



OXFORD
INFORMATION LABS

Internationalized Domain Names: Advancing the IDN Agenda for a More Inclusive Internet

APRALO Webinar, 27 July 2021

Emily Taylor

What are internationalized domain names (IDNs)?

- Traditionally, domain names supported a-z 0-9 (ASCII) and hyphen, and that's it.
- At a technical level, IDNs transliterate Unicode labels into ASCII strings
- Implementation began in 2000 at the second level (.com and .net) and 2001 (.jp).
- IDNs at the top level became available from 2009 onwards.

	IDN second level	ASCII top-level domain (TLD)
human readable (UTF8):	παράδειγμα	.eu
machine readable (punycode):	xn--hxajbheg2az3al	.eu
		Greek script domain name (hybrid)
		The same domain name in punycode
	IDN second level	IDN top-level domain (IDN ccTLD)
human readable (UTF8):	образец	.рф
machine readable (punycode):	xn--80abnh6an9b	.xn--p1ai
		Cyrillic script domain name (full IDN)
		The same domain name in punycode

About the IDN World Report

The screenshot shows the homepage of the IDN World Report website. At the top, there is a 'SPONSORS' section with logos for the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Coordination Center for TLD.RU/PФ. The main header features the 'IDN WORLD REPORT' logo and a navigation menu with links for 'Key metrics', 'About', 'Blog', 'News', 'Universal Acceptance', and 'Analysis'. The main content area has a dark blue background with a world map and the title 'Internationalised Domain Name World Report'. Below the title is the subtitle 'Tracking IDN World Growth' and a 'Read more >' button. A carousel of featured articles is shown below, including '7th ICANN Middle East Forum' by Emily Taylor, 'UASG Studies Awarded to Oxford Information Labs', and 'Oxford Information Labs presents EURid's EAI Report to ICANN's UASG'.

SPONSORS

United Nations Educational, Scientific and Cultural Organization
With the support of Communication and Information Sector

COORDINATION CENTER FOR TLD.RU/PФ

eu
Powered by EURid

IDN WORLD REPORT

Key metrics About Blog News Universal Acceptance Analysis

Internationalised Domain Name World Report

Tracking IDN World Growth

[Read more >](#)

7th ICANN Middle East Forum
30 Mar, 2021
EVENTS: ICANN, Middle East Forum

Emily Taylor
PRESENTING AT
Middle East
DNS FORUM

UASG Studies Awarded to Oxford Information Labs
30 Mar, 2021
UNIVERSAL ACCEPTANCE | RESEARCH: ICANN, UASG

Oxford Information Labs presents EURid's EAI Report to ICANN's UASG.
22 Feb, 2021
UNIVERSAL ACCEPTANCE: ICANN, UASG

