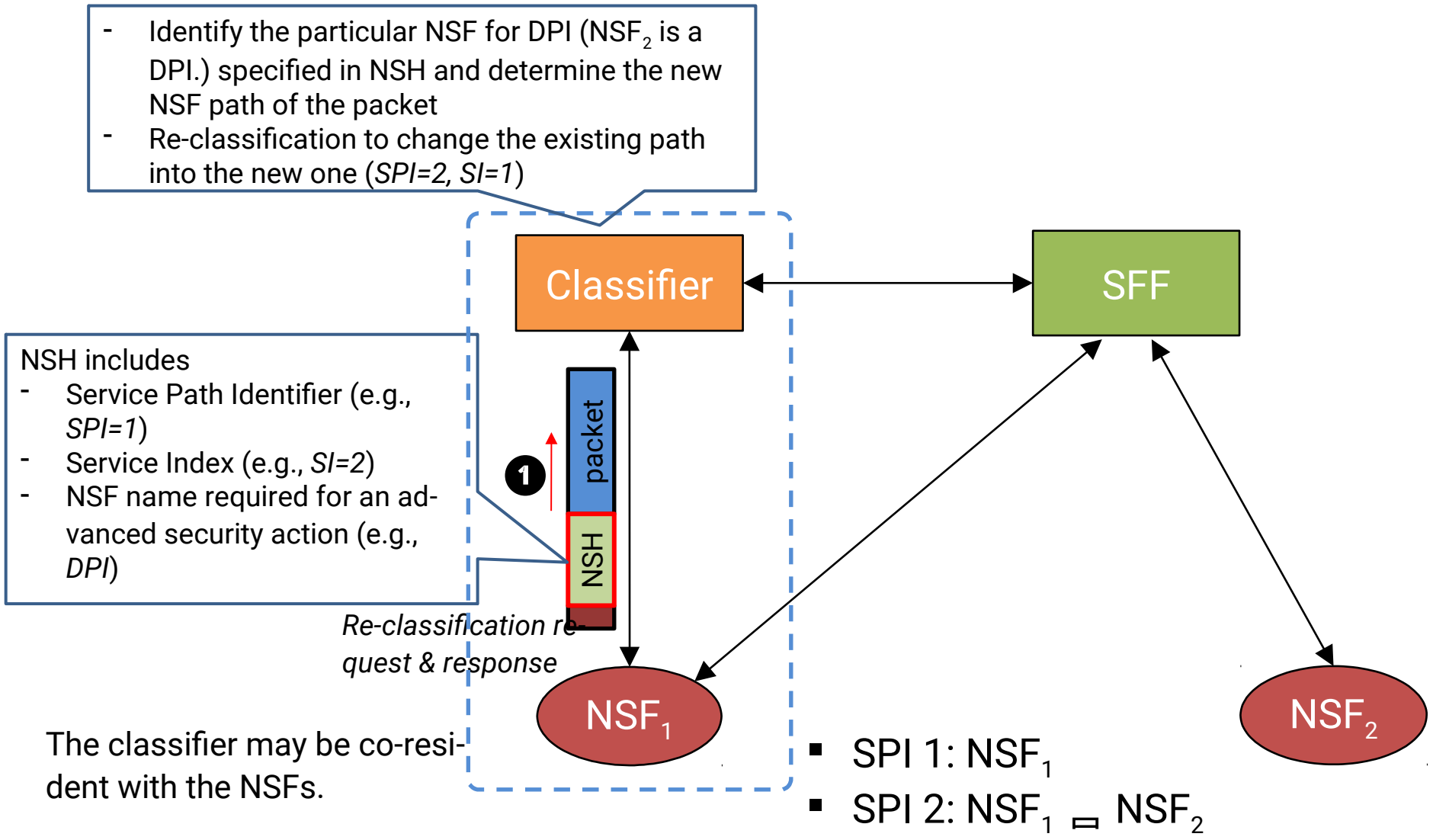
- Design of I2NSF-SFC Interface
  - We will design the Information Model & YANG Data Model of I 2NSF-SFC Interface.

