Blockchain, NFT's and Decentralized Domains.

The impact on consumers, internet security and stability and ICANN

NARALO ICANN73

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Audience Poll

- How many of you own crypto-currency?
    - No
    - Yes, but just one currency
    - Yes, more than one currency
    - I do not know what crypto-currency is

- How many of you own a hardware wallet?
    - Yes, I own a hardware wallet
    - No I do not
    - What is a hardware wallet?

- How many of you own one or more NFT's?
    - No
    - Yes
    - I do not know what NFT's are

Agenda

1. Introduction to NFTs and decentralized domains

2. Implications for Consumers (i.e., internet users)

3. Implications for internet security and stability

4. Implications for ICANN and internet governance

5. Questions for the ICANN community to address

6. Open discussion

Blockchain 101

- <u>What is Blockchain?</u> – A tamper-proof distributed ledger of transactions linked together through complex mathematical algorithms ("Hash"); Everyone has access to the ledger and each transaction is irreversible.
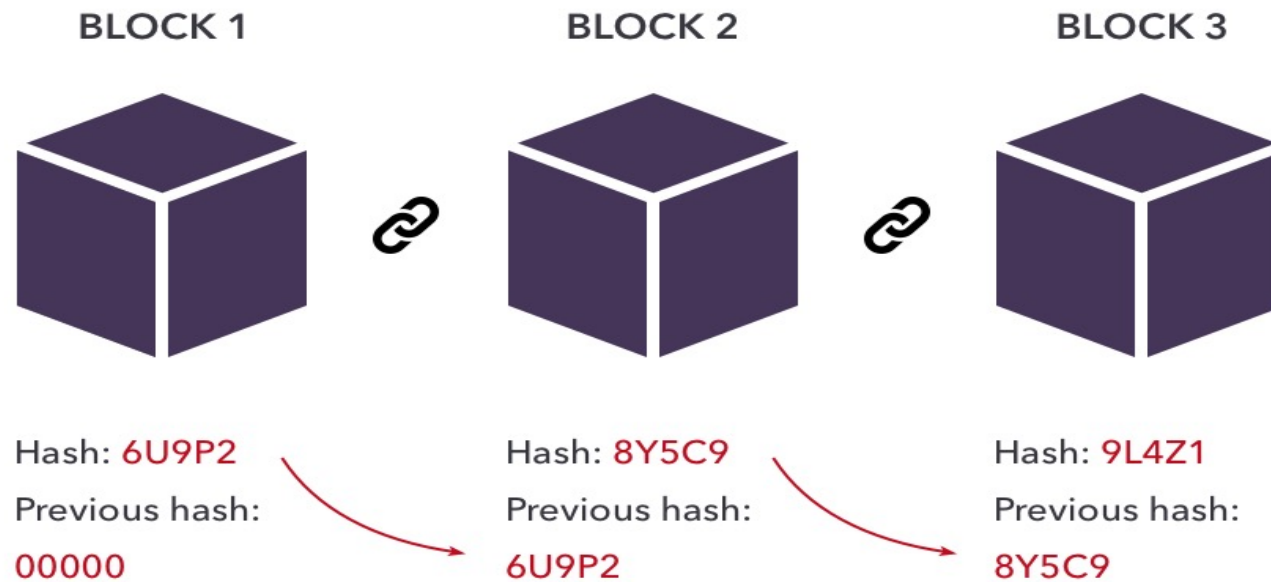

