What's the Story for Chinese Domain Names(CDN)

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- Variants of Chinese characters

- Why Variants affect CDN

- Variants Management

- Future works

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- Variants of Chinese
  - Same meaning with different writing forms
- Simplified-Chinese (SC) and Traditional-Chinese (TC) characters, both are identical to be same(just like: "ICANN" vs. "icann"), SC and TC is the most important variant problems
  - 国(SC)、國(TC)、囯(V)，and etc.
    - 中国（SC）、中國（TC）、中囯（Variant，not popular using）
  - 飞(U+98DE) （SC）、飛(U+98DB) （TC）
  - 机(U+673A) （SC）、機(U+6A5F) （TC）
    - 飞机（SC）、 飛機（TC） 飞機（Mixed），飛机（Mixed）

- The Chinese people are using both SC and TC.
  - "银行.中国" (SC) or "銀行.中國"(TC)
    - The meaning is bank
  - If "银行.中国" and "銀行.中國" is belong to different registrant, it will direct to different sites, which will cause very bad user experiences and very serious phishing problems.

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- The character scope of CDN
  - Characters in CDN:
    - Letters (A-Z, a-z),
    - Digital (0-9), "-"
    - Chinese Characters(about 20k), mostly in U+4E00 to U+9FA5, please refer to the IANA tables
  - Delimiter: '.' (U+002E) equals to '。'(U+3002) , For user input convenience

- Standard follows
  - RFC3454 Stringprep
  - RFC3490 IDNA
  - RFC3491 Nameprep
  - RFC3492 Punycode
  - IDNAbis will also be followed
- Special solution to CJK
  - RFC3743 Joint Engineering Team (JET) Guidelines for Internationalized Domain Names (IDN) Registration and Administration for Chinese, Japanese, and Korean
  - RFC4713 Registration and Administration Recommendations for Chinese Domain Names

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- # What's key function of RFC4713
  - When the registrant register a Chinese Domain Name, he submits the domain name he want.
  - The original one he submitted, the corresponding SC-only and the TC-only one will be delegated to the registrant
  - The other variants will be reserved in the database for this registrant, no one except for him will have chance to active that.
  - All those domain names will be treated as a package, which is owned by only one registrant.

- For example,清华大学
  - 清—>{清，清，清}
  - 华—>{华，華，崋}
  - 学—>{学，學，斈}
- IDL package ：
  {　　清華大学；清華大學；清华大学；
  　　清华大学；清华大學；清華大學；
  　　清华大學；清華大学；...}
- IDLs which will be added into the zone file
  Input Original Form:　　清华大学
  TC-only Form:　　清華大學
  SC-only Form:　　清华大学
- Other IDLs which will be reserved for this registrant
  {　　清華大学、清华大学；清华大學；清華大學；
  　　清华大學；清華大学；...}

- The current solution is not perfect, it's not easy to manage and will make the Zonefile bigger
- IETF is currently discussing the possible solutions
  - BNAME:
    - Mapping one entire tree to the other entire tree
    - If 清華大學.cn BNAME 清华大学.cn, then every query to 清華大學.cn will go to清华大学.cn for resolution
  - Zone clone:
    - Clone all name space under one name from another name space under another name
    - If 清華大學.cn CLONE 清华大学.cn, then every name in 清華大學.cn zone is copied from 清华大学.cn zone through specific security configuration and transfer
  - Other solutions?

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