

Hierarchical Service Function Chaining (hSFC)

draft-dolson-sfc-hierarchical-06

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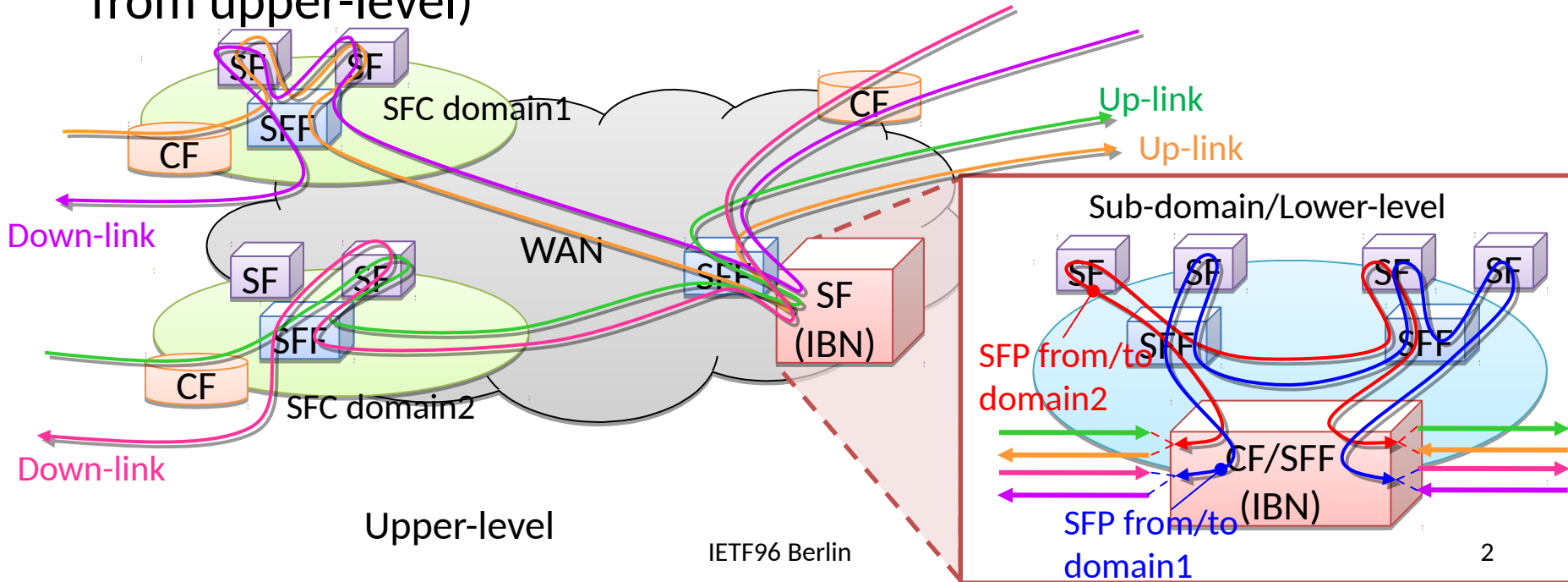
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Overview of hSFC

- Separate control of SFP in each SFC domain
- IBN conceals sub-domain form upper level (IBN looks like an SF from upper-level)



Main Changes since Buenos Aires

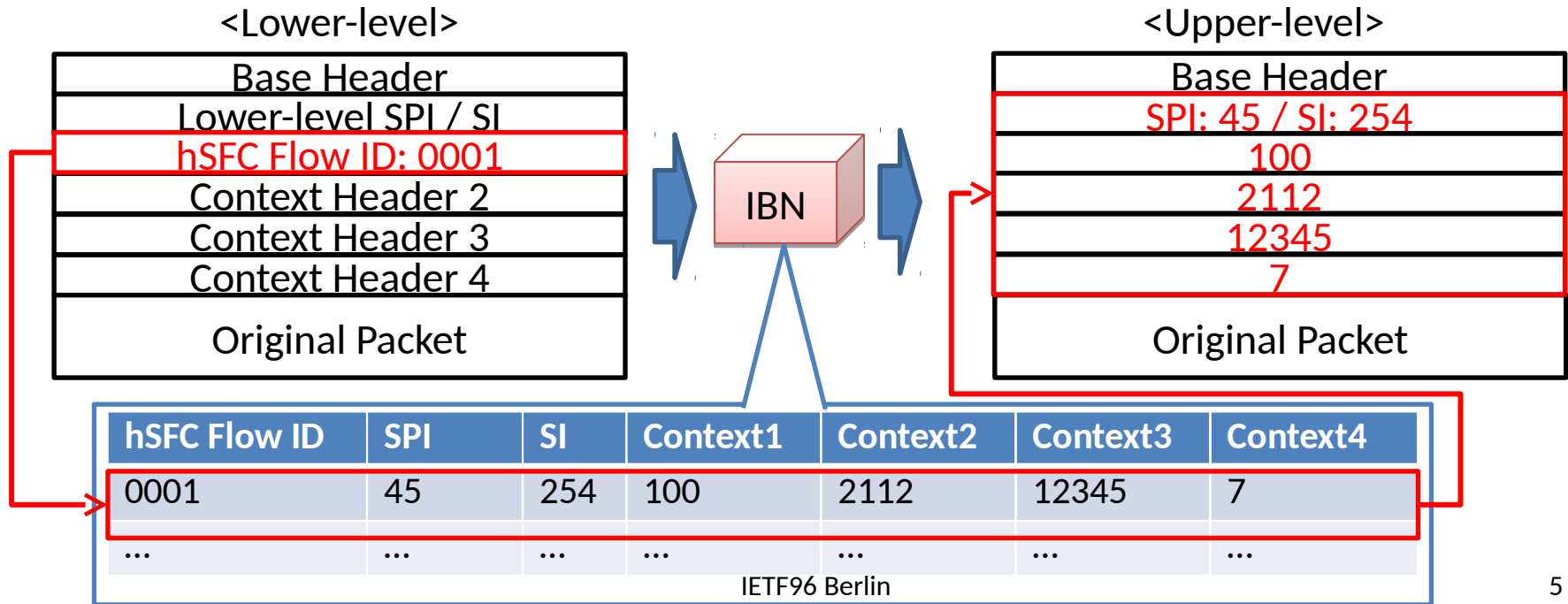
1. Add a new paths-gluing mechanism of IBN (Hybrid Approach)
2. Discuss hSFC for NSH-unaware SFs

