Secrets Revealed: Launching a Successful Enterprise DevSecOps Program

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WHO AM I?

* 1996-2006	Network Engineer *(recovering)*	Financial Institution
* 2006-2011	Security Analyst/Engineer	Financial Institution
* 2011-2014	Network Security Architect	Global Consulting Firm
* 2014-2022	Director of Security & IR	Analytics/Big Data Firm
* 2022-2024	Chief Technical Security Officer	Security/Compliance Vendor
* 2024-Current	Consulting CISO	Undisclosed Clients

AGENDA

1.) Goals

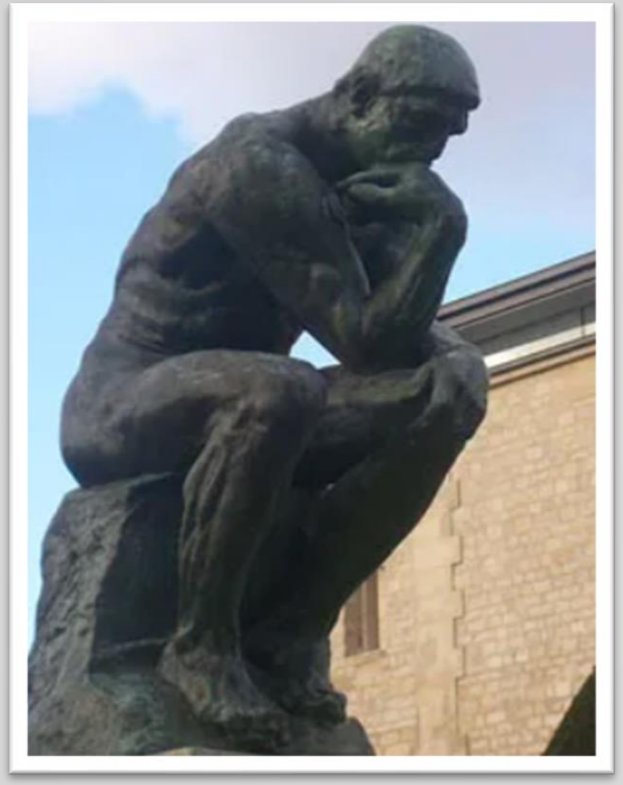
2.) Engagement Strategy

3.) Highlights

4.) Success Patterns

5.) How SBOM Shapes Next Steps

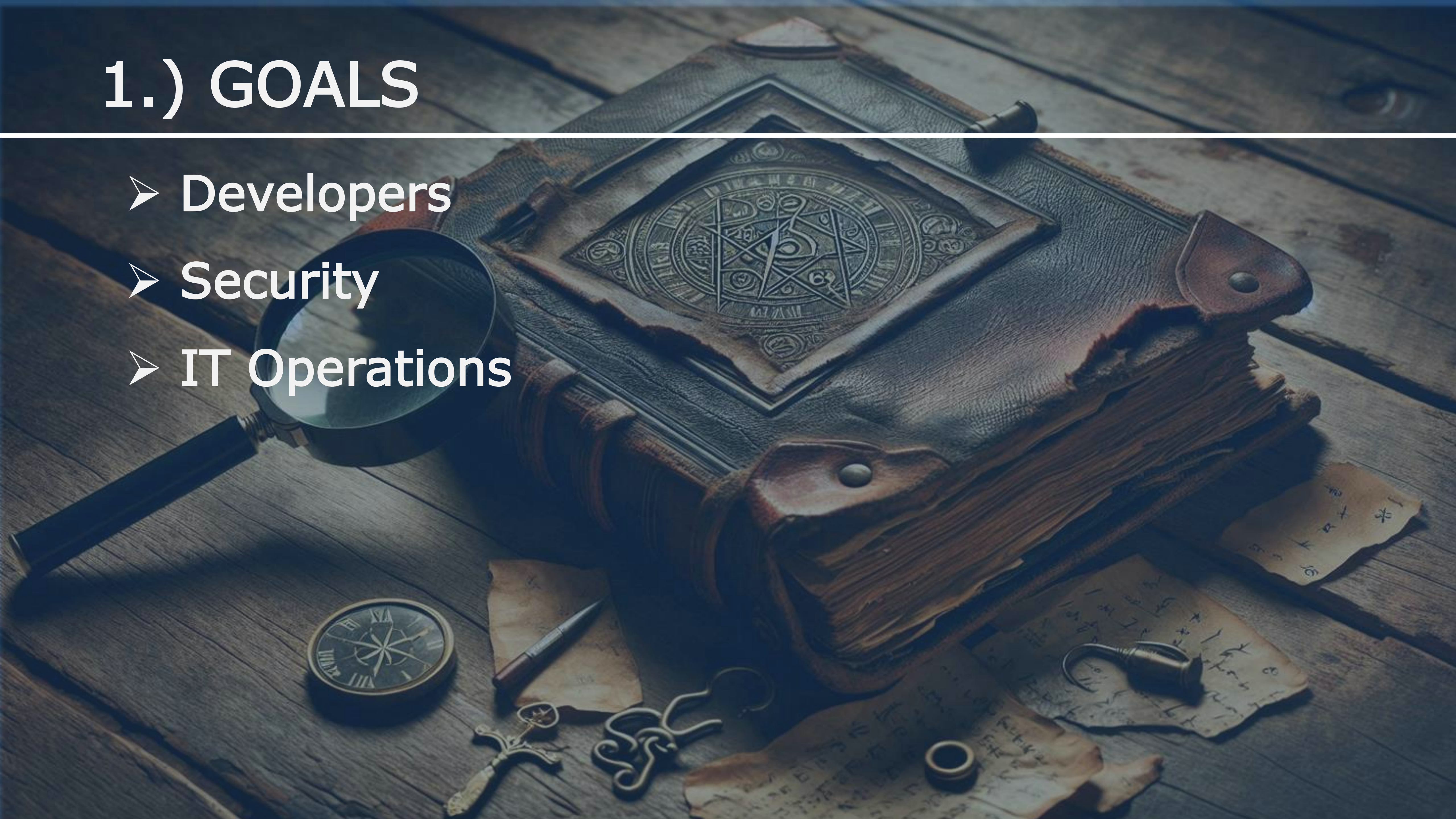
DevSecOps, WHAT DOES GOOD LOOK LIKE?



