

TWNIC's Registration Policy and Technical Solution for the .台灣 and .台湾 IDN ccTLD

TWNIC will implement a comprehensive registration policy and technical solution for the synchronized .台灣 (xn--kprw57d, Traditional Chinese form) and .台湾 (xn--kprw13d, Simplified Chinese form) IDN ccTLD in order for ensuring the DNS stability and avoiding the user confusion. When registering a “Traditional-Chinese-Characters.台灣”, a set of corresponding registrations will be received at the same time, including “Traditional-Chinese-Characters.台湾”, “Simplified-Chinese-Characters.台灣” and “Simplified-Chinese-Characters.台湾”.

Preamble

The whole 23 million populations in Taiwan commonly use Traditional/Simplified Chinese. It is easy to find that many government's and enterprise's websites provide both versions of web pages. With more and more communications and exchanges, the number of Chinese-speaking Internet users has grown 1,162.0% in the last nine years (2000-2009) according to the survey conducted by Internet World Stats (<http://www.internetworldstats.com/stats7.htm>). In 2009, there were 407.7 million Chinese speaking Internet users, which represent 22.6% of total Internet users in the world and make Chinese become the second largest language community on the Internet.

If “台灣” and “台湾” are not simultaneously delegated, the Chinese users might access to the different destinations. Therefore, it is crucial to keep the same value of Traditional and Simplified Chinese.

Based on the recent survey conducted by TWNIC exploring the users' experience on different Chinese written forms, “台灣” and “台湾”, the findings show that 27.06% interviewees are used to using either “灣” or “湾”; 14.50% interviewees commonly use “湾”. (Please refer to Figure 1.) The findings also indicate that “灣” and “湾” which are widely used in daily activity are recognized as the same in our community. When further analyzing the Interviewees in Northern Taiwan, which represents 50% of total population in Taiwan, Figure 2 shows about 42.00% use the form “湾”, which is higher than those in other regions.

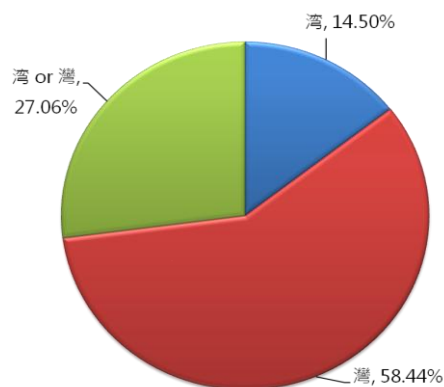


Figure 1: Percentage of the forms “灣” and “湾” being used

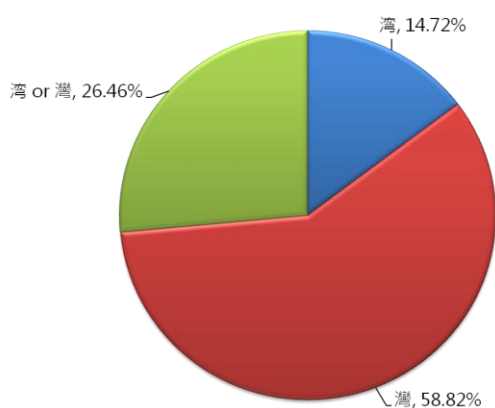


Figure 2: Percentage of the forms “灣” and “湾” being used in Northern Taiwan

TWNIC's experiences on IDN Registration Service

As the ccTLD manager responsible for .tw domain name registrations and managements, TWNIC has provided IDN registration service to ensure the best interests of local Internet users since 2000. Until now, 30% of total .tw domain name registrations is IDN. TWNIC has devoted to the IDN technical development and deployment. As one of the founding members of CDNC and JET, we have proposed RFC 4713 and RFC 3743 to provide Chinese IDN registration/administration recommendations and IDN variant table respectively.

Following the IDNA 2003 and above-mentioned RFCs, TWNIC has established the Chinese Language Table for the IDN registration services since 2003. Therefore, when registering a Traditional Chinese IDN, the registrant also received a corresponding Simplified Chinese IDN. Both the Traditional/Simplified Chinese IDNs are resolved to the same address or value to protect the registrant's right and avoid the user's confusion.

