Oct. 13 2023

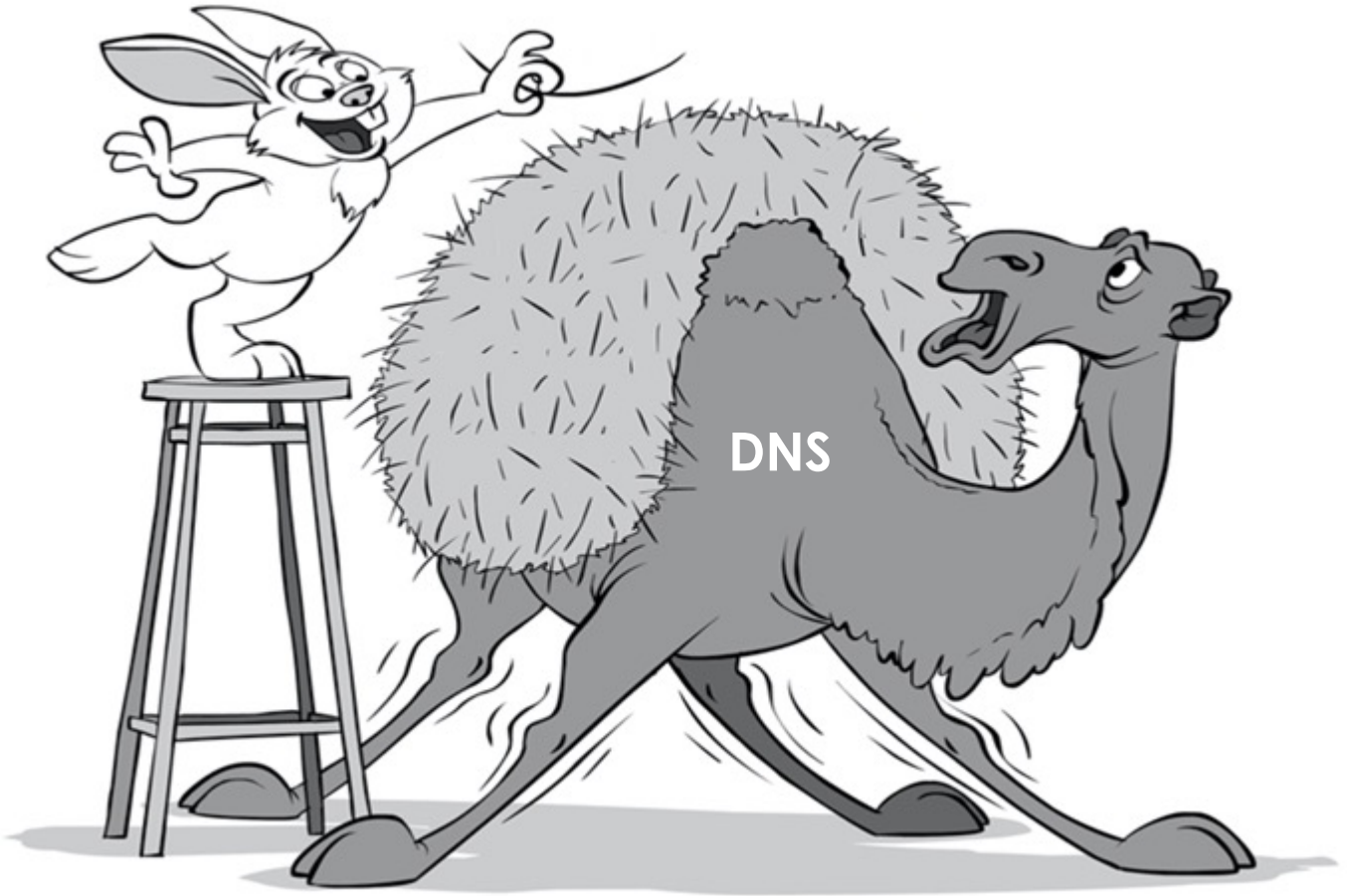
Integrating Blockchain based namespaces in the DNS – Opportunities & Challenges

afnic
Internet
made in France

Sandoche BALAKRICHENAN

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DNS Camel



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State of Art

- .PT
  - But, the same name can exist in different namespaces
- ICANN
- Univ. Amsterdam & .nl
- Verisign

