Header Compression over MPLS

(draft-ietf-avt-hc-mpls-reqs-02.txt)

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

Jerry Ash
AT&T
gash@att.com

Bur Goode
AT&T
bgoode@att.com

Jim Hand
Consultant
hand17@earthlink.net

George Swallow
Cisco Systems, Inc.
swallow@cisco.com

Raymond Zhang
Infonet Services Corporation
zhangr@sa.infonet.com

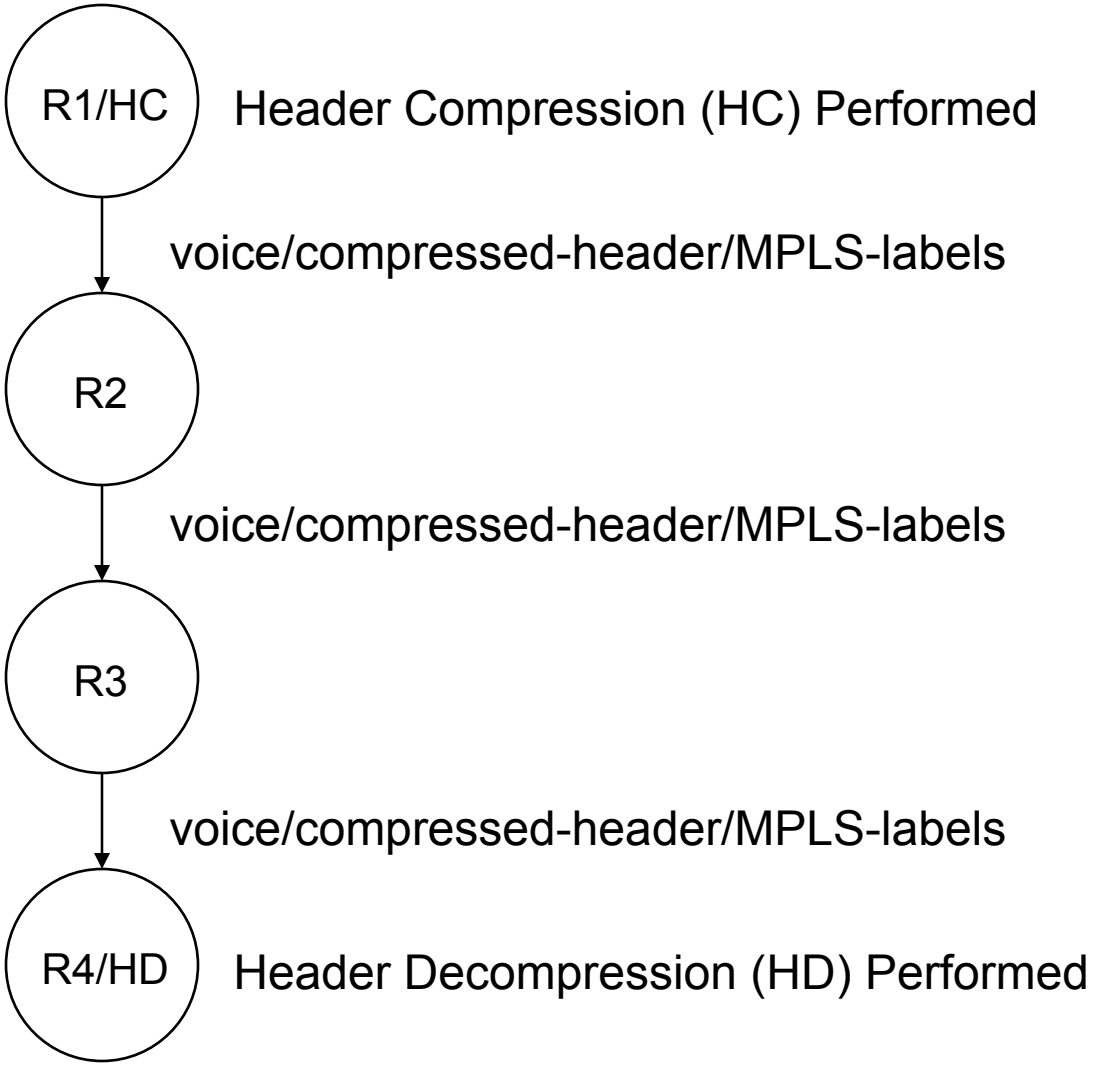
Outline
(draft-ietf-avt-hc-mpls-reqs-02.txt)
(draft-ash-avt-ecrtp-over-mpls-protocol-01.txt)

