



Controlware Security Day



Infoblox Threat Defense: Cyberangriffe blockieren, bevor sie beginnen: Der Schlüssel liegt in DNS Security

Stephan Fritsche
Central Europe Security Lead, Infoblox

16.09.2025, Congress Park Hanau

controlware



Stephan Fritsche
Central Europe Security Lead
Mobil: +49 170 58 52 443
sfritsche@infoblox.com
www.infoblox.com

<https://www.infoblox.com/products/bloxone-ddi/>

<https://www.infoblox.com/products/bloxone-threat-defense/>

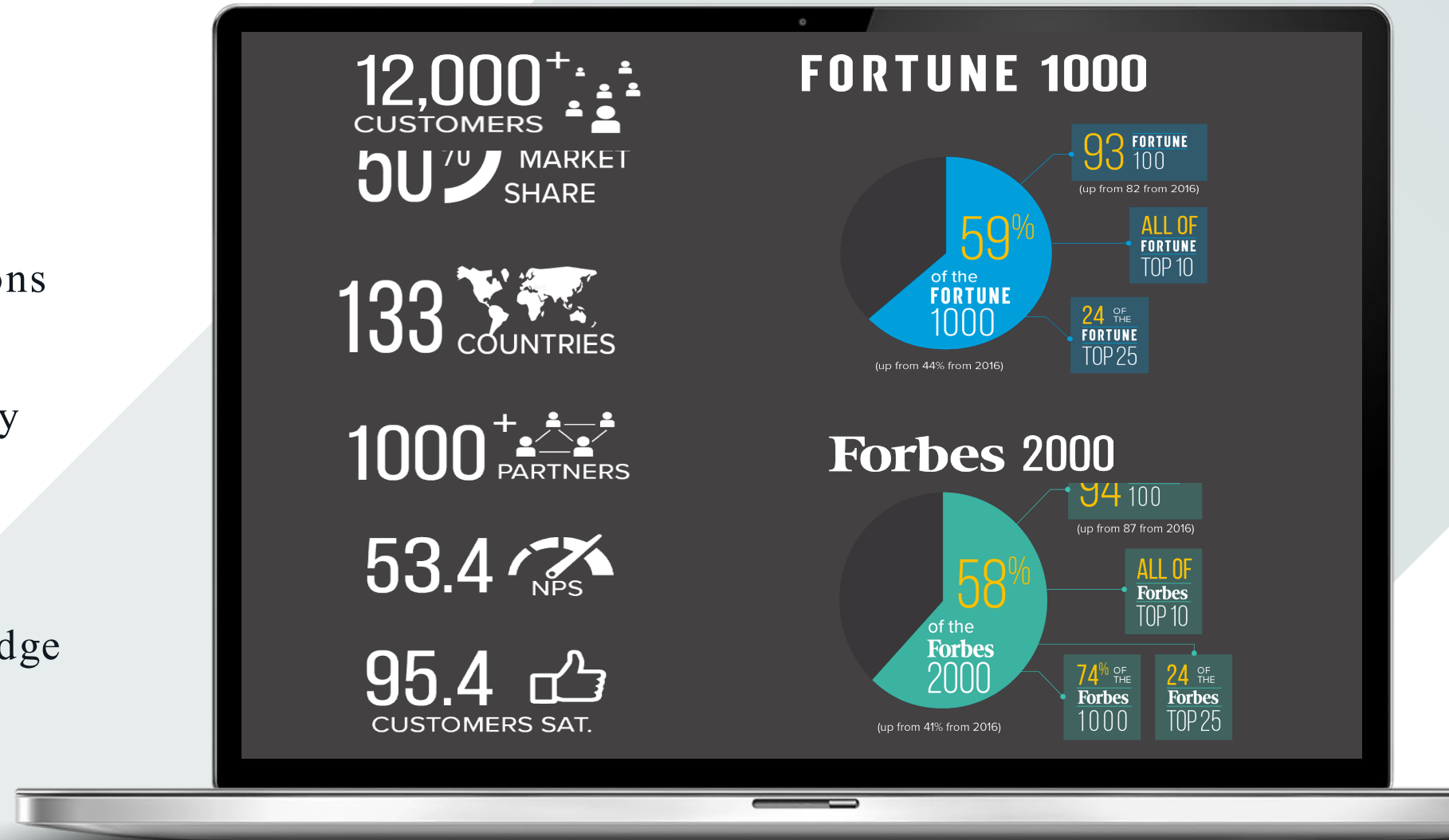
Leading the Industry

MISSION

Empowering organizations to manage their continuously evolving growing networks simply and securely.

OFFERINGS

Core Network Services, Cybersecurity, Secure Edge Services



A LEADER IN CLOUD NETWORKING AND SECURITY SERVICES



INTEGRATED DDI

UNITE DNS, DHCP, IPAM

Manage from the cloud with BloxOne® DDI or on-prem with NIOS DDI.



DNS DETECTION & RESPONSE

ACHIEVE SECURITY EVERYWHERE

Deploy hybrid DNS-layer security with BloxOne® Threat Defense.



HYBRID MULTI-CLOUD INTEGRATION

MANAGE HYBRID WORKLOADS

Maintain complex multi-cloud networks with automated processes.



THREAT INTELLIGENCE

PROTECT AGAINST EVOLVING THREATS

Uplift security stacks with DNS threat intel that's hunted, not gathered.

DNS DETECTION AND RESPONSE

PROTECTIVE DNS



PROTECT

Block known Phishing, DGA, C2, malware, ransomware, Suspicious Domains, Lookalike Domains

STOP ATTACKS
EARLIER



DETECT

Threat intelligence, Algorithms to detect unknown malicious DNS, Application Discovery

SEE ATTACKS
OTHERS WILL MISS

DEVICE CONTEXT + ECOSYSTEM



IDENTIFY

Mapping DNS queries to user/ device activity using IPAM

TRANSFORM
SECURITY
EFFECTIVENESS



RESPOND

Automating remediation actions via ecosystem integrations + sharing of DDI data to SOC

AUTOMATE FOR
BETTER PROTECTION

Intelligence

DNS is important



DOMAIN DEMAND

- 61B Internet-connected devices in 2023 (~ 2/3 IoT)
- 351M second-level domains
- **200K new domains are created every day**

DOMAIN RISK

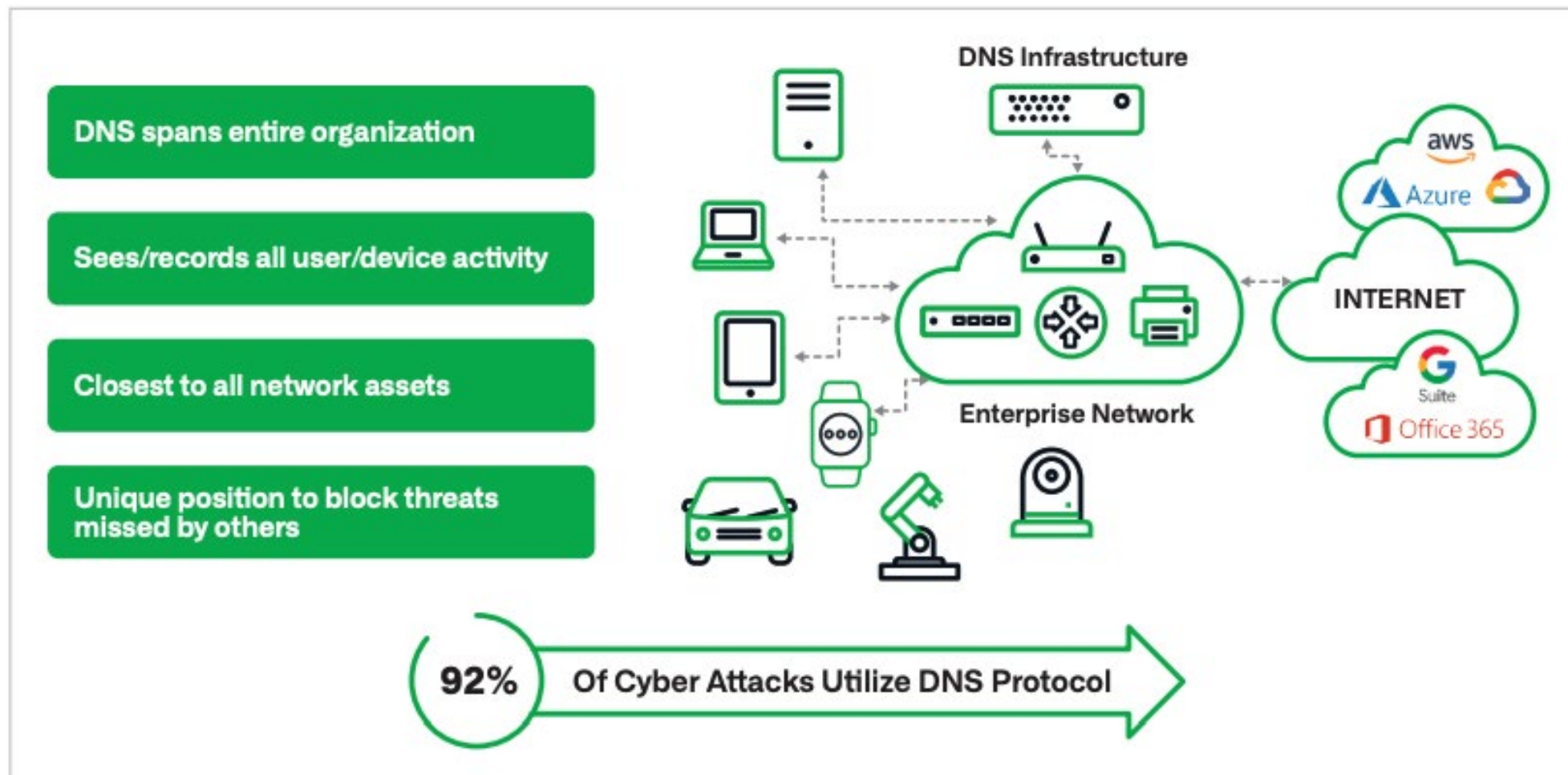
- 85% of newly registered domains are malicious
- Average PC sends ~3,000 DNS queries per day
- **92% of Malware and C2s depend on DNS**
- It only takes one DNS query to compromise a network

DOMAIN ABUSE

- 76% of Orgs. in 2022 targeted by ransomware
- Traffic Distribution Systems (TDSs) are increasingly being used in phishing distribution to evade detection
- Fake gov't domains increased 30-40% in 2023
- **>300K lookalike domains detected in ~1 year**

DNS IS FRONT AND CENTER FOR RISK REDUCTION

A Strategic Solution with a Unique View



EASIEST WAY TO PROVIDE THREAT PROTECTION, BENEFITS OF SHIFT LEFT SECURITY

You have already DNS in place

Protect all devices, any system
anywhere including IoT/ OT,
included Application discovery

Reduce load on downstream
security devices, increase ROI.

Reduce security alerts to SecOps
and SIEMs, increase efficiency

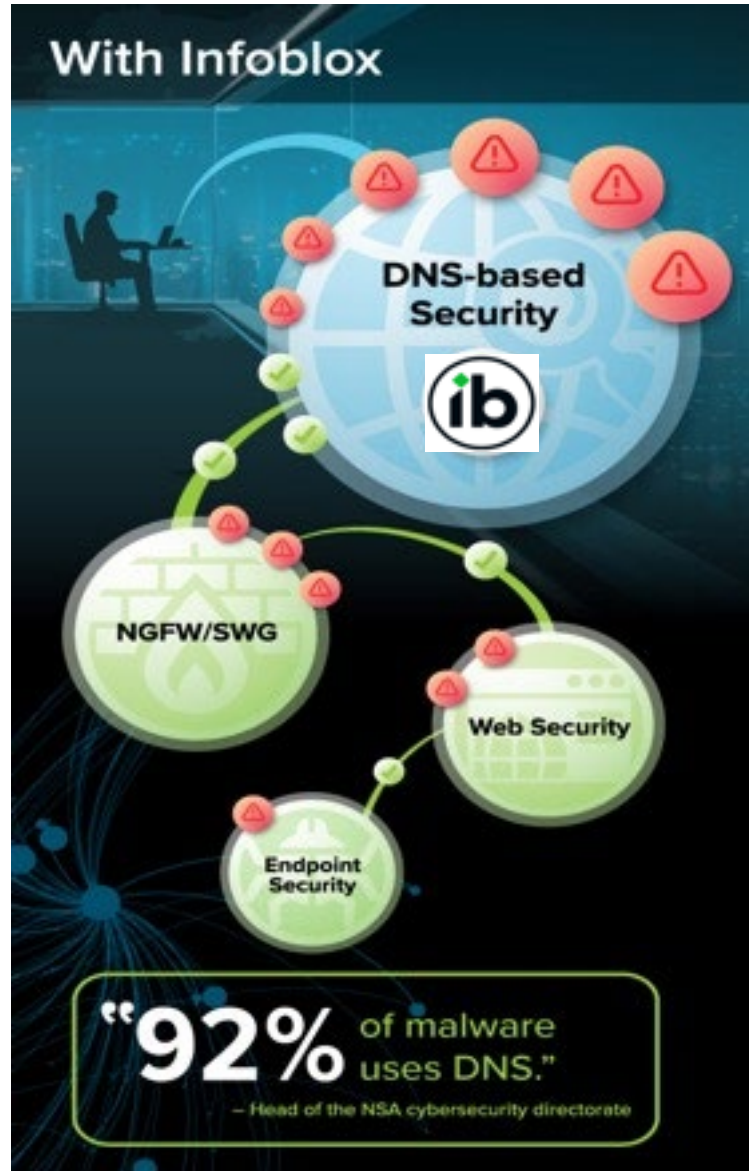
DNS based threat hunting to track
adversary infrastructure before
actual attack starts – e.g., Pre-
crime/suspicious domains, DGAs,
lookalike d



PAYBACK
 <6 months



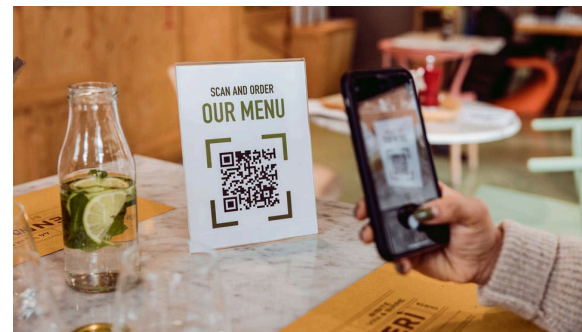
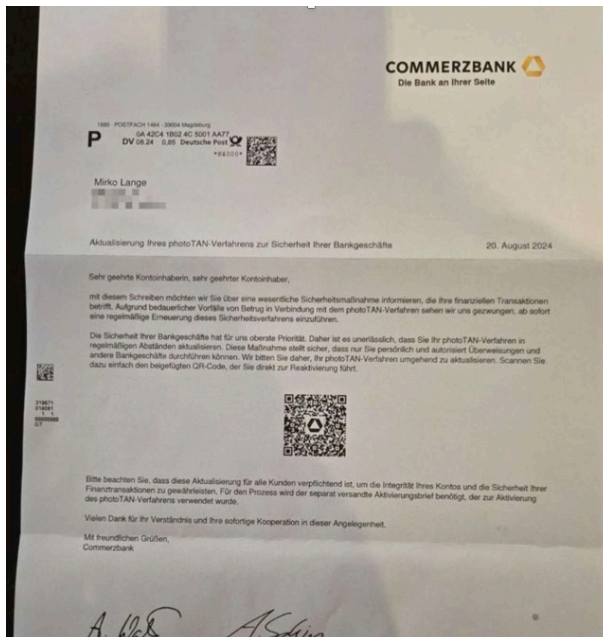
ROI
 243%



Fraud scam with QR codes: Quishing at parking machines




- Parking machines
- Charging stations
- Menus (restaurant, delivery service)
- Letter from the bank
- Timetable
- ...



FREE AI VIDEO TOOLS

<https://lumalabs.ai/dream-machine>

 **Luma Dream Ai**
Sponsored · ⚙️



🚀 Unleash your creative potential with luma dream, an advanced AI tool imbued with character that transforms text and visuals into captivating videos, spanning up to 3 minutes in length.

🚀 Simply enter your company's website URL to produce a refined 60-second HD video ad.

✅ Dive into the numerous capabilities of this flexible creative instrument, now accessible for all to explore.