Image courtesy of
https://www.velotio.com/engineering-blog/introduction-to-blockchain-and-how-bitcoin-works.
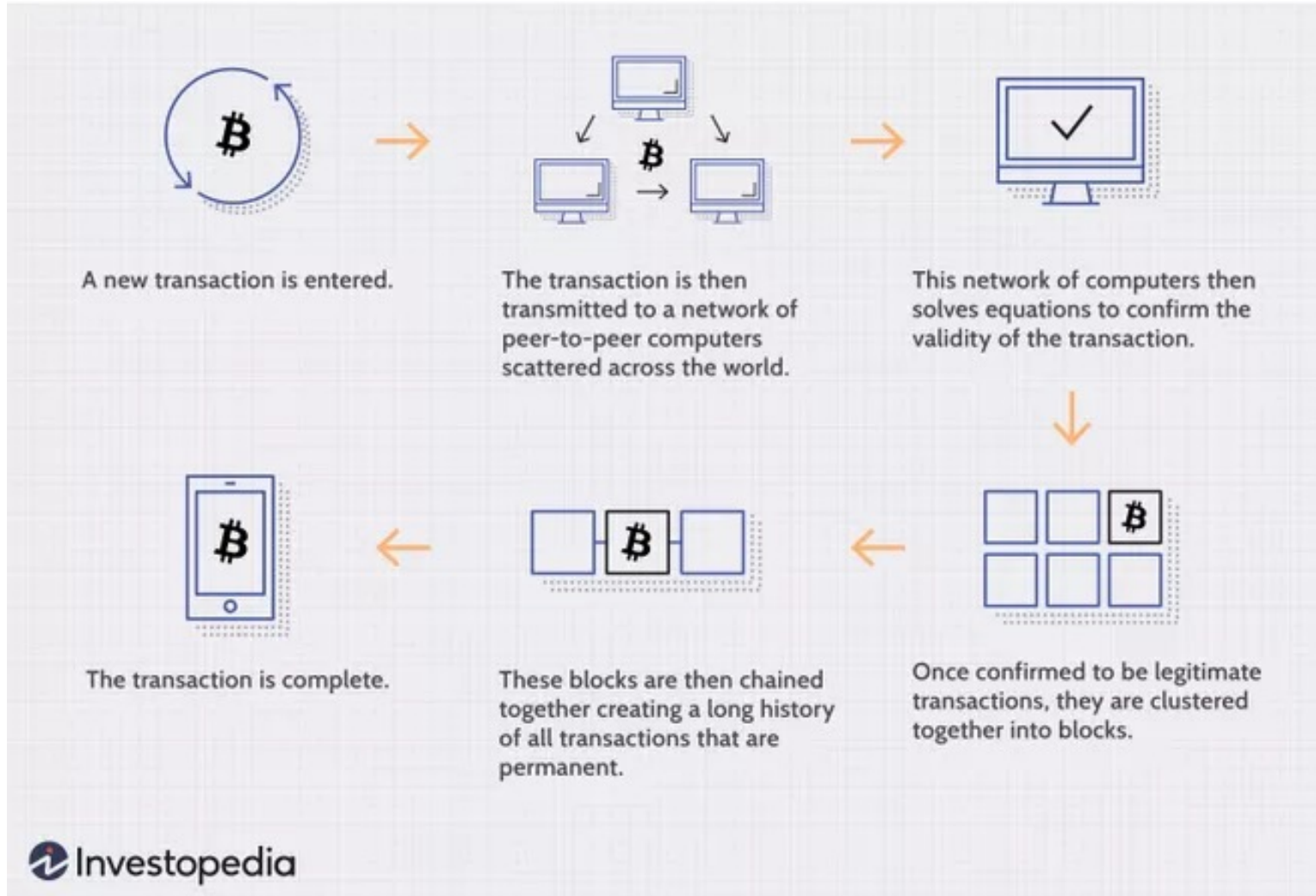
Blockchain Application - Currency

A. <u>What is money</u>?

1. Value accepted by everyone as a form of payment;

2. Money itself has no value – Value is derived by what the govt says it is.

3. Money is centralized and controlled by governments / Banks / and you have no say in its value; If government prints more money, the value of money drops. In addition, Lots of fees in its exchange for other currencies, etc.

4. Ledger of Transactions are controlled by one entity (Bank), and no one else can see the ledger.

B. <u>Cryptocurrencies</u> (Bitcoin)

A. Decentralized not relying on any one bank

B. Ledger is public to everyone in that Network

C. Protected against inflation (limited)

D. No Double Spending Problem (file cannot be used twice)

A new transaction is entered.

The transaction is then transmitted to a network of peer-to-peer computers scattered across the world.

This network of computers then solves equations to confirm the validity of the transaction.

The transaction is complete.

These blocks are then chained together creating a long history of all transactions that are permanent.

Once confirmed to be legitimate transactions, they are clustered together into blocks.

Investopedia

Source:

https://www.investopedia.com/terms/b/blockchain.asp

Smart Contracts

- A "contract" is not always an "Agreement"

- Computer Code stored on a blockchain that run when predetermined conditions are met. [Self-Executing]

- Automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary's involvement or time loss.

- Smart Contracts do not always have "legal text-based contracts" behind them.

- Ex: I lease my Tesla to Tom for .37 ETH per month. So long as Tom pays me .37 ETH by the 1st of the month, the Digital Key to the Tesla will allow him to drive it.

NFT :Non-fungible Token

Christie's
@ChristiesInc

#AuctionUpdate: Beeple's (b. 1981) 'HUMAN ONE' has achieved $28,985,000 at auction. Over the course of his lifetime, Beeple intends to seamlessly add to and evolve the pool of imagery in 'HUMAN ONE' in response to current events — creating an eternally contemporary work of art.

- A unique digital asset that represents real-world objects like art, music, in-game items and videos.

- Each NFT has a unique digital signature and can only have 1 owner at a time.

- "token" implies ownership

- NFTs exist on the Blockchain

NFT :Non-fungible Token

News · Technology Media Telecoms

NFL launches league-wide NFT tickets with Ticketmaster

November 19, 2021 • by Ledger Insights

- NFTs can also be used to access a service or as a digital ticket. Ex. - NFL

- Token proving ownership cannot be duplicated or forged.

Rapper Post Malone is planning to launch a celebrity beer pong league using NFTs to let fans take part.

- https://www.nasdaq.com/articles/social-token-app-fyooz-offers-chance-to-play-beer-pong-with-rap-artist-post-malone-2021-02

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Blockchain Innovations

Coalescing around the Decentralized Web

If
you're not
paying
for a product,

you
Are
The
Product.

Privacy Backlash

The Decentralized web is a <u>movement</u> to regain personal privacy.

