Lord of the Bing

Taking Back Search Engine Hacking From Google and Bing

8 October 2010

Presented by:
Rob Ragan
Stach & Liu, LLC
www.stachliu.com

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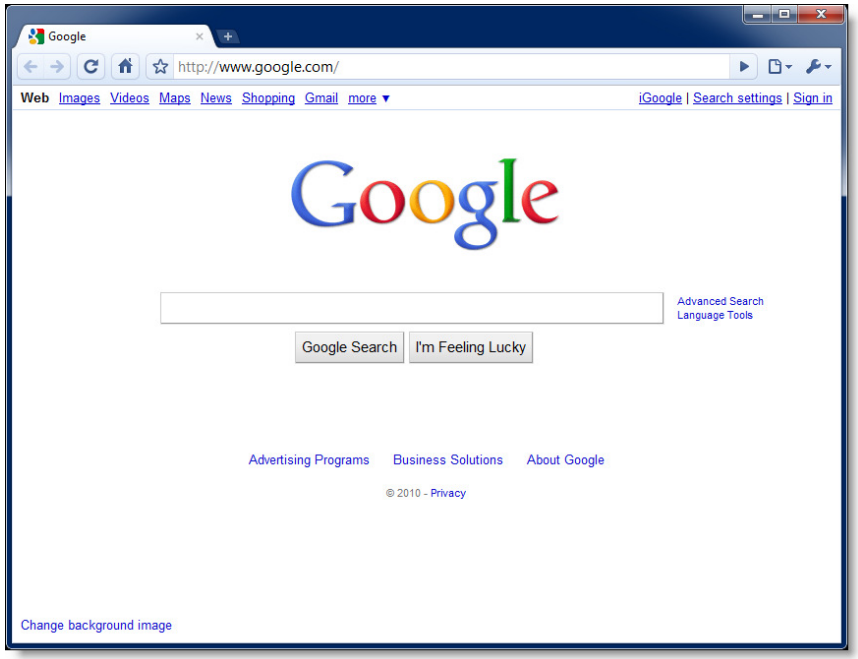
Goals

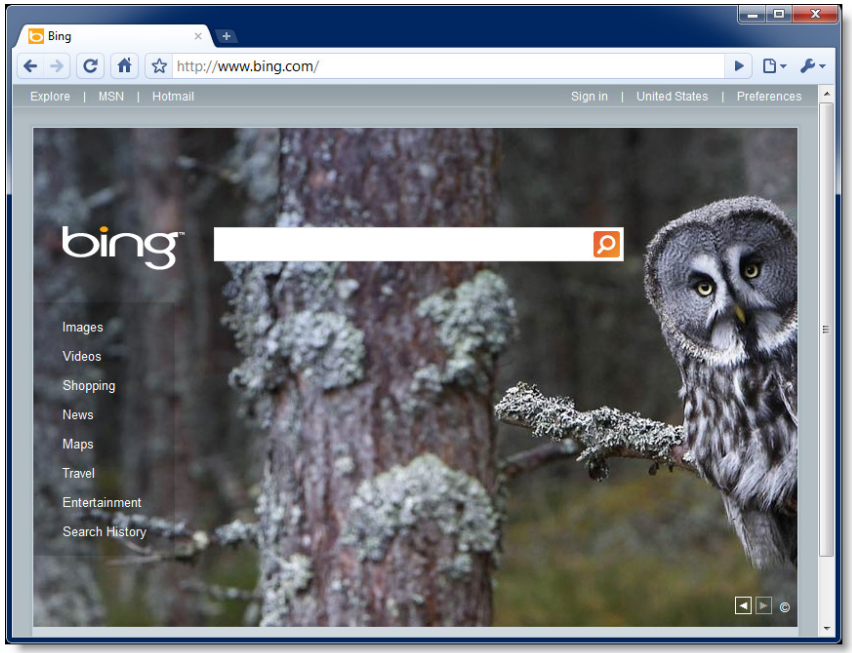
DESIRED OUTCOME

- *To improve* Google Hacking
  - Attacks and defenses
  - Advanced tools and techniques
- *To think differently* about exposures in publicly available sources
- To blow your mind!

Google/Bing Hacking

SEARCH ENGINE ATTACKS





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Attack Targets

GOOGLE HACKING DATABASE

- Advisories and Vulnerabilities (215)
- Error Messages (58)
- Files containing juicy info (230)
- Files containing passwords (135)
- Files containing usernames (15)
- Footholds (21)
- Pages containing login portals (232)
- Pages containing network or vulnerability data (59)
- Sensitive Directories (61)
- Sensitive Online Shopping Info (9)
- Various Online Devices (201)
- Vulnerable Files (57)
- Vulnerable Servers (48)
- Web Server Detection (72)

Attack Targets

GOOGLE HACKING DATABASE

Old School Examples

- Error Messages
  - `filetype:asp  + "[ODBC SQL“`
  - `"Warning: mysql_query()" "invalid query“`
- Files containing passwords
  - `inurl:passlist.txt`

New Toolkit

STACH & LIU TOOLS

Google Diggity

- Uses Google AJAX API
  - Not blocked by Google bot detection
  - Does not violate Terms of Service
- Can leverage Google custom search

Bing Diggity

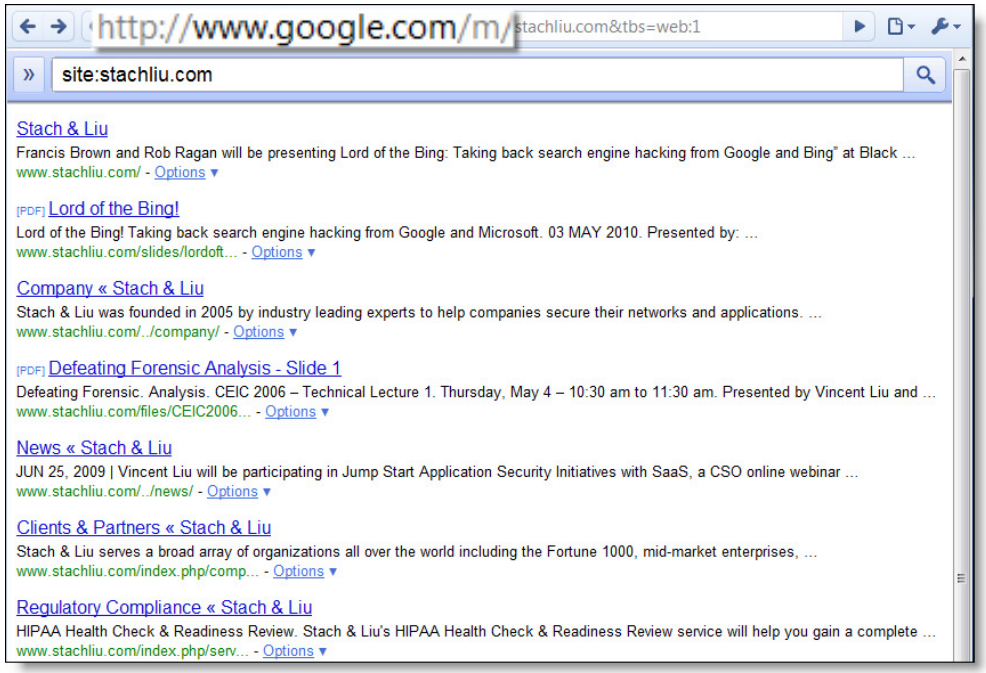
- Uses Bing SOAP API
- Company/Webapp Profiling
  - Enumerate: URLs, IP-to-virtual hosts, etc.
- Bing Hacking Database (BHDB)
  - Vulnerability search queries in Bing format

