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How DevSecOps platforms help secure the software supply chain

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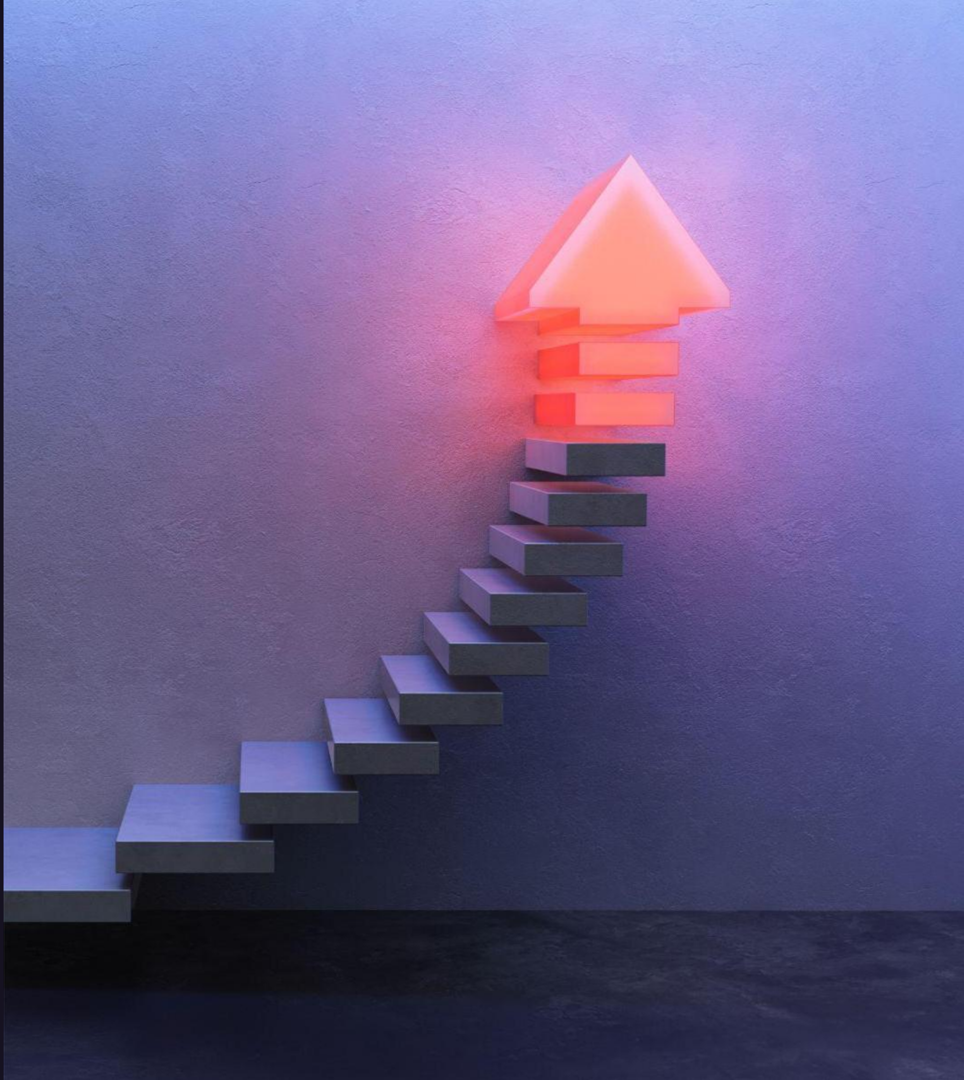
Market & customer expectations are changing more rapidly than ever

Development teams must increase their velocity and security to match.

Software released 2x+ faster in 2024 by most of companies

>25% of code worked on is from open source libraries by majority of developers

Source: GitLab 2024 DevSecOps Report



AI can be a double edged sword

✓ AI will offer significant advantages in terms of time and cost efficiencies when leveraged by security teams

⚠ AI poses additional risks and threats to businesses

Key emerging priorities for CISOs in 2025

- ✓ AI Governance Evolution
- ✓ Enhanced Supply Chain Security
- ✓ Cloud Security Maturity

Emerging Software Bill Of Materials priorities for CISOs

- Automation and Integration
- Enhanced SBOM Requirements
- Compliance Considerations

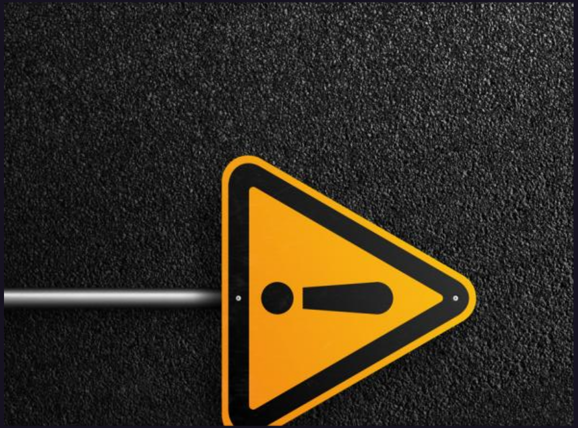
Key Compliance Frameworks and Regulations for 2025 in Australia

- ✓ ISM Guidelines for Software Development
- ✓ APRA: Prudential Policy for Financial Services institutions
- ✓ Information Security Registered Assessors Program (IRAP)
- ✓ Essential 8
- ✓ Telecommunications Act
- ✓ Cyber and Infrastructure Security Centre

