Adding API Security to your DevSecOps Toolbelt

OWASP LA
January 29th, 2025

Talent · Technology · Partners

Agenda

- Introduction
- What are the Stakes?
- Why API Security
- DevOps vs DevSecOps
- Technology
- Processes
- People
- Contact

Introduction

SIS API Security and
DevSecOps Practice

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Background

Noname Security

AWS

CyberSecurity Solutions Architect

Director IT, Cyber

IT/Cyber Consultant 15+ years

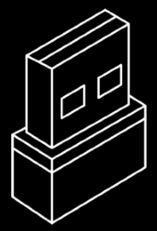
What are the Stakes?

- Cyber combat precedes physical combat
- Nation State APTs
- Cybercrime costs $10 Trillion annually
- $4.9 million average breach cost
- Regulatory fines
- Business impact
- Bankruptcy for small firms

Why API Security

- **85% of web attacks are now API attacks**
- Data is the new GOLD
- DevOps success
- Increased vulnerability
- API interdependent vulnerabilities
- Fix in Dev vs Ops
- 1200:1 | Devs:AppSec
- Technology, Processes, People
- ITERATIVE LIFT not a BURDEN

API Security Foundation

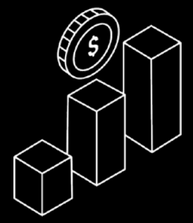


Discovery

API asset inventory, change detection, network mapping, reconnaissance.

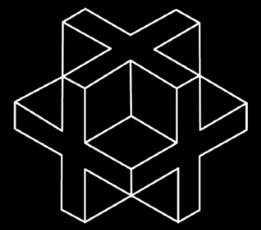
Posture Management

Configuration control, vulnerability management, remediation prioritization.



Runtime Protection

Detection and prevention of attackers and suspicious behavior in real time.



Active Testing

Secure APIs in dev to stop vulnerabilities before production.