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Namespace & Naming Systems

- Namespace
  - A Container for a set of names
  - Names in the namespace must be unique
  - But, the same name can exist in different namespaces
- Naming System
  - Must map a name to same value for all users

Domain name space & DNS

Names in the namespace must be unique	✅
Same name can exist in different namespaces	✅
map a name to same value for all users	✅

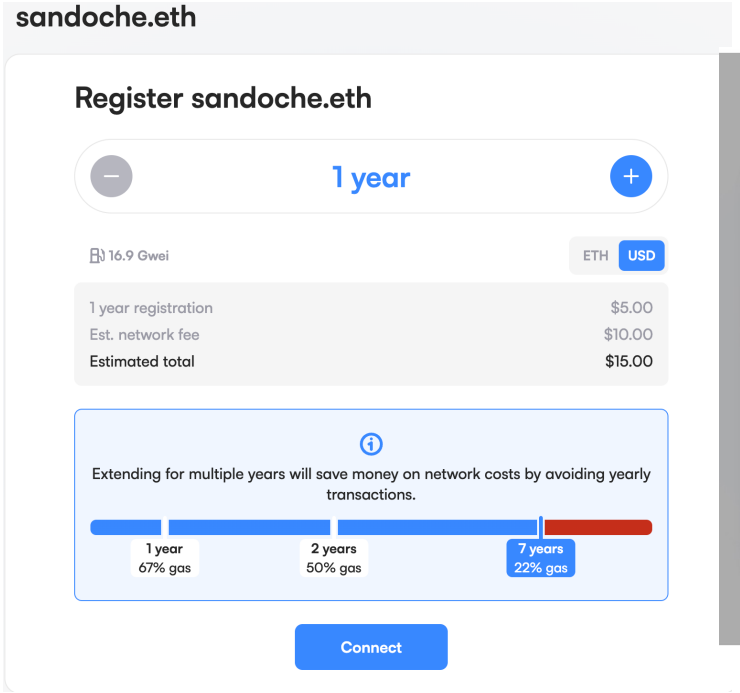
- Naming system – DNS
  - Client S/W – Resolver
  - Server S/W – Authoritative name servers