New Toolkit

STACH & LIU TOOLS

GoogleScrape Diggity

- Uses Google mobile interface
  - Light-weight, no advertisements or extras
  - *Violates* Terms of Service
- Automatically leverages valid open proxies
- Spoofs User-agent and Referer headers
- Random &userip= value



New Hack Databases

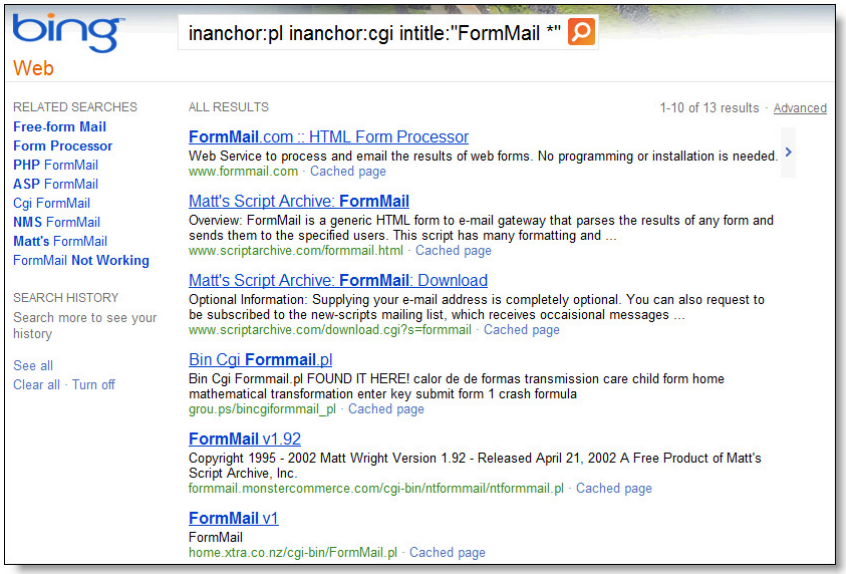
ATTACK QUERIES

BHDB – Bing Hacking Data Base

- First ever Bing Hacking database
- Bing has limitations that make it difficult to create vuln search queries
  - Bing disabled the link: and linkdomain: directives to combat abuse in March 2007
  - Does not support ext: or inurl:
  - The filetype: functionality is limited

Example - Bing vulnerability search:

- GHDB query
  - `"allintitle:Netscape FastTrack Server Home Page"`
- BHDB version
  - `"intitle:Netscape FastTrack Server Home Page"`



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New Hack Databases

ATTACK QUERIES

SLDB - Stach & Liu Data Base

- New Google/Bing hacking searches in active development by the S&L team

SLDB Examples

- `ext:(doc | pdf | xls | txt | ps | rtf | odt | sxw | psw | ppt | pps | xml) (intext:confidential salary | intext:"budget approved") inurl:confidential`
- `( filetype:mail | filetype:eml | filetype:mbox | filetype:mbx ) intext:password|subject`
- `filetype:sql "insert into" (pass|passwd|password)`
- `!Host=*.* intext:enc_UserPassword=* ext:pcf`
- `"your password is" filetype:log`

NEW GOOGLE HACKING TOOLS

DEMO

Traditional Defenses

GOOGLE HACKING DEFENSES

- "Google Hack yourself" organization
  - Employ tools and techniques used by hackers
  - Remove info leaks from Google cache
    - Using Google Webmaster Tools
- Regularly update your robots.txt.
  - Or robots meta tags for individual page exclusion
- Data Loss Prevention/Extrusion Prevention Systems
  - Free Tools: OpenDLP, Senf
- Policy and Legal Restrictions

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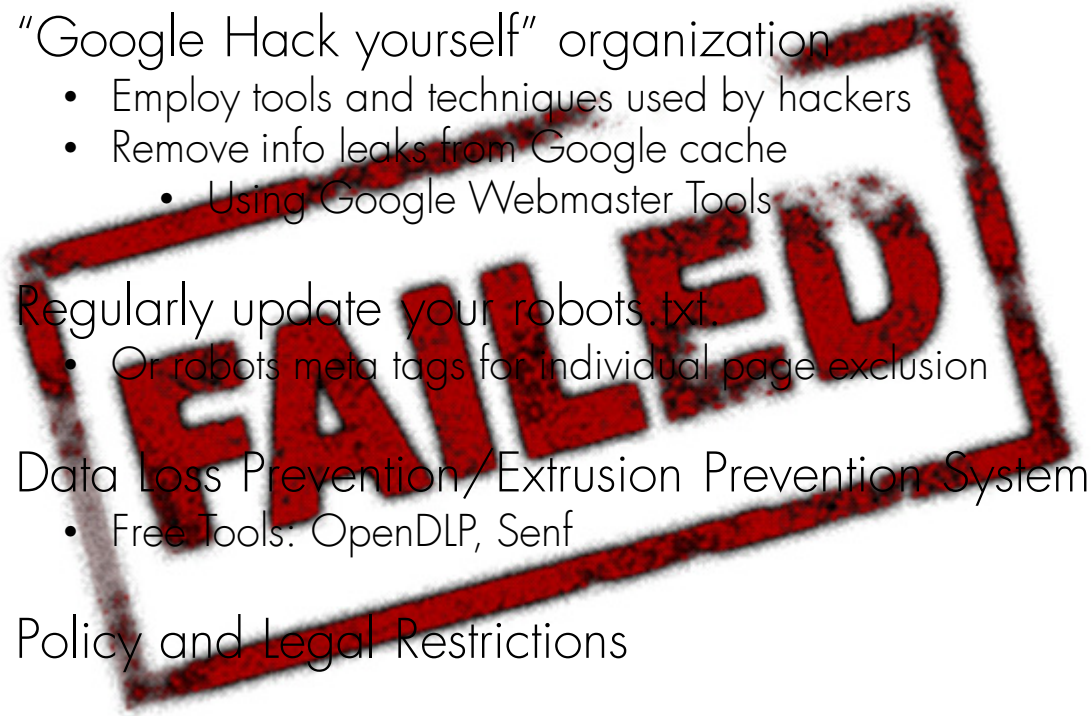


Advanced Defenses

PROTECT YO NECK

Existing Defenses

"HACK YOURSELF"

- ✓ Tools exist
- ✘ Convenient
- ✘ Real-time updates
- ✘ Multi-engine results
- ✘ Historical archived data
- ✘ Multi-domain searching

