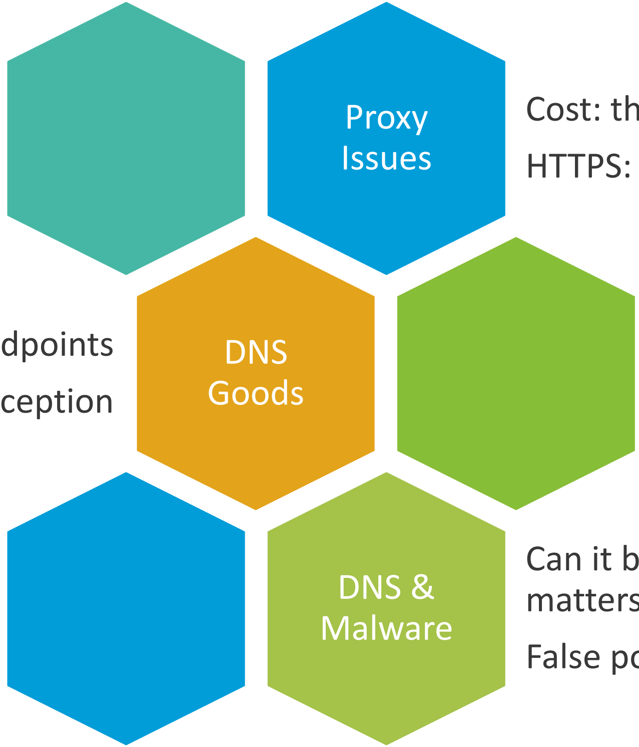
Infoblox
NEXT LEVEL NETWORKING

Effectiveness of DNS as an enforcement point for security and content filtering service

Date: November 29, 2018

Motivations and Fundamental Questions



Proxy Issues

Cost: throughput

HTTPS: 80%+

DNS Goods

Cost: endpoints

No interception

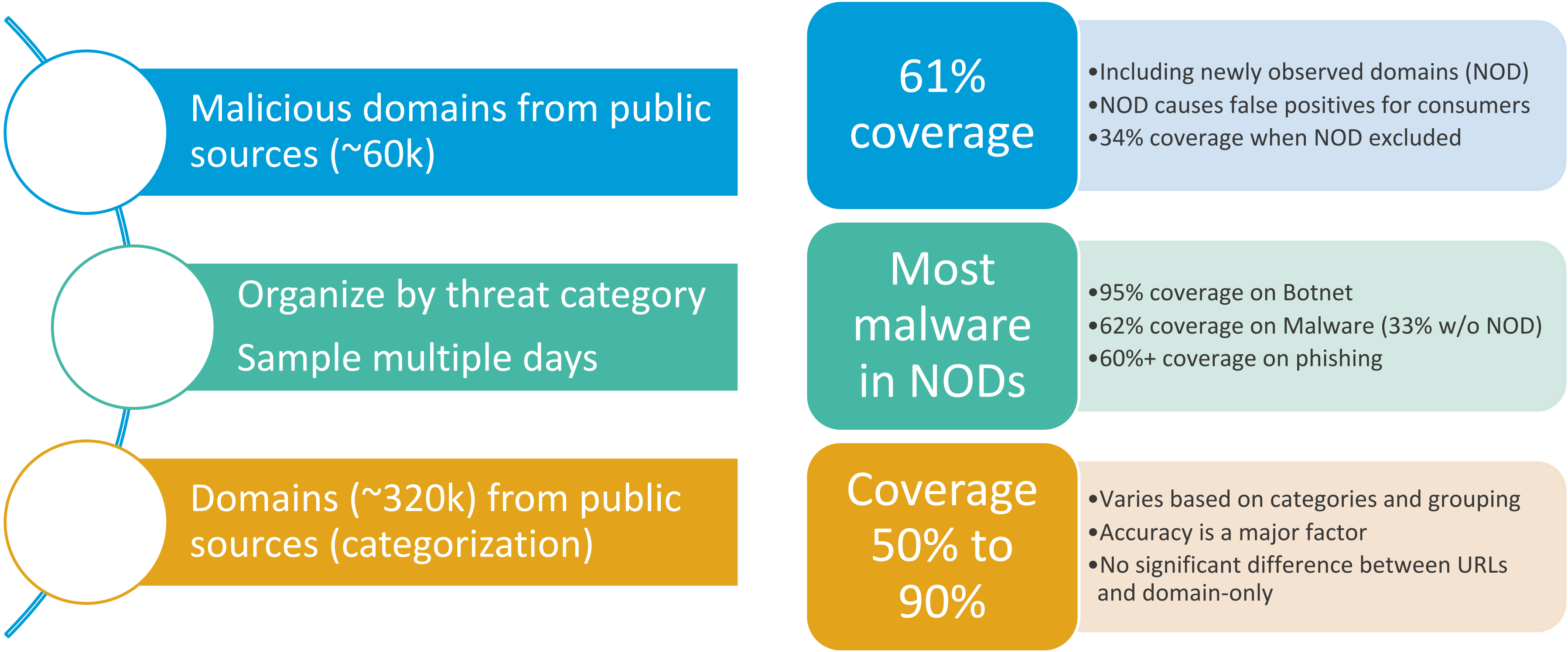
DNS & Malware

Can it block what matters?

False positives?

Case 1: European Mobile and Fixed operator

Methodology and Results



Malicious domains from public sources (~60k)

Organize by threat category

Sample multiple days

Domains (~320k) from public sources (categorization)

61% coverage

- Including newly observed domains (NOD)
- NOD causes false positives for consumers
- 34% coverage when NOD excluded

Most malware in NODs

- 95% coverage on Botnet
- 62% coverage on Malware (33% w/o NOD)
- 60%+ coverage on phishing

Coverage 50% to 90%

- Varies based on categories and grouping
- Accuracy is a major factor
- No significant difference between URLs and domain-only

Case 2: European Mobile and Fixed operator

Methodology and Results

- Mixed list of malicious domains from external assessor (AV benchmark)
- Sample multiple days
- Domains & IPs (~140k) from own network (categorization: DPI benchmark)

94% coverage

- Including newly observed domains (NOD)
- <1% false positives

Most phishing in NODs

- Different NOD vendors catch and time out threats differently

Coverage 84%

- Unknown domains to be measured in a second step

Conclusions

Adjust Methodology for Market

- Coverage and false positive impact heavily dependent on use case (consumer vs corporate)

Multi-vendor Approach for Threat Intel

- Non-uniform coverage across feeds from same vendor
- Vendor bias can give false sense of security

URLs are NOT Better than Domains

- Benchmark against AV and DPI shows no significant coverage gap

Thank You

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