Self-Sovereign Digital Identities

- Privacy-focused presence for individuals

- Eliminates "censorship"
    immutable & anonymous

- Enabled by more data encryption and security than Web2

- Eliminates intermediaries that can "sniff your data"
    - Web2 Browsers and social networks (Big Tech)
    - ISP's, Cloud Providers
    - SSL certificate authorities
    - ICANN and its contracted parties

Brands are Following the Consumers

...Just like they followed them to Social Media

Spike in trademark filings for Decentralized Web

- *"U.S NFT trademark applications skyrocketed 400x in 2021 with 15 registrations daily in 2022"* (www.MENAFN.com 2/22/2022)

- *"Metaverse Trademark Applications Reach 16,000 in China"* (www.fxempire.com. 2/22/2022)

The Need For Domains

- It is hard to share long cryptographic web addresses

- Uses alternative roots for decentralized domains

- Goal of having a self-sovereign identity using these domains are incompatible with ICANN policies

- Resulting in two separate internets
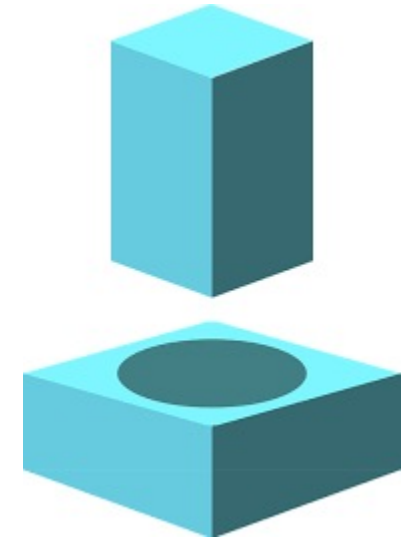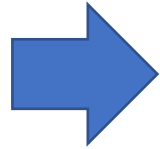
Third Browser War is Coming

✓Digital Wallet Apps
✓Privacy Focused
✓Access Permissions
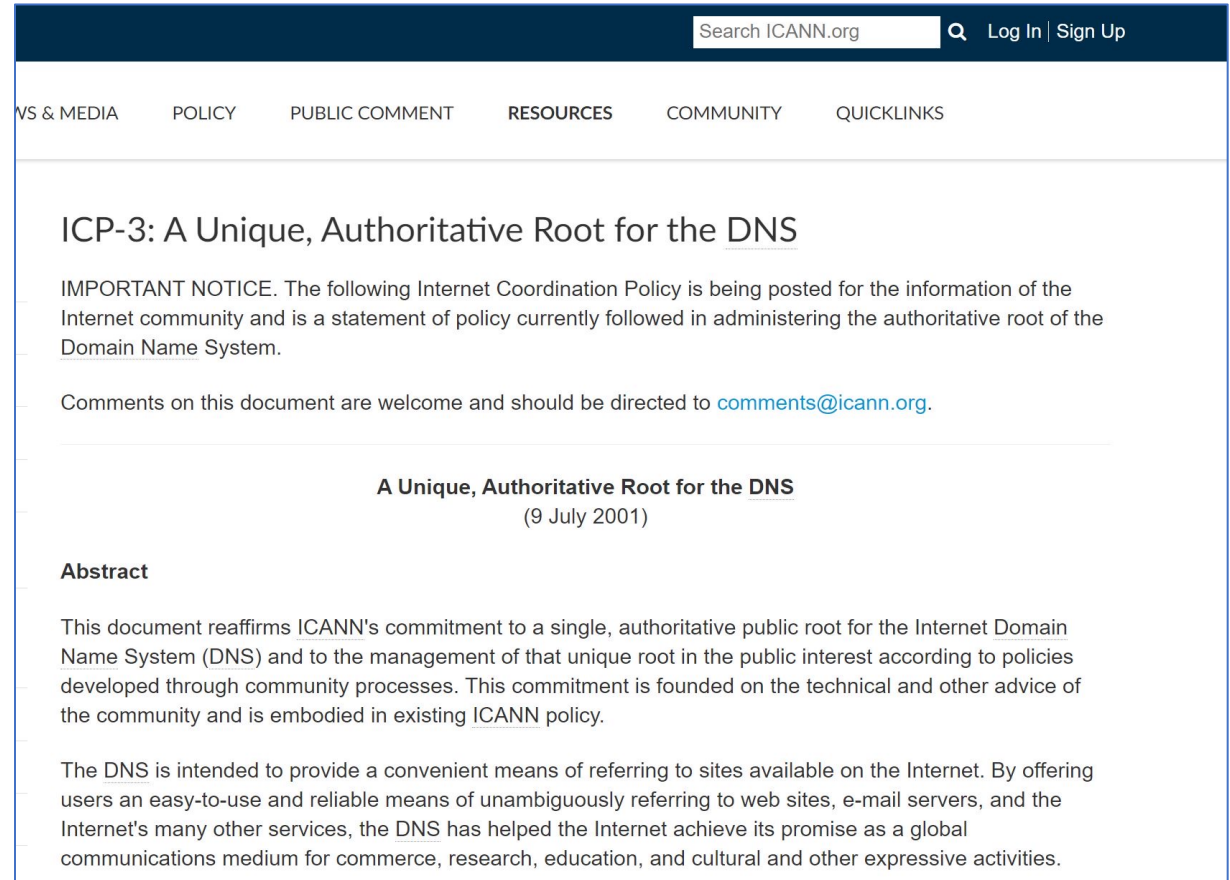
EthDNS

