Lightweight IGMPv3/MLDv2

draft-ietf-mboned-lightweight-igmpv3-mldv2-03

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LW-IGMPv3 / LW-MLDv2

• Concept
  – Removal of rarely used EXCLUDE (S,G) operations and functions
  – Assurance of compatibility with the full version

• Method
  – Host side: Reducing report type relating to EXCLUDE(S,G)
  – Router side: Eliminate filter-mode and simplify message processing
Progress after the Last Meeting

• Editorial improvements
  – Provide better explanations and delete unnecessary details

• Host / router / switch implementations completed

• Interoperability test with snooping switches
  – Huawei S3928 switch supporting IGMPv3 snooping

• A router-side LW-IGMPv3 implementation is included in a new XORP-1.5 release
History of this Draft

• IETF 66, Montreal
  – draft-liu-magma-igmpv3-mldv2-lite-00.txt
  – Individual draft, first discussion

• IETF 67, San Diego
  – draft-liu-magma-igmpv3-mldv2-lite-02.txt
  – Add Host side process, change “Lite” to “Lightweight”

• IETF 68, Prague
  – draft-ietf-mboned-lightweight-igmpv3-mldv2-00
  – Accepted as WG draft, began to prepare implementations

• IETF 69, Chicago
  – draft-ietf-mboned-lightweight-igmpv3-mldv2-01
  – Router side and host side implementation available

• IETF 70, Vancouver
  – draft-ietf-mboned-lightweight-igmpv3-mldv2-02
  – Compatibility test result is given

• IETF 71, Philadelphia
  – draft-ietf-mboned-lightweight-igmpv3-mldv2-02
  – Router side performance test result is given
  – Rough consensus to be a RFC, but type was not decided
  – Expect to initiate last call on IETF 72
Implementations

• Host Side Implementations
  – LW-IGMPv3 implementation for NetBSD-current (as of 07/Jan/2008)

• Router Side Implementations
  – Both LW-IGMPv3 and LW-MLDv2 implementations were released
  – Included in XORP1.5 release
  – http://cvsweb.xorp.org/cgi-bin/cvsweb.cgi/xorp/ contrib/mld6igmp_lite/
Interoperability Test

• More than 300 test cases are designed and tested
  – Both IPv4 and IPv6 scenarios included
  – Interoperability with all other IGMP/MLD versions considered
  – IGMPv3 snooping test is also performed

• All test environments and results are detailed in an interoperability document
Performance Analysis of LW-IGMPv3 Router

• LW-IGMPv3 improves element operation rate:
  – Theoretical analysis: by around 40%
  – Actual simulation result: by 30% average
• LW-IGMPv3 decrease memory occupation by 12.5%
• Router has better stability with LW-IGMPv3 when user number increases

• The following paper describes the detail;
Summary

• The draft is stable
  – Supporting all the necessary functions (ASM and SSM)
  – Much simplified state machine
  – Conciseness contributes to its deployment
  – No interoperability problem
  – Wider application space for simplicity (e.g. wireless environments)

• Experimentation
  – Implementation (with open-source) / Functional test / Interoperability test / Performance evaluation
Next Steps

• Initiate LC
  – The draft is stable
  – Rough consensus for LC in IETF71
  – Toward Experimental RFC