

Blockchain Name Systems and the Global DNS



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TLDCON 2025
15 September 2025

Introduction

- ⦿ There continues to be interest in how blockchain name systems interact with the global DNS
- ⦿ Differences between blockchain name systems and the global DNS
- ⦿ ICANN papers for further reading

Why this presentation uses generalities

- ⦿ We all know that some blockchain name systems already exist
- ⦿ However, because they are not based on established standards, they can change the way they work whenever they feel like it
 - For example, the Ethereum Name Service (ENS) changed the way it integrated with the global DNS a few years ago
- ⦿ Saying that a particular service works a particular way is challenging, and relying on the public documentation often leads to incorrect assumptions

Differences between the global DNS and all others

- ⦿ There is just one global DNS
- ⦿ There is a wide variety of blockchain name systems, so you can't generalize safely
- ⦿ Things will change in the coming years as blockchain name systems try to differentiate from each other
- ⦿ This will be particularly true when some blockchain name systems apply for global DNS TLDs in the next round

Account identifiers (“wallet addresses”)

- ⦿ Many blockchain name systems have their own coins, others are associated with the more popular coins such as Bitcoin and Ethereum
- ⦿ The global DNS now has the WALLET RRtype that can specify any coin type
- ⦿ Some blockchain name systems allow you to specify just the blockchain account that created the name
 - In the global DNS, this would be like permanently associating a domain name with the credit card that paid for it
- ⦿ Others let you specify any number of accounts

Using global DNS names that are not delegated (1)

- ⦿ There is just one root zone for the global DNS, and it lists every TLD
- ⦿ “alt-tlds” are TLDs that are used in alternative name systems like blockchain name systems
- ⦿ Blockchain name systems that use alt-tlds make many assumptions about users:
 - Users will always use the correct resolver
 - The chosen resolver will have all the alt-tlds the user cares about
 - The user only cares about account identifiers, not IP addresses

Using global DNS names that are not delegated (2)

- ⊙ Name collisions can happen between blockchain name systems because there is no single central coordinator
 - There was an early effort (Web3 Domain Alliance) that failed
- ⊙ Name collisions can happen between blockchain name systems and future delegation in the global DNS

Some alt-tlds are also in the root zone

- ⦿ There is no definition for how to “integrate” blockchain name systems with the global DNS
- ⦿ The names might look the same, but they represent completely different name systems
 - The data behind might be different
 - The resolution of the names is done quite differently
- ⦿ Proving that the same entity controls both names is difficult when one entity is a contract and the other is a human

ICANN publications: OCTO-039 and OCTO-040

- ◉ [OCTO-039](#), *Introduction to Blockchain Name System Technologies*
- ◉ [OCTO-040](#), *Introduction to Blockchain Technologies*
- ◉ Both are technical and neutral
- ◉ Neither promotes or disparages the technologies covered
- ◉ ICANN will continue to give presentations and publish documents to help the community understand these issues

Questions and comments

- ◎ There is still lots to be discussed!
 - How will blockchain name systems affect ccTLDs?
 - Which ccTLDs are embracing integration, and how?
 - Will blockchain name systems make the differences between ccTLDs and gTLDs more important?