

# Update on RSVP Refresh Reduction Extensions

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# Draft Information

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- “RSVP Refresh Reduction Extensions”
  - draft-ietf-rsvp-refresh-reduct-01.txt
  - Authors: Berger, Gan, Pan, Swallow
- History
  - Replaces draft-berger-rsvp-refresh-reduct-03.txt
    - Per Oslo, includes discussed changes
  - Included changes per interim WG meeting (4/99)
  - Derived from “Extensions to RSVP for LSP Tunnels”
    - Split per discussion in Orlando
    - draft-ietf-mpls-rsvp-lsp-tunnel-01.txt
      - 00 version published (11/1998)

# Draft Information (continued)

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- Address:
  - Per message overhead and rate
  - Processing overhead per refresh message
  - Large setup/teardown time due to message loss
- Defines:
  - Bundle Message
    - Reduces raw RSVP message rate through message aggregation
  - MESSAGE\_ID and MESSAGE\_ID ACK
    - Reduces state change propagation time via reliable transmission
    - Provides a shorthand message identifier
  - Summary Refresh Message
    - Identifier based refresh of multiple messages per Srefresh

# Changes Since Oslo

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- draft-ietf-rsvp-refresh-reduct-00
  - Changed draft name
  - Discussed in Oslo
    - Removed Hello Messages and associated processing
      - Non-hard state version of Hello moved to MPLS draft
    - Introduced MESSAGE\_ID LIST object
      - Combines identifiers with same Epoch value
      - ~Doubled number of MESSAGE\_IDs in an Srefresh message
    - Modified Srefresh to carry multicast (S,G) information
      - New MESSAGE\_ID SRC\_LIST and MCAST\_LIST objects
      - Supports Srefreshes of multicast session over multi-access networks and an optimization for point-to-point links.
  - Other minor edits and clarifications

# Changes Since Oslo (continued)

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- draft-ietf-rsvp-refresh-reduct-01
  - No changes made to how extensions operate
  - Integrated feedback from working group chairs
    - Multiple text revisions
    - Renamed Message\_ID field to Message\_Identifier
    - Broke MESSAGE\_ID class into 3 classes
      - MESSAGE\_ID class
      - MESSAGE\_ID\_ACK class
      - MESSAGE\_ID\_LIST class
    - Removed some text left over from previous versions and removed reference to UDP encapsulation
  - Many other editorial and clarification changes

# Planned Changes

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- Bundling
  - Add paragraph on bundling time issues
    - Limit time RSVP message will wait to be bundled (per Tommasi and Molendini)
- MESSAGE\_ID\_ACK
  - Add paragraph on Ack timing issues
    - Limit time Ack will wait to be piggy-packed
- Add IPv6 c-types for MESSAGE\_ID\_LIST class
- Other minor edits
- Integrate today's comments

