

Protocol Extensions for Header Compression over MPLS

(draft-ash-avt-hc-over-mpls-protocol-01.txt)

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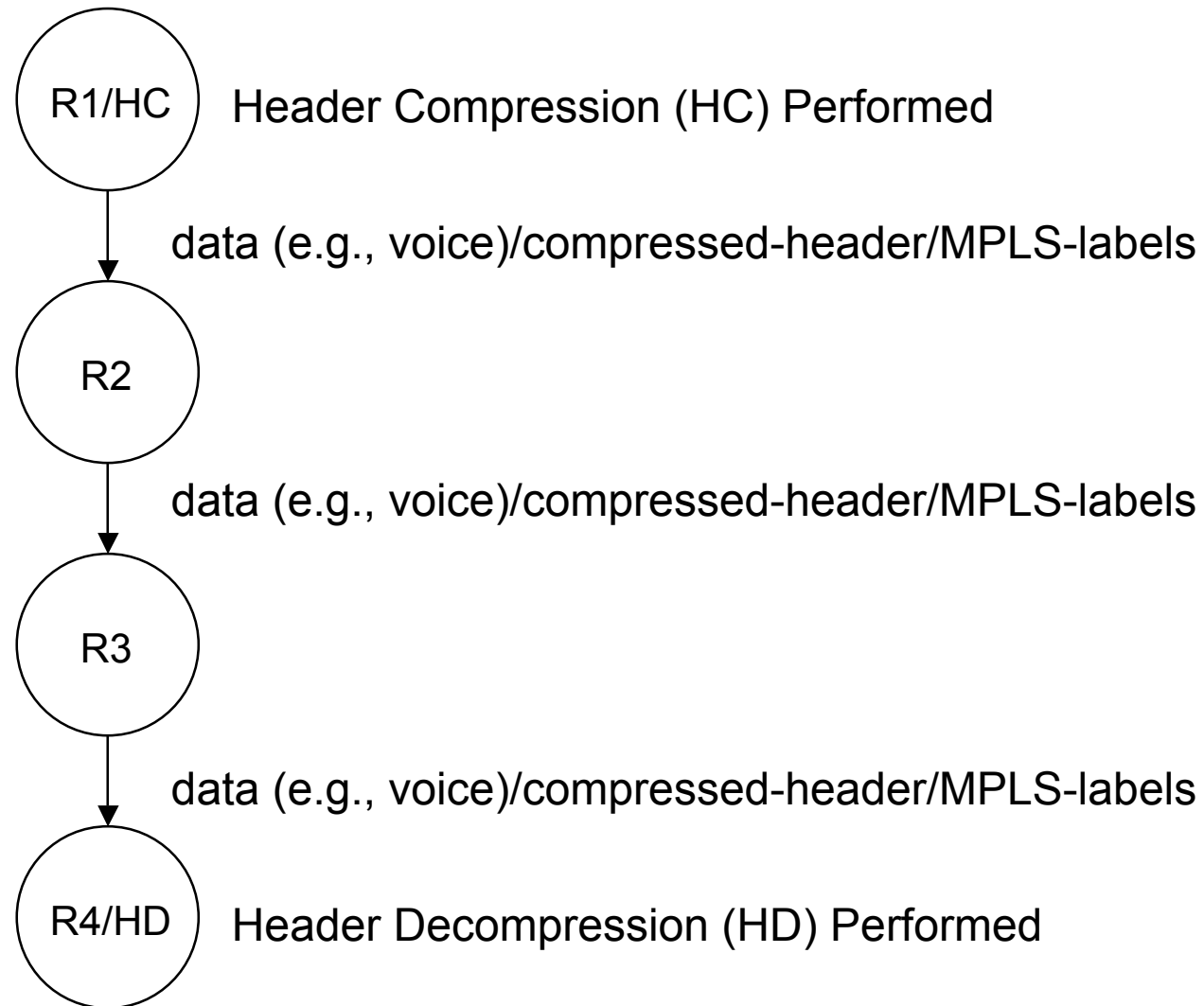
□ Work item & milestone added to AVT charter

- ❖ Work item: "in collaboration with the MPLS and ROHC WGs, to develop a solution for header compression of RTP across MPLS networks that avoid decompression and compression at each MPLS node"
- ❖ Milestone: "Dec 05 Submit any extensions for RTP HC on MPLS networks for Proposed Standard"