- changes from previous versions
- motivation & problem statement
- goals & requirements
- next steps

Header Compression over MPLS Concept

(draft-ietf-avt-hc-mpls-reqs-02.txt)

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



Changes from Previous Version
(draft-ietf-avt-hc-mpls-reqs-02.txt)

- title changed to reflect that header compression over MPLS not specific to ECRTP
- candidate solution methods & needs discussed in Section 4
- added requirement that packet reordering MUST NOT cause incorrectly decompressed packets to be forwarded from the decompressor
- reword discussion to avoid judging suitability of either ECRTP or ROHC where reordering can occur
- completed AVT working group last call

Motivation & Problem Statement
(draft-ietf-avt-hc-mpls-reqs-02.txt)

- motivation
  - carriers evolving to converged MPLS/IP backbone with VoIP services
    - enterprise VPN services with VoIP
    - legacy voice migration to VoIP
- problem statement
  - VoIP typically uses voice/RTP/UDP/IP/ encapsulation
    - voice/RTP/UDP/IP/MPLS with MPLS labels added
  - VoIP typically uses voice compression (e.g., G.729) to conserve bandwidth
    - compressed voice payload typically no more than 30 bytes
    - packet header at least 48 bytes (60% overhead)
  - cRTP not highly scalable

Goals & Requirements
(draft-ietf-avt-hc-mpls-reqs-02.txt)

- goals
  - provide more efficient voice transport over MPLS networks
  - increase scalability of header compression to a large number of flows
  - not significantly increase packet delay, delay variation, or loss probability
  - leverage existing work through use of standard protocols as much as possible

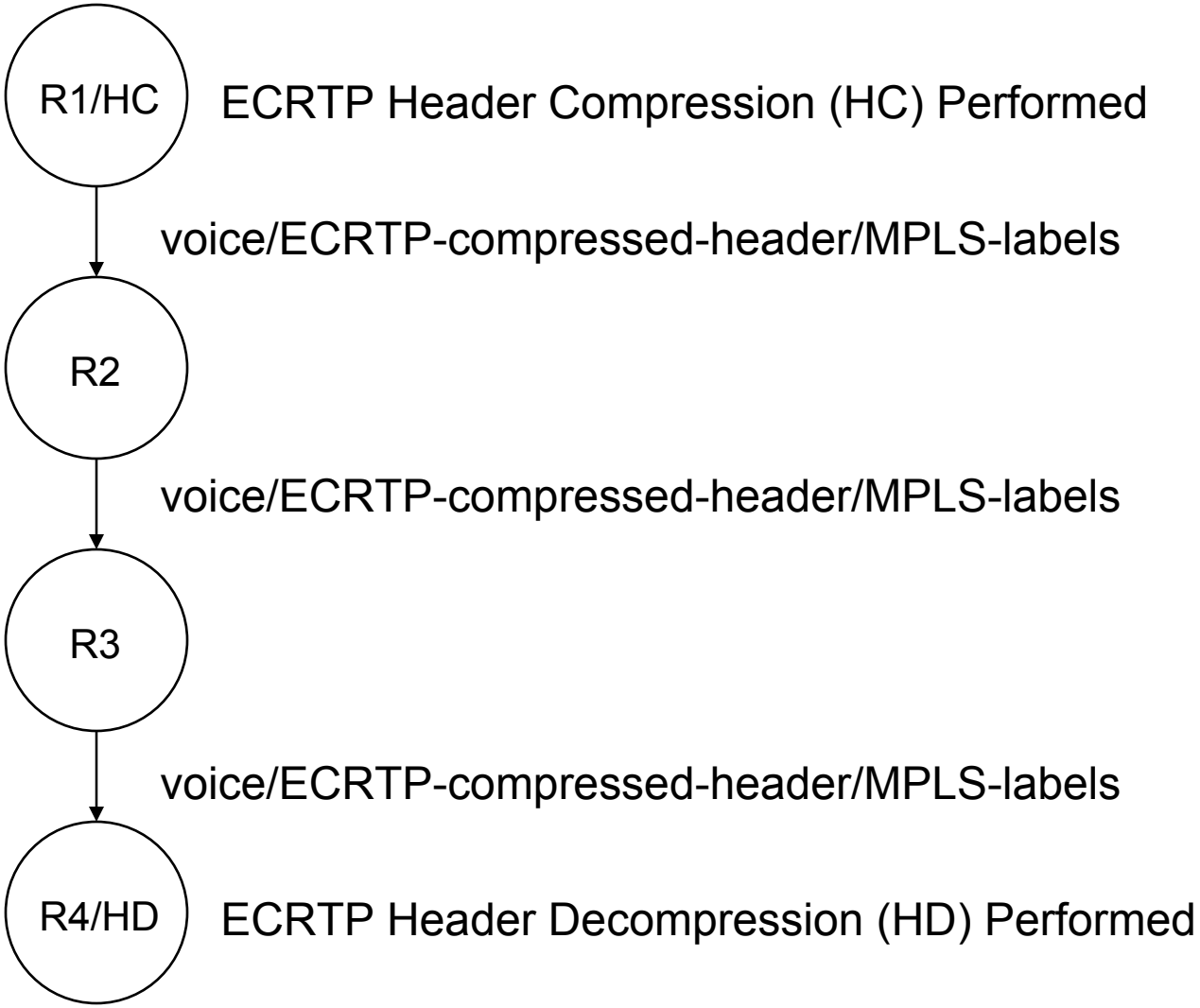
Goals & Requirements
(draft-ietf-avt-hc-mpls-reqs-02.txt)