DevOps

DevOps Software Factory

- Fast release
- Predictable results
- Infra as Code

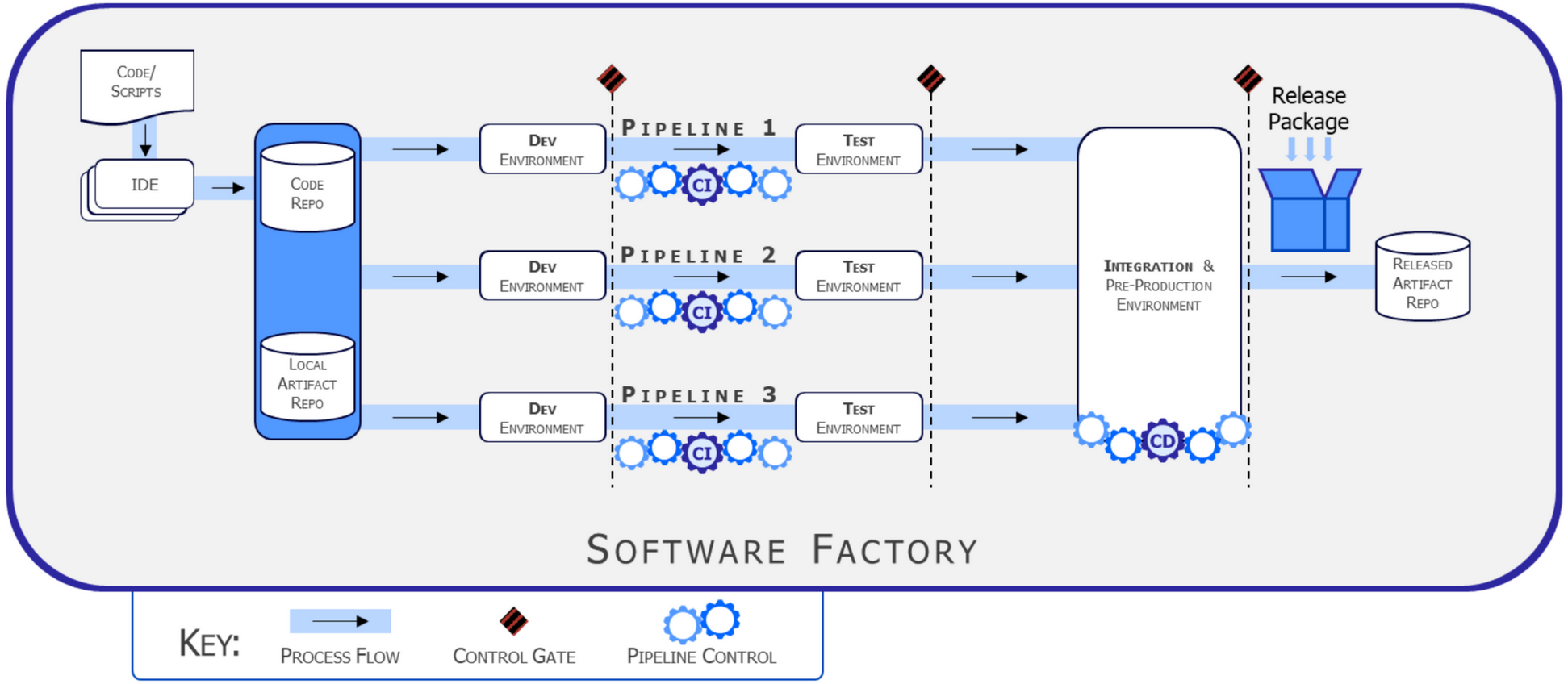


Figure 5 Normative Software Factory Construct

DevSecOps

DevSecOps Software Factory

- Shift Left
- Testing built into stages
- Not enough