To achieve the goal of the same resolution, TWNIC and its accredited registrars provide convergence technology for zone managements/services, as a hosting service package including DNS, Web and Email for the registrants, where TWNIC adopts DNAME technology for the DNS resolution. Up to now, more than 6,000 .tw registrants have used this package service. For example, <http://台灣之茶.tw/> and <http://台湾之茶.tw/>, both Traditional and Simplified Chinese IDNs are resolved to the same value. We have implemented hosting service package in .tw SLD registration since 2003. From our 7-year operation and management experience, the DNS stability and security is guaranteed and the user confusion is avoided. The DNS stability and security is always TWNIC's biggest concern, so does ICANN.

TWNIC's Registration Policy for IDN ccTLD

1. Application will be accepted on a "first come, first served" basis. Where identical domain names are submitted for registration, the registrant who submits earliest will be granted domain name registration.
2. When the registrant registers a "Traditional-Chinese-Characters.台灣", the registrant automatically receives "Traditional-Chinese-Characters.台湾", corresponding "Simplified-Chinese-Characters.台灣" and "Simplified-Chinese-Characters.台湾" at the same time.

For example, when registering "台網中心.台灣" (Traditional-Chinese-Characters.台灣), the followings will be received at the same time:

"台網中心.台湾 (Traditional-Chinese-Characters.台湾)"

"台网中心.台灣 (Simplified-Chinese-Characters.台灣)"

"台网中心.台湾 (Simplified-Chinese-Characters.台湾)".

3. The registrant is required to obey the Registration Policy for the purpose of meeting user's experiences to set the DNS for the four domain names "Traditional-Chinese-Characters.台灣", "Traditional-Chinese-Characters.台

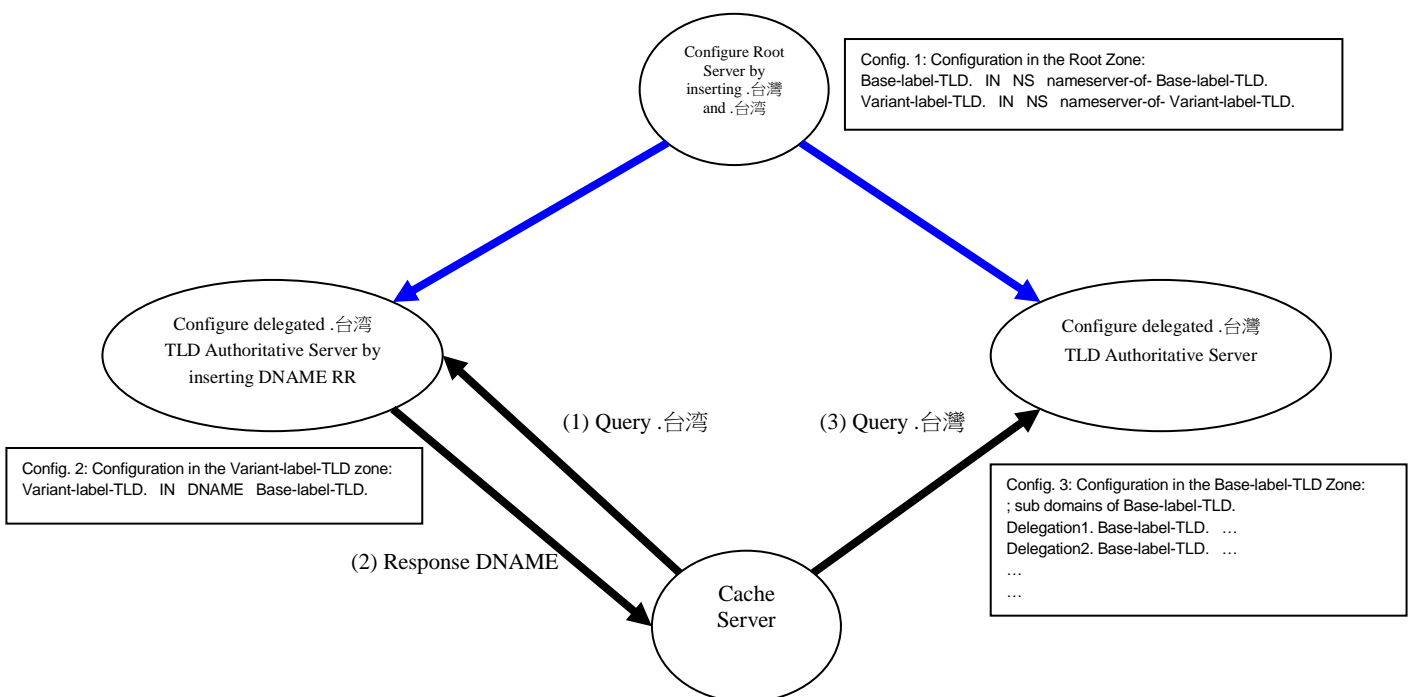
湾”, “Simplified-Chinese-Characters.台湾” and “Simplified-Chinese-Characters.台湾” at second and/or lower levels to the same address.