□ Outline

- ❖ header compression over MPLS concept
- ❖ changes from previous version
- ❖ open issues
- ❖ next steps

Header Compression over MPLS Concept

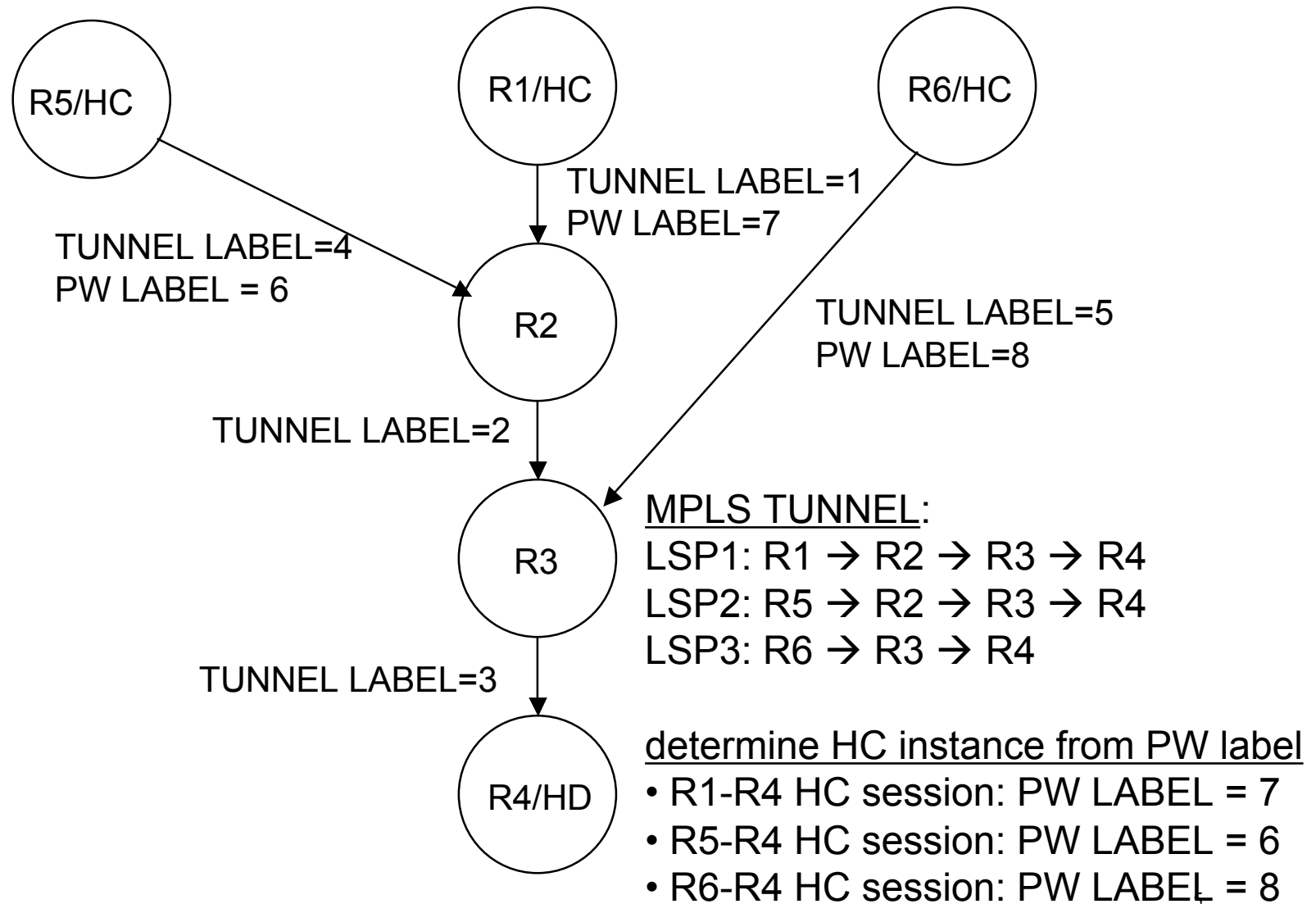


Changes from Previous Version

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- ❑ use MPLS pseudowires (PWs) to create 'point-to-point' sessions between header compressor (HC) & header decompressor (HD)
 - ❖ avoids issue of CID collision
 - ❖ disadvantage: requires additional 4-byte label with each packet
- ❑ Lars-Erik's suggested outline used:
 - ❖ Section 2 'Terminology' is added
 - ❖ Section 3 'Header Compression over MPLS Protocol Overview' is added
 - ❖ Section 4 'Protocol Specifications' is reorganized
- ❑ PW setup & HC session configuration covered in Sections 3.1 & 4.1
 - ❖ PW Interface Parameters Sub-TLV used to signal HC session setup & HC parameter negotiation
 - ❖ Mechanisms analogous to HC-over-PPP [RFC3241, RFC3544]