A successful blend of IT operations and security enabling developers to deliver products for the business in a secure manner.

1.) GOALS

- Developers
- Security
- IT Operations



GOALS FOR DEVELOPERS

- ✓ ***Frictionless**
- ✓ *Secure coding **IS** code quality
- ✓ **Prevent rework** before deployment
- ✓ Continue to **deliver stable & secure products**
- ✓ Patterns **easily transition to cloud**
- ✓ What can be **Automated?** (Now & Future)

GOALS FOR SECURITY

- *****Decrease** application attack surface
- **Mitigate** the chances of breaches & outages with this emphasis on code quality
- Use a **"bend but don't break"** security approach
- **Automate, Automate, Automate**

GOALS FOR IT OPERATIONS

- ✓ Daily operations work – **not interrupted**
- ✓ **Empowerment** focus
- ✓ **Upskill** opportunity
- ✓ **Automate, Automate, Automate**

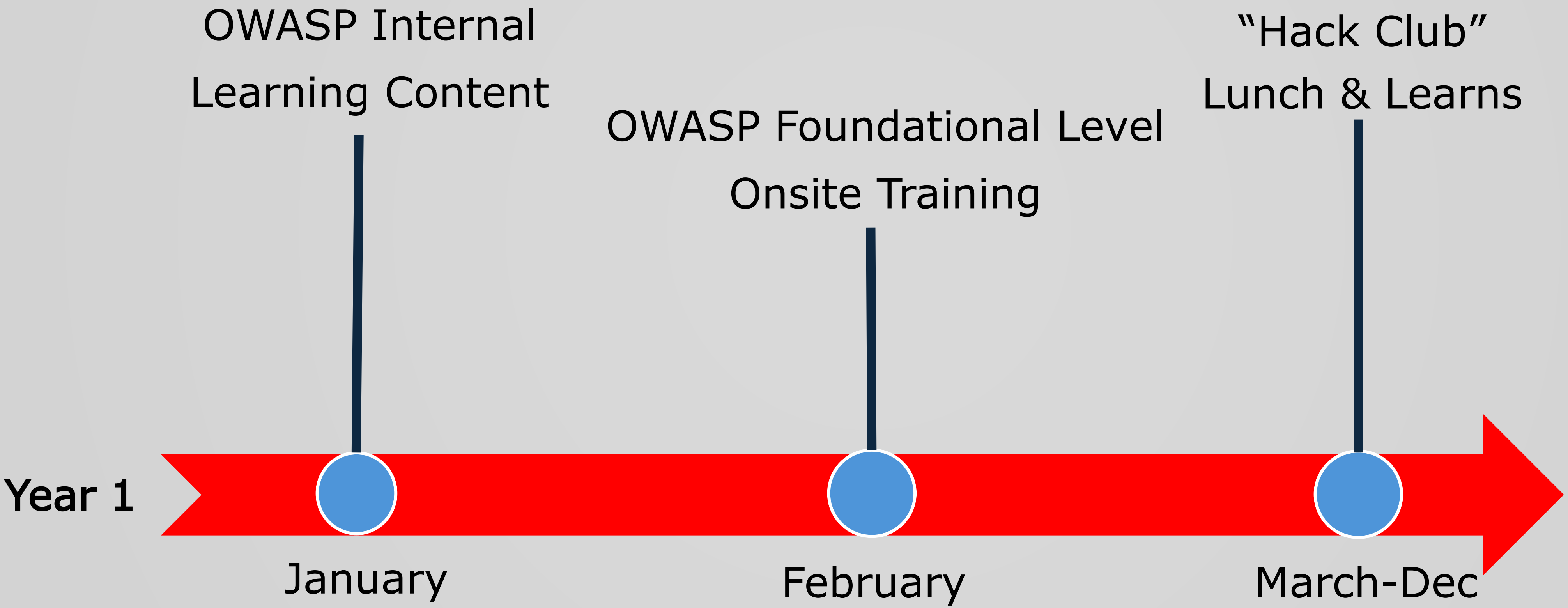
2.) ENGAGAMENT STRATEGY

- Engineering Management Alignment
- Education/Outreach
- Matrixed Teams

ENGINEERING MANAGEMENT ALIGNMENT

- ~~“We don’t have time for this DevSecOps initiative.”~~ (Priority)
- ~~“We don’t have money for this new initiative.”~~
- ~~We don’t know how to do this effectively & efficiently”.~~