✅ Give it a try today at : <https://luma-dreamai.com> – AI functionalities seamlessly incorporated... [See more](#)

CONVERT IMAGE TO VIDEO WITH AI



Reference Image

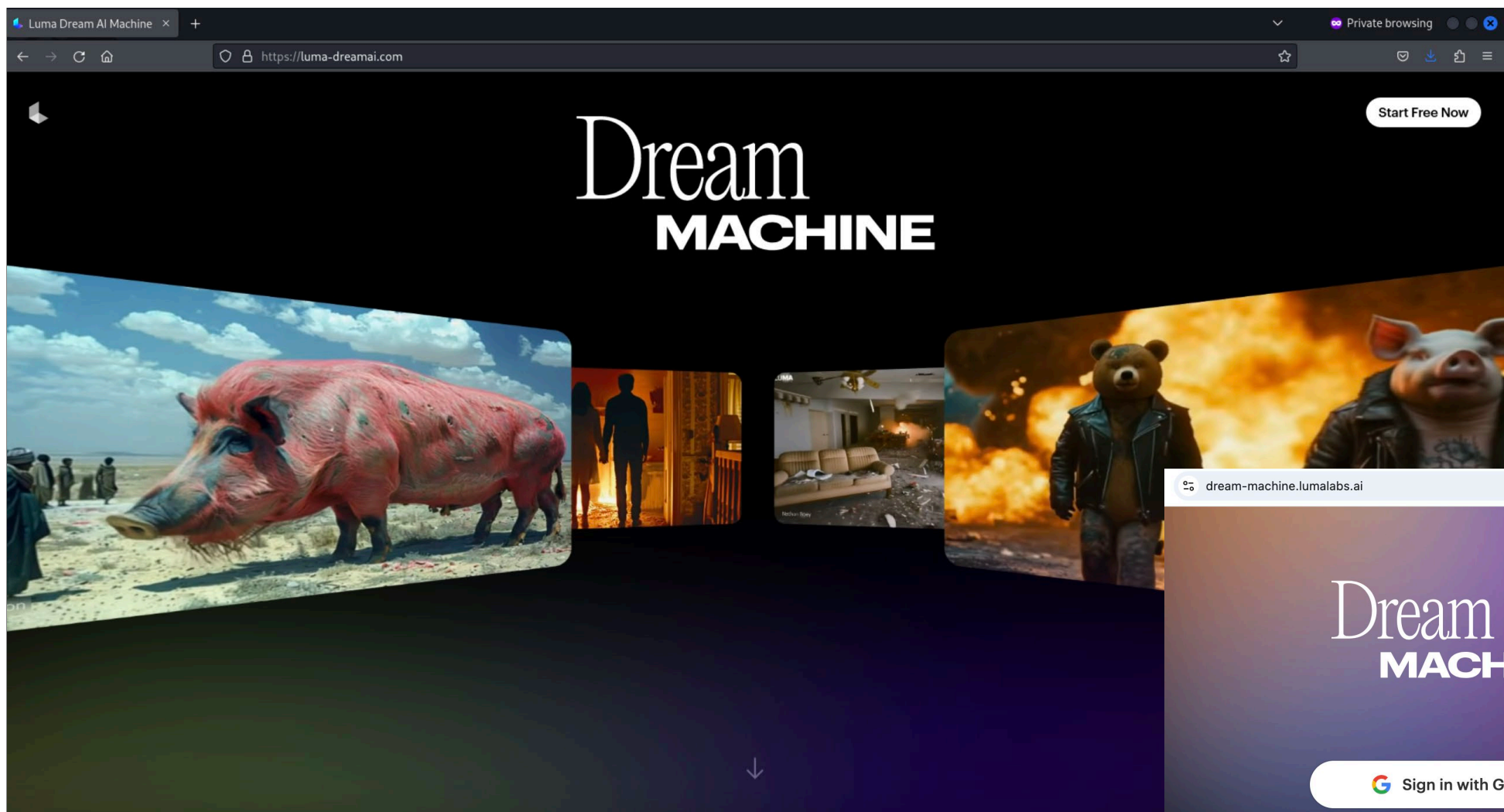
AI Video

Available for windows 

LUMA-DREAMAI.COM

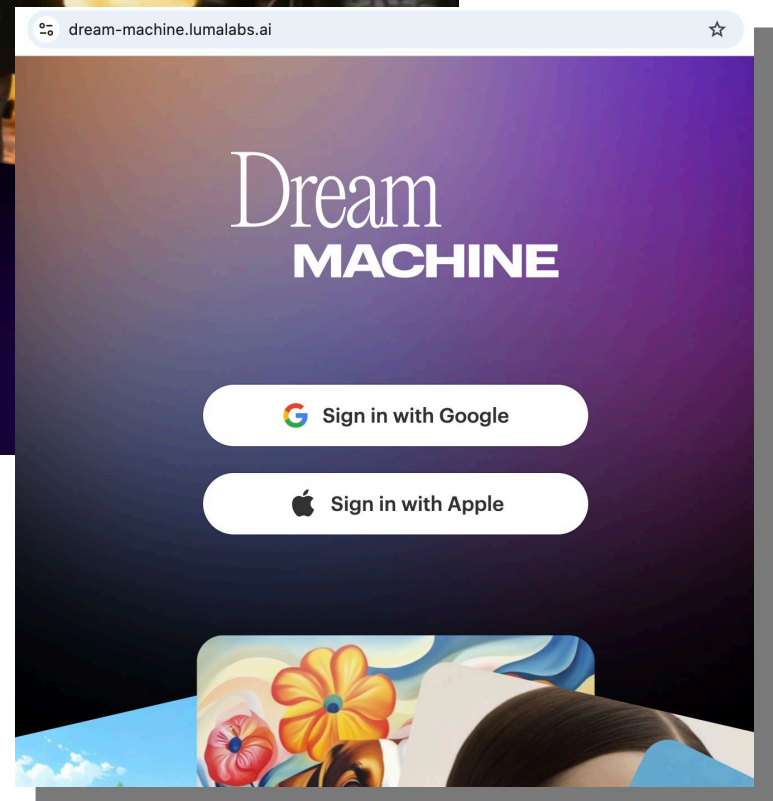
Experience now 🔥 Experience Creating 10 Video Clips And 10

[Learn more](#)



Fake

Correct





Create video with AI ✨


✦ Idea to video

Provide a brief description of your **video**, and let our AI handle the rest.

 Give a quick description of your idea



0 / 250

 Type some text or add an image...



Spring Fashion Trends

The Future of Marketing

Company Culture

Webinars on Medical Topics

Ai is Reshaping The Job Markets

From Athlete to Entrepreneur

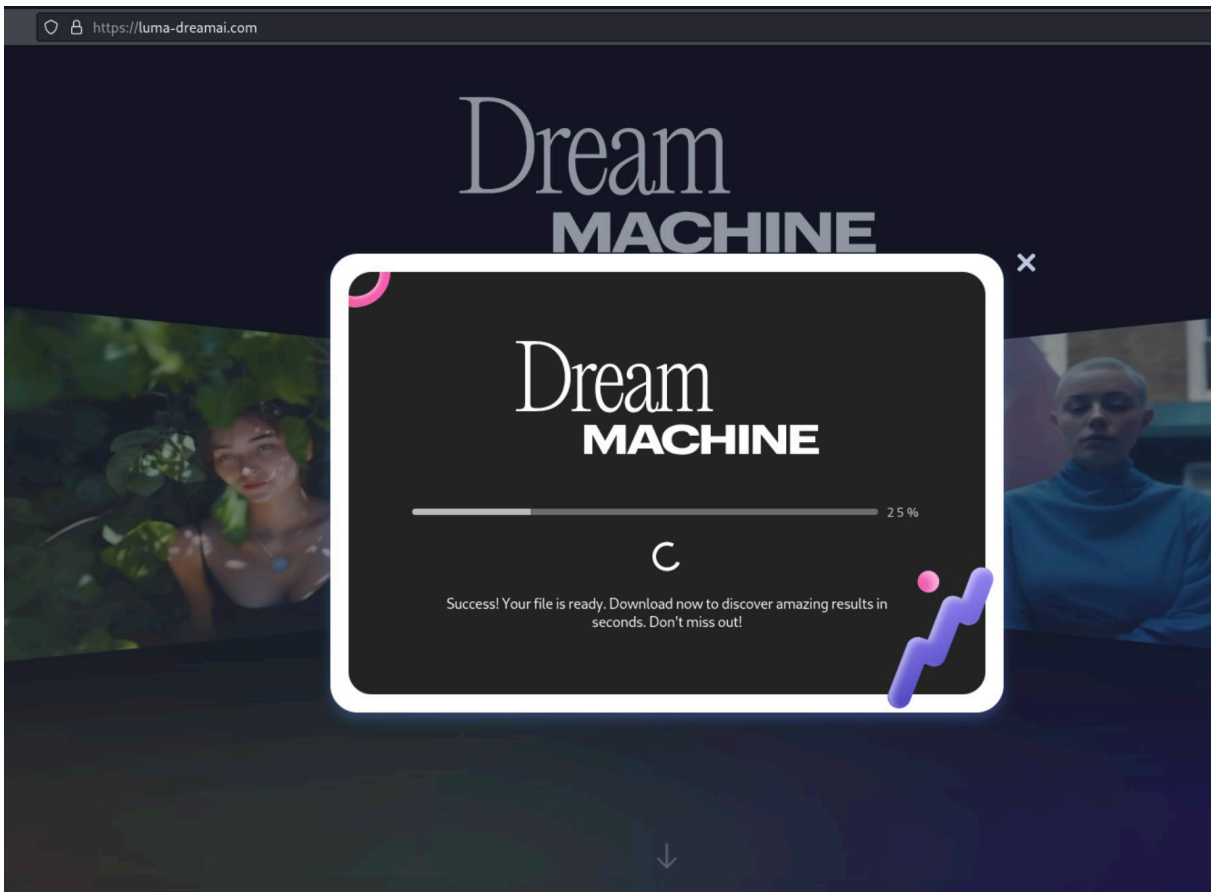
VR in Education

The Science of Learning

Financial Management Tips

Pop Culture News Updates





File type	Name
Portable Executable	AI_2025_1996298998129-2973200.mp4.exe

Inactive

Library ID: 1985372861901430

Nov 8, 2024 - Nov 8, 2024

Platforms

2 ads use this creative and text

See summary details

Luma Dream Ai
Sponsored

Edit photos and videos right in your browser without downloading complicated software. Advanced tool, easy to use, highly secure and compatible with all devices.


Try it now at: <https://lumaai-lab.com/>


Fast: Edit in minutes.

Powerful: Full of professional tools.

Safety: Absolute security.


CONVERT IMAGE TO VIDEO



Boost Creatives AI
...


Library ID: 26755989795937913
 Nov 8, 2024 - Nov 9, 2024
 Platforms 




2 ads use this creative and text


See summary details



Luma Dream Ai
 Sponsored



Boost Creatives AI 

 You are an individual or a business and are having problems creating a logo or clear 4K photos or videos for your campaign!


-  Does your staff take 1-2 days to complete it?
-  Boost Creatives AI ends in 60 seconds with powerful AI.
-  Create promotional videos for your website in 30 ...





Inactive


Library ID: 2810251359135934
Nov 8, 2024 - Nov 9, 2024
Platforms 
EU transparency 


[See ad details](#)





Luma Dream AI
Sponsored



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





CONVERT IMAGE TO VIDEO




LUMAI.AI/LAB.COM


Experience now  Experience Creating 10 Video Clips  Learn more 

 Inactive


Library ID: 921049429979903


Nov 6, 2024 - Nov 8, 2024


Platforms 


EU transparency 


See ad details


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 Create promotional content for your website in 30 ...

Inactive

Library ID: 526051910398899

Nov 6, 2024 - Nov 8, 2024

Platforms

EU transparency

See add details

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Sponsored

Edit photos and videos right in your browser without downloading complicated software. Advanced tool, easy to use, highly secure and compatible with all devices.

Try it now at: <https://lumai-dream.com>

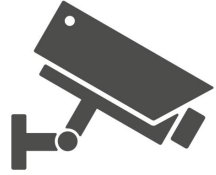
Fast. Edit in minutes.

Powerful. Full of professional tools.

Safety. Absolute security.

CONVERT IMAGE TO VIDEO

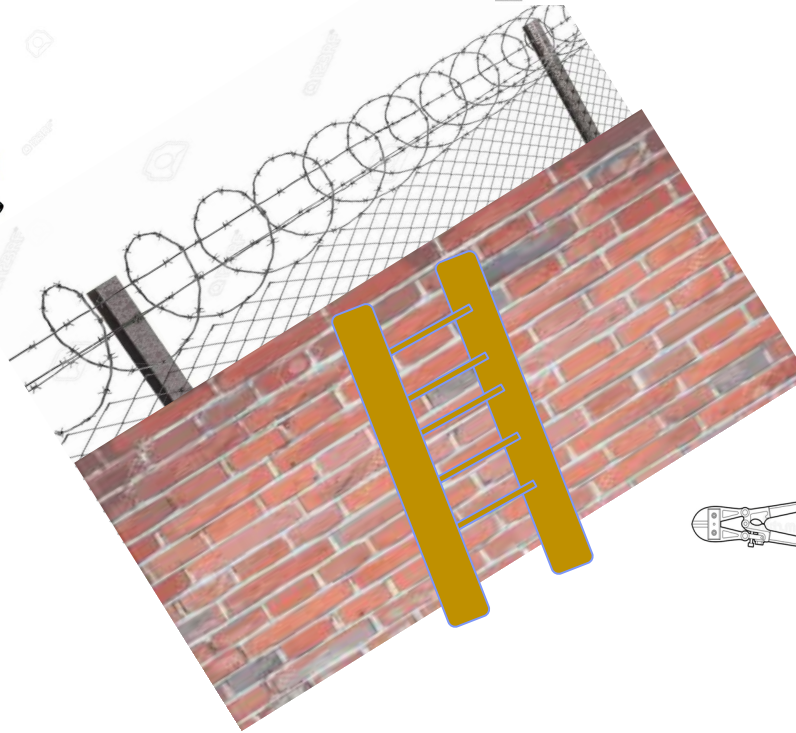
Burglar / Thief want to get into a company



"Safe company"



