BLACKDUCK®
PRESENTATION

True Scale
Application Security

AppSec Survival Guide:
Surviving AI, Malware & Compliance - Without Losing Your Mind!

Matthew Brady
Sr. Manager, Sales Engineering – EMEA
July 2025

BLACKDUCK®

- Cigital – *ITS4 - First SAST (1999), BSIMM (2009)*
- White Hat – *Web App Scanning DAST (2001)*
- Codenomicon – *Defensics Fuzzing (2001)*
- Coverity – *First Commercial SAST (2002)*
- Black Duck – *First OSS Risk Management Solution (2003)*
- Seeker – *First Commercial IAST (2011)*
- CodeDX – *ASPM (2015)*
- Polaris Platform – *SAST, SCA, DAST, ASPM (2023)*

Uncompromised trust in software for the regulated, AI world

SPEED | ACCURACY | VOLUME | COMPLIANCE

True Scale
Application Security

Coverity Scan: Linux

Project Name	Linux
Lines of code analyzed	24,113,237
On Coverity Scan since	Feb 24, 2006
Last build analyzed	3 days ago
Language	C/C++
Repository URL	http://git.kernel.org/
Homepage URL	N/A
License	N/A

Want to view defects or help fix defects?

Add me to project

Analysis Metrics

Version: Version

Jul 14, 2025	24,113,237	0.89
Last Analyzed	Lines of Code Analyzed	Defect Density

Defects by status for current build

71,833	21,384	49,797
Total defects	Outstanding	Fixed

scan.coverity.com

The scale of AI-generated code **intensifies** the risk trajectory

AI has great transformational promise—and serious implications

Exponential growth in code and LLMs to safeguard

The rapid rise of citizen developers

Burgeoning multijurisdictional AI/data regulations

Software Supply Chain Challenges

Regulation

EU Cyber Resilience Act
- Enacted Nov 2024

Enforcement
MAY 2026

Encompasses
—All Digital Products and Services

- ✓ Software Process
- ✓ Vulnerability Reporting
- ✓ CE Mark
- ✓ SBOMs

EU NIS2 Directive

Enforcement
OCT 2024

Encompasses
—17 Sectors
— Including Suppliers

- ✓ Software Process
- ✓ ICT Risk Management
- ✓ Supply Chain Security
- ✓ Incident Reporting

EU Product Liability Directive
- Enacted Dec 2024

Enforcement
DEC 2026

Encompasses
—All Commercial Software and Digital Services

- ✓ Software Liability
- ✓ OSS and Custom S/W

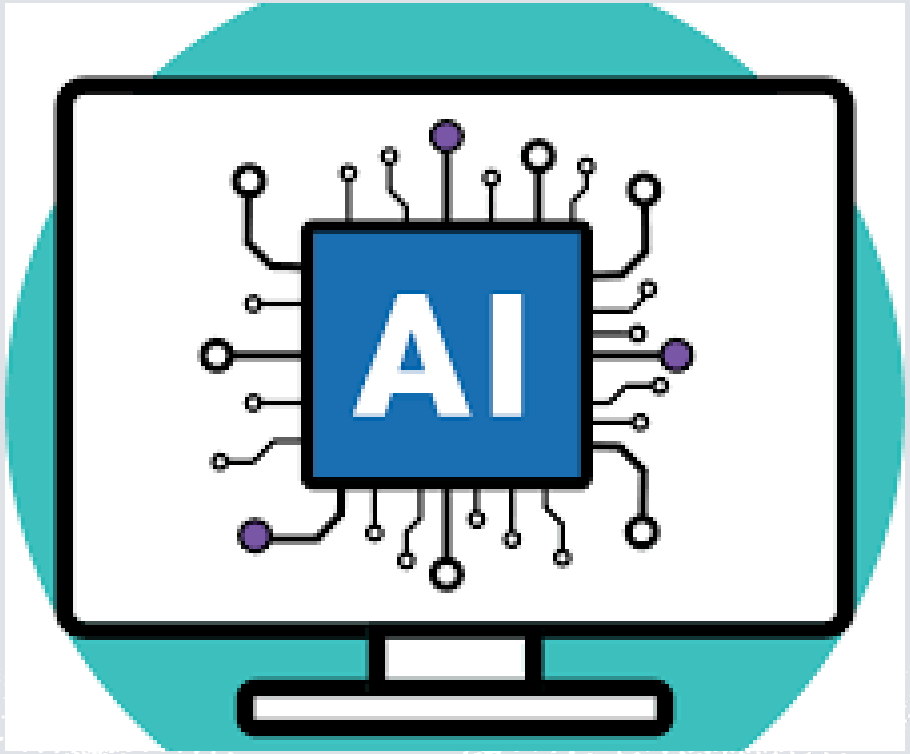
EU Digital Operational Resilience Act

Enforcement
JAN 2025

Encompasses
—All Financial Orgs
—Including Suppliers

- ✓ ICT Risk Management
- ✓ Incident Reporting
- ✓ Threat-Based Testing
- ✓ Supply Chain

AI in Software Development – Gen-AI for Coding



- Significantly Increases OSS Usage
  - More Obscure OSS Dependencies?
- Insecure Code?
- Increased IP Risk
- Malicious Code?
- Reduced System Understanding

Youtube - AI 2027

Gen-AI Code Vulnerabilities

Swings & Roundabouts

Less Prevalent:

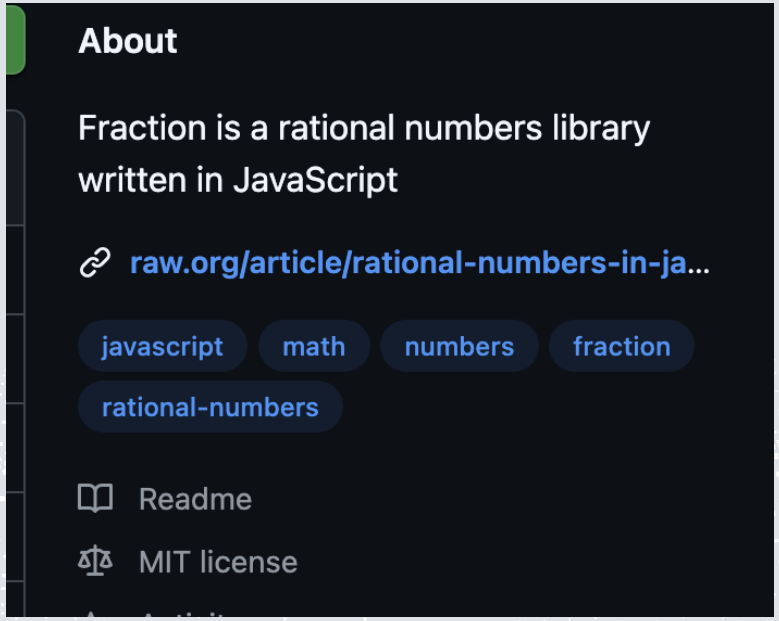
- CWE 787: Out-of-Bounds Write
- CWE 79: Cross-Site Scripting
- CWE 416: Use After Free
- CWE 125: Out-of-Bounds Read
- CWE 190: Integer Overflow
- CWE 119: Improper Restriction of Operations

More Prevalent:

- CWE 20: Improper Input Validation
- CWE 502: Deserialization of Untrusted Data
- CWE 78: OS Command Injection
- CWE 22: Path Traversal
- CWE 434: Unrestricted Upload of File with Dangerous Type
- CWE 522: Insufficiently Protected Credentials

Gen-AI IP Risk

- Inserted Code Snippets
- What does “blanket indemnity” mean?
- Declared versus Deep License




```
/**
 * @license Fraction.js v4.2.1 20/08/2023
 * https://www.xarg.org/2014/03/rational-numbers-in-javascript/
 *
 * Copyright (c) 2023, Robert Eisele (robert@raw.org)
 * Dual licensed under the MIT or GPL Version 2 licenses.
 **/
```

EU AI Act

LLM Usage

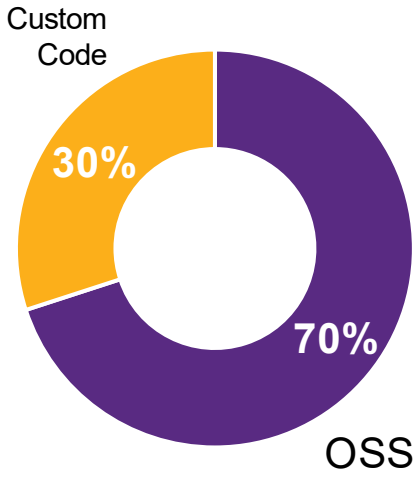
- Deployer – Model Usage
- Producer – Model Itself

SBOM & AIBOM

- Modified Models
- Nature/Scale of Changes

What Exactly is the Software Supply Chain?