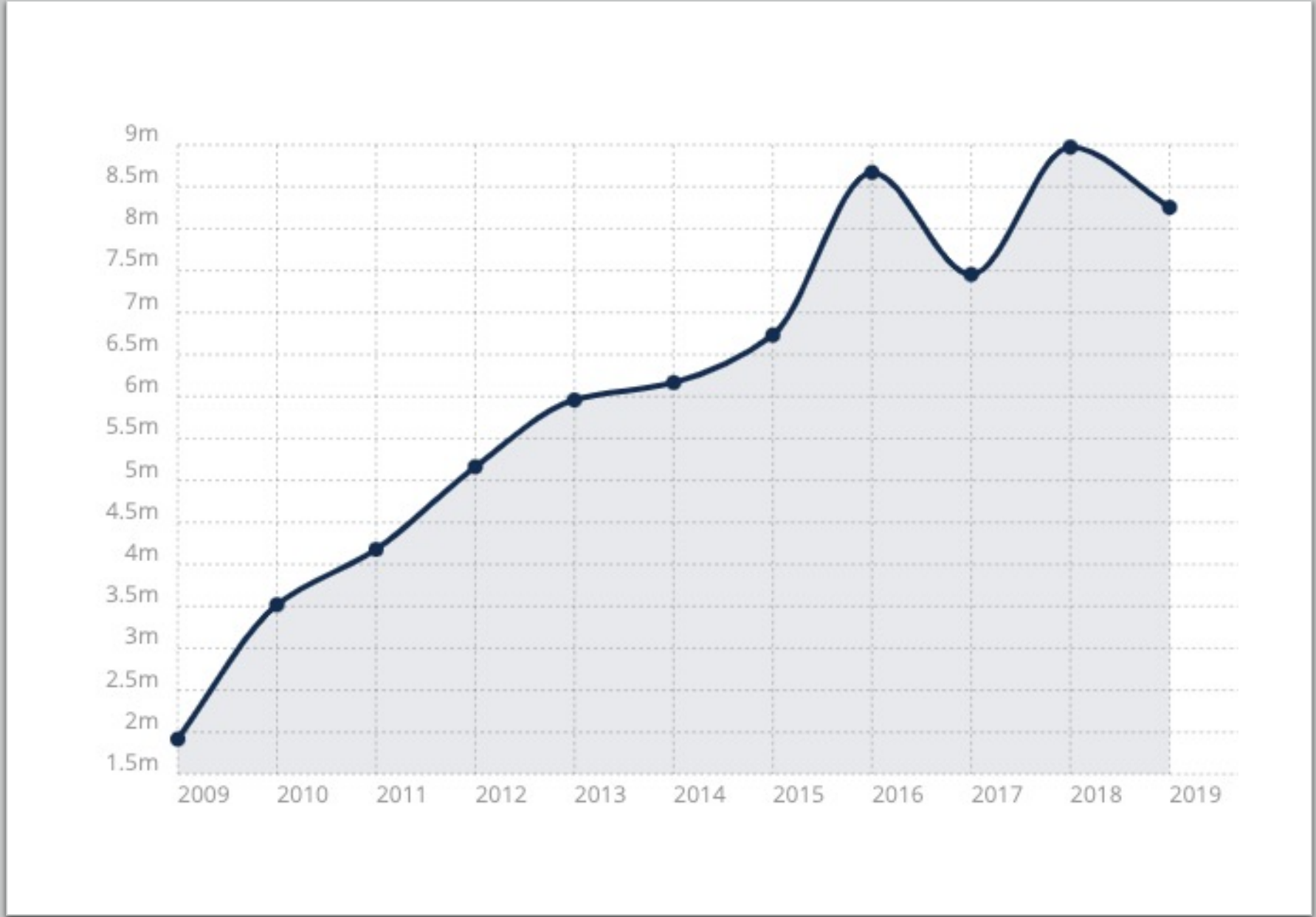
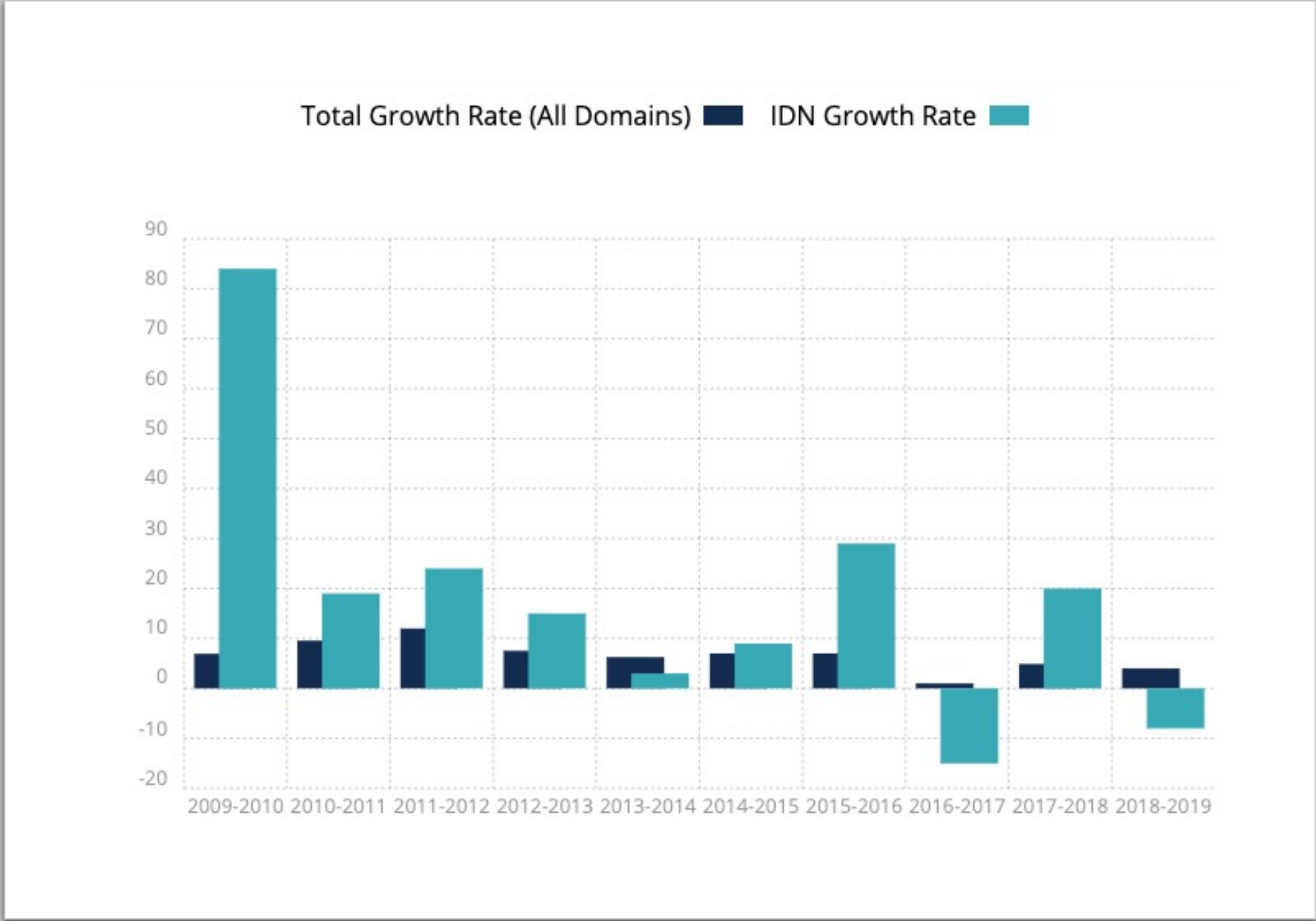
Roadmap for this session