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ICANN – ICP 3: A Unique, Authoritative Root for the DNS

- https://www.icann.org/resources/pages/unique-authoritative-root-2012-02-25-en
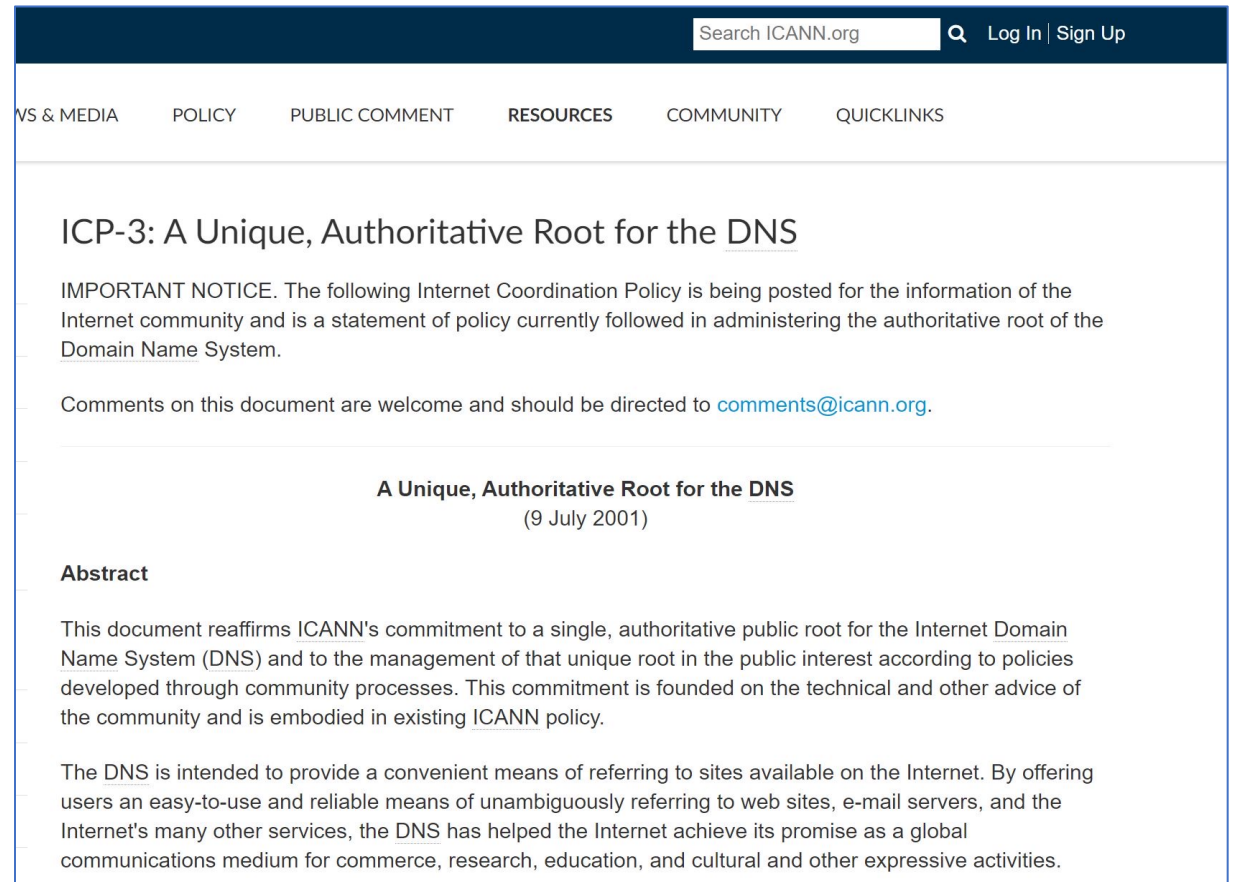
- Published on 9 July 2001

- Affirms ICANN's commitment to a single, authoritative public root for the Internet Domain Name System (DNS).

- "ICANN's mandate to preserve stability of the DNS required that it avoid encouraging the proliferation of…alternate roots that could cause conflicts and instability."

- "Alternate roots inherently endanger DNS stability."

ICP-3: Consequences of Alternate Roots

- Providing the Wrong Location

- Reaching the Wrong Computer – URL's no longer "Uniform".

- Consequences Unpredictable to Most Users

- Intermediate Hosts Add to Confusion – Internet Services are dependent on actions of DNS resolvers

- Cache Poisoning – activities by those intending to use the authoritative root could be misdirected by records in the alternate root.

- RFC 2826: "IAB Technical Comment on the Unique DNS Root."

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ICP-3: A Unique, Authoritative Root for the DNS

IMPORTANT NOTICE. The following Internet Coordination Policy is being posted for the information of the Internet community and is a statement of policy currently followed in administering the authoritative root of the Domain Name System.

Comments on this document are welcome and should be directed to comments@icann.org.

A Unique, Authoritative Root for the DNS
(9 July 2001)

Abstract

This document reaffirms ICANN's commitment to a single, authoritative public root for the Internet Domain Name System (DNS) and to the management of that unique root in the public interest according to policies developed through community processes. This commitment is founded on the technical and other advice of the community and is embodied in existing ICANN policy.

