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Problem Statement for Fully Mapping One Name to Another Name
draft-yao-bundled-name-problem-statement-00.txt

Abstract

This document specifies the problems related to fully mapping one name to another name. With the emergence of internationalized domain names and new TLDs, two names may require to redirect one name space fully to another name space. Current DNS protocols have not provided such ability to satisfy these requirements.

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[1.](#) Introduction

With the emergence of internationalized domain names and new TLDs, two names used for the same purpose may require to redirect one name space fully to another name space. There are many use cases for it. Some examples are shown below.

Use Case 1: Bundled domain names

Bundled domain names are those who share the same TLD but whose second level labels are variants, or those who has identical second level labels for which certain parameters are shared in the different TLDs. For example, public Interest Registry, request to implement technical bundling of second level domains for .NGO and .ONG. So we have two kinds of bundled domain names. First one is in the form of "V-label.TLD" in which the second level labels (V-label) are variants sharing the same TLD; Second one is in the form of "LABEL.V-tld" in which the second level labels (LABEL) are same with the different TLDs

(V-tld). Bundled domain names usually need to map itself and its descendants to another.

for examples:

example.com == example.net same label ending with different TLDs

color.com == colour.com different labels ending with the same TLD

Use Case 2: any two domain names

One company registers 2 domain names, A and B. A needs to map itself and its descendants to B in order to have a easy manangement.

for examples:

example1.com == example2.net

Use Case 3: a company register the same label in different TLDs.

With the emergence growth of gTLDs, it is very common to register one label under many TLDs for the same purpose. but the comany may just use one label under one TLD as the primary domain name, others as the less important one. The company may want to have all these domain names share the similar/same DNS resolution results. So the DNS administrator hopes to have some convinient method to configure these domain names in DNS.

2. Terminology

All the basic terms used in this specification are defined in the documents [[RFC1034](#)], [[RFC1035](#)], [[RFC6672](#)] and [[RFC3490](#)].

3. Problem Statement

With the emergence of internationalized domain names and new TLDs, two names require to redirect one name space fully to another name space. If one domain name wants to map itself to another domain name, the CNAME will be used for that name. If the name wants to map its descendants to other domain, the DNAME will be used. If the name wants to map itself and its descendants to another domain, what should we do. The current protocols do not support to do so. We need to design a mechanism to deal with this requirement.

3.1. Mapping itself

A host can have many names. The Internet users need these multiple names to be resolved to the same IP address by a DNS server. CNAME record [[RFC1034](#)], an abbreviation of Canonical Name Records, is responsible for the aliases of the real host name of a computer. In some cases, the CNAME can work for these bundled domain names. But the CNAME only maps itself, not its descendants. The bundled names need to map both itself and its variants.

3.2. Mapping its descendants

In order to maintain the address-to-name mappings in a context of network renumbering, a DNAME record or Delegation Name record defined by [[RFC6672](#)] creates an alias for all its subdomains. In contrast, the CNAME record creates an alias only of a single name (and not of its subdomains). Like the CNAME record, the DNS lookup will continue by retrying the lookup with the new name. A DNAME record is very much alike the CNAME record, but while the CNAME record only applies for one name, with a DNAME record one can create alias for all the records for its subdomain.

3.3. Mapping itself and its descendants

The bundle of variant domain names requires to map the whole tree of the domain space to another domain. The current DNS protocols do not support this function. A new DNS resource record [[BNAME](#)] may be invented to deal with this problem. BNAME has been discussed a lot in the past years. One reason to be halted is how to make BNAME to be compatible with DNSSEC. Some experts from DNSEXT suggested that this document should be moved to the new WG for further discussion. The new version of BNAME has been updated to be compatible with DNSSEC.

3.4. Zone Clone

Zone Clone was proposed in the past, which suggests to exactly replicate the content of a DNS zone into one or more other DNS zones so that the content is reachable by multiple names at different zone apexes. The problem for zone clone is that it can not deal with the children names which are delegated.

4. IANA Considerations

There is no IANA consideration.

5. Security Considerations

TBD

6. Acknowledgements

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7. Change History

[[CREF1: RFC Editor: Please remove this section.]]

7.1. [draft-yao-bundled-name-problem-statement](#): Version 00

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8. References

8.1. Normative References

- [ASCII] American National Standards Institute (formerly United States of America Standards Institute), "USA Code for Information Interchange", ANSI X3.4-1968, 1968.
- [RFC1034] Mockapetris, P., "Domain names - concepts and facilities", STD 13, [RFC 1034](#), DOI 10.17487/RFC1034, November 1987, <<http://www.rfc-editor.org/info/rfc1034>>.
- [RFC1035] Mockapetris, P., "Domain names - implementation and specification", STD 13, [RFC 1035](#), DOI 10.17487/RFC1035, November 1987, <<http://www.rfc-editor.org/info/rfc1035>>.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.
- [RFC3490] Faltstrom, P., Hoffman, P., and A. Costello, "Internationalizing Domain Names in Applications (IDNA)", [RFC 3490](#), March 2003.
- [RFC3629] Yergeau, F., "UTF-8, a transformation format of ISO 10646", [RFC 3629](#), November 2003.
- [RFC3743] Konishi, K., Huang, K., Qian, H., and Y. Ko, "Joint Engineering Team (JET) Guidelines for Internationalized Domain Names (IDN) Registration and Administration for Chinese, Japanese, and Korean", [RFC 3743](#), DOI 10.17487/RFC3743, April 2004, <<http://www.rfc-editor.org/info/rfc3743>>.
- [RFC4290] Klensin, J., "Suggested Practices for Registration of Internationalized Domain Names (IDN)", [RFC 4290](#), DOI 10.17487/RFC4290, December 2005, <<http://www.rfc-editor.org/info/rfc4290>>.

[RFC6672] Rose, S. and W. Wijngaards, "DNAME Redirection in the DNS", [RFC 6672](#), DOI 10.17487/RFC6672, June 2012, <<http://www.rfc-editor.org/info/rfc6672>>.

8.2. Informative References

[BNAME] Yao, J., Lee, X., and P. Vixie, "Bundle DNS Name Redirection", [draft-yao-dnsext-bname-06.txt](#) (work in progress), 12 2009.

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