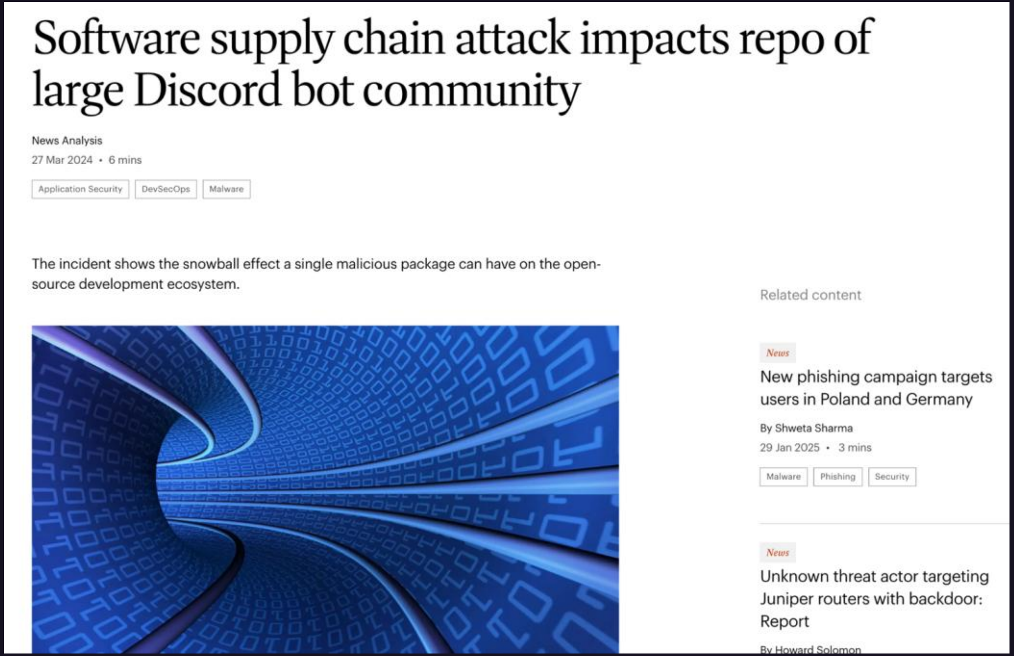
Despite advanced security tools, faster development opens the door to risky code, components and practices

Recent security breaches and attacks:

- 500M customer records breached with unauthorized cloud database access
- 10B passwords leaked
- Unpatched software and 3rd party dependencies
- Content update failure put airlines and banks on halt



The risk is real with third-party software and open source libraries



Software supply chain attack impacts repo of large Discord bot community

News Analysis

27 Mar 2024 • 6 mins

Application Security | DevSecOps | Malware

The incident shows the snowball effect a single malicious package can have on the open-source development ecosystem.

Related content

News

New phishing campaign targets users in Poland and Germany

By Shweta Sharma

29 Jan 2025 • 3 mins

Malware | Phishing | Security

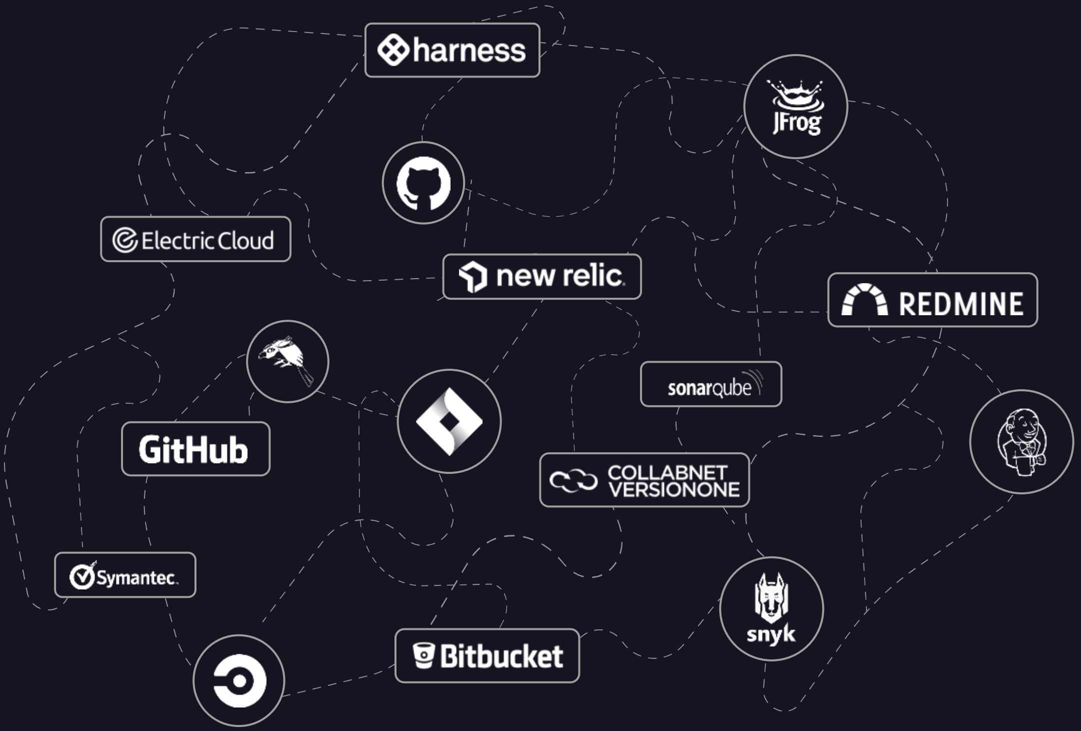
News

Unknown threat actor targeting Juniper routers with backdoor: Report

By Howard Solomon

Tool chain sprawl makes security practices harder to enable

- ☒ 100s of tools
- ☒ Multiple data models
- ☒ Complexity & risk
- ☒ Lack of transparency



The cost of remediating security vulnerabilities

$59.5B
Annually cost of software bugs*

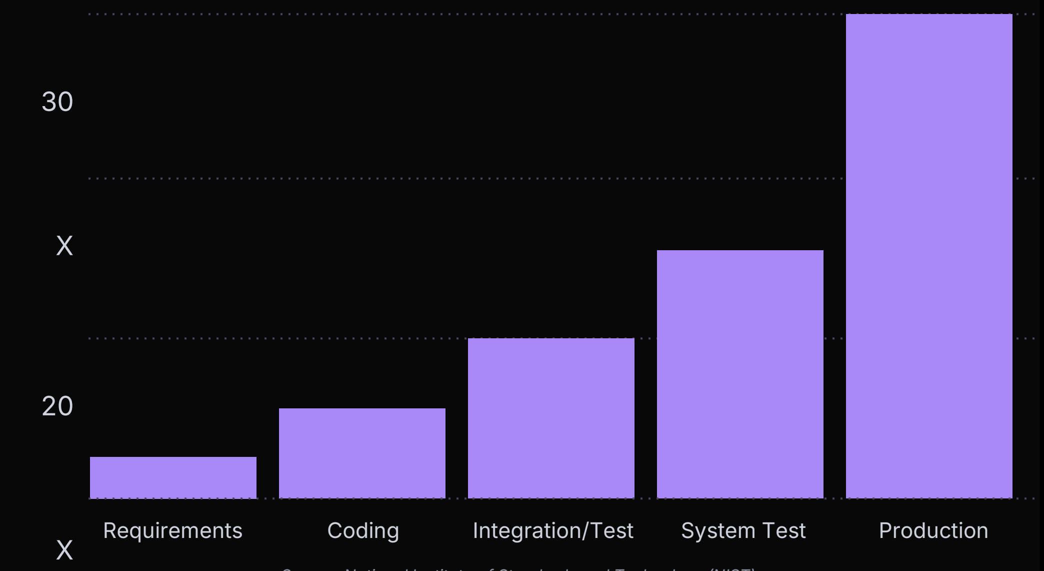
300
Cost of software developer hours**

Stage	Hours*	Cost
Coding stage	2.4	$740
Integration stage	4.1	$1,230
System stage	6.2	$1,860
Production stage	13.1	$3,930

*(NIST - Impact of Inadequate Software Testing
**2019 SW Dev Price Guide

Cost of Remediation

*X is a normalized unit of cost and can be expressed in terms of person-hours, dollars, etc.



