SECUREDOMAIN FOUNDATION

Luminous: Bringing Big(ger) Data to the Fight

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Secure Domain Foundation

- Non-profit
  - Founded in 2014
- Proactive mitigation of malicious domains used for cybercrime
  - A clearinghouse for intel on malicious domains
    - Malicious domains and numbers
    - Bad Actor indicators (email, IP, name servers, addresses)
  - A forum for sharing data, intel and knowledge
    - Trust group
    - Data, Research, Analysis, Discussion

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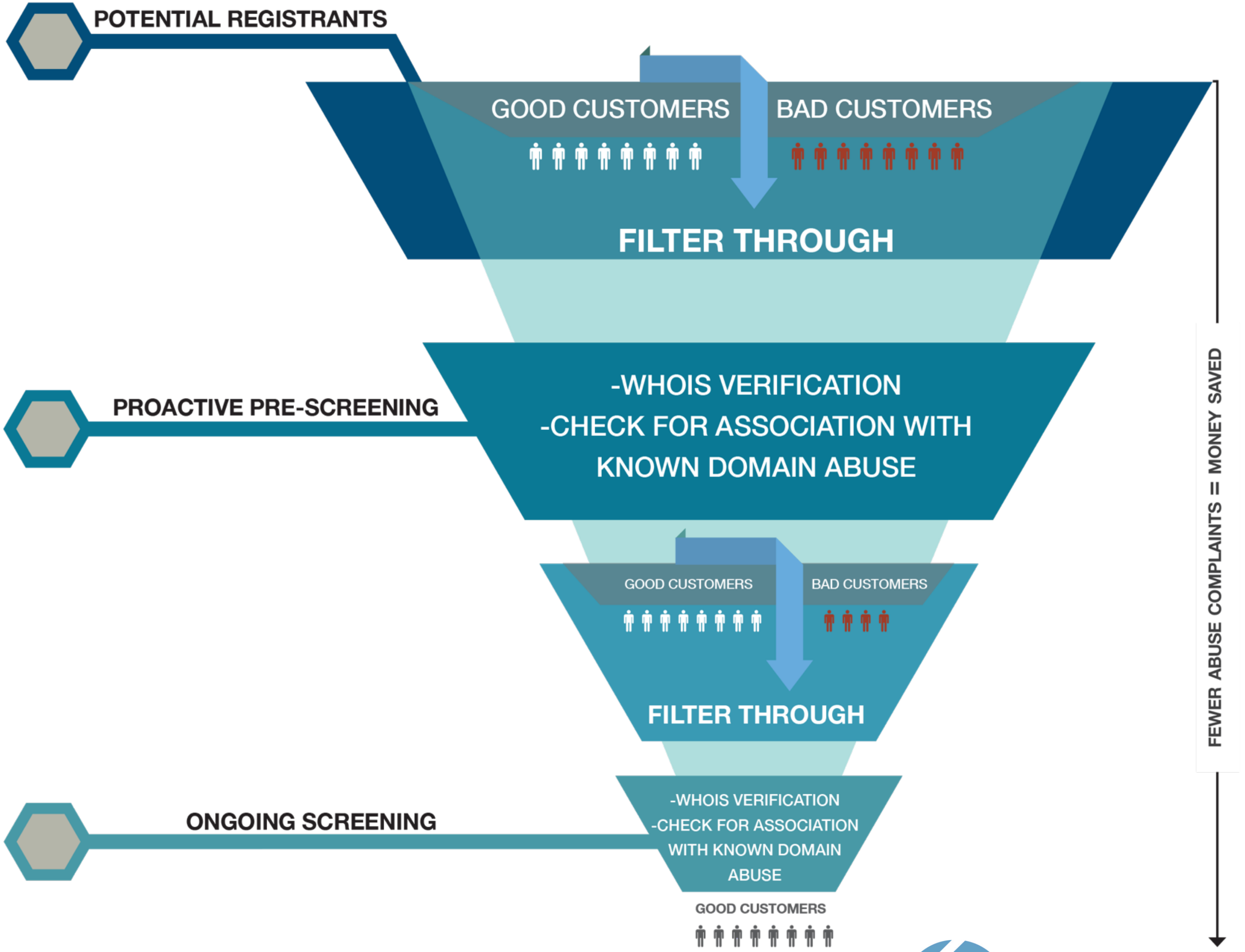
Some Use Cases