- ❑ encapsulation of HC packets covered in Sections 3.2 and 4.2
- ❑ PW type assigned to each HC scheme
 - ❖ discussed in Section 4.1 & [IANA] (<http://ietf.org/internet-drafts/draft-ietf-pwe3-iana-allocation-11.txt>)

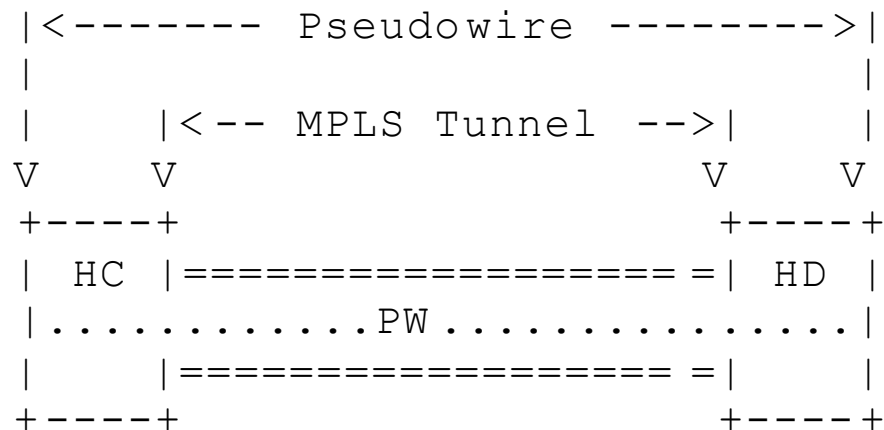
Header Compression over PW/MPLS



PW Setup & HC Session Configuration

(draft-ash-avt-hc-over-mpls-protocol-01.txt)

- PW between HC-BD established using [PW-SIG] signaling procedures
 - ❖ 'PW label' used as demultiplexer field by the HD
 - ❖ use CID at HD receiver to uniquely identify flow



- PW type indicates HC scheme used on PW [IANA]:
 - 0x001B cTCP [RFC1144] Transport Header-compressed Packets
 - 0x001C IPHC [RFC2507] Transport Header-compressed Packets
 - 0x001D cRTP [RFC2508] Transport Header-compressed Packets
 - 0x001E ROHC [RFC3095] Transport Header-compressed Packets
 - 0x001F ECRTTP [RFC3545] Transport Header-compressed Packets

