NebulaGraph

Graph Your Code Vulnerabilities

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Project scope

Analyze GitHub projects structure

Collect project elements and dependencies

Detect libraries and code and store as graph

Verify exposure to CVE vulnerabilities

Visualize as intuitive graph representation

Inspiration

When **log4j vulnerability** CVE-2021-44228 exposes many Java servers to the possible exploration, there should be the easy way to validate for our software are we exposed

Why we wouldn't be able to visualize our **software structure** as graph of **dependencies** and analyze which components are **exposed** to CVE security issues

Dependencies to other **repositories, libraries and projects** increase complexity of the problem, but can be easy represented and visualized using **graph technology**

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Public Security Information

Common Vulnerability Exposure

The mission of the CVE® Program is to identify, define, and **catalog** publicly disclosed **cybersecurity vulnerabilities**

Currently, there are 166,475+ CVE Records accessible

National Vulnerability Database

Repository of standards based **vulnerability management** data

The NVD performs analysis on **CVEs that have been published**

Common Platform Enumeration - CPE

Common Vulnerability Scoring System - CVSS

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Using Graph Models

Nebula Graph Database

Easy

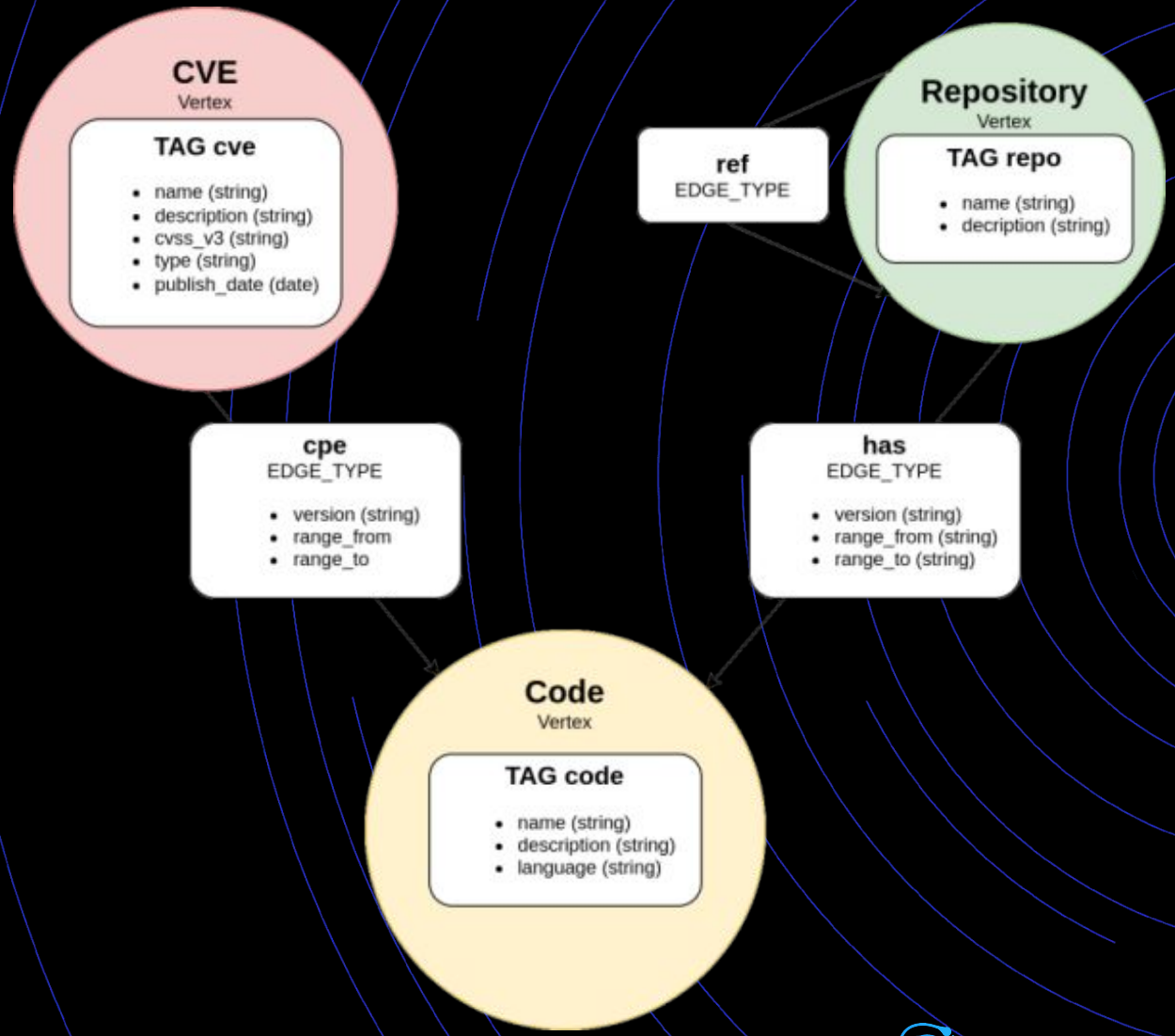
to model data

Easy

to maintain and synchronize data

Powerful & Fast

to handle huge dataset



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Implementation

Python code

- Custom **python** code for web application service
- **Nginx** web server
- **Nebula Graph** database integrated with Elasticsearch engine
- **Javascript** visualization library

Data collector for CVE

Custom python code **integrated** with CVE and CPE sources about new **vulnerabilities detected**

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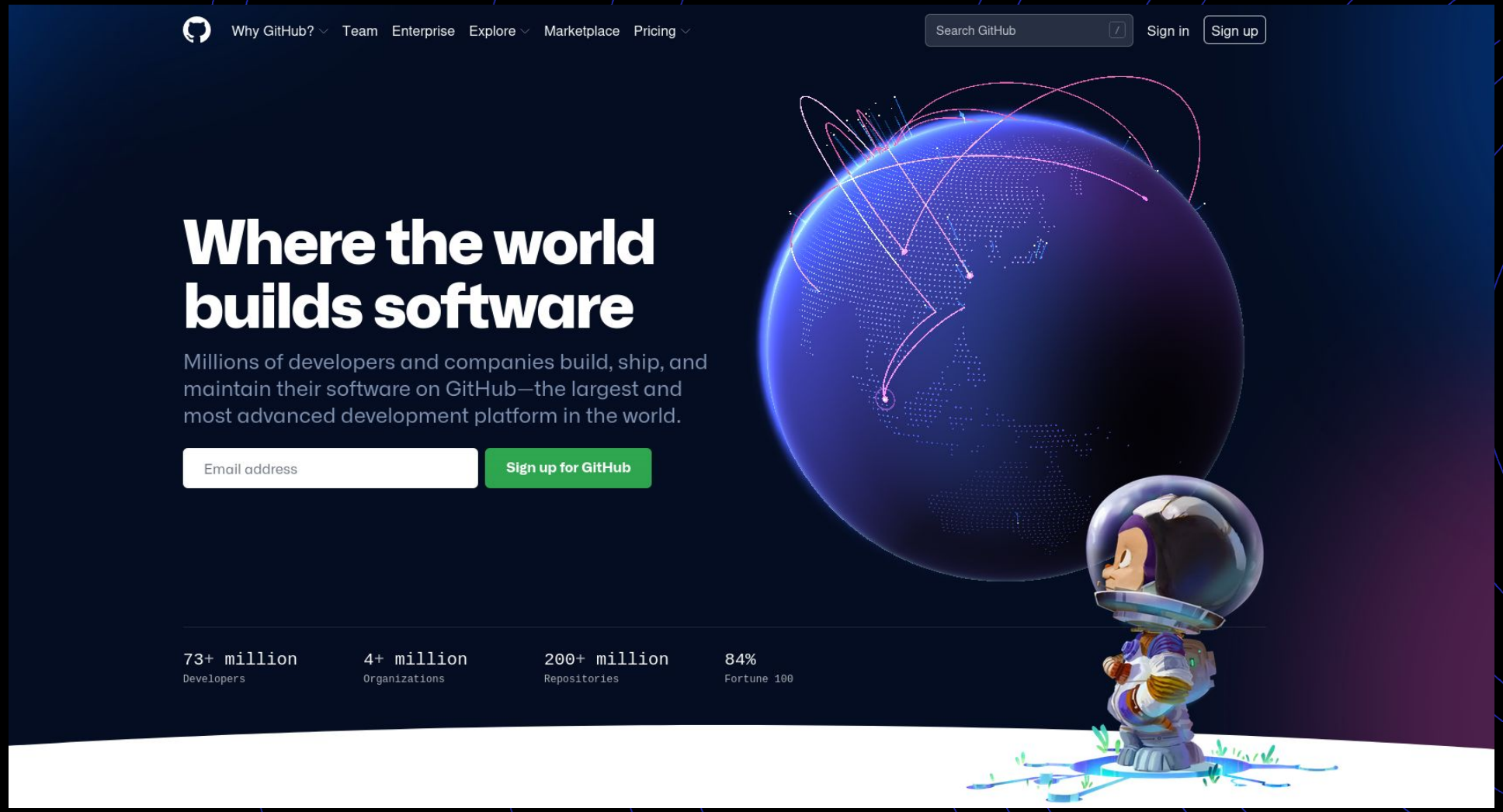
Why this is important ?