Advanced Defenses

NEW HOT SIZZLE

Stach & Liu now proudly presents:

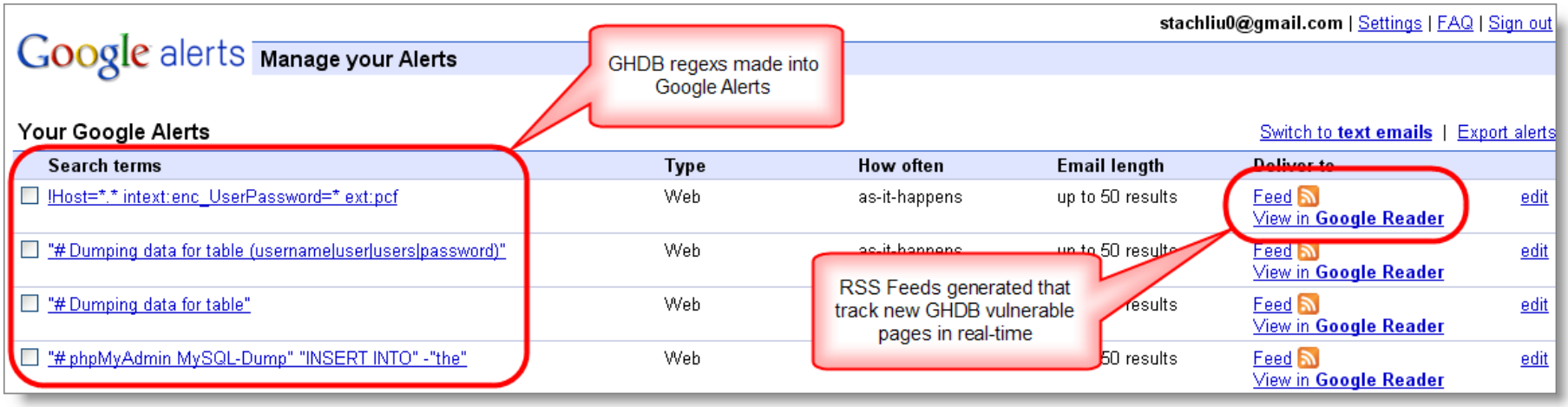
- Google Hacking Alerts
- Bing Hacking Alerts

Google Hacking Alerts

ADVANCED DEFENSES

Google Hacking Alerts

- All hacking database queries using Google alerts
- Real-time vuln updates to >2400 hack queries via RSS
- Organized and available via Google reader importable file



Google Hacking Alerts

ADVANCED DEFENSES

Bing Hacking Alerts

ADVANCED DEFENSES

Bing Hacking Alerts

- Bing searches with regexs from BHDB
- Leverage &format=rss directive to turn into update feeds

ADVANCED DEFENSE TOOLS

DEMO

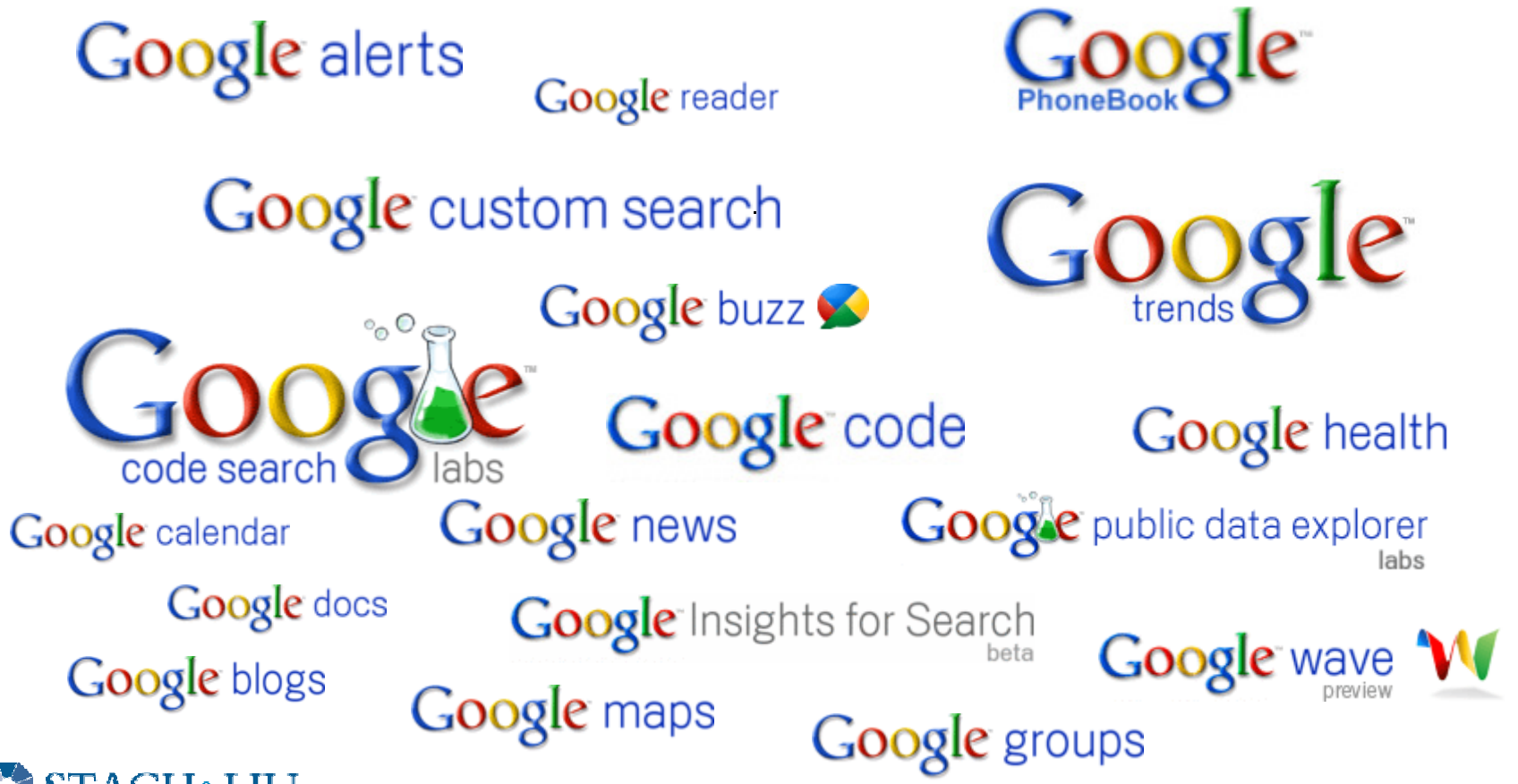
New Defenses

"GOOGLE/BING HACK ALERTS"

- ✓ Tools exist
- ✓ Convenient
- ✓ Real-time updates
- ✓ Multi-engine results
- ✓ Historical archived data
- ✓ Multi-domain searching