MOTION SENSOR



Attackers want to get into a company



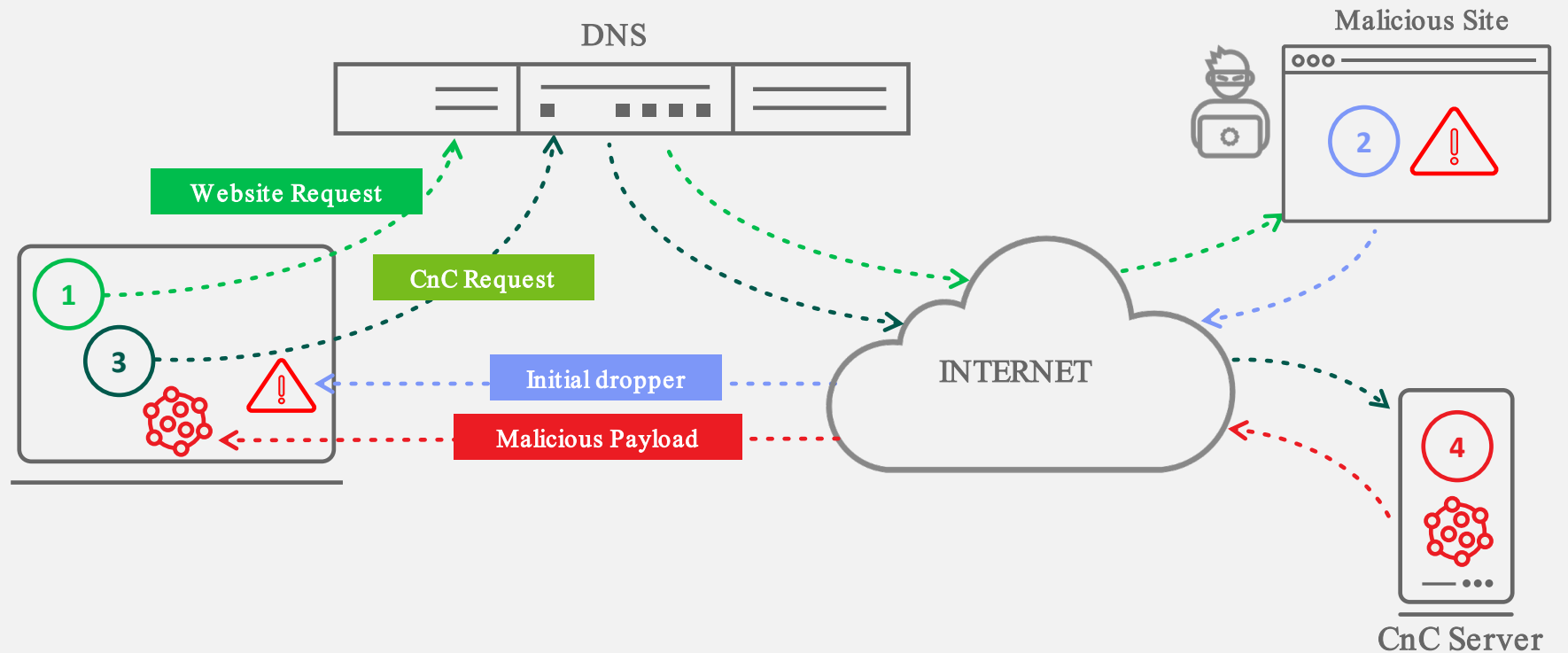
Common Attack Steps Review

1 User directed to malicious site

2 Website delivers initial exploit

3 Exploit contacts Command and Control (CnC) server

4 Malicious payload downloaded



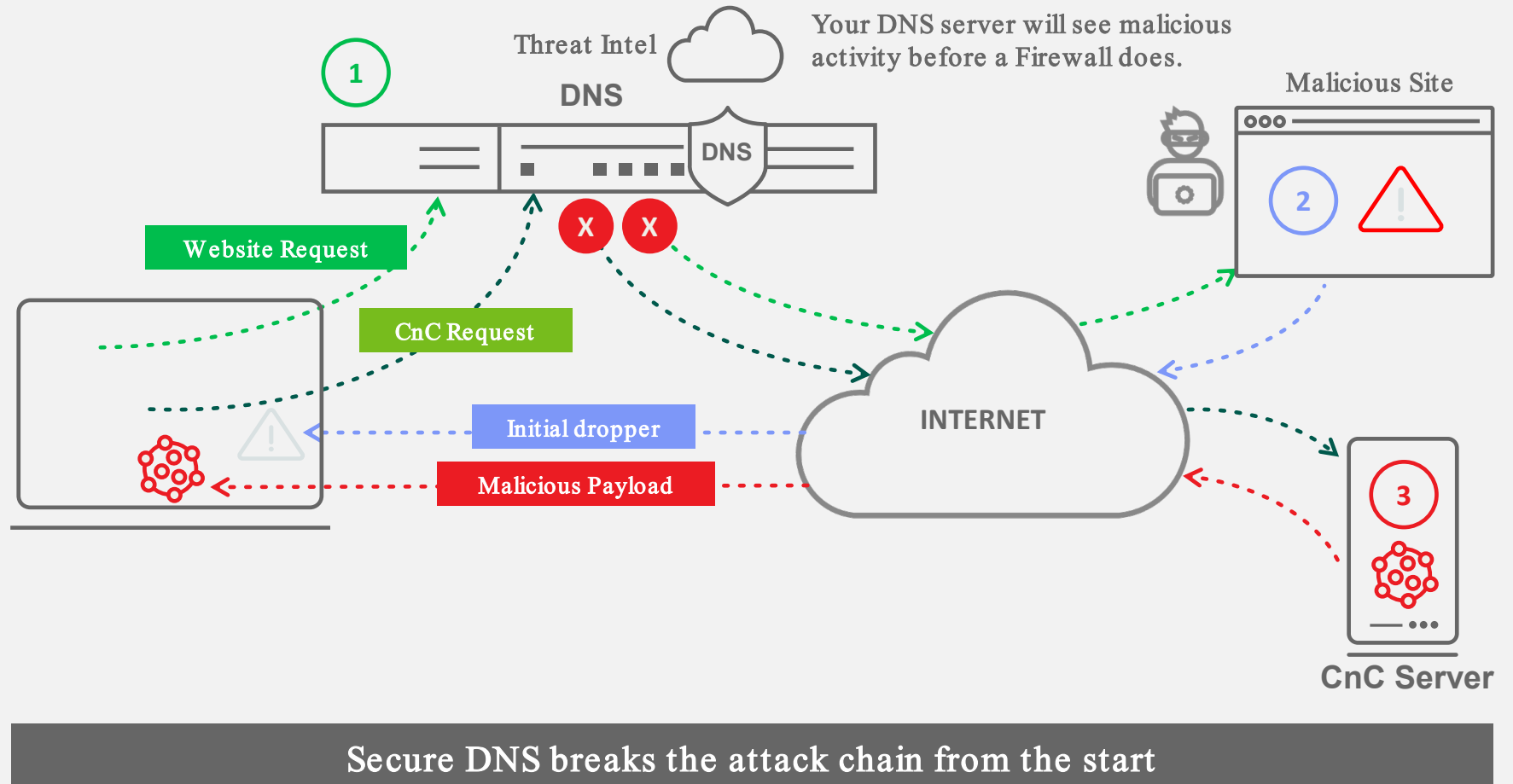
DNS is used for all outbound traffic requests

Leveraging DDI Intelligence for Foundational Security

1 Curated threat intelligence for DNS

2 Connection to malicious website blocked at DNS

3 If already infected, system blocked from connecting to CnC at DNS



SUSPICIOUS DOMAINS

DETECTION

- Cybercriminals use **aging** techniques to bypass New Domain Quarantine feeds.
- Infoblox categorizes **suspicious** new domains, lookalikes and others based on their **construction and/or behavior** reputation scores (Infoblox patented algorithm)
- When: before confirmation of any malicious activity.
- The **Suspicious** Feed allows our customers to optimize the chances of stopping major attacks **before they happen** and **respond quickly** to the ever-changing threat landscape



In total in 2024, the customer-reported false positive rate was below 0.0002%



Infoblox has identified 16 million suspicious domains as of August 2024

✓	▼ Suspicious	(16,902,389)
✓	Suspicious_Behavior	(22,490)
✓	Suspicious_DGA	(3,053,848)
✓	Suspicious_EmergentDomain	(3,266,944)
✓	Suspicious_Generic	(8,296,430)
✓	Suspicious_Lookalike	(471,227)
✓	Suspicious_Nameserver	(1,589,298)
✓	Suspicious_Phishing	(54,754)
✓	Suspicious_RDGA	(43,551)
✓	Suspicious_Registration	(57,564)
✓	Suspicious_Spam	(46,283)

DNS THREAT HUNTING - DNS FINGERPRINTS (SIGNATURES)



DNS Minutiae Patterns:

Hosting IP addresses

Name servers

Mail servers

CNAME records

Registrars

Registrant organizations

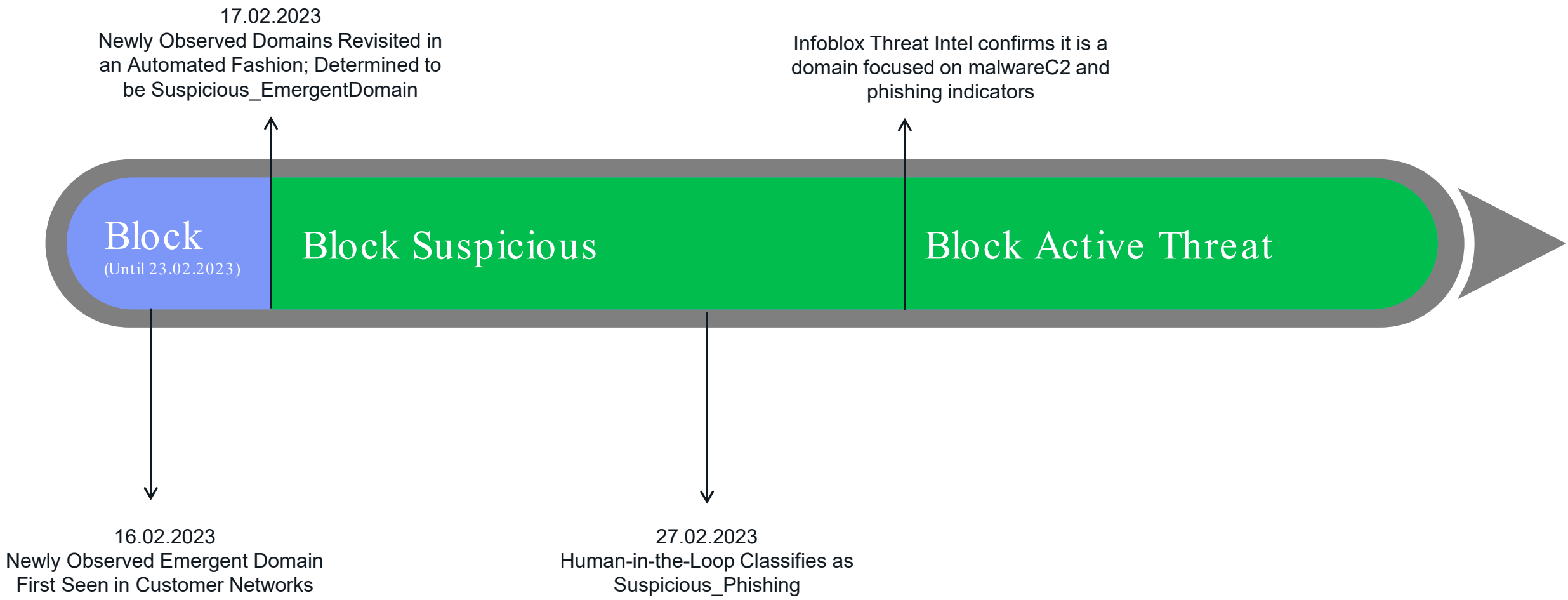
SOA Records

TTL Values

EMERGENT DOMAINS

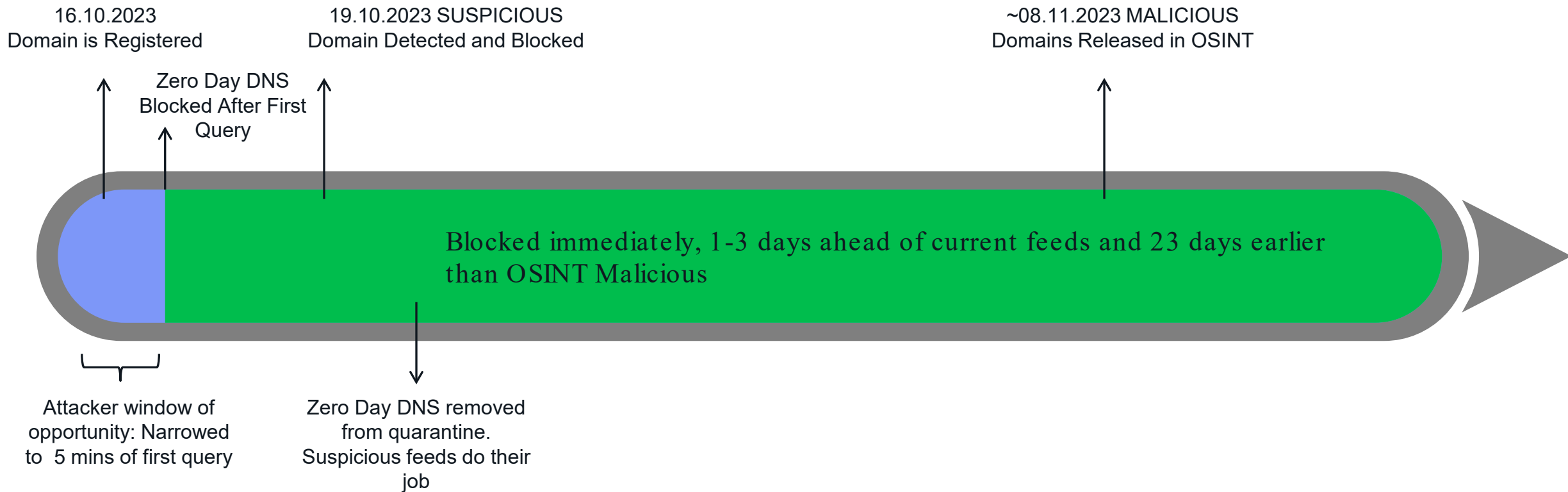
INDICATOR EKISENOS-JP[.]TOP

+10 days average time between domain registration and first malicious query

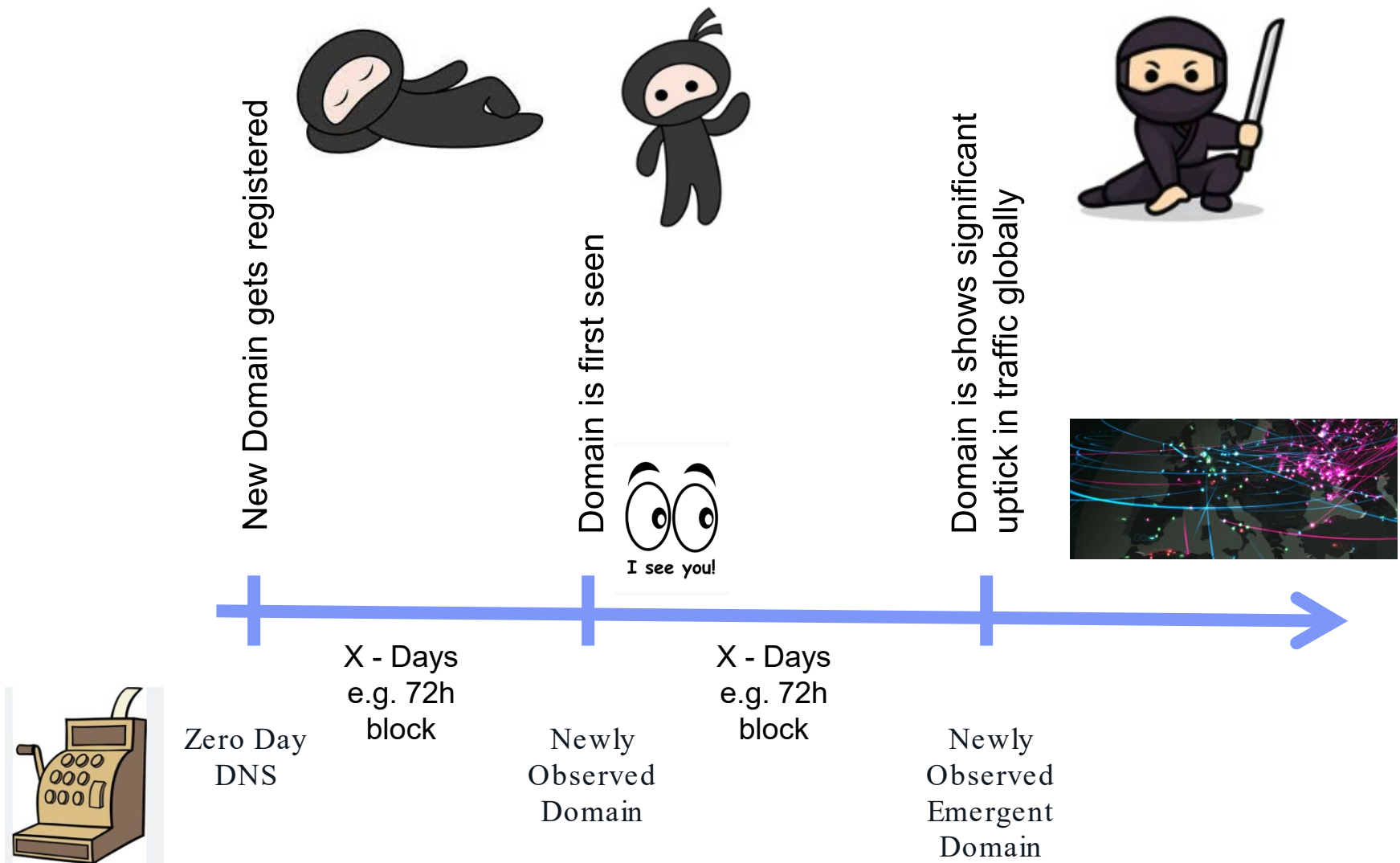


ZERO DAY DNS™

- Attackers are registering and using lookalike domains almost immediately as part of targeted spear phishing attacks
- Infoblox's Zero Day DNS™ capability blocks threats from first-seen domains that are registered just minutes to hours before being used in an attack
- Near real-time monitoring/intercepting targeted attacks like spear phishing



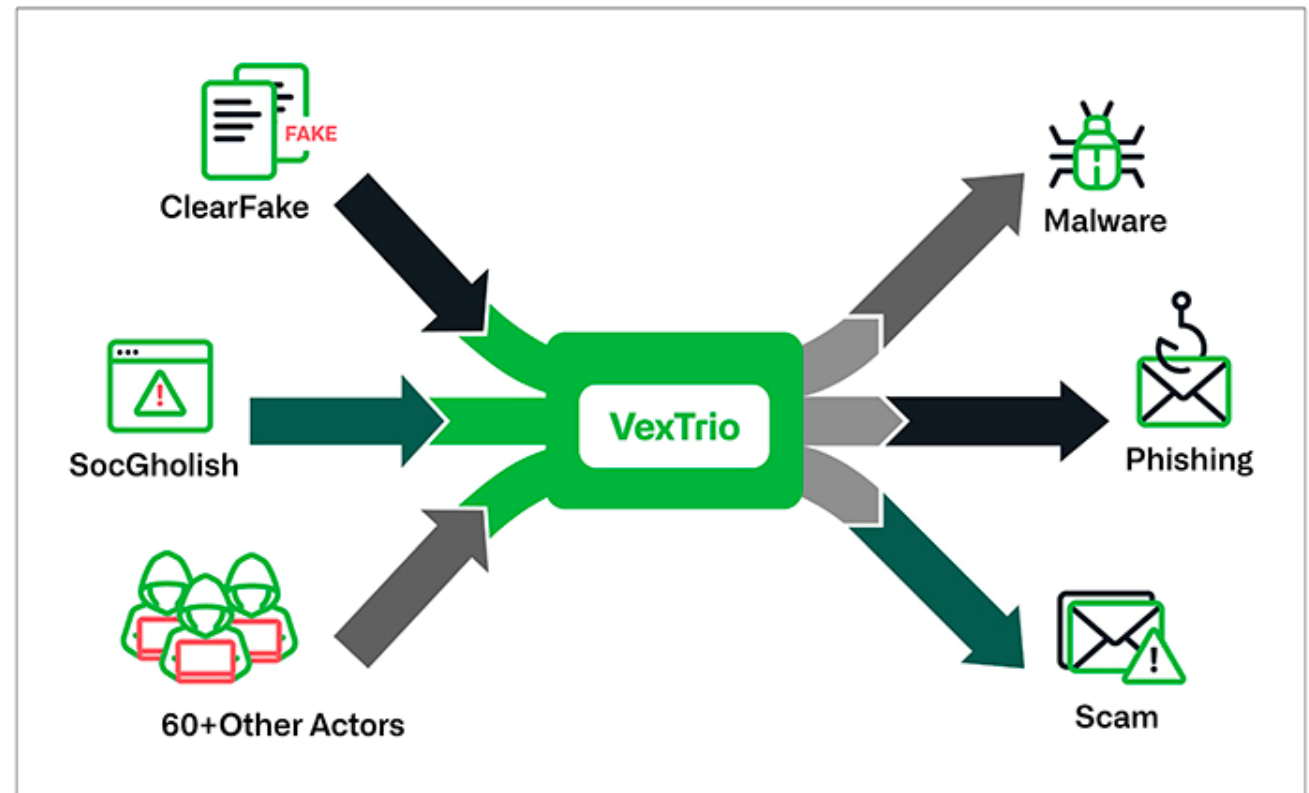
Newly-Registered, -Observed, -Observed Emergent Domains