IDN Report key findings

Update on universal acceptance and EAI study

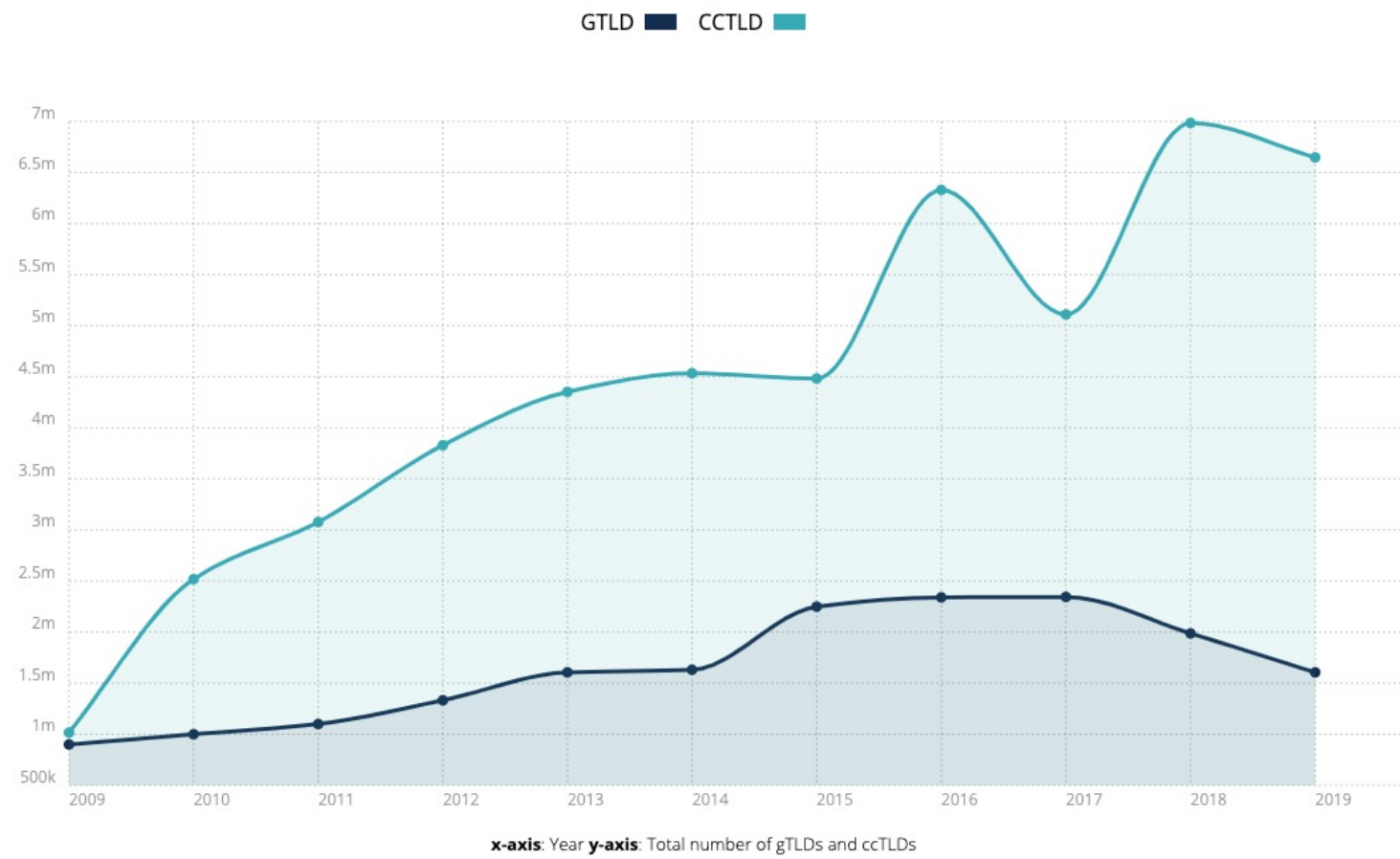
IDNs in the Asia Pacific region

Key findings, 2020 report



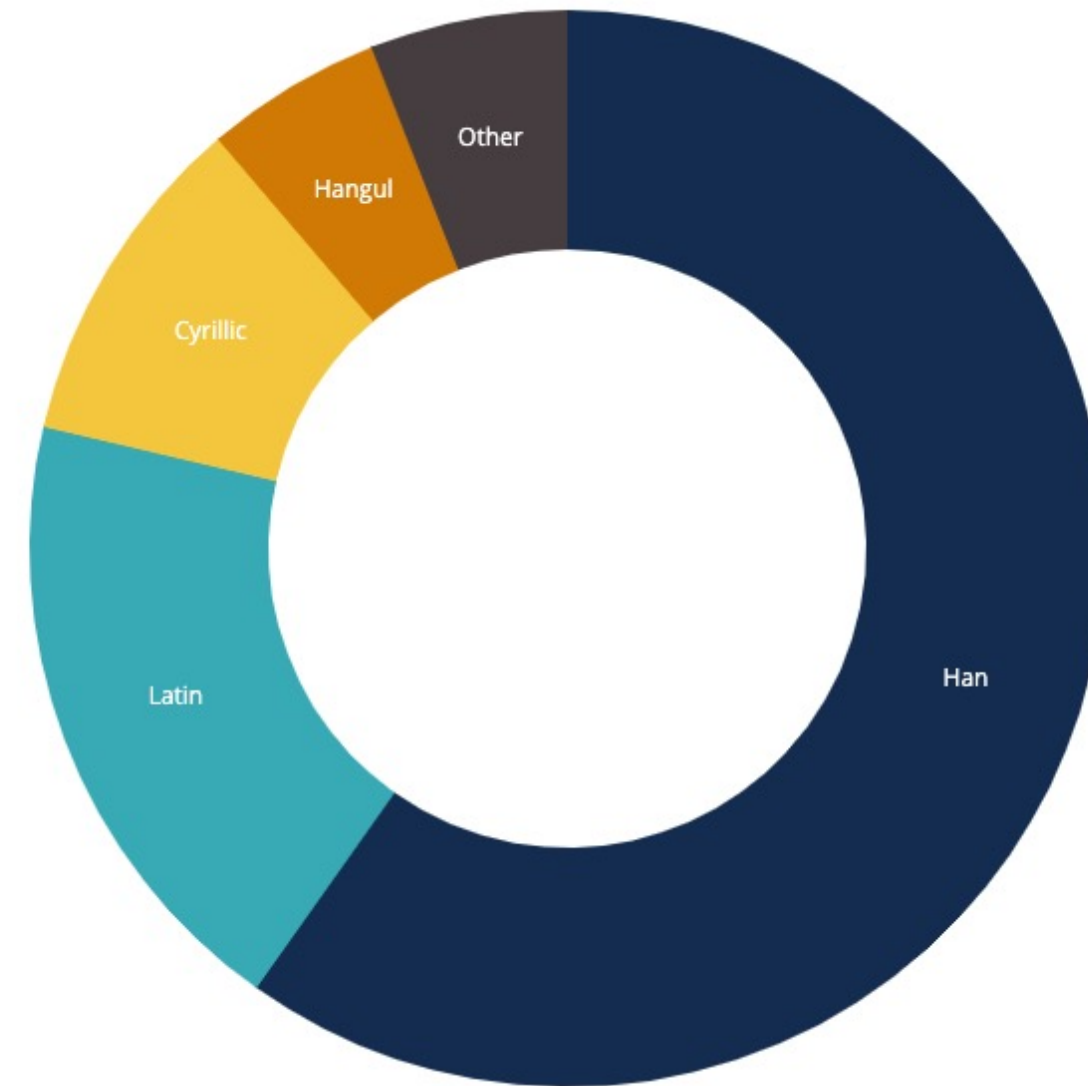
