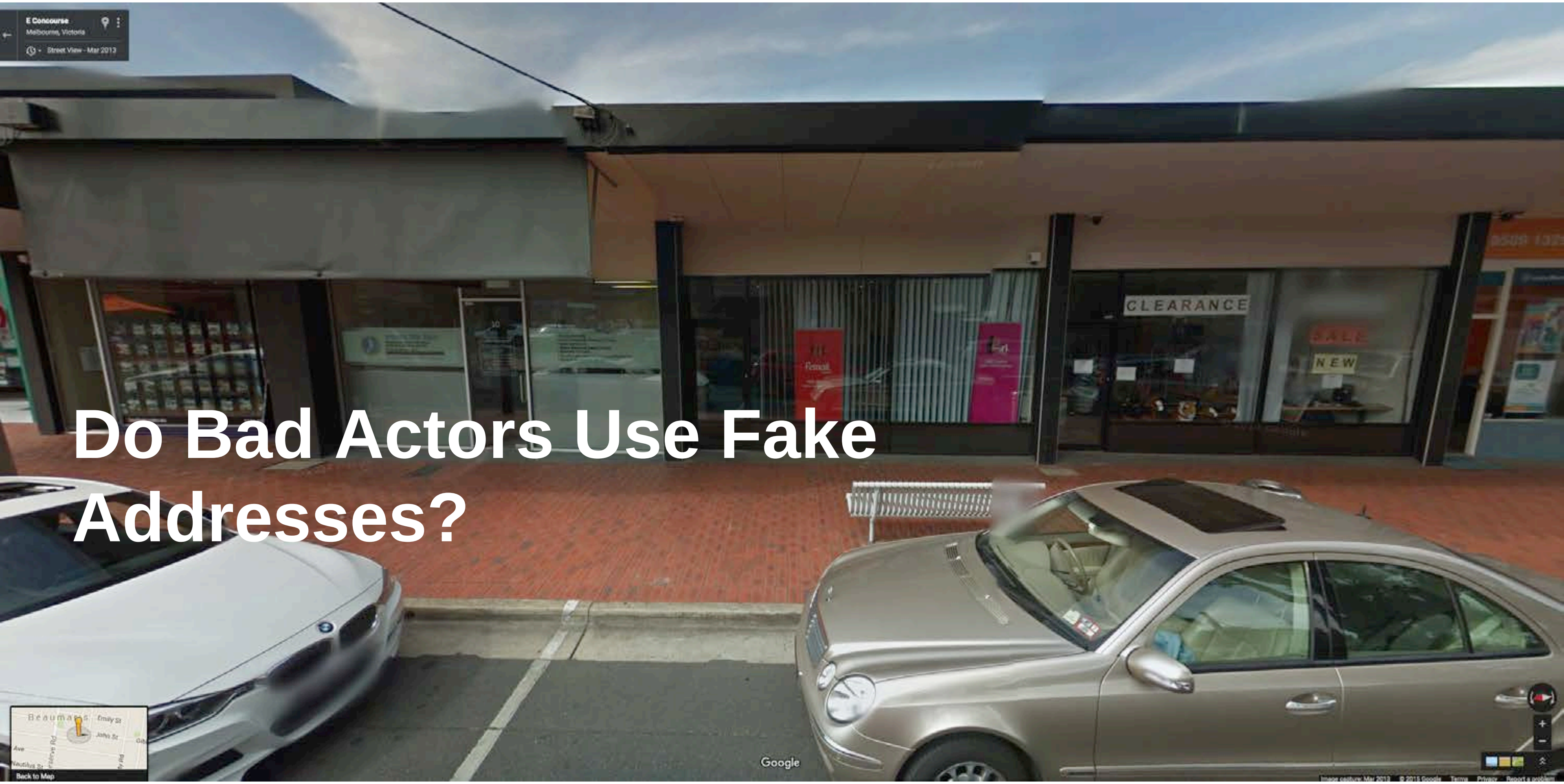
Using Domain Name Registrant Information To Identify Malicious Domains

Mark Langston

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

Do Bad Actors Use Fake Addresses?



