Misuse of Domain Privacy Protection Services by Spammers: Act II

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Domain Name Privacy Conundrum

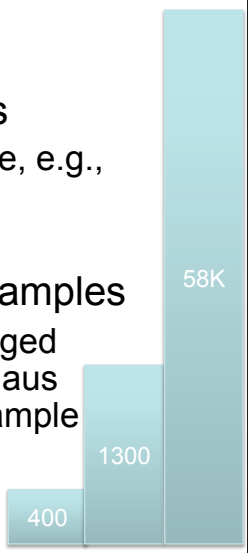
- Privacy is the ability to control what one reveals about oneself over the Internet and who can access that personal information
- Privacy controls for domain name registrations vary across registries and registrars
- Criminals exploit privacy controls to evade detection

Relevant prior studies

- Prevalence of private registrations among malicious domains hosted at 3FN (Oct 2009)
  - 38% of malicious domains hosted at 3FN used privacy protection services
- Misuse of Domain Name Privacy Protection Services (Act I, Apr 2010)
  - 31% of domains randomly selected from SpamHaus DBL used privacy protection services
- NORC WHOIS data accuracy study (Sep 2010)
  - 18% of domains randomly selected from general population used privacy protection services

Current activities

- Iterate prior study of spam domains
  - Look for patterns of behavior over time, e.g., flocking or migratory behaviors
  - See where the data lead us
- Improve automation, study larger samples
  - ICANN: collect random sample of alleged spam domains in *gTLDs* from SpamHaus DBL, retrieve Whois records as we sample
  - CMU: Develop parsers to overcome variation among WHOIS data stores

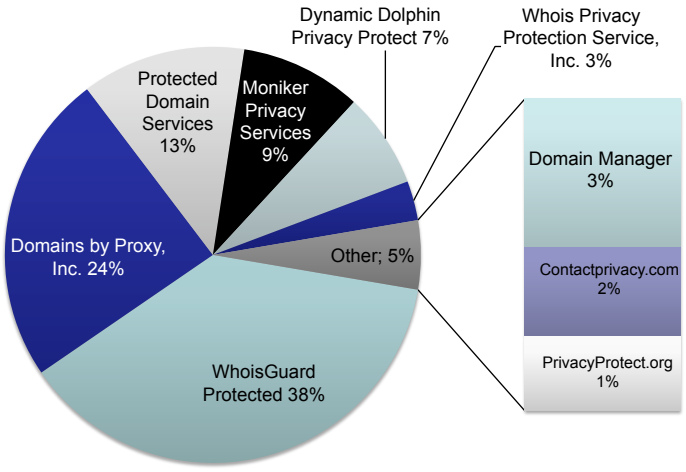


Study Results, Comparisons

Total general population of domains used in NORC study	1419
Percent of domains NORC identified as using privacy protection service	25%
Total number of alleged SPAM domains in our MAY 2010 sample	1286
Percent of spam domains that used privacy protection services	31%
Total number of alleged SPAM domains in our SEP 2010 sample	57998
Percent of spam domains that used privacy protection services	31%

- In both samples, spam domains have higher percentage of privacy protection services than general population domains
- Percentage did not change significantly from one study of alleged spam samples to next

Domains in May 2010 DBL sample that used privacy protection services



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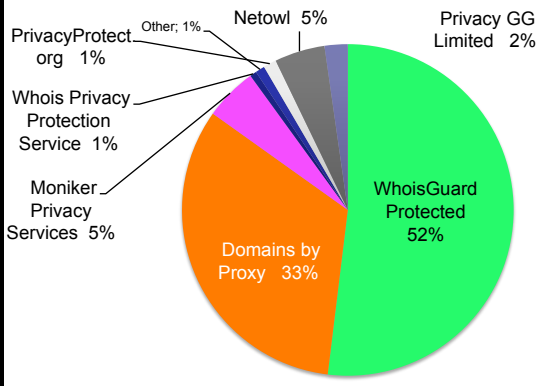
Domains in Sep 2010 DBL sample that used privacy protection services

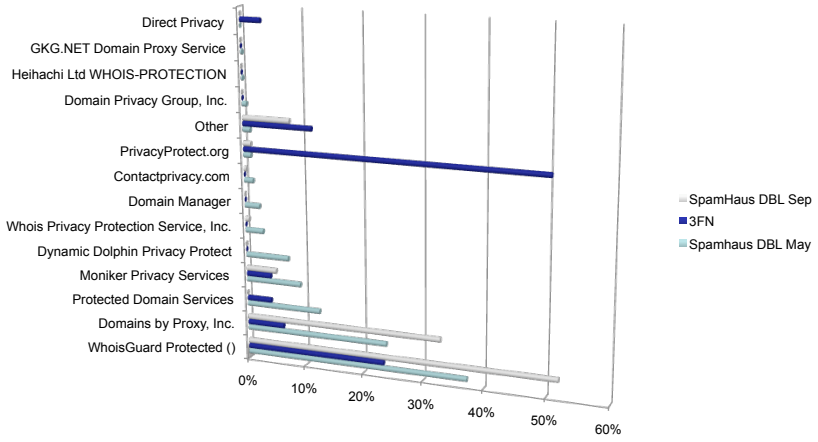


Compare to market share

Privacy service	Market Share
Domains by Proxy	34%
WHOIS Privacy Protection	9%
WhoisGuard	9%
Moniker Privacy Protection	7%
Global Internet Private Registration	5%
1&1 Private Registration	5%
BlueHost.com Domain Privacy	5%

Source: anonwhois.org

Do targets shift over time?