IDNs by Type

IDN Growth by type, comparing the number of IDNs in gTLDs to ccTLDs



IDNs by Script (All)

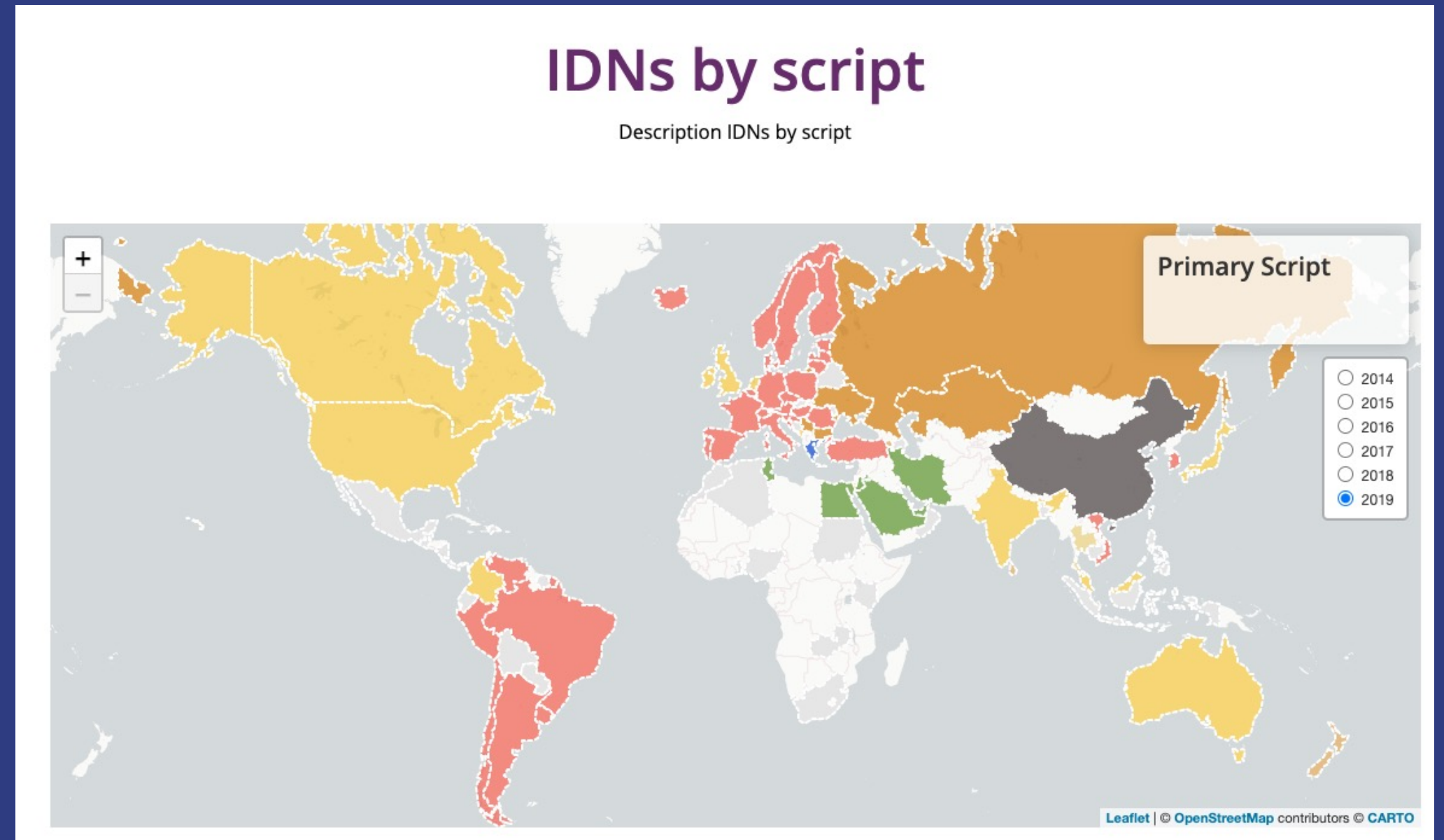
The scripts of all IDNs, both at top and second level



