IDN Variant TLD Implementation

Background and Recommendations

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IDN Scoping Team Meeting
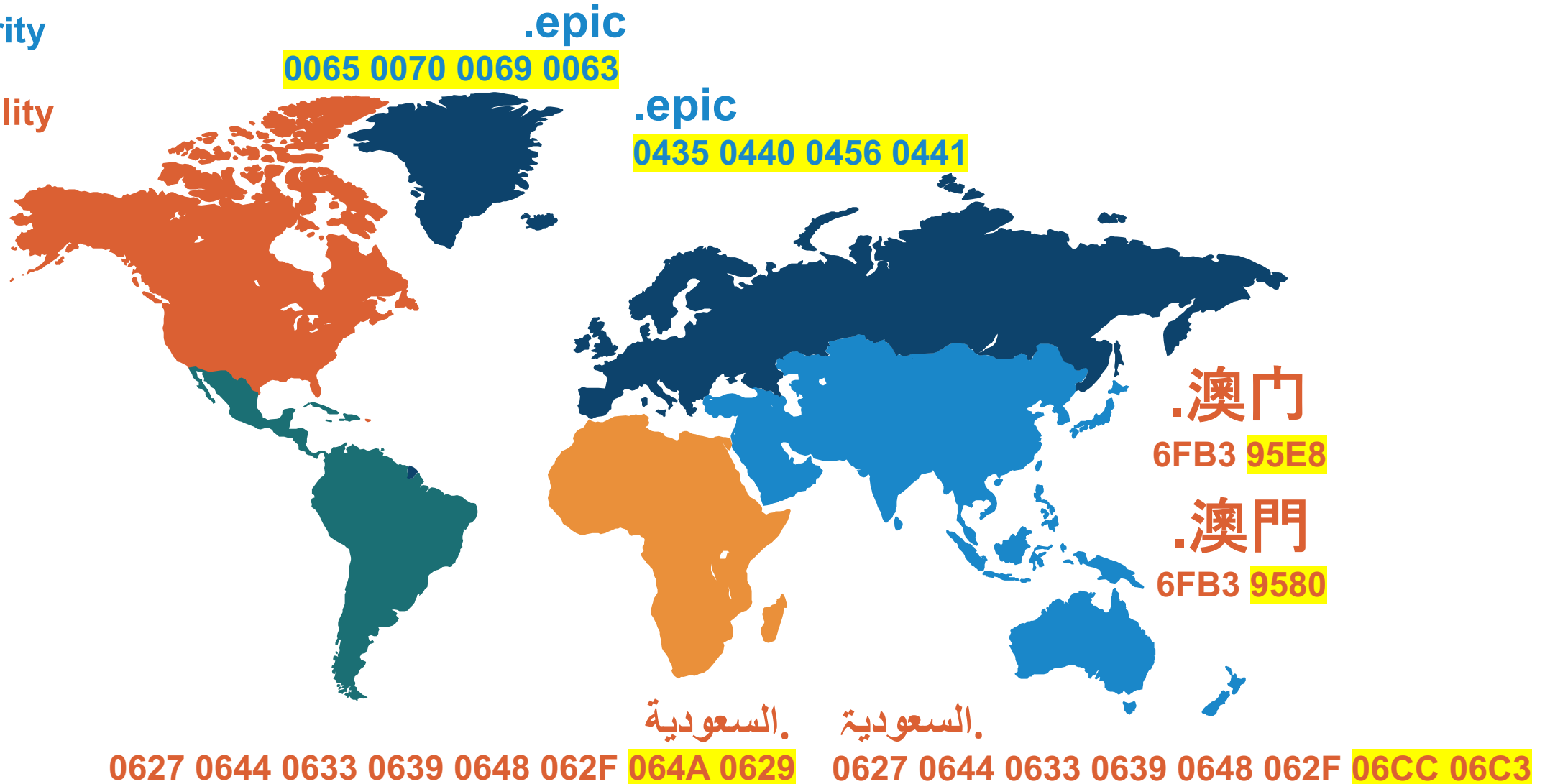12 September 2019

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Overview of the Presentation