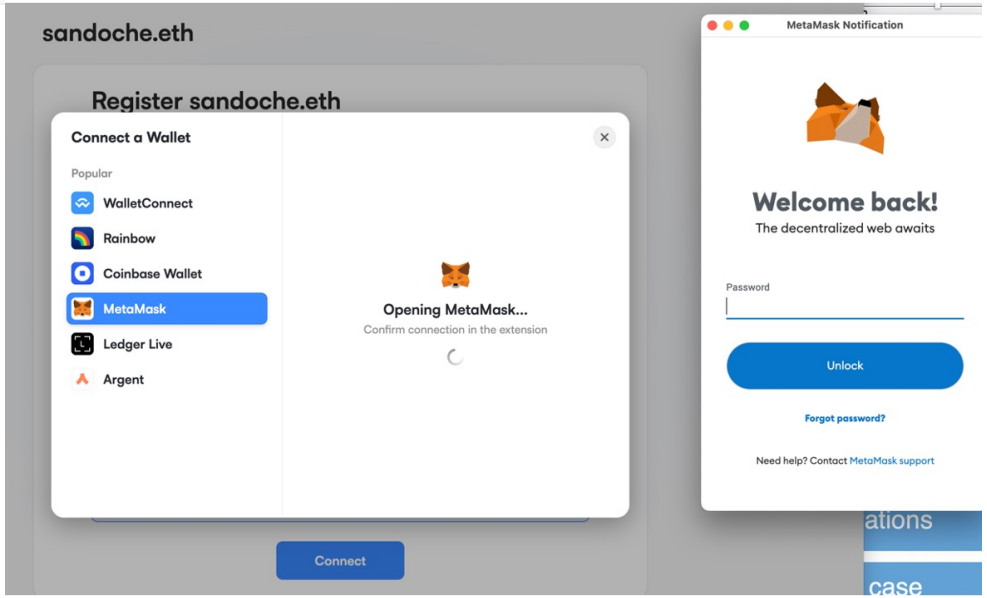
Blockchain based namespaces

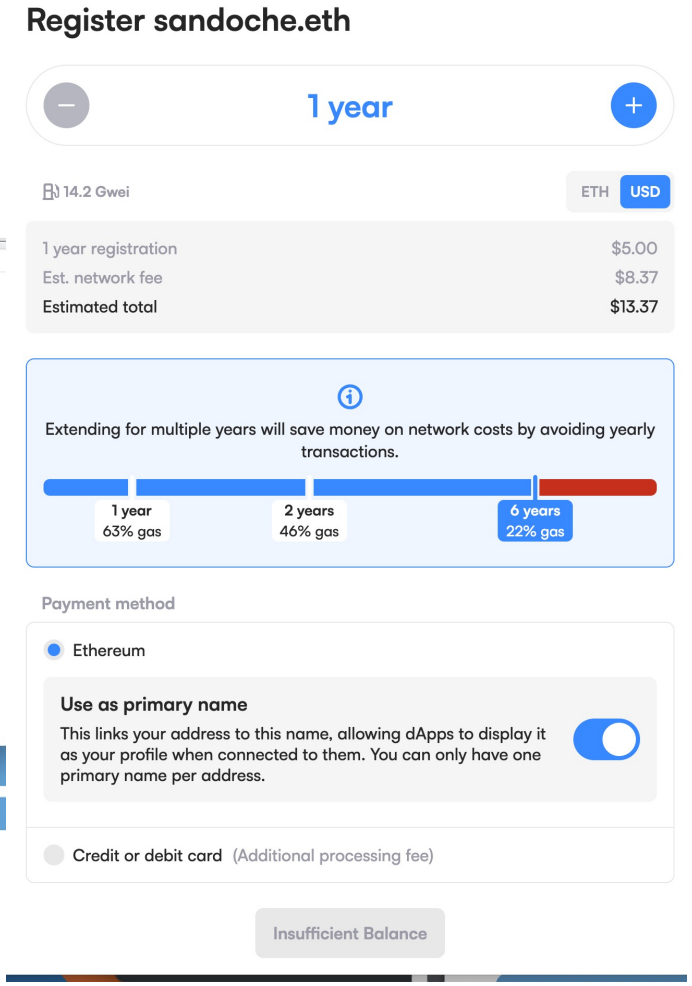


- Ethereum
  - Name – which indicates what we seek (*'sandoche.eth'*)
  - Values – Crypto hash (*'e32fre43f584bnf2784b3'*)
  - Benefits – Connecting to crypto scurrency wallet
  - Import dns name to .eth

Registering a ENS name







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Records for the registered ENS name