# Issue:

## Srefresh For Multicast Sessions

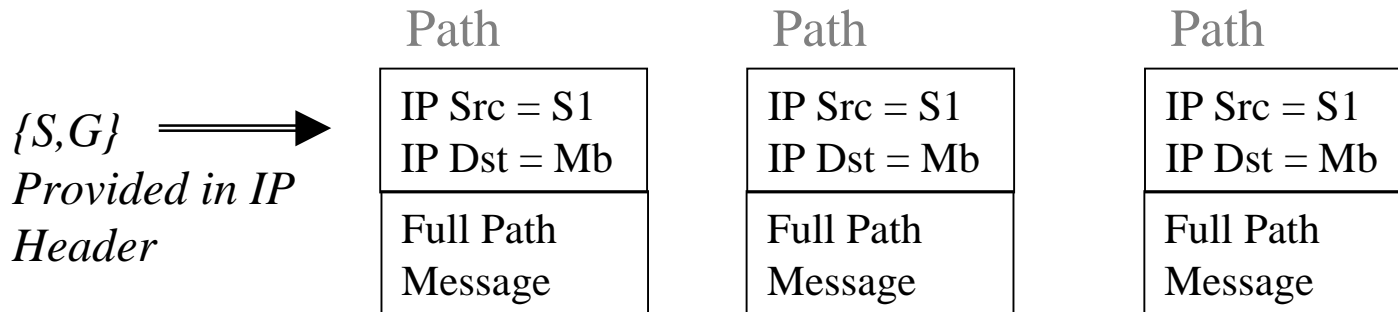
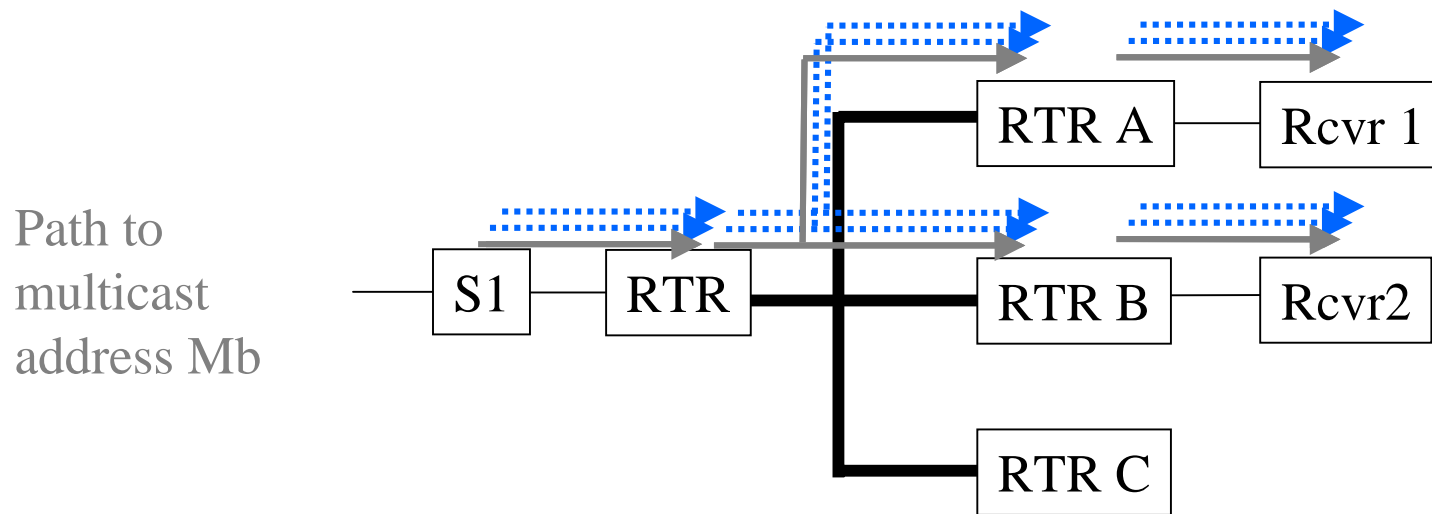
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- Srefresh messages refresh Path and Resv messages by sending Message\_identifiers
  - Not whole Resv or Path message
  - Replaces full Resv refresh messages
    - Normally sent hop-by-hop to previous hop
  - Replaces full Path refresh messages
    - Normally sent end-to-end to session destination address with source's IP address
- Issue:
  - How should Srefreshes of Path messages for multicast sessions be handled
    - Must handle changes in next hop
    - Must support {S,G} RPF check