EDUCATION APPROACH - YEAR 1



OWASP Internal Learning Content

OWASP Foundational Level Onsite Training

“Hack Club” Lunch & Learns

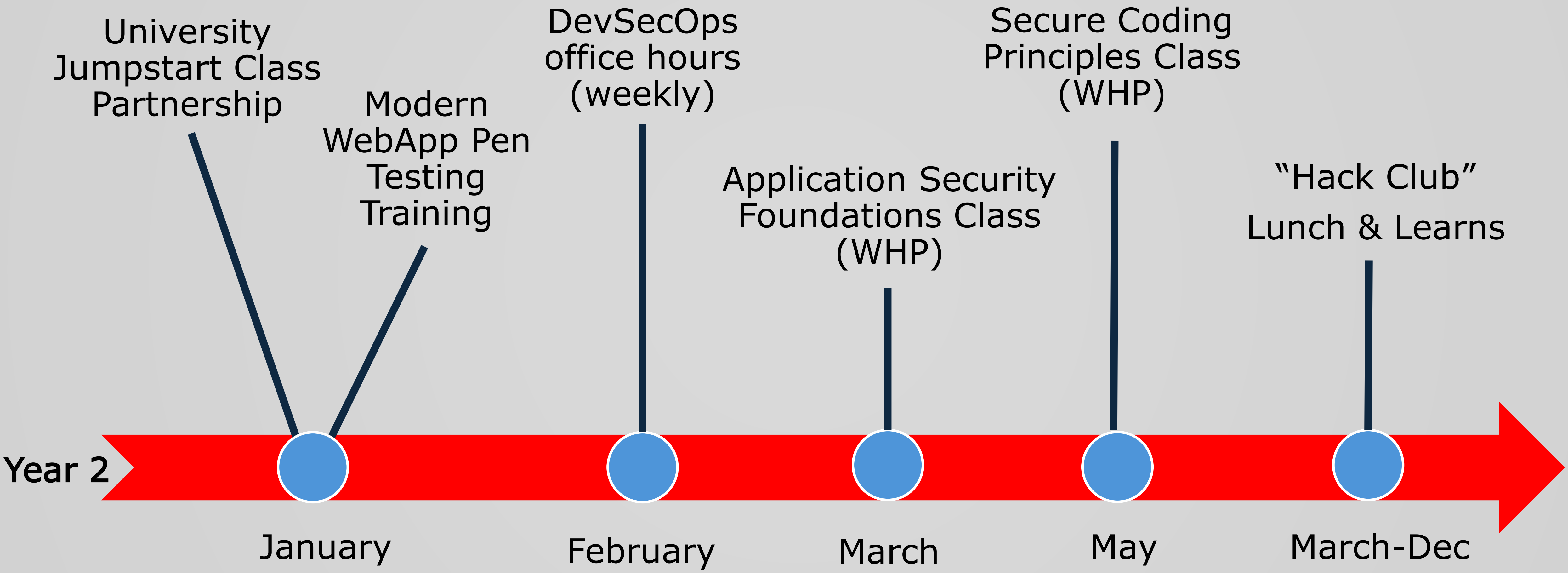
Year 1

January

February

March-Dec

EDUCATION APPROACH – YEAR 2



Year 2

University Jumpstart Class Partnership

Modern WebApp Pen Testing Training

January

DevSecOps office hours (weekly)

February

Application Security Foundations Class (WHP)

March

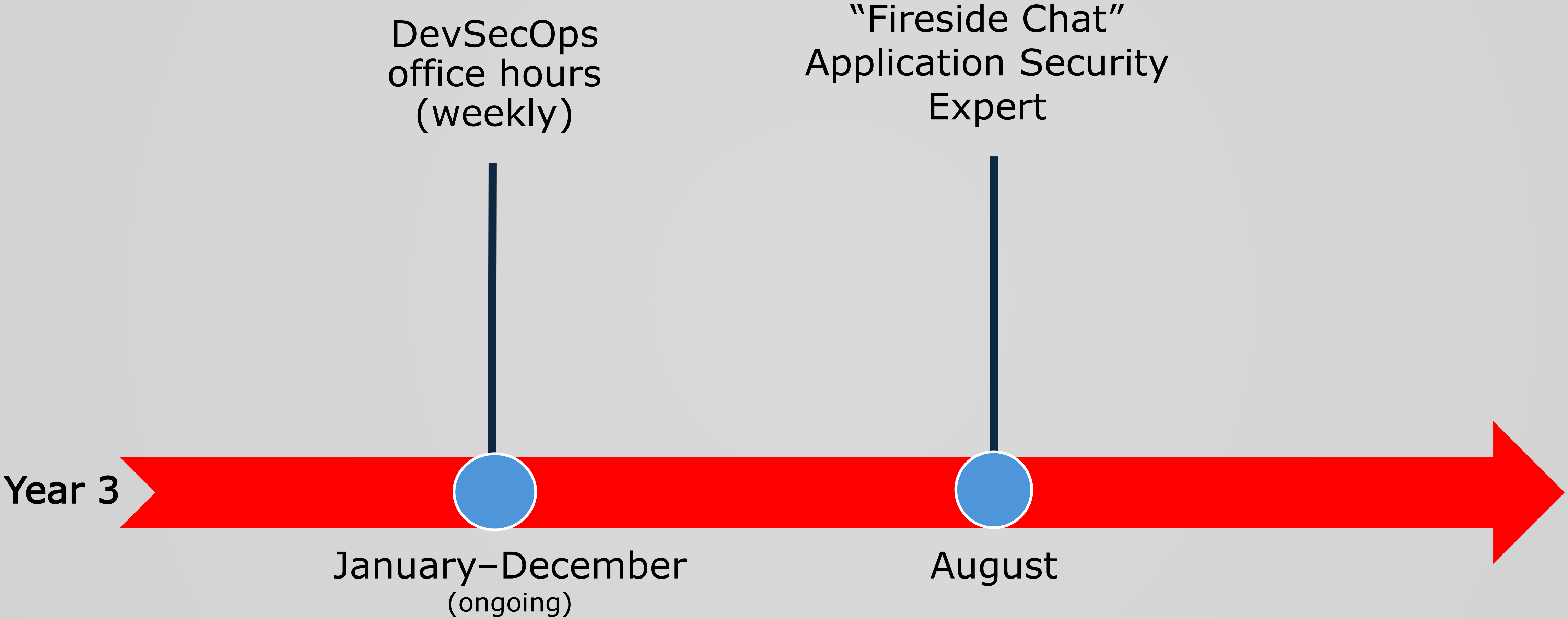
Secure Coding Principles Class (WHP)