Address 1 Records

ETH 0xd8dA6BF26964aF9D7eEd9e03E53415D37aA96045

Content Hash View

ipfs://bafybeihoynqdu67bnbzcthxb2ls6sswwjrvcxybt6sz7msd7dgjmmhrgna

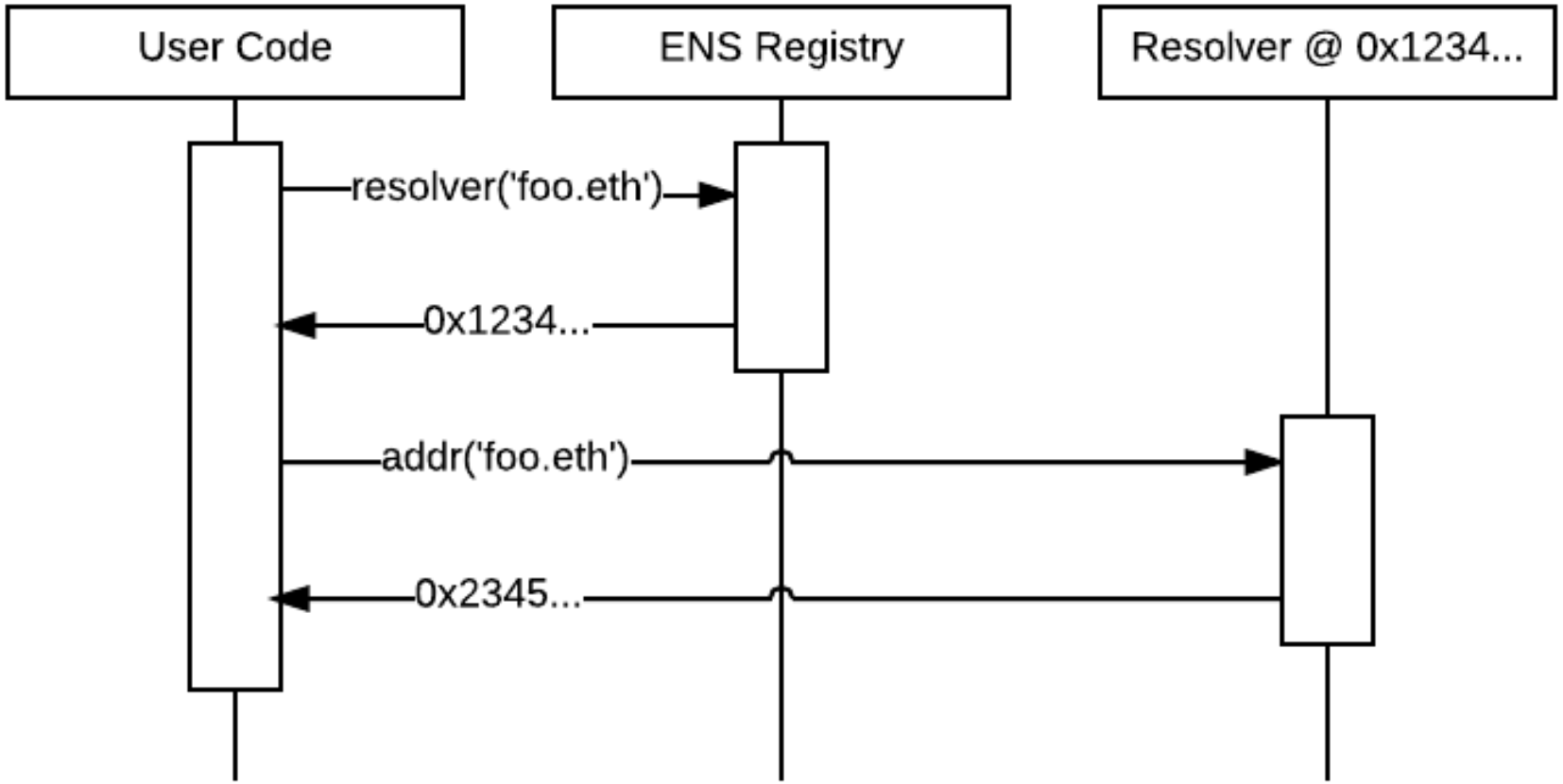
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Adding metadata

TEXT RECORD		
	email	vincent.battaglia@gmail.com
	url	https://vinch.be
	avatar	eip155:1/erc721:0x8efc99918af856699b53db659533396822f52941/166
	com.discord	vinch#3562
	com.github	vinch
	com.twitter	vinchbat
	com.instagram	vinchbat
	name	Vinch
	description	Trying to find the right balance between everything.
	notice	Not set
	keywords	Not set
	com.reddit	Not set
	org.telegram	Not set
	eth.ens.delegate	Not set

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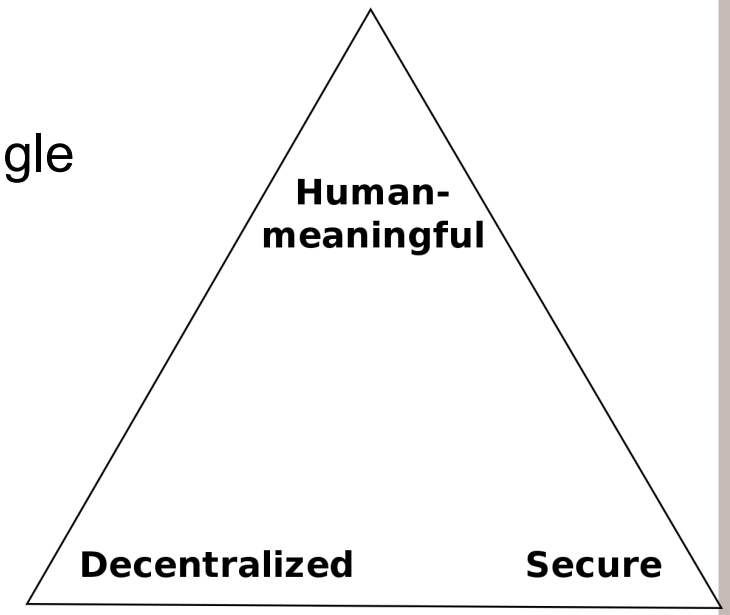
Resolving a ENS domain name