- Understanding IDN variant TLDs and their current status

- Recommendations for implementing IDN variant TLDs

- Summary of analysis of recommendations

Understanding IDN Variant TLDs and Their Current Status

IDN Variant TLD Implementation

Understanding IDN Variant TLDs

- ◉ **Security**

- ◉ **Usability**

.epic
0065 0070 0069 0063

.epic
0435 0440 0456 0441

.澳门
6FB3 95E8

.澳門
6FB3 9580

السعودية.
0627 0644 0633 0639 0648 062F 064A 0629

السعودية.
0627 0644 0633 0639 0648 062F 06CC 06C3

Status of IDN Variant TLDs – Background

- ⊙ Variant labels are hard - interpretation of "same" varies across script

- ⊙ On 25 September 2010, the ICANN Board resolved:
  - ○ ***"No variants of gTLDs will be delegated through the New gTLD Program until appropriate variant management solutions are developed."***

- ⊙ Undertook studies on Arabic, Chinese, Cyrillic, Devanagari, Greek, and Latin scripts in 2011 to understand the variant phenomenon

- ⊙ Issues collated in the Integrated Issues Report, IIR (2012) - identified following gaps:
  1. No definition of IDN variant TLDs
  2. No IDN variant TLD management mechanism

Status of IDN Variant TLDs – Definition of Variants

- ◉ Gap 1: No definition of IDN variant TLDs
  - ○ Solution: Define variant labels using Root Zone Language Generation Rules (RZ-LGR)
  - ○ Next steps: RZ-LGR-Study Group initiated to review technical implementation
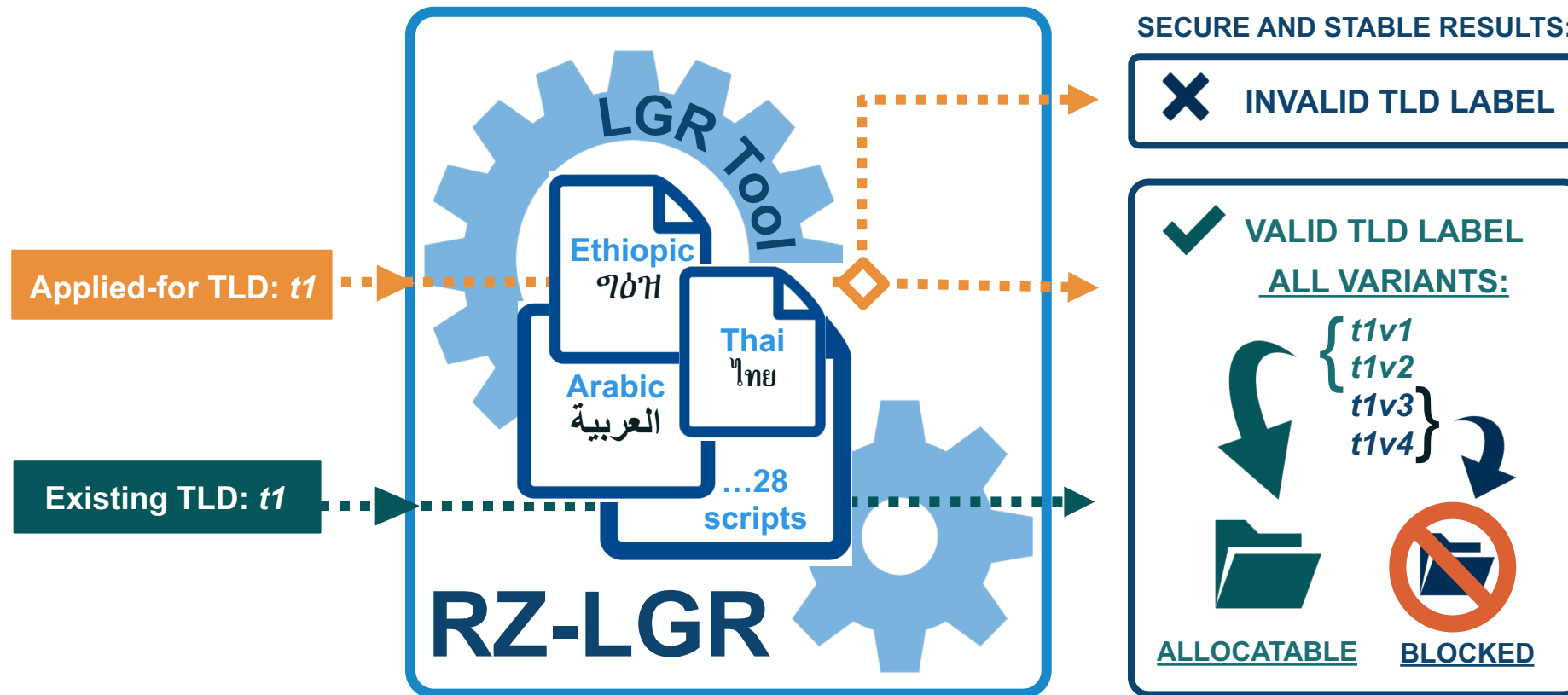
Status of IDN Variant TLDs – Variant Management Mechanism