THE UNIVERSITY OF
MICHIGAN LIBRARIES
ANN ARBOR, MICHIGAN



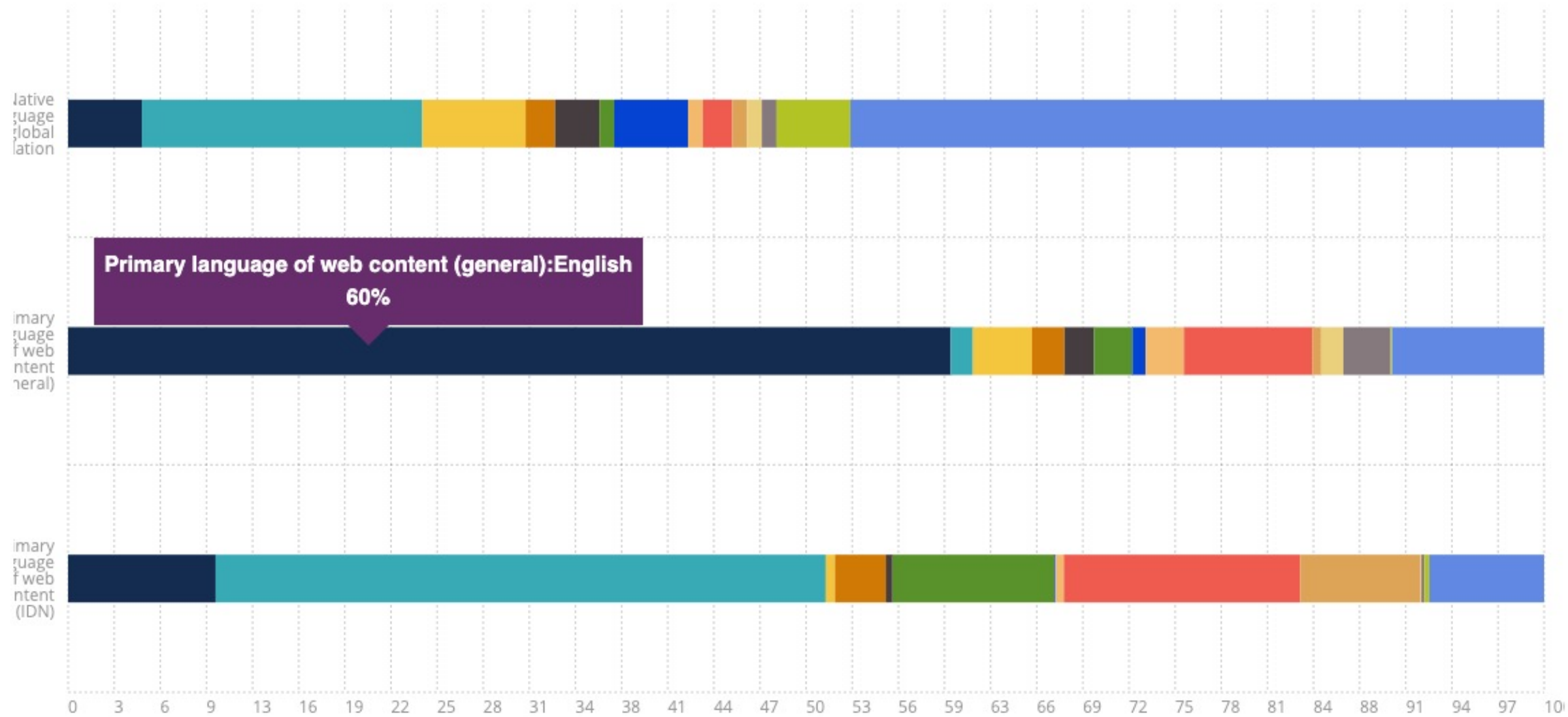
IDNs help to promote linguistic diversity in cyberspace