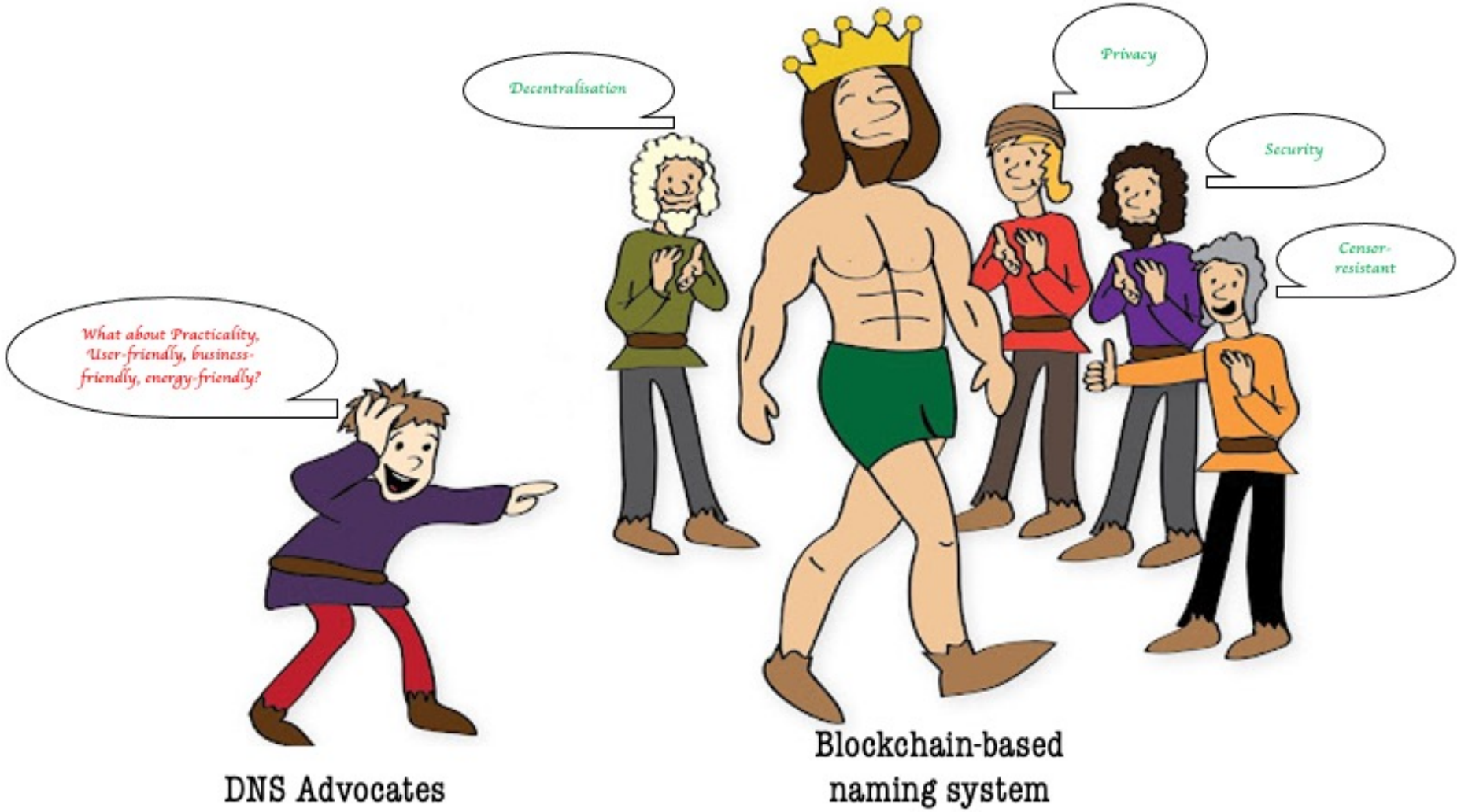
Source: https://docs.ens.domains/

Motivation for Blockchain namespace

- DNS ecosystem satisfies only two requirements of Zooko's triangle
  - Human meaningful domain names ✅
  - Secure ✅
  - Decentralised ❌
- Argument is Blockchain based namespaces satisfies all ***three*** requirements