- ⊙ Gap 2: No IDN variant TLD management mechanism

- ⊙ Solution: ICANN org to work with the community to develop a feasible mechanism
  - ○ Recommendations developed by ICANN org
  - ○ Recommendations released for public comment on 25 July 2018
  - ○ Recommendations published on 5 February 2019
  - ○ Recommendations approved by ICANN Board on 14 March 2019

Recommendations

IDN Variant TLD Implementation

Framework of Analysis

- ⦿ Dimension
  - ○ Root Zone
  - ○ Second Level
  - ○ Subordinate Zones

- ⦿ Level
  - ○ Administrative – who is the entity registering the label
  - ○ Policy – what are the conditions on registering the label
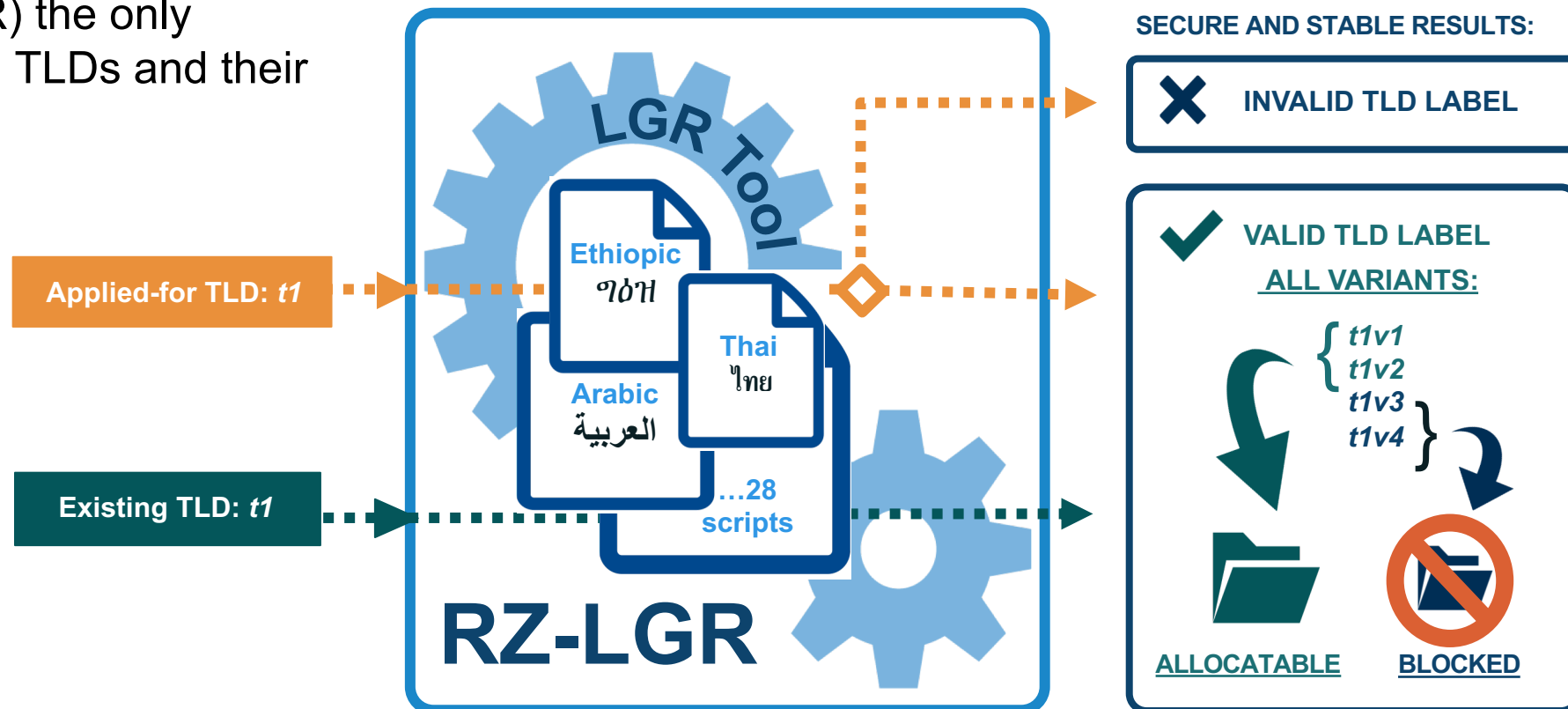 - ○ Technical implementation – how are the conditions implemented