Source: National Institute of Standards and Technology (NIST)

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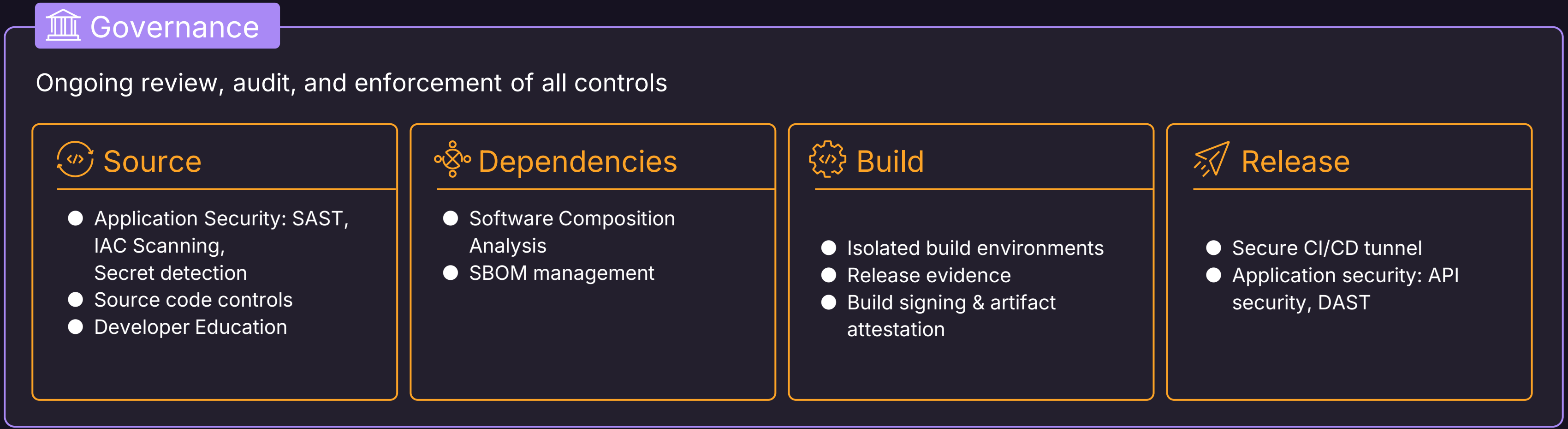
Holistic software supply chain security (SSCS)

Securing the components, activities, and practices involved in the development and deployment of software coupled with Application Security.

Software supply chain security: key components



Governance

Ongoing review, audit, and enforcement of all controls

Source

- Application Security: SAST, IAC Scanning, Secret detection
- Source code controls
- Developer Education

Dependencies

- Software Composition Analysis
- SBOM management

Build

- Isolated build environments
- Release evidence
- Build signing & artifact attestation

Release

- Secure CI/CD tunnel
- Application security: API security, DAST

Identify the Gap: Value Stream Management

1. Visualize DevSecOps workstreams
2. Identify risk through DevSecOps inefficiencies
3. Take action to optimize DevSecOps workstreams to deliver the highest possible velocity of value