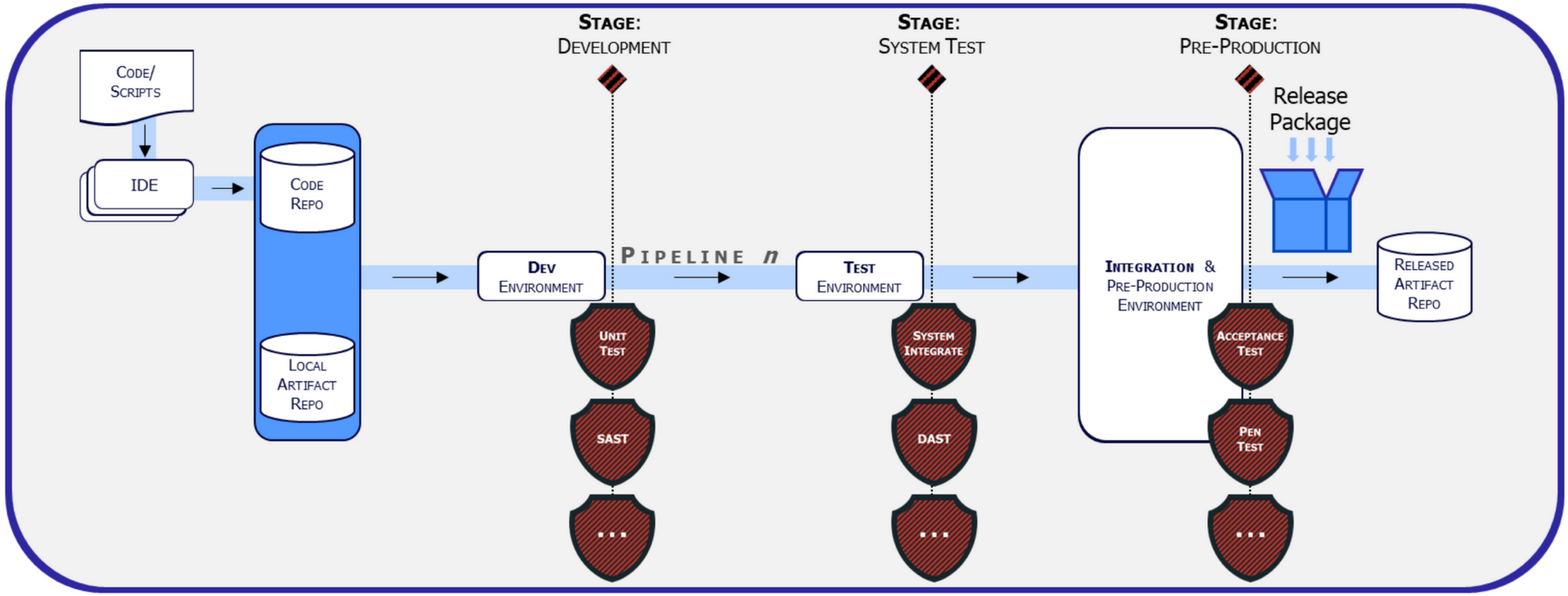


Figure 7 Notional expansion of a single DevSecOps software factory Pipeline

DevSecOps

DevSecOps Lifecycle

- DoD model
- Security at every stage
- Compre-hensive code lifecycle

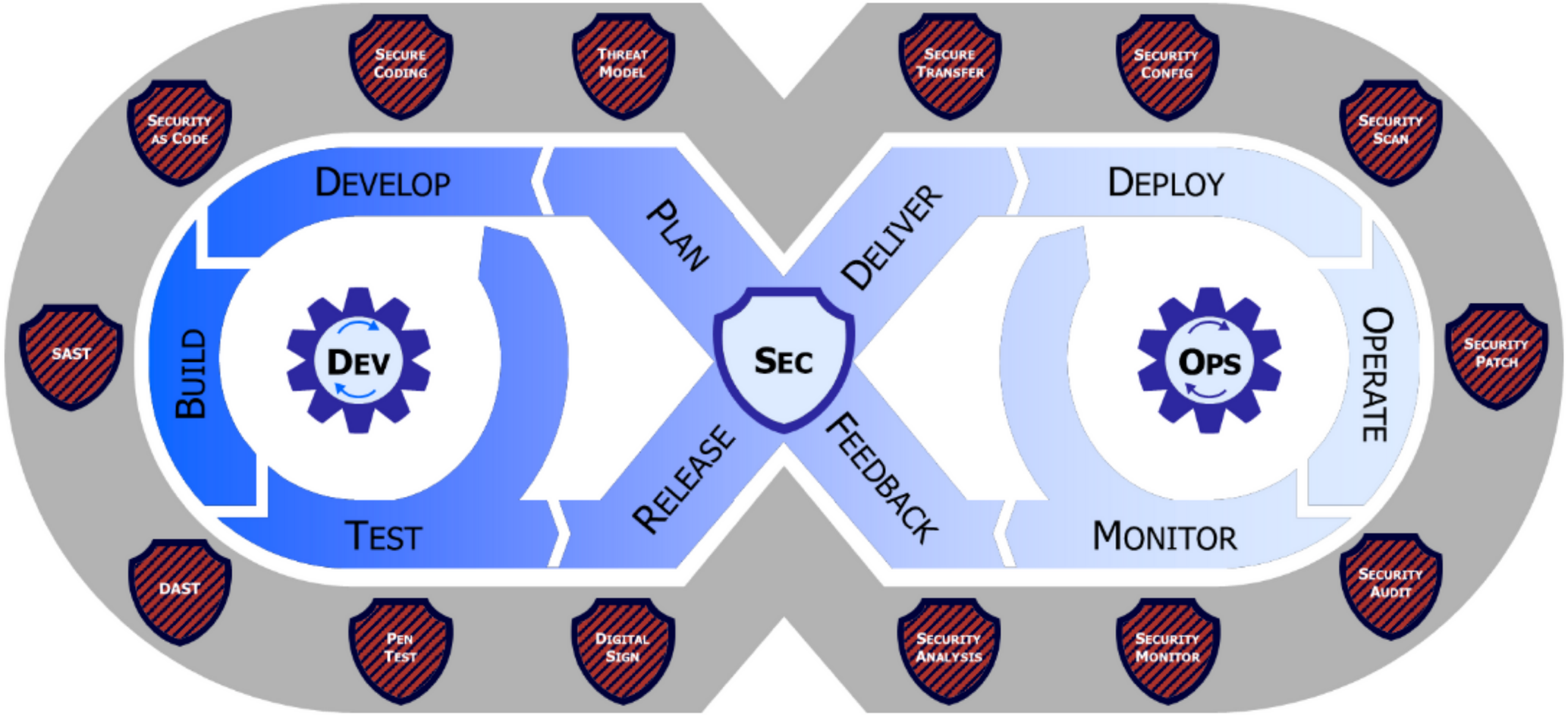


Figure 3 DevSecOps Distinct Lifecycle Phases and Philosophies