The DNS is intended to provide a convenient means of referring to sites available on the Internet. By offering users an easy-to-use and reliable means of unambiguously referring to web sites, e-mail servers, and the Internet's many other services, the DNS has helped the Internet achieve its promise as a global communications medium for commerce, research, education, and cultural and other expressive activities.

The Third Rail of the Internet

"Alternate root name service is the third rail of Internet governance:

if you touch it, you die."

Paul Vixie, (Let Me Make Yeti-DNS Perfectly Clear (circleid.com) March 30, 2016 CircleID)

AltRoots Are Proliferating

- Ethereum Naming Service (.ETH)

- Solana Name Service (.SOL)

- Unstoppable Domains (.CRYPTO, .WALLET,…)

- Handshake Naming Service (millions of TLDs)

Potential for Abuse

- Ethereum Naming Service and .ETH (Non-profit)
  - Largest ecosystem: 500 third-party integrations
  - Governance: Decentralized Autonomous Organization with ENS governance tokens
  - Weak rights protection: Launch of 3-6 strings gave preference to existing domain names
  - Status: 750,000 second-level names and growing rapidly despite high gas fees

- Unstoppable Domains (For profit)
  - 10 generic strings: .CRYPTO, .WALLET, .NFT
  - Willing to switch blockchains for lower gas fees
  - Indefinitely reserved ICANN root and top 100,000 websites
  - Status: 2 million second-level domains (mostly .CRYPTO) and growing rapidly

- Handshake Naming Service (Non-profit)
  - Grassroots effort to open-source ICANN root
  - Temporarily reserved ICANN root and top 100,000 websites
  - Status: 3.5 million top-level domains. 1,400 TLDS selling second-level domains with minimal sales

Handshake is the democratization of top-level domains
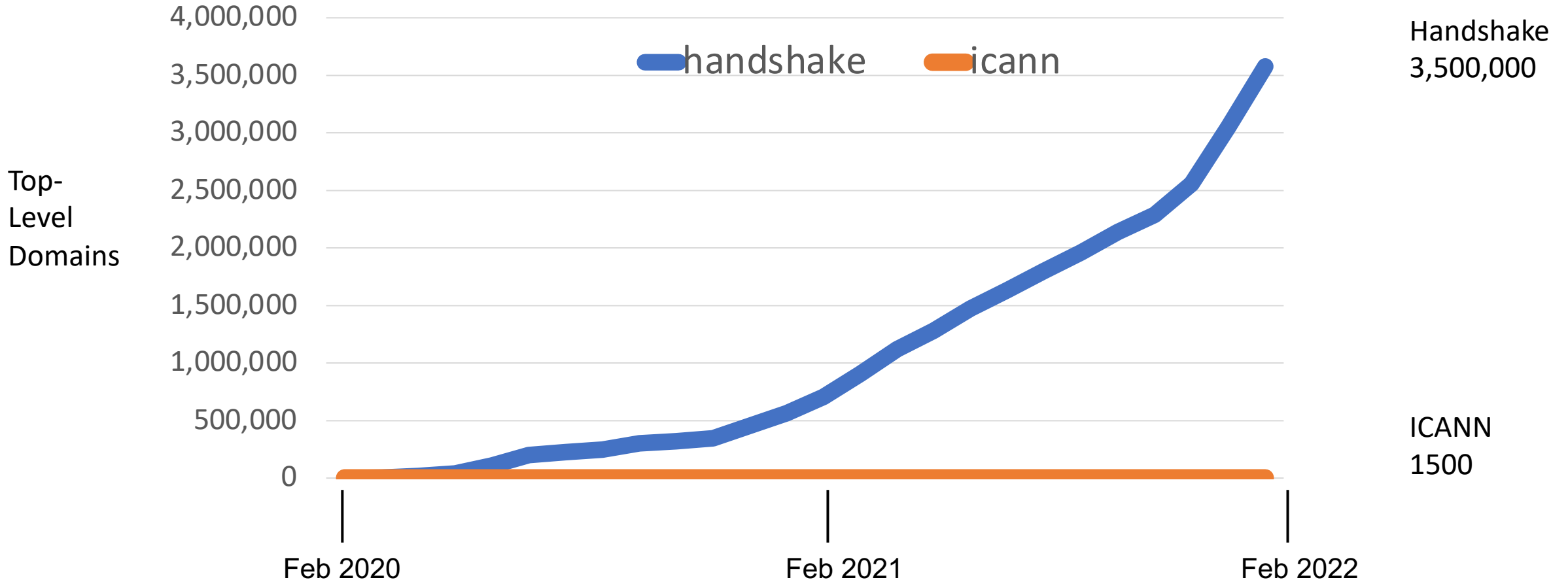
TLDs for Everyone!

