Special Use Domain Names of P2P Systems

Christian Grothoff

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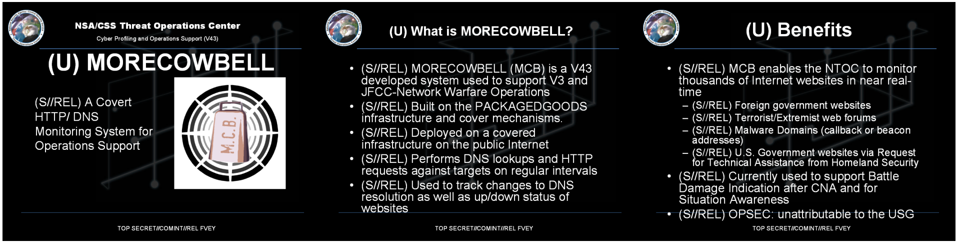
1+1=2

- NSA “kills based on meta data” –Michael Hayden (former NSA director)
- DNS makes it trivial to gather meta data about most Internet activities

“The Domain Name System is the Achilles heel of the Web.” –Tim Berners-Lee



NSA/CSS Threat Operations Center

Cyber Profiling and Operations Support (V43)

(U) MORECOWBELL

(S//REL) A Covert HTTP/ DNS Monitoring System for Operations Support

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(U) What is MORECOWBELL?

- (S//REL) MORECOWBELL (MCB) is a V43 developed system used to support V3 and JFCC-Network Warfare Operations
- (S//REL) Built on the PACKAGEDGOODS infrastructure and cover mechanisms.
- (S//REL) Deployed on a covered infrastructure on the public Internet
- (S//REL) Performs DNS lookups and HTTP requests against targets on regular intervals
- (S//REL) Used to track changes to DNS resolution as well as up/down status of websites

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(U) Benefits

- (S//REL) MCB enables the NTOC to monitor thousands of Internet websites in near real-time
  - (S//REL) Foreign government websites
  - (S//REL) Terrorist/Extremist web forums
  - (S//REL) Malware Domains (callback or beacon addresses)
  - (S//REL) U.S. Government websites via Request for Technical Assistance from Homeland Security
- (S//REL) Currently used to support Battle Damage Indication after CNA and for Situation Awareness
- (S//REL) OPSEC: unattributable to the USG

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Secure P2P systems explore alternative protocol designs.

.bit

Properties of NameCoin

- *name*`.bit` resolved using global timeline
- Timeline constructed using BitCoin technology
- NameCoin is an AltCoin (different block chain)
- Implemented in 2011, inspired by Aaron Swartz's Squaring Zooko's Triangle

.exit

Properties of .exit

- *domainname.relay*`.exit` used to explicitly select Tor exit node
- Useful to escape geo-blocking
- Implemented and deployed in about 2004
- x509 CA signing makes no sense ⇒ separate draft

.gnu and .zkey

Properties of the GNU Name System (GNS)

- Decentralized name system with secure memorable names
- Provides alternative public key infrastructure
- Interoperable with DNS (like gopher → http)
- Achieves query and response privacy
- Uses *name*`.gnu` for memorable names
- Uses *key*`.zkey` (zone key) for global identifiers
- Implemented since 2013 in GNUnet, discussions about adoption with I2P, Tor, GnuPG, Matrix and others

.i2p

Properties of I2P

- *name*.i2p resolved like /etc/hosts via local database
- *key*.b32.i2p again like .zkey and .onion
- Implemented and deployed in about 2002-2003

.tor

Properties of .tor

- *name*.tor resolved via consensus among Tor routers
- Allocation is first-come-first registered (in consensus)
- Global names, without the cost of NameCoin's proof-of-work
- Currently being implemented as part of OnioNS effort
- Do you want a draft?

.carrots

Properties of `.carrots`

- No real deployment **and**
- No technical innovation **and**
- No community support

Implication of special-use drafts

- IETF informs and advises ICANN and operators
- ICANN and operators can still do what they want!
- They may become obsolete in $<$ 30 years: `.bitnet`, `.csnet`, `.oz`, `.uucp`

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