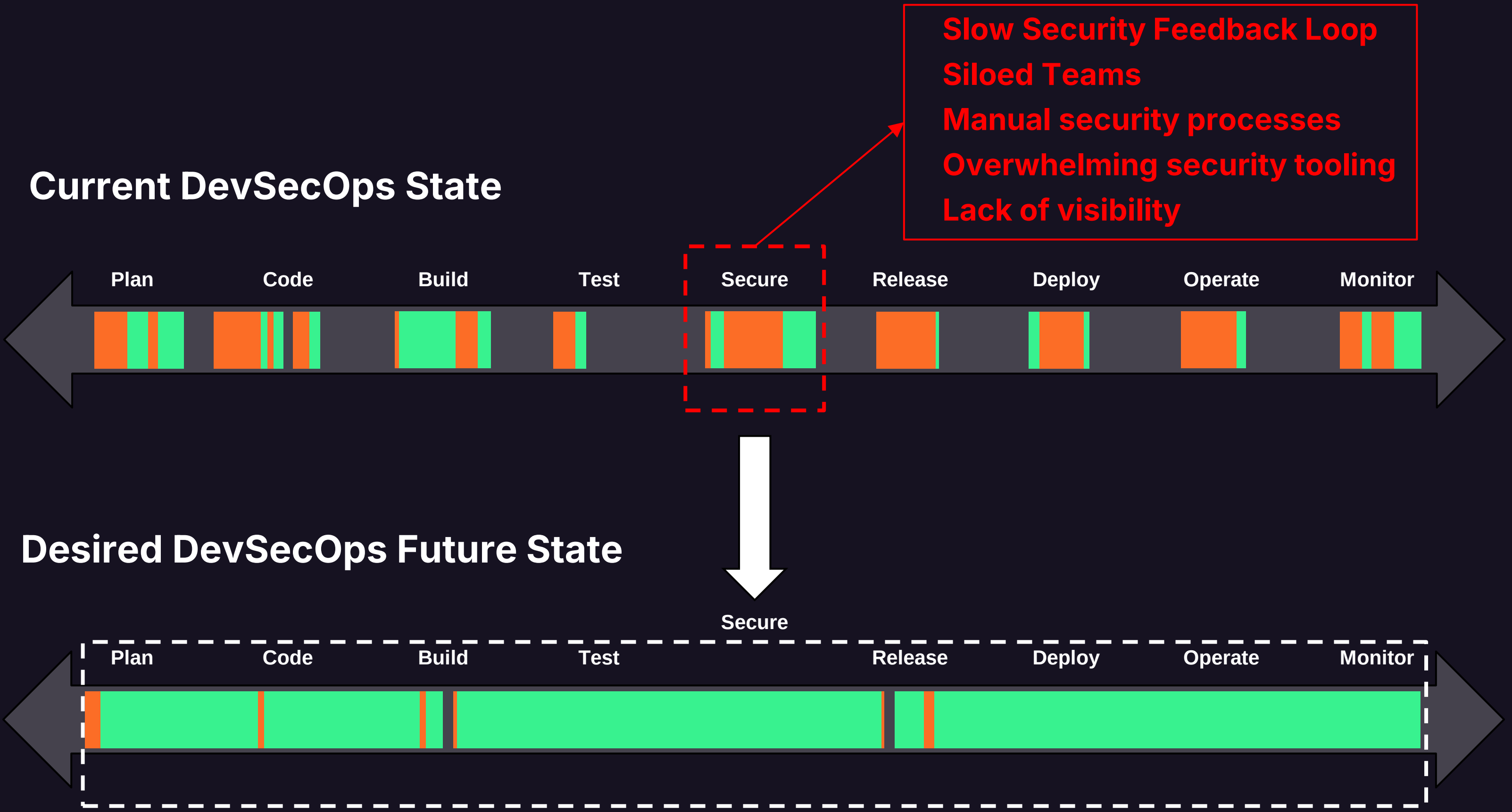
Identify

Measure

Visualise

Optimise

Optimising Security in the Software Delivery Lifecycle



Current DevSecOps State

- Slow Security Feedback Loop
- Siloed Teams
- Manual security processes
- Overwhelming security tooling
- Lack of visibility

Desired DevSecOps Future State

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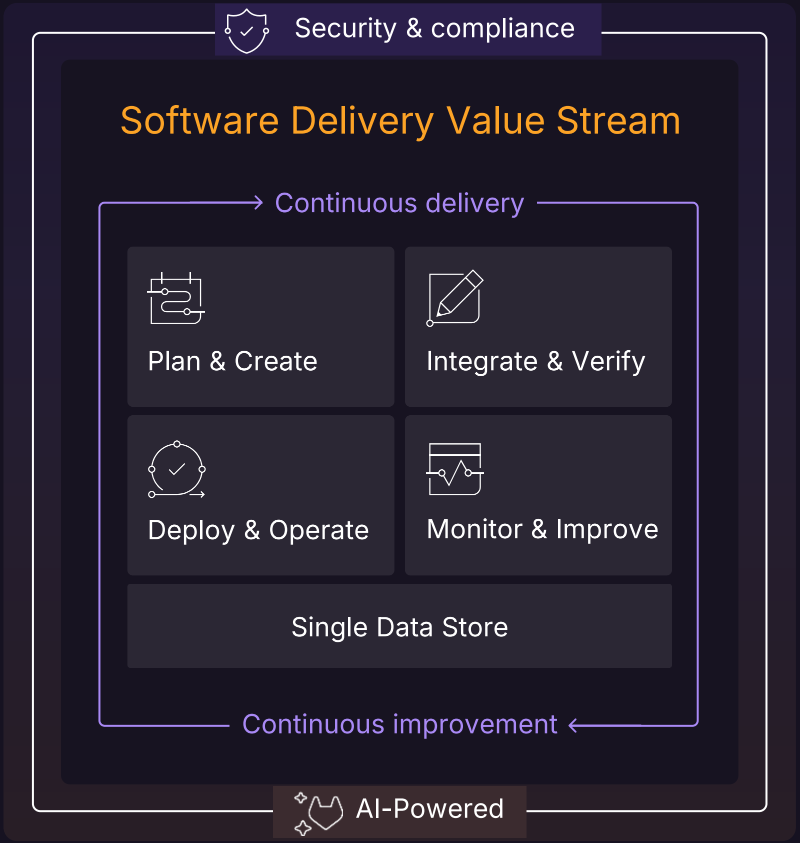
🟩 Value Added Time 🟧 Non-Value Added Time ⬛ Idle Time

Consolidated DevSecOps platforms

- ✓ Enhanced security
- ✓ Improved efficiency
- ✓ Better visibility and compliance
- ✓ Cost savings
- ✓ Scalability and flexibility



Security & compliance

Software Delivery Value Stream

Continuous delivery

Plan & Create

Integrate & Verify

Deploy & Operate

Monitor & Improve

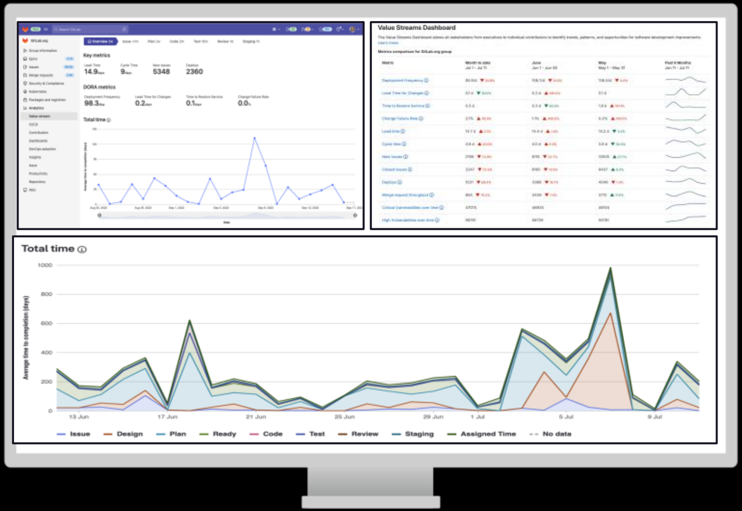
Single Data Store

Continuous improvement

AI-Powered

GitLab Value Stream Management (VSM) enables executive visibility across value streams

- **Value streams dashboards** and metrics to identify security bottlenecks and deficiencies resulting in improved visibility into the organization's security posture.
- **Holistic visibility** and platform approach allows allows security leaders to gain a comprehensive understanding of security performance, facilitating informed decision-making.
- **Improved collaboration** to align security goals with other teams, fostering a shared understanding of security objectives.