Black Duck Open Source Security & Risk Report 2025



81%

Codebases with High/Critical Vulnerabilities

OSS Components per Codebase

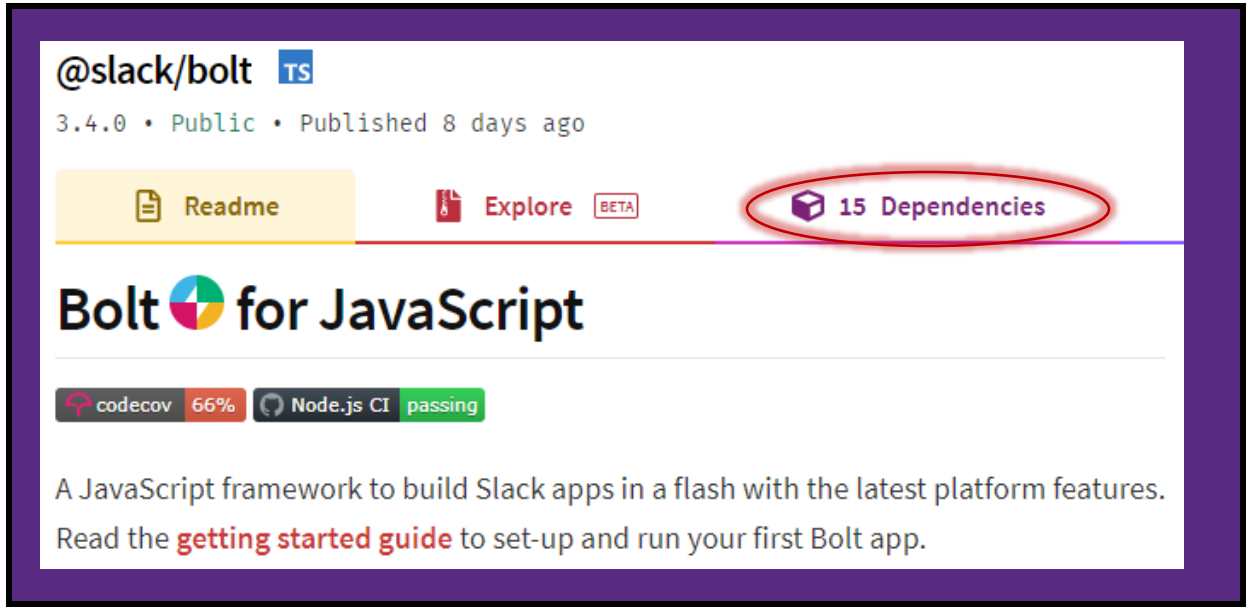
911

Average Number Of Vulns per Codebase

59

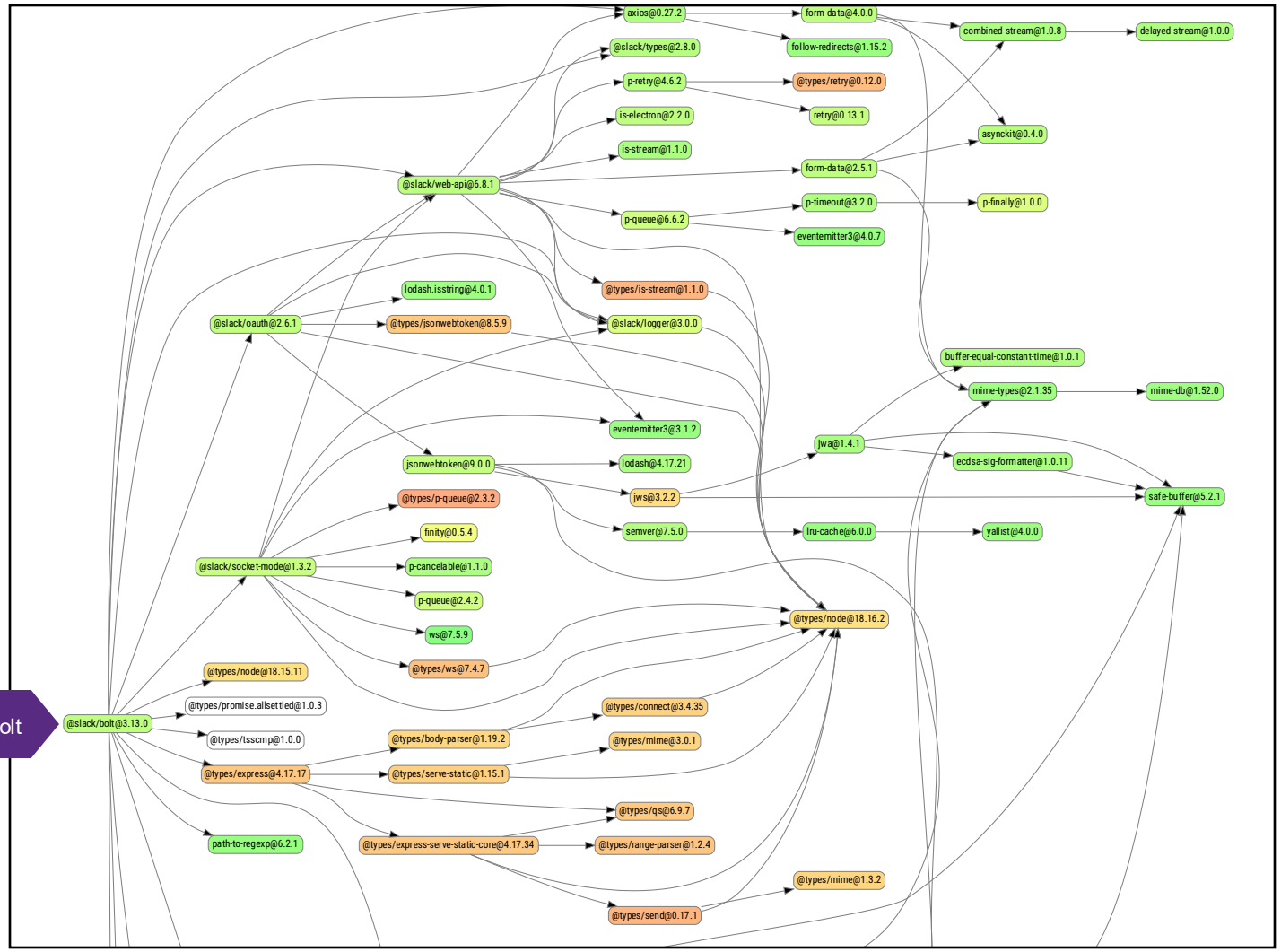
Build an App to Integrate Slack & Instagram

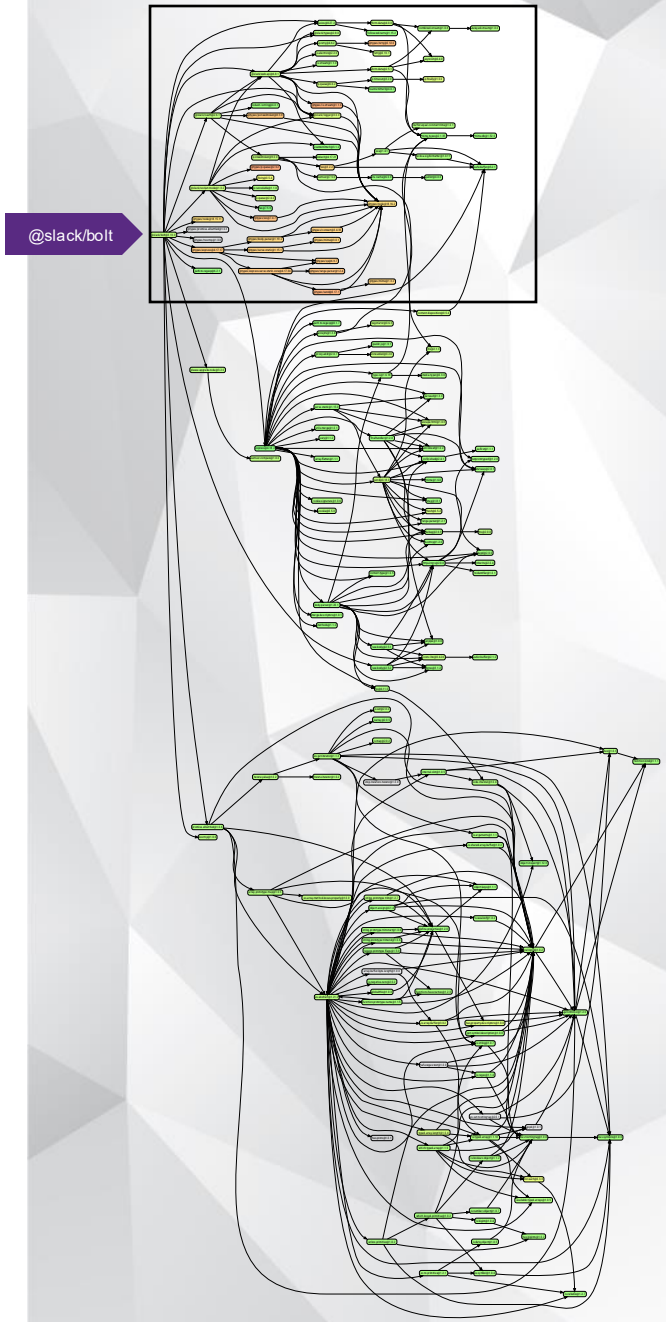
```
"dependencies": {
        "@slack/bolt": "^3.2.0",
        "axios": "^0.21.1",
        "dotenv": "^8.2.0",
        "get-pixels": "^3.3.2",
        "image-size": "^0.9.3",
        "instagram-private-api": "^1.43.3",
        "sharp": "^0.27.1",
        "snoowrap": "^1.22.0"
}
```



8 Declared Suppliers
(Dependencies)

Dependency Tree: @slack/bolt





What About Vulnerabilities?

CVE-2020-28282 Detail

Description

Prototype pollution vulnerability in 'getobject' version 0.1.0 allows an attacker to cause a denial of service and may lead to remote code execution.

Severity

CVSS Version 3.x | CVSS Version 2.0

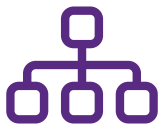
CVSS 3.x Severity and Metrics:

NIST: NVD **Base Score:** 9.8 CRITICAL **Vector:** CVSS:3.1/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H

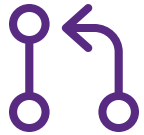
NVD Analysts use publicly available information to associate vector strings and CVSS scores. We also display any CVSS information provided within the CVE List from the CNA.

Note: NVD Analysts have published a CVSS score for this CVE based on publicly available information at the time of analysis. The CNA has not provided a score within the CVE List.

Identifying OSS & Third-Party Software



Managers Package



Side-Installed Packages

Copied Source Files and Folders

Copied Source Blocks

Binary Objects

Docker

Identifying OSS & Third-Party Software

Managers Package

Most Tools Only Scan Dependencies

Side-Installed Packages

Copied Source Files and Folders

Copied Source Blocks

Binary Objects

Docker

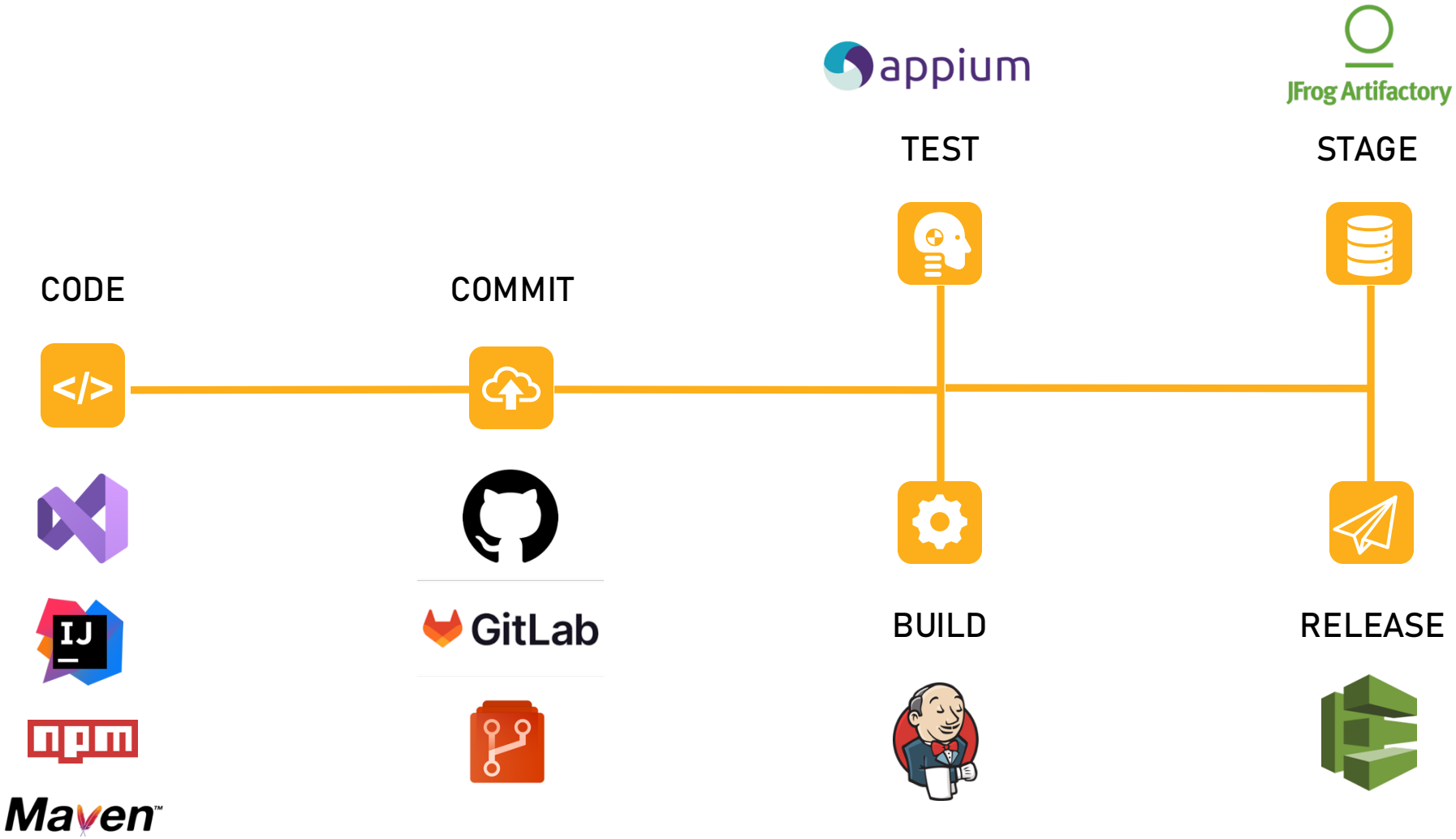
- Missed Packages
- Missed Vulnerabilities
- Missed OSS Licenses