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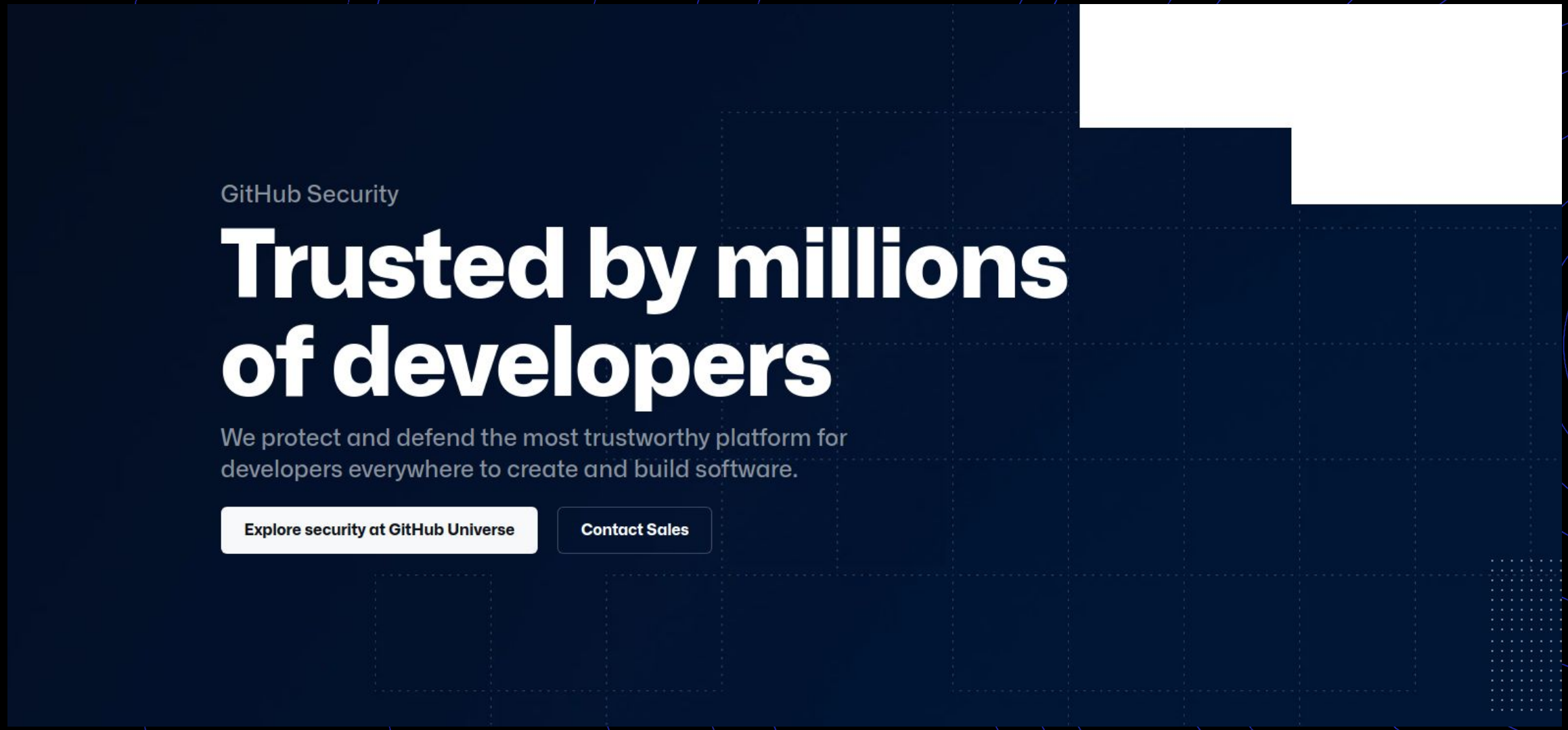