May

“Hack Club” Lunch & Learns

March-Dec

EDUCATION APPROACH – YEAR 3



Year 3

DevSecOps
office hours
(weekly)

January–December
(ongoing)

“Fireside Chat”
Application Security
Expert

August

MATRIXED TEAMS

Mission Statement:

Drive security throughout the development and CI/CD process by leveraging Star Chamber's diverse **skills** and **perspectives** to achieve mutual agreed outcomes for the business.

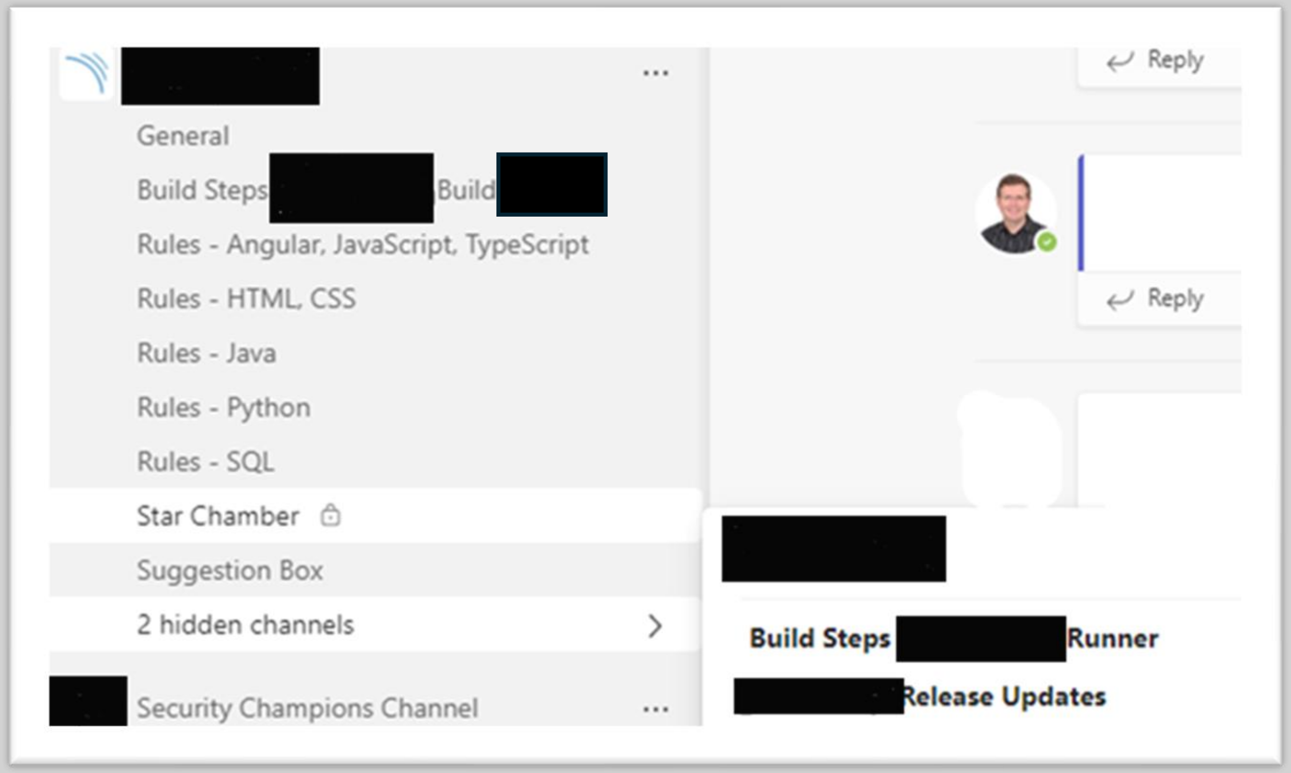
Star Chamber Members:

- Engineering
- Developer Services
- SREs
- Platform
- Security

MATRIXED TEAMS

✓ Security Champions Program

- Role: To "champion" security concepts throughout their respective dev workstreams



[redacted]

General

Build Steps [redacted] Build [redacted]

Rules - Angular, JavaScript, TypeScript

Rules - HTML, CSS

Rules - Java

Rules - Python

Rules - SQL

Star Chamber

Suggestion Box

2 hidden channels

[redacted] Security Champions Channel

[redacted]

Build Steps [redacted] Runner

[redacted] Release Updates

✓ SAST Teams Channel

- Facilitated expedited feedback

✓ Developer Services

- Enrich established "Paved Road" patterns w/ these secure coding principles
- Leveraged "office hours" to cross pollinate for learning opportunities

3.) PROGRAM HIGHLIGHTS

- Year 1
- Year 2

HIGHLIGHTS – YEAR 1

✓ Decreased Application Attack Surface

- Influenced RGA/MC dev. programs to adhere to SAST tooling compiling breaker feature
- Result: 100% organization’s #1 Revenue Generating Application — July Year 1
- Result: >90% organization’s #2 Revenue Generating Application — Nov Year 1

