v6ops WG
Internet-Draft
Updates: 2464 (if approved)
Intended status: Standards Track
Expires: April 16, 2011

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October 13, 2010

Address Mapping of IPv6 multicast packets on Ethernet
draft-gundavelli-v6ops-l2-unicast-05.txt

Abstract

When transmitting an IPv6 packet with a multicast destination address, the IPv6 destination address is mapped to an Ethernet link-layer multicast address. This document clarifies that a mapping of an IPv6 packet with a multicast destination address may in some circumstances map to an Ethernet link-layer unicast address.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on April 16, 2011.

1. Introduction

Transmission of IPv6 Packets over Ethernet [RFC2464] section 7, specifies how an IPv6 packet with a multicast destination address is mapped into an Ethernet link-layer address. This document extends this mapping to explicitly allow for a mapping of an IPv6 packet with a multicast destination address into an Ethernet link-layer unicast address, when it is clear that only one address is relevant.

This mapping does not replace the mapping described in [RFC2464] section 7. Sending a targeted multicast packet, i.e. sending an IPv6 packet with a multicast destination address to an Ethernet link-layer unicast address, is only reasonable if the unicast address is known and is reasonably believed to be the only address relevant.

The determination of the unicast Ethernet link-layer address and the construction of the outgoing IPv6 packet are out of scope for this document.

2. Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

3. Sending and receiving IPv6 multicast packets

The following additional considerations apply to all IPv6 nodes when sending and receiving IPv6 multicast messages.

- An IPv6 node transmitting an IPv6 packet with a multicast destination address MAY use a unicast Ethernet link-layer address.

- An IPv6 node receiving an IPv6 packet with a multicast destination address and an Ethernet link-layer unicast address MUST NOT drop the packet as a result of the use of this form of address mapping.

4. IANA Considerations

This specification does not require any IANA actions.

5. Security Considerations

This document does not introduce any new security vulnerabilities.

6. Acknowledgements

The authors would like to acknowledge Bernard Aboba, Fred Baker, Wes Beebee, Ron Bonica, Olaf Bonness, Jean-Michel Combes, Ralph Droms, Alain Durand, Suresh Krishnan, Eric Levy-Abegnoli, Phil Roberts, Behcet Sarikaya, Hemant Singh, Mark Smith, Dave Thaler, Pascal Thubert, Stig Venaas and Eric Voit for their contributions and discussions on this topic.

7. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC2464] Crawford, M., "Transmission of IPv6 Packets over Ethernet Networks", RFC 2464, December 1998.

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