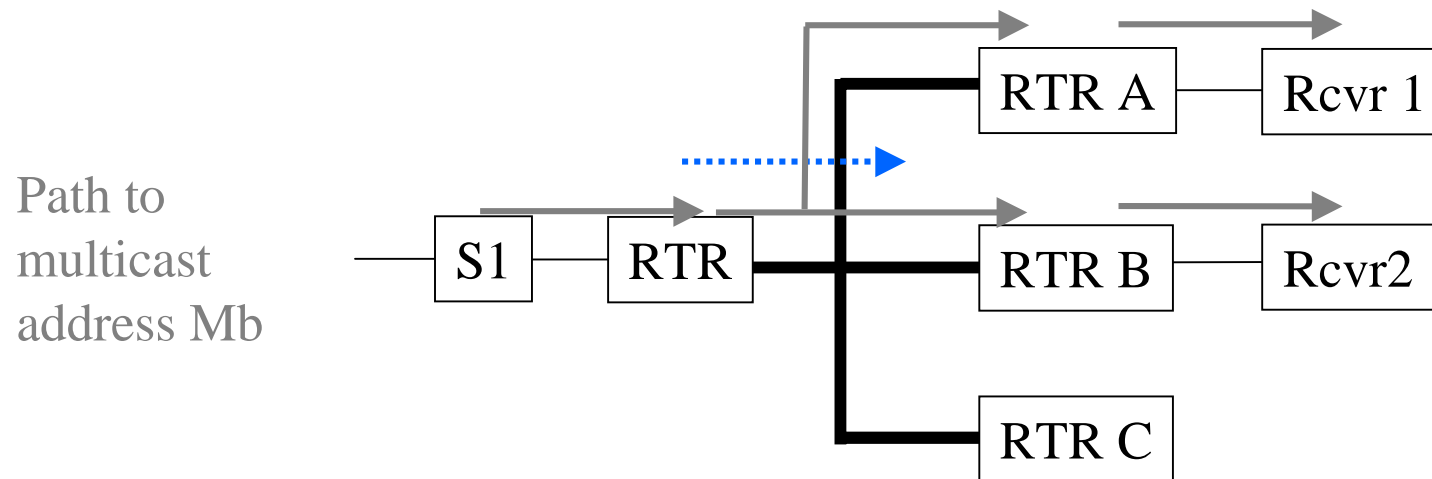
# Normal Path Refresh

- Refresh and trigger are identical



# Srefresh Based Path Refresh

- Message Identifier Based Refresh



Path
IP Src = S1 IP Dst = Mb
Full Path Message

Srefresh
Src = RTR Dst = ???
Message Identifier []