- .THOMASBARRETT – Personal TLD

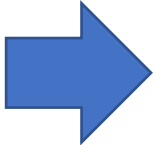- .BARRETT – Community TLD

- .ENCIRCA – Brand TLD

Handshake Launch

- "Sunrise" Period (ends after four years)
  - Reserved the ICANN Root as of February 2020
  - Reserved the domains of the top 100,000 websites
  - Unclaimed names will be released at end of period

- General Availability auctions begin in February 2020
  - Usual mix of early adopters and speculators
  - Some bad actors: trademark infringement, Homographs
  - Ignores ICANN reserved strings and restrictions
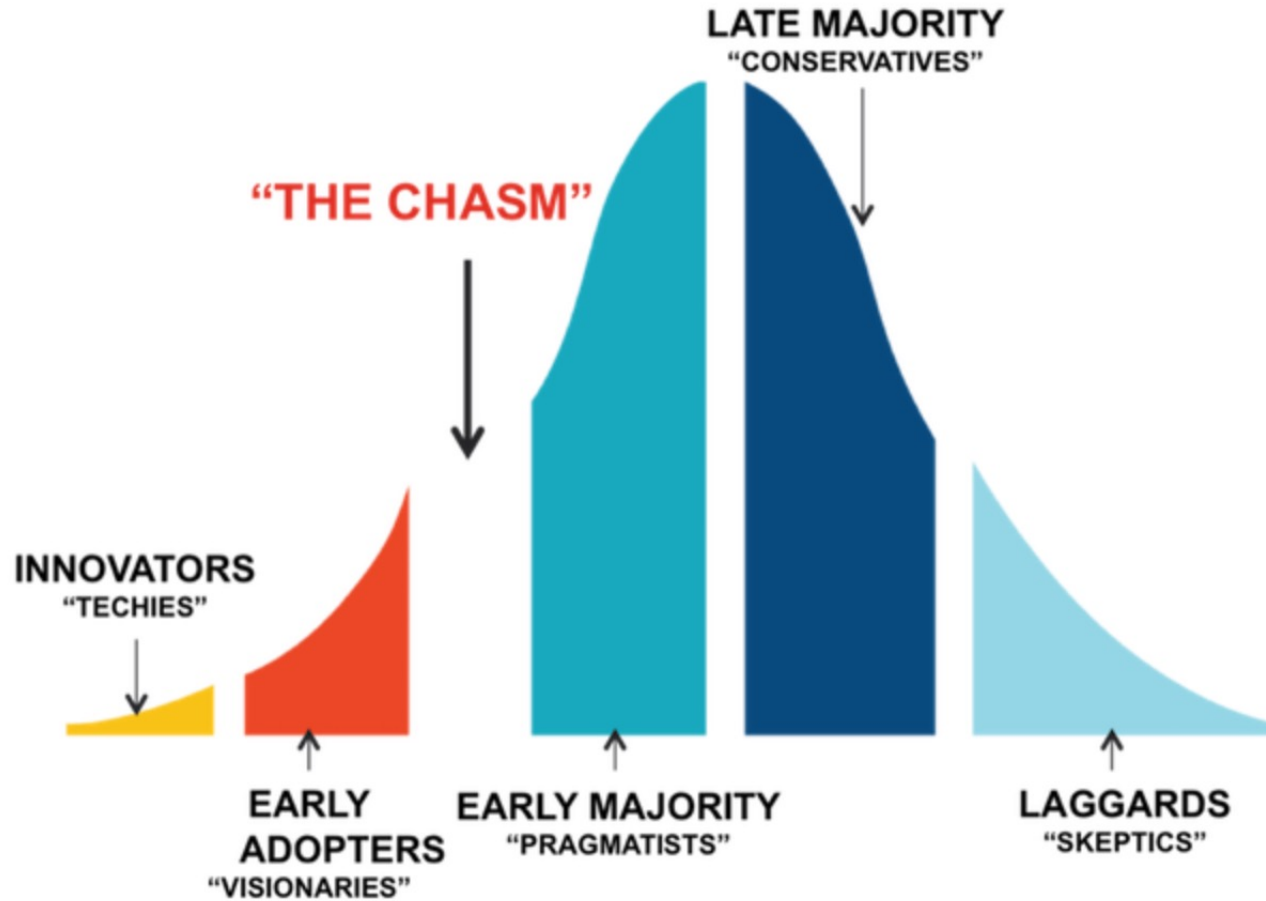
Handshake "Mega Root" Growth