CYBERCRIME CENTRAL: **VEXTRIO** OPERATES MASSIVE CRIMINAL AFFILIATE PROGRAM



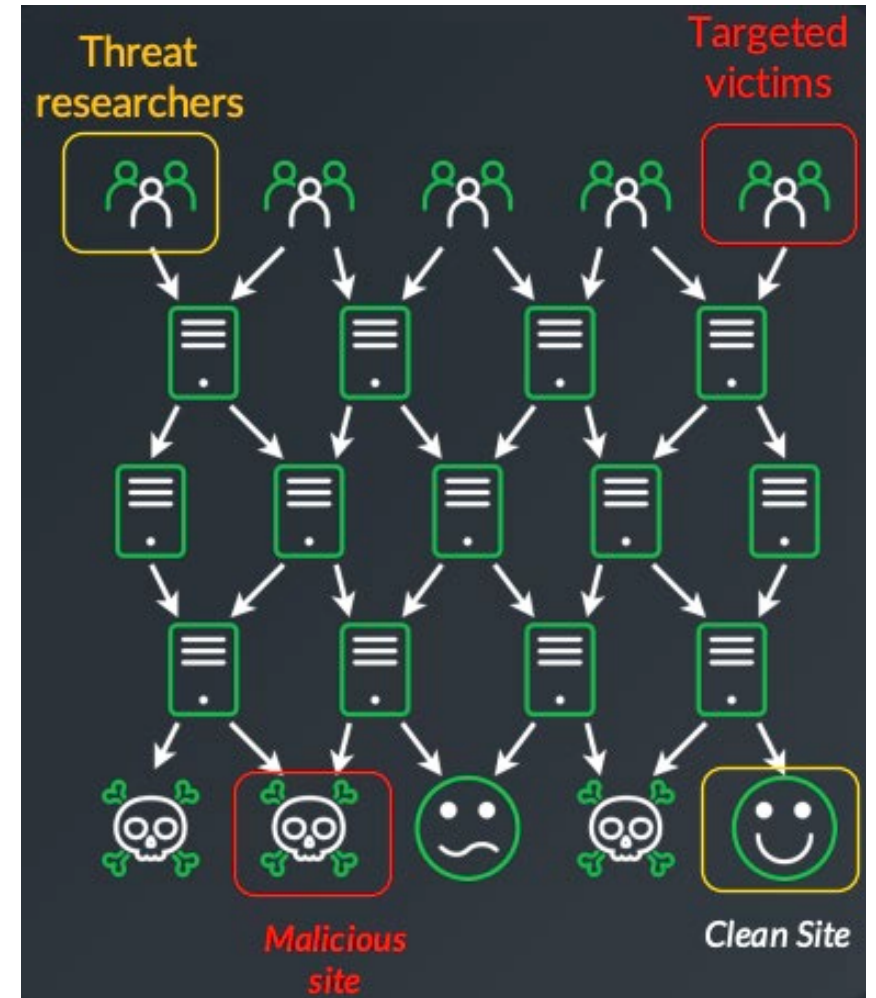
- SocGhosh and ClearFake are most associated with malware and fake software update pages.
- VexTrio operates **traffic distribution systems** (TDSs)
- All are a part of the cybercrime economy.
- VexTrio is the **single most pervasive** threat in our customers' networks.
- Of VexTrio more than 70k known domains, **nearly half** have been observed in customer networks.
- We found Vextrio in **over half** of all customer networks in the last two years.



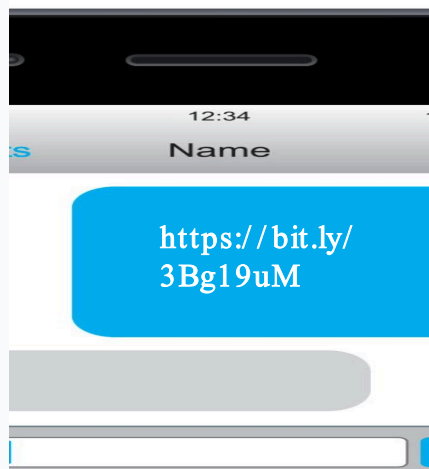
=> block the infrastructure!!

Traffic Distribution Systems

- 50% of customer networks
- +600,000 Registered domains
- TDSs exist for years and are resilient to take-downs
- DNS is the best place to stop cybercrime using a TDS
- TDSs route victims through a maze of domains delivering malicious content and throw off researchers.
- Redirection can be done on multiple techniques.



EXAMPLE – PROLIFIC PUMA



Legitimate Link Shortening Service



Illegitimate Link Shortening Service – Prolific Puma



Attackers can't use Bitly to shorten their links

So they use Prolific Puma malicious link shortening service

Since April 2022, Prolific Puma has registered up to **75k** unique domains

If you know what the attackers are using, you can block their supply chain

Infoblox Actor Naming Convention

Descriptor:

Chosen by Threat Researcher

+

Animal:

Defined by DNS Technique



Rabbit Registered Domain
Generation Algorithm



Lizard Lookalike Domain



Meerkat MX Abuse



Hawk Hijack Domains



Puma TDS Link shortener



Viper TDS HTTP Based



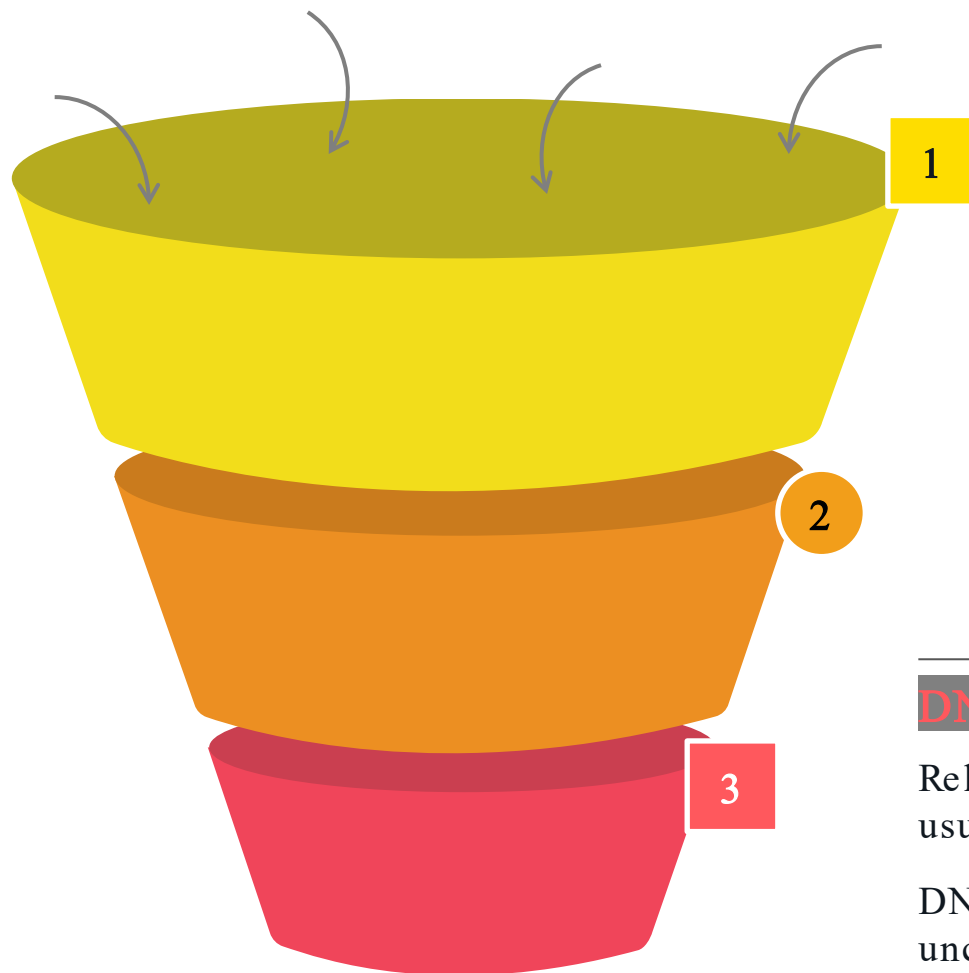
Seahorse TDS DNS CNAME



Dog DNS C2 Malware

THREAT INTEL

EMERGENT/ SUSPICIOUS, MALICIOUS AND THREAT ACTORS



Suspicious Domains and IP Addresses

Large volume, low regret of blocking, emergent threats

Broad based methods that involves reputation, proximity to existing bad infrastructure, and patterns of registration or queries

Malicious Domains and IP Addresses

Medium volume, very high confidence of malicious intent

Analytics that are tied to specific bad actor techniques and infrastructure

DNS Threat Actor

Relate domains and IP addresses to the same actor, usually persistent

DNS fingerprint driven analysis and review of unclassified domains or previous detections

DISRUPTING THE SECURITY INDUSTRY

Our Differentiated Approach



INFOBLOX

- **DNS-focused**
 - Domain name features
 - Registration features
 - Resource record features
- **Upstream**
 - “Leans Left” – prevention

TYPICAL SECURITY VENDOR

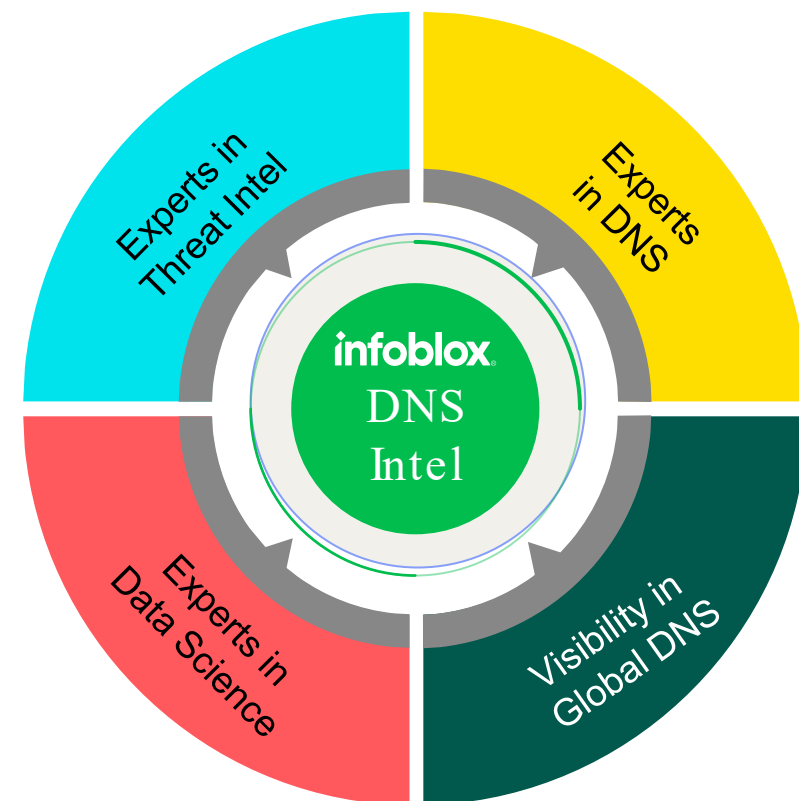
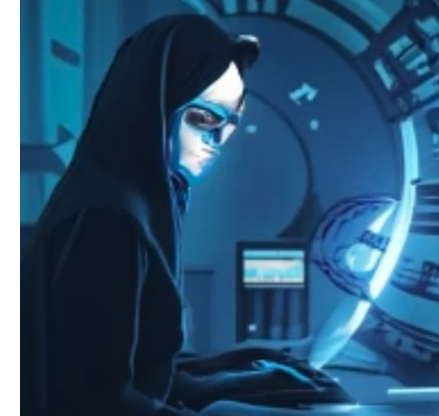
- **Malware-focused**
 - What malware is used?
 - How and where is it deployed?
 - What are the capabilities?
- **Downstream**
 - “Leans Right” – mitigation

Infoblox Threat Intel

DNS All Day, Every Day

DNS is notoriously tricky to interpret and hunt from, but our deep understanding and unique access give us a high-powered scope to zero in on cyber threats.

- **75%** of threats detected before the first DNS query!
- **63 days** of protection on average before OSINT!
- **0.0002%** false positive rate (2023)
- **+20 million** new suspicious and malicious indicators
- **4 Million** new indicators added per month
- **70 Billion** DNS events analyzed daily
- **>500 Hours** SOC analyst hours saved per month
- **400K USD** SOC Productivity savings per year