API Sec at arrows

DoD DevSecOps Security Strategy

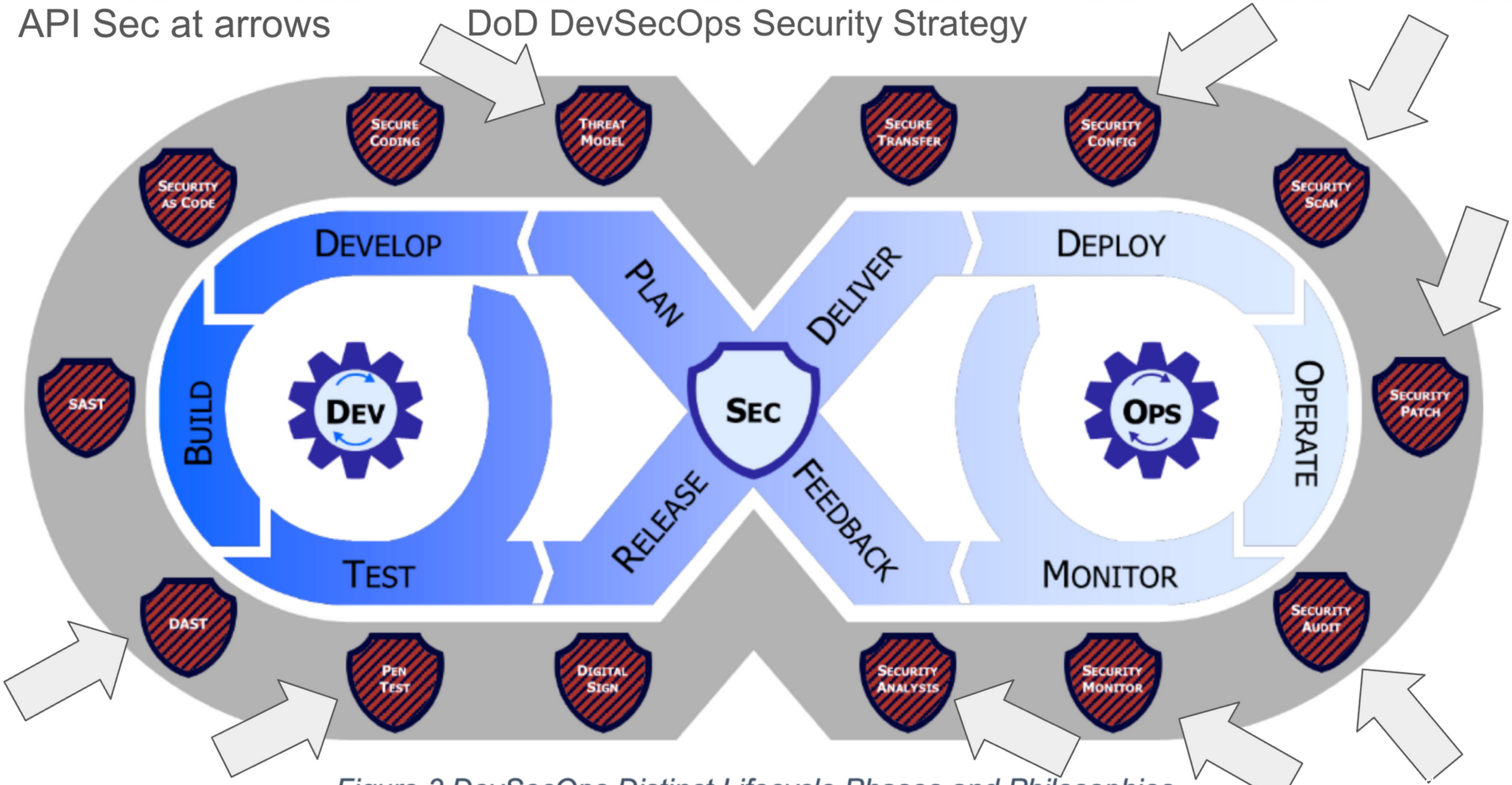


Figure 3 DevSecOps Distinct Lifecycle Phases and Philosophies

Technology

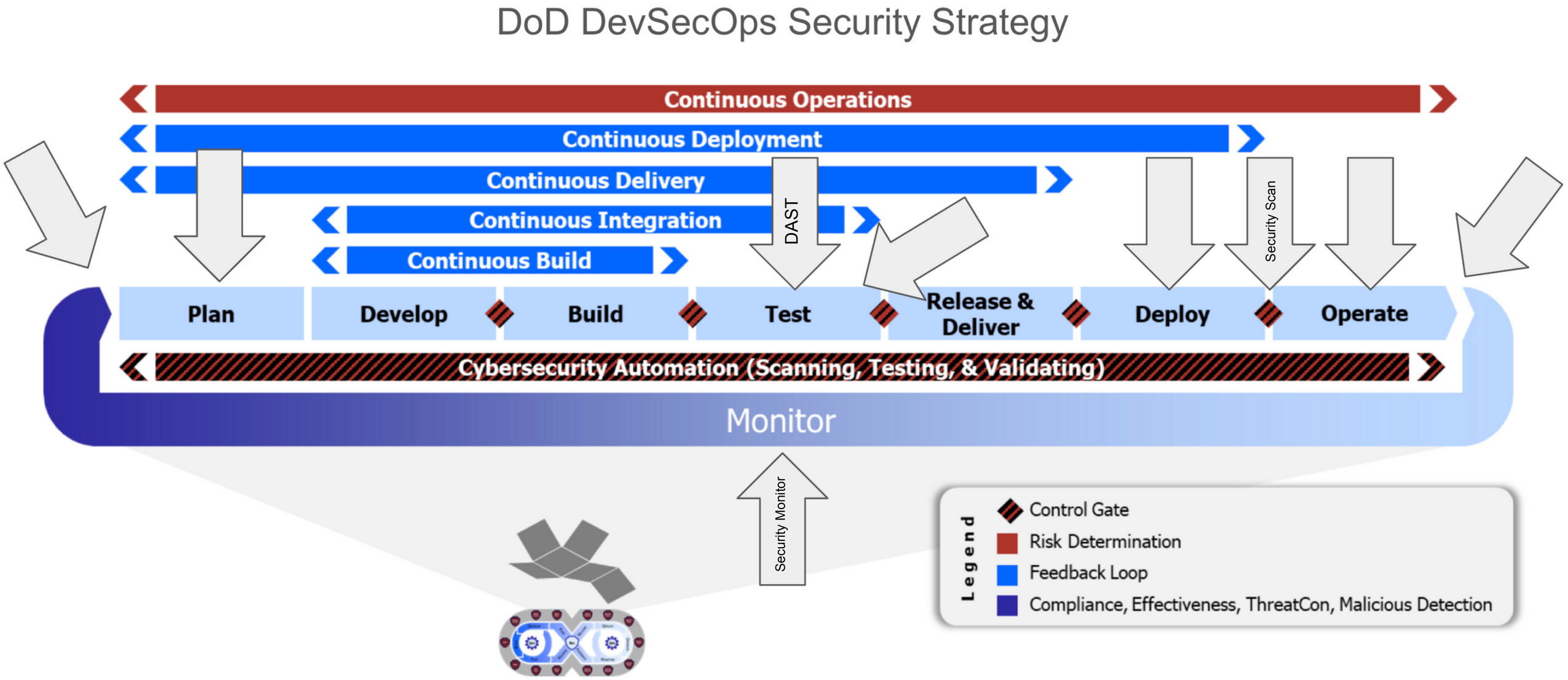
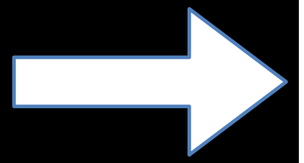