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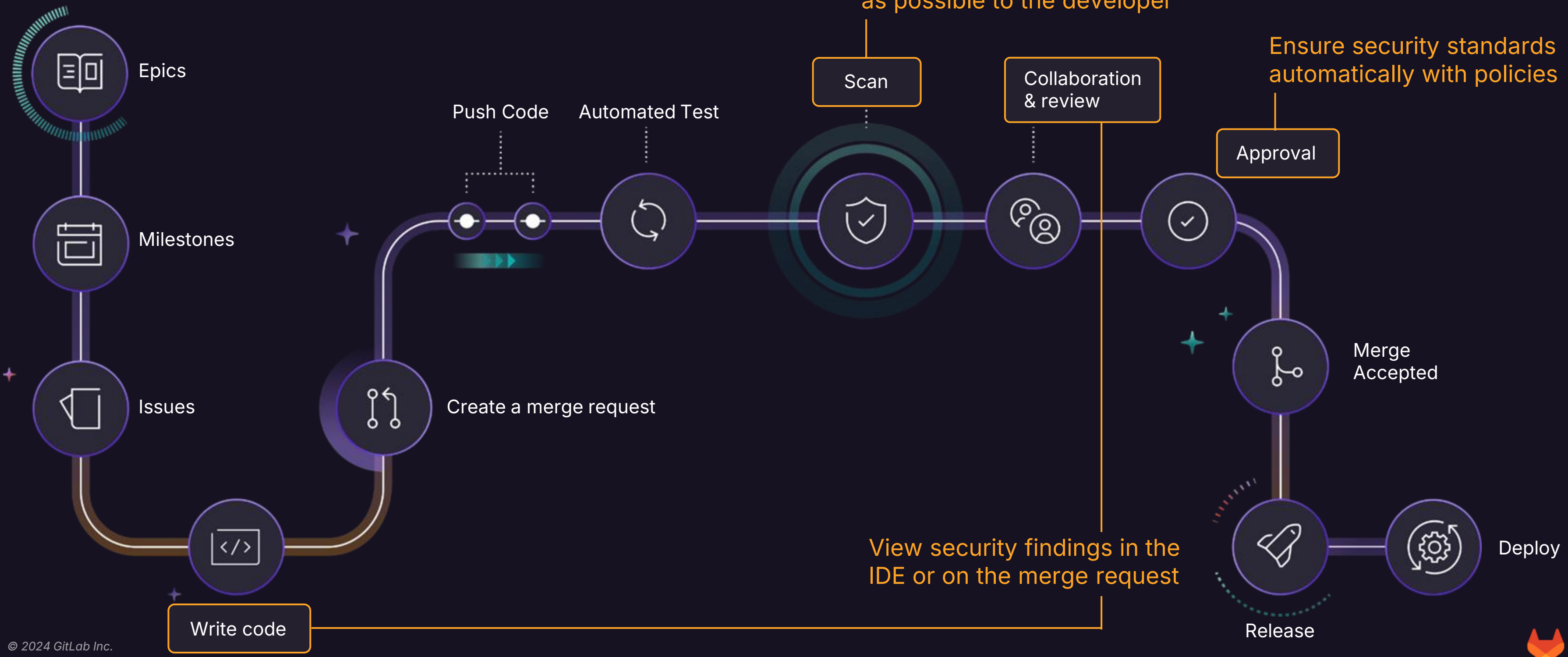
How do we integrate Security, Compliance and Risk Management earlier in the software delivery cycle?

Shifting Left: Vulnerability scanning & triage in the developer workflow

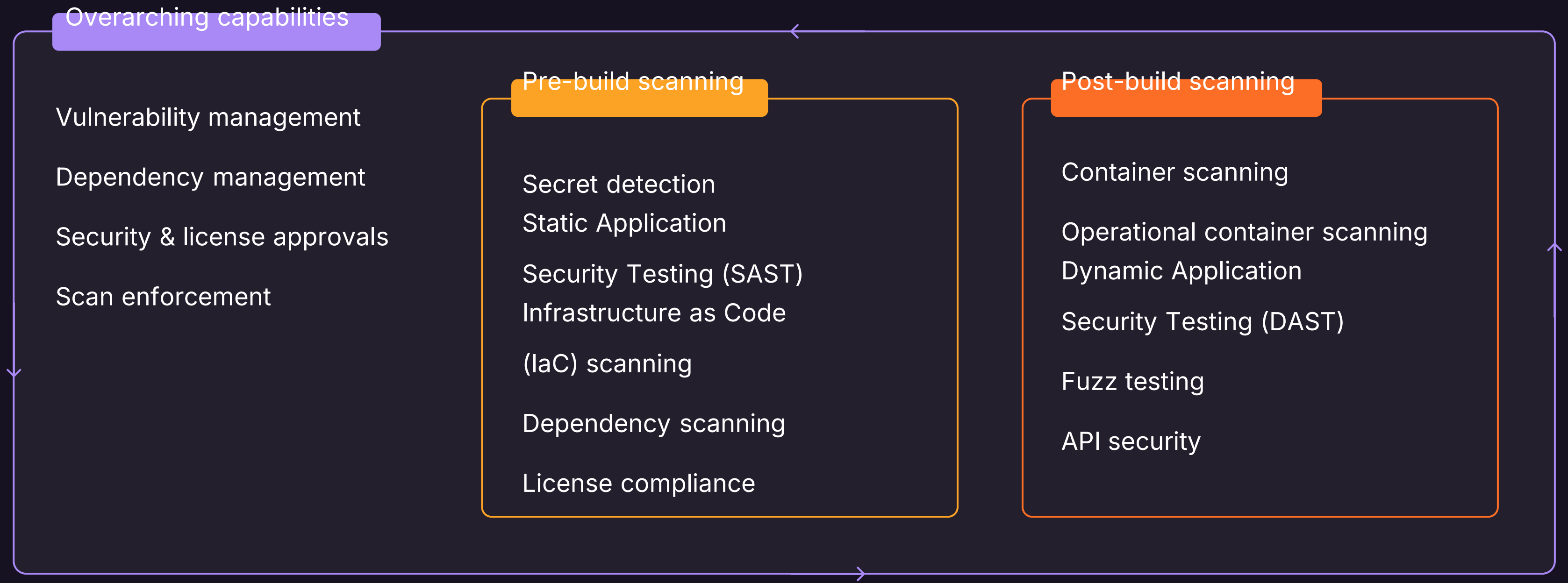


Move security testing as close as possible to the developer

Ensure security standards automatically with policies

View security findings in the IDE or on the merge request

Breadth of application security scanning required to address the gap in 2025



Overarching capabilities

Vulnerability management

Dependency management

Security & license approvals

Scan enforcement

Pre-build scanning

Secret detection

Static Application

Security Testing (SAST)