Average 20%, Up to 100% OSS Not Controlled by Package Manager

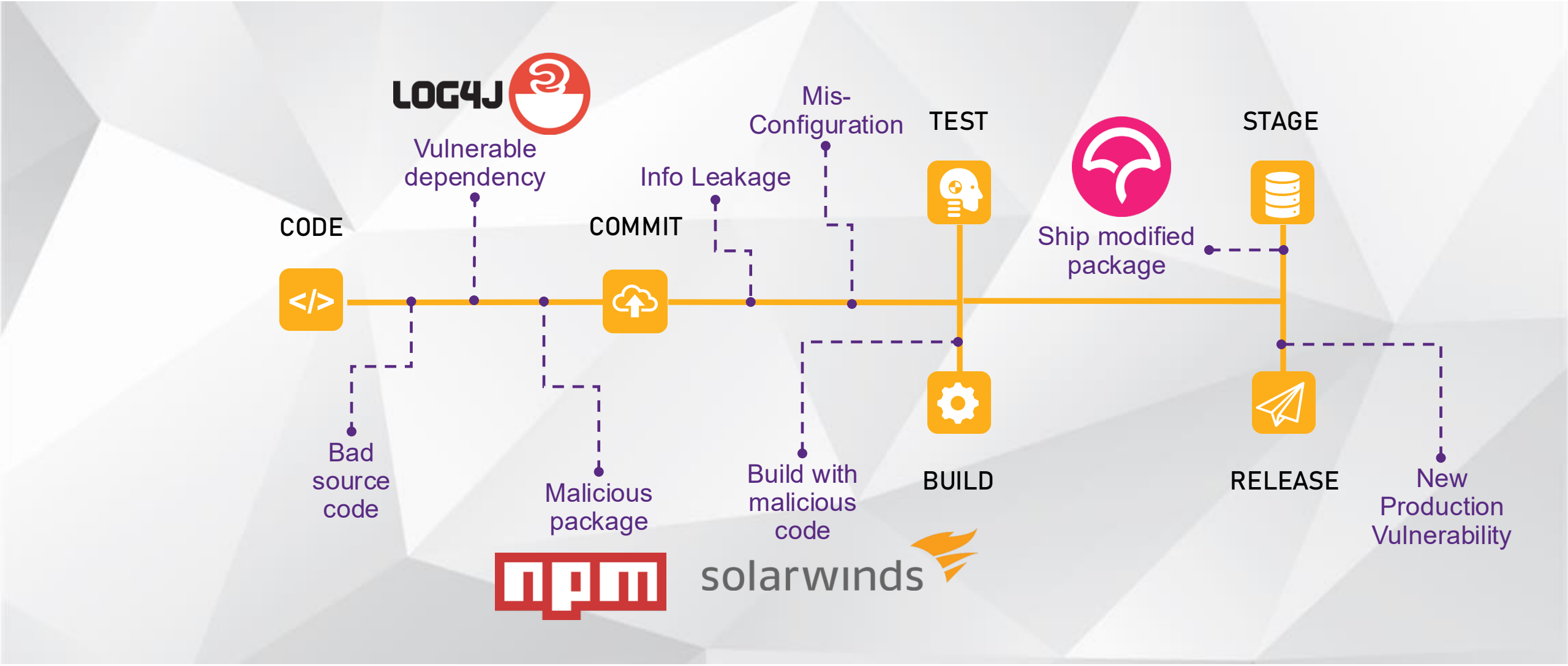
Software Supply Chain Risks

Supply Chain Risks

Software Supply Chain for Your Applications



Software Supply Chain for Your Applications

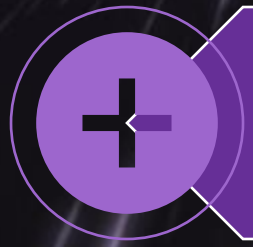


Software Supply Chain Risks

Exploits & Vulnerabilities

Malware & Secrets

Licence Risk



Many More

Software Supply Chain Risks

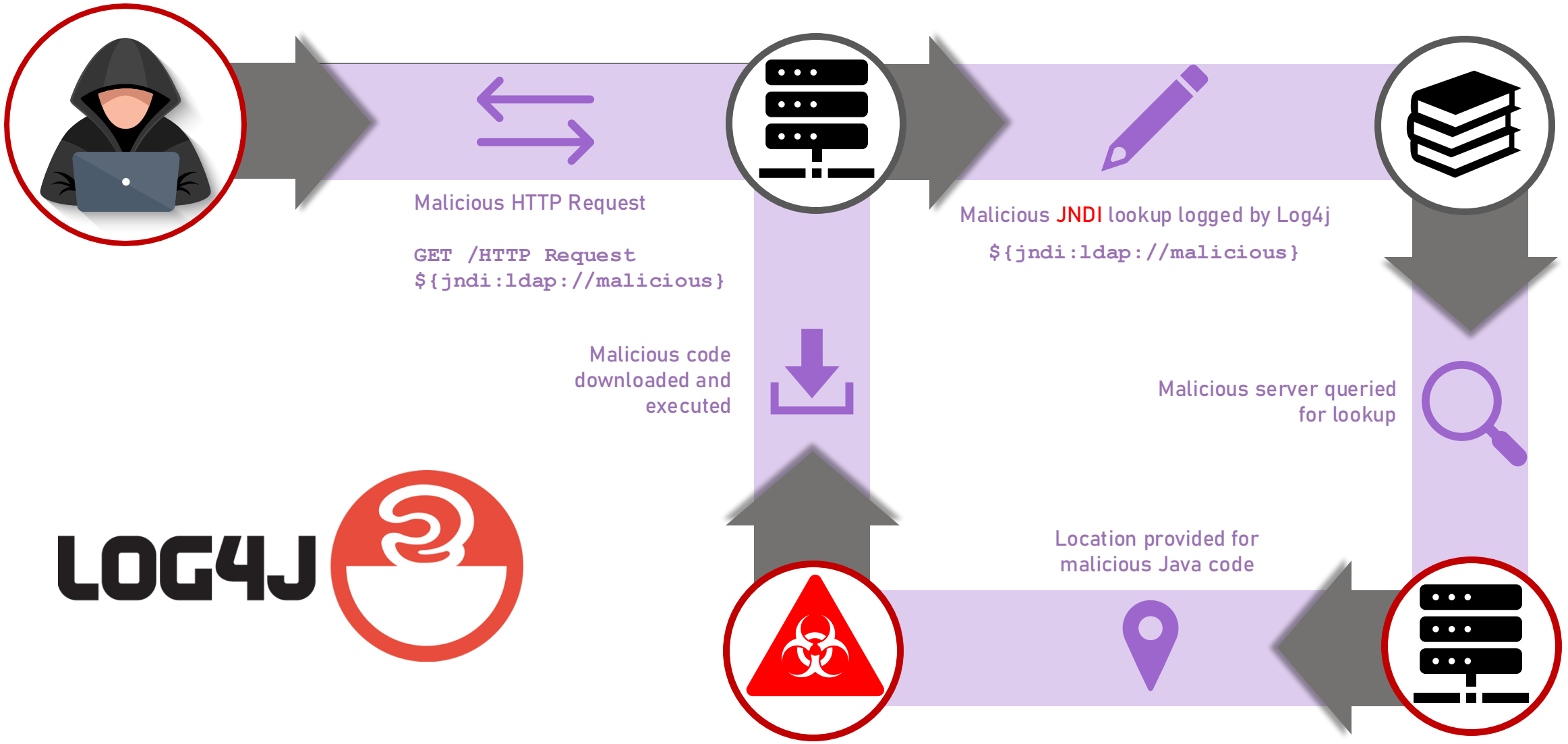
Exploits & Vulnerabilities

Malware & Secrets

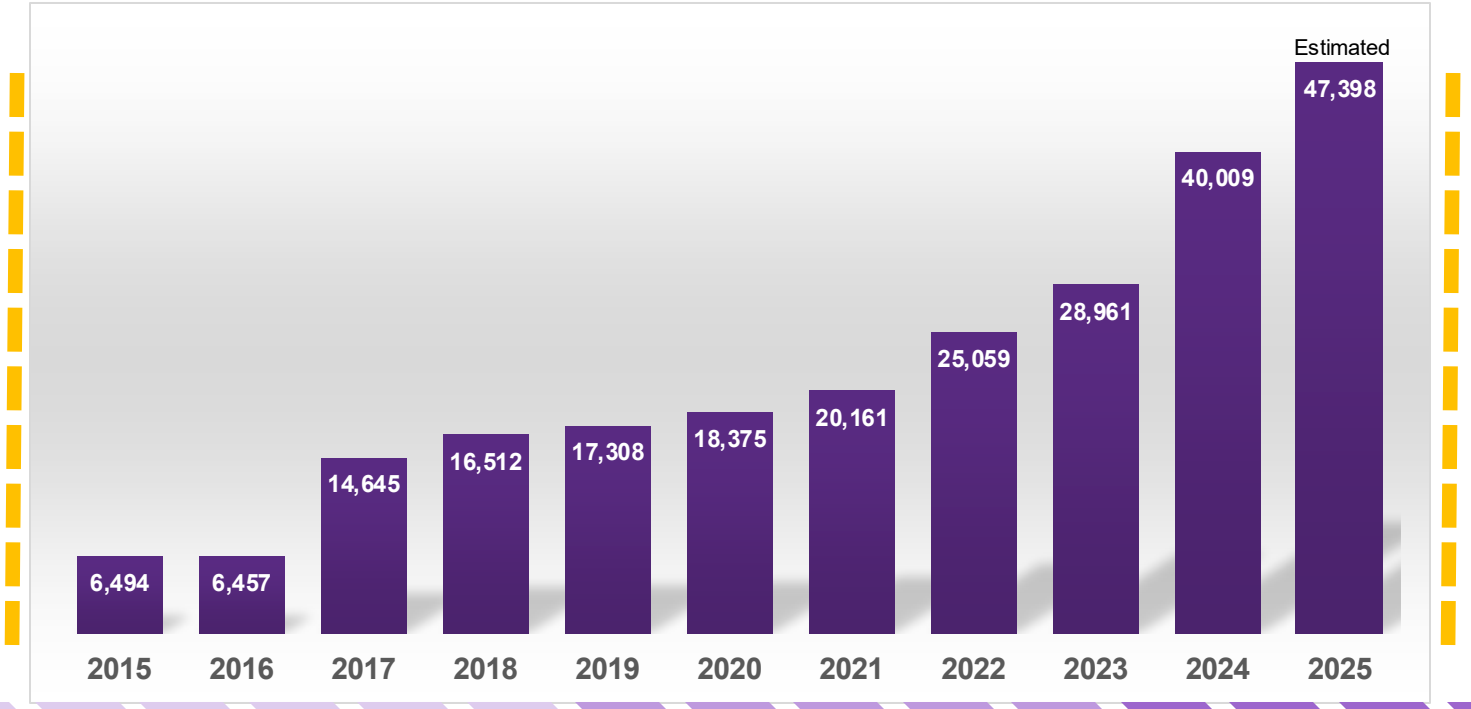
Licence Risk

Many More

Vulnerable Open Source Dependencies



Impact of the Changing Vulnerability Landscape



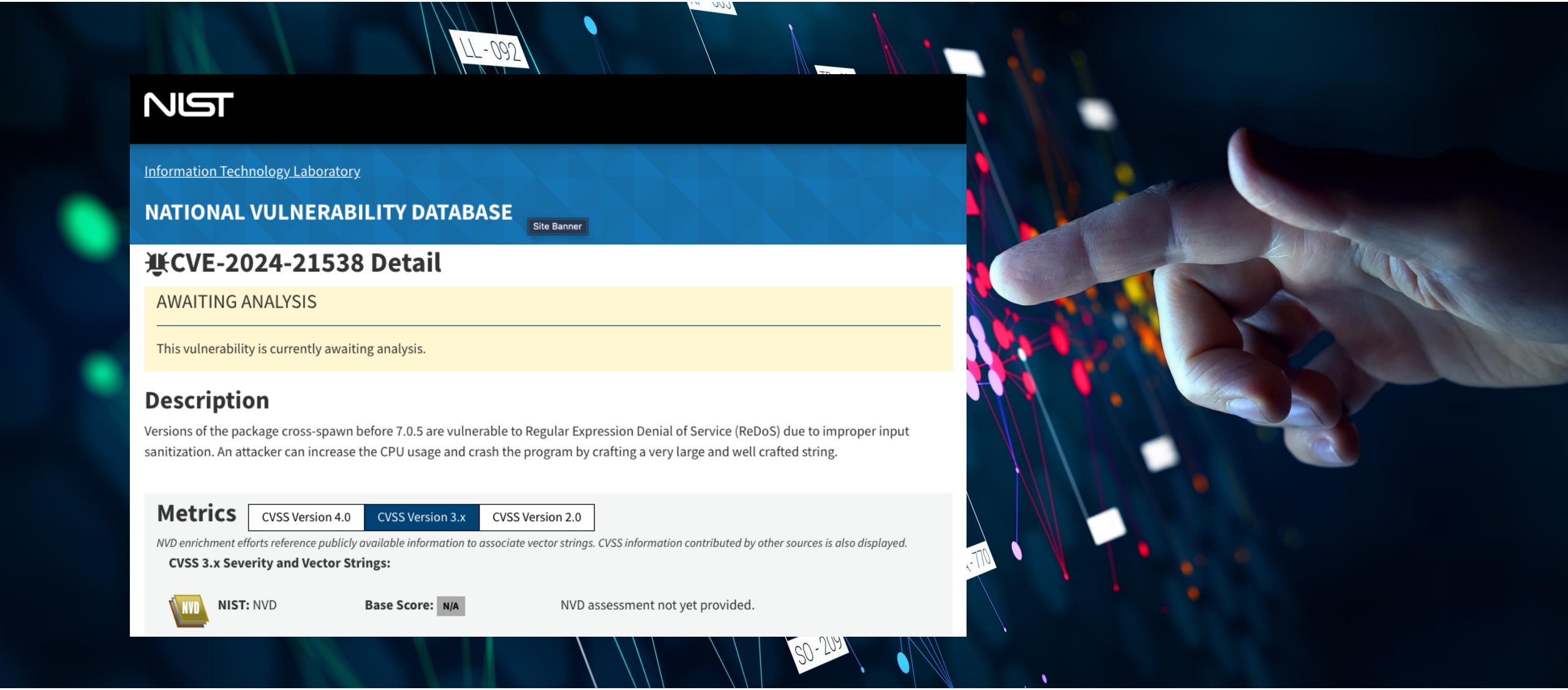
Public Vulnerabilities (NVD)

