Diversifying Beyond the Traditional DNS Ecosystem: Responsible Integration into Blockchain Namespaces

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5th ICANN DNS Symposium (IDS 2022)

15-16 November 2022
Agenda

Global DNS diversification via integrations

Blockchain applications - a new use case

Alignment with the global DNS

Challenges of managing namespace integrations

Responsible integration
Diversification of Global DNS

Register in Global DNS → Relate to Application

- Email
- Web

Blockchain Applications?
Need for Blockchain Identifiers

Easy to Remember

example.com

Hard to Remember

93.184.216.34

example.eth

0x51aba267a6e8e1e76b44183a73e881d73a102f26
Blockchain Namespaces

- Ada Domains
- RIF Name Service
- Peername
- Decentraweb
- Polkadot Name System
- Nex Bloc
- Y.A.T
- EmerDNS
- DID.ID
- EDNS
- Nomspace
- Thor Name
- Namecoin
- Proton Naming Service
- Telos Name Service
- Stacks
- IC Naming
- NBdomain
- Unstoppable Domains
- ICNS
- Butterfly Protocol
- Space ID
- Star Name
- Tezos Domains
- Polka Domain
- EXIP
- Cloud Coin Name
- EOS Name Service

...and more!
Why So Many Namespaces?

- Universal need to improve user experience
- Interoperability between blockchains
- DNS support lacking for blockchain use cases
- Four examples mentioned in OCTO-034 have different emphases

- ENS: policy to not add new TLDs to their namespace unless anchored to the DNS namespace
- Unstoppable Domains: traditional alt-root approach offering extensions such as .crypto, .wallet and .nft
- Handshake: “goal is to maintain our own root zone file”
- Namecoin: early experimental fork of Bitcoin
DNS Integration Approaches

- DNSSEC-based (introduced by ENS in 2018)

- nic.tld (proposed by ENS in 2019)
  - Verisign notified ENS about issues with this approach

- Attestation-based (introduced by Tezos Domains in 2022)

Concerns with Current Approaches

- Synchronization between global DNS and blockchain namespace
- Interoperability
- Cost of blockchain transactions
- Blockchain and DNS have different policy emphases
- Commitment to a particular integration is unclear
Analogy with Web PKI: Key Questions

**Web PKI**

How can a **certification authority** ensure that **only the registrant** of a global DNS domain name **can claim** a **certificate** that includes the domain name?

**Blockchain Namespaces**

How can a **blockchain namespace** ensure that **only the registrant** of a global DNS domain name **can claim** a **blockchain identifier** that matches the domain name?
Importance of Alignment with Global DNS

• **A Unique, Authoritative Root for the DNS** (ICANN ICP-3, 2001)

• **Challenges with Alternative Name Systems** (ICANN OCTO-034, 2022)

“Responsible experimentation is essential to the vitality of the Internet.”

“The lack of name space coordination, …, will result in unworkable name collisions.”
Criteria for Responsible DNS Integration

- Standardized
- In-sync
- Cost Effective
- Expands Utility
Standardizing Responsible DNS Integration?

Domain Name System (DNS)

Responsible DNS integration

Blockchain Applications

NFTs

Smart Contracts

Wallets
powered by

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