Infrastructure as Code

(IaC) scanning

Dependency scanning

License compliance

Post-build scanning

Container scanning

Operational container scanning

Dynamic Application

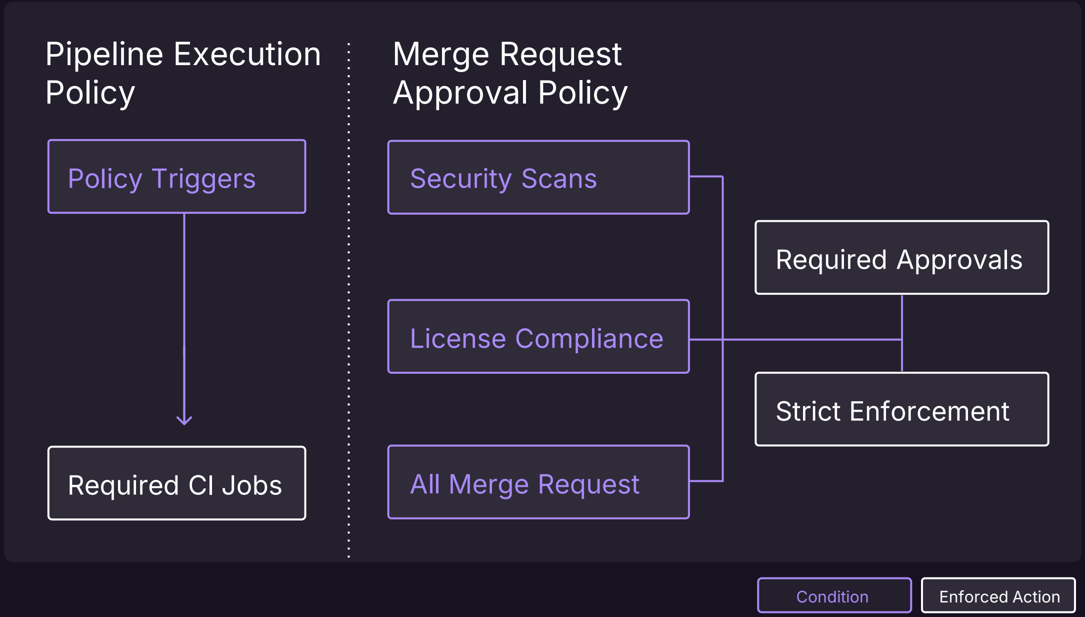
Security Testing (DAST)

Fuzz testing

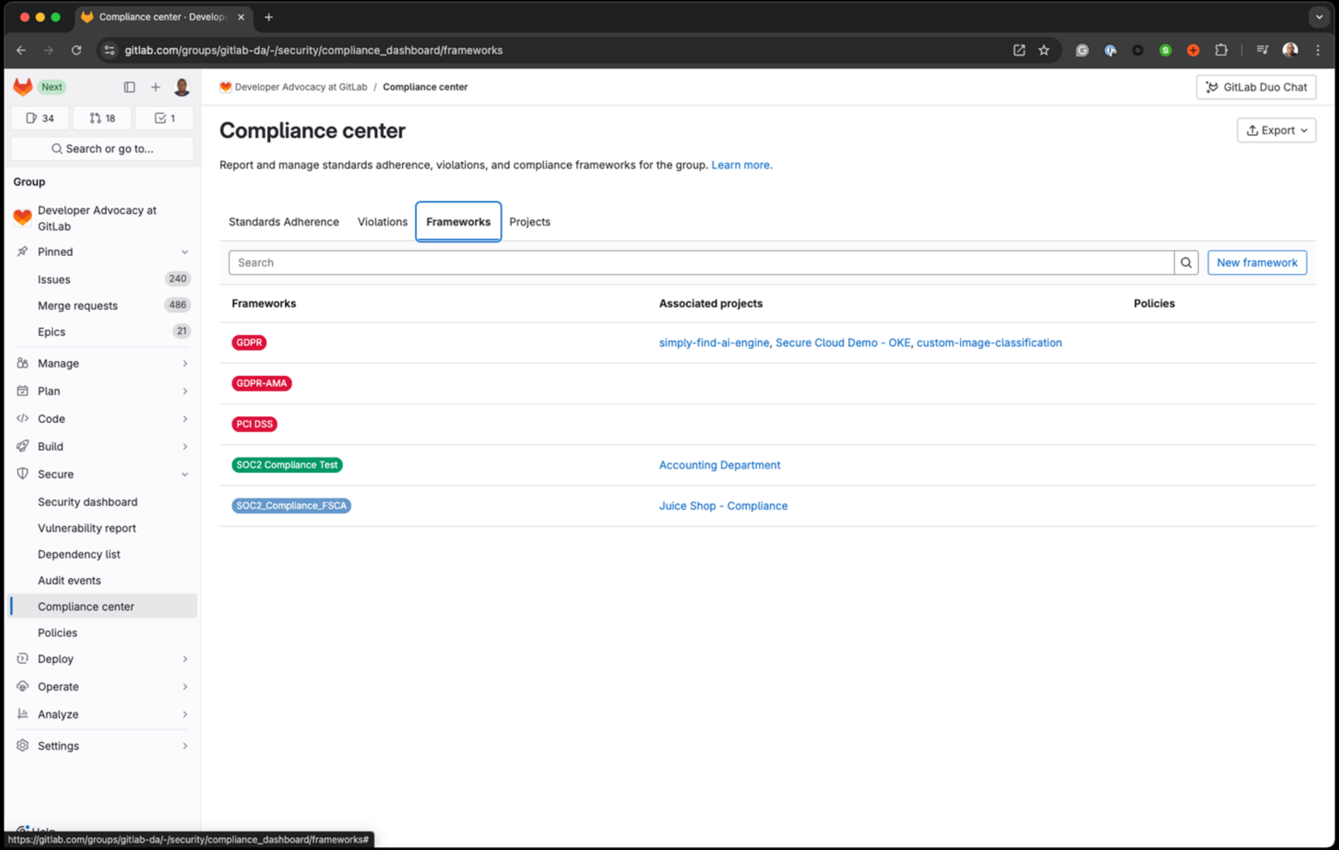
API security

Comprehensive governance & compliance

- Software supply chain security
- Separation of duties
- Fully audited change history
- Two-person change approval
- Policy as code
- Enforceability at scale



