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Next Steps for Renumbering IPv6 Sites
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Abstract

This document summarises for the record the next steps proposed following the completion of chartered work in the 6RENUM WG. It is not expected to become an RFC.

Status of this Memo

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[1.](#) Introduction

The IPv6 Site Renumbering (6RENUM) working group completed its chartered set of documents by November 2012. The present document summarises for the record the next steps proposed and discussed in the final WG meeting. It is posted as a draft for convenience but is not expected to become an RFC.

The next steps are divided into two categories, after analysis of the gap analysis documents in particular [[I-D.ietf-6renum-gap-analysis](#)], [[I-D.ietf-6renum-static-problem](#)]. Firstly, there are items that have been identified as needed for site renumbering but are either not widely implemented or not widely used. These items need to be documented in the form of advice to the community, but do not appear to require specification work in the IETF. Secondly, there are items that may be useful for site renumbering, and which need specification work of some kind. The two following sections address these two areas.

[2.](#) Advice to the community

The following items could form part of one or more informational (or possibly BCP) documents.

1. The long-standing advice that names, rather than numeric addresses, should be used whenever possible is reiterated. In general that means DNS names, but in some circumstances it might mean some other form of parametric name. A specific case is that IPsec security associations should use names, as allowed since [[RFC2407](#)], whenever possible.
2. Some form of name-based service discovery should be used wherever possible, rather than configuring service addresses. This could be DNS-based, mDNS-based or even SLP.
3. Addresses used for internal traffic could be stabilised by deploying a ULA prefix (as well as a globally routed prefix).

4. Sites should use some sort of configuration management tool. This could be described as an IP address management (IPAM) tool, an asset management tool, or more generally as an operational support system (OSS). Its role is to populate DNS, reverse DNS, DHCPv6, and router configurations. The tool should use DNS names or parametric names in configuration files. See [\[I-D.baker-6renum-oss-renumbering\]](#).
5. Include servers in DHCPv6 to avoid manual configuration.
6. Use Secure Dynamic DNS Update [\[RFC3007\]](#) where appropriate (requires key management in the management tool).

7. Plan a renumbering procedure as part of the IPv6 network design. Handy references include [\[RFC4192\]](#), [\[RFC5887\]](#), [\[I-D.ietf-6renum-enterprise\]](#), [\[I-D.ietf-6renum-gap-analysis\]](#), [\[I-D.ietf-6renum-static-problem\]](#).
8. Avoid software license systems that rely on IP addresses.

Finally, it is noted that the management tool mentioned above might be able to take advantage of certain features that are defined but apparently not widely used. In particular, these are DHCPv6 RECONFIGURE/RENEW [\[RFC3315\]](#), DHCPv6-PD [\[RFC3633\]](#) and ICMPv6 router renumbering [\[RFC2894\]](#). There is an open question whether the latter is in fact usable.

[3.](#) IETF work items

These are the items identified in the 6RENUM gap analysis that appear to need work in the appropriate IETF WGs.

1. Reconcile use of DHCPv6 and RA in an enterprise network.
 - * The DHCPv6 and ND state machines inside a host influence each other.
 - * What should a DHCPv6-configured host do when it receives RA messages containing a new prefix? Current implementations just configure the new prefix. Is this OK?
 - * What should a SLAAC-configured host do when it receives RA messages with "M" set?
 - * See analysis in [\[I-D.liu-6renum-dhcpv6-slaac-switching\]](#).
2. Bulk DHCPv6 RECONFIGURE mechanism.

3. Clarify how a MIPv6 host rebinds with its home agent if the latter is renumbered while mobile is disconnected.
4. Review ICMPv6 router renumbering [[RFC2894](#)] to see if it needs updating and if it is viable as a solution.

[4.](#) Security Considerations

This document defines no protocol, so does not introduce any new security exposures.

[5.](#) IANA Considerations

This document requests no action by IANA.

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[6.](#) Acknowledgements

This document was produced using the xml2rfc tool [[RFC2629](#)].

Brian Carpenter was a visitor at the Computer Laboratory, Cambridge University during this work.

[7.](#) Change log [RFC Editor: Please remove]

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