- Registrars and Hosts
  - Does this account owner have a reputation for malicious activity?
- Registries
  - What domains in my TLD were reported as malicious today?
- Security Analysts
  - What other domains are associated with this {domain, email, IP, NS, phone}
- Researchers
  - Statistics for policy decisions (empirical data)

Proactive Use Case



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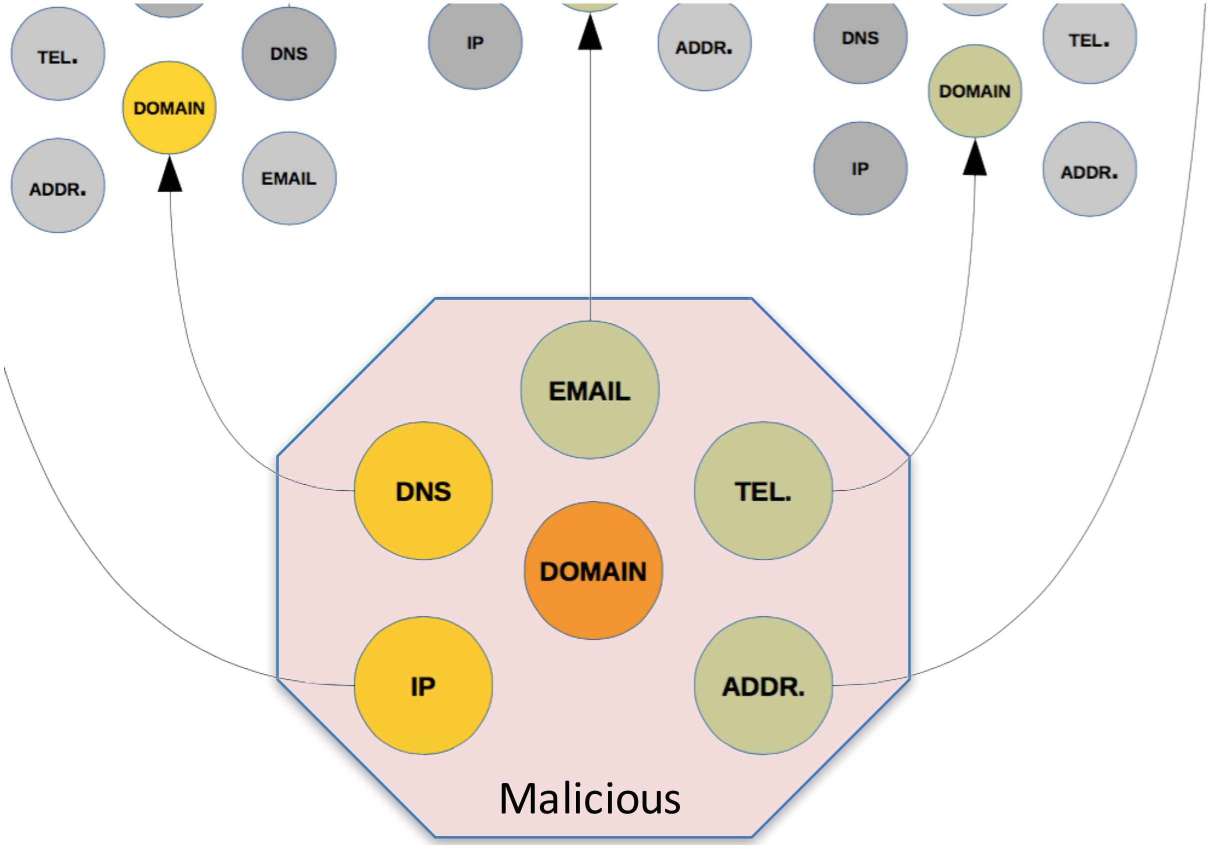
What can we infer from a malicious indicator?