Figure 6 DevSecOps Lifecycle Phases, Continuous Feedback Loops, & Control Gates

Technology

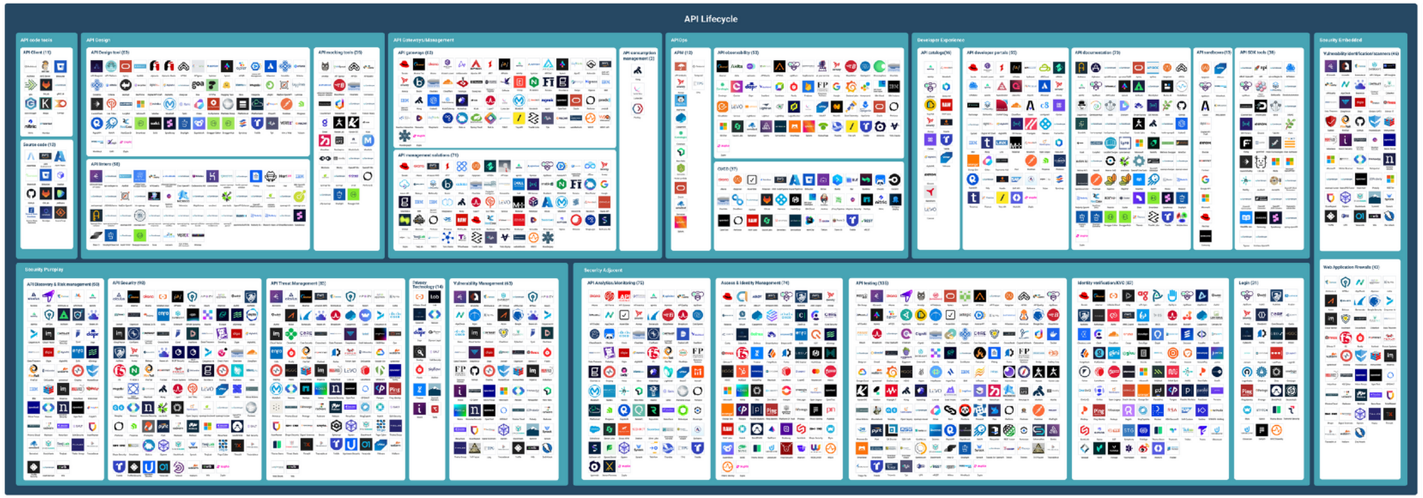
Behold the API Landscape

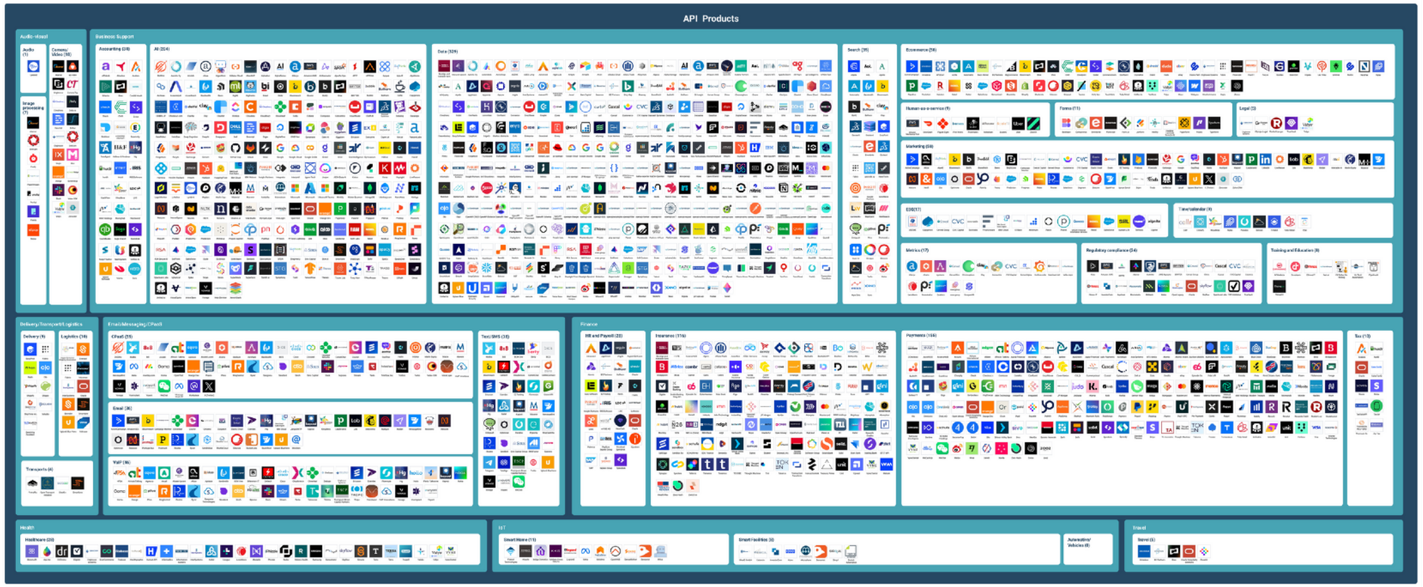


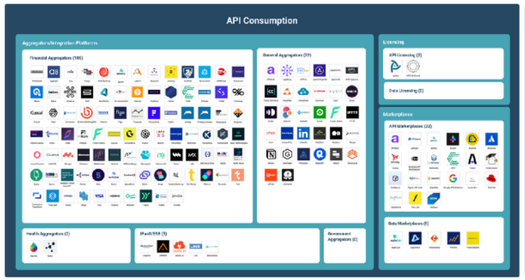
apiLandscape

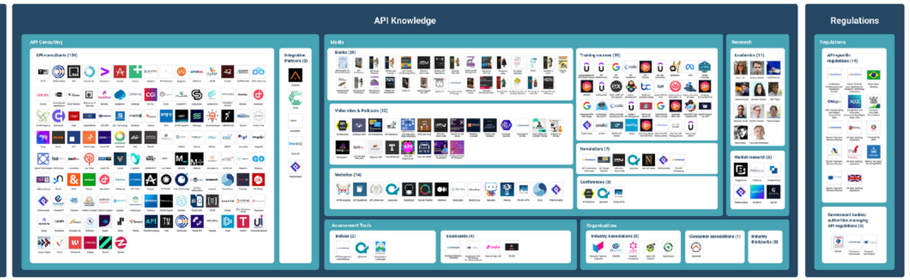
A comprehensive view of all stakeholders creating the programmable economy