Google Apps Explosion

SO MANY APPLICATIONS TO ABUSE



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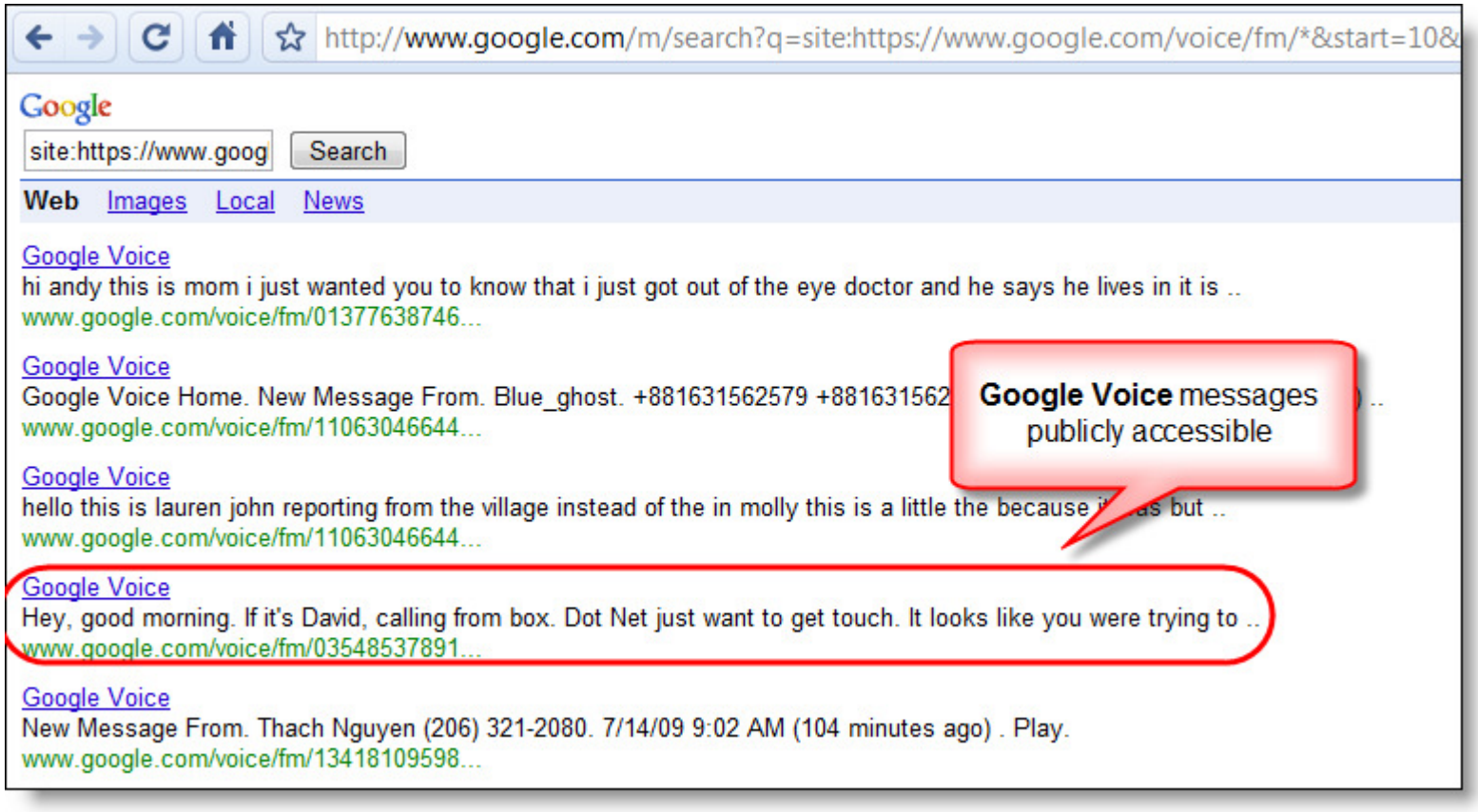
Google Voice

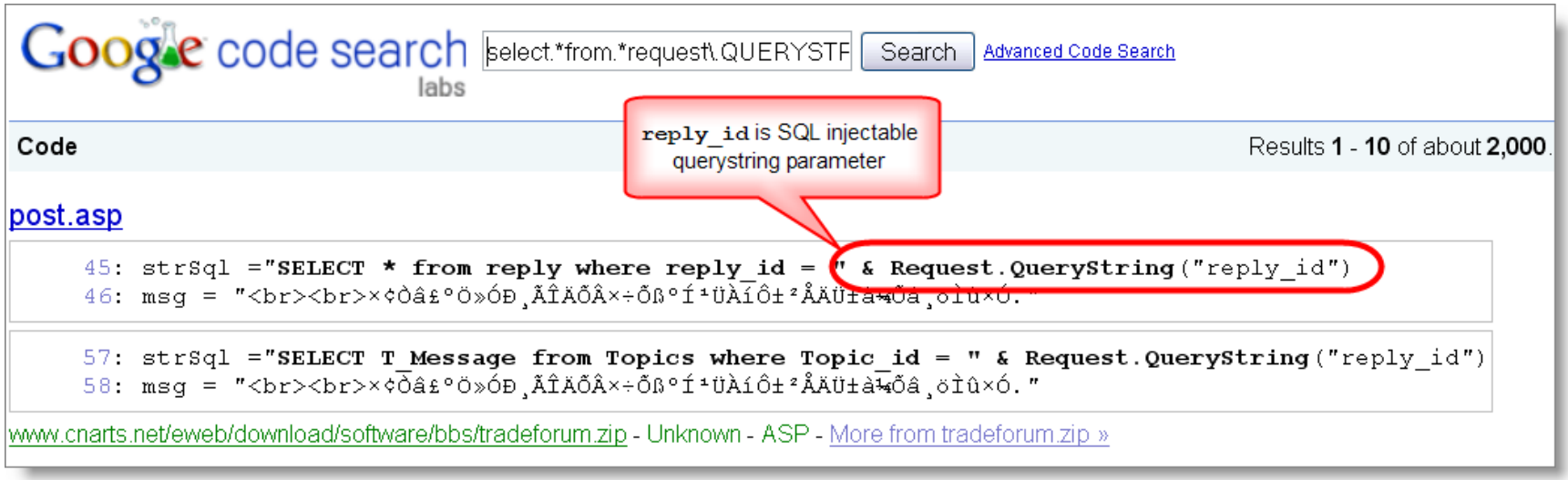
PARTY LINE



Google Code Search

VULNS IN OPEN SOURCE CODE

- Regex search for vulnerabilities in public code
- Example: SQL Injection in ASP querystring
  - select.*from.*request\.QUERYSTRING