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Secrecy, and Finding What’s Hidden

“Secrecy is a way of organizing institutions and human activity to render them invisible.”

“Secrecy is self-contradictory; because what is made secret exists in the world, it is visible.”

Trevor Paglen, artist (“Six Landscapes”. Chaos Communication Congress, 2013)

The Problem With WHOIS Data

- Not all in one place.
- Whois API, LLC
- Not all ccTLDs
- Not all TLDs (e.g., .edu, .mil)
- 162 million records
- 2015, Q2
- 238GB

What Constitutes a Bad Actor?

- Phishing domain blacklist
- June 2015
- Hosts-file.net (Malwarebytes)
- 734,428 unique fully-qualified domain names
- 103,658 unique domains

The Address That Started It All

Gazetny Lane Bldg. 1 17 9 125009 Moscu Rusia
125009 RUSSIAN FEDERATION
petrdeitalia@post.cz Petr Abandonato

The Address That Stoked The Flames

Ilyinka Street 23, Moscow 103132, RUSSIAN FEDERATION
the.malware.cabal@gmail.com, Spy Eye

Diving in!

- Hadoop, Spark (PySpark)
- Only 58% of phishing domains found in WHOIS data
- Half of the remaining are in TLDs for which there was no data
- Three most frequent: .tk (4,612), .ru (4,384), .co.uk (2,716)
- Leaving 20,309 that just weren’t found.

Diving in! Registrars!

- GoDaddy the most frequent registrar (23.9%)
- eNom (13.4%)
- Network Solutions (5.3%)
- Publicdomainregistry.com, name.com, Tucows, Soluciones Corporativas IP (12.1%)

Then…

…things started to go wrong.

Privacy Services

- 17,551 domains used some form of privacy protection.
- Another 2,960 had no registrant information.
- Rendering opaque 34% of the domains for which we have data.

Repossession

- 625 domains (mostly GoDaddy) were listed as “Repossessed”.
- Another 217 (all eNom) were in a “reactivation period”.

Repossession (cont.)

- 395 domains registered to gbclaw.net.
- Another 963 registered to MarkMonitor
- 52 registered to Stephen Gaffigan
- 34 to CitizenHawk

Resellers

- 181 registered to Frank Schilling/Name Administration Inc BVI.
- 408 to New Ventures Services Corp.

Rogue Registrars

- 204 only info is BIZCN.COM, INC
- Linked to illegal internet pharmacies (Huffington Post, 11/7/14; Wall Street Journal, October 27, 2014)
- Found in breach of ICANN accreditation agreement May 8, 2014

Rypo…er, Typosquatters

- 415 registered to Nadeem Qadir (e.g., travelasity.com)
- 325 Bladimir Boyiko (e.g., wwwpbs.org)
- Both use 2006.nip.net email address

Other Suspicious Activity

- 220 registered to GDS Licensing
- Associated with illegal import of fake cancer drug Avastin in 2013
- Several domains checked with legitscript.com listed as “rogue” pharmacies.

More Suspicious Activity

- Harjanti Chandra
- 1,321 unique domains
- All in the .info gTLD
- Appear related to popular mobile app downloads
- Websites hosted in Hanoi, Vietnam
- Registrant in Indonesia

Conclusions

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- Registrant information mining is difficult – no standards for field entries, even within an entity
- WHOIS Privacy services present a barrier to analysis
- There are entities whose names may be worthy of a priori filtering – but identifying those entities is time-consuming, often subjective, and largely manual
- The legal aspect of domain name ownership does not always keep pace with usage – malicious activity may extend beyond ownership changes, or begin before legal proceedings can start
- Fake address “watering holes” do not seem to be prevalent, or even common.

Contact Information

Presenter / Point of Contact

Mark Langston

Member of Technical Staff

Telephone: +1 412.268.1942

Email: mclangston@sei.cmu.edu