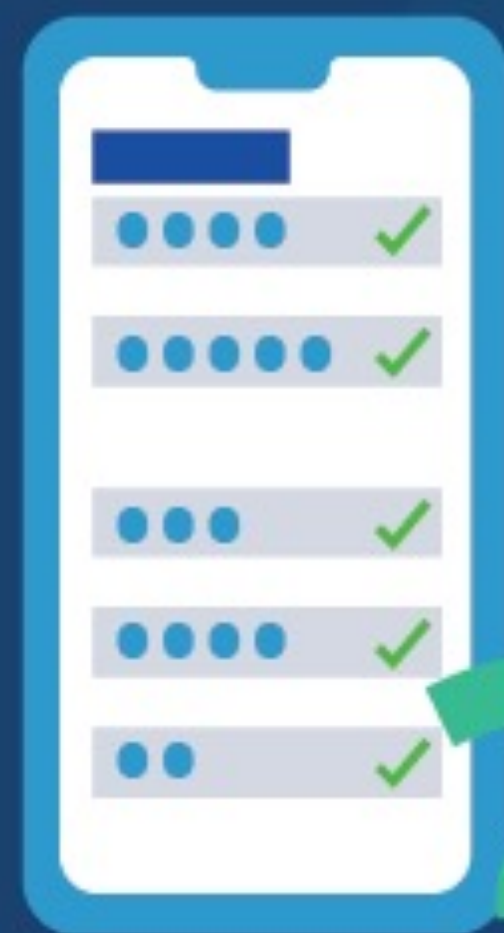


IDNs and Linguistic Diversity

A comparison of the native language of the global population, the primary language of all web content, and the primary language of IDN web content. With IDNs, the web content is more linguistically diverse

English Chinese Spanish Japanese Portuguese German Arabic French Russian Korean Vietnamese Turkish Hindi Other

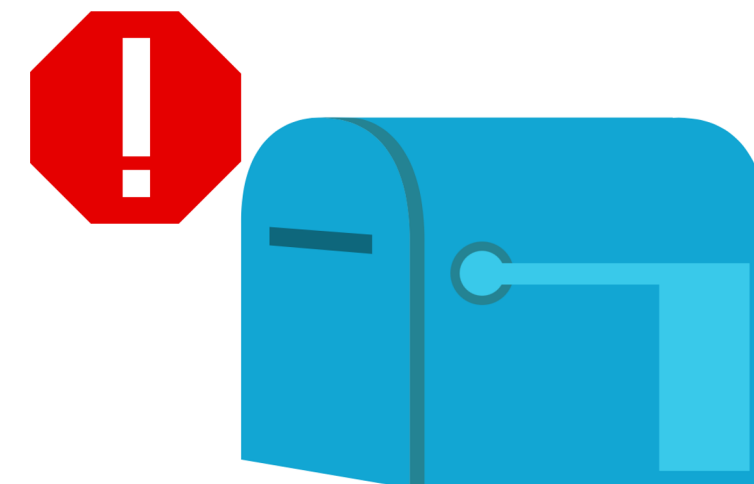




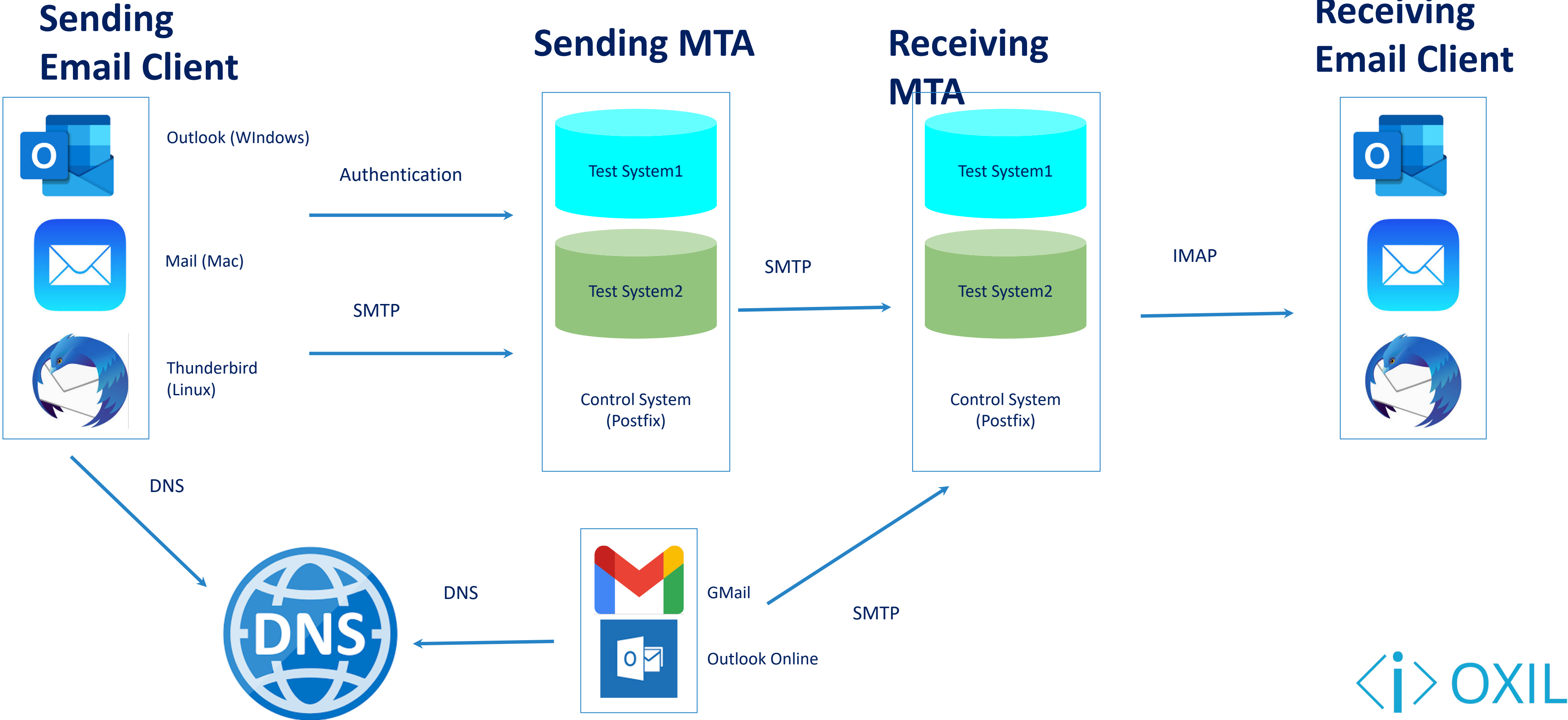
Universal acceptance
remains a challenge