- requirements
  - MUST use existing protocols (e.g., [ECRTP], [ROHC]) to compress RTP/UDP/IP headers
    - provide for efficient transport, tolerance to packet loss, & resistance to loss of session context
  - MUST allow HC over an MPLS LSP
    - avoid hop-by-hop compression/decompression cycles
  - MUST minimize incremental performance degradation due to increased delay, packet loss, and jitter
  - MUST use standard protocols to signal context identification and control information (e.g., [RSVP], [RSVP-TE], [LDP]
  - Packet reordering MUST NOT cause incorrectly decompressed packets to be forwarded from the decompressor

Changes from Previous Version
(draft-ash-avt-ecrtp-over-mpls-protocol-01.txt)

- removed background information provided in requirements draft
- changed VoIP-Call-IDs to more generic ECRTP-Flow-IDs
- high-level call flow example removed
  - more detailed call flow with message contents to be provided in separate ID
- each packet type defined in ECRTP MUST have prepended to it a packet type field
  - reserve a single fixed first byte
    - SCID_Packet_Type = 00010000
    - avoid values that could be mistaken as IPv4, IPv6, or VPN/PseudoWire encapsulations
  - use the second byte for the packet types
    - FULL_HEADER = 1
    - CONTEXT_STATE = 9
    - etc.

Header Compression over MPLS Concept
(draft-ash-avt-ecrtp-over-mpls-protocol-01.txt)



Protocol Extensions for ECRTP Over MPLS

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

- use RSVP to establish LSPs between R1/HC-R4/HD
- use ECRTP to compress header at R1/HC, decompress at R4/HD
- R1/HC requests session context IDs (SCIDs) from R4/HD
- R1/HC appends R4/HD label to compressed header
- header compression context routed from R1/HC --> R4/HD
- route compressed packets with MPLS labels R1/HC --> R4/HD
- packet decompressed at R4/HD using ECRTP algorithm

Next Steps
(draft-ietf-avt-hc-mpls-reqs-02.txt)
(draft-ash-avt-ecrtp-over-mpls-protocol-01.txt)

- requirements draft to IESG?
- charter extension?
- continue to progress solution I-D's within AVT
  - with review by other working groups (e.g., MPLS WG)