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Domain Boundaries 2.0 Problem Statement

Abstract

Internet clients attempt to make inferences about the administrative relationship based on domain names. Currently it is not possible to confirm organizational boundaries in the DNS. Current mitigation strategies have there own issues. This memo attempts to outline these issues.

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 14 September 2023.

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1. Introduction

Working off of the earlier problem statement [I-D.sullivan-dbound-problem-statement], which we still consider valid.

2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here. DNS terminology is as described in [RFC8499].

3. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/info/rfc2119>.

4. Informative References

[I-D.sullivan-dbound-problem-statement] Sullivan, A., Hodges, J., and J. R. Levine, "DBOUND: DNS Administrative Boundaries Problem Statement", Work in Progress, Internet-Draft, draft-sullivan-dbound-problem-statement-02, 18 February 2016, <https://datatracker.ietf.org/doc/html/draft-sullivan-dbound-problem-statement-02>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

[RFC8499]
Hoffman, P., Sullivan, A., and K. Fujiwara, "DNS Terminology", BCP 219, RFC 8499, DOI 10.17487/RFC8499, January 2019, <https://www.rfc-editor.org/info/rfc8499>.

Appendix A. Previous Use Cases

The use cases which involve use of the public suffix list, summarized from the initial problem statement:

- HTTP State management cookies
- User interface indicators
- Setting the document.domain property
- Email authentication mechanisms
- SSL and TLS certificates
- HSTS and Public Key Pinning
- Linking domains together

While all of these are very important to solve, part of the issue with the first attempt to address this was overreaching goals. The suggestion is to initially limit the list to a subset, such as these:

- HTTP State management cookies
- SSL and TLS certificates
- HSTS and Public Key Pinning

Appendix B. Replicating the Public Suffix List

A main topic that immediately arises from this discussion is the replacement of the Public Suffix List (PSL). What does need to be quantified and understood is the 1) workload needed to update the PSL; 2) how much time is involved with technical escalations; and 3) the quality of the existing data in the PSL. Creating an IANA registry to track such changes could incur a large workload demand upon IANA staff, and this will need to be understood.

Appendix C. Solution Space is a Problem Space

The problem requires solutions which are both static lists and DNS zone data that can be enumerated. Both must be addressed in understanding the problem.

Appendix D. Security Considerations

None at this time.

Appendix E. IANA Considerations

None at this time.

Appendix F. Acknowledgements

The author leans heavily on the initial problem statement and thanks Andrew Sullivan, John Levine, Murray Kucherawy and Paul Vixie for comments and suggestions.

Appendix G. Appendix

Acknowledgements

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