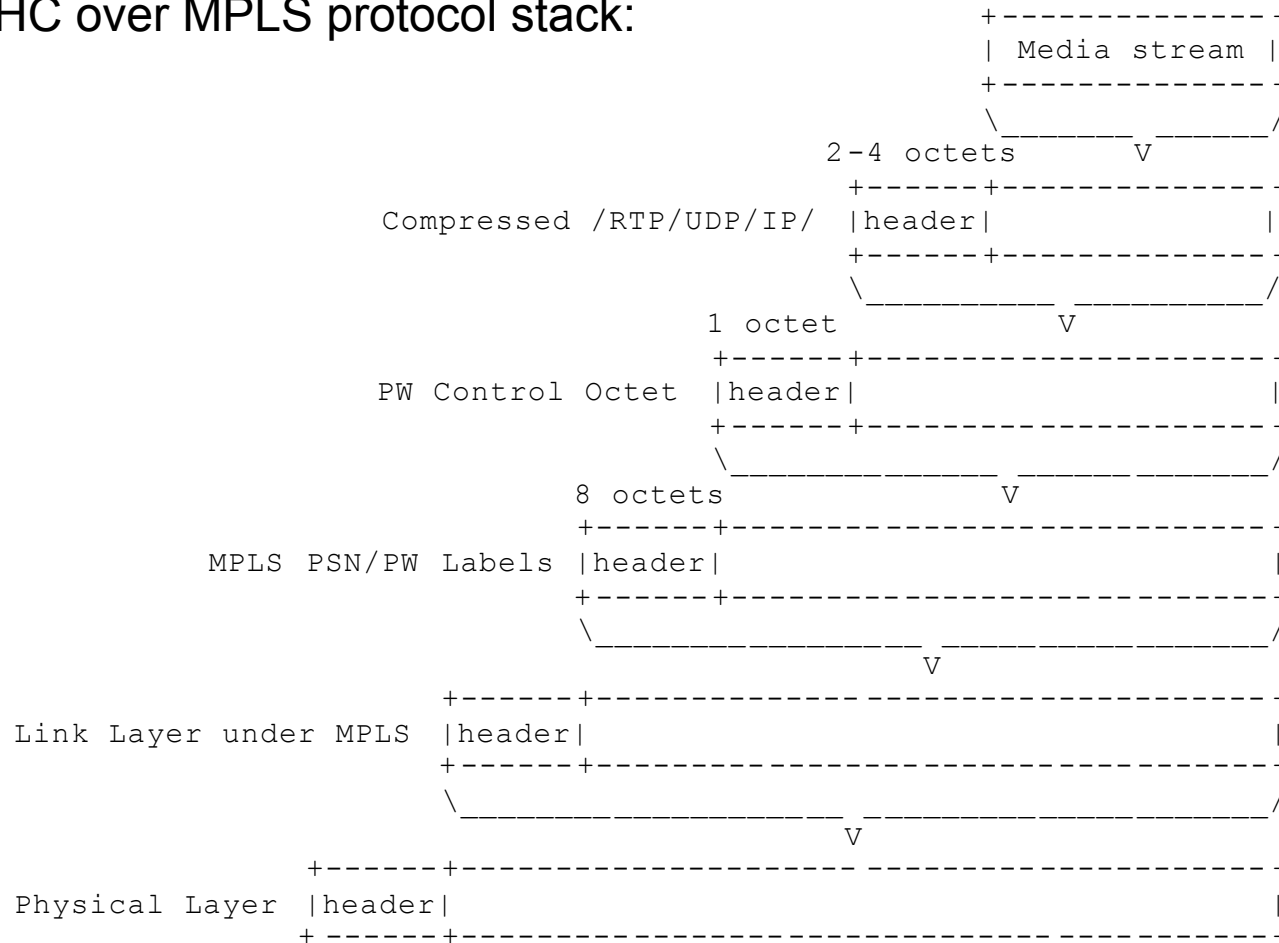
PW Setup & HC Session Configuration

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- ❑ PW/MPLS layer conveys HC session configuration information
 - ❖ Interface Parameters Sub-TLV signal HC session setup & HC parameter negotiation
 - [RFC3241, RFC3544] principles & IPCP messages reused to enable PW/MPLS HC session configuration
 - sub-TLV specifies interface parameters & used to configure HC/HD ports at PW edges
- ❑ sub-TLV type values for
 - ❖ IPv4 network control protocol, IPCP [RFC1332]
 - ❖ IPv6 NCP, IPV6CP [RFC2472]
- ❑ IPCP/IPV6CP TLVs encapsulated in PW Interface Parameters Sub-TLV
 - ❖ used to negotiate HC parameters for their respective protocols
 - ❖ IPCP/IPV6CP TLVs supported include
 - Configuration Option Format, RTP-Compression Suboption, Enhanced RTP-Compression Suboption, TCP/non-TCP Compression Suboptions [RFC3544]
 - Configuration Option Format, PROFILES Suboption [RFC3241]

Encapsulation of HC Packets

- ❑ existing HC algorithms used to maintain contexts as specified in cTCP [RFC1144], IPHC [RFC2507], cRTP [RFC2508], ROHC [RFC3095], ECRTCP [RFC3545]
- ❑ route each stream over appropriate PW
 - ❖ HC over MPLS protocol stack:



PW Control Octet

(draft-ash-avt-hc-over-mpls-protocol-01.txt)

- ❑ 1-byte PW Control Octet (extends RFC 3544)

```
0 1 2 3 4 5 6 7 8
+-+--+--+--+--+--+
|0 0 0 0|Pkt Typ|
+-+--+--+--+--+--+
```

"Packet Type" encoding:

