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
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 must 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 updates rfc791 (IPv4), rfc8504 (IPv6 node/host requirements) or rfc8200!
  • For this core reason, but given how rfc1112 already 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 protocols 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 against 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