- ⦿ Degree
  - ○ None – no condition specified
  - ○ Minimal – a single constraint
  - ○ Intermediate – multiple constraints
  - ○ Maximal – complete specification

Overview of Proposed Solution

	Administrative	Policy	Implementation
Root Zone	*Intermediate*	*Intermediate*	*None*
Second Level	*Intermediate*	*Intermediate*	*None*
Subordinate Zones	*None*	*None*	*None*

Recommendations for IDN Variant TLD Implementation

1. Root Zone Label Generation Rules (RZ-LGR) the only source for valid TLDs and their variant labels


LGR Tool

Applied-for TLD: *t1*

Existing TLD: *t1*

Ethiopic ግዕዝ

Arabic العربية

Thai ไทย

…28 scripts

RZ-LGR

SECURE AND STABLE RESULTS:

✖ **INVALID TLD LABEL**

✔ **VALID TLD LABEL**
<u>**ALL VARIANTS:**</u>

t1v1
t1v2
t1v3
t1v4

ALLOCATABLE   **BLOCKED**

Recommendations for IDN Variant TLD Implementation

TLD Applicants

2. Variant TLDs allocated to same entity: {t1, t1v1, …}

t = top-level domain label
v = variant label

.t2
.t2v1
.t2v2

.t1
.t1v1

.t3
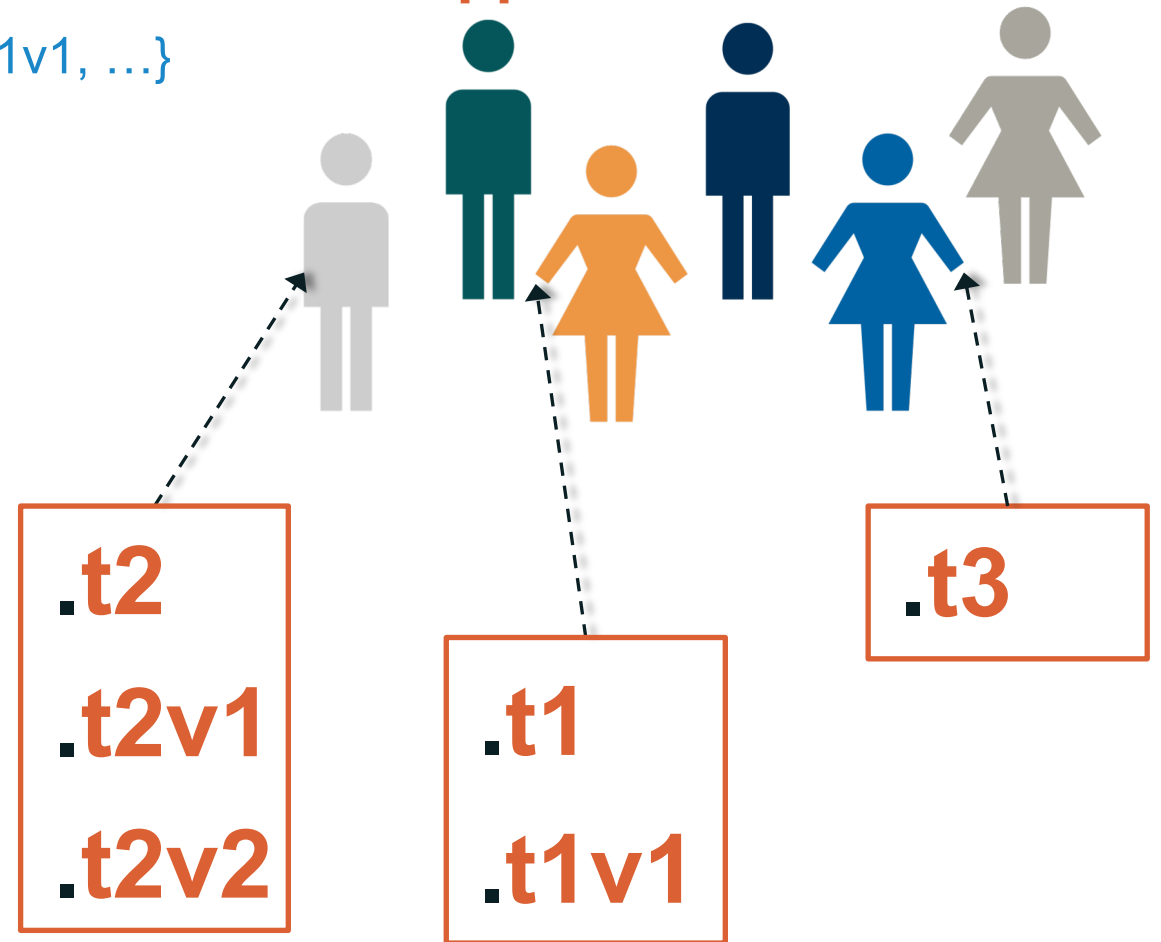
Recommendations for IDN Variant TLD Implementation

3. Same label under variant TLDs registered to the same entity: s1.t1 and s1.t1v1
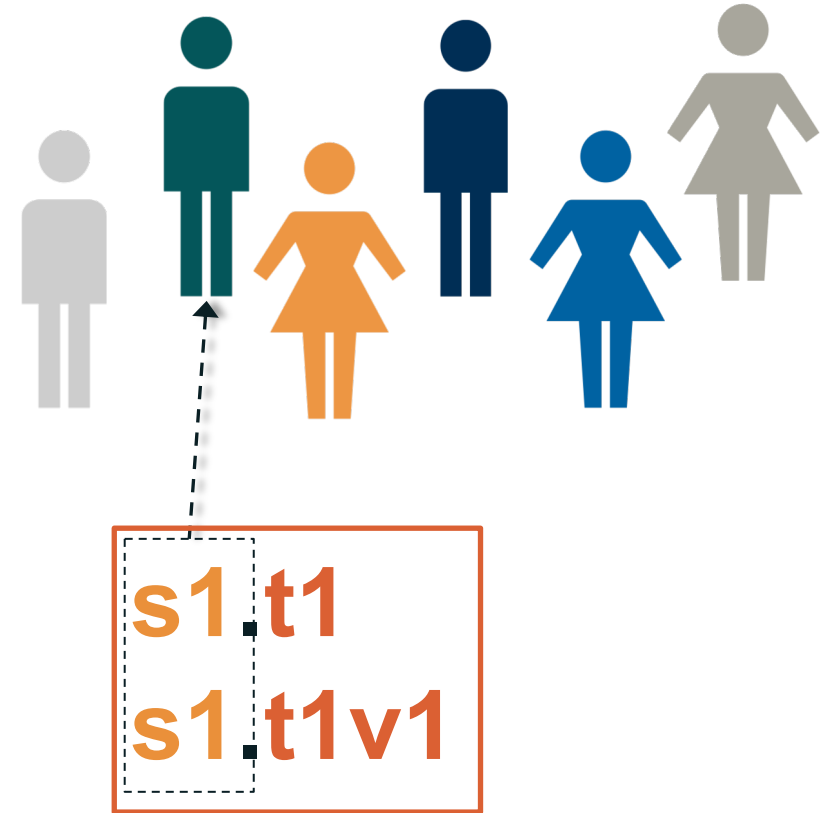
t = top-level domain label