Some targets change… not all results are statistically significant, need more sample

Automation offers new insights

- Our samplings are larger and span longer time periods
- We observe more from these than single {day, week, event} snapshots, i.e.,
  - When spikes in registrations occur
  - Who is targeted and when
  - Intervals between alleged SPAM campaigns
  - Frequency of alleged SPAM campaigns

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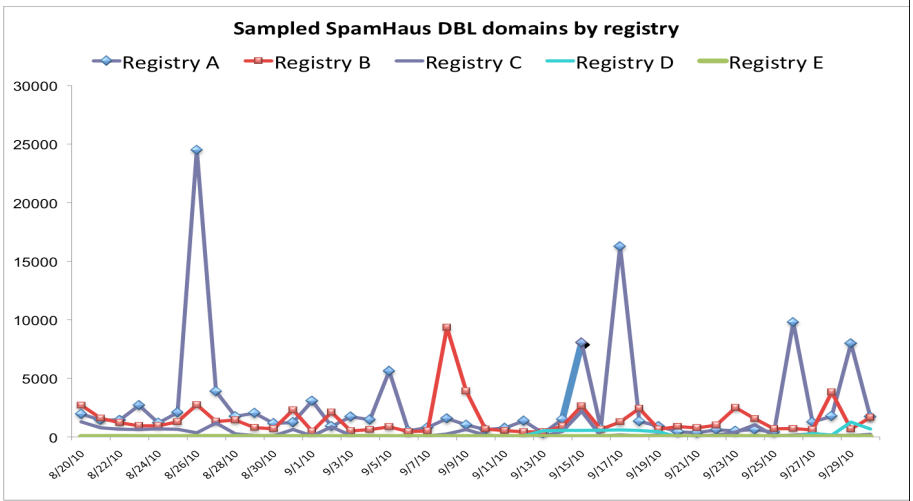
Spikes



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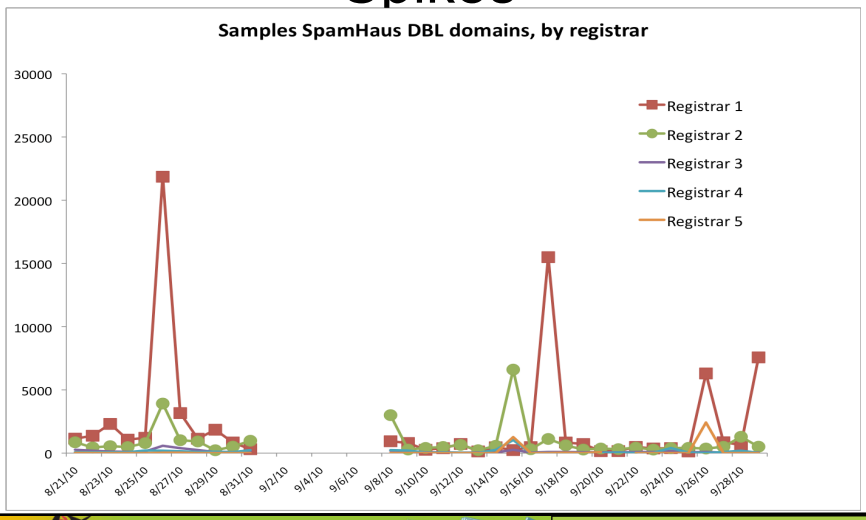
Spikes



What causes spikes?

- Dates correspond to SpamHaus reporting all domains of a given spammer, or a SPAM campaign
- What made these dates attractive?
  - Will work with registrars and registries to see if there is any correlation to registrar promotions, discounts, bundling
- Worth pursuing?
  - If a correlation is found, can it be used to anticipate or detect early onset of spam attack?

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Conclusions, future work

- Studies indicate that a higher percentage of spam domains use privacy protection registration services than the general population
- Continued sampling of DBL may provide additional insights, trends
  - Will increased frequency of samples tell us more?
  - Can we learn more from spikes if we correlate registrar promotions, discounts, or bundling? Do spammers see these as opportunities?
  - Can we apply what we learn to deter spam registrations?

Thank you

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Related studies

- Private Domain Registrations at 3FN (APWG ceCOS, Oct 2009) http://securityskeptic.typepad.com/the-security-skeptic/2009/10/private-domain-registrations-at-3fn.html
- Domain Name Privacy Misuse Studies (APWG ceCos, Apr 2010) http://securityskeptic.typepad.com/the-security-skeptic/2010/04/domain-name-privacy-misuse-studies.html
- Privacy Proxy Registration Services Study Report (NORC, Sep 2010) http://www.icann.org/en/compliance/reports/privacy-proxy-registration-services-study-14sep10-en.pdf