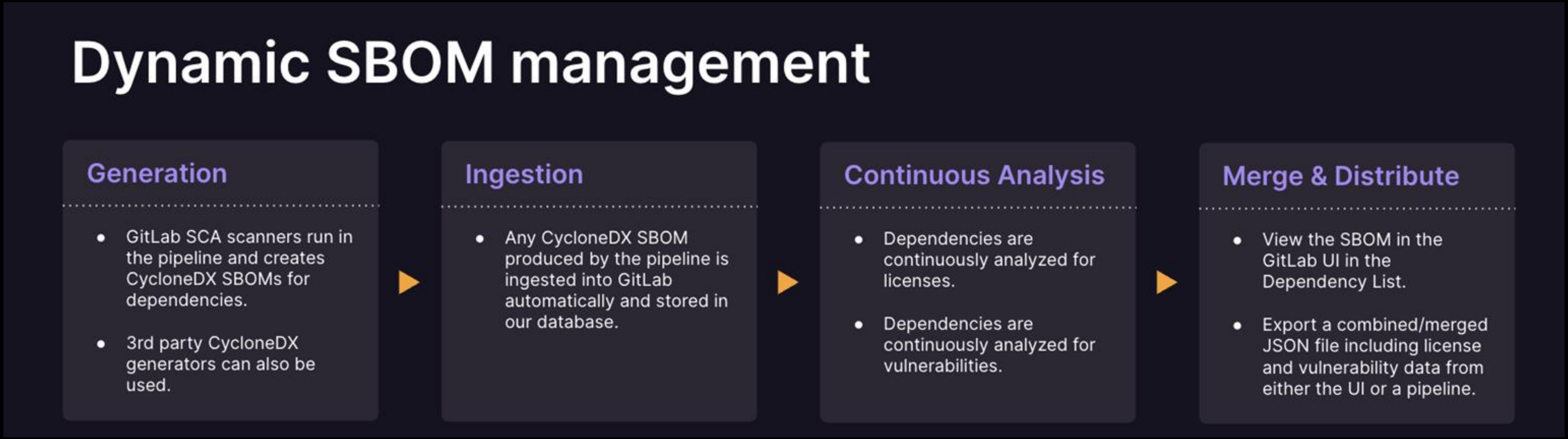
Automating Compliance Reporting



Compliance center

Report and manage standards adherence, violations, and compliance frameworks for the group. Learn more.

Frameworks	Associated projects	Policies
GDPR	simply-find-ai-engine, Secure Cloud Demo - OKE, custom-image-classification	
GDPR-AMA		
PCI DSS		
SOC2 Compliance Test	Accounting Department	
SOC2_Compliance_FSCA	Juice Shop - Compliance	



Dynamic SBOM management

Generation

- GitLab SCA scanners run in the pipeline and creates CycloneDX SBOMs for dependencies.
- 3rd party CycloneDX generators can also be used.

Ingestion

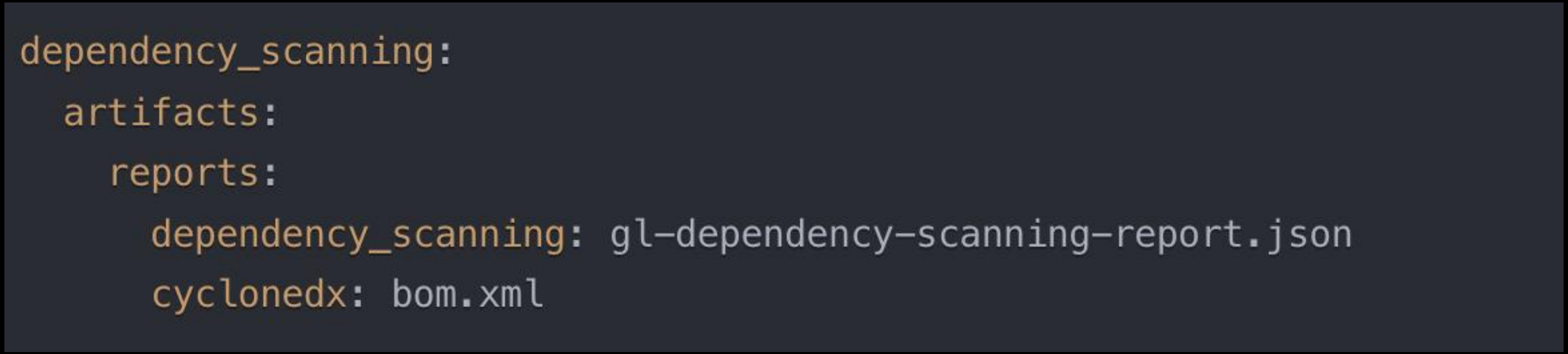
- Any CycloneDX SBOM produced by the pipeline is ingested into GitLab automatically and stored in our database.

Continuous Analysis

- Dependencies are continuously analyzed for licenses.
- Dependencies are continuously analyzed for vulnerabilities.

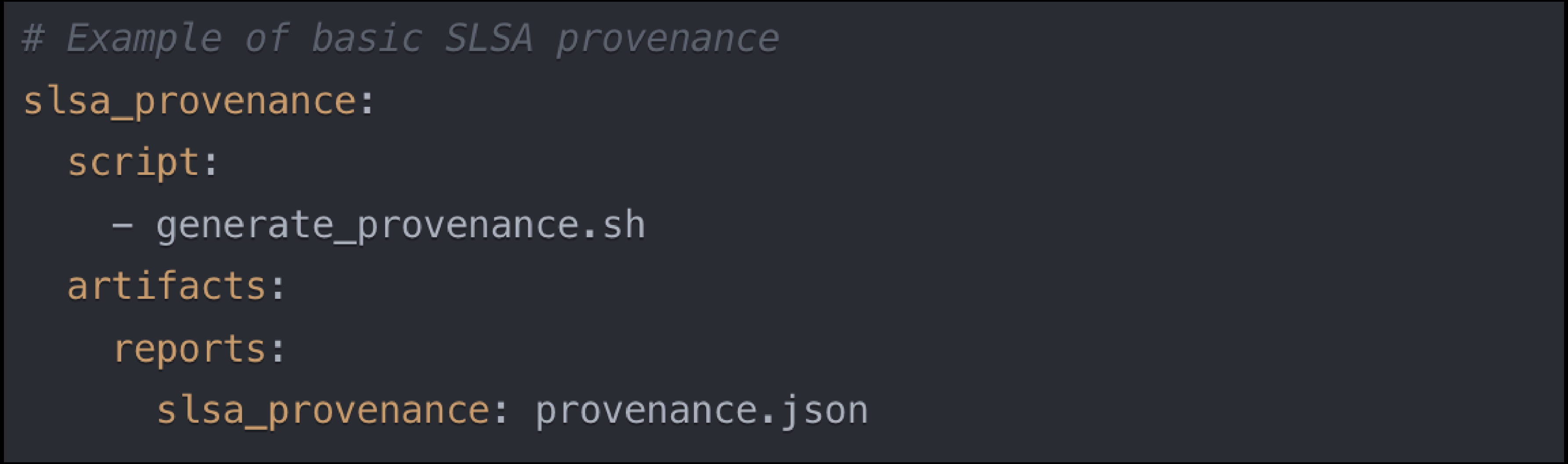
Merge & Distribute

- View the SBOM in the GitLab UI in the Dependency List.
- Export a combined/merged JSON file including license and vulnerability data from either the UI or a pipeline.