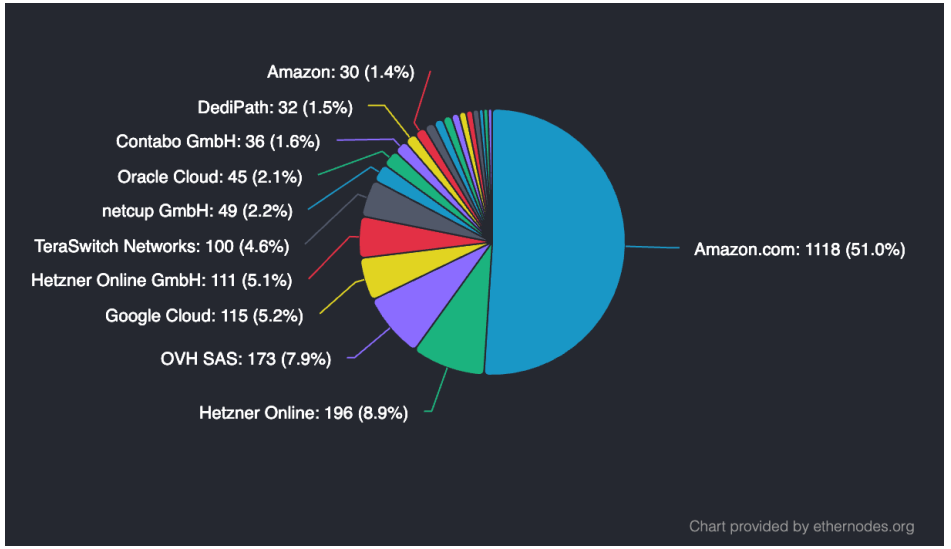
Blockchain namespaces - The Emperor's new clothes



Censorship

- Blockchain
  - in theory – Advantages over DNS
    - Censorship resistant
  - In reality
    - Infrastructure consolidation in blockchain
      - < 51% is hosted by Amazon

- Censorship
  - With consolidation, Censorship is possible



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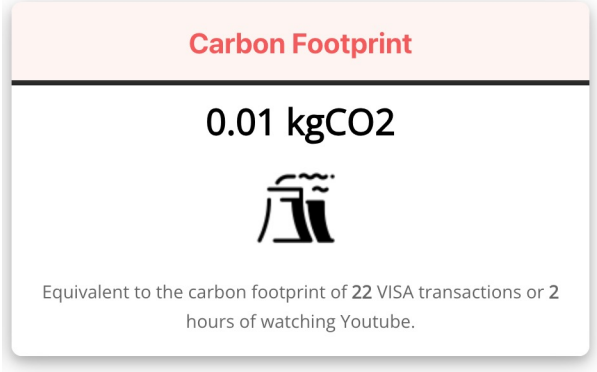
Security

- DNS issues
  - DNS is subject to different attacks
  - DNSSEC validation is still around 30%

- Blockchain advantages
  - Resistant to domain takeover
  - Resistant to different security issues encountered in the DNS