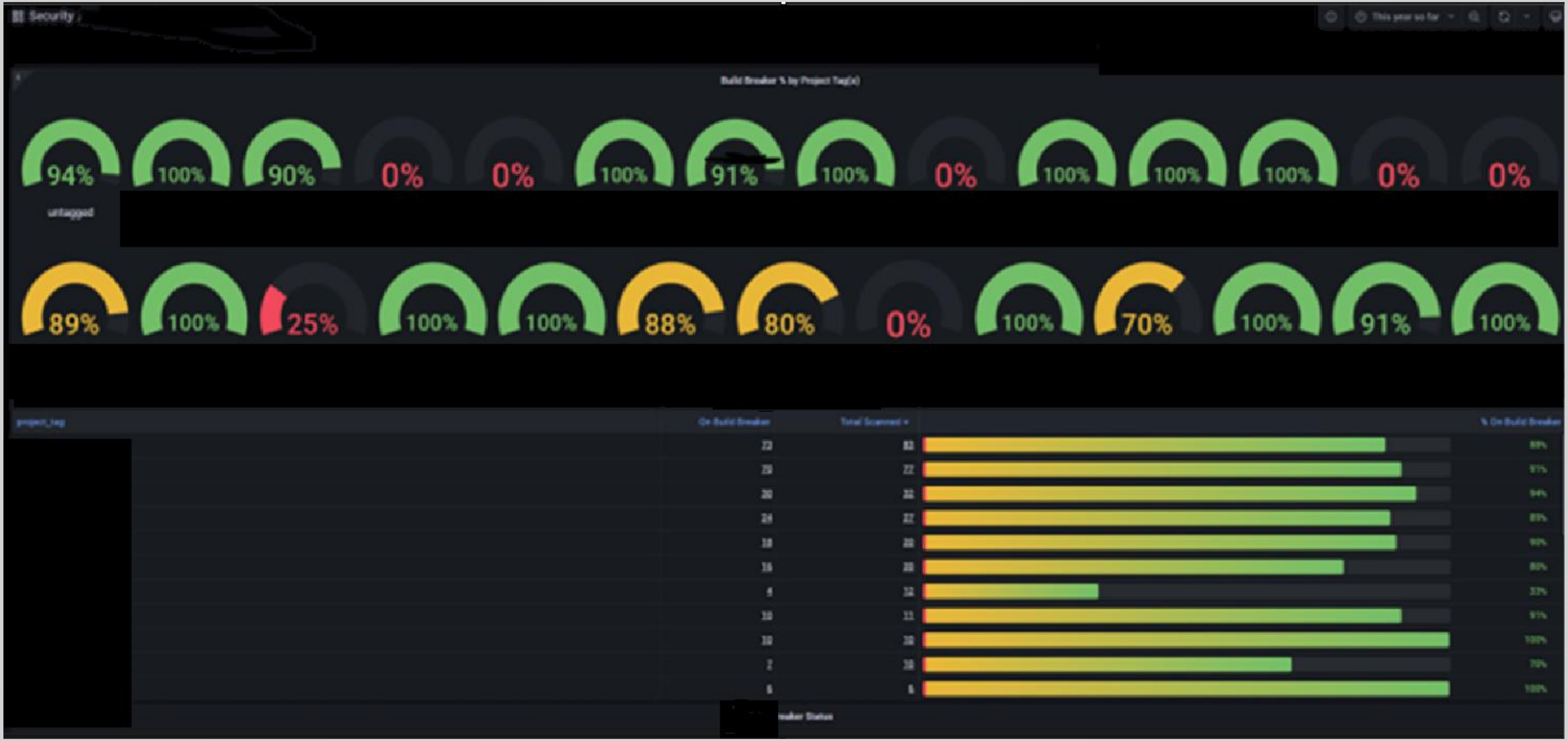
✓ Increased Code Quality

- Helped deliver stable offerings to customers & upstream company
- SAST Dashboard Metrics

✓ Matured Processes

- Automatic exception process completed — Aug Year 1
- DevSecOps roadmap validated by 3rd party — Sept Year 1

HIGHLIGHTS - SAST DASHBOARD



Security / [redacted]

This year so far

Build Breaker % by Project Tag(s)

[redacted]

project_tag	On Build Breaker	Total Scanned ▾	% On Build Breaker
[redacted]	25	28	89%
[redacted]	20	22	91%
[redacted]	30	32	94%
[redacted]	24	27	89%
[redacted]	18	20	90%
[redacted]	16	20	80%
[redacted]	4	12	33%
[redacted]	10	11	91%
[redacted]	10	10	100%
[redacted]	7	10	70%
[redacted]	5	5	100%

[redacted] eaker Status

HIGHLIGHTS – YEAR 2

✓ **Process Improvement**

- Complier breaker compliance for all dev stream programs (operationalized:Q1 Year 2)
- Added **security evaluation points** into the CI/CD pipeline
- DAST solution researched & tested Q1 Year 2

✓ **SAST "Hot Spot Champions"** - Q1 Year 2

- Empowered selected developers to review & fix findings:
  - status of code smells
  - issues & security hotspots identified in their teams' code

4.) SUCCESS PATTERNS

- ➢Non-Technical
- ➢Technical

SUCCESS PATTERNS: NON-TECHNICAL - 1

✓ **Partnering, Listening, Partnering, Asking Questions, Listening etc.**

- Reoccurring meetings with ALL engineering leadership (monthly/weekly)
- *”**Secure code** is a *form* of **code quality**.”
- Seamless experience delivered to developers

✓ **Training/Outreach**

- Web App Pen testing training → OK
- Monthly Hack Club meetings & ILMS → Better
- *Secure Coding training → Best Approach!