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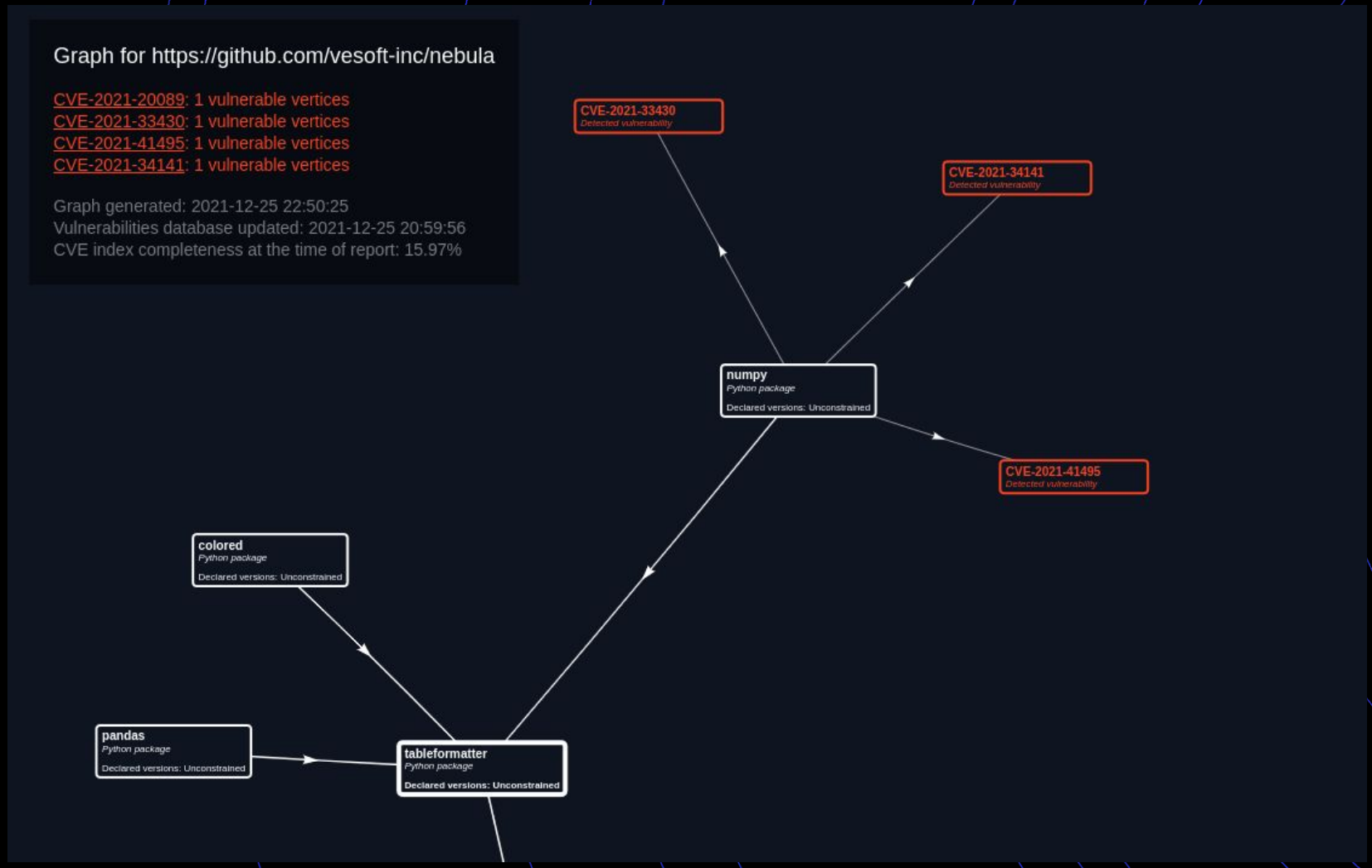
It is Your Code !
Let's make whole GitHub more secure



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Thank you

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