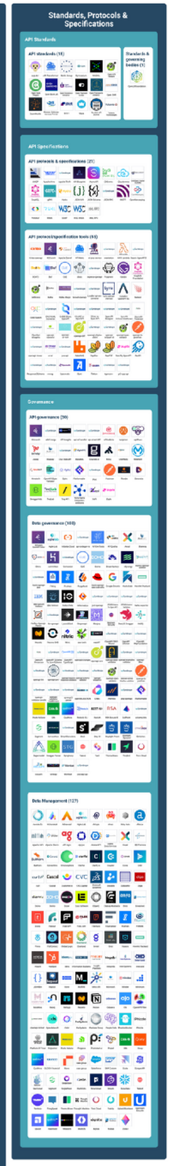
Thanks to our sponsor boomi









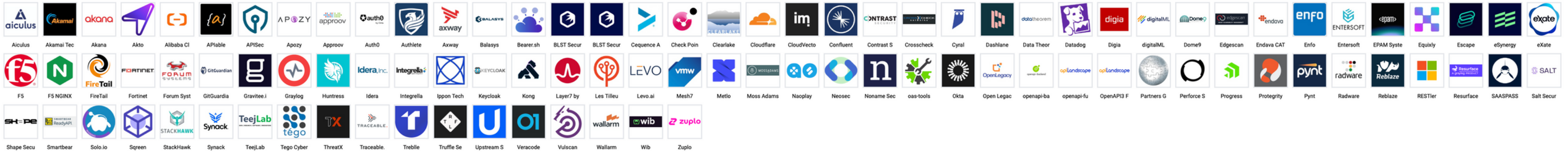


apiLandscape

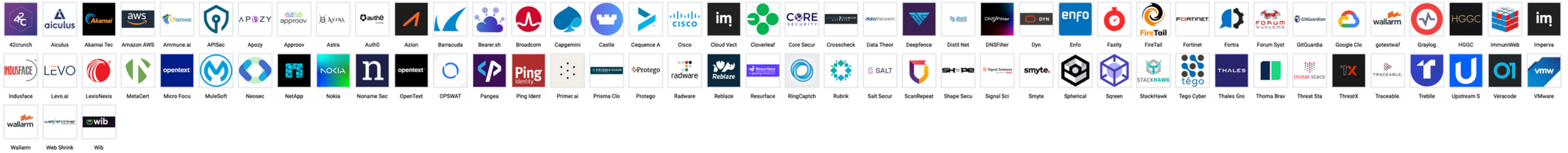
Security Pureplay

API Discovery & Risk management (49)

API Security (98)

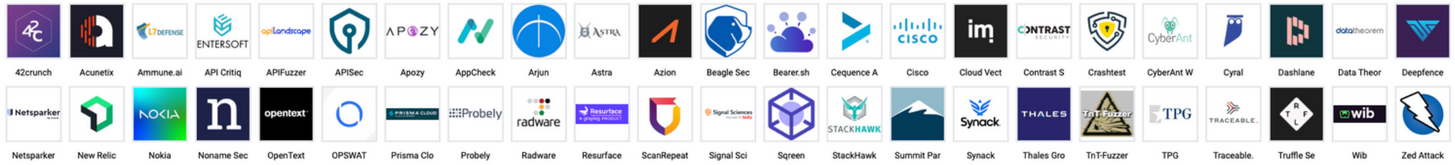


API Threat Management (83)



Privacy Technology (14)

Vulnerability Management (63)



Technology

OWASP API Security Tools List

https://owasp.org/www-community/api_security_tools

Summary

56 tools

36 Commercial	20 Open Source
13 Posture (1 w/o Runtime)	1 Posture (w/ Testing)
13 Runtime (1 w/o Posture)	1 Runtime (w/o Testing)
35 Testing (22 w/o RT/P)	19 Testing (1 w/ Posture)

