

## Implementation and Deployment of IGMPv3 and MLDv2

24 respondents

(Comparable with PIM-SM survey [RFC7063] which had 9 operators and 8 vendors responding.)

### Vendors/Implementors (10 respondents)

#### Implementation

- Popular protocols (80%+)
  - IGMPv1, IGMPv2, IGMPv3, MLDv1, MLDv2
- Less popular protocols (20%)
  - Lightweight IGMPv3 and Lightweight MLDv2

#### Features

- Popular features (80%+)
  - source filtering with include list, snooping querier
- Moderately popular features (40%-80%)
  - Source filtering with exclude list, snooping proxy, snooping filtering, L2 report flooding, host proxy
- Less popular features (20%)
  - Unicast queries/reports

#### Issues

- Challenge identifying which VLANs should have IGMPv3 enabled on LHR with voice VLANs
- Collapsing multiple ASM domains into single SSM domain
- Applications not supporting SSM

#### Suggestions

- Add source discovery mechanism to SSM in addition to existing application-based source discovery
- Improve scalability of query/response messages
- Deprecate older versions and streamline IGMPv3
- Allow reports to be sent without a querier
- Remove source filtering with exclude list as it is not widely used and makes state machine unnecessarily complicated

### Operators (15 respondents)

#### Deployments

- Popular protocols (~80%+)
  - IGMPv2, IGMPv3
- Less popular protocols (20%-40%)
  - IGMPv1, MLDv1, MLDv2
- Unused protocols (0%)
  - Lightweight IGMPv3 and Lightweight MLDv2

## Features

- Moderately popular features (40%-60%)
  - Source filtering with include list, source filtering with exclude list, snooping querier, snooping filtering, unicast queries/reports
- Less popular features (<20%)
  - Snooping proxy, L2 report flooding, host proxy

## Interoperability

- Multi-vendor deployments (just over 50%)
- No multi-vendor issues reported

## Fallback mechanisms between versions

- Most operators not dependent on fallback mechanism (60%+)
- Most operators did not experience any fallback issues (90%+)

## Strengths of IGMPv3/MLDv2

- Simplicity introduced by IGMPv3 and SSM compared with ASM

## Weaknesses of IGMPv3/MLDv2

- No CPE implementations
- ASM provides better source filtering (by potentially restricting the acceptance of register messages at the RP) whereas SSM allows only data plane filtering using multicast boundary.
- Automatic fallback makes deployments challenging

## Suggestions

- Promote IGMPv3 and MLDv2 to Internet Standard
- Introduce support for inter-domain multicast routing to SSM

## Summary/Thoughts

- Operators use less features than have been implemented
  - Unsurprising
- Relatively low take up of MLD
  - IPv6 multicast not widely used
- No major flaws or ambiguities in IGMPv3 and MLDv2 RFCs identified
- Concern about automatic fallback from IGMPv3 to IGMPv2
  - Ability to restrict automatic fallback?
- Loss of useful features from ASM control plane when transitioning to SSM
  - Is there an easier way to provide source filtering, administrative domains, etc with SSM?