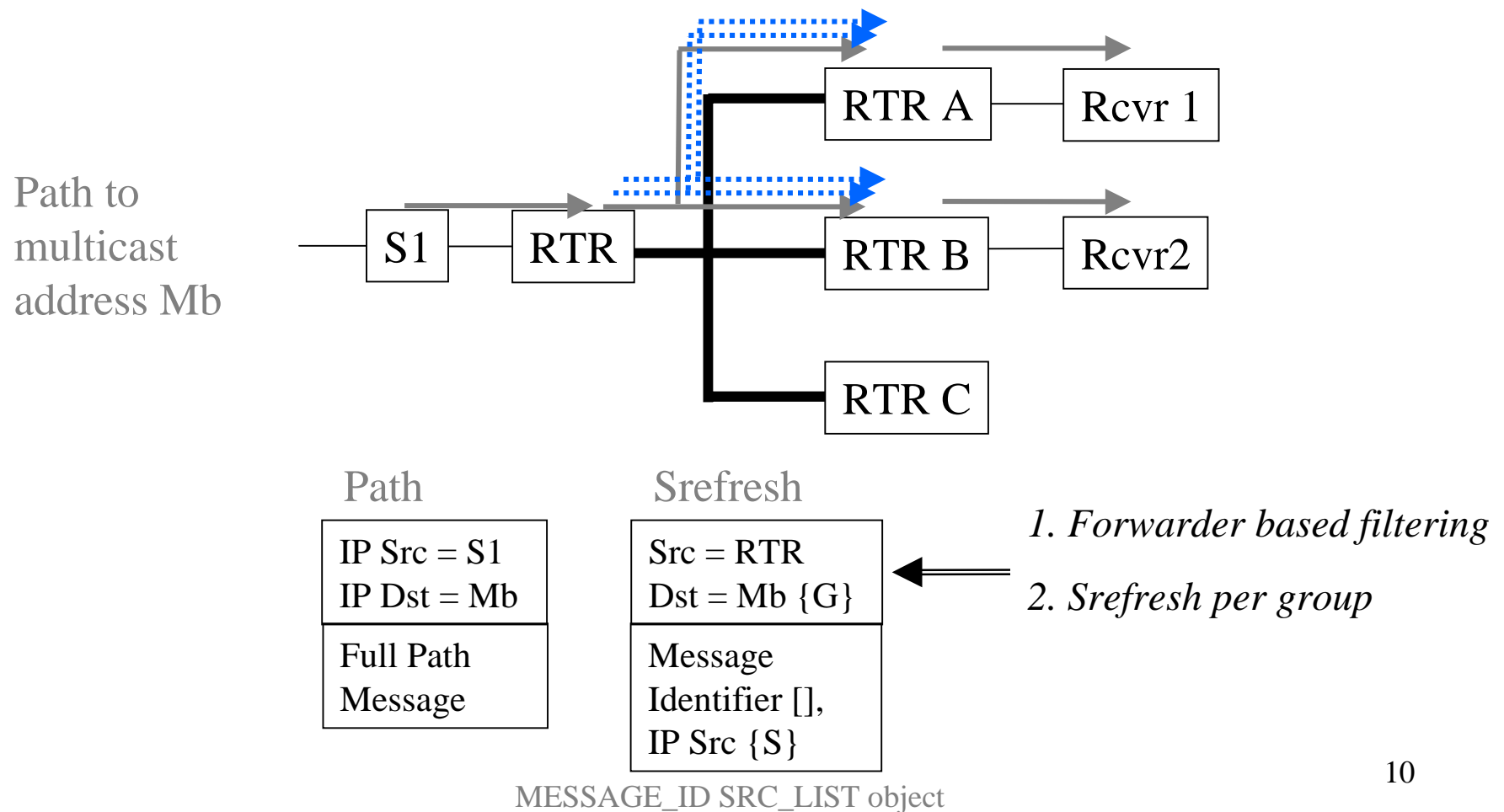


*Issues:*

1. Destination
2. How is {S,G} provided

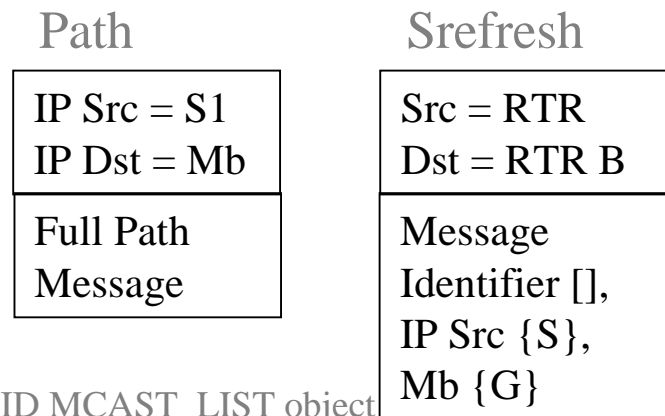
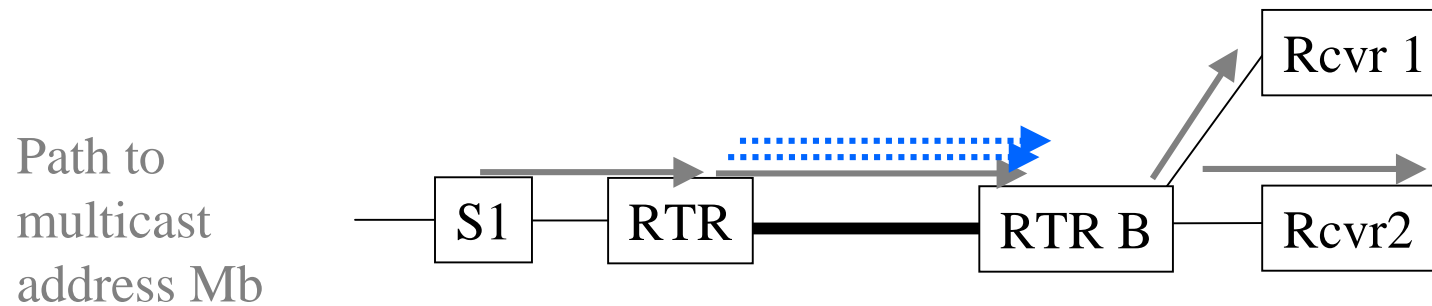
# Option 1: Per Group Multicast