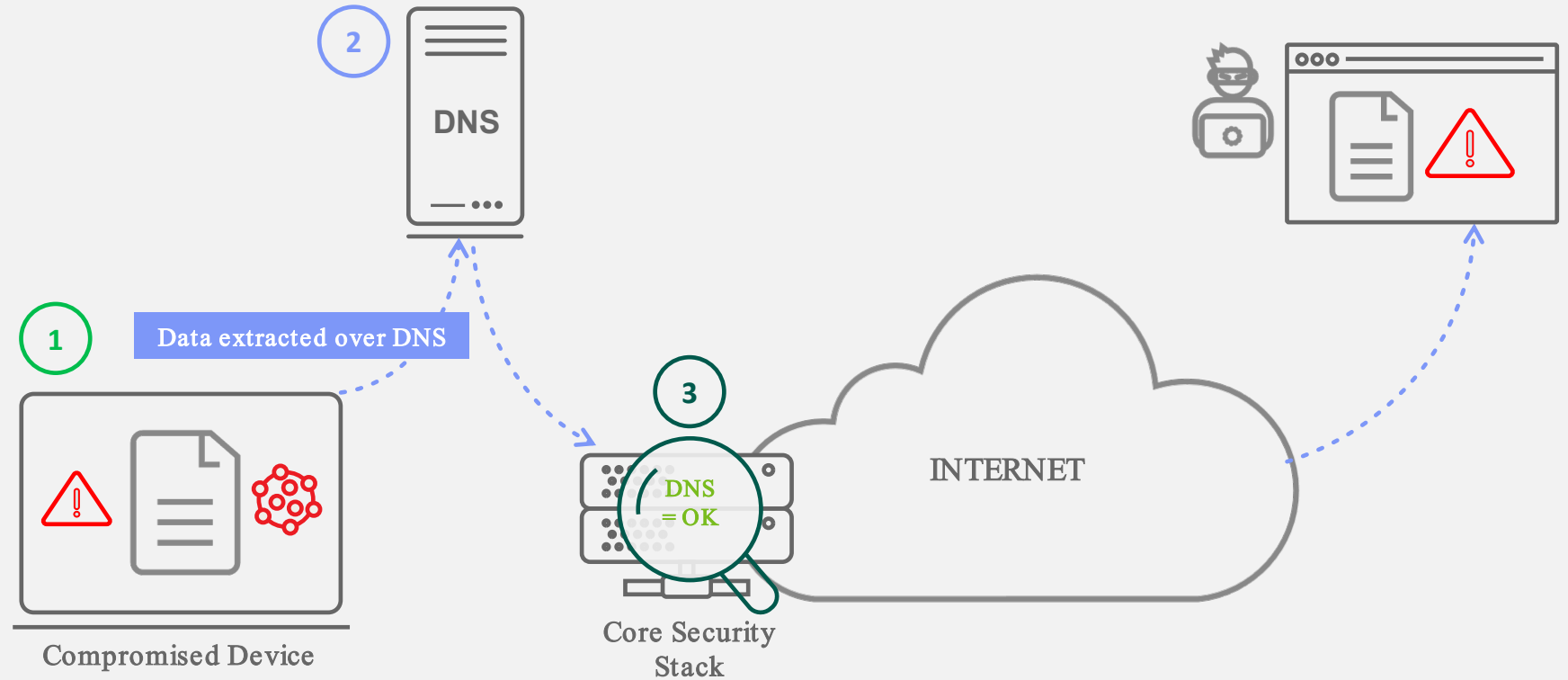


Data Exfiltration over DNS

1 Malware on device seeks sensitive data

2 Malware uses DNS channel to send data

3 Traditional security does not inspect DNS traffic



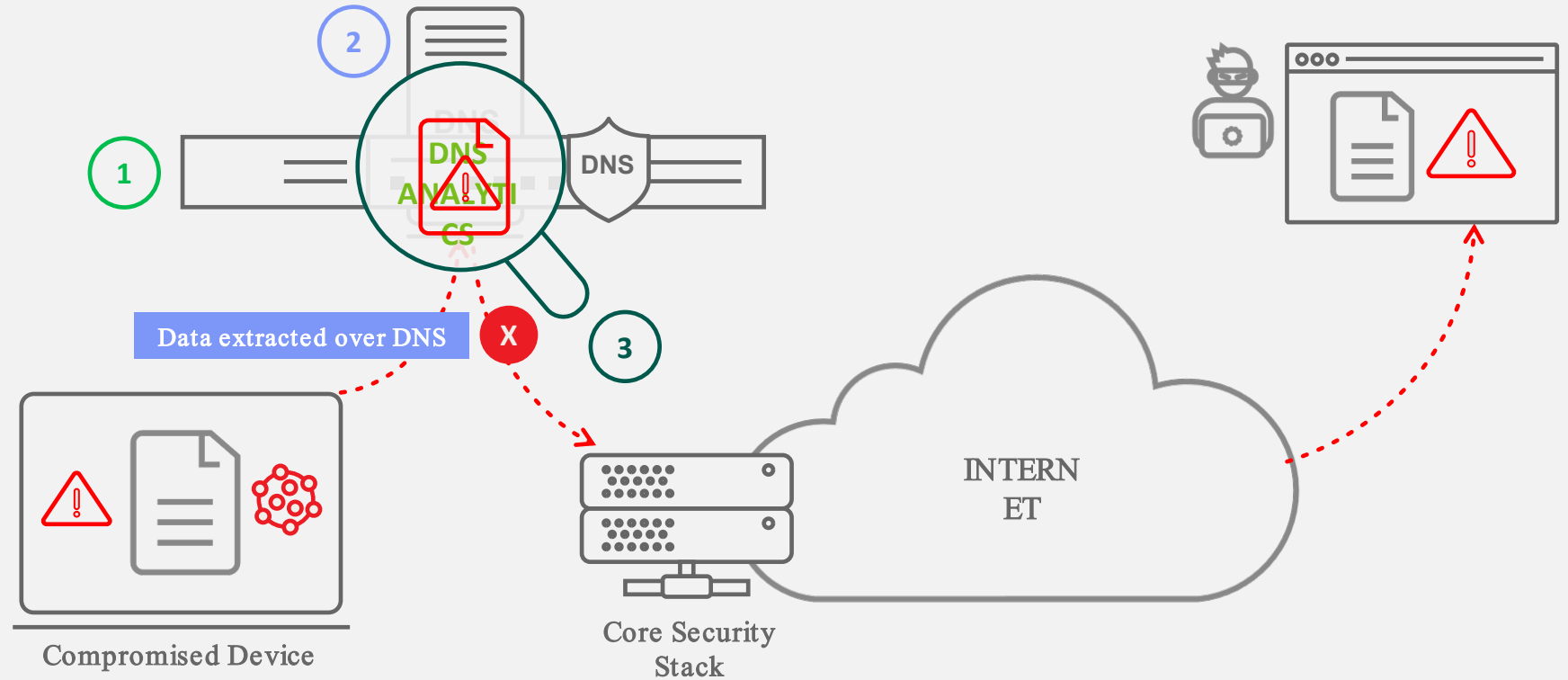
Sensitive data tunnelled over DNS protocols to avoid detection

Protecting Against Data Exfiltration over DNS

1 DNS with threat intelligence and analytics

2 Machine learning analytics inspects DNS traffic, detects data exfil

3 Data prevented from exiting enterprise by blocking DNS request to destination



Attempted data exfiltration over DNS protocols detected and blocked

Detecting DNS Tunnels & Data Exfiltration

Infoblox approach



Signature

Use **Advanced DNS Protection** to detect and block all known DNS Tunneling tools (in hardware, at line speed)



Reputation

Use **DNS Firewall** to automatically block known tunnel, C2 and data exfiltration endpoints and newly registered domains

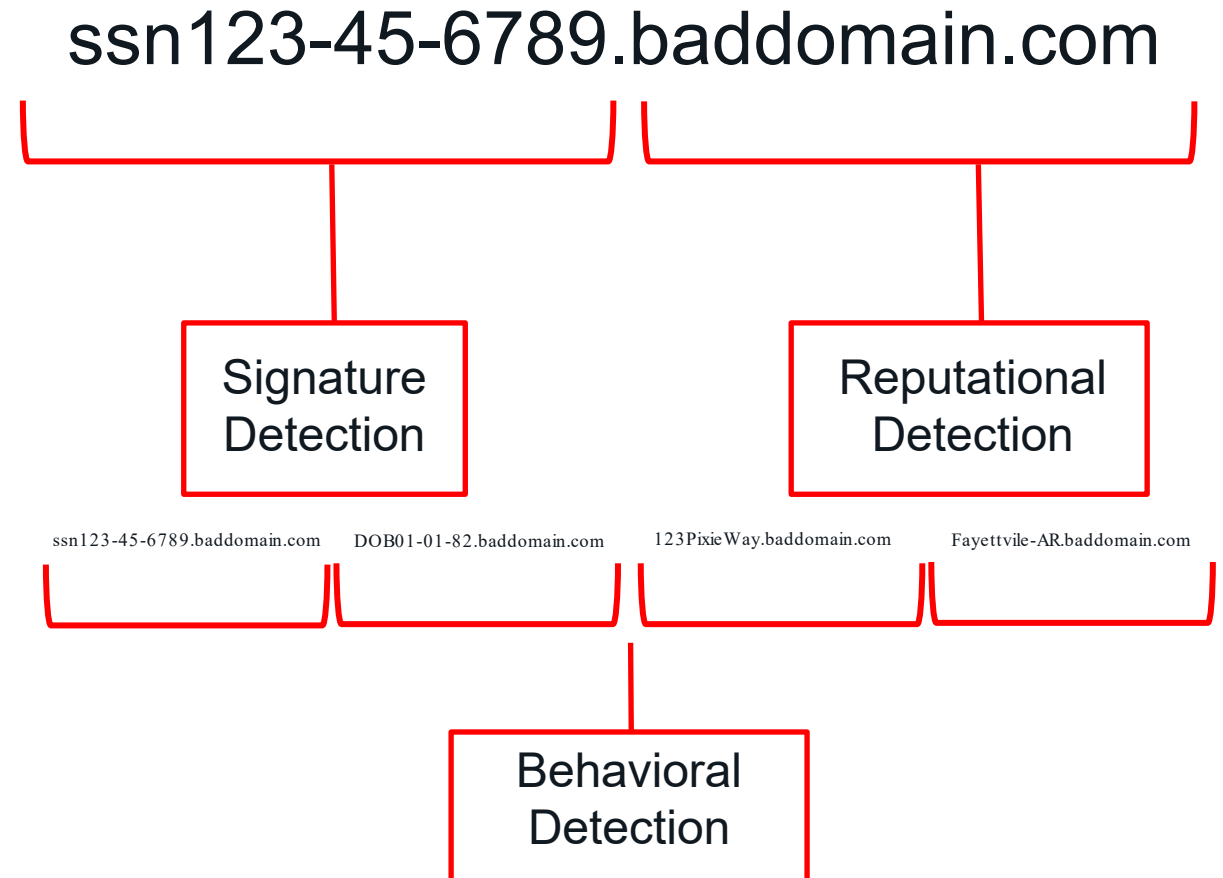
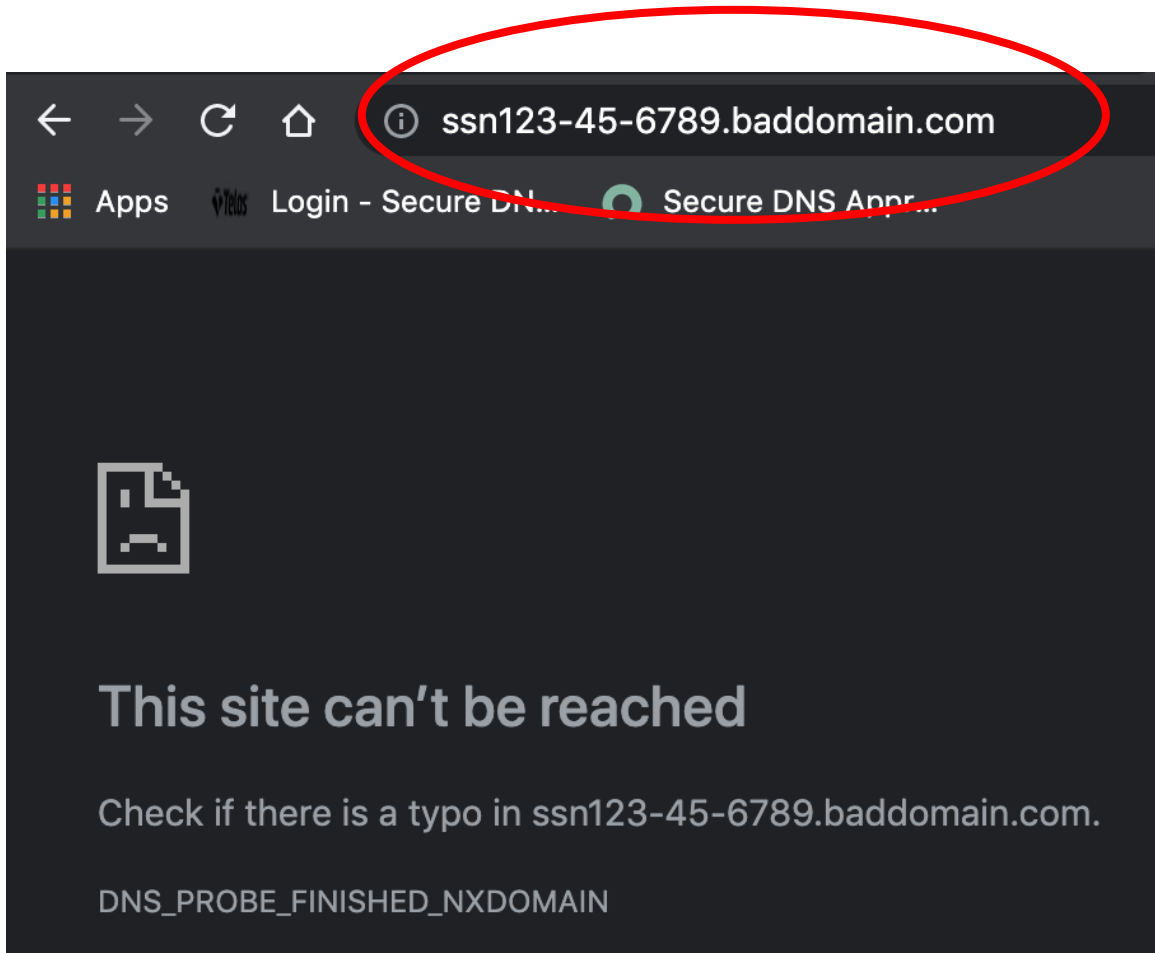
01100
10110

Behavior

Use **Threat Insight** to detect and block zero day data exfiltration, using real-time streaming analytics to mitigate against previously unseen code

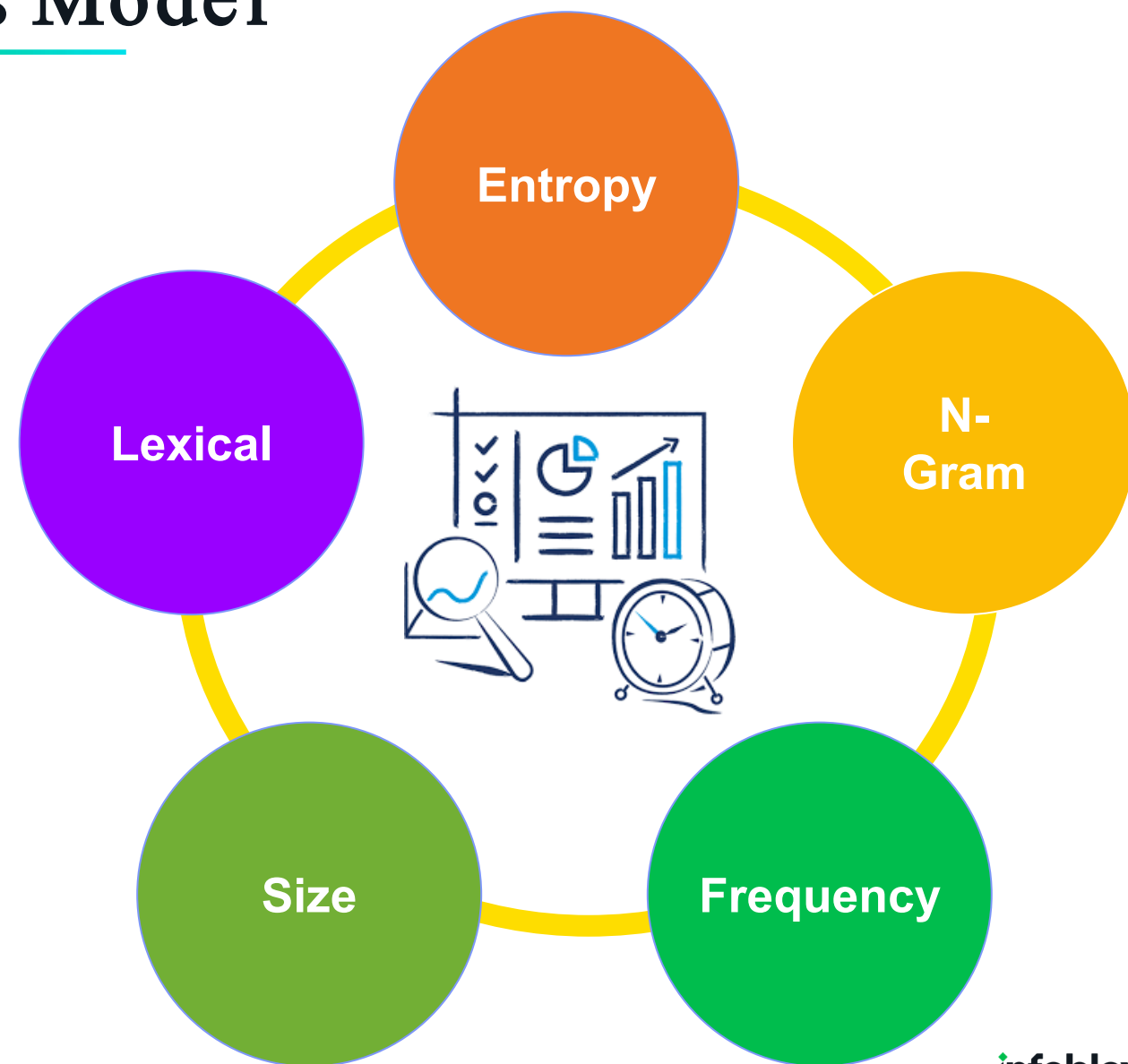
PROTECT

DETECTING BAD DOMAINS



DNS-Layer Threat Analysis Model

- Detects transmission of data in DNS queries using behavioral analysis
- Examines all DNS records (e.g.: A, AAAA, MX, TXT, CNAME, SVR, SOA, ...)
- Machine Learning / AI



Average time to identify and contain a data breach



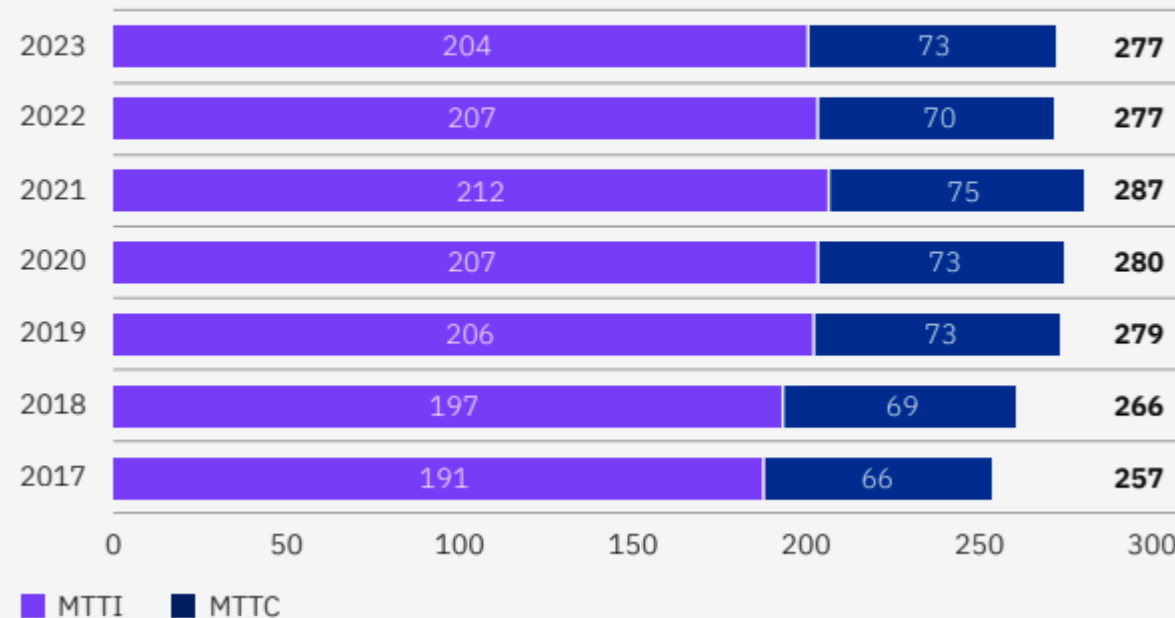
Can the attackers also download large files?