Technology

noname | Security | Inventory | Reports | Testing | Traffic Audit | API Specs

root

Inventory

Stats | APIs | Changes | Datatypes | Infrastructure

All APIs

Search APIs

Drag here to set row groups

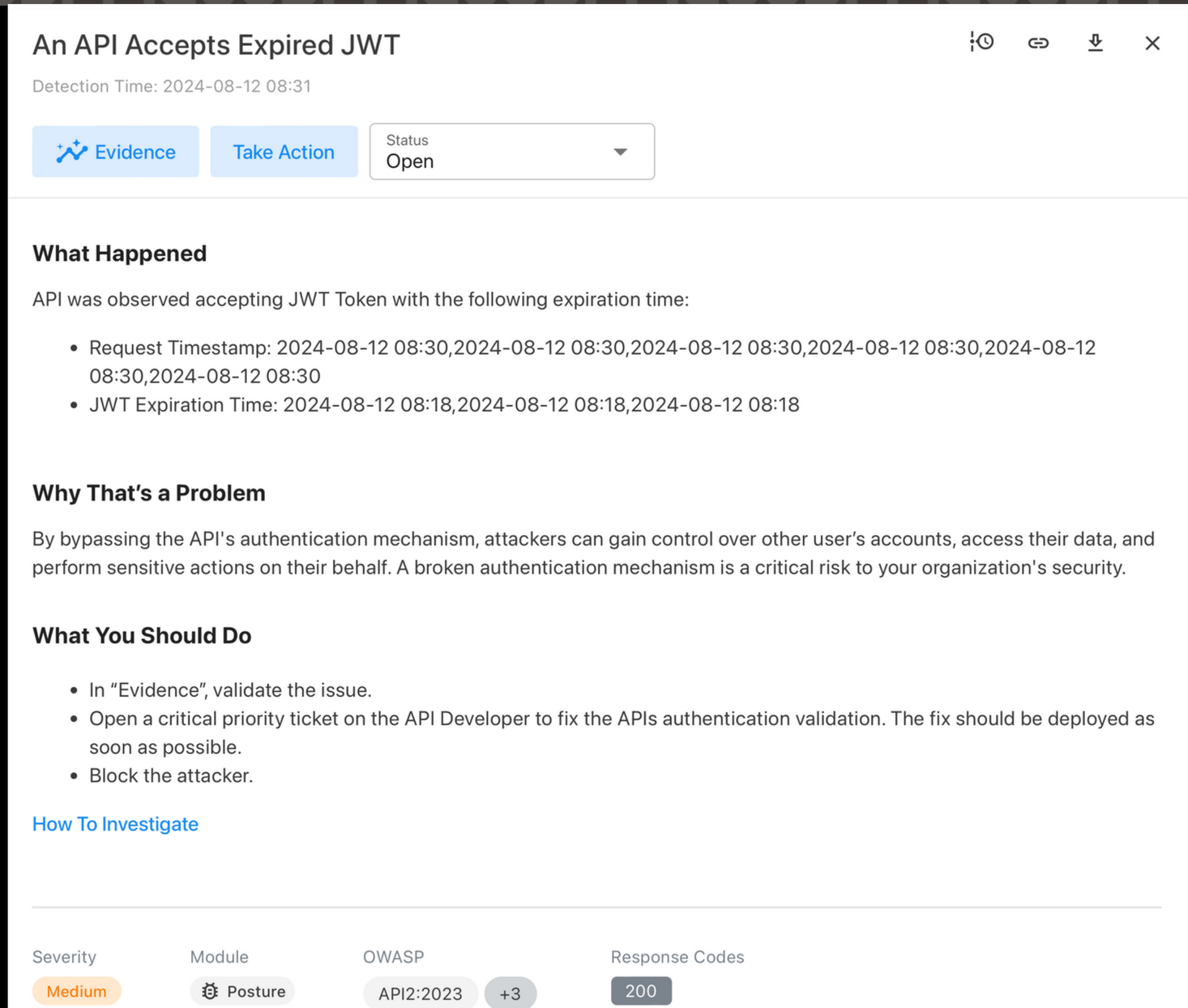
Host	Path	Method	Risk	Auth	Internet Facing	Finding	Incidents	Lea
apis-ist.demo.com	/assets-locator/v1/search/branch/id	GET	5.3	header.x-api-key	Not Connected		None	
apis-ist.demo.com	/assets-locator/v1/search/Best/id	GET	5.3	header.x-api-key	Not Connected		None	
vampi.demos.commercesolutions.com:5002	/books/v1	POST	2	header.authorization.sub: JWT	HTTP			
vampi.demos.commercesolutions.com:5002	/users/v1/login	POST	4.7	body.password	HTTP	None		
vampi.demos.commercesolutions.com:5002	/users/v1/<alphanumeric>{5}/password	PUT	4.4	body.auth_token +2	HTTP	None		
vampi.demos.commercesolutions.com:5002	/users/v1/<alphanumeric>{5}/email	PUT	4.4	body.auth_token +2	HTTP	None		
vampi.demos.commercesolutions.com:5002	/users/v1/<alphanumeric>{5}	DELETE	2.1	header.authorization.sub: JWT	HTTP	None		
vampi.demos.commercesolutions.com:5002	/books/v1	GET	1.4	Not Enforced	HTTP	None	None	
ec2-3-137-177-49.us-east-2.compute.amazonaws.com:5002	/users/v1/login	POST	3.8	body.password	HTTP	None	None	
vampi.demos.commercesolutions.com:5002	/users/v1	GET	5.7	Not Enforced	HTTP	None	None	

Columns | Filters

Technology

Security Findings Detail

- Vulnerability enumeration
- What to do and why
- Evidence available



Technology

noname | Security | Inventory | Reports | Testing | Traffic Audit | API Specs

root

Security

Overview | Findings | Runtime

All Incidents by Detection Time | Reset View | Create Workflow | 2023/09/19 - 2024/09/18 | Search Incidents

Drag here to set row groups

Severity	Type	Detection Time	Last Activity	Last Updated	Triggered On	Status	Incident Result	Actions
Info	API Input Validation Attack	2024-08-12 08:32	2024-08-12 08:32	2024-08-12 08:32	POST vampi.demos.commercesoluti	Open		View Attacker
Low	API Access Attempt With Missing JWT Algorithm	2024-08-12 08:31	2024-08-12 08:31	2024-08-12 08:32	POST vampi.demos.commercesoluti	Open		View Attacker
Low	API Access Attempt With Missing JWT Algorithm	2024-08-12 08:31	2024-08-12 08:31	2024-08-12 08:32	PUT vampi.demos.commercesolutio	Open		View Attacker
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Low	API Access Attempt With Missing JWT Algorithm	2024-08-12 08:31	2024-08-12 08:31	2024-08-12 08:32	PUT vampi.demos.commercesolutio	Open		View Attacker
Low	API Access Attempt With Missing JWT Algorithm	2024-08-12 08:31	2024-08-12 08:31	2024-08-12 08:32	GET vampi.demos.commercesolutio	Open		View Attacker
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Low	API Access Attempt With Missing JWT Algorithm	2024-08-12 08:31	2024-08-12 08:31	2024-08-12 08:32	GET vampi.demos.commercesolutio	Open		View Attacker
Info	API Input Validation Attack	2024-08-12 08:31	2024-08-12 08:31	2024-08-12 08:31	POST vampi.demos.commercesoluti	Open		View Attacker
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Columns | Filters

Technology

noname | Security | Inventory | Reports | Testing | Traffic Audit | API Specs

root

Security

Overview | Findings | Runtime

Create Workflow | 2023/09/19 - 2024/09/18

Unidentified
6 Attackers

Confidence | Search

- IP: 172.31.17.121 Info — Not Active — 2 weeks ago 98%
- IP: 172.31.29.31 Info — Not Active — 2 weeks ago 98%
- JWT: admin Low — Not Active — 2 weeks ago 94%
- JWT: name1 Low — Not Active — 1 month ago 88%
- JWT: name2 Low — Not Active — 1 month ago 81%
- IP: 172.31.26.160 Info — Not Active