4. The convergence technology for zone managements/services is adopted by TWNIC and its accredited registrars to provide resolution service.
5. Based on registration agreement, registrants agree to fix at any situations that diverge from the Registration Policy as notification received. TWNIC has the right to remove diverged domain names from zone until registrants to amend the divergence.
6. In the event of a dispute deriving from the registration of a synchronized IDN ccTLD, settlement will be sought in accordance with the “Domain Name Dispute Resolution Service Providers” and “Domain Name Dispute Resolution Policy”.
7. The registrant is required to agree that TWNIC migrates to new standard if an improved technical standard for the delegation and management of synchronized IDN ccTLDs is announced by ICANN.

TWNIC’s Convergence Technology for Zone Managements/Services

Below figure shows the DNAME technology applied in variant TLD at Registry level and configuration examples. There are three processes:

- Process 1: Configure root server with NS RR for .台湾 TLD and 台湾.TLD (See Config. 1)
- Process 2: Configure authoritative variant TLD servers (.台湾 TLD) with DNAME RR (See Config. 2)
- Process 3: Configure authoritative base TLD servers (.台湾 TLD) (See Config. 3)



When the user queries a “.台湾” domain name, there are three steps in the flow of the DNS query, as described below.

Step (1): Cache server sends a query “.台湾” to authoritative server (.台湾 TLD).

Step (2): Authoritative server (.台湾 TLD) responds a DNAME RR (.台湾) to cache server.

Step (3): Cache server sends a query “.台湾” to authoritative server (.台湾 TLD).

TWNIC will follow RFC 3743 JET Guidelines for IDN and RFC 4713

Recommendations for Chinese Domain Names to implement Traditional Chinese and Simplified Chinese variant tables, so registrant will get both Traditional Chinese and Simplified Chinese IDN and reserved all variant IDN.

Below policies will be implemented to reinforce the convergence technology.

- (1) DNS hosting service should compulsorily be provided by TWNIC/TWNIC’s accredited registrars for registrants in order to avoid DNAME loop (for example, when the registrant does not set up/configure the DNS correctly).
- (2) URI related applications (such as web and email) hosting service should compulsorily be provided by TWNIC’s accredited registrars for registrants in order to ensure consistence.
- (3) DNS stability and security are TWNIC’s biggest concern and goal to achieve. DNS dynamic update and DNSSEC will be applied to the “.台湾”.

Conclusion

In 2008, TWNIC and JPRS had conducted a test to know the impact of the implementation of DNAME solution at TLD, including the increase of the numbers of queries and the degradation of CPU/memory performance. The test result showed that there was almost zero degradation performance of root servers and base TLD servers. TWNIC has implemented DNAME solution in .tw SLD registration since 2003. From our operation and management experience in more than 200,000 Chinese .tw domain names, DNAME solution is workable and guarantee the DNS stability.