Handshake
3,500,000

Top-
Level
Domains

ICANN
1500

4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0

handshake   icann

Feb 2020   Feb 2021   Feb 2022

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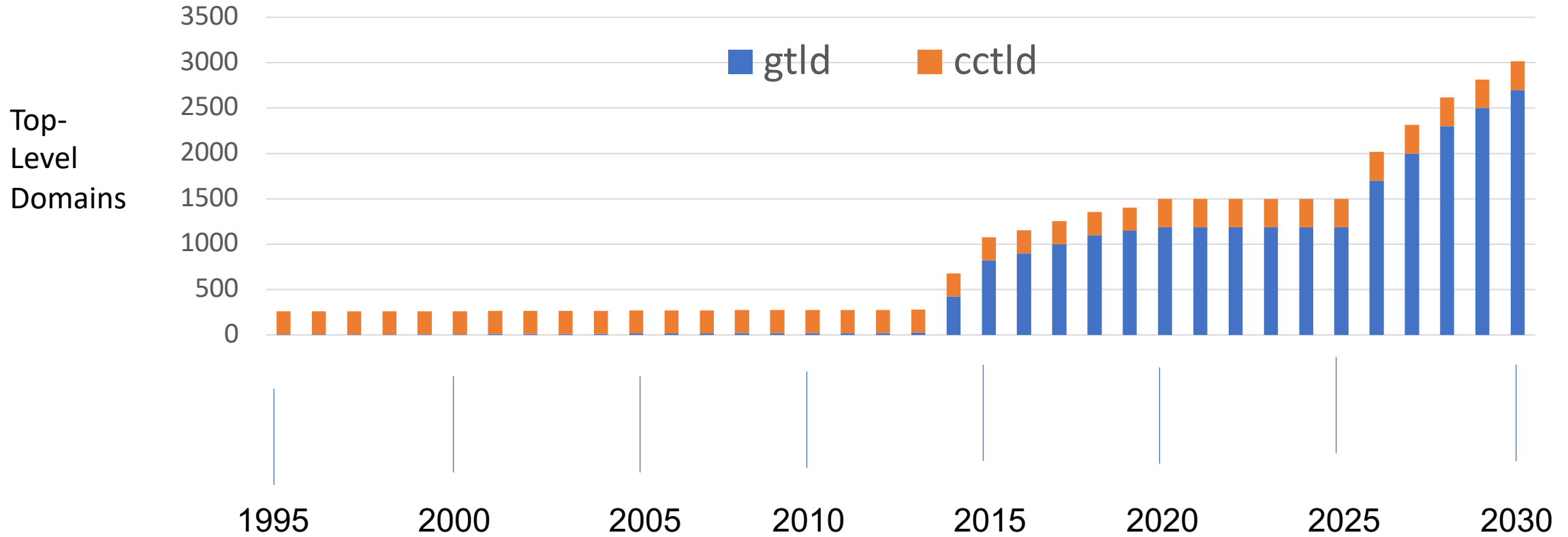
6. Open discussion

Crossing the Chasm

LATE MAJORITY "CONSERVATIVES"

"THE CHASM"

INNOVATORS "TECHIES"

EARLY ADOPTERS "VISIONARIES"

EARLY MAJORITY "PRAGMATISTS"
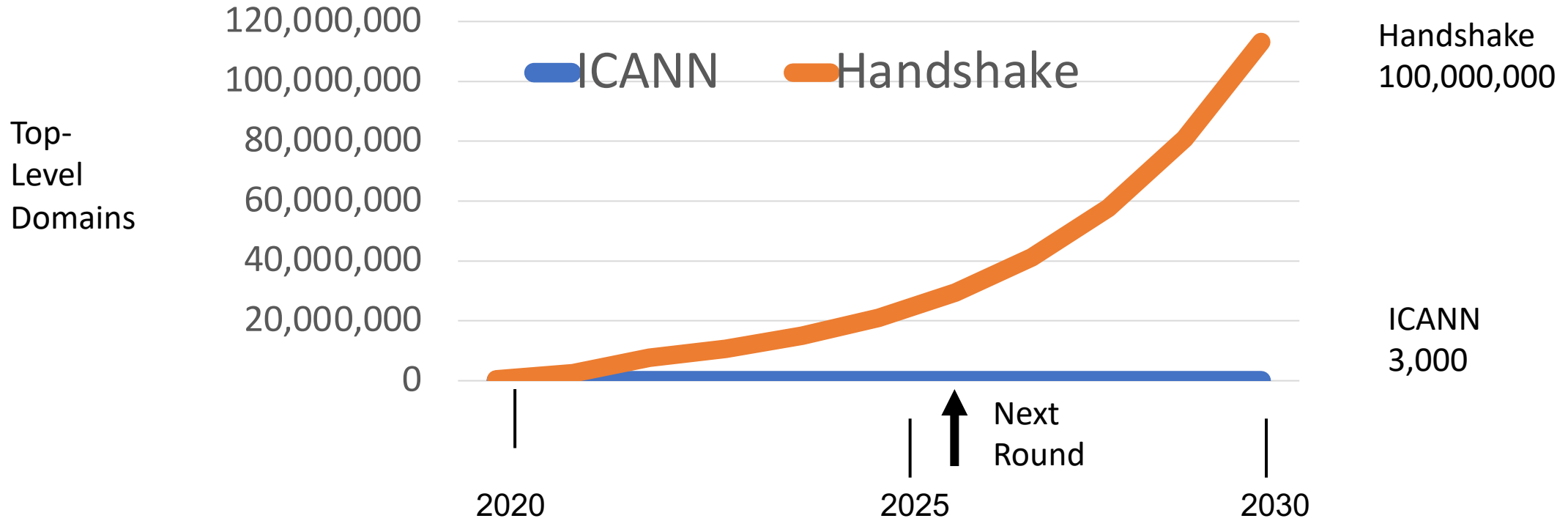
LAGGARDS "SKEPTICS"

Missing Policies are a Feature, not a Bug

- Decentralized Web unlikely to be regulated by ICANN
  - Anonymous. No WHOIS, no zone files
  - No consensus policies, rights protection or enforcement mechanisms
  - No accredited contracted parties that could enforce consensus policies