s = second-level domain label

v = variant label

Registrants

s1.t1

s1.t1v1

Recommendations for IDN Variant TLD Implementation

4. Second-level variant labels under variant TLDs registered to the same entity: s1.t1, s1v1.t1, s1.t1v1 and s1v1.t1v1
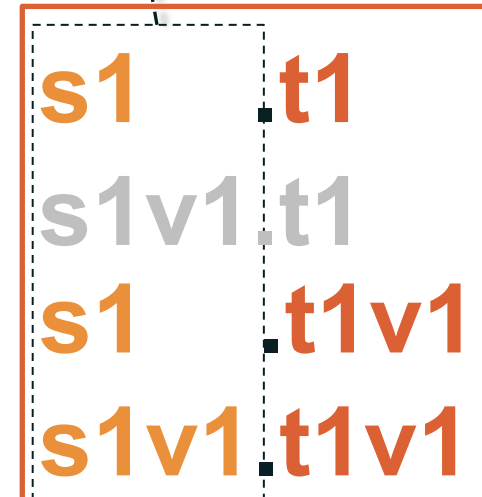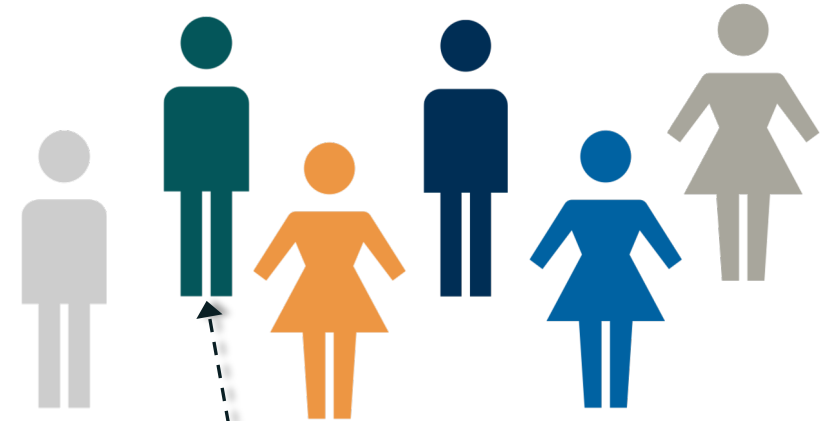
Registrants

s1	t1
s1v1	t1
s1	t1v1
s1v1	t1v1

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Recommendations for IDN Variant TLD Implementation

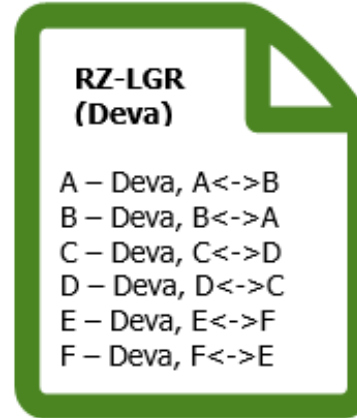5. Variant labels allocatable or activated under variant TLDs not necessarily same