- Message Identifier sent to Session Multicast address



# Option 1: Optimization

- Lower message rate on point-to-point link

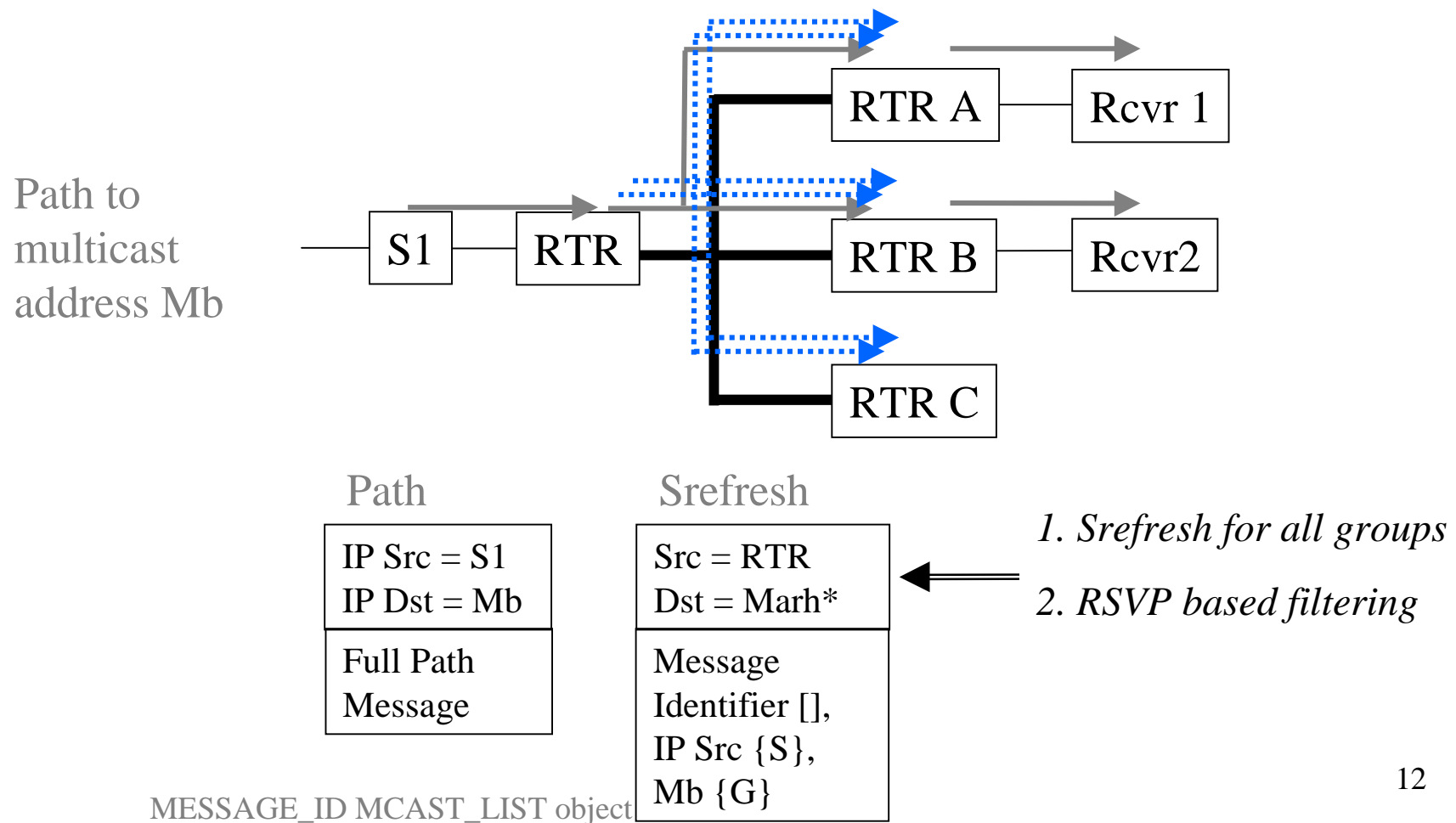


1. Srefresh for all groups
2. "filtering" based on routing

MESSAGE\_ID MCAST\_LIST object

# Option 2: All RSVP Hosts Multicast

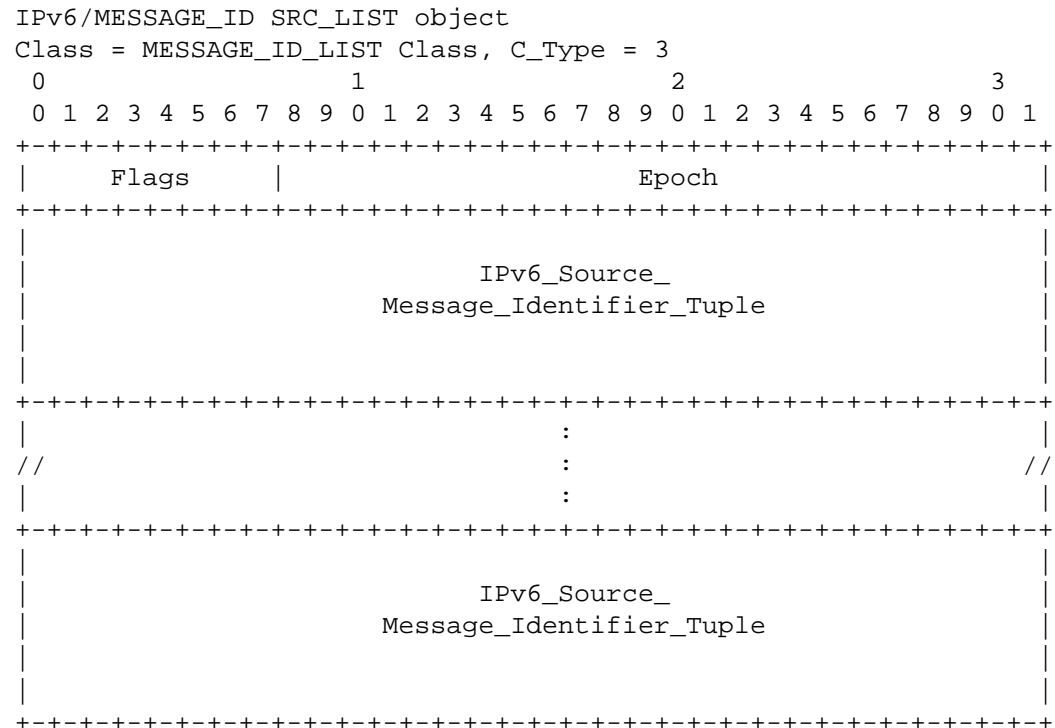
- Message Identifier sent to all RSVP hosts address



