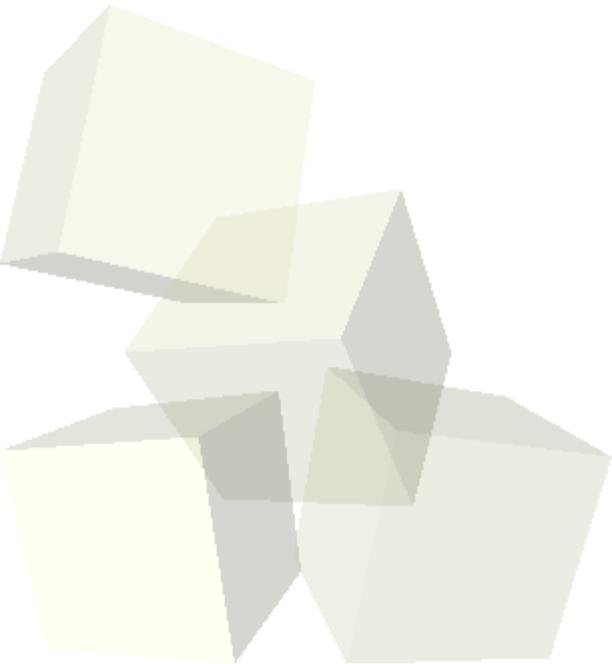




# IGMP/MLD Error Feedback

[draft-morin-mboned-igmpml-d-error-feedback](#)

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# Problem statement / History

- There are cases where an IGMP/MLD querier won't be able to take into account a Membership Report
  - ◆ lack of resources
  - ◆ policy
  - ◆ SSM configuration
  - ◆ IGMP version
  - ◆ ...
- It would be useful to provide multicast-applications with feedback on these issues
  - ◆ and not just let them timeout
- History
  - ◆ (was existing in IGMPv0 RFC988)
  - ◆ DSLForum asked for this two years ago
    - proposed a solution to magma  
<http://www1.ietf.org/mail-archive/web/magma/current/msg00815.html>
    - suggested solution wasn't considered appropriate (good reasons)
  - ◆ requirement formulated in [draft-ietf-mboned-maccnt-req](#)
    - *“Notification to Users of the Result of the Join Request: It should be possible to provide information to the user about the status of his/her join request (granted/denied/other).”*



# Proposed solution - principle

## ■ Principles

- ◆ Feedback is for informational only
  - no impact on Host or Querier state machine
  - Doesn't introduce compatibility issues
- ◆ Only about persistent issues
  - **not** meant to carry information about transient errors (like network failures)

## ■ Simple idea

- ◆ a new message : the Feedback message
  - more on this later
- ◆ on reception of a Report that cannot be honored, the IGMP/MLD Querier can send a Feedback message
  - in unicast toward the Report sender (if IGMPv3/MLDv2)
  - in multicast toward the Group (if IGMPv2/MLDv1)
    - to be discussed
- ◆ IGMP/MLD Host can interpret it and inform the application(s)

# Proposed solution – message encoding

- New message, containing
  - ◆ error type (1 byte)
  - ◆ error sub-type (1 bytes)
  - ◆ group address
  - ◆ number of sources in error, followed by the source addresses in error (may be omitted)
- Proposed error types...
  - ◆ multicast reception disabled on the link
  - ◆ group administratively prohibited
  - ◆ source(s) administratively prohibited
  - ◆ resource limit reached
  - ◆ exclude source filter mode not supported by the Querier (eg. lightweight IGMPv3)
  - ◆ IGMP/MLD version not supported by querier
  - ◆ wildcard on an SSM group (IGMPv2 or IGMPv3/MLDv2 with Exclude source filter mode was asked, but the group address is not in the SSM range of the Querier)
  - ◆ etc.



# Proposed solution – message envelope

- One question:
  - ◆ what can be the protocol to carry this message ?
- ICMP and IGMP are natural candidates
  - ◆ ICMP
    - already use for feedback from intermediate routers to hosts
    - extensible
    - but nothing to do with multicast
  - ◆ IGMP
    - used for multicast already (!)
    - but all encodings to define
- Discussion needed...



# Link with the application layer

- A host need to notify the application layer when it receives a Feedback message
  - ◆ similarly to what the socket API does when receiving ICMP errors (e.g. TTL expired, host unreachable, etc.)
  - ◆ ...but on (non)reception of packets, not on non delivery
- Possible solution with the POSIX socket API
  - ◆ (disclaimer : I'm no socket API guru)
  - ◆ use of the MSG\_ERRQUEUE flag of the recvmsg()/recvfrom() POSIX calls
    - this call allows the socket user to retrieve the network errors queued for the socket
- To be further described, contribs welcome!



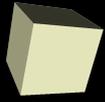
# Impact on proxy/snooping equipments

## ■ Impact on IGMP/MLD proxies

- ◆ a proxy can generate its own Feedback message
- ◆ or should forward the Feedback message received from the upstream Querier to the Host
- ◆ can also cache the messages to allow new receivers behind him to be instantly notified
  - without waiting for a Report to be sent

## ■ Impact on IGMP/MLD snooping equipments

- ◆ if ICMP is chosen:
  - should be transparent
- ◆ if IGMP is chosen:
  - RFC 4541 section 2.2.1(3) : "a switch that supports IGMP snooping must flood all unrecognized IGMP messages to all other ports"
  - should be transparent too



- Contributions and feedback are welcome
  - ◆ IGMP or ICMP ??
- Next steps
  - ◆ would this belong to mboned ?
  - ◆ magma ? (if IGMP is chosen)