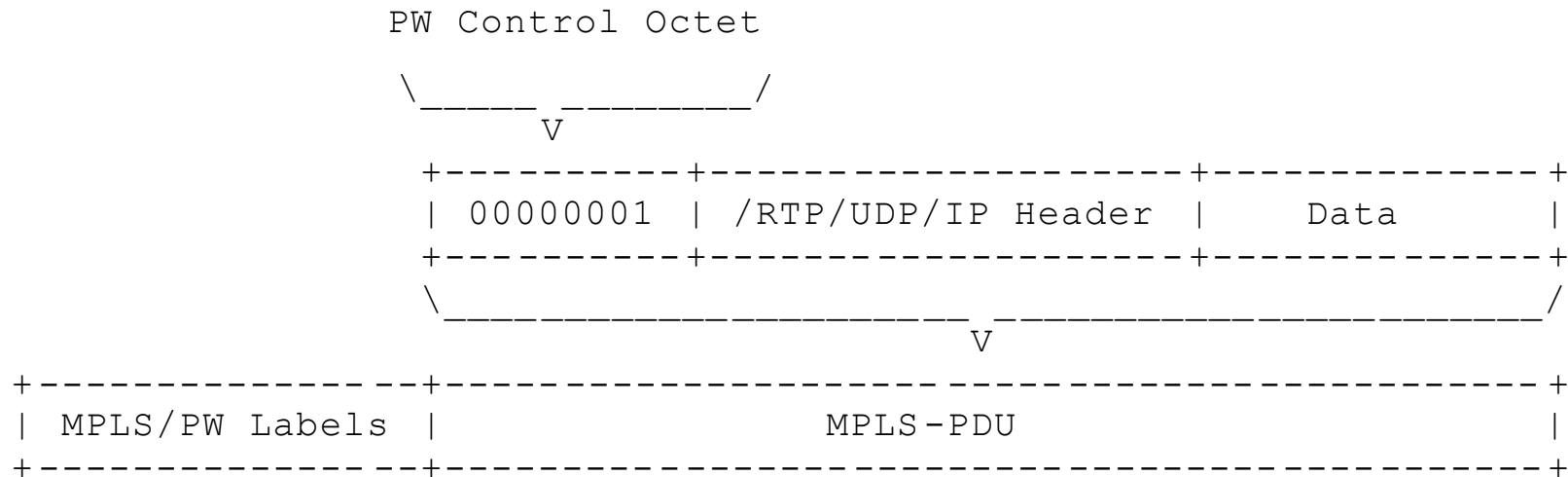
0: Reserved	1: FULL_HEADER
2: COMPRESSED_TCP	3: COMPRESSED_TCP_NODELTA
4: COMPRESSED_NON_TCP	5: COMPRESSED_RTP_8
6: COMPRESSED_RTP_16	7: COMPRESSED_UDP_8
8: COMPRESSED_UDP_16	9: CONTEXT_STATE
10-15 MUST NOT BE ASSIGNED	

- ❑ first nibble set to 0000 to avoid being mistaken for IP
 - ❖ MPLS payload not IP
 - ❖ consistent with PWE3 control word [PWE3-CNTL-WORD], [ECMP-AVOID]

FULL_HEADER Packet

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- ❑ PW control octet is set to '00000001' indicating a FULL_HEADER packet format:



Open Issues

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- ❑ set up registry for unassigned values of PW Control Octet
 - ❖ rather than 'MUST NOT BE ASSIGNED'
 - ❖ future expansion to meet new requirements
- ❑ clarify 'IANA Considerations'
 - ❖ second sentence: "As discussed in Section 4.1, interface parameter sub-TLV type values *need to be* specified in [IANA] for both the network control protocol for IPv4, IPCP [RFC1332] and the IPv6 NCP, IPV6CP [RFC2472]."
 - ❖ [IANA] <http://ietf.org/internet-drafts/draft-ietf-pwe3-iana-allocation-11.txt> does not now specify sub-TLV type values for the network control protocol for IPv4, IPCP [RFC1332] and the IPv6 NCP, IPV6CP [RFC2472]
 - ❖ next spin of [IANA]: provide suggested updates to Luca (editor)

Next Steps

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- ❑ adopt I-D as AVT working group draft
- ❑ continue to progress I-D within AVT
 - ❖ with review by MPLS, PWE3, & ROHC WGs