- Think like an attacker!!
- I don't want to get caught.
- Does it matter to me how long it takes to download a file?
- Can I tackle several things in parallel?

IBM Security
Cost of a Data Breach Report 2023

Die Zeit zur Identifizierung und Behebung der Verletzung

Angaben in Tagen



DoT & DoH

- Two evolving improvements to DNS privacy have recently made the news:
 - DNS over TLS (Transport Layer Security) or "DoT"
 - DNS over HTTPS or "DoH"
- Mechanisms promote consumer privacy but allow users to circumvent established enterprise DNS controls.
 - Exposure to data exfiltration and malware proliferation

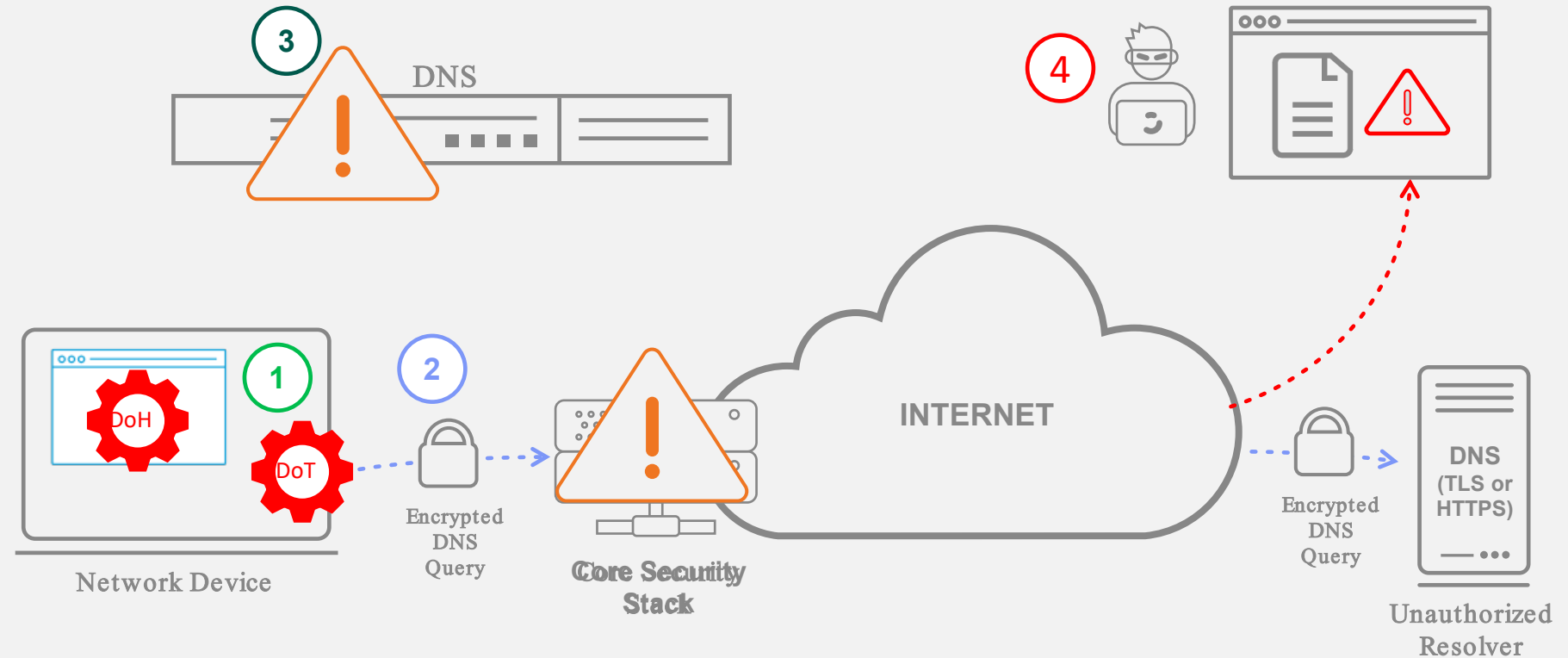
Privacy



Security

DoT/ DoH: Bypass of Enterprise DNS is a Challenge

- 1 Device (TLS) or browser (HTTPS) is configured with unauthorized DNS Resolver
- 2 Encrypted DNS queries sent to external resolver
- 3 Internal DNS Resolver bypassed, and DNS traffic not inspected
- 4 Attackers can exploit DoT for their own purpose



DoT/DoH “HIDES” DNS traffic from your security tools

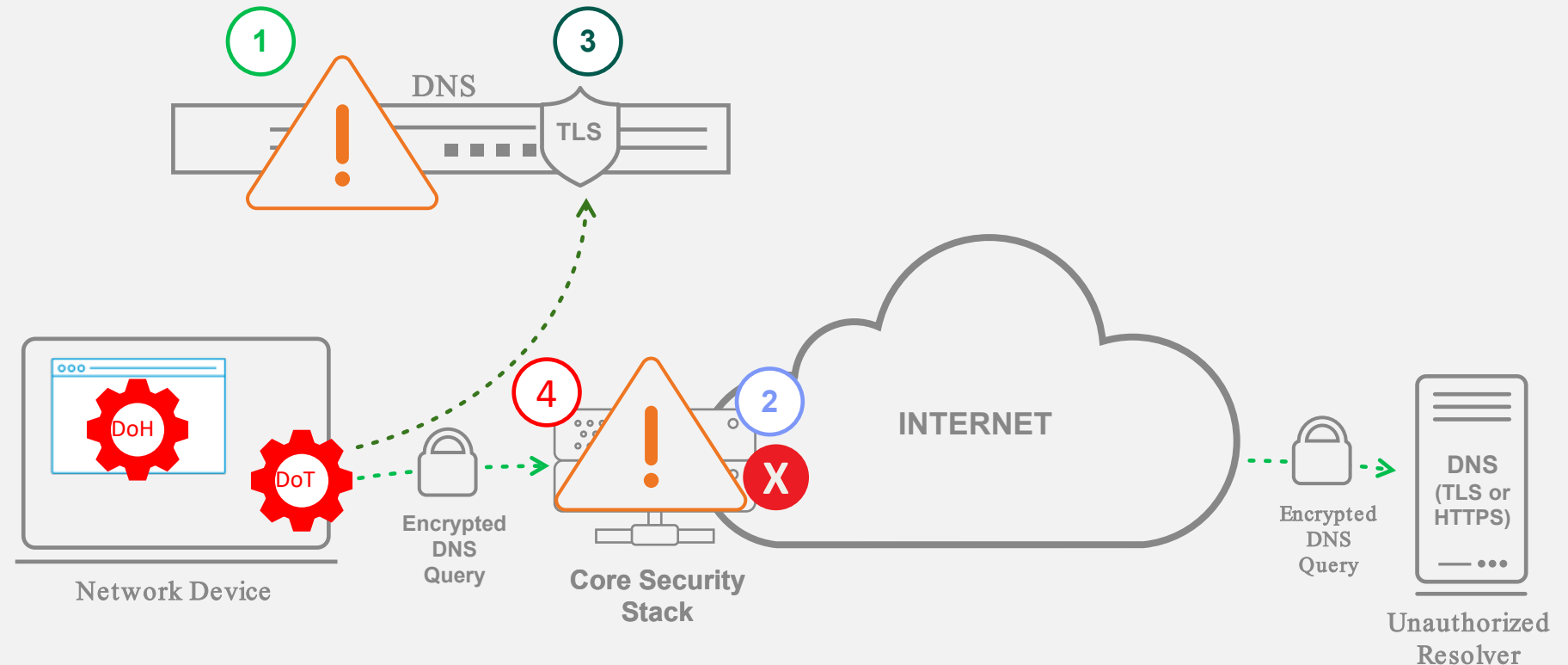
DoT/DoH Best Practices

1 Circumventing internal DNS is a bad idea

2 Block Access to unauthorized DNS servers

3 Use internal DNS vendor that supports DoT to retain control and security

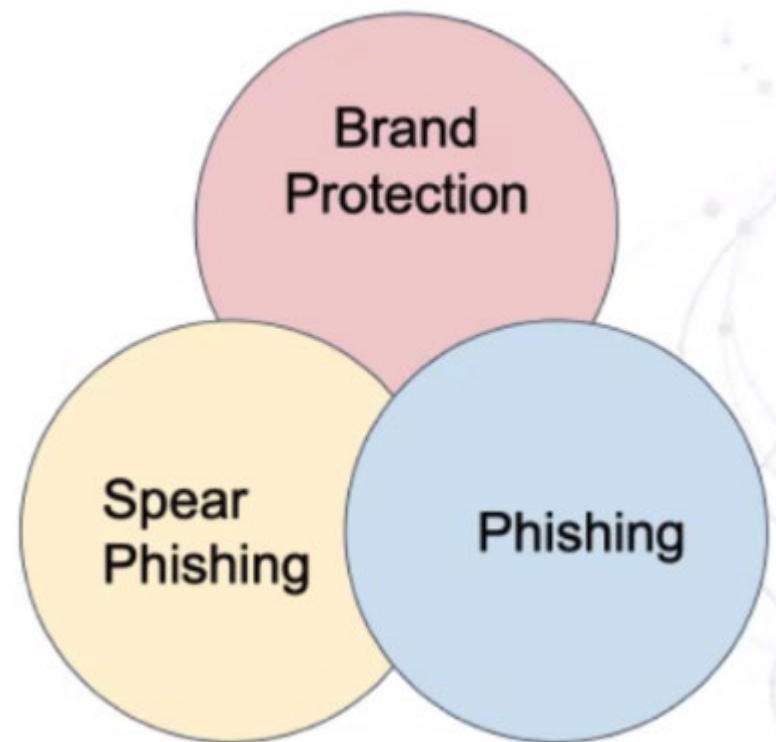
4 Block DoH using Threat Intel List of Canary and unauthorized resolvers



DoT/DoH Best Practices protects your users and devices

Use Cases: Brand Reputation, Phishing / Spear Phishing

- **Brand Protection:** Protecting customer's own domain from harm via impersonation (Example: using infoblocks.com to harm our customers). Alerts on creation or discovery of domain.
- **Spear Phishing:** User visiting lookalike of company's own domain (Example: user visits Infobloxbenefits[.]com) Alerts when domain is visited.
- **Phishing:** Local users visiting global lookalikes (Example: user going to g00gle.com) Alerts when domain is visited.



LOOKALIKE DOMAINS

EVERYONE IS A TARGET – EVEN US!

Official



Fake



A comparison of logos between the official Infoblox.com website (L) and the fraudulent Infoblox.com (R)

Infoblox.com and Infoblox.com Arial– Infoblox.com and Infoblox.com Aptos

Lookalike Domain Detection

paypal.com

paypał.com

paypal.com

Text

xn--pypl-53dc.com

xn--pypl-btac.com

paypal.com

Punycode

google.com

google.com

google.com

Text

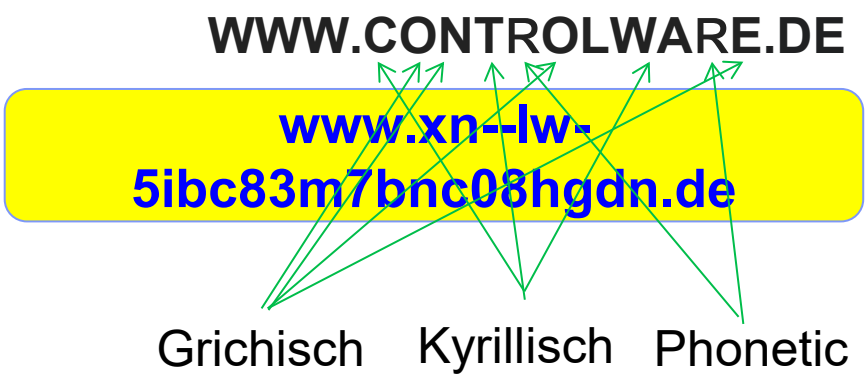
google.com

xn--ggle-0nda.com

xn--ggle-55da.com

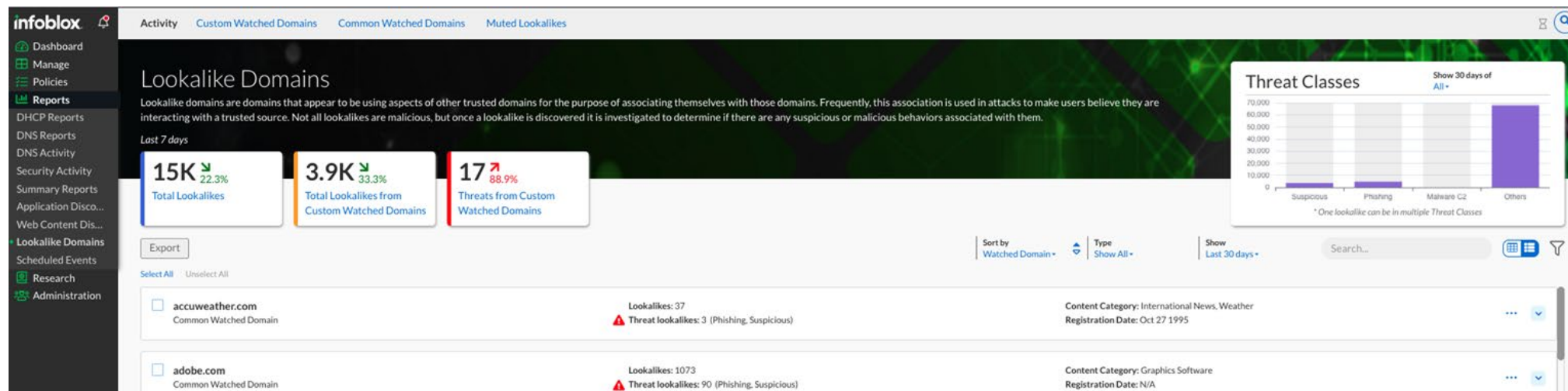
Punycode

Lookalike Domain Detection



www.controlware.de	www.controlware.de	www.controlware.de	Text
www.xn--controlwae-tue.de	www.controlware.de	www.xn--controlwre-nge.de	Punycode

Lookalike Domain Detection



Custom Watched Domains

You can add up to 10 custom watched domains.

Create Import Edit Remove

DOMAIN

almond.eu

durex.com

Common Watched Domains

Infoblox is tracking over 100 of the common domains used.

Enable Disable

DOMAIN WATCHED

accuweather.com On

active.aero Off

adobe.com On

Infoblox Domain Mitigation Services Optimized to Combat Emerging Internet Fraud Incidents



➤ Validation:

- human-driven review of potential internet fraud
- providing a detailed summary of our in-depth review.
- Response times of five minutes or less during regular business hours.
- Once our review is underway, we can typically remove domestic internet fraud within 24 hours.

➤ Mitigation:

- Continuous removal effort to each case, with multiple escalations for cases that cannot be resolved within 24 hours.
- We leverage our established relationships with ISPs and communication service providers to prioritize your case in abuse queues and ensure the issue is resolved quickly.
- We also offer registered trademark enforcement to protect your brand reputation.

➤ Monitoring and reporting

- We keep track of potential threats.
- We monitor mitigated threats to address potential reactivation.
- Our mitigation services remain in effect for up to 30 days.