Appendix (1/3)

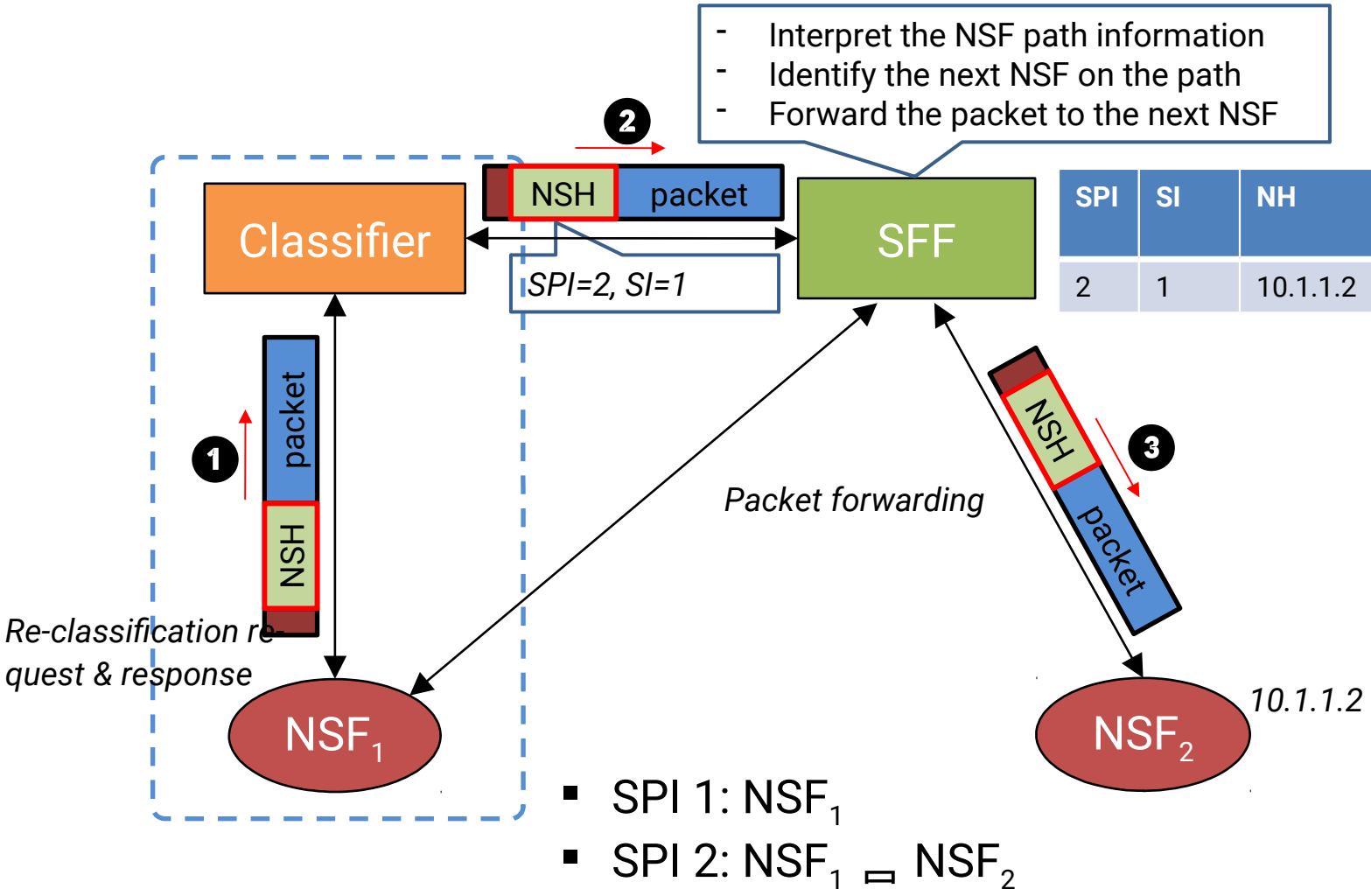
- SFC-based Packet Forwarding in I2NSF
  - To trigger an advanced security action, NSF_1 appends the capa bility name required for the advanced security action into NSH.



Appendix (2/3)


- Identify the particular NSF for DPI (NSF_2 is a DPI.) specified in NSH and determine the new NSF path of the packet
- Re-classification to change the existing path into the new one (*SPI=2, SI=1*)
Classifier
SFF
NSH includes
- Service Path Identifier (e.g., *SPI=1*)
- Service Index (e.g., *SI=2*)
- NSF name required for an advanced security action (e.g., *DPI*)
1
packet
NSH
Re-classification request & response
NSF_1
NSF_2
The classifier may be co-resident with the NSFs.
- SPI 1: NSF_1
- SPI 2: NSF_1 ▭ NSF_2

Appendix (3/3)



SPI	SI	NH	Transport protocol
2	1	10.1.1.2	GRE

- SPI 1: NSF_1
- SPI 2: NSF_1 ▭ NSF_2