- Governance via Decentralized Autonomous Organizations (DAO)

- No Unified Alternative Root. There are duplicate alternative TLDs

ICANN Root Forecast (2030)

Handshake "Mega Root" Growth

Top-Level Domains

120,000,000
100,000,000
80,000,000
60,000,000
40,000,000
20,000,000
0

ICANN   Handshake

Handshake
100,000,000

ICANN
3,000

↑ Next Round
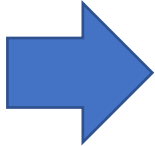
2020   2025   2030

Potential for Collisions

- ICANN concerned mainly about collisions to the its Root

- Fairly small percentage of Handshake Mega Root

- Digital wallet apps may simply ignore new ICANN TLDs
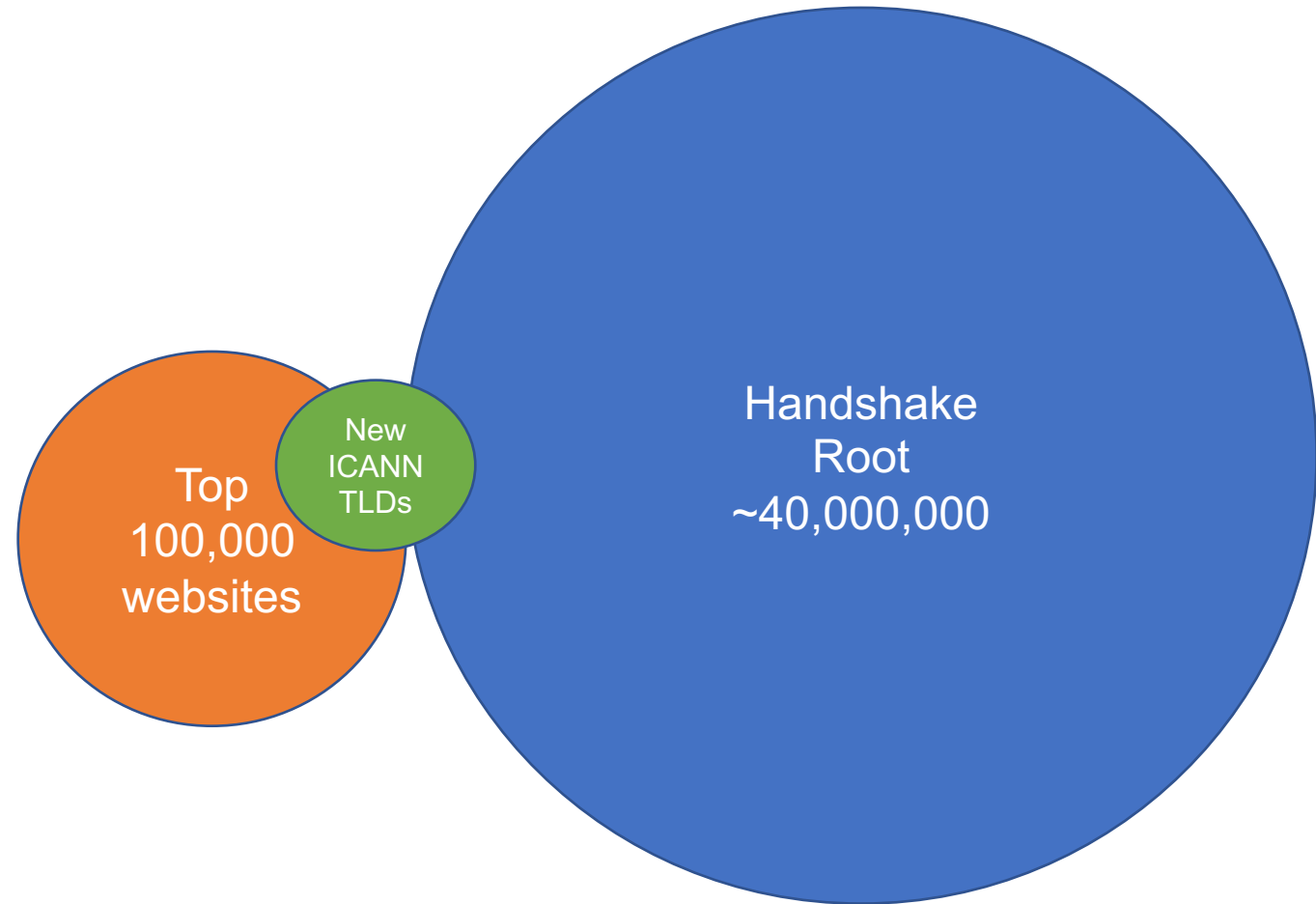
Top 100,000 websites

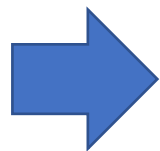New ICANN TLDs

Handshake Root ~40,000,000

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Audience Poll

- Should ICANN expand its role to include the decentralized web?
  - Yes
  - No

- Should ICANN differentiate between accidental and intentional collisions in the next application round?
  - Yes
  - No

- Should ICANN consider potential consumer harm of delegating a new TLD that collides with a TLD in the decentralized web?
  - Yes
  - No

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Thank you!

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