Network Working Group	P. Koch
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Moving MCAST.NET into the ARPA infrastructure top level domain
draft-ietf-mboned-mcast-arpa-02

Abstract

This document proposes to migrate the MCAST.NET domain into the ARPA top level domain that is dedicated to infrastructure support. It also provides for a maintenance policy for the new MCAST.ARPA domain and covers migration issues and caveats. This document updates RFC 5771 and forms part of BCP 51.
XXX reverse mapping

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 December 16, 2010.

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1. Introduction

This document describes a maintenance policy and migration strategy for the MCAST.NET (MCAST.ARPA) domain that contains names for a subset of the multicast groups assigned by the IANA.

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2. Terminology

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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 BCP 14, [RFC2119] (Bradner, S., “Key words for use in RFCs to Indicate Requirement Levels,” March 1997.).

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3. The ARPA top level domain

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[RFC3172] (Huston, G., “Management Guidelines & Operational Requirements for the Address and Routing Parameter Area Domain ("arpa"),” September 2001.) designates the ARPA top level domain as "Address and Routing Parameters Area" to be used for infrastructure applications.
The MCAST.NET second level domain fulfills the criteria set out in section 2.1 of [RFC3172] (Huston, G., “Management Guidelines & Operational Requirements for the Address and Routing Parameter Area Domain ("arpa"),” September 2001.). However, there is no standards track document explicitly designating this domain to a multicast group name to multicast group address mapping.
[RFC5771] (Cotton, M., Vegoda, L., and D. Meyer, “IANA Guidelines for IPv4 Multicast Address Assignments,” March 2010.) defines the IPv4 multicast address assignment policy.
[RFC4291] (Hinden, R. and S. Deering, “IP Version 6 Addressing Architecture,” February 2006.) defines the IPv6 multicast address assignment policy.

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4. Current Use

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Currently the zone MCAST.NET reflects the contents of parts the IANA IPv4 multicast address registry. However, some names are missing from the DNS zone and some names used differ from the description that appears in the registry file. Entries in the IPv6 multicast address registry are not reflected in the MCAST.NET zone.

With few exceptions, only multicast group addresses from 224.0.0/24 and 224.0.1/24 are listed in MCAST.NET. Addresses outside 224/8 do not appear at all.

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5. Registration Policy

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Names within MCAST.ARPA will consist of one additional label and MUST adhere to the hostname syntax requirements of [RFC1123] (Braden, R., "Requirements for Internet Hosts - Application and Support," October 1989.). These names MUST own a single A RR, a single AAAA RR, or both. Addresses will be in the IPv4 or IPv6 multicast address space.

5.1. Names and Addresses eligible for Registration in MCAST.ARPA

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Only IANA multicast address registrations are eligible for being listed in MCAST.ARPA.
For IPv4, only multicast groups from 224.0.0/24 (Local Network Control Block) and 224.0.1/24 (Internetwork Control Block) will have names assigned.
For IPv6, only multicast groups from FF01::/16 (Node-Local Scope Multicast Addresses) and FF02::/16 (Link-Local Scope Multicast Addresses) will have names assigned.

5.2. Subdomains of MCAST.ARPA

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The namespace under MCAST.ARPA is considered flat, i.e., all direct descendants of MCAST.ARPA are leaves in the DNS tree. Future extensions might want to define subdomains that serve special purposes. Any such designation needs IETF consensus [RFC5226] (Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs," May 2008.).

5.3. Corresponding Reverse Mapping

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The DNS Reverse Mapping for those multicast groups that appear as addresses in MCAST.ARPA MUST be kept consistent with the forward namespace.

5.3.1. Reverse Mapping for 224/4

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A single DNS PTR record will be entered at the corresponding owner within the 224.IN-ADDR.ARPA domain that points to the multicast group name within MCAST.ARPA.
The zones 225.IN-ADDR.ARPA through 239.IN-ADDR.ARPA will be delegated but MUST remain empty (except necessary infrastructure RRs). The one exception is 233.IN-ADDR.ARPA. A mechanism for the delegation of reverse mapping for GLOP space [RFC3180] (Meyer, D. and P. Lothberg, "GLOP Addressing in 233/8," September 2001.) should be designed and implemented.

5.3.2. Reverse Mapping for FF0::/12

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[How to deal with IPv6 multicast reverse mapping is TBD.]

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6. Migration Issues

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The current content of the MCAST.NET zone MUST be brought in line with the multicast address registry.
Since legacy systems may use MCAST.NET for quite some time, there needs to be a mapping/forwarding solution to answer those queries in a useful manner without discouraging migration.
RFCs mentioning MCAST.NET are [RFC3261] (Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol," June 2002.) and [RFC3678] (Thaler, D., Fenner, B., and B. Quinn, "Socket Interface Extensions for Multicast Source Filters," January 2004.).
An updated multicast address architecture appears in [I-D.ietf-mboned-addrarch] (Savola, P., "Overview of the Internet Multicast Addressing Architecture," August 2009.).