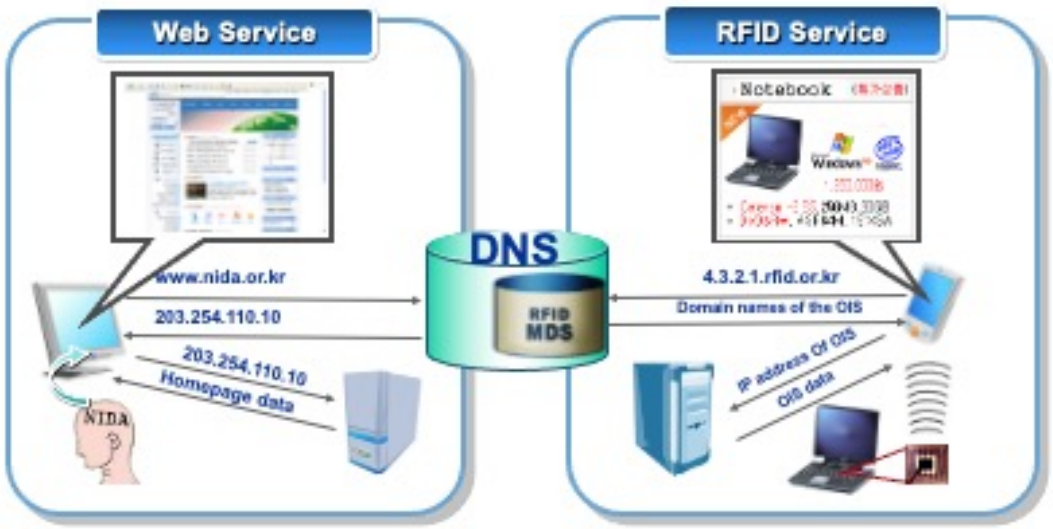
Operational & Business friendliness

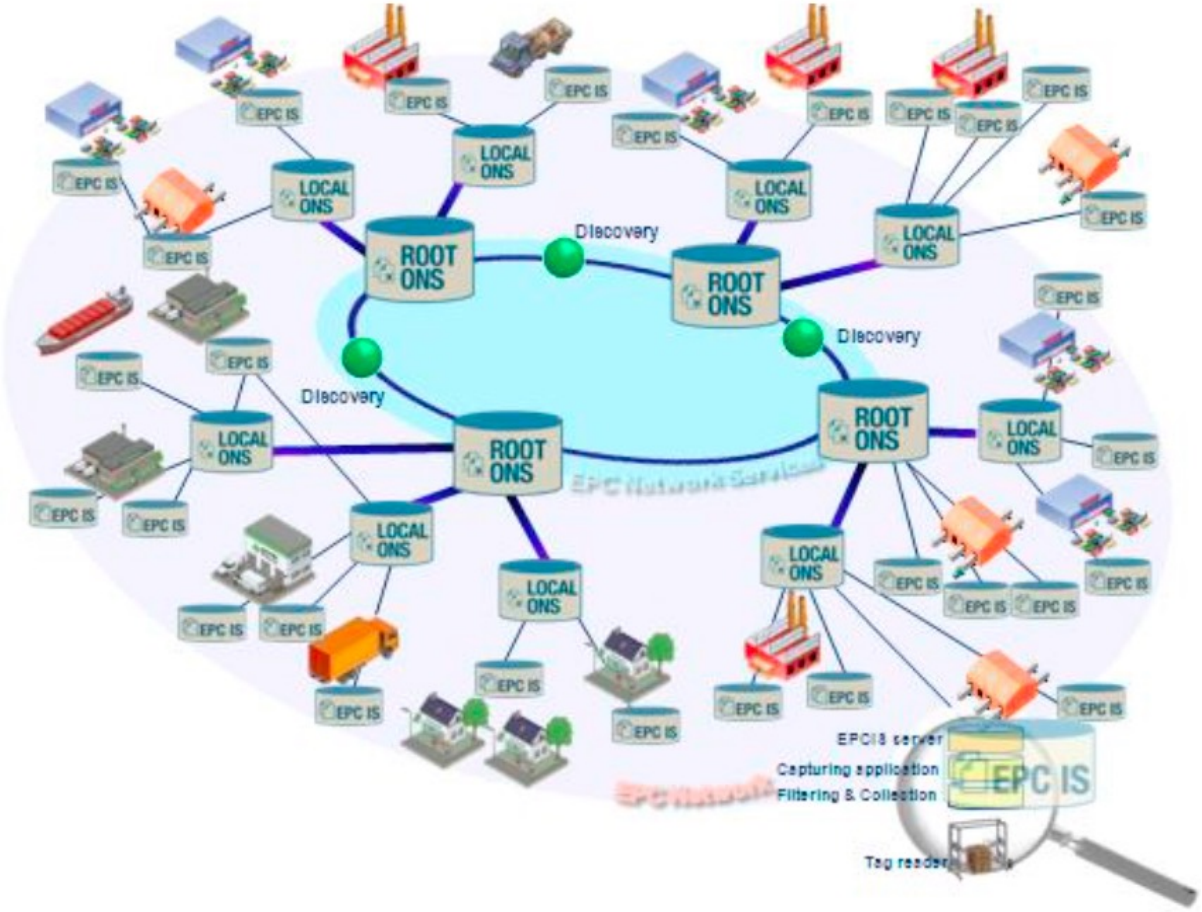
- DNS advantages
  - Business friendly – Centralisation enables trademark & brand protection
  - User friendly
    - Avoids name collision, Squatting
    - Doesn’t need special plugins or applications to access the service
  - Energy friendly
    - Annual cost of hosting a domain name - $153\ gCo2$



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Other name spaces using DNS





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Integration to DNS?