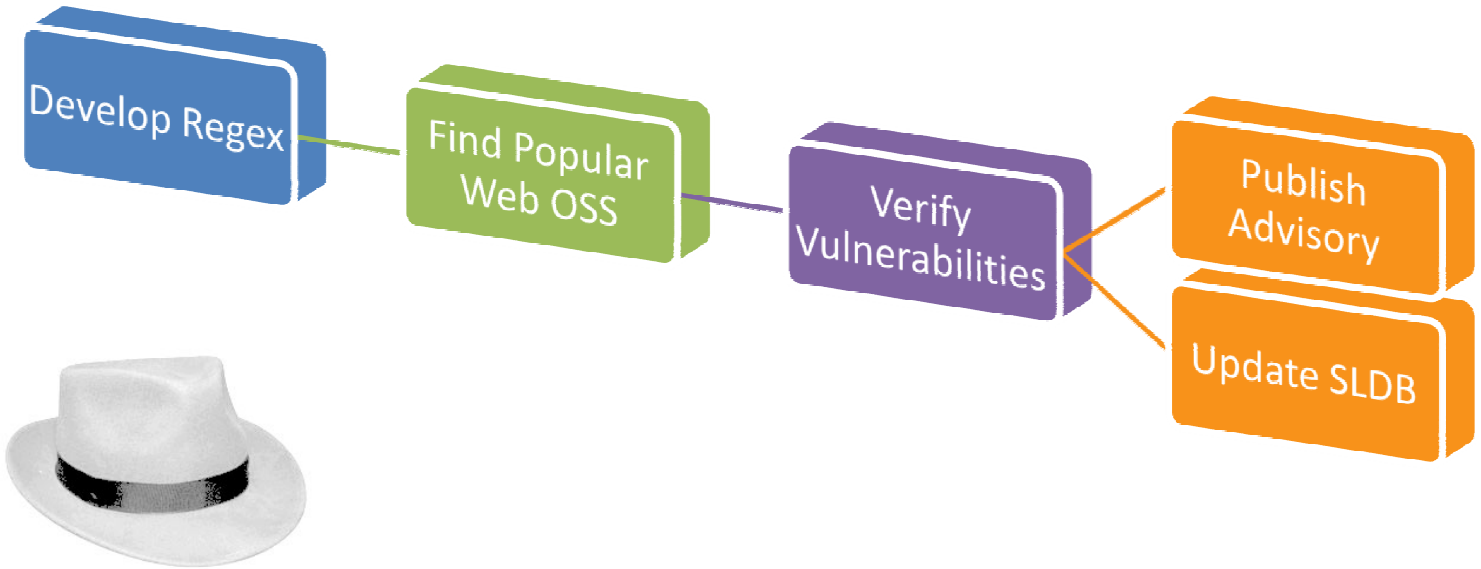


GOOGLE CODE SEARCH HACKING

DEMO

Google Code Search

VULNS IN OPEN SOURCE CODE



Google Code Search

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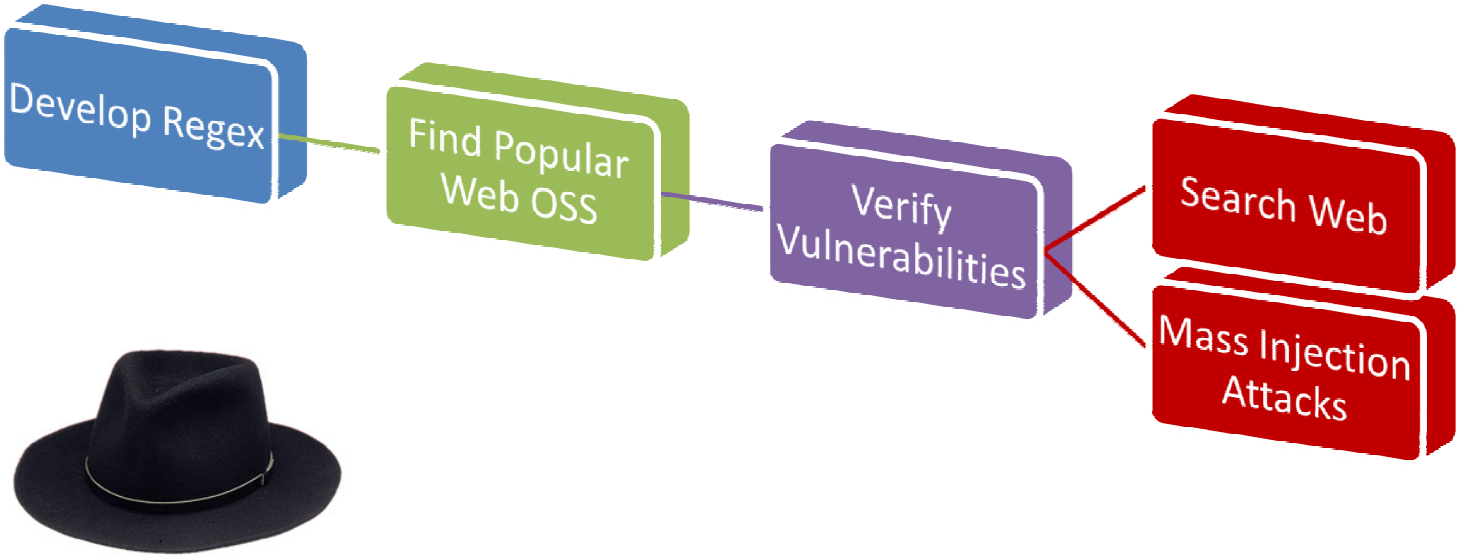

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Black Hat SEO

SEARCH ENGINE OPTIMIZATION

- Use popular search topics du jour
- Pollute results with links to badware
- Increase chances of a successful attack

Google Trends

BLACK HAT SEO RECON

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Defenses

BLACKHAT SEO DEFENSES

- Malware Warning Filters
  - Google Safe Browsing
  - Microsoft SmartScreen Filter
  - Yahoo Search Scan
- Sandbox Software
  - Sandboxie (sandboxie.com)
  - Dell KACE - Secure Browser
  - Adobe Reader Sandbox (Protected Mode)
- No-script and Ad-block browser plugins

Mass Injection Attacks

MALWARE GONE WILD

Malware Distribution Woes

- Popular websites victimized, become malware distribution sites to their own customers

Massive Malware Hits Media Web Sites

Security researchers estimate that roughly 7,000 Web pages were compromised in a SQL injection attack this week, including *The Wall Street Journal* and *Jerusalem Post*.

By Mathew J. Schwartz, InformationWeek
June 10, 2010
URL: http://www.informationweek.com/stor

"Every time I load Jpost site, I get na
on Tuesday, referring to the Jerusale

Sure enough, the Web sites of the *Je*
and the Association of Christian Sch
sites serving malware to viewers.

From: www.itworld.com

Mass Web attack hits Wall Street Journal, Jerusalem Post

by Robert McMillan

June 9, 2010 —Internet users have been hit by a widespread Web attack that has compromised thousands of Web sites, including Web pages belonging to the Wall Street Journal and the Jerusalem Post.

Estimates of the total number of compromised Web sites vary between 7,000 and 114,000, according to security experts. Other compromised sites include Servicewomen.org and Intljobs.org.