Attacker Information

Block | Allow List | Unidentified | Search

Confidence	Risk	Country	IPs	IP Reputation	User Agents
88%	Low	None	172.31.17.121	N/A	noname

Last Activity	Incident	Severity	Triggered On	Actions
2024-08-12 08:32	API Input Validation Attack — Inconclusive	Info	/users/v1/<alphanumeric>{5}/email PUT vampi.demos.commercesolutions.com:50(	Evidence
2024-08-12 08:32	API Input Validation Attack — Inconclusive	Info	/books/v1 POST vampi.demos.commercesolutions.co	Evidence
2024-08-12 08:31	API Access Attempt With Missin — Attempted	Low	/users/v1/<alphanumeric>{5}/email PUT vampi.demos.commercesolutions.com:50(	Evidence
2024-08-12 08:31	API Access Attempt With Missin — Attempted	Low	/books/v1/<alphanumeric>{6} GET vampi.demos.commercesolutions.com:50(	Evidence
2024-08-12 08:31	API Access Attempt With Missin — Attempted	Low	/books/v1 POST vampi.demos.commercesolutions.co	Evidence
2024-08-12 08:31	API Access Attempt With Missin — Attempted	Low	/users/v1/<alphanumeric>{5}/password PUT vampi.demos.commercesolutions.com:50(	Evidence

Columns | Filters

Processes

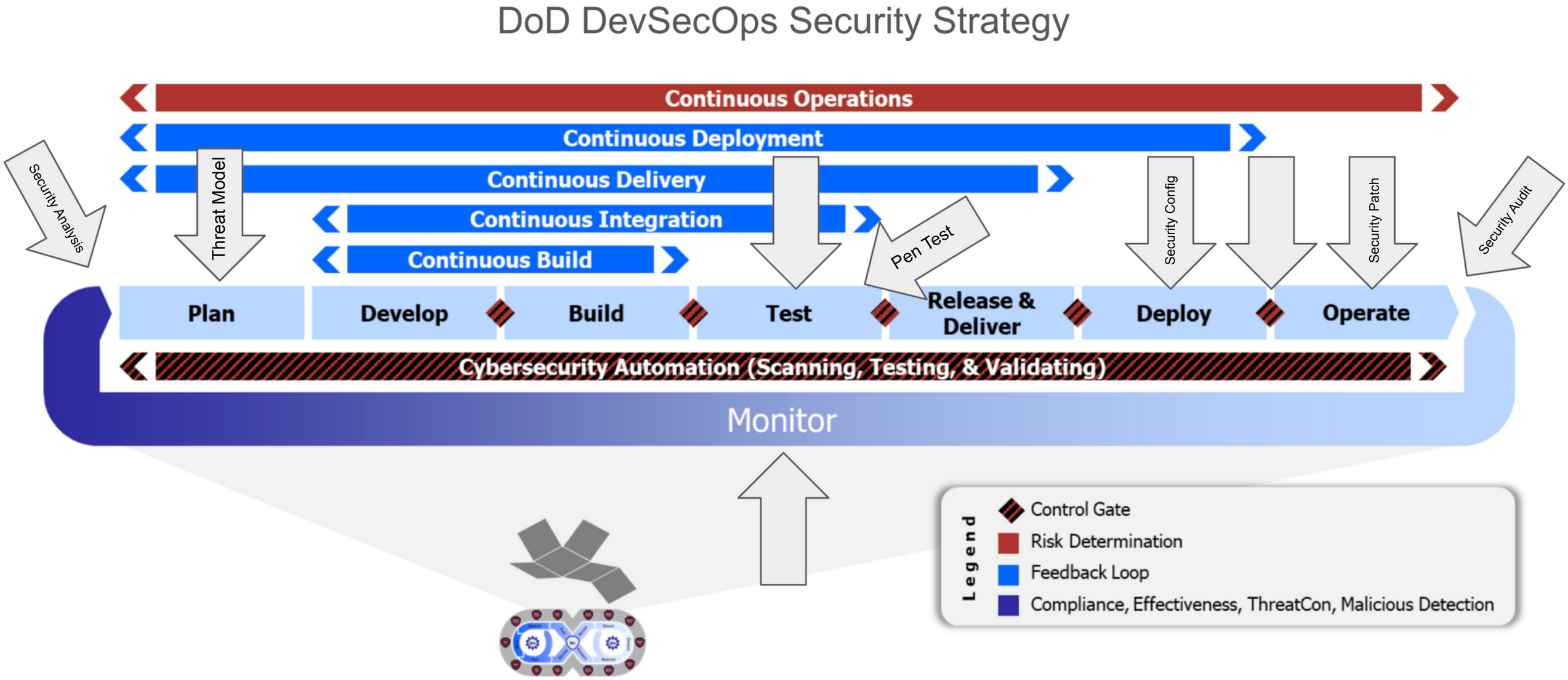

Figure 6 DevSecOps Lifecycle Phases, Continuous Feedback Loops, & Control Gates

People

- Break down silos
- DevSecOps Center of Excellence
- Share best practices
- Technical trainings
- Social events
- **Cross-Incentivize**

Q&A

Thank you!

Contact me at
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LinkedIn
https://linkedin.com/in/blyscott

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