Paths-Gluing Mechanisms

- Packets exiting lower-level domains are returned to path in the higher levels.
- Current draft introduces 5 methods as follows:
 1. Flow-stateful IBN – remember which path flow information (E.g., 5-tuple)
 2. Encode upper-level paths as context metadata of lower-level
 3. Unique lower-level paths per upper level path
 4. Nesting upper-level NSH within lower-level NSH
 5. **Stateful / Metadata Hybrid** **New in -06**

Hybrid Approach

- IBN saves upper-level NSH with mapping to hSFC Flow ID and inserts the ID into context header 1 of lower-level NSH
- IBN retrieves the original upper-level NSH by referring the hSFC Flow ID

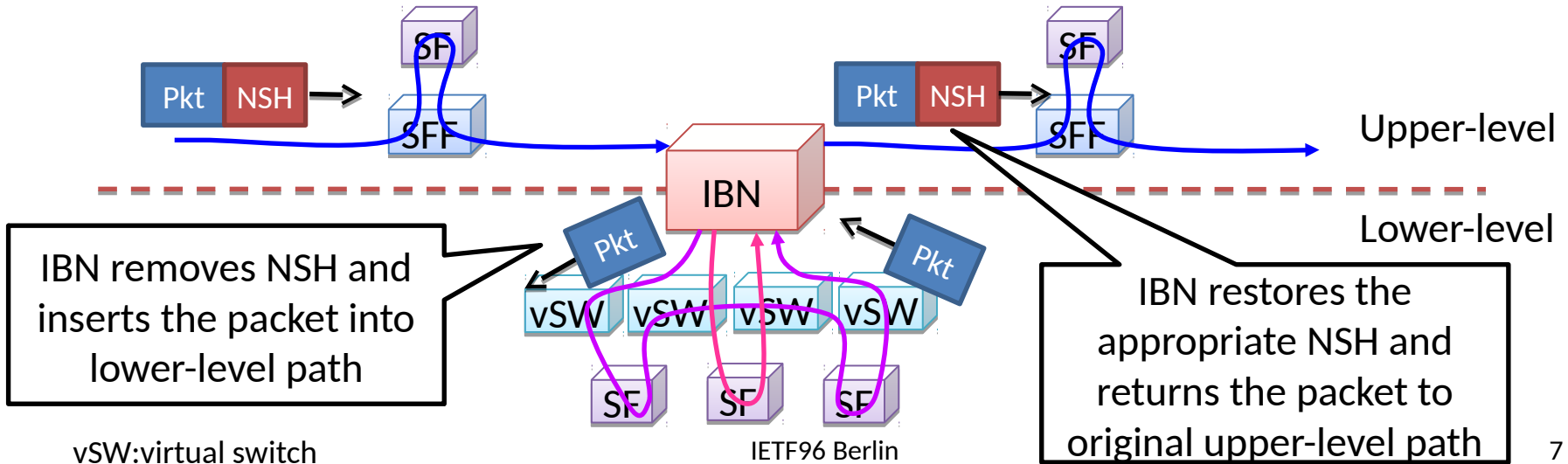


Advantages of Hybrid Approach

- Does not require state based on 5-tuple
 - > Can be used for SFs changing original packets
- Does not require all domains to have the same metadata scheme
- Can be used to restore any upper-level NSH information including context headers
- Requires only a single context header in lower-level domain
- Does not require any special functionality from SFs, other than the usual ability to preserve metadata and to apply metadata to injected

hSFC for NSH-unaware SFs

- hSFC can be used for dividing networks into NSH-aware and NSH-unaware domains
- IBN converts NSH forwarding to other forwarding techniques (E.g., 5-tuple based routing with OpenFlow)



hSFC for NSH-unaware SFs (Cont'd)

- Following methods are required to glue higher-level and lower-level paths:
 - Saving NSH information with flow states
 - Using unique lower-level paths per upper-level NSH
- Additions :
 - Transforming packet to appropriate format (E.g., restore L2 information from metadata)

RECOMMENDED IBN Behavior?

- The document describes several methods to achieve the required behavior
 - Leave the choice of method to deployment (*our proposal*)
- Or should we recommend one or more of these?
 - If yes, based on which criteria?

Use Cases

- The document discusses some use cases in two appendices
 - Should that text be moved to core text?
 - Maintain the text as it is? (*Our proposal*)
 - Or, remove the appendices?
- Opinions?

Document Status & Next Steps

- Many reviews and contributions
- The document is currently under WG call for adoption
- Reviews are more than welcome
 - Any chance to get 3 volunteers to review from the audience?
- Proposed Milestone
 - If the document is adopted, the authors commit to prepare a stable version for a WGLC prior to the next IETF meeting