Malware Browser Filters

URL BLACK LIST

Protecting users from known threats

- Joint effort to protect customers from known malware and phishing links

Inconvenient Truth

DICKHEAD ALERTS

Malware Black List Woes

- Average web administrator has no idea when their site gets black listed

Advanced Defenses

PROTECT YO NECK

Malware Diggity

ADVANCED DEFENSES

Malware Diggity

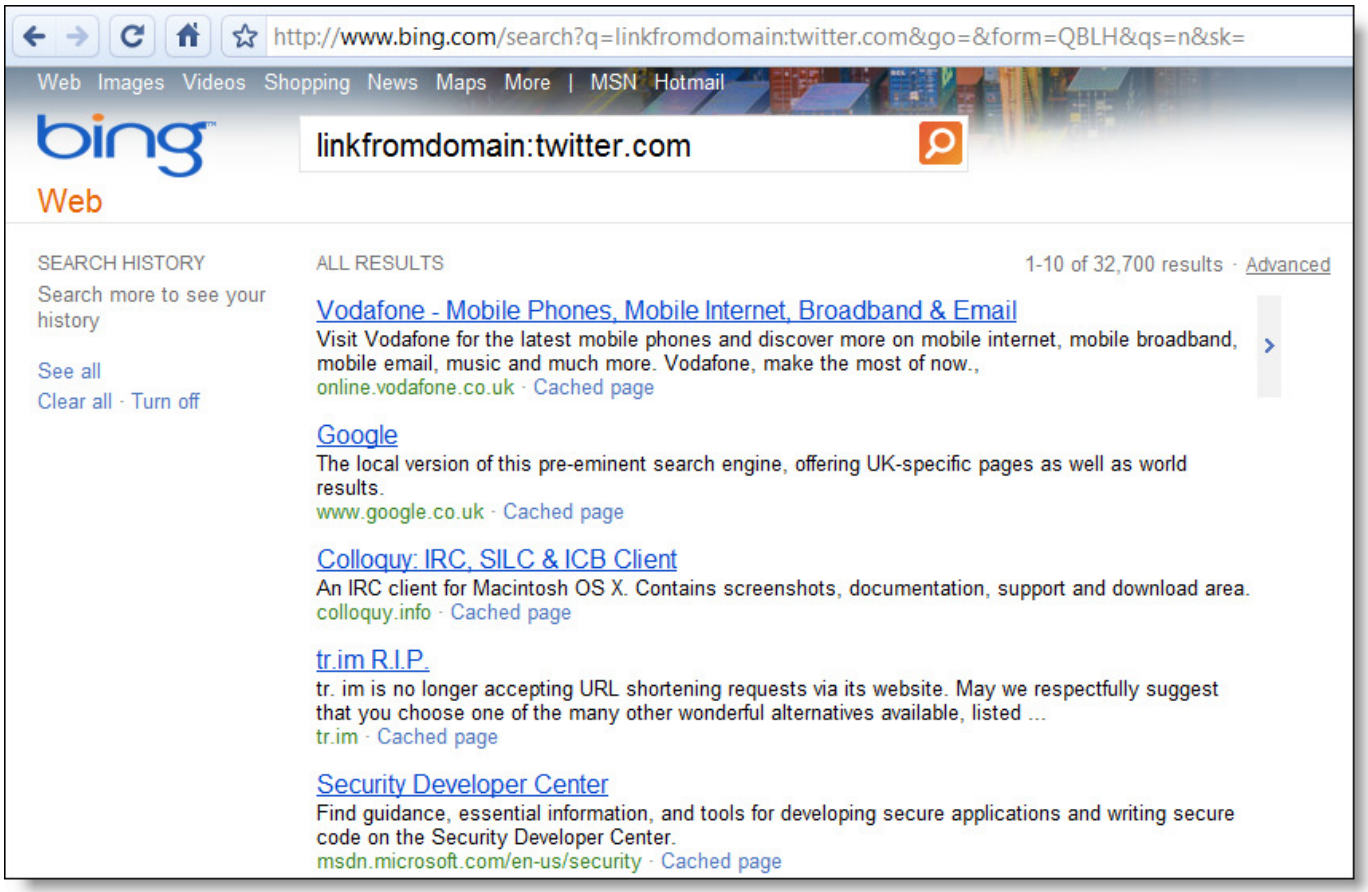
- Uses Bing's linkfromdomain: directive to *identify off-site links* of the domain(s) you wish to monitor
- Compares to *known malware sites/domains*
  - Alerts if site is compromised and now distributing malware
  - Monitors new Google Trends links

Malware Diggity Alerts

- Leverages the Bing '&format=rss' directive, to *actively monitor new off-site links* of your site as they appear
- Immediately lets you know if you have been compromised by one of these mass injection attacks or if your site has been black listed