Registrants

s1.t1
s1v1.t1
s1.t1v1
s1v1.t1v1

Recommendations for IDN Variant TLD Implementation

6. Second-level IDN tables under variant TLDs harmonized
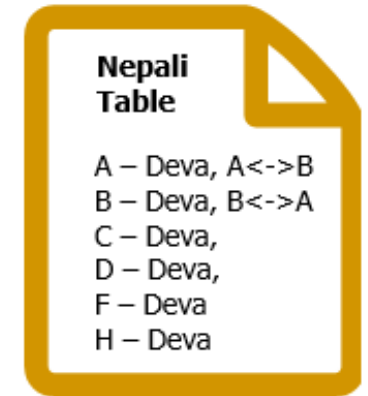

Reference   **t1**   **t1v1**

s1   .t1
s1v1.t1
s1v2.t1
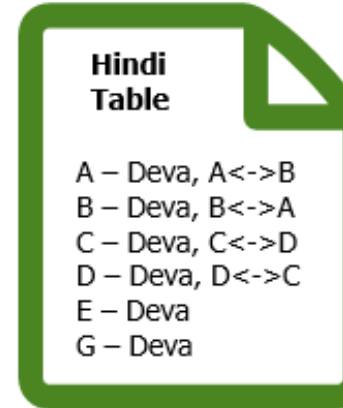
s1   .t1v1
s1v1.t1v1
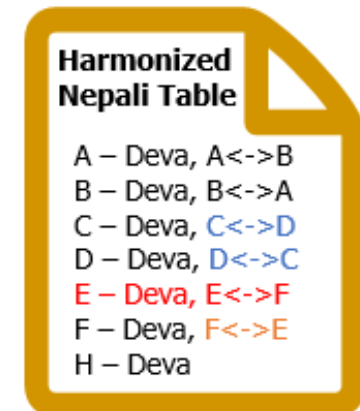
Hindi and Nepali languages written in Devanagari script

RZ-LGR (Deva)

A – Deva, A<->B
B – Deva, B<->A
C – Deva, C<->D
D – Deva, D<->C
E – Deva, E<->F
F – Deva, F<->E

Hindi Table

A – Deva, A<->B
B – Deva, B<->A
C – Deva, C<->D
D – Deva, D<->C
E – Deva
G – Deva

Nepali Table

A – Deva, A<->B
B – Deva, B<->A
C – Deva,
D – Deva,
F – Deva
H – Deva

Variant Harmonization
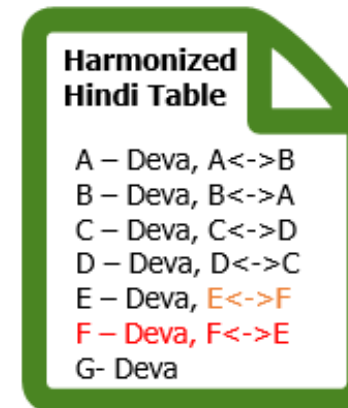
Harmonized Hindi Table

A – Deva, A<->B
B – Deva, B<->A
C – Deva, C<->D
D – Deva, D<->C
E – Deva, E<->F
F – Deva, F<->E
G- Deva

Harmonized Nepali Table

A – Deva, A<->B
B – Deva, B<->A
C – Deva, C<->D
D – Deva, D<->C
E – Deva, E<->F
F – Deva, F<->E
H – Deva

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Recommendations for IDN Variant TLD Implementation

