Network Service Header (NSH)
draft-ietf-sfc-nsh-04

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Changes in Versions 3 and 4

- No protocol changes
- Clarifying text, based on mailing list discussion:
  - NSH node SHOULD support MD Type=2. An MD Type=1 node, uses Length field to be able to process a packet where MD Type=2 is used
  - When access to "original" packet is needed, length field MUST be used to determine the "end" of the NSH headers
  - Added Fragmentation considerations – IETF compliant
    - Options: Jumbo, Path MTU or re-assembly
- Note: enhanced Security considerations in nsh-sec

Implementation Update: Open Source

- Vibrant open source community
  - Brocade, Cisco, Ericsson, Intel, Redhat, individuals, etc.
- Data Plane in Linux kernel
  - NSH (along with VXLAN-GPE) support for Lightweight Tunneling
- Data Plane in OVS
  - Classifier and SFF controlled via OVSDB and Openflow protocols
  - Decoupled transport and NSH encap/decap
- Data Plane in FD.io (in progress)
  - NSH encap/decap in VPP
  - NSH-aware SF
  - Control plane agent Honeycomb
  - Classifier, SFF and Proxy to be supported in new NSH SFC (https://wiki.fd.io/view/Project_Proposals/NSH_SFC) sub-project

Implementation Update: Open Source [2]

- Control Plane in OpenDaylight
  - Vibrant project, with new features every release
  - Integration with ODL Group Based Policy (as a classifier controller) and OVSDB NetVirt (as a classifier controller)
  - Standalone classifier control for Telco use case
  - Pipeline Coexistence: allowing GBP, Netvirt, and SFC to all Coexist on the same OpenFlow switch
  - Refactor of Openflow renderer and YANG models for better stability
- Integration with OPNFV
  - Service Function Abstract Data Types, allowing for better integration with OPNFV
  - ODL Beryllium (inc. SFC) + Tacker (VNFM) in Brahmaputra release

Implementation Update

- Many already announced/shipping implementations
  - Brocade
  - Cisco
  - Citrix
  - Ericsson
  - F5
  - Intel
  - Marvell
  - Qosmos
  - Riverbed
  - Sandvine
- Several more vendors will announce support over the next few weeks/months

Implementation Update [2]

- Multi-vendor implementation and initial deployments underway
  - Multi party Demo at MWC 2015 and Cisco Live 2015
    - Cisco, Intel, F5 and Citrix
    - OpenDaylight + OvS + SFs
  - NTT sponsored Interop event (http://www.ntt.co.jp/news2015/1502e/150212a.html)
    - NTT : Providing SFF, SFC Proxy, and Controller
    - ALAXALA : Providing Classifier, SFF, and SFC Proxy
    - Hitachi : Providing Classifier, SFF, and SFC Proxy
    - Cisco : Providing Classifier, SFF, and SFC Proxy
    - NEC : Providing Classifier, SFF, and SFC Proxy
    - Alcatel-Lucent Japan : Providing Classifier
  - Intel Developer Forum 2015
    - Intel + ODL + OVS demo

Next Steps

- Last Call in-progress