Jit Reduces Container Size by 90% and Cuts Bootstrap Time in Half

The DevSecOps platform achieves a step change in DevX with minimal integration effort

ABOUT JIT

Jit is a platform that automates product security for busy development teams, enabling them to embrace the MVS (Minimal Viable Security) approach and iteratively proceed in a just-in-time way.

slim.ai & Jit

BACKGROUND

Jit champions the developer-first approach in everything they do, which is reflected in the goals they brought to their partnership with Slim.AI. In order to provide a better experience for their users in terms of security and velocity, minimizing both the size of their containers and their vulnerabilities were of equal importance to Jit. They wanted to run containerized security tools in their user CI environment (Github Actions) in a safer way. That meant removing most, if not all vulnerabilities. They also aimed to substantially reduce the size of their containerized security tools—thereby reducing the pull time from the registry for both the CI pipeline and the IDE plugin.

Without dedicated resources to deal with container hardening and optimization, Jit was drawn to the easy lift of integrating Slim.AI's solution within their CI/CD.

While Jit's users haven't objected to any of the containers they operate in their CI pipeline, CTO and Co-Founder David Melamed notes that "the topic of supply chain security is rather hot" and Jit always wants to be ahead of users' expectations.

"I found Slim's approach innovative, promising and worth exploring, especially due to the low integration effort compared to the potential benefit."

- David Melamed
- Jit CTO & Co-Founder

Preparing for a Zero-Vuln World

January 2022

FTC warns companies to urgently remediate Log4j vulnerability

April 2022

NSA releases guidance, "Securing the Software Supply Chain for Developers"

September 2022

President Biden issues Executive Order on Improving the Nation's Cybersecurity

September 2022

70% of software producers surveyed in the 2022 Public Container Report have customers requesting zero vulnerabilities in addition to SBOMs

CHALLENGES

Implementing DevOps best practices requires a substantial investment in time, effort and research to be done correctly. For organizations like Jit that don't have dedicated headcount for DevOps, these challenges often lead to an impossible choice: Fall short of their goals for container size and vulns, or pull developers away from producing applications to deal with manual vulnerability remediation and container size reduction.

Compounding the issue, as revealed in the 2022 Public Container Report, three in four developers don't believe they have sufficient skills to slim or harden their containers for production use. Further, the average public container now has 387 packages — a 14% increase compared to 2021. The license count in the 165 most-used public containers on Docker Hub exploded 2.5x from 2021 to 2022. There were increases in container layer count and average size, as well. This complexity leads to more difficult debugging, more onerous record-keeping, and slower deployments in general.
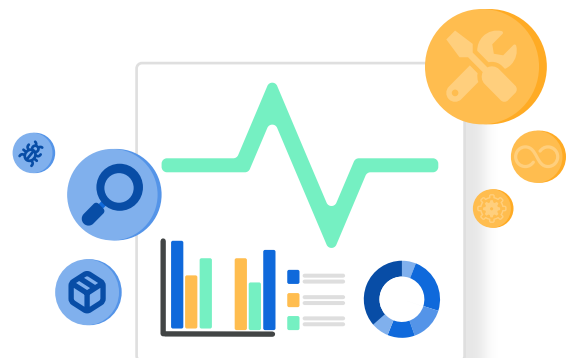
SOLUTION

Jit and the Slim.AI team worked together to integrate Slim's Automatic Container Hardening flow into Jit's CI/CD pipeline. Instrumented Container Hardening streamlines the container hardening process by creating a repeatable hardening profile that produces a new hardened container. A container's hardening profile is developed by adding a new container layer with sensors, which observe while the container is exercised and send a log back to Slim.AI. Slim then enhances that log information, adding intelligence gathered from the millions of containers Slim has already observed.

"Slim was very responsive and tried to quickly debug the issues I stumbled upon, providing good ways to overcome those technical issues," says David Melamed.

