

UDP Overlay Transport For NSH

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Current NSH Transport Landscape

- SFC WG is not chartered to define transports
 - All transports are out-of-scope
- Implementations are required to standardize their own transports
 - Required to follow up in different/appropriate WGs
- NVO3 WG adopted VXLAN-GPE, which signals NSH
 - Requires Virtual Networks
 - Does not carry NSH directly over UDP

Motivation for NSH over UDP

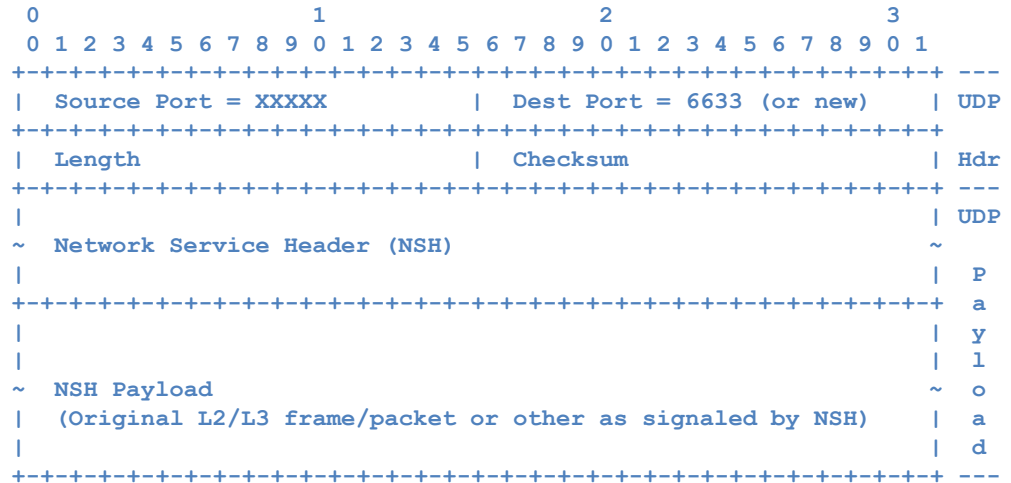
- There is no transport in SFC WG for NSH!
- Need a transport encapsulation for NSH, that is
 - Very simple, no barrier to entry
 - Based on existing protocols
 - Works in existing L3 Networks – IPv4/IPv6
 - Has minimal or no overhead beyond NSH itself
 - Meets the transport independence goal of NSH

Overview

- Describes how to carry NSH encapsulated packets, directly over UDP
- This draft specifies the use of UDP port no. 6633
 - which is assigned to “Cisco vPath Services Overlay”
 - And instructs IANA to reassign this port to NSH
- Alternatively, and preferably, a new port could be assigned for NSH

NSH UDP Overlay Packet Format

NSH Over UDP
Packet Structure



Benefits of UDP Transport for NSH

- Entropy
 - Allows the use of source UDP port no. to be a function of the inner packet/flow
 - Allows for distribution of inner packets flows, in the network and end points
- Zero Overhead compared to VXLAN GPE
 - Use cases may not need virtual networks
 - Where needed, it can be carried as part of NSH metadata

WG Placement And Next Steps

- This draft is presented here in SFC WG as per guidance received from
 - Alia Atlas (Routing AD), Spencer Dawkins (Transport AD)
- Authors request this draft to be adopted as SFC WG draft
 - With support from Transport Area (TSV) WG
- Will be updated with Security and Congestion Control guidelines
 - As per RFC5405bis

- As always solicit WG discussion and feedback