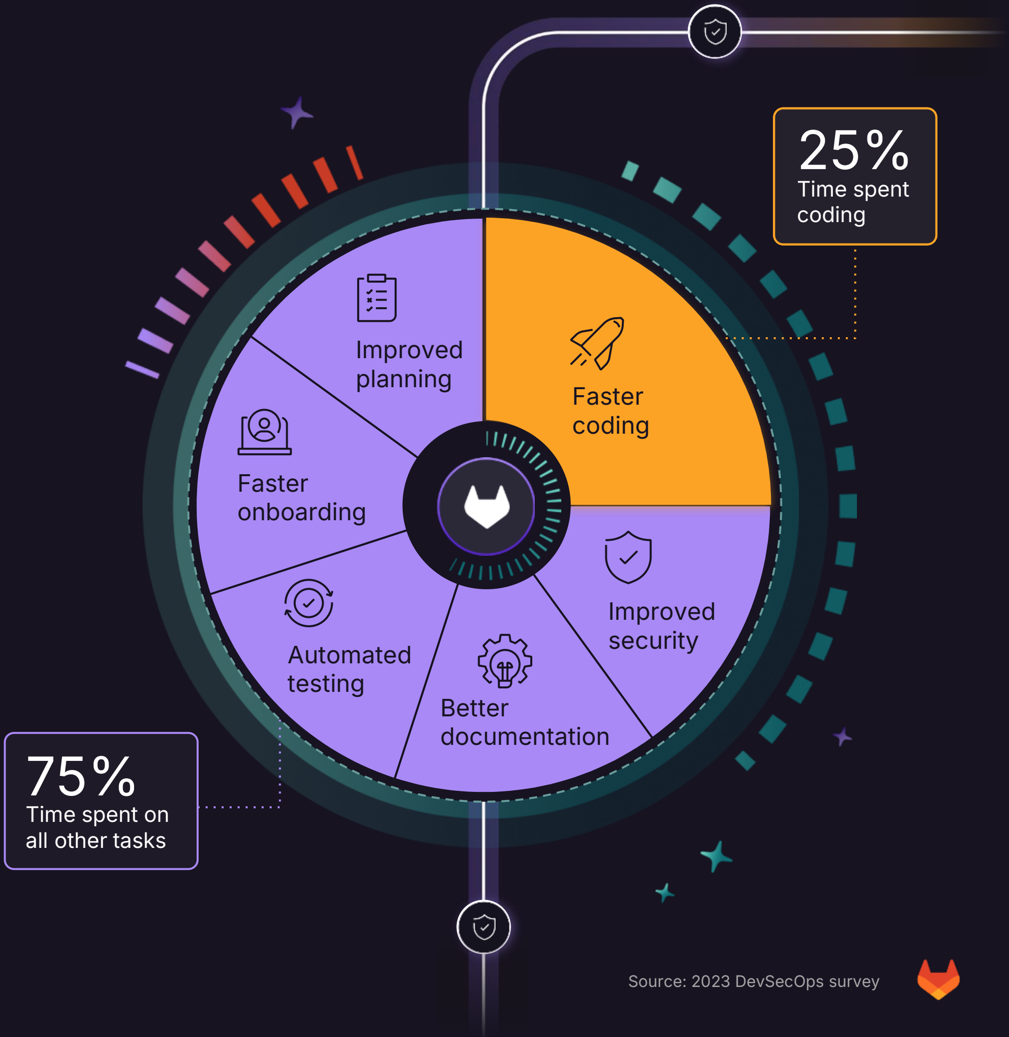
```yaml
dependency_scanning:
  artifacts:
    reports:
      dependency_scanning: gl-dependency-scanning-report.json
      cyclonedx: bom.xml
```

Supply Chain Levels for Software Artifacts



```
# Example of basic SLSA provenance
slsa_provenance:
  script:
    - generate_provenance.sh
  artifacts:
    reports:
      slsa_provenance: provenance.json
```

Responsible use of AI to optimise Security, Compliance and Risk management across the Software Development Lifecycle

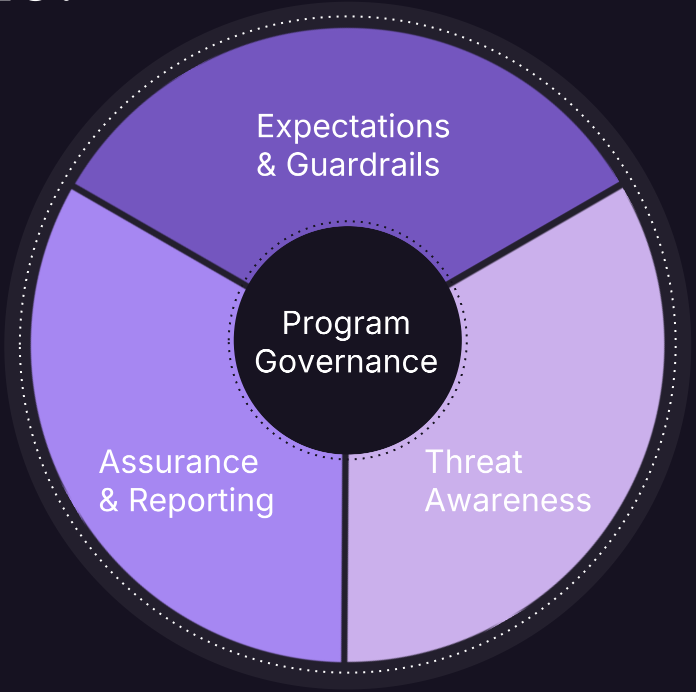


Source: 2023 DevSecOps survey

How to optimise Security, Compliance and Risk Management in 2025:

CISOs should consider:

- Declarative oversight and governance
- Promote creation of secure and efficient code
- Establish and refine the secure software supply chain
- Empower consistent collaboration
- Improve speed and stability
- Automate and augment with AI



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Creating better, secure code faster