BloxOne® Threat Defense Advanced



Unified
Reporting



Cloud Services
Portal



Ecosystem I/O
APIs



Data Connector



Threat Insight
Behavioral



Reputational
Threat Intel



DNS Firewall

Cloud/On-Prem/Hybrid



Dossier Threat
Research



TIDE
Intel Sharing

Globally available recursive DNS and web filtering



OnPrem
Infoblox Grid



Cloud
Public, private



Endpoint
Client



Remote Office
DNS Forwarding Proxy

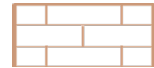
SIEM



Vuln
Scanner



Firewall



TIP



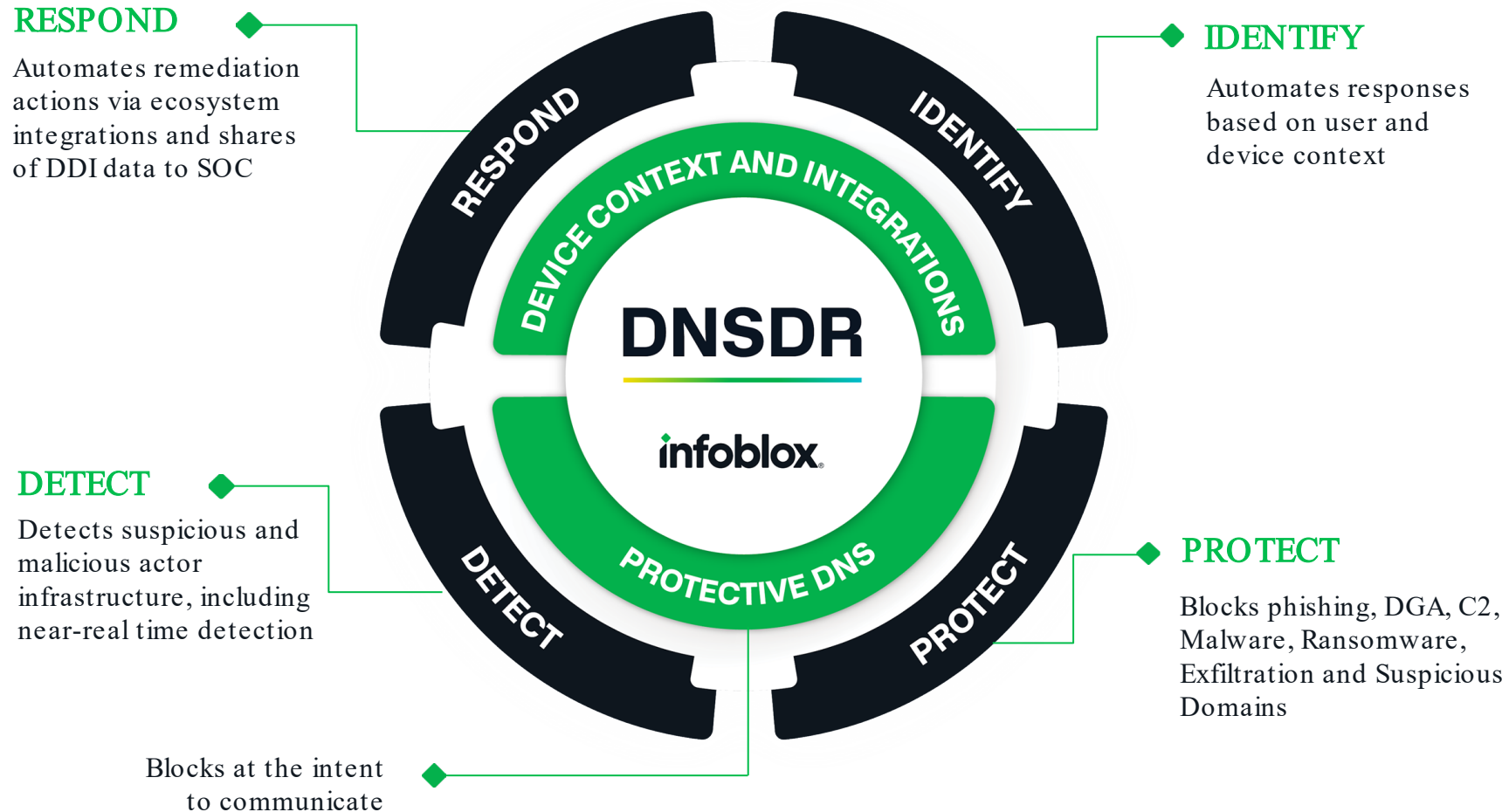
Etc.....

• Contextual
Intelligence



• Infrastructure
Load
• Alerts

THE INDUSTRIES ONLY COMPREHENSIVE **DNS DETECTION AND RESPONSE** SOLUTION : BLOXONE® THREAT DEFENSE



REDUCE INVESTIGATION AND RESPONSE TIMES



Make the SOC More efficient

➤ Know which events matter most and reduce

- Missed True Positives
- Alert Fatigue
- Burnout & Turnover

➤ Eliminate wasted time to:

- Make critical decisions faster, with confidence
- Reduce MTTR



Open Insights

This report was created using your data and our active threat data

Active Insight Highlights



- Phishing
- DNS Tunneling
- Major Attack
- Outlier

Choose the chart you would like to see.

Threat Types

Priority

Timeline

Scanned Major Threats

Most Infected Devices

7

Total Open Insights

0/7

Expiring this week

5

Medium Priority Insights

1

High Priority Insights

1

Critical Priority Insights

Threats (7) Configuration (2)

Insight Status

Expand All

Collapse All

Sort by
Priority

Search...



Select All Unselect All



Critical
Priority

Outlier

EMERGENTDOMAIN

Last Observation: 01-30-2024, 09:35:54 AM CET

Active for the last 211 days

Investigate Insight



High
Priority

DNS Tunneling

GENERIC

Last Observation: 02-05-2024, 10:16:00 AM CET

Active for the last 308 days

Investigate Insight



Medium
Priority

Phishing

LOOKALIKE

Last Observation: 02-01-2024, 11:11:01 AM CET

Active for the last 271 days

Investigate Insight



Medium
Priority

Phishing

GENERIC

Last Observation: 02-02-2024, 07:22:58 PM CET

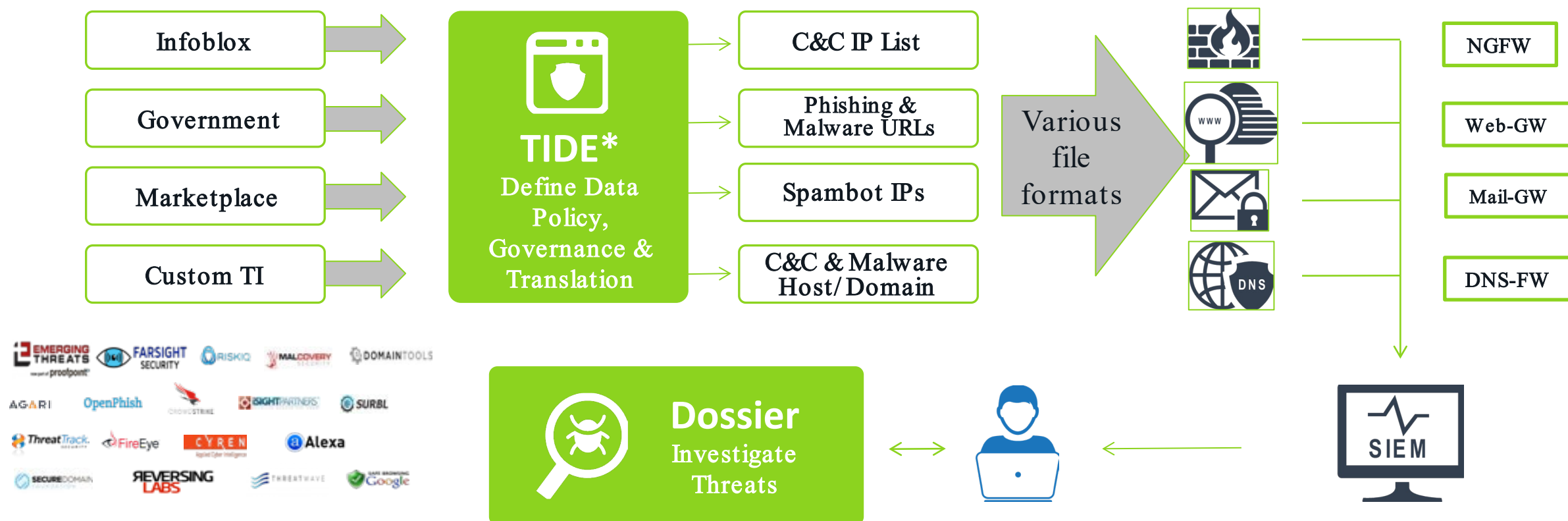
Active for the last 271 days

Investigate Insight



Threat Intel Data Sharing

TIDE - Threat Intelligence Data Exchange



Single-source of TI management

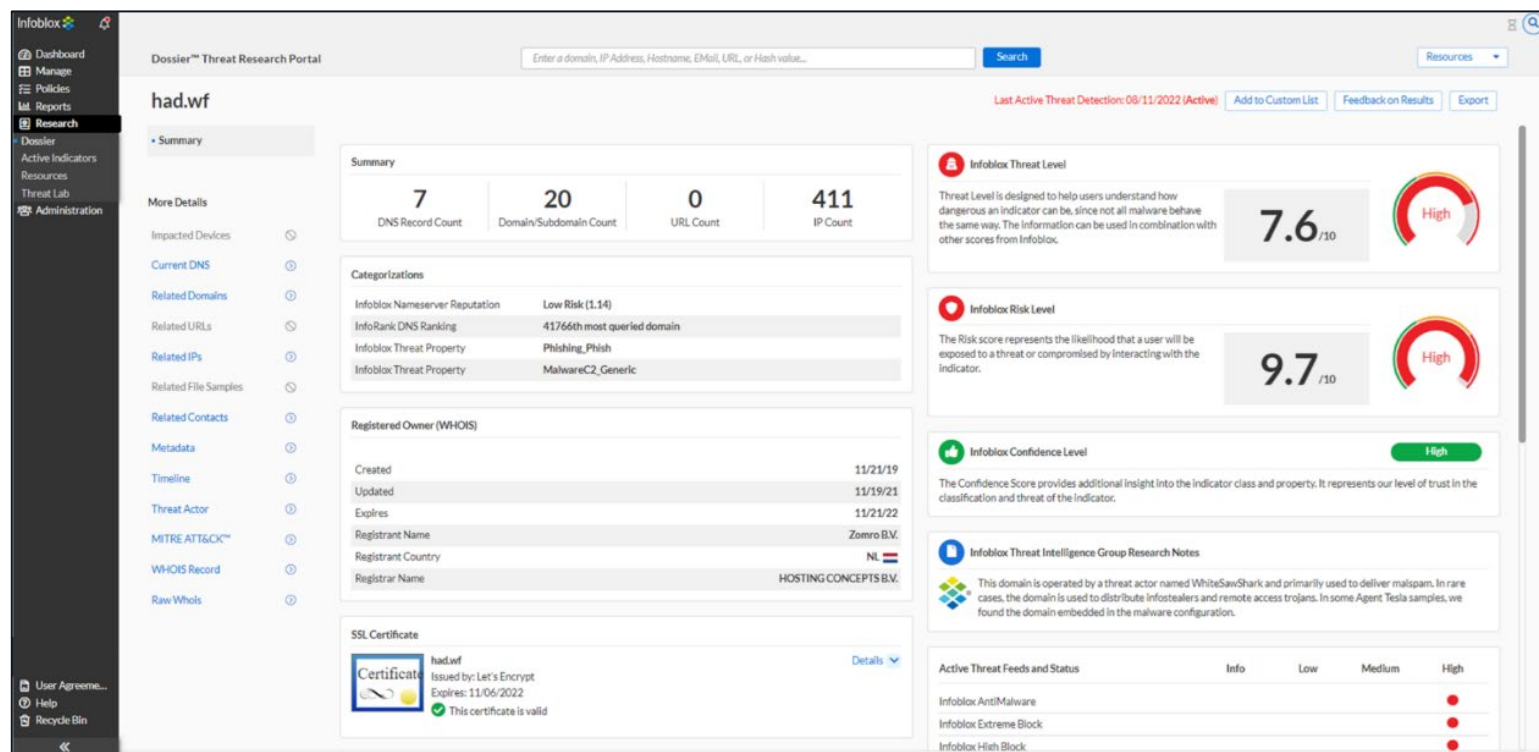
Automate investigation
& triage

Orchestrate common security policy
across multi-vendor infrastructure

➤ Reduce cost of threat feeds while improving effectiveness across entire security portfolio

Infoblox Dossier for Threat Research

- Contextual information from multiple data sources in a single view
- Leverages open source, proprietary and commercial data sources
- Access historical registration, risk level, MITRE information, related enterprise activity, and more

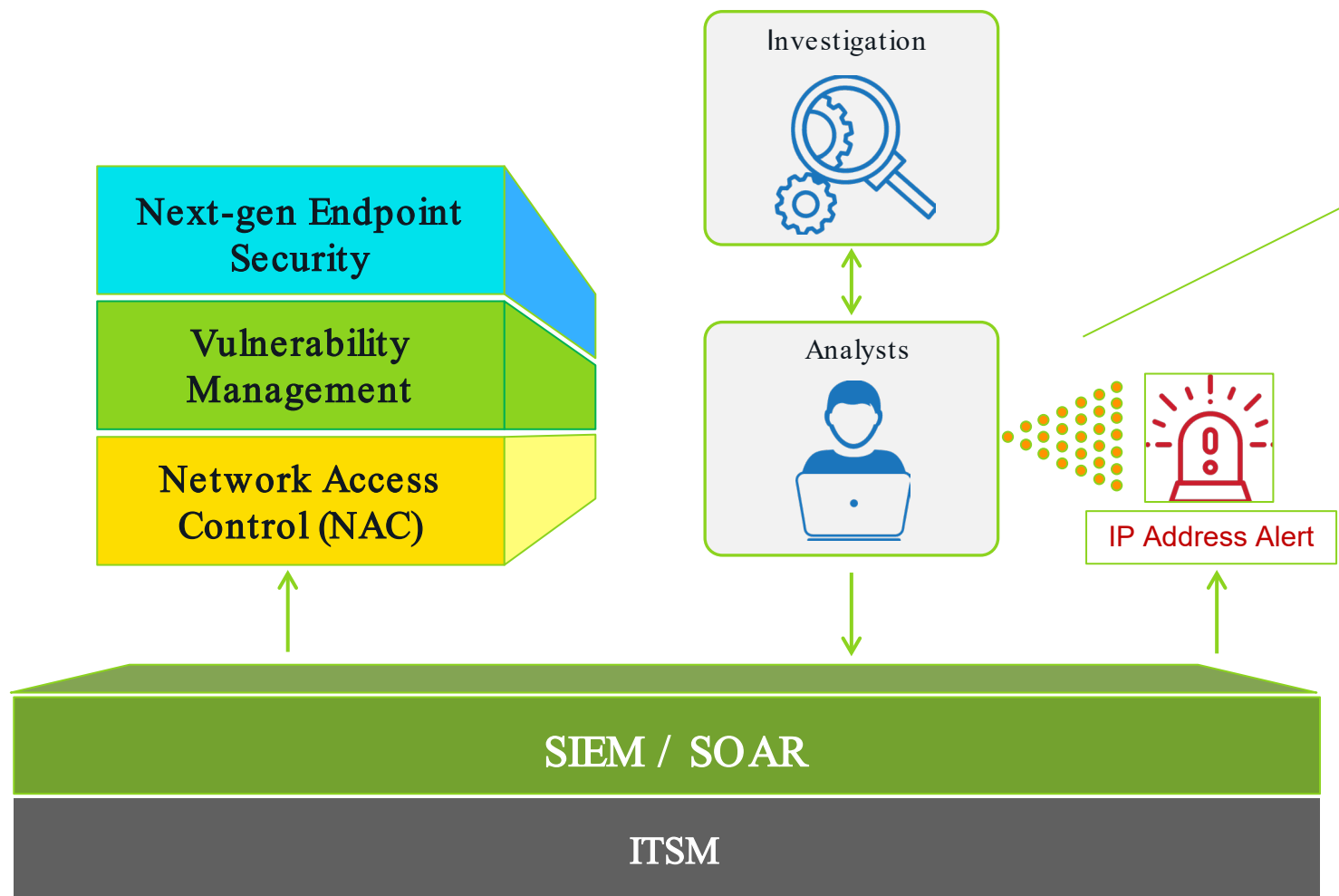


Reduce threat investigation and response time by 2/3rds

Typical Incident Response



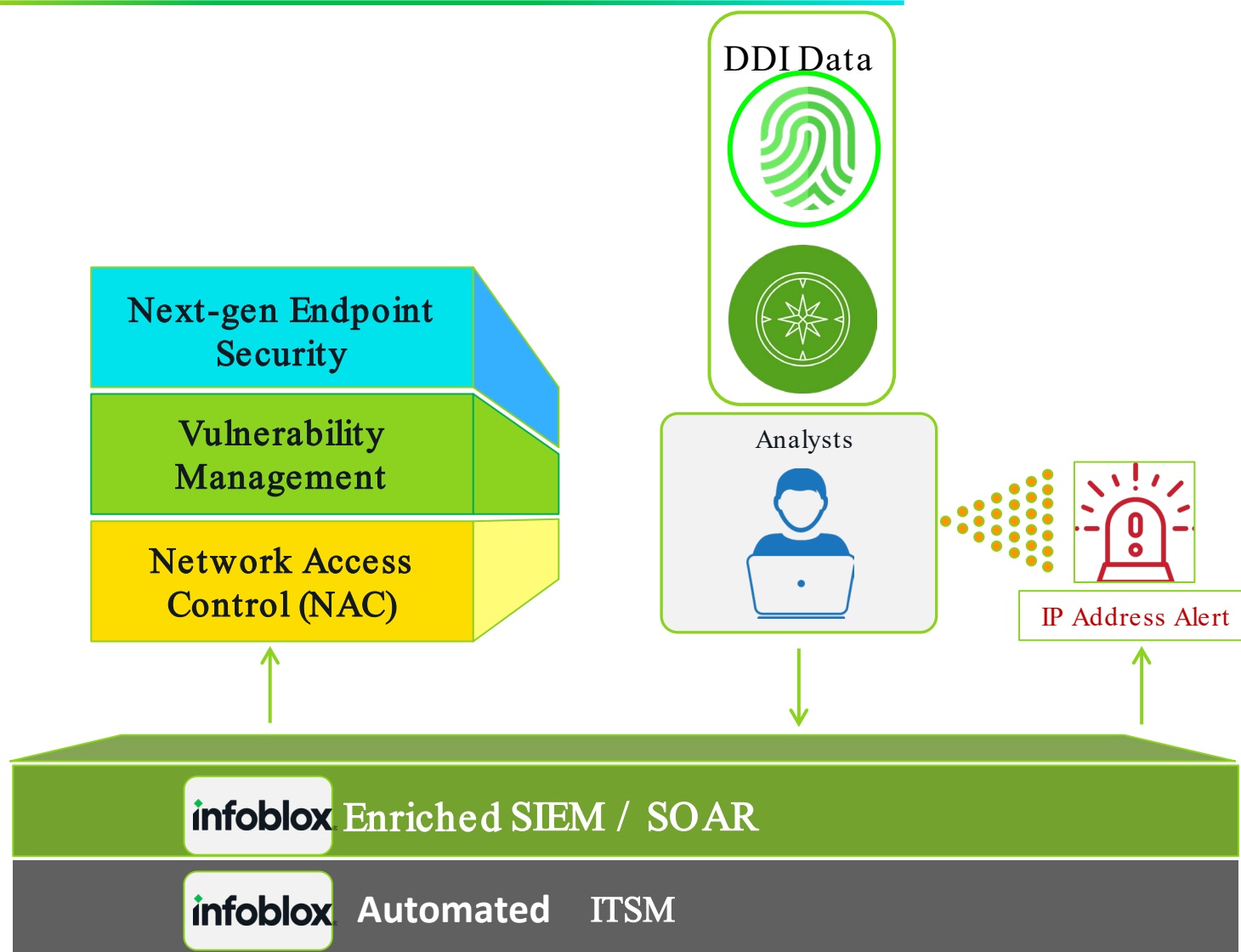
Lengthy
Response Times



Manual Investigation

- MAC Address
- User details
- Network Location
- Physical location
- Network devices
- Device type
- OS information
- Current IP
- Historical IP's and locations