SUCCESS PATTERNS: NON-TECHNICAL - 2

✓ **"Secret Sauce"**

- Matrixed working groups- Star Chamber; Security Champions; DevSecOps Office Hours
- Word-Marketing - "Security Assessment/Evaluations Points" **vs.** "Security Toll Gates
- Training dollars - Sourced by Security
- Measure Sentiment - Gauge & Report program value

✓ **Manager/Leader Pro-Tips:**

#1 Recognize developers via employee internal recognition mechanisms

#2 Enrich recognition write-up w/ company values + company mission statement

#3 Calibration: highlight key developers' contributions to this security space

SUCCESS PATTERNS: TECHNICAL

- ✓ Static Code Analysis Solution
  - **Low cost point/low entry point** for CI/CD pipeline integration & adoption
  - Purchased by Security
  - Administered by Platform team

- ✓ Metrics
  - Dashboard: DevSecOps program **value clearly articulated** delivered by near real-time statu
  - **Instant self feedback** led to application remediations

- ✓ Frictionless Experience Delivered
  - Leveraged existing ITSM/Asset Management application - **automated & timed** ability to document exceptions to get “code out the door” to **meet business goals**

    *(*Always **be mindful** of your organization’s **risk tolerance** w/ exceptions!)*
  - **Feedback quickly** provided via DevSecOps “office hours”; SAST Teams channel; Dev Services “office hours”

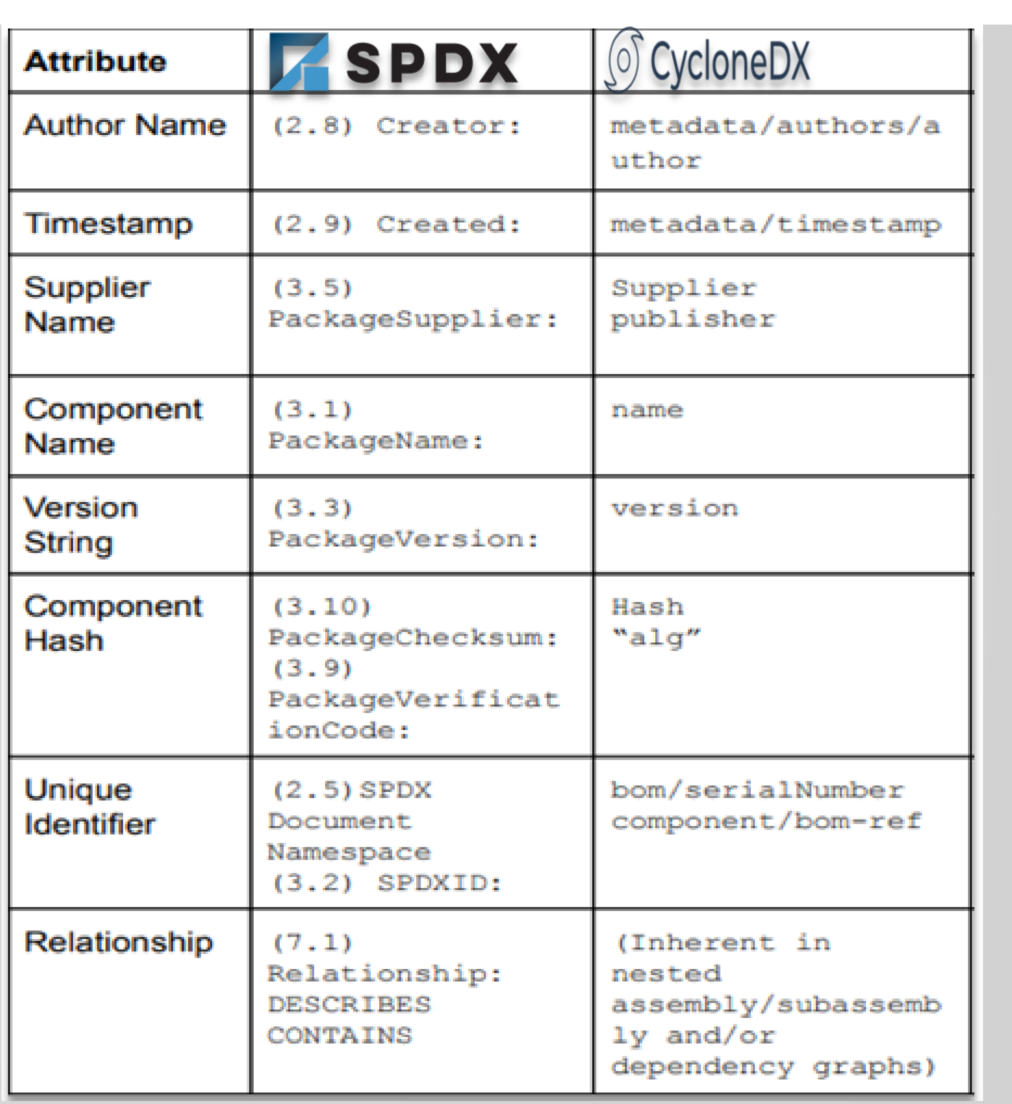
5.) NEXT STEPS

- SBOM & DevSecOps

SBOM, WHAT IS IT?

