A survey of Namecoin the peer to peer based DNS system

Alongside all of the new TLDs which have come into being, there is a dark horse: .bit. .bit isn’t one of ICANN’s most recently blessed TLDs, such as .guru, .democrat or .sexy; it is the top level domain which is served by the Namecoin infrastructure. The Namecoin platform seeks to provide an alternative (read as non-ICANN regulated TLD) decentralized domain name system built on a modified version of the Bitcoin software. The research summarized in this presentation is a review of the concepts behind Namecoin, its implementation, and the use of the Namecoin platform.

The first area of research was recreating the .bit zone and analyzing its contents. Specifically, it was focused on identifying the number of IP addresses associated with .bit domains, the autonomous systems which these IPs represent, and the type of records which appear most prominently. The next step was to acquire Namecoin and use it to create a domain with a collection of resource records. The goal of this exercise was to determine the barriers to entry and explore the user experience of the platform. The results were translated to a consideration for the usability of the .bit name space and its requirement for a copy of the Namecoin blockchain, a recursive DNS server with the .bit zone, or a web browser plugin. Namecoin has hurdles to overcome in the form of accessibility, integration, and hardening of the source. Its future is a race between innovation which can be seen in the development of DNSChain and its role as the new malware safe haven.

Summary

Until recent turbulence in the market, it was looking like it might be the year of the Bitcoin. Overstock.com started accepting it as legal tender and Google began to explore this option as well. In the shadow of Bitcoin rose a collection of alternative cryptocurrencies: Litecoin, Dogecoin, CoinyeWest, Hobonickles… the list goes on. Then, using the same ideas and some of the same codebase, came Namecoin, which acts as a decentralized domain name system for the global top level domain ”.bit”. Similar to ”.gnu”, ”.zkey”, ”.onion”, ”.exit”, and ”.i2p” the use of the namespace isn’t ICANN approved and is mentioned in the IETF Special-Use Domain Names of Peer-to-Peer Systems memo.

This presentation will start with an overview of Namecoin followed by a partial analysis of the contents of the .bit zone:
- The mechanics of Namecoin domain creation, record addition, and credit generation.
- Details of the block chain and how it provides a full transactional history of the namespace
- Zone contents analysis - Due to the decentralized nature of namecoin, generating a .bit zone file is a data extraction and transformation exercise.
- What types of records are most popular in this namespace? A vs. AAAA
- What is the distribution of IPs? Are there signs of domain squatting?
- What countries have the highest adoption rate?
- Implementation - How has the namespace has been abused? (the Necurs root kit ) and How is it being used to fuel innovation? (DNSChain )