- Volume Increase
- NVD Outages/Backlog
- Linux Kernel Project CNA

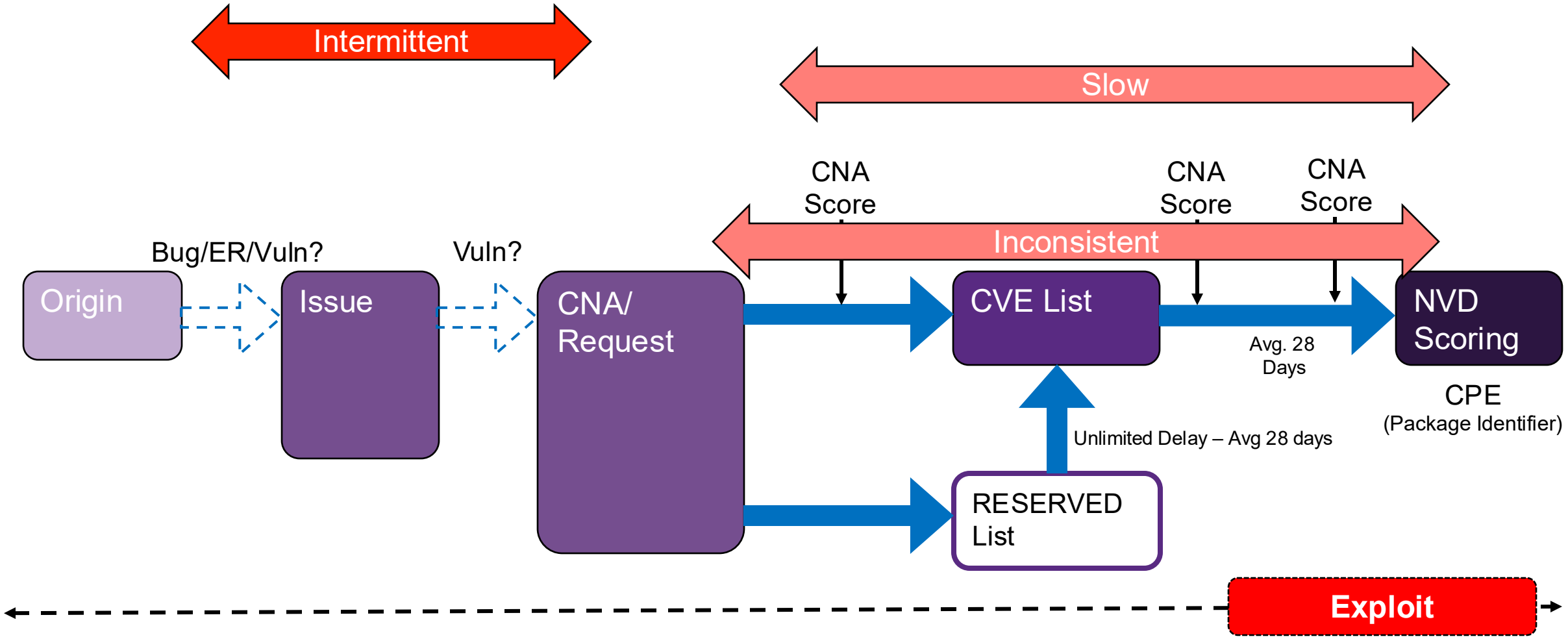
	Total CVEs	Avg. New Daily CVEs	CVEs Analysed	CVEs NOT Analysed
2024	40,009	107	18,772	20,323
Total	286,518			44,092

50%

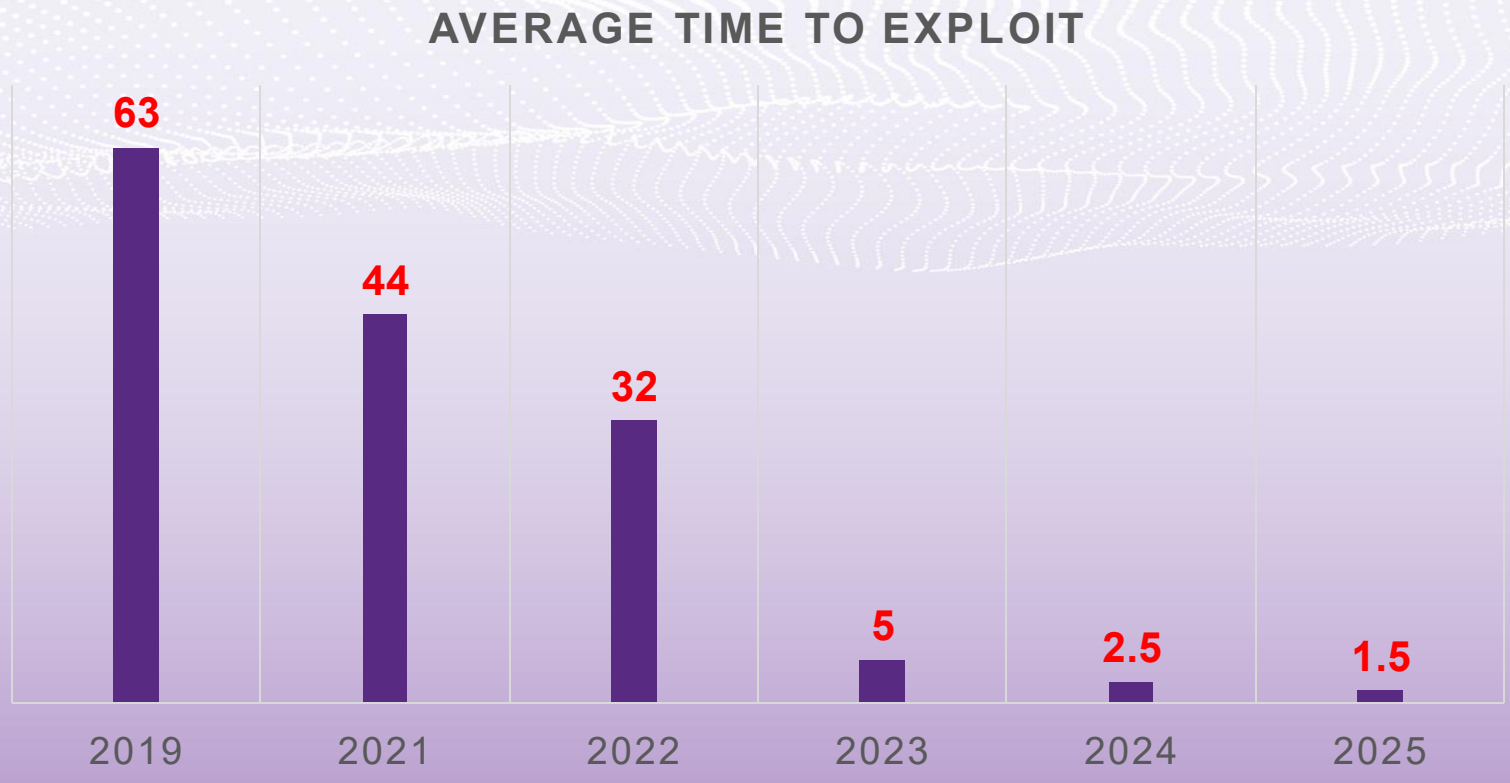
Vulnerabilities Awaiting Analysis



Public Security Workflow



Why Timing Matters



https://cloud.google.com/blog/topics/threat-intelligence/time-to-exploit-trends-2023

How Much Is Being Missed?

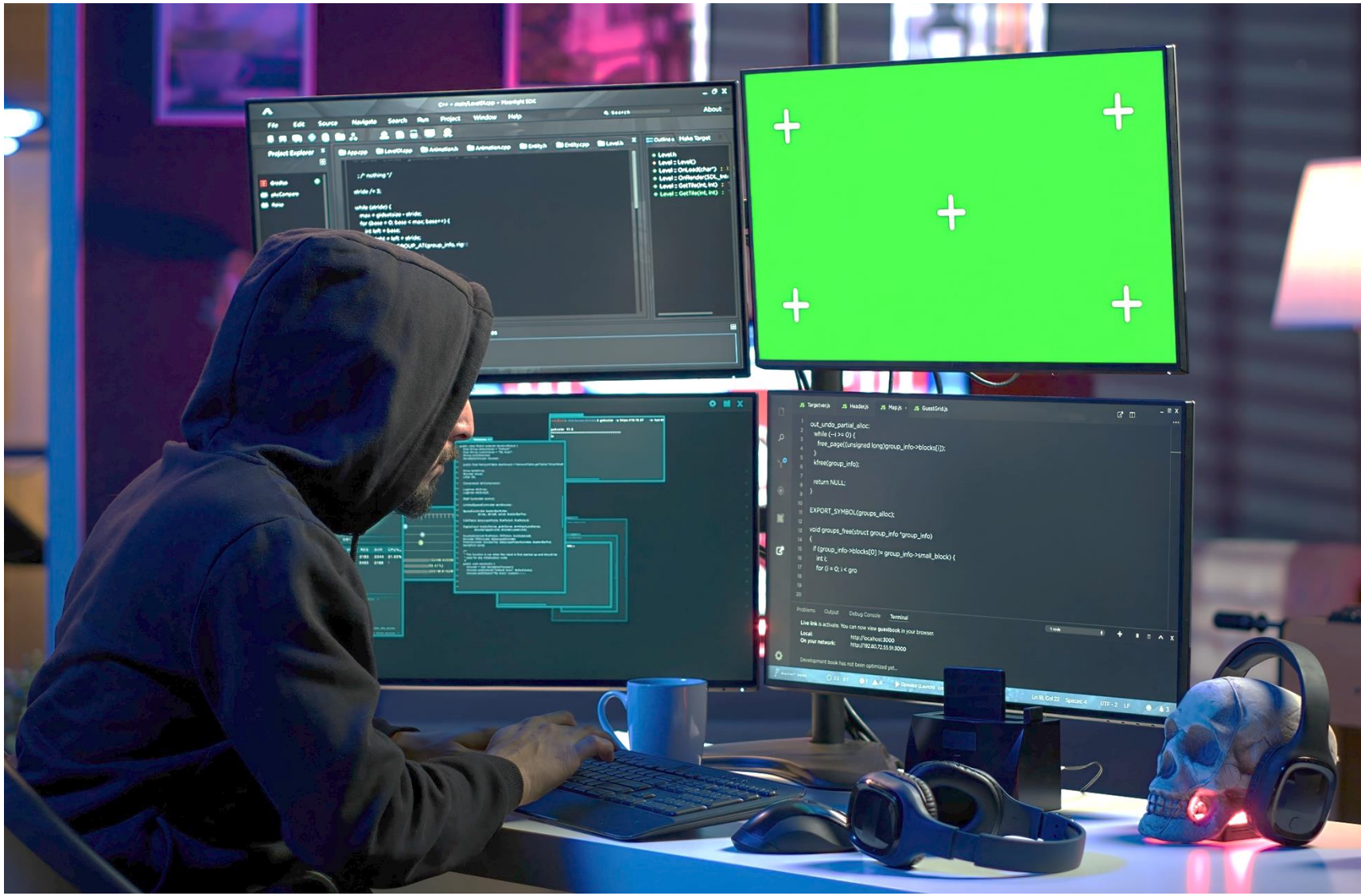
2025
Black Duck Research

Vulnerabilities:

- 3 out of the top 10 detected vulns not reported by NVD
  - 47% total projects affected

Compliance:

- 26% of components had declared license conflicts



Software Supply Chain Risks

Exploits & Vulnerabilities

Malware & Secrets

Licence Risk

Many More

Malware & Secrets

Malicious Packages

Malicious Packages Hidden in NPM

UAParser
(Hacked Account)

Malware found in npm package with millions of weekly downloads

North Korean Hackers Launch New Wave of npm Package Attacks

NK

Malicious npm Packages Found Using Image Files to Hide Backdoor Code

img-aws-s3-object-multipart-copy
(brandjacked)

How do Malicious Packages Get In?