- Given a:
  - Domain name
  - IP address
  - Email address



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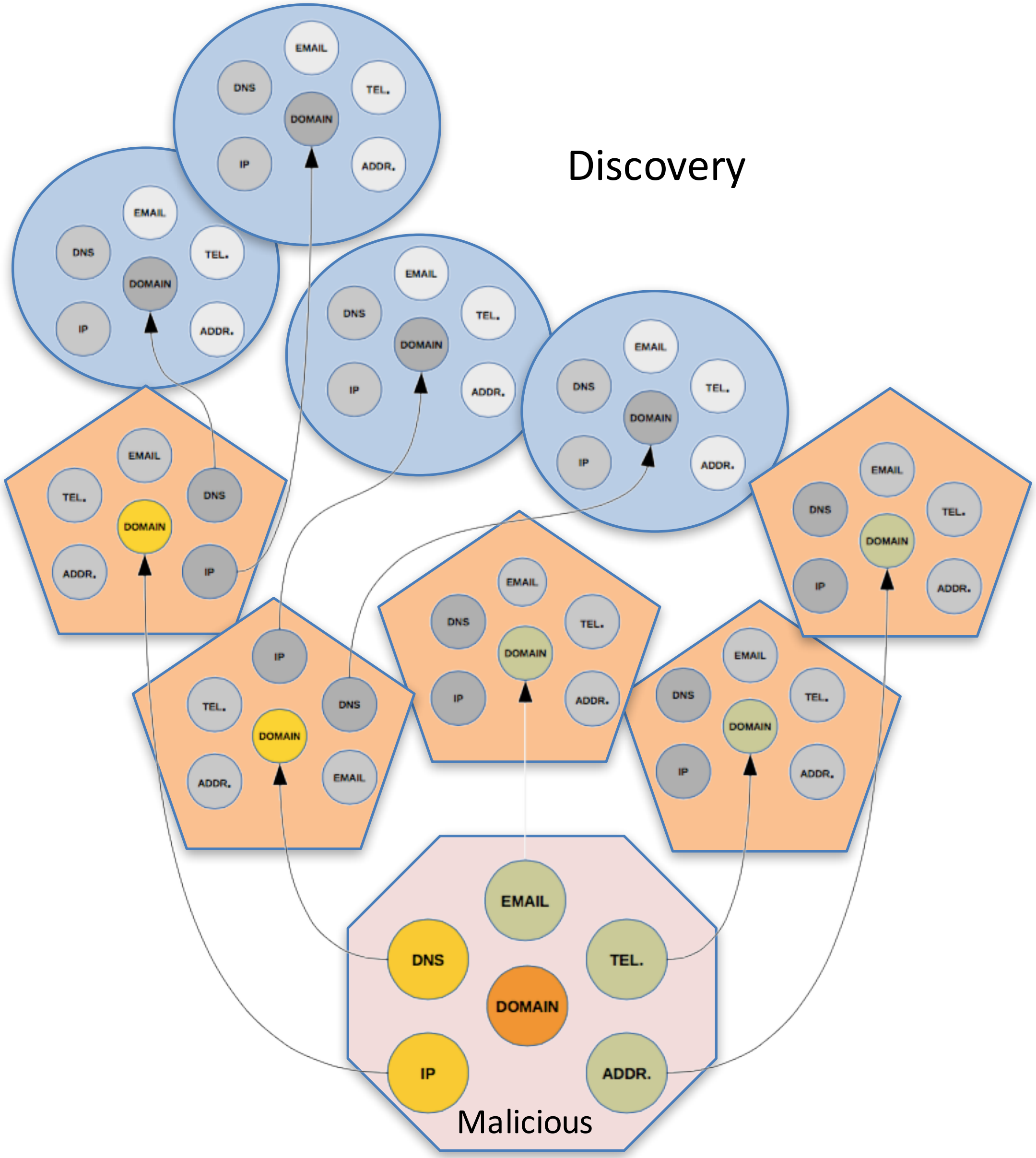

Discovery

Discovery

Malicious

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A Simple Concept But …

- There is a LOT of data
- There is a LOT of data churn
- Success breeds a LOT of queries
- Searches need to be fuzzy
- Implementation can be operationally intensive

Introducing Luminous

- A large, searchable repository of parsed whois data and malicious indicators
- Designed for
  - High Performance and Reliability
  - Scalability
  - Low(er) operational needs
  - Very Flexible
- Query: CLI, API, Web interfaces
- Output: XML, JSON, Text

