Advancing DHCPv6 to Internet Standard

IETF-114 (Philadelphia), DHC WG
Thursday, July 28, 2022
Motivation for Advancing DHCPv6 to Internet Standard (from Proposed)

• DHC Charter
  • The third item main objective in the DHC charter states:
    Issue an updated version of the DHCPv6 base specification, and after an appropriate interval following publication, advance to Internet Standard.

• But we can always leave as Proposed ...
Requirements for Internet Standard (from RFC 6410)

The characterization of an Internet Standard remains as described in RFC 2026 [1], which says:

An Internet Standard is characterized by a high degree of technical maturity and by a generally held belief that the specified protocol or service provides significant benefit to the Internet community.

The IESG, in an IETF-wide Last Call of at least four weeks, confirms that a document advances from Proposed Standard to Internet Standard. The request for reclassification is sent to the IESG along with an explanation of how the criteria have been met. The criteria are:

1. There are at least two independent interoperating implementations with widespread deployment and successful operational experience.

2. There are no errata against the specification that would cause a new implementation to fail to interoperate with deployed ones.

3. There are no unused features in the specification that greatly increase implementation complexity.

4. If the technology required to implement the specification requires patented or otherwise controlled technology, then the set of implementations must demonstrate at least two independent, separate and successful uses of the licensing process.
Independent Implementation Status

• Many client, server, and relay implementations in operation across the world:
  • Cable modems
  • Home gateways (routers)
  • Routers
  • Servers (ISC KEA, Cisco Prime Network Registrar, ...)

• Appear to interoperate well ...
  • USGv6 Testing (https://www.iol.unh.edu)
  • Field deployments (Comcast broadband service)
  • IETF meeting network offers DHCPv6
RFC 8415 Status

• 3 reported Errata
• Unused features (that add complexity) – IA_TA?
• No updated-by
• No IPR

• What about other issues? Anyone know of any?
  • Please file errata ASAP!
  • Mailing list has at least one to look into:
    • No reference to RFC 7943 such as in section 13.1, see
RFC 8415 Errata (1/2)

- Errata ID 6159 – Editorial / Held for Document Update
  - Typo - Section 6 missing closing parathesis
  - Text may disappear though if temporary addresses dropped

- Errata ID 6183 – Technical / Verified
  - Typo - Section 18.3.8 uses “client” instead of “server”
  - Easily understood to be typo
RFC 8415 Errata (2/2)

• Errata ID 6269 – Technical / Held for Document Update
  • Inconsistency as to whether server-unicast can be used by Information-Request message
    • Section 16 should remove Information-Request message (as section 18.4 includes it)
    • Section 18.2 should include Information-Request message in list of messages for which unicast is possible
  • Inconsistency as to whether server-unicast option can be used in Reconfigure message (such as if Information-Request requested by Reconfigure)
    • Section 18.4 does not list “Reconfigure” message and Appendix B disallows
• See https://mailarchive.ietf.org/arch/msg/dhcwg/oNqBzT7CSOtoV7kQNLkJfSY_73E/
  • This one is more complex and could result in issues between implementations
RFC 8415 Unused Features

• Should we deprecate IA_TA?
  • Assumes servers ignore IA_TA options in messages (no processing)
  • Remove all IA_TA and “temporary address assignment” discussion text

• Anything else?
RFC 8415 Bis Needed?

• Errata likely requires document update
  • Start with co-authors to find folks willing to work on RFC 8415 bis
  • Work is fairly “small” to integrate errata
  • Removing IA_TA / temporary addresses likely a bit messy, but doable
  • Likely can shorten document by:
    • Removing motivation for RFC 8415 (Section 1.1, 1.2)
    • Replace 25 with IA_TA deprecated if done
    • Replace Appendix A with changes from RFC 8415
  • However ... need to be careful to minimize changes though!
Proposed RFC 8415 bis Schedule

• Publish updated 00 document by November IETF-115 (London) deadline
• Request reviews completed by January 31, 2023
• Publish updated document by March IETF-116 deadline and submit to IESG
• Likely need to find shepherd as co-chairs will be involved with document
So … do we go for it …

- Leave as Proposed Standard
- Work to Advance to Internet Standard
What You Can Do To HELP!

• NOW: Report (ideally as Errata) any issues you find in RFC 8415!!
  • Alternatively, send to dhc-chairs@ietf.org (for now)
• Promptly: Review the document when published and report any issues (to authors and WG)!!
• Promptly: Review and report issues as updates published!