OWASP

Open Web Application Security Project

How To Keep Your Dependencies Secure And Up-To-Date

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About Me

- Manager - Application Security @Netskope
- Security Testing & DevSecOps
- Open Source Products - vPrioritizer and Omniscient
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Context

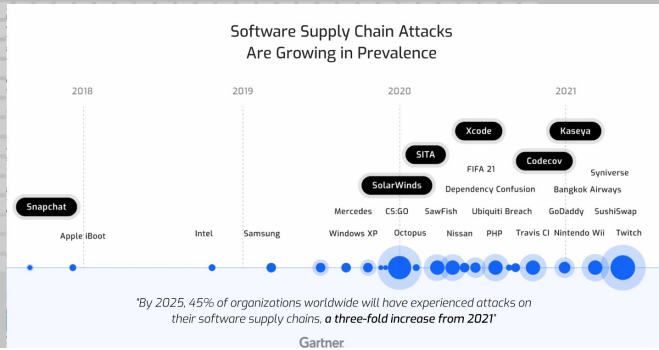
- In last 10 years or so, software ***development*** process has evolved
- Safe to say that softwares are assembled now, more than developed
- These ***pieces*** (open source in most cases) of software brings new set of security challenges. Hint - log4j ;)
- Flexibility is great for development, bad for security

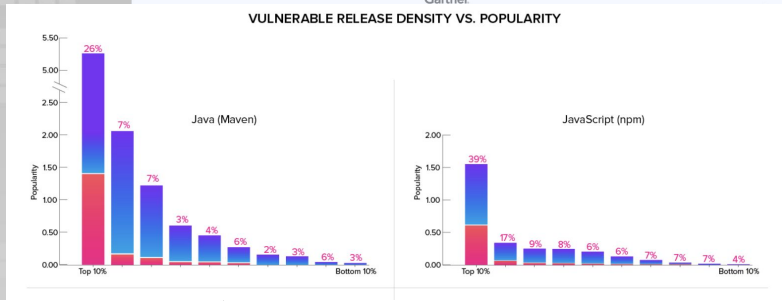
Software Composition Oversimplified

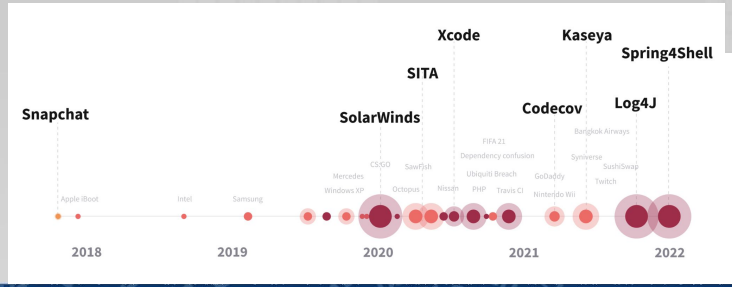
>10 years back	Now
Someone else's code	Organization owned code
Organization owned code	Someone else's code

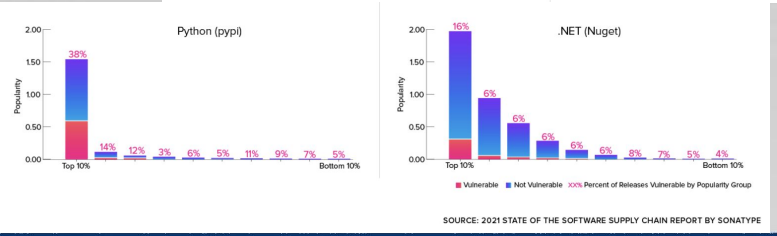
(In)Security Landscape

- Open source code is integral part of supply chain for *almost* all softwares
- Vulnerability affecting open source code has impact on industry scale
- Given enough eyes, no code is secure









Solution Outline

- Inventory / SBoM of all 3rd party code (more often open source)
- How many components has known vulnerabilities. In almost all cases, ALL
- If and how organization is affected by those vulnerabilities

