



**Securing the Future**

# **Navigating the Next-Gen Software Landscape for CISOs**

**CISO's Secure Software Guide - Part I**

# Introduction to Next-Gen Software Security for CISOs

- **DevOps revolution in software development:** Understanding critical concepts
- **The changing landscape:** Developers' new tools and frameworks
- Git's role in evolving the Software Development Life Cycle (SDLC)
- Security implications within the era of distributed version control

# Understanding Git and Its Ecosystem

**Git:** A pivotal distributed version control system since 2005

**Drastic changes in collaboration:** Developers directly contribute to repositories

Increase in code quality and open source contribution with Git

**Linus Torvalds:** The creator of Linux and Git

# GitHub vs. GitLab - A Comparative Analysis

- 1 GitHub:** Launched in 2008, acquired by Microsoft, focus on securing code ("Compliance")
- 2 GitLab:** Independent since 2011, full SDLC application, "shift left" in DevSecOps
- 3 Hosting variance:** GitHub for open source, GitLab for enterprise proprietary code
- 4 Additional Git repository:** BitBucket comparison in build minutes

# The Importance of Knowing Git for Security

- Transformation in enterprise software development via Git
- Open source software growth tied to Git repositories' free hosting
- DevOps pressures and security evolution with the introduction of Git

# Merge Request and Code Commit - Developer Workflow

Git repositories manage all project codes, individual developer branches

**Committing code initiates automated scans:** quality, security, and more

Merge request pipeline reports show code change impacts uniquely to devs

**DevOps enabled through GitLab:** Confluence of SAST, DAST, and compliance

# Agile and DevOps - Evolving Software Creation

- 1 Agile's rise in 2001:** Emphasized on rapid, iterative, automated processes
- 2** Scrum, Sprints, and Kanban boards as Agile's tools
- 3 The Phoenix Project:** Inspiration for automated, efficient software factories
- 4** DevOps extends Agile with cross-functional collaboration and automation

# Continuous Integration and Deployment (CI/CD)

- Enabled by Git and Agile, CI/CD accelerates development and delivery
- Automated testing to production, bypassing operational delays
- Standardization, repeatability, and measurable improvement in Agile



# Secrets Management in Software Engineering

**Secrets:** critical access controls for applications, e.g., API keys, credentials

**Managing secrets:** decentralization risks vs. centralized solutions like Vault

Popular secrets management tools and best practices

**Pitfalls:** Code embedded passwords, lack of rotation, improper backup

# Next-Generation Software Development Trends

- 1** Next-gen defined by DevOps, software-defined infrastructure, cloud-native apps
- 2** Increased use of containers, open source, and microservices
- 3** Significance of digital transformation demonstrated by substantial M&As

# Security Challenges in Modern DevOps Environments

- DevOps introducing new attack surfaces and collaboration challenges
- New skillsets demanded for security professionals in a DevOps context
- Venture capital interest in DevOps indicating industry evolution and impact
- Three key shifts in software and the consequent security considerations



# Information Security Buzz

Discover more at our [InfoSec Knowledge Hub](#)