TYPOSQUATTING

`crossenv vs. cross-env`

Misspellings of typical or popular packages names

BRANDJACKING

Use name of popular package in one ecosystem, create malicious version in different ecosystem

DEPENDENCY CONFUSION

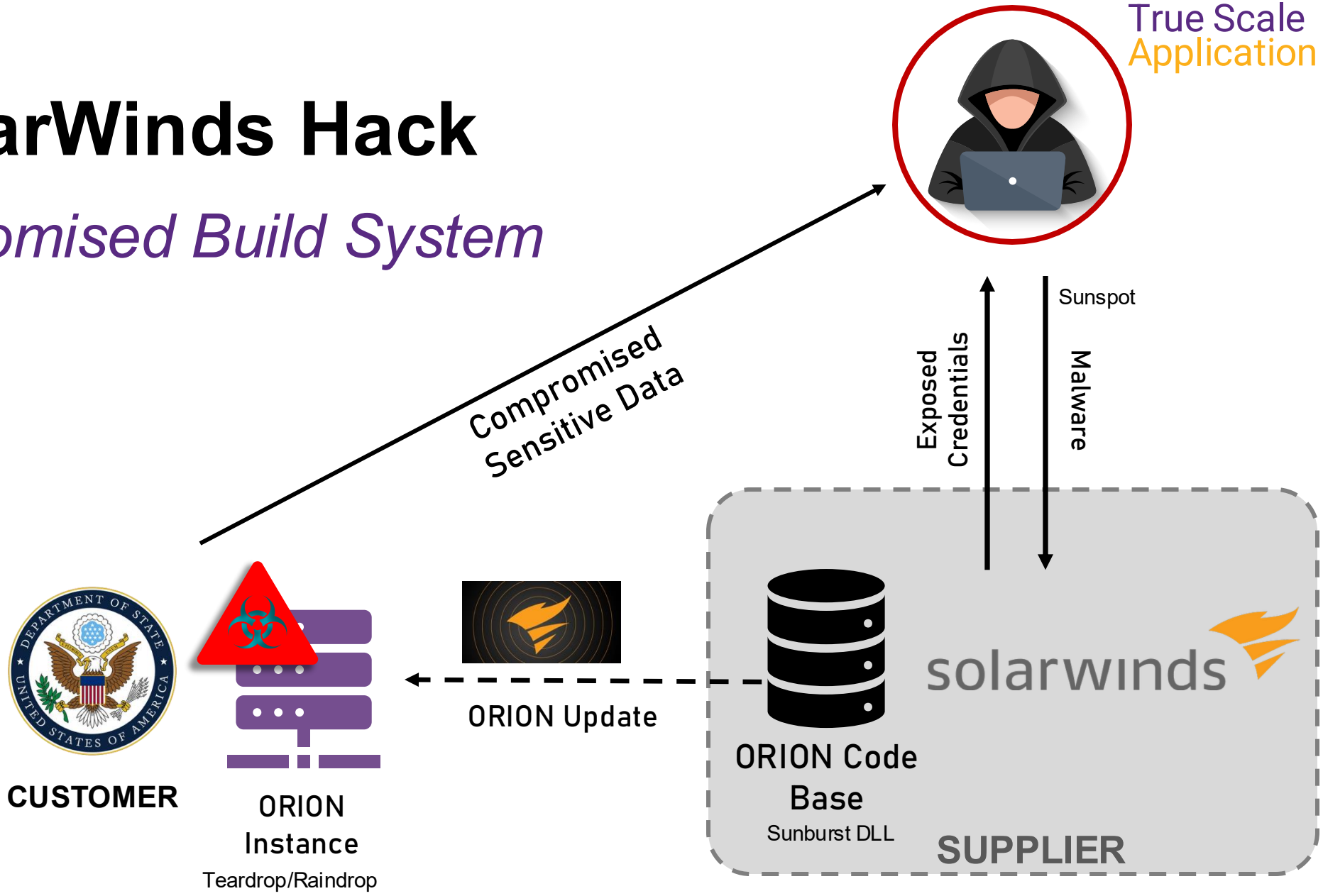
Internal package name matches malicious public package name

Malware & Secrets

2 Build Compromise

SolarWinds Hack

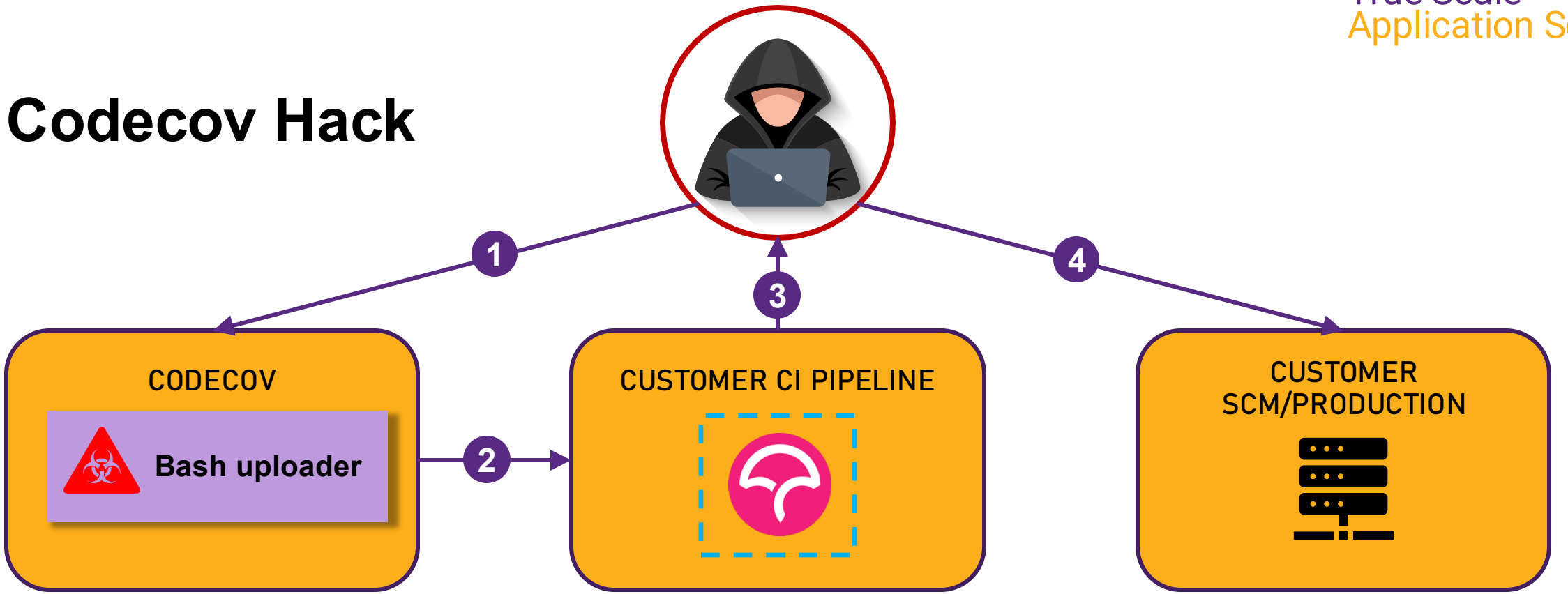
Compromised Build System



Malware & Secrets

3 Release Compromise

Codecov Hack



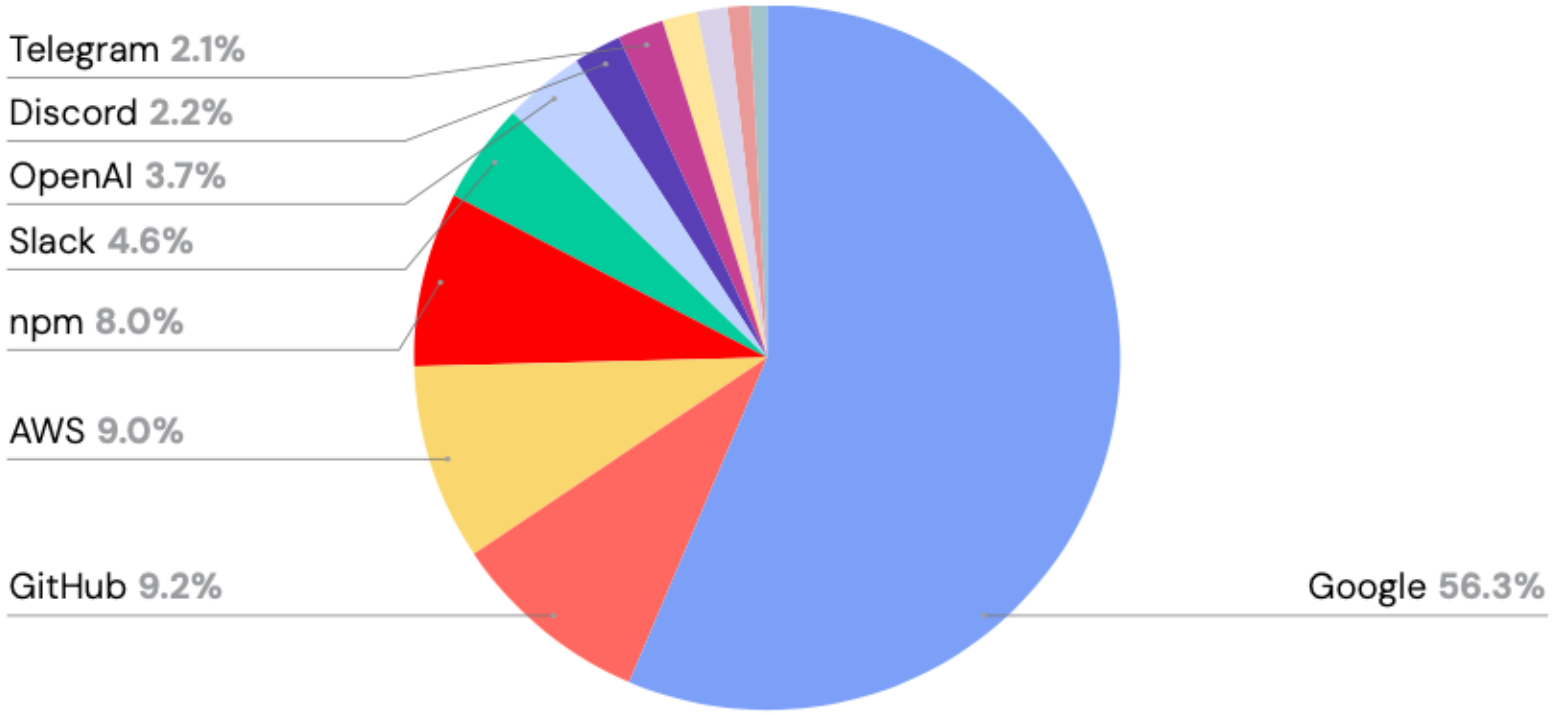
1. Attacker modifies **Codecov** bash uploader
2. Codecov implementation, including malicious bash uploader, is deployed to customer CI pipeline
3. Malicious bash uploaded sends sensitive information to attacker
4. Attacker uses information to access customer SCMs and production environments

Malware & Secrets

Secrets & Info Leakage

Developer Secrets

40K Total Leaked Secrets Detected 2024 – (77% on Npmjs)



Npmjs - 2024 Leaked Secrets by Target

19%
OpenAI — second-largest share of leaked secrets

249
secrets linked to the OpenAI platform detected by ReversingLabs

ReversingLabs – State of Software Supply Chain Security 2024

Software Supply Chain Risks

Exploits & Vulnerabilities

Malware & Secrets

Licence Risk

Many More

Legal Risk

All Software Should be Licenced for:

- Liability
- Trademarks
- Patents
- Ownership

MIT Licence

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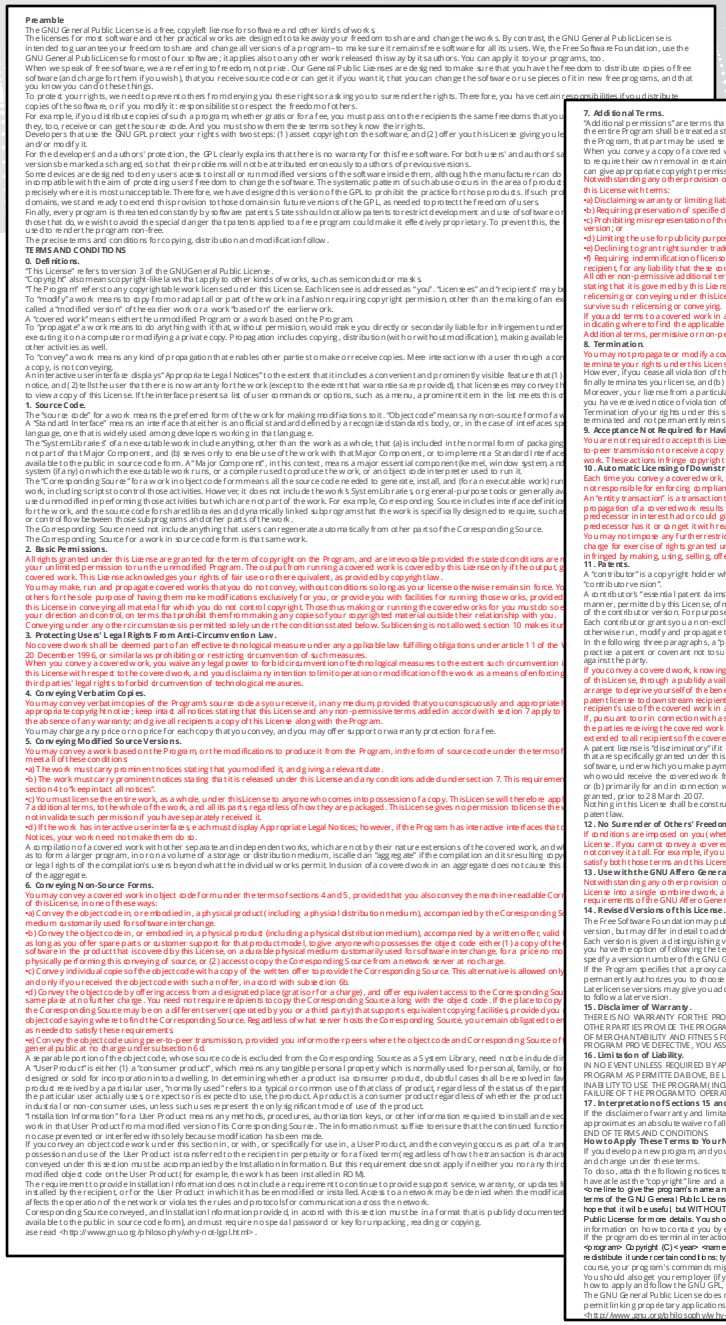
True Scale Application Security

Gnu GPL v3



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1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and another part of the work.

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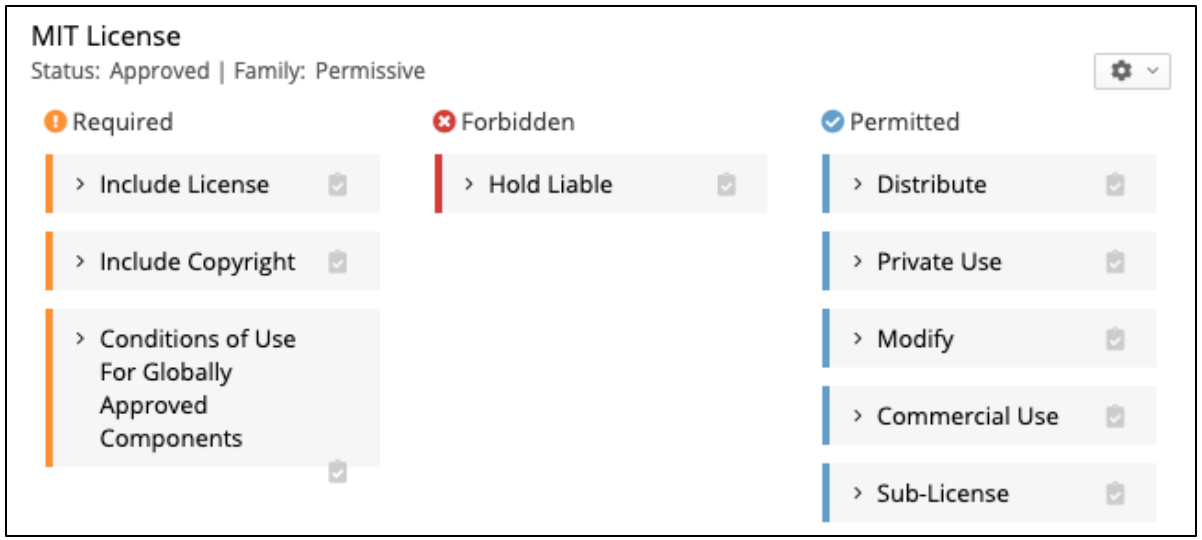

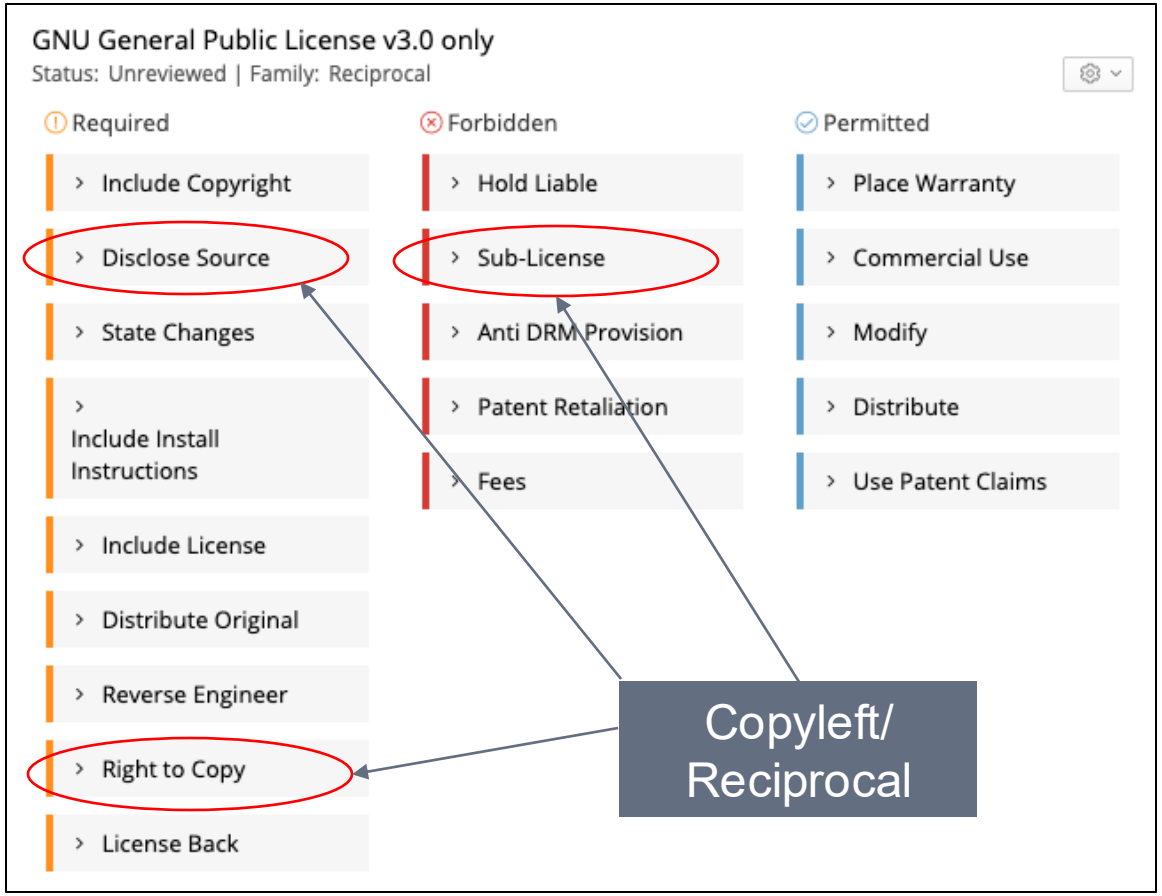

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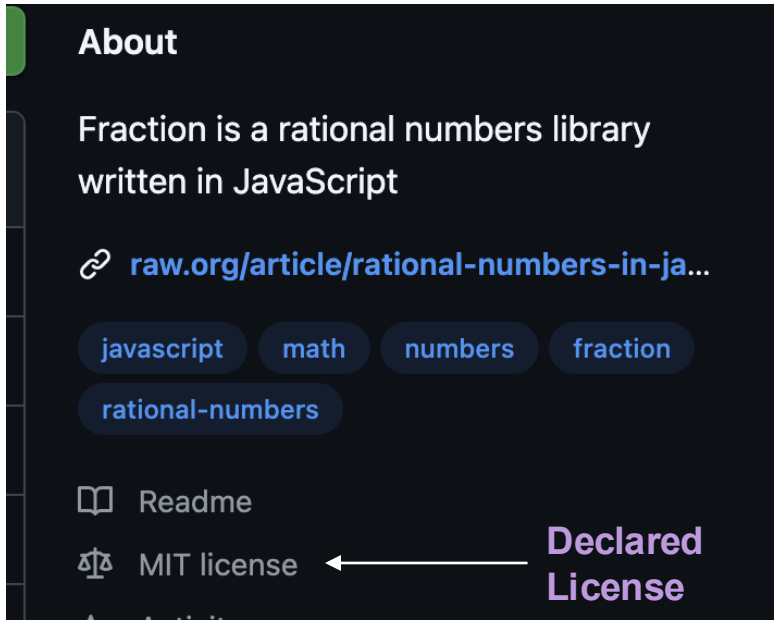
Declared versus Deep versus Local License

Github:



Source File from Origin (not on local filesystem):

```
/**
 * @license Fraction.js v4.2.1 20/08/2023
 * https://www.xarg.org/2014/03/rational-numbers-in-javascript/
 *
 * Copyright (c) 2023, Robert Eisele (robert@raw.org)
 * Dual licensed under the MIT or GPL Version 2 licenses.
 **/
```

Deep Copyright

Deep License

Local File:

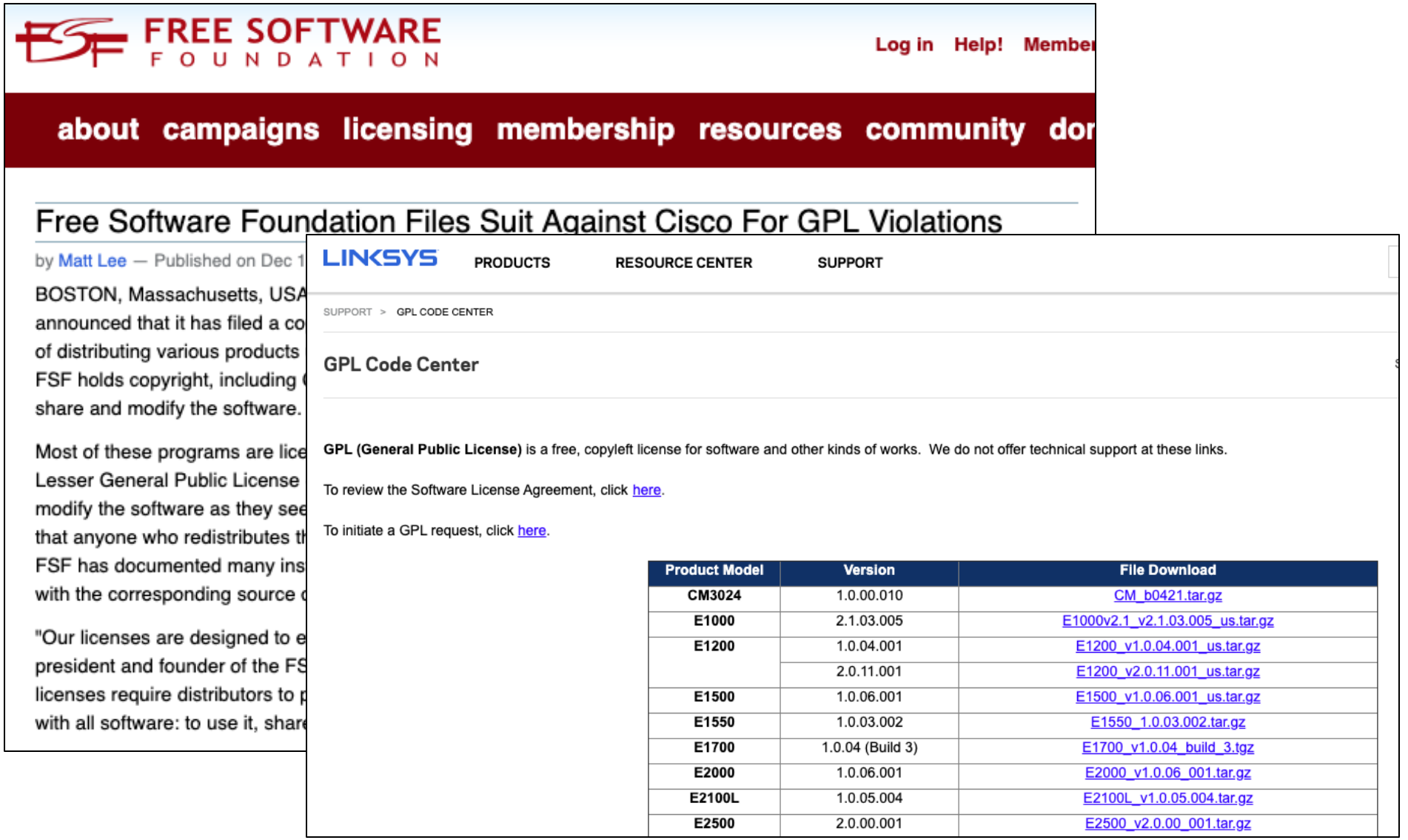
```
/*
* Copyright (c) 2014-2021 Bjoern Kimminich
* SPDX-License-Identifier: MIT
*/

const url = require('url')

let proxy = {
proxyType: 'autodetect'
}
```

Local Copyright

Local License

Legal Risk

- Being Sued?



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Free Software Foundation Files Suit Against Cisco For GPL Violations

by Matt Lee — Published on Dec 1

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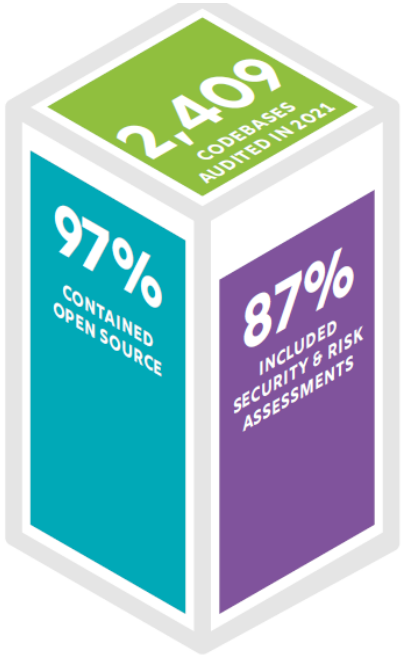
	2.0.11.001	E1200_v2.0.11.001_us.tar.gz
E1500	1.0.06.001	E1500_v1.0.06.001_us.tar.gz
E1550	1.0.03.002	E1550_1.0.03.002.tar.gz
E1700	1.0.04 (Build 3)	E1700_v1.0.04_build_3.tgz
E2000	1.0.06.001	E2000_v1.0.06_001.tar.gz
E2100L	1.0.05.004	E2100L_v1.0.05.004.tar.gz
E2500	2.0.00.001	E2500_v2.0.00_001.tar.gz

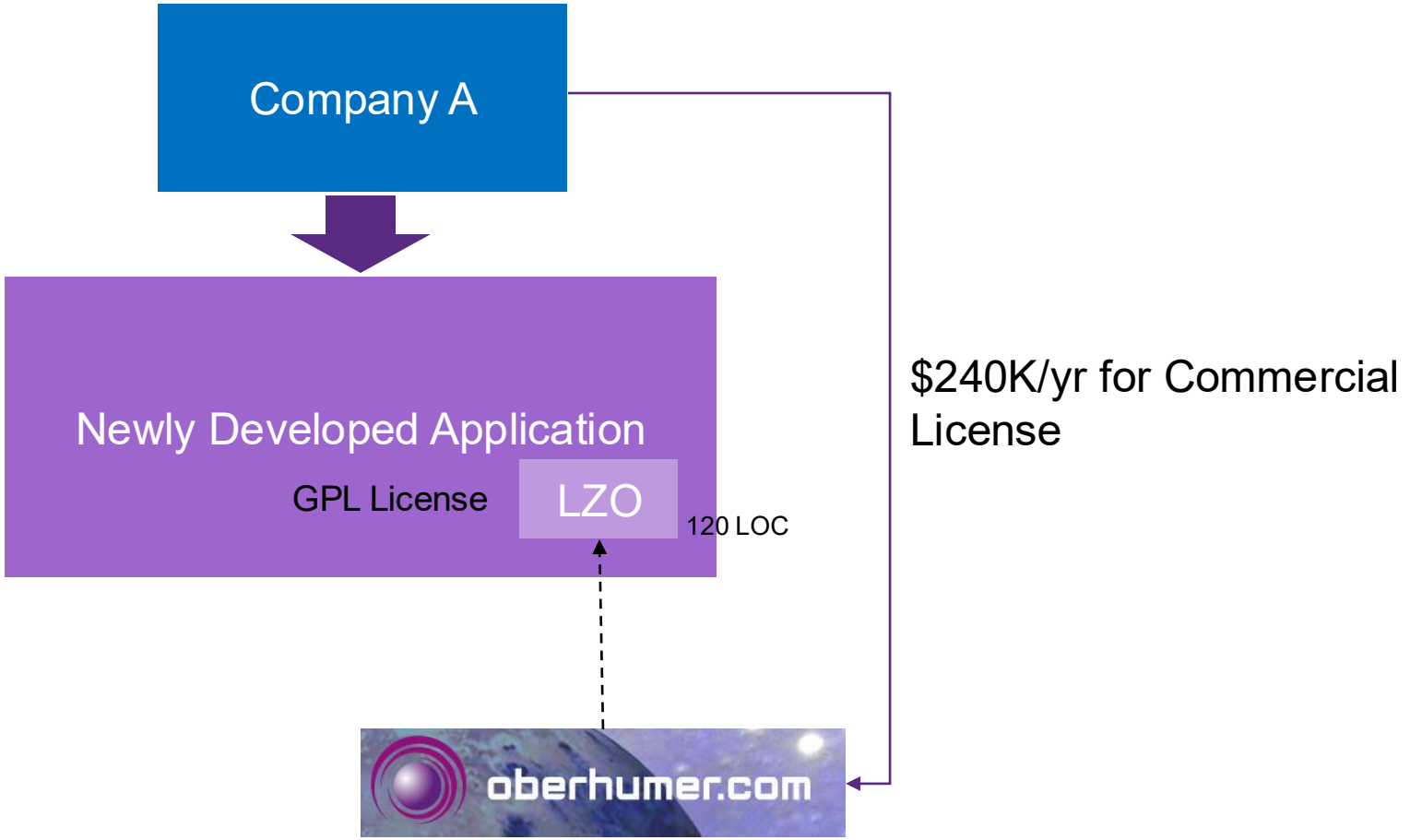
Actual Legal Risk

- ~~Being Sued~~

- IPO/Market Valuation
  - Intellectual Property Value



Black Duck On-Demand Service



Best Practices

Multifactor Scanning

source, dependencies, binaries, snippets, artefacts etc.