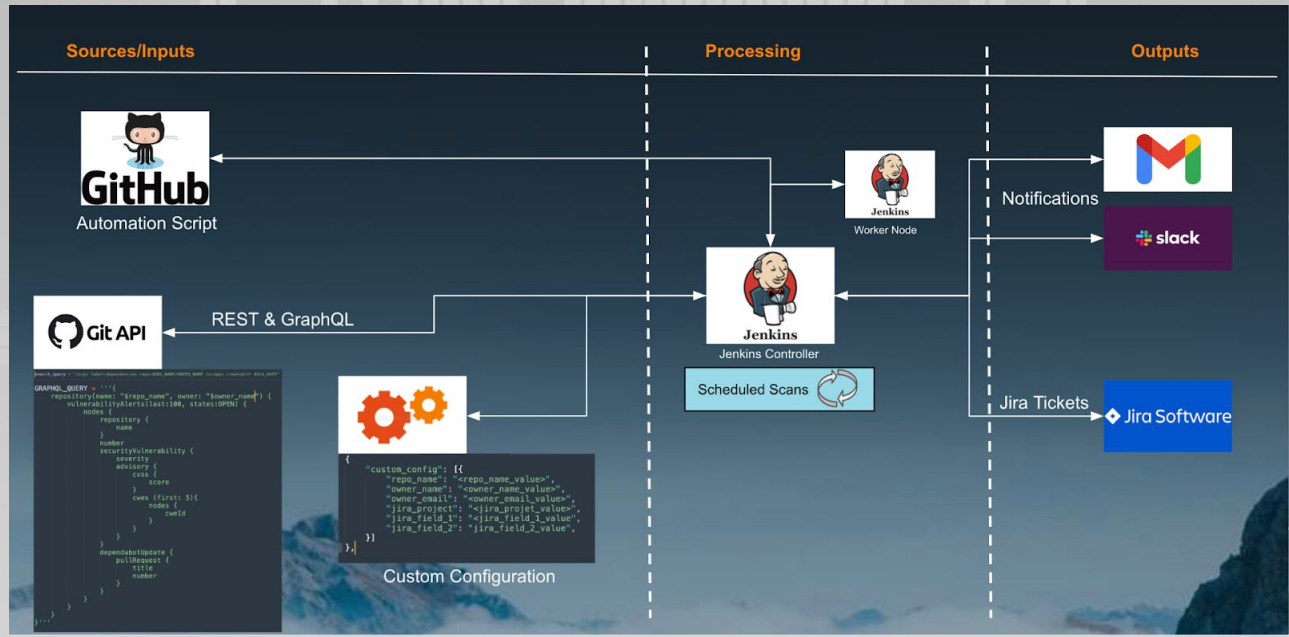
Methodology

- Github Dependabot is one of the solutions to detect whether our dependencies are secure and up-to-date
- Dependency graph module helps in identifying the 3rd party code usage (supported packages)
- Dependabot alerts module identifies security vulnerabilities affecting used 3rd party code and creates a pull request to upgrade the vulnerable package, if available

Package manager	Languages	Recommended formats	All supported formats
Cargo[*]	Rust	`Cargo.lock`	`Cargo.toml`, `Cargo.lock`
Composer	PHP	`composer.lock`	`composer.json`, `composer.lock`
NuGet	.NET languages (C#, F#, VB), C++	`.csproj`, `.vbproj`, `.nuspec`, `.vcxproj`, `.fsproj`	`.csproj`, `.vbproj`, `.nuspec`, `.vcxproj`, `.fsproj`, `packages.config`
GitHub Actions workflows[*]	YAML	`.yml`, `.yaml`	`.yml`, `.yaml`
Go modules	Go	`go.sum`	`go.mod`, `go.sum`
Maven	Java, Scala	`pom.xml`	`pom.xml`
npm	JavaScript	`package-lock.json`	`package-lock.json`, `package.json`
pip	Python	`requirements.txt`, `pipfile.lock`	`requirements.txt`, `pipfile`, `pipfile.lock`, `setup.py` [*]
Python Poetry	Python	`poetry.lock`	`poetry.lock`, `pyproject.toml`
RubyGems	Ruby	`Gemfile.lock`	`Gemfile.lock`, `Gemfile`, `*.gemspec`
Yarn	JavaScript	`yarn.lock`	`package.json`, `yarn.lock`

Pull Request Monitoring Automation

- Monitors the pull requests created by Dependabot and feed it back to Jira into the right teams bucket, where developers can triage and remediate it holistically along with other areas of work
- Enables the Dependabot security alerts for all unarchived repositories, if not enabled already



We are in process of providing the framework as open source solution

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Thank you!