While Slim's standard container slimming process removes all unused packages, files and licenses (prioritizing total size reduction), Slim offers users the ability to edit settings, putting fine-tuned control on what remains in a newly-hardened image. With many commonly-used but unobserved files, Jit chose to only remove packages related to files with known vulnerabilities, to keep licenses for included packages, and to keep packages intact if any file is used. These configuration settings are easy to adjust down to a granular level, selecting specific folders, files, directories, libraries, etc. to include in the new hardened container.

Solution components

- Slim.AI Developer Platform
- GitHub Actions
- AWS
- Python
- Go
- GitHub Connector
- Alpine

60%

Reduction in average container size

50%

Reduction in bootstrap time

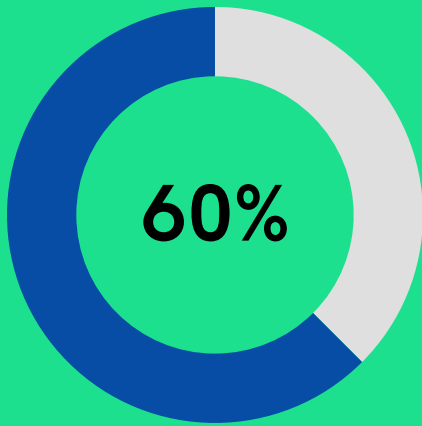## 21%

Reduction in average container scan time
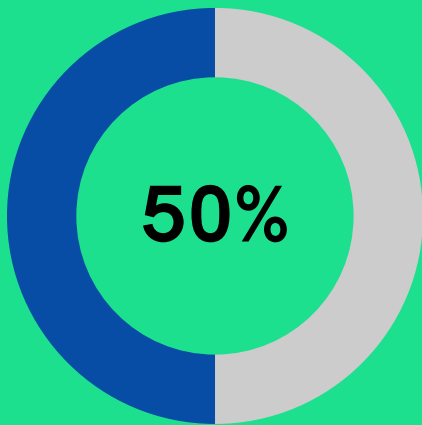
RESULTS

Working with Slim.AI, Jit achieved their goal of significantly reducing the size of their containers, which they did consistently by 30–90%. "We reduced a container from 1.2 GB to 100 MB. I did not expect it to be that much and I was happily surprised," says Melamed.

Jit is now hardening dozens of containers as part of their CI. On some containers, they've seen a 100% elimination of critical and high risk vulnerabilities, saving them hundreds of hours of manual vulnerability remediation per year and increasing dev velocity. Jit is also seeing storage and platform usage cost savings, with boot times halved and a 21% reduction in the average time to scan a container.
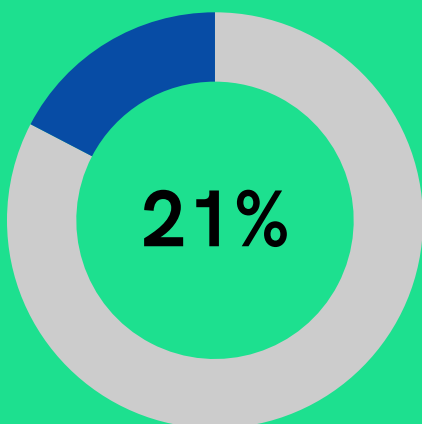
Next, Jit plans to tackle more complex containers, for which they don't yet have the same test coverage. With Automatic Container Hardening integrated in their CI/CD, Jit has surpassed their customer expectations for security and compliance without adding any developer overhead.

BENEFITS OF SLIM.AI

- Automatically minify and harden your container images

- Eliminate the hassle of managing containers and artifacts

- Speed up test pipelines, reducing time to deployment

- Automate "slimmed" workflows in CI/CD

Slim.AI is currently in Early Access and available for free to individual developers who are interested in testing its initial feature set. A broader range of capabilities — including many of those mentioned here — is available to select design partners.
Contact partners@slim.ai for more information.