Typical Incident Response



Lower
Response Times

DNS

- Malicious activity inside the security perimeter
- Includes BYOD and IoT device
- Profile device & user activity

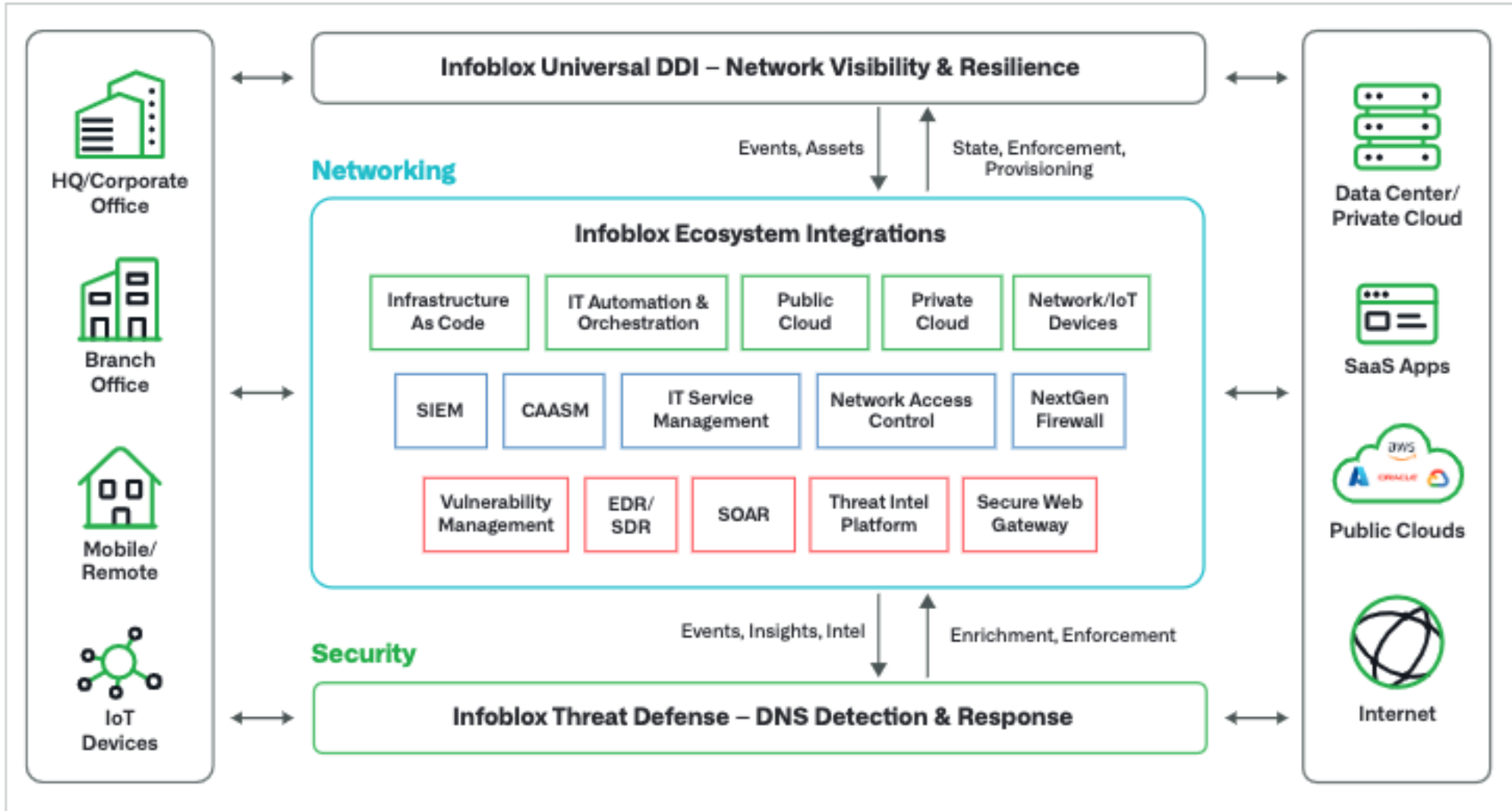
DHCP

- Device Audit Trail and Fingerprinting
- Device info, MAC, lease history

IPAM

- Application and Business Context
- “Metadata” via Extended Attributes: Owner, app, security level, location, ticket number
 - Context for accurate risk assessment and event prioritization

INFOBLOX ECOSYSTEM ARCHITECTURE

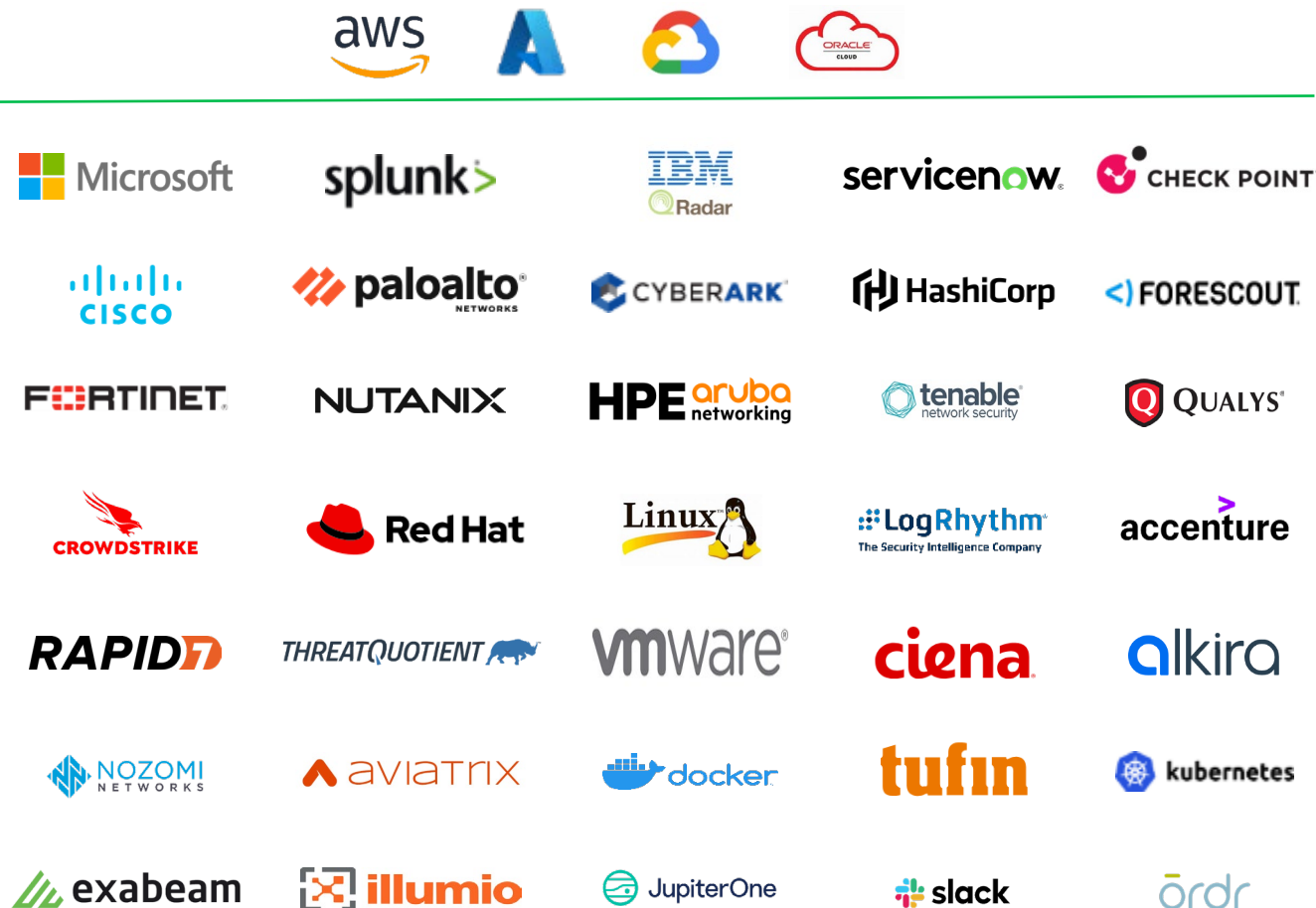


ECOSYSTEM PARTNERS

ecosystem.infoblox.com

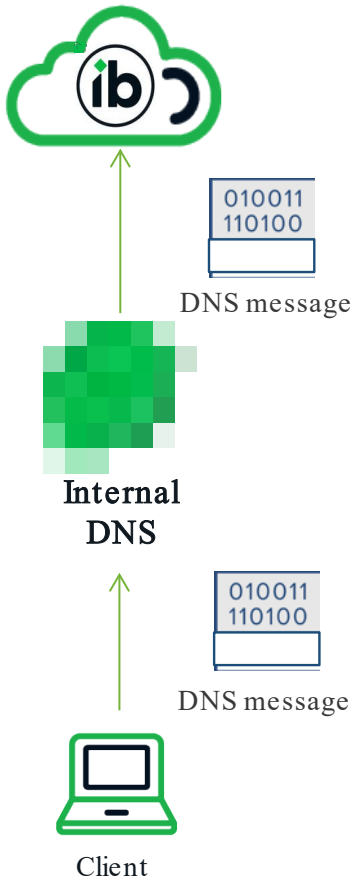
Extensive ecosystem integrations enable us to close **visibility** gaps, **share** context across silos, and **automate** responses to security events.

INFOBLOX
ECOSYSTEM
PARTNERS

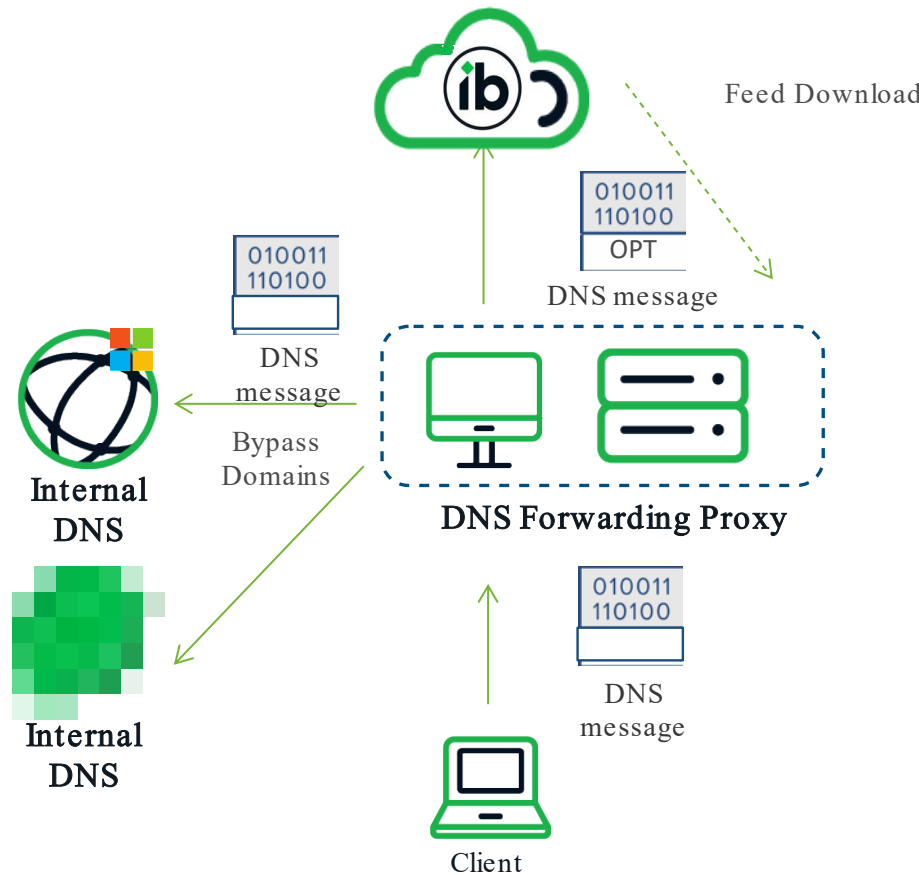


B1 TD Deployment Options

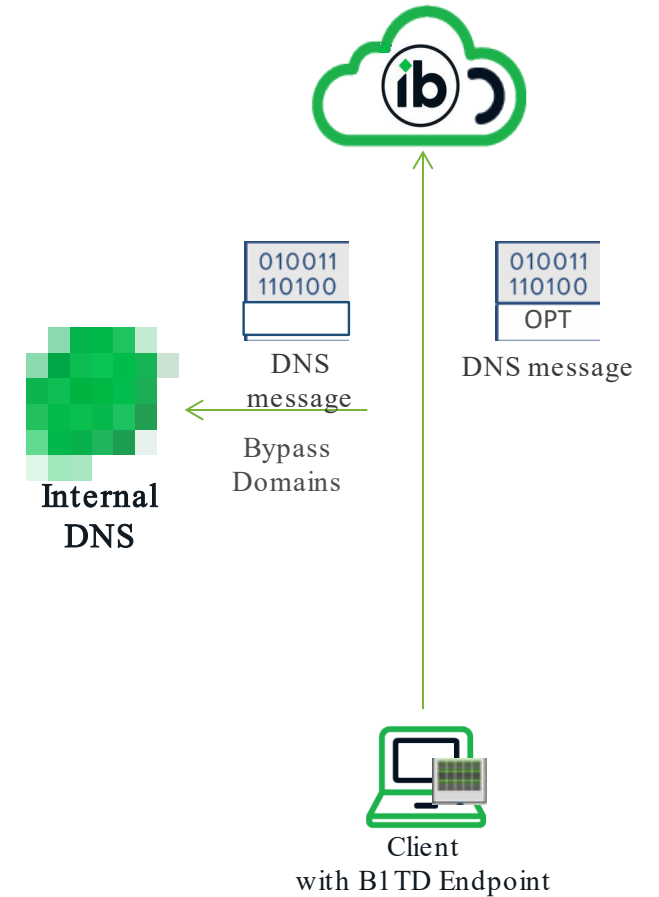
1. Direct Forward



2. DNS Forwarding Proxy



3. Endpoint Agent



Infoblox Security Sales Tools

Infoblox DNS security Initiatives / Activities

- **DNS SECURITY WORKSHOP**; Customer enablement initiative 2-4 hours, to teach customers how the DNS are used by malware, understand the role of DNS in modern cyber threats & effectiveness
- **DNS SECURITY ASSESTMENT**; Real Time customer traffic analyst (captured data), to detect insights into potential malicious DNS activity like attacks, threats, content and brand reputation
- **DNS SECURITY AUDIT**: Quick review by using simple DNS queries to assess a company DNS security posture and identify potential gaps.



Controlware
Security Day

**Danke für Ihre Aufmerksamkeit.
Wir freuen uns über Ihr Feedback!**

Bitte geben Sie den ausgefüllten Bogen am Empfang ab und
erhalten Sie als Dankeschön ein kleines Präsent.