- **Software Bill Of Materials-** A **structure list** of components, libraries, and modules used in a build

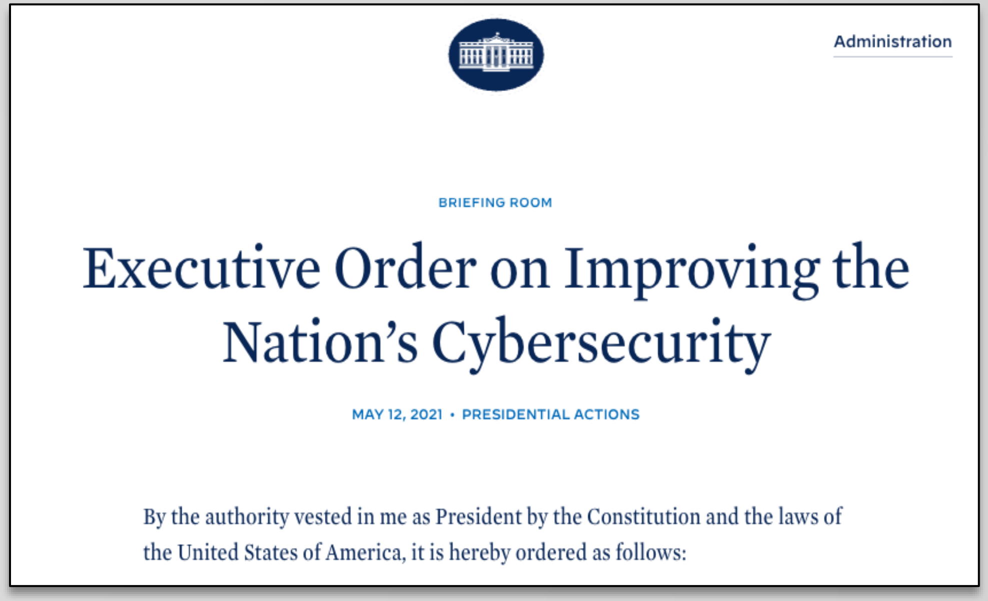
- **Goal:** automated job built into the existing CI/CD pipeline tooling & process



Attribute	SPDX	CycloneDX
Author Name	(2.8) Creator:	metadata/authors/author
Timestamp	(2.9) Created:	metadata/timestamp
Supplier Name	(3.5) PackageSupplier:	Supplier publisher
Component Name	(3.1) PackageName:	name
Version String	(3.3) PackageVersion:	version
Component Hash	(3.10) PackageChecksum: (3.9) PackageVerificationCode:	Hash “alg”
Unique Identifier	(2.5) SPDX Document Namespace (3.2) SPDXID:	bom/serialNumber component/bom-ref
Relationship	(7.1) Relationship: DESCRIBES CONTAINS	(Inherent in nested assembly/subassembly and/or dependency graphs)

DRIVING FORCES FOR SBOM ADOPTION

- ✓ Executive Order on SBOM
- ✓ Secure software supply chain
- ✓ Upstream customer expectations



Administration

BRIEFING ROOM

Executive Order on Improving the Nation's Cybersecurity

MAY 12, 2021 • PRESIDENTIAL ACTIONS

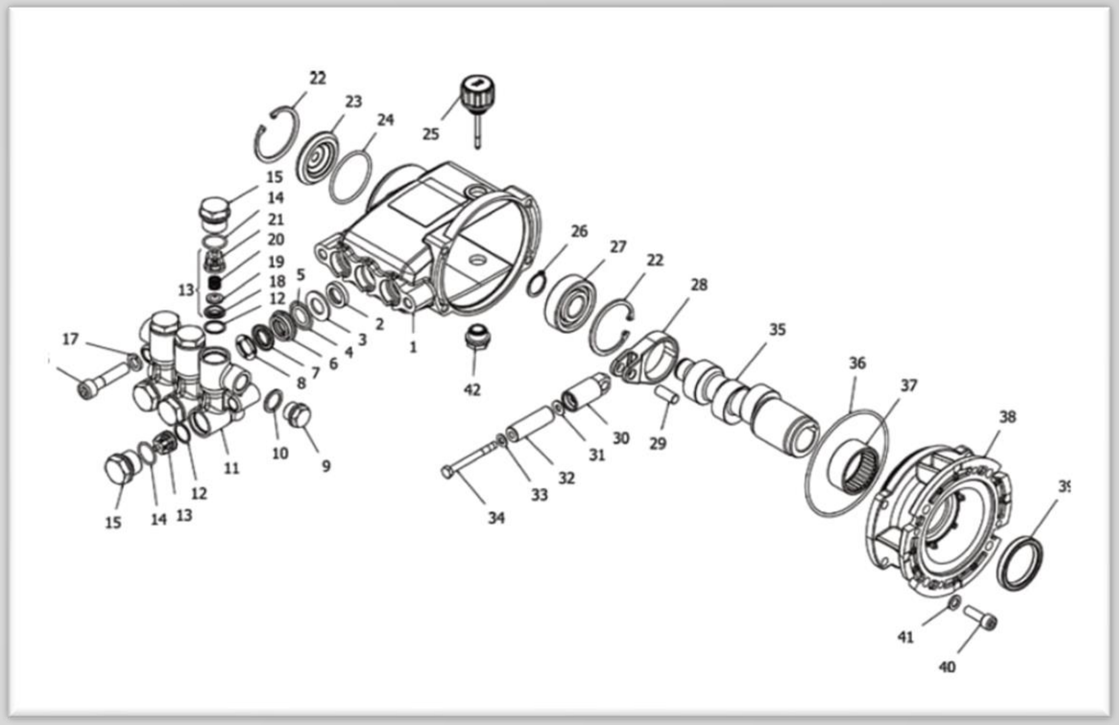
By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