EAI study 2020

- EURid commissioned OXIL to evaluate 2 commercial full stack email systems for UA adherence
- Study focus on the European Market and languages (Latin with Diacritics, Cyrillic and Greek scripts only)
- Benchmark test systems against a best practice control system



Points of success / failure !



Benchmark / Control environment

- Had hoped to use CPanel (the most popular solution for hosting providers). Underpinned by EXIM which supports IDNs but out of box configuration and GUI lacked support for unicode.
- Custom Postfix / Dovecot configuration with full support for unicode@idn domain sending and receiving using aliases
- Whilst out of scope for practical reasons Postfix environment can be configured to authenticate with Unicode strings.





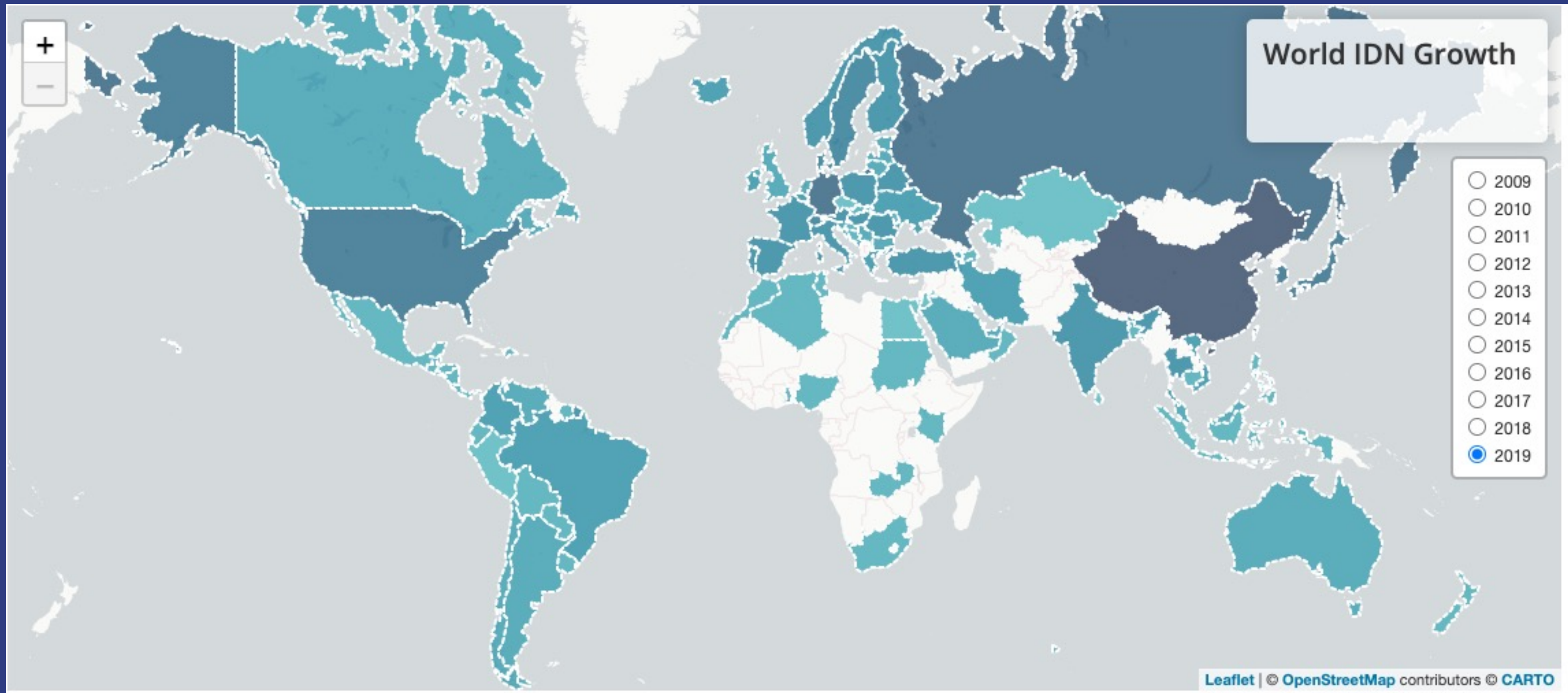
Summary Observations

- Underlying MTA software now has good support for IDNs, Unicode email prefixes and Unicode content and headers
- Issues with MTA solutions are usually down to lack of support by custom integrated software used for configuration etc
- Popular mail clients still have a long way to go to meet the mark for UA in email.