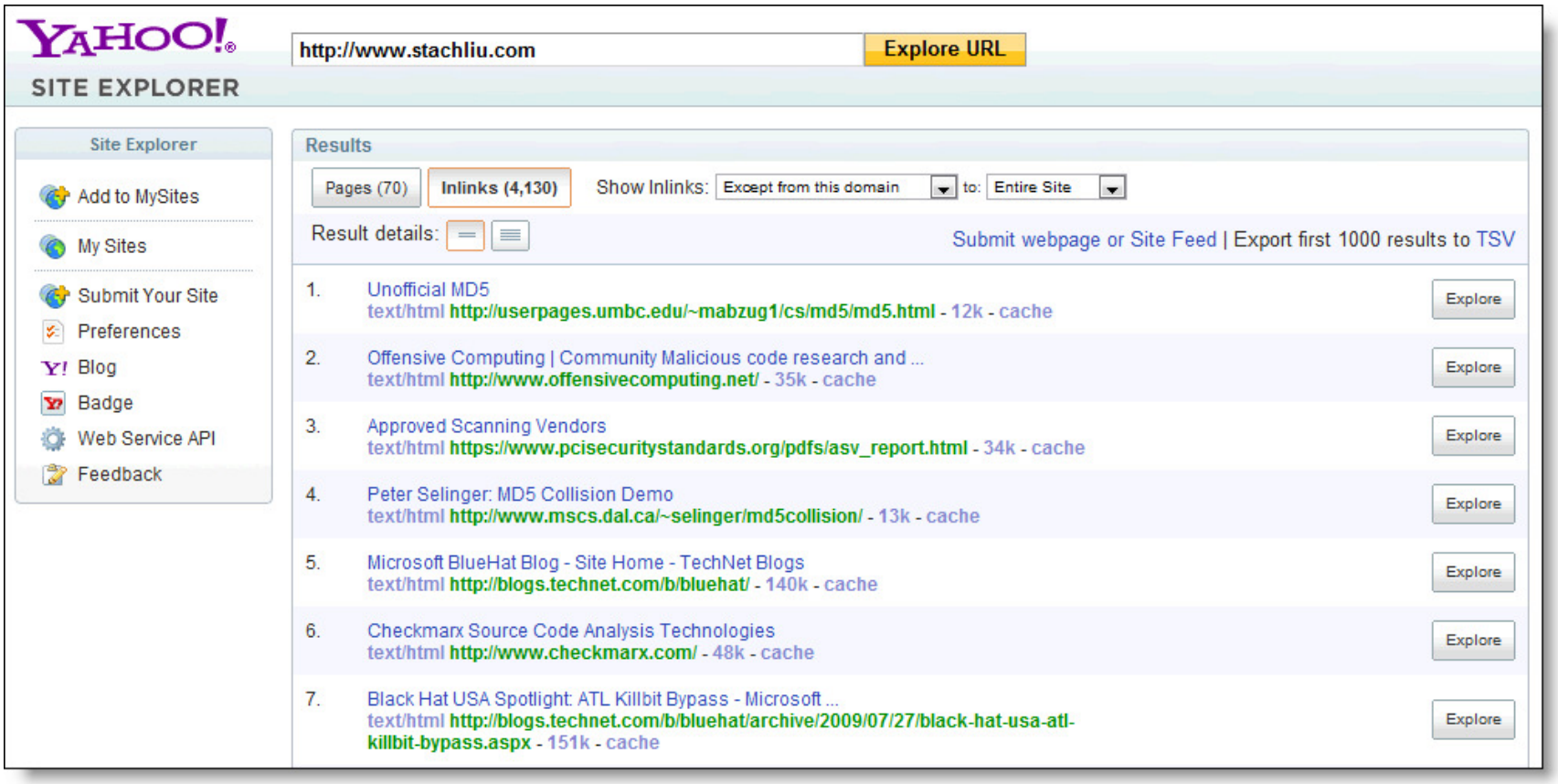
Malware Diggity

ADVANCED DEFENSES



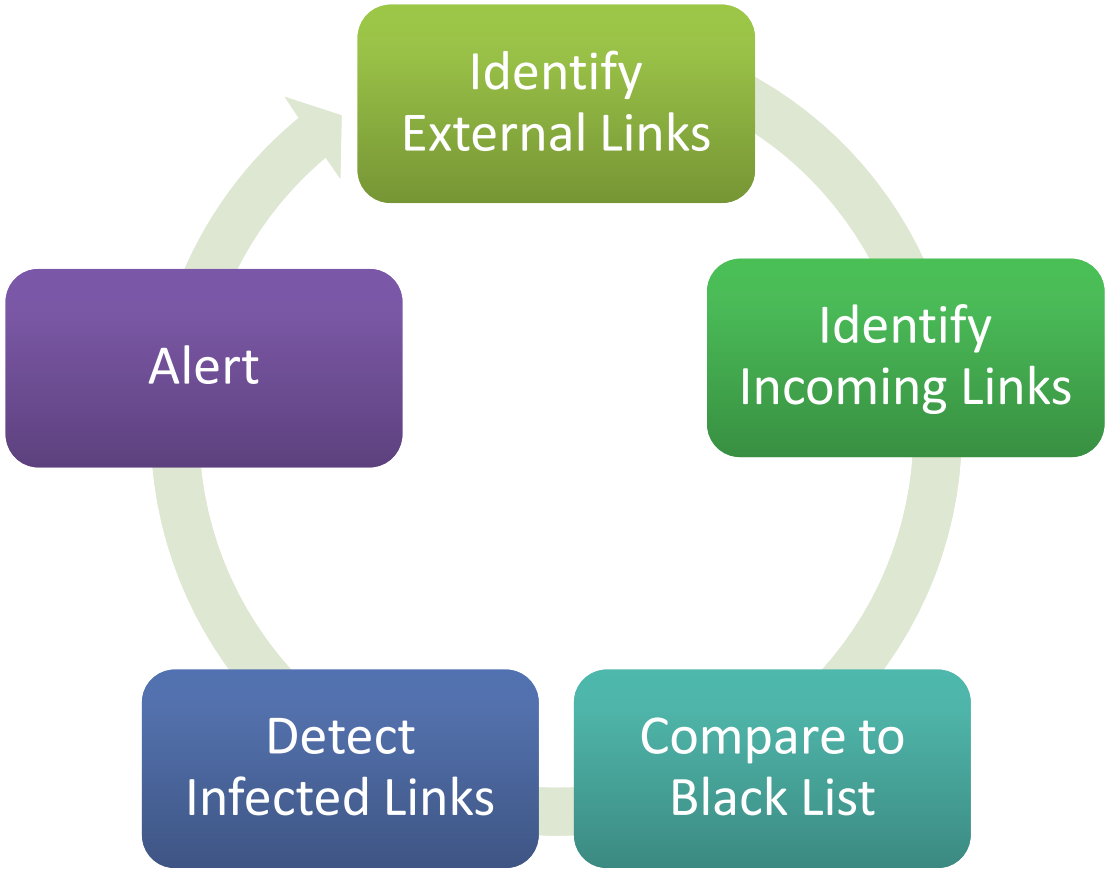
Malware Diggity

ADVANCED DEFENSES



Malware Monitoring

INFECTION DETECTION



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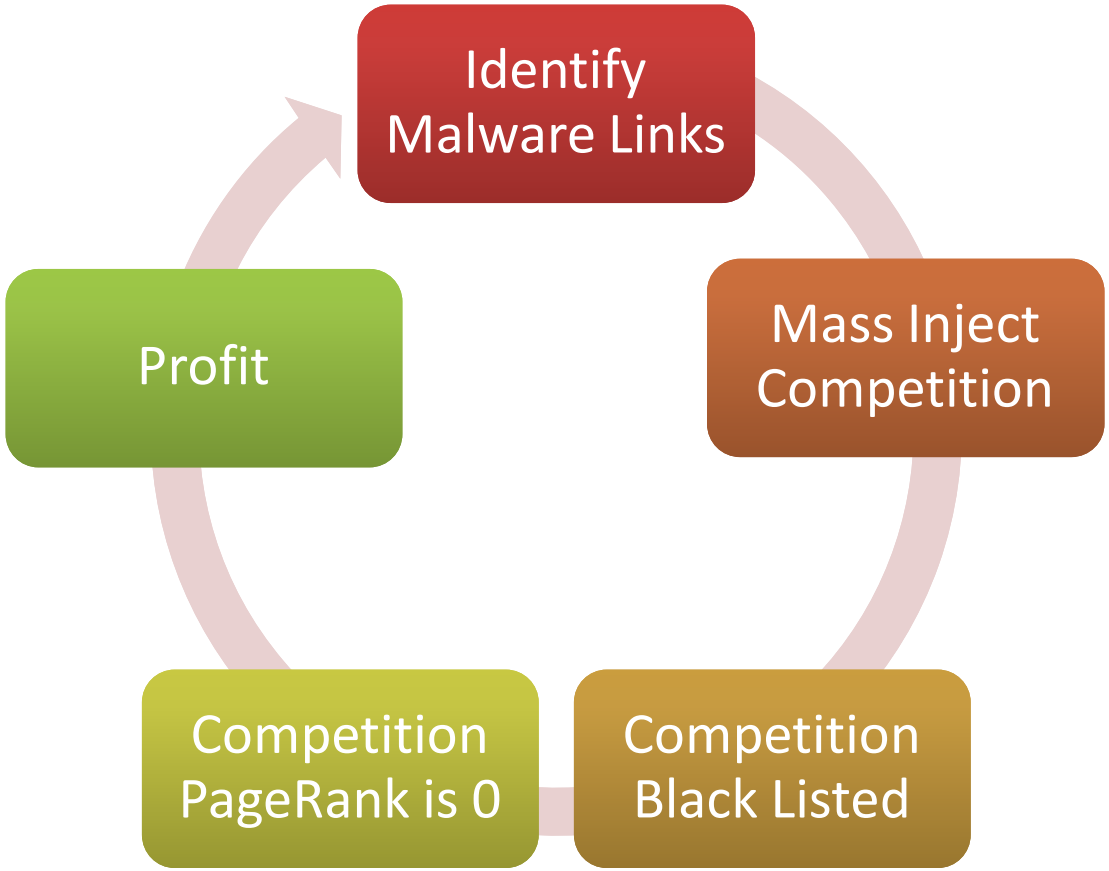
Search Engine deOptimization

