

DNAME Issues Regarding IDN TLD Implementation

RIPE 56 DNS WG

7 May 2008

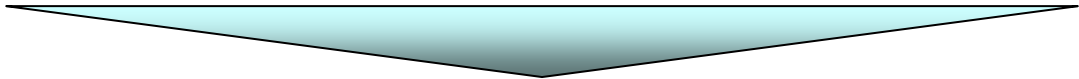
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Agenda

- Objective of presentation
- What is DNAME?
- Why DNAME?
- Method to implement IDN TLD using DNAME
- Issues regarding use of DNAME
- Proposed solutions for Issues
- Discussion

Objective of presentation

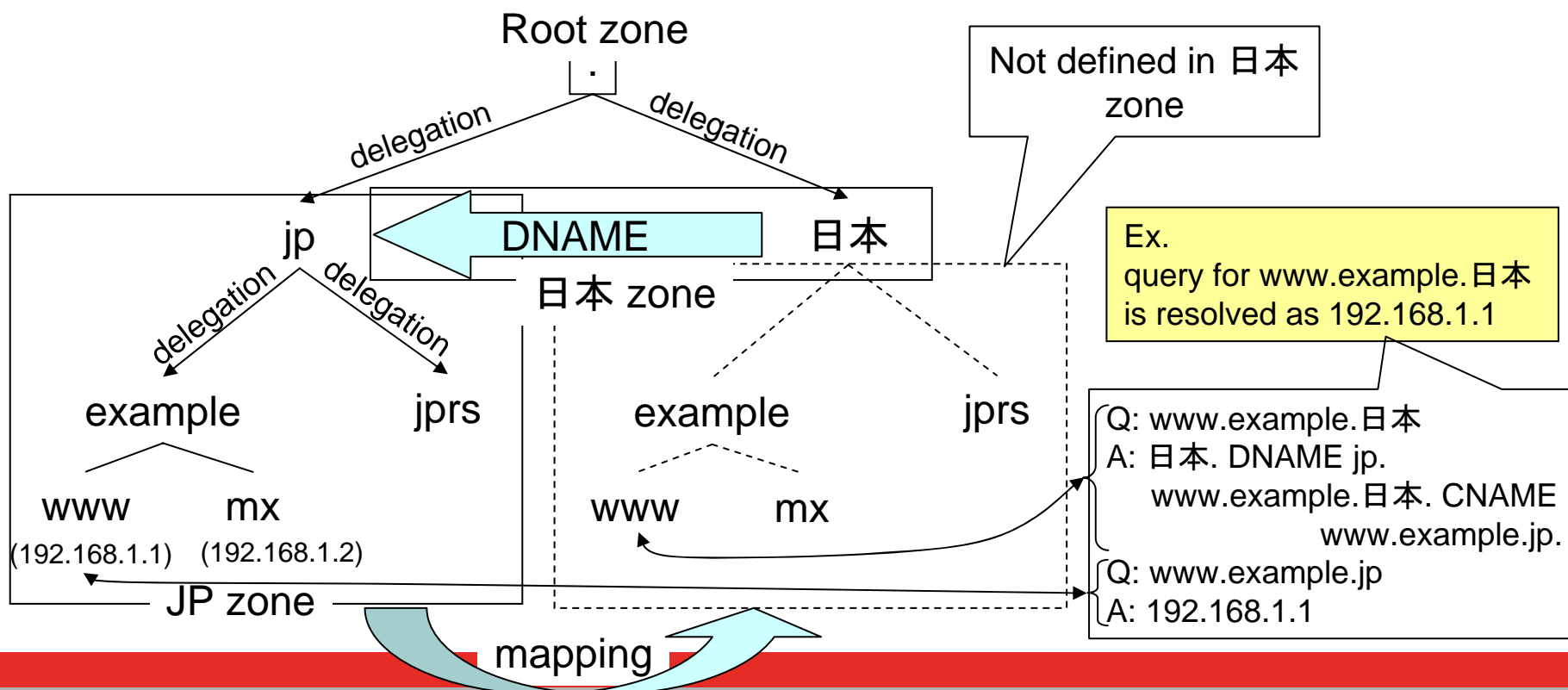
- IDN TLD will be introduced in the near future (in one year?)
- DNAME, a DNS resource record, is one of technical candidates to be employed in implementing IDN ccTLDs corresponding to existing ccTLDs
- It is still uncertain what happens when DNAME is used for IDN TLD



Listing up issues regarding DNAME in implementing IDN TLDs and possible solutions for them

What is DNAME?

- A DNS resource record which provides redirection for a sub-tree of the domain name tree in the DNS system
- Defined in RFC 2672
 - rfc2672bis is now work in progress



Why DNAME?