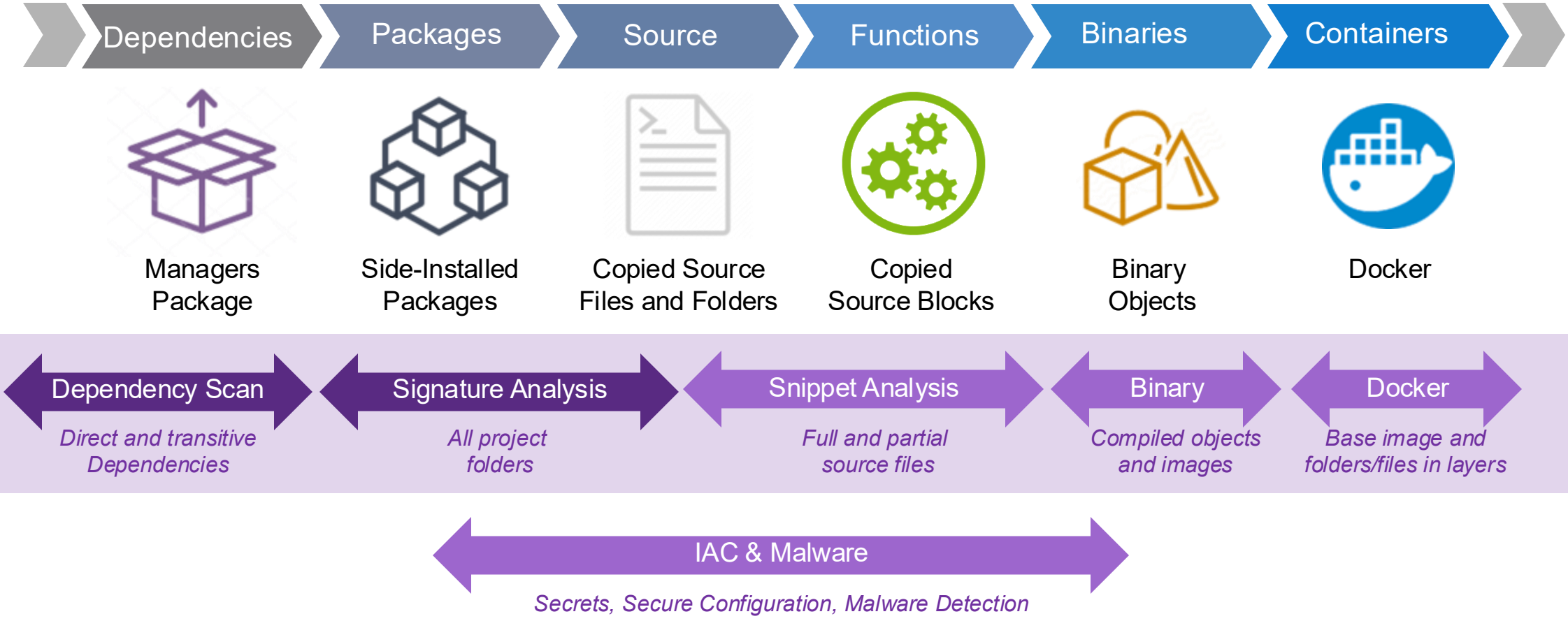
Advanced Vulnerability Data

public data not reliable

Shift Everywhere

automation, compliance, validation

Identifying OSS and Third-Party Software



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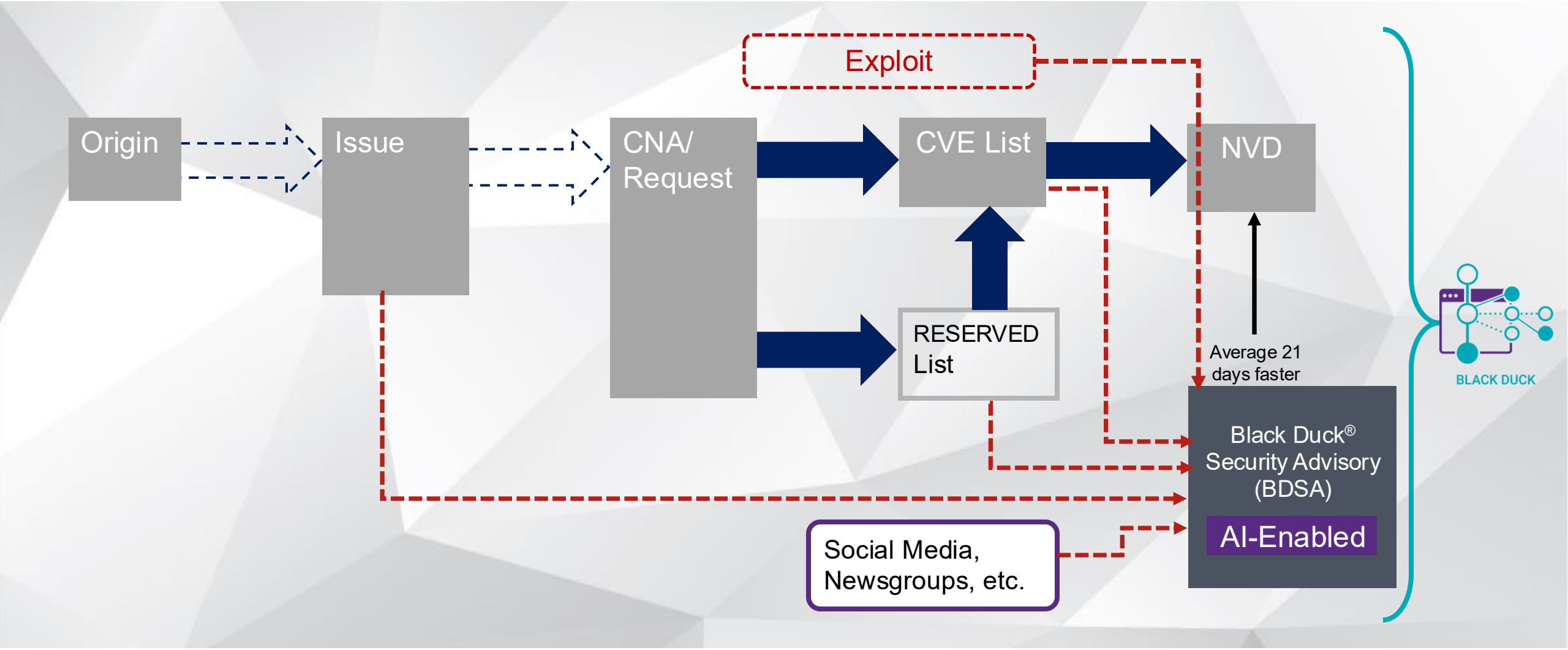
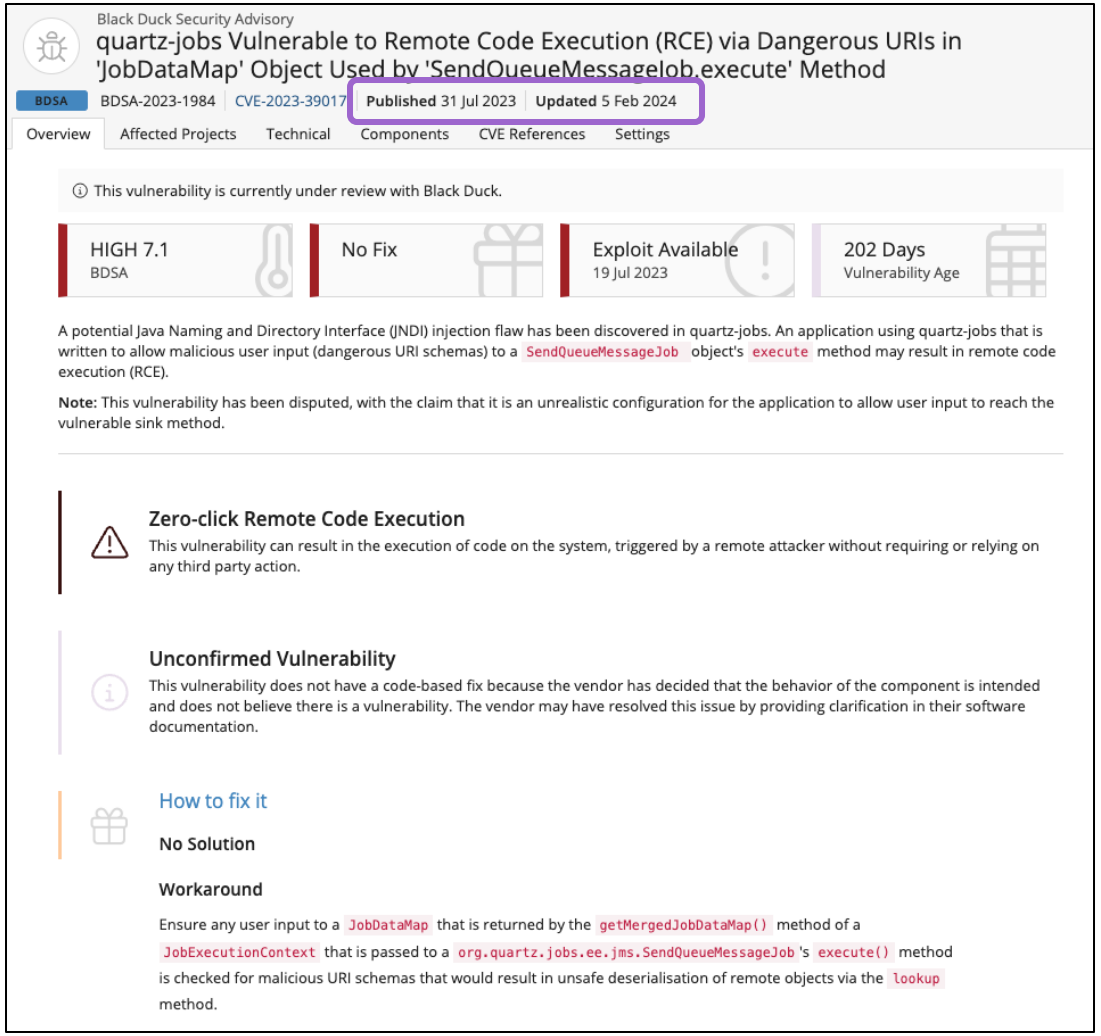
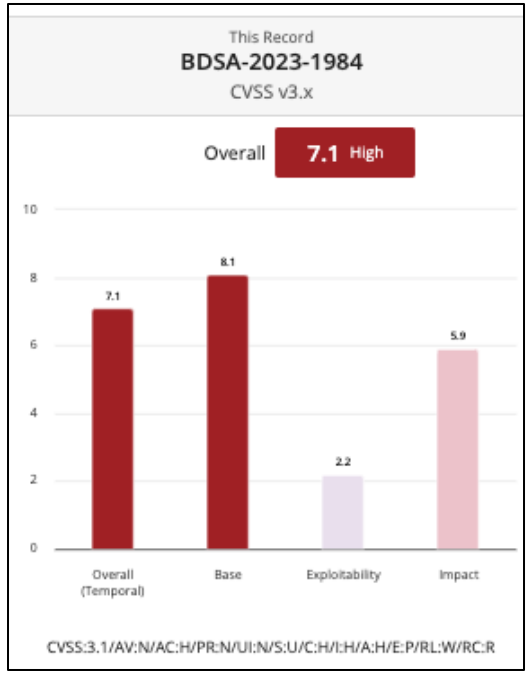
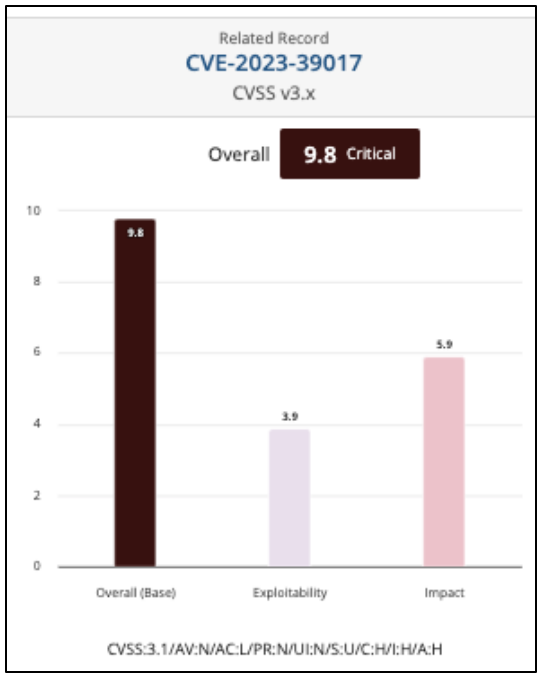
Enhanced Security Workflow



BDSA versus CVE







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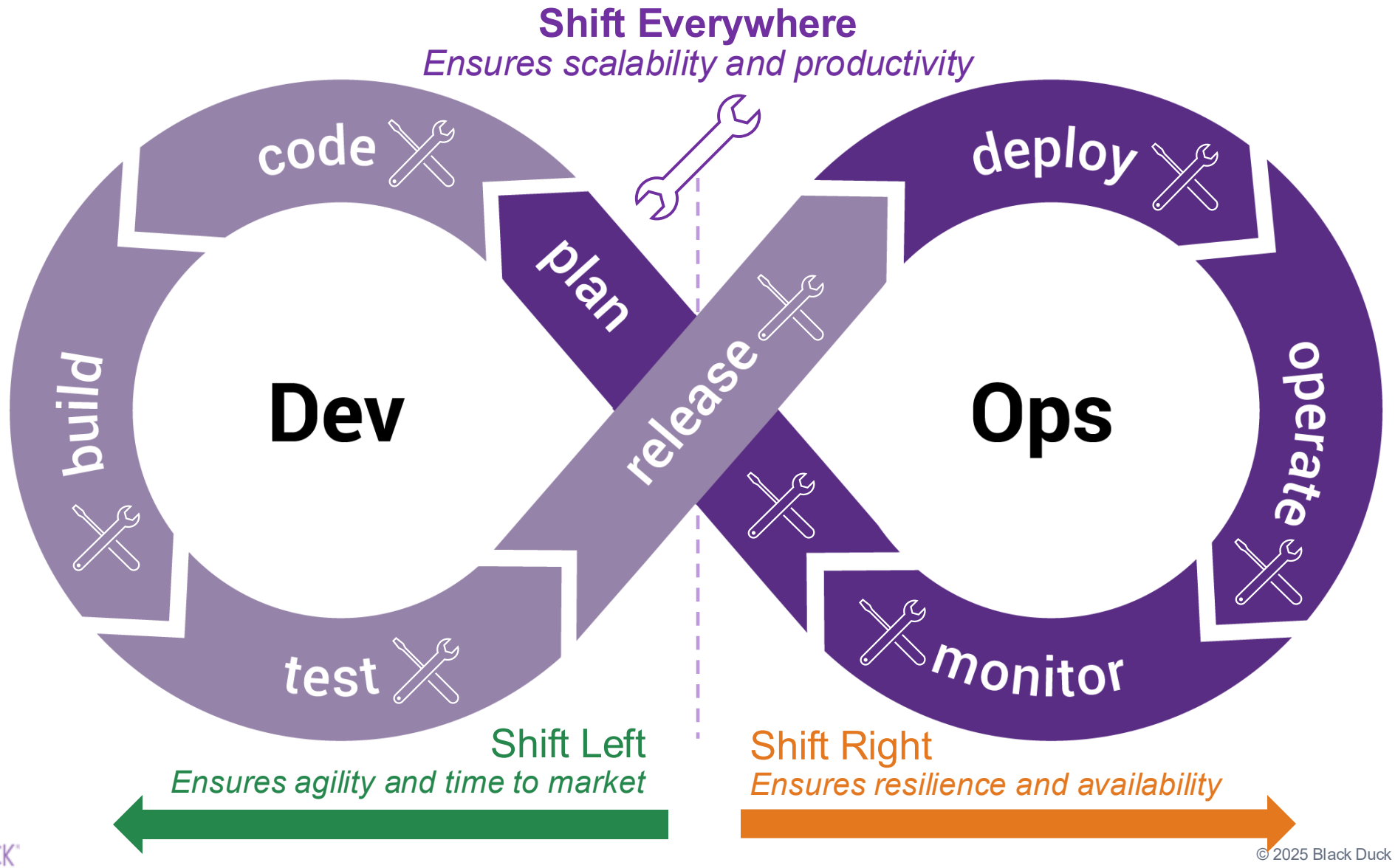
Shift Left vs. Shift Right



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