7. Variant TLDs operated by same registry service providers

TLD Applicants

RSP

Registry Service Provider

.t2
.t2v1
.t2v2

.t1
.t1v1

.t3
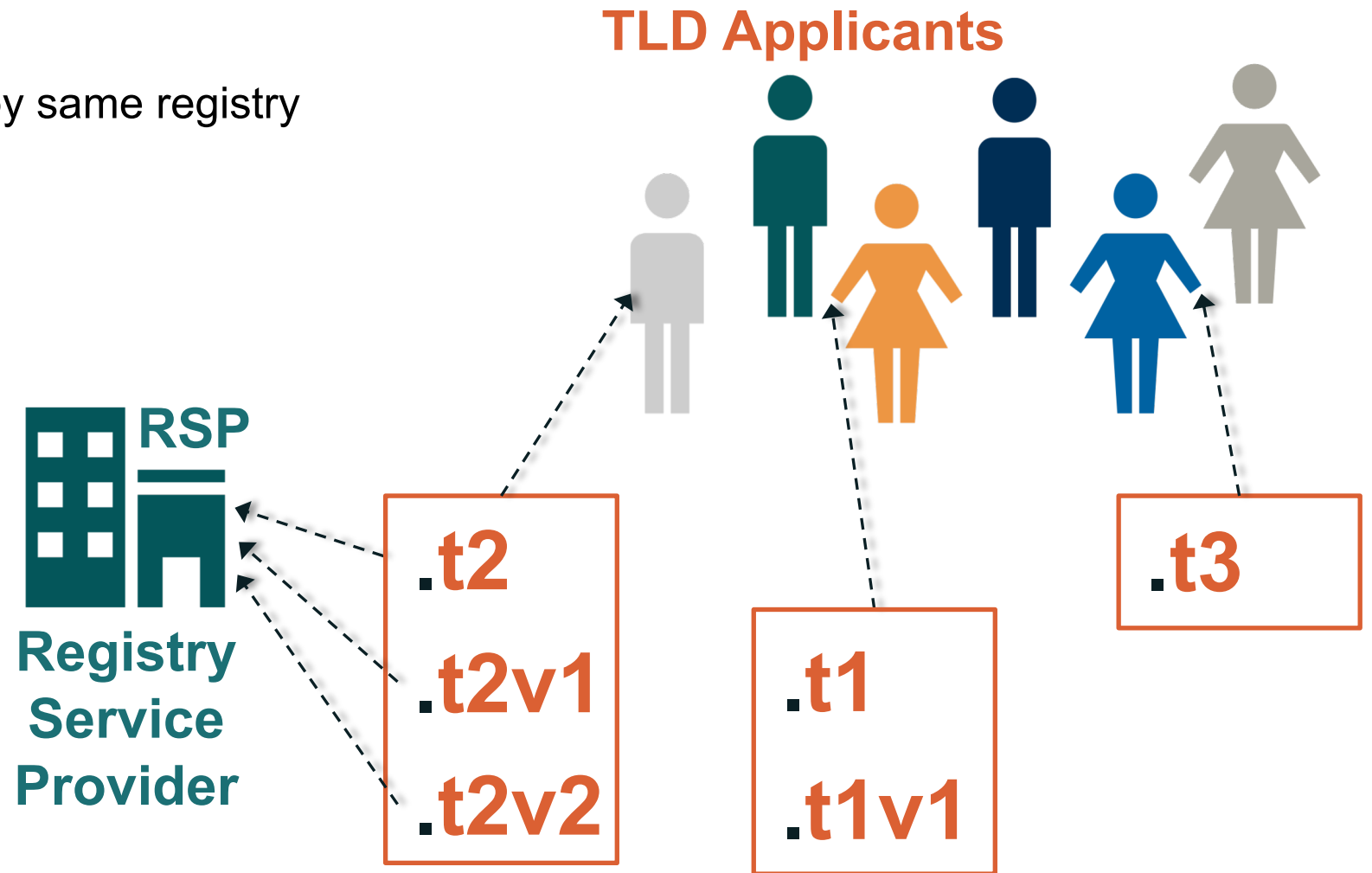
Recommendations for IDN Variant TLD Implementation

8. Existing policies and procedures updated to accommodate these recommendations

9. All other existing top-level and second-level policies apply, unless identified otherwise

IDN ccTLD Fast Track

IDN ccTLD Policy

New gTLD Policy

IDN Guidelines

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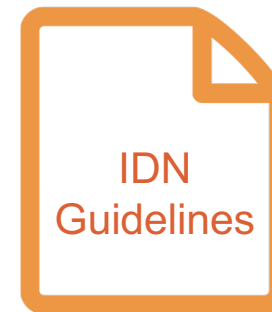
Summary of Proposed Solution

	Administrative	Policy	Implementation
Root Zone	**Rec.2** *Variant TLDs allocated to same entity: {t1, t1v1, …}* **Rec.7** *Variant TLDs operated by same registry service providers*	**Rec.1** *Root Zone Label Generation Rules (RZ-LGR) the only source for valid TLDs and their variant labels*	*None*
Second Level	**Rec.3** *Same label under variant TLDs registered to the same entity: s1.t1 and s1.t1v1* **Rec.4** *Second-level variant labels under variant TLDs registered to the same entity: s1.t1, s1v1.t1, s1.t1v1 and s1v1.t1v1*	**Rec.5** *Variant labels allocatable or activated under variant TLDs not necessarily same* **Rec.6** *Second-level IDN tables under variant TLDs harmonized*	*None*
Subordinate Zones	*None*	*None*	*None*

Additional Root Zone and Second Level

Rec.8 *Existing policies and procedures updated to accommodate these recommendations*
Rec.9 *All other existing top-level and second-level policies apply, unless identified otherwise*

Engage with ICANN

Thank You and Questions

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