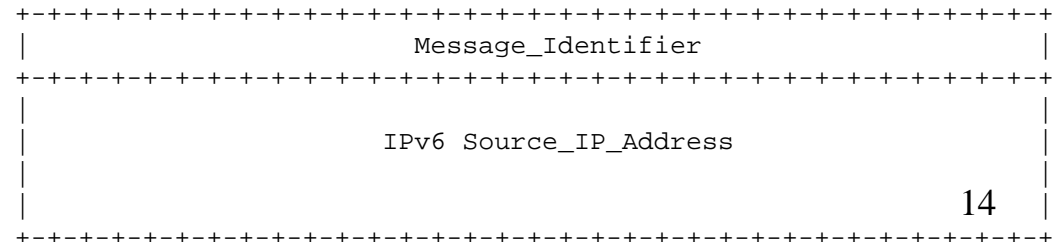
# Object Corrections: IPv6

## MESSAGE\_ID SRC\_LIST

- Add support for IPv6 sources



Where a IPv6 Source\_Message\_Identifier\_Tuple consists of:



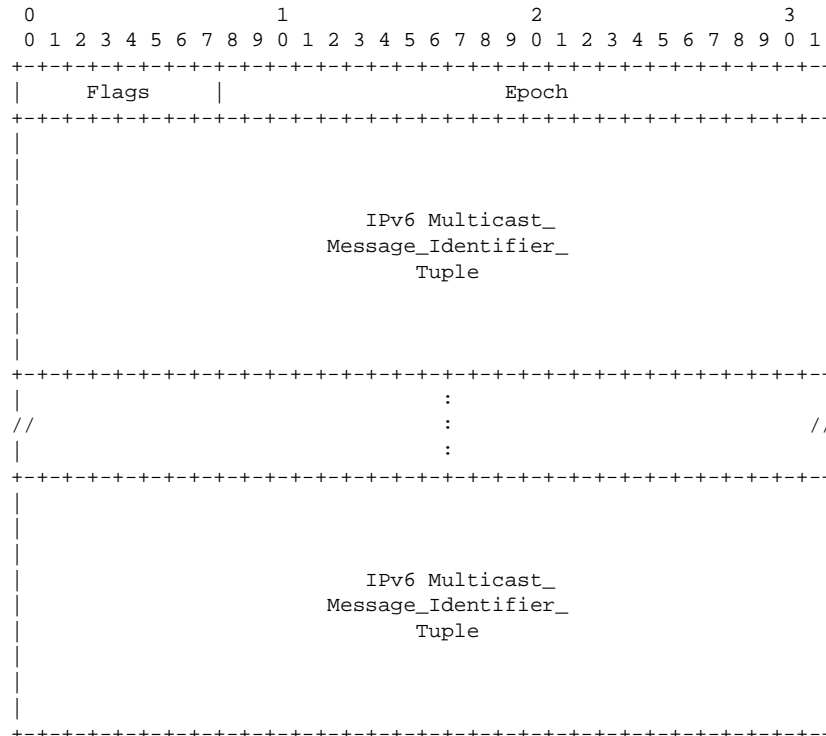
# Object Corrections: IPv6

## MESSAGE\_ID MCAST\_LIST

- Add support for IPv6 addresses

IPv6/MESSAGE\_ID MCAST\_LIST object

Class = MESSAGE\_ID\_LIST Class, C\_Type = 5



Where a IPv6 Multicast\_Message\_Identifier\_Tuple consists of:

