RFC1112bis
draft-eckert-pim-rfc1112bis
PIM WG IETF111

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Goals

- Part of updating PIM core standards (IGMP, MLD,…)
- Obsolete / superceed RFC1112
  - Need to obsolete IGMPv1, which is standardized in RFC1112
  - Have RFC1112bis also be immediately full standard

- Biggest admin question:
  What can/do we need to do to get RFC1112bis immediately to full standard
  - RFC1112bis will have NO functional changes
    over what every host implements
    and IMHO what functionally is already written in RFC1112

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- Removed IGMPv1 section and text referring to it
  - Need to obsolete it to get rid of full standard state for IGMPv1
- Added reference text to IGMPv3, MLDv2
  - Probably needs to be changed to references to our IGMPv3/MLDv2 – bis document, so this rfc1112bis would be in cluster released only when we have our target full-standard ? IGMP/MLD RFCs out
- Added text to make rfc1112 bis apply equally to IPv6
  - RFC1112 only specified for IPv4 (from 1989!)
  - RFC8504 (node requirements) has no reference for IP Multicast spec because RFC1112 only is for IPv4.Only full IETF standard IP Multicast spec
- ASM / SSM text added
  - Whats specified here is called ASM
  - SSM with references to according RFCs

TBD: RFC2119/8174 language

- RFC1112 predates normative language
- Q/Alvaro: Could we even try to have rfc1112bis become again full standard without using normative language ?
  - Maybe/likely we do no have th option ?

RFC1112 is normative for…

- ASM IP Multicast host stack – sending/receiving IP multicast packets
  - Level 0 – no support for IP multicast packet sending/receiving as a host
  - Level 1 – just allow sending of IP Multicast packets as a host
  - Level 2 – sending and receiving IP multicast packets as a host
- This is normative “on-the-wire” behavior
- Not explained in any other RFC

- If we where asked for adoption of rfc1112, I would be hard pressed to find level 0 or level 1!
  - And I wouldn’t want to waste time looking for them
  - would be nice if we would not have to remove that text ?? Maybe not…
  - Also: IMHO, we msut keep Level 0 to ensure there are no broken Level 0 implementations.
  - Proof for level 2 adoption: Show me any IPv4/IPv6 node NOT implementing it (aka: nobody should seriously even ask).

Biggest normative issue

- What was the biggest blunder with IP Multicast ?
  - Packet with unicast destination but 224/4 source address (same with IPv6)
    - Must be discarded according to RFC1112 – NOT IP Multicast packets
  - Perfect DDoS attack when host stack unknowledgable about RFC1112
    - Problem uncovered and fixed in products I know mid 200x
- But rfc1112 is NOT a mandatory update to rfc791
  - No idea why not (update process seem to have existed back then)
  - And there is not even an RFC1112 equivalent for IPv6
- Result: IPv4 host stacks not implementing RFC1112 and Pv6 host stacks can legitimately create ICMP replies to a multicast source address!!!
  - No IETF spec stands in their way AFAIK!
- IMHO, rfc1112 bis needs to ipdates rfc791 (IPv4), rfc8504 (IPv6 node/host requirements) or rfc8200!
  - For this core reason, but given how rfc1112 alrady has level 0, 1, 2, AFAIK, all existing text requirements are perfect normative requirements for all IPv4/IPv6 host stacks.

Impacts to other RFC (2)

- Obsoletes RFC1112
- Updates RFC8504 ?! (TBD) Section 5.11 problematic:
  - Says MUST support MLv2 (good), but MLDv2 does NOT specify host stack behavior, just signaling. Host stack behavior specified in RFC1112
  - RFC8504 has dependencies against IP Multicast host stack in other places, e.g.: basic IPv6 protcols like ND, SLAAC
  - All IPv6 core IP Multicast dependencies are against ASM IP Multicast
  - Section mentions SSM is preferred over ASM. Sure, for routed multicast, but SSM will NOT work the core IP6 link-local use of ASM IP multicast.
  - Maybe start with a separate section in rfc1112bis “Update to RFC8504” writing this up.

Outside scope !! ?

- There is AFAIK no place raising common requirements for IP Multicast routers in RFCs.
- Have not identified a crucial reason why to bother about it.
- Maybe the discard packets with multicast-group-address-source is a requirement that could also be raised aainst multicast forwarders !
  - To prohibit any forwarding of these nasties.

~~Fun~~: administriva

- Steve Deering (original rfc1112 author) not actively involved, but fine with the work.
- IMHO (and Bob Hinden who did same with rfc8200):
  - Steve shold stay author
  - Author != editor. Authorship of the payload is key, not the words.
- Datatracker issues for authors without email
  - Alvaro has been working on this
- Transfer of copyright from rfc1112 author to IETF ?!
  - Not done for rfc8200,
- Additional template text to be added for unknown copyrights

The End

- Please discuss on pim@ietf.org

- Plan is to work on discussed items until IETF1112 (hopefully IGMP-BIS design team will help) and then ask for adoption.
  - Co-authors welcome

- Raise issues on github for easier tracking (pending repo move):
  - https://github.com/ietf-wg-pim/rfc1112bis