BLACK LIST YOUR FOES



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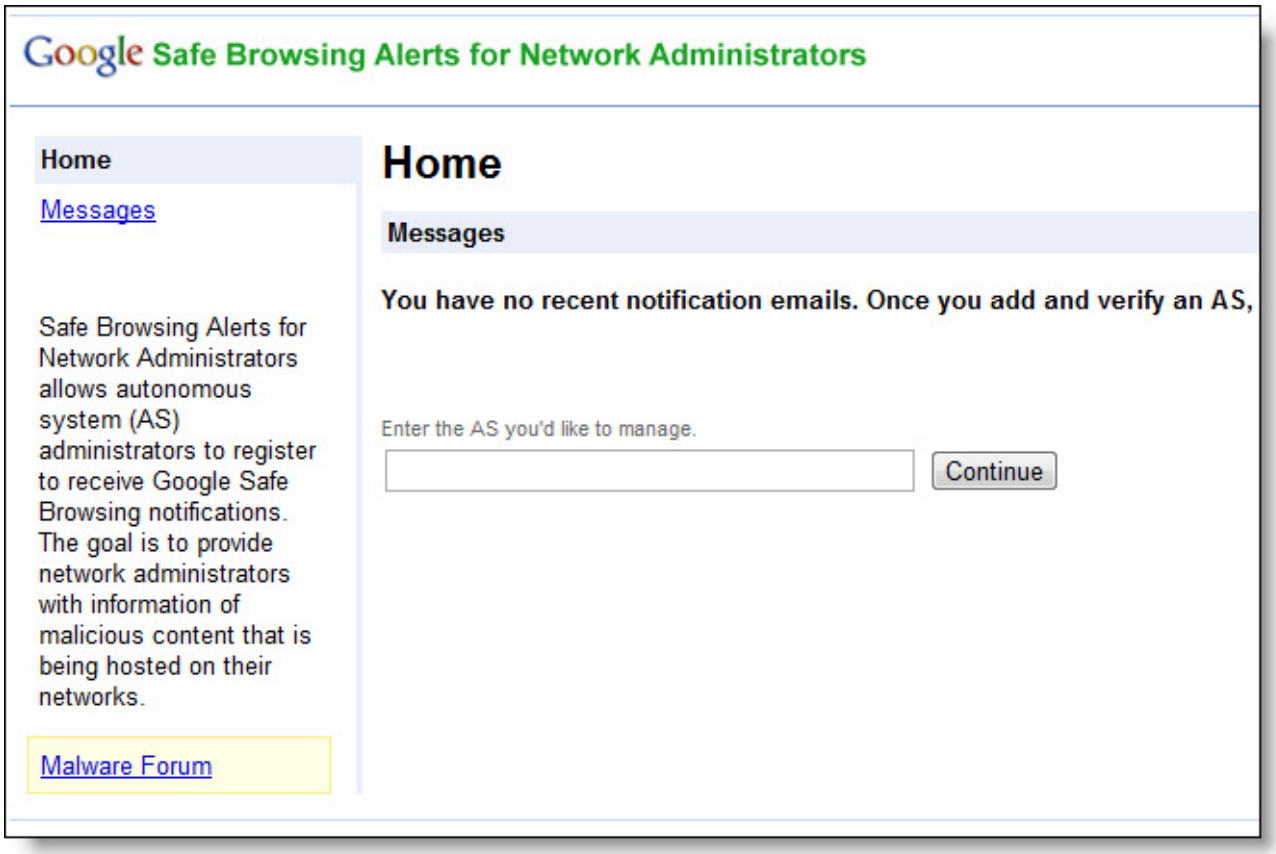
Safe Browsing Alerts

ADVANCED DEFENSES



Future Direction

PREDICTIONS

Google policy is to get right up to the creepy line and not cross it.

– Eric Schmidt
Google CEO

Predictions

FUTURE DIRECTIONS

Data Explosion

- More data indexed, searchable
- Real-time, streaming updates
- Faster, more robust search interfaces

Google Involvement

- Filtering of search results
- Better GH detection and tool blocking

Renewed Tool Dev

- Google Ajax API based
- Bing/Yahoo/other engines
  - Search engine aggregators
  - Customized search engines
- Google Code and Other Open Source Repositories
  - MS CodePlex, SourceForge, …
- More automation in tools
  - Real-time detection and exploitation
  - Google worms

Questions?
Ask us something
We'll try to answer it.

For more info:
Email: contact@stachliu.com
Project: diggity@stachliu.com
Stach & Liu, LLC
www.stachliu.com

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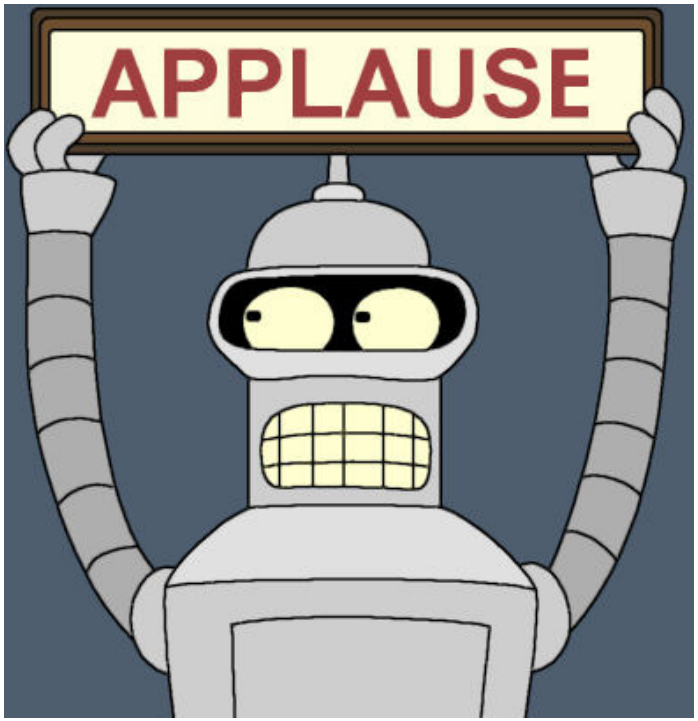
Thank You



Stach & Liu Project info:
http://www.stachliu.com/index.php/resources/tools/google-hacking-diggity-project/

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