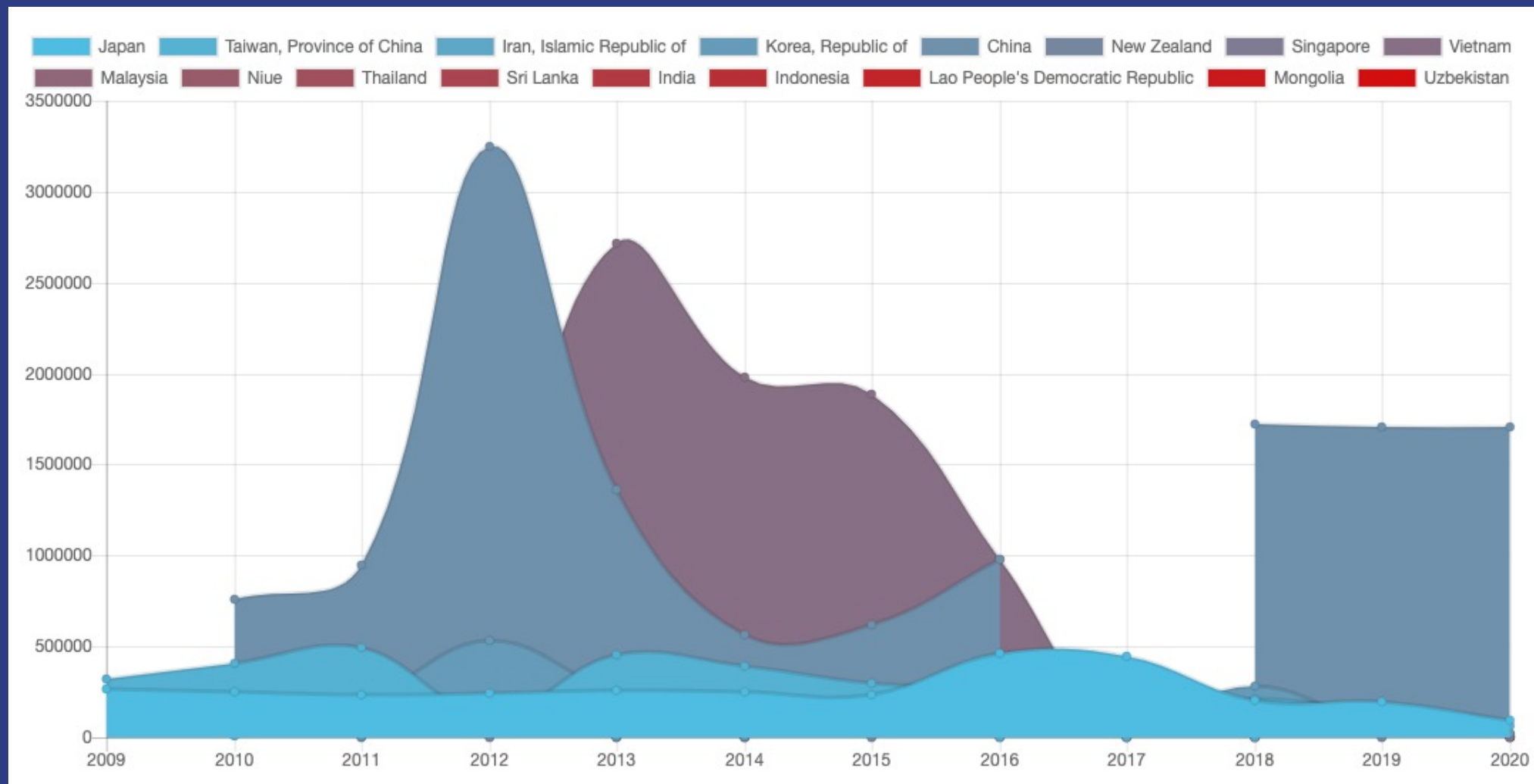
New UA studies for 2021



IDNs in Asia Pacific



- The majority of IDNs are in the AP region



IDNs in the AP region over time

We would love to talk to you about your IDN experiences



IDNs in Asia and the Pacific

Description Idns in Asia and the Pacific

[IDN World Report](#) > [IDNs Around the World](#) > [IDNs in Asia and the Pacific](#)

This section looks at the region of Asia and the Pacific, and its extensive contribution towards the refinement of IDN standards and the introduction of the IDN ccTLD. It then reviews implementation of IDNs by country or territory, with a particular focus on China, Republic of Korea and Viet Nam, followed by a round-up for the rest of the region.

It identifies the core problem as lack of end-user awareness. Finally the section concludes by revisiting the IDN-Readiness Matrix, finding that while the factors are still relevant, generally IDN registrations are under-performing compared with their potential, due to a combination of poor user experience and lack of user awareness.

RELATED



Republic of Korea

25 Sep, 2016

COUNTRY CASE STUDY | ASIA AND THE PACIFIC:
Republic of Korea, Korea



China

25 Sep, 2016

COUNTRY CASE STUDY | ASIA AND THE PACIFIC:
China



Vietnam

21 Sep, 2016

COUNTRY CASE STUDY | ASIA AND THE PACIFIC:
Vietnam

IDNS HELP TO ENHANCE
LINGUISTIC DIVERSITY IN
CYBERSPACE

IDNS ARE ACCURATE
PREDICTORS OF THE LANGUAGE
OF WEB CONTENT

UNIVERSAL ACCEPTANCE
REMAINS A CHALLENGE

MANY CCTLDS IN THE REGION
OFFER IDNS

Conclusions

Thank you!

emily.taylor@oxil.co.uk