6.1. Migration Strategies

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After the move, several options are available for the future handling of MCAST.NET.
[[The working group needs to choose one of the options.]]

6.1.1. Freeze

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The current MCAST.NET zone could be frozen, so that no additions, deletions or changes to the content (apart from those necessary for maintenance, e.g. SOA and NS RRs) would be performed. New registrations would only be available in MCAST.ARPA, so this could be an incentive for querying clients to alter their behavior as well.

6.1.2. Phase Out

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MCAST.NET would only see deletions. Even after the last record will have been deleted, the domain should be kept registered by the IANA to prevent redelegation ...

6.1.3. Continue

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MCAST.NET could be further operated in parallel, either by operational habit or per DNAME RR, as described in [RFC2672] (Crawford, M., “Non-Terminal DNS Name Redirection,” August 1999.).

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7. Security Considerations

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The usual Security Considerations for the DNS [RFC3833] (Atkins, D. and R. Austein, “Threat Analysis of the Domain Name System (DNS),” August 2004.)apply.
The MCAST.ARPA., MCAST.NET., and the Reverse mapping zones mentioned in this document SHALL be DNSSEC signed by the IANA under direction from the IAB.
There is no Security Problem associated with the migration itself. XXX keeping MCAST.NET.
{This section needs more work.}

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8. IANA Considerations

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This document amends [RFC5771] (Cotton, M., Vegoda, L., and D. Meyer, “IANA Guidelines for IPv4 Multicast Address Assignments,” March 2010.) to add a mandatory entry in the MCAST.ARPA domain and a corresponding

reverse mapping entry. The officially registered multicast group name is made subject to DNS hostname syntax rules.

9. Acknowledgements

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The authors would like to thank David Conrad and Joe Abley for their input.

10. References

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10.1. Normative References

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[RFC1034]	Mockapetris, P., "Domain names - concepts and facilities," STD 13, RFC 1034, November 1987 (TXT).
[RFC1035]	Mockapetris, P., "Domain names - implementation and specification," STD 13, RFC 1035, November 1987 (TXT).
[RFC1123]	Braden, R., "Requirements for Internet Hosts - Application and Support," STD 3, RFC 1123, October 1989 (TXT).
[RFC2119]	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," BCP 14, RFC 2119, March 1997 (TXT, HTML, XML).
[RFC3172]	Huston, G., "Management Guidelines & Operational Requirements for the Address and Routing Parameter Area Domain ("arpa")," BCP 52, RFC 3172, September 2001 (TXT).
[RFC3180]	Meyer, D. and P. Lothberg, "GLOP Addressing in 233/8," BCP 53, RFC 3180, September 2001 (TXT).
[RFC4291]	Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture," RFC 4291, February 2006 (TXT).
[RFC5226]	Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs," BCP 26, RFC 5226, May 2008 (TXT).
[RFC5771]	Cotton, M., Vegoda, L., and D. Meyer, "IANA Guidelines for IPv4 Multicast Address Assignments," BCP 51, RFC 5771, March 2010 (TXT).

10.2. Informative References

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[I-D.ietf-mboned-addrarch]	Savola, P., "Overview of the Internet Multicast Addressing Architecture," draft-ietf-mboned-addrarch-06 (work in progress), August 2009 (TXT).
[RFC2672]	Crawford, M., "Non-Terminal DNS Name Redirection," RFC 2672, August 1999 (TXT).
[RFC2908]	Thaler, D., Handley, M., and D. Estrin, "The Internet Multicast Address Allocation Architecture," RFC 2908, September 2000 (TXT).
[RFC3261]	Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol," RFC 3261, June 2002 (TXT).
[RFC3678]	Thaler, D., Fenner, B., and B. Quinn, "Socket Interface Extensions for Multicast Source Filters," RFC 3678, January 2004 (TXT).
[RFC3833]	Atkins, D. and R. Austein, "Threat Analysis of the Domain Name System (DNS)," RFC 3833, August 2004 (TXT).

Appendix A. Document Revision History

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This section is to be removed should the draft be published.

A.1. Changes from -01 to -02

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Added text about v6 multicast.
Added text about GLOP space
Added terminology section and RFC 2119 language

A.2. Changes from -00 to -01

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Added text about DNS reverse mapping. Eligibility for an MCAST.ARPA name now restricted to 224.0.0/24 and 224.0.1/24. Stronger requirement for MCAST.ARPA subdomains.

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A.3. Initial Document

First draft, taking over with only little changes from draft-koch-mboned-mcast-arpa-00.txt

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Authors' Addresses

TOC

	Peter Koch
	DENIC eG
	Kaiserstrasse 75-77
	Frankfurt 60329
	DE
Phone:	+49 69 27235 0
Email:	pk@DENIC.DE
	Leo Vegoda
	Internet Corporation for Assigned Names and Numbers
	4676 Admiralty Way, Suite 330
	Marina del Rey 90292
	United States of America
Phone:	+1-310-823-9358
Email:	leo.vegoda@icann.org
URI:	http://www.iana.org/