CLOUD NATIVE
COMPUTING FOUNDATION

CYBERSECURITY
& INFRASTRUCTURE
SECURITY AGENCY

PREVENT ISSUES WITH SBOM

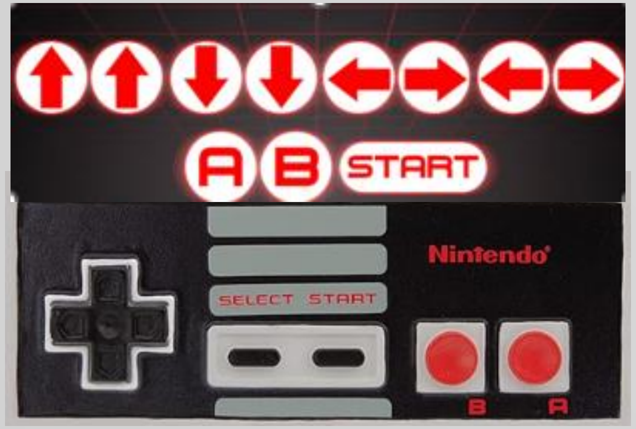
- **Identify all** software assets
- Detect vulnerabilities **early and often**
- **Provide transparency** to customers & internal teams
- **Provide insights** to engineering teams

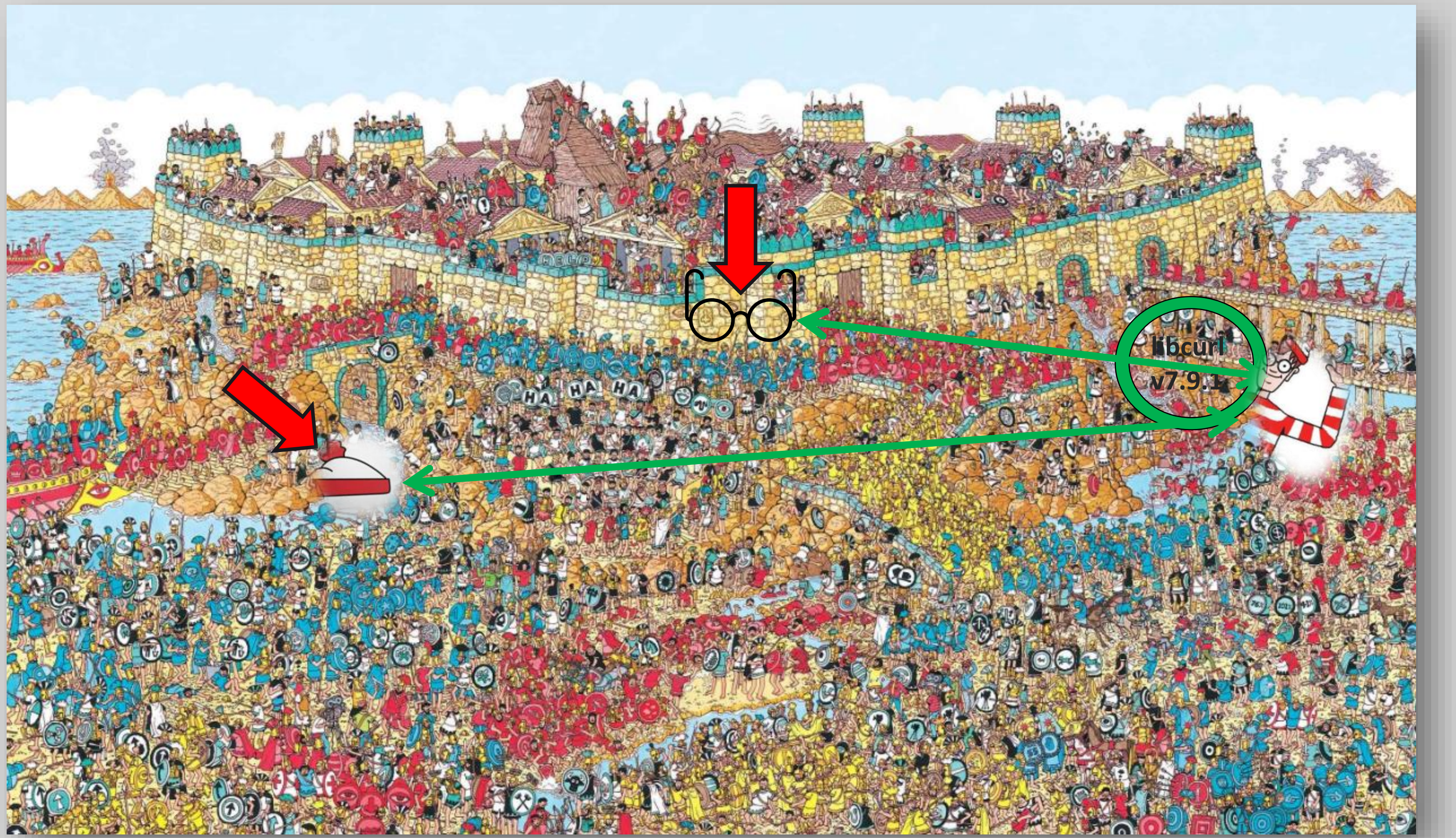


HOW CAN THIS WORK IN REALITY?

- ✓ CVE-2023-38545 cURL & libcurl
- ✓ CVE-2023-38546 libcurl

SBOM IS THE CHEAT CODE





7 KEY TAKEAWAYS

1.) Identify & Remove Adoption Barriers

2.) Collaboration Centric

3.) "Word-Marketing"

4.) Training/Outreach

5.) Program Value Advertising

6.) Program Improvement Beyond " *What Good Looks Like*."

7.) Document & Action "Your Future List"

Questions

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Thank You,
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