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Luminous Data

- Whois since July 2014
  - 80M gTLD records
  - 120K-150K new registrations per day
- Historical Whois
  - 170M gTLD records
- Indicators of malicious activity
  - 7M unique indicators
    - 10K-100K being added per day

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Indicator Classification

ADWARE	Resource is known for Adware Activity
ANTIVIRUS	Resource is known to spread fake anti-virus software.
SUSPICIOUS	Resource is known for general suspicious activity.
BOTNET	Resource is a known host for a bot-net frame-work.
COMPROMISED	Resource has been compromised previously.
FRAUD	Resource is known for financial fraud activity.
MALICIOUS	Malicious activity / Bullet proof hosting
MALWARE	Resource is known for spreading malware
PHISHING	Resource is known for phishing activity.
SPAM	Resource is known for spam activity.
RISKWARE	Resource is known for spreading risky ware and hacking tools.
PHARMACY	Resource is a online pharmacy
WHITELIST	Resource is white-listed.
SUSPENDED	Resource has been suspended by a registrar previously.

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Current breakdown

MALICIOUS	27620
ADWARE	47865
ANTIVIRUS	8576
BOTNET	1114
COMPROMISED	357
FRAUD	76795
RISKWARE	1512
MALWARE	2+ M
PHISHING	2+ M
SUSPICIOUS	1+ M

Example Commands

- **whois**
  - Performs whois queries either out of archive or directly from the server. Can accept a valid top-level-domain, domain or a suffix
- **whois-server**
  - Simply returns the whois server for a domain.
- **whois-ref**
  - Matches and returns a set of domains from a given e-mail address or telephone number
- **flags**
  - queries the database for flags associated with the provided entity. Can query on IP, domain, top-level domain, suffix or email address.
- **export**
  - Export utility using xml template.
- **resolve**
  - Resolve utility, resolves a domain to an IP address including history
- **resolve-ref**
  - Reverse resolve utility, traverses the database to match on IP-address or a domain.

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Example Commands

- **dns**
  - Displays the NS data of a domain including historical
- **dns-ref**
  - Retrieves domains based on a given NS or domain name.
- **asn**
  - Retrieves the AS number of an IP address.
- **asn-ref**
  - Retrieves IP addresses based on given AS number or other IP address
- **mx**
  - Mail server utility, retrieves any mail servers if connected to a domain.
- **mx-ref**
  - Mail server reference search utility. Returns any domains connected to a mail server or other given domain.
- **report**
  - Report utility. Uses either an internal or an external xml template to provide a semantic report.

Example Output

```
<?xml version="1.0"?>
<query>
	<domain>securedomain.org</domain>
	<server></server>
	<date>
		<created>02-19-2002 14:04:43</created>
		<updated>01-25-2016 00:18:17</updated>
		<expires>01-01-1970 00:00:00</expires>
	</date>
	<registrar />
	<reseller />
	<owner>
		<name>The Secure Domain Foundation</name>
		<contact>Norm Ritchie</contact>
		<email>
			<value>admin@thesecuredomain.org</value>
			<host>thesecuredomain.org</host>
			<user>admin</user>
			<domain>thesecuredomain.org</domain>
		</email>
		<phone>
			<value>1 (613) 821-5888</value>
			<country_code>1</country_code>
			<area_code>613</area_code>
			<subscriber>8215888</subscriber>
			<country>CA</country>
			<region>Ontario</region>
		</phone>
		<address>
			<value>7082 Bush Dr Ottawa 08 K4P1M7 CA</value>
			<street>7082 Bush Dr</street>
			<city>Ottawa</city>
			<region>08</region>
			<postal_code>K4P1M7</postal_code>
			<country>CA</country>
			<latitude>45.416667</latitude>
			<longitude>-75.7</longitude>
		</address>
	</owner>
```

…

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Next Up

- Beta available now
  - early adopters
    - Thanks CoCCA!

- Near term
  - Member submissions and vetting
  - Deletion and removal
  - Watch list
  - Batch
  - Ongoing:
    - New/More whois and indicator data

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Sign Up Process

- Email us at register@securedomain.org
- Sign the SDF Data Sharing Agreement
- Receive API key and portal login
- Share Data!

Luminous API

Signup available: Now

Price: Free

Interested?

register@securedomain.org

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