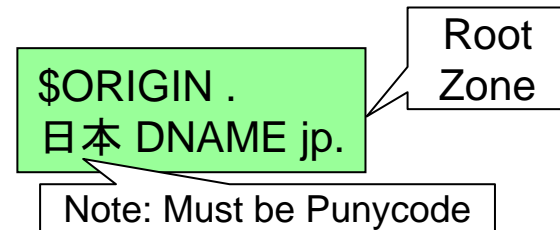
- Our small survey told us that a registrant of a domain name under IDN ccTLD is naturally assumed to be the one who registers the same domain name under corresponding ASCII ccTLD
 - Ex. example.jp \leftrightarrow example.日本
Expected to reach the same site
- DNAME is considered as the simplest mechanism to guarantee the assumption
 - Removes additional zone management cost from registrants and registrars
 - Minimizes registry's additional zone management cost

Method to implement IDN TLD using DNAME

- There seems to be three typical methods

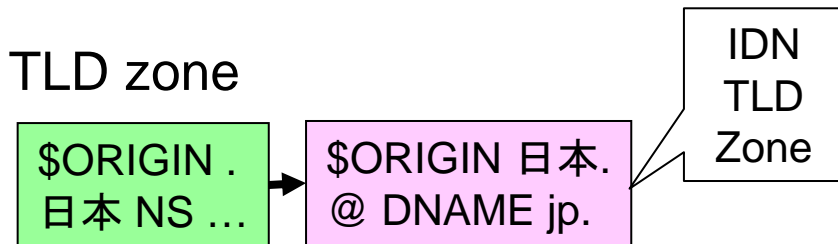
(1) DNAME for IDN TLD in Root zone

- Simple and easy
- Concern about root zone stability
- No chance for opt-out



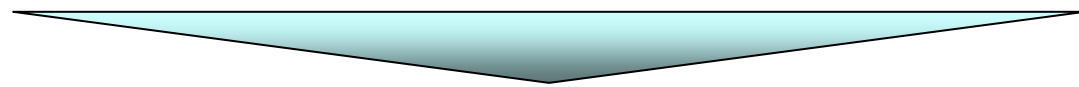
(2) DNAME for IDN TLD in IDN TLD zone

- Simple and easy
- No chance for opt-out



(3) DNAME for each registered domain name in IDN TLD zone

- Flexible but hard to manage



Focus on (2) in this presentation

Issues regarding use of DNAME (1/2)

- DNS perspective
 - Increasing loads for Root and TLD authoritative DNS servers
 - May be serious if full resolver is not DNAME compliant
 - May be serious if DNAME/CNAME loop is happened
 - Increasing loads for Cache DNS servers
 - May be serious if full resolver is not DNAME compliant
 - May be serious if DNAME/CNAME loop happens
 - Name resolution in 10-year-old resolver implementations
 - They are still working on the Internet
 - Ideally no problem, but not tested
 - No matching with owner name itself
 - How/Where to manage A/AAAA and/or MX for owner name
 - May be serious in (3) case

Issues regarding use of DNAME (2/2)

- Non-DNS perspective
 - Management of services which recognize domain names
 - Name virtual host of Web servers, accepting domain names in SMTP servers and SIP servers, and so on

```
<VirtualHost *>  
  ServerName      www.example.jp  
  DocumentRoot    /doc/for/www.example.jp  
</VirtualHost>  
  
+  
  
<VirtualHost *>  
  ServerName      www.example.日本  
  DocumentRoot    /doc/for/www.example.jp  
</VirtualHost>
```


Proposed solutions for Issues (1/2)

- Doing technical testing
 - Evaluation of increasing loads for authoritative DNS servers
 - Queries, CPU loads, memory usage, and so on
 - ***Expected conclusion: Small impact to Root and TLD DNS servers***
 - Evaluation of increasing loads for cache DNS servers
 - BIND 4,8,9, Windows DNS services, dnscache, and so on
 - Queries, CPU loads, memory usage, and so on
 - ***Expected conclusion: Small impact to Cache DNS servers***
 - Name resolution in cache DNS servers
 - BIND 4,8,9, Windows DNS services, dnscache, and so on
 - Stub resolvers are target?
 - ***Expected conclusion: No problem with existing popular resolvers***

Proposed solutions for Issues (2/2)

- Creating documents
 - List of issues and solutions
 - Results of technical testings
 - DNAME setting and operating guideline for operators
 - Server other than DNS setting and operating for registrants and registrars
- Sharing documents in general public

Discussion

1. Any other issues?
2. Any other solutions?
3. Any other technical testings?
4. Who should be involved in testing?
 - ccTLDs? Root Operators? ISPs? ICANN?
5. Does anyone have experience of DNAME?
6. Which community is appropriate to discuss this issue?
 - ccTLDs? DNS Operators?