Open Source Vulnerability Management with Faraday

Federico Kirschbaum

CEO & Co-Founder @ Faraday

Co-Founder @ Ekoparty Security Conference

"Federico is currently the CEO of Faraday, a cybersecurity company based in Buenos Aires, Argentina. Through his extensive experience in computer security and telecommunications, he has developed a deep knowledge in the space which he utilizes in his current executive role. Federico is also a Co-founder of one of the biggest security conferences in Latin America, Ekoparty."

Chapter04

Session08

Step Up. Speak Up. Go Up

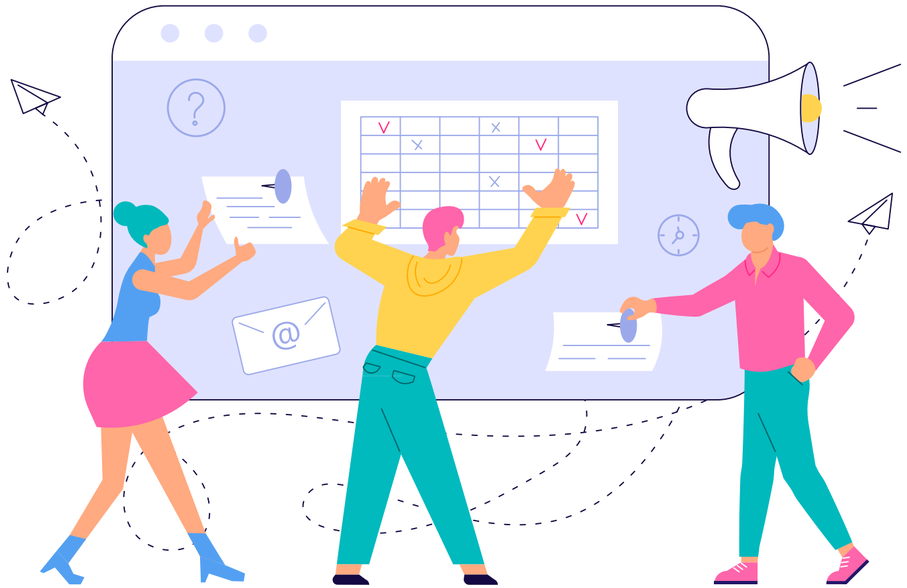
July 3rd 10AM PST

zoom.goupaz.com

Hosted by

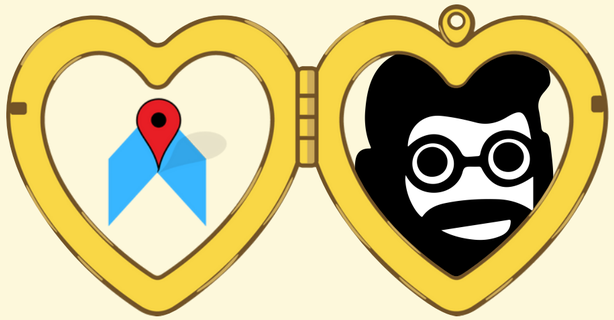
Metabob

Agenda



- **10:00–10:10 | Kickoff**
  - Introduction
  - Chit Chat
- **10:10-11:10 | Presentation**
  - Speaker
- **11:10-11:15 | Break**
  - Pre Q&A
- **11:15-11:30 | Q&A**
  - Discussion
- **11:30-11:35 | Wrap Up**
  - Contact Speaker

Chapter04
Session08



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Sako M

DevOps

Metabob

It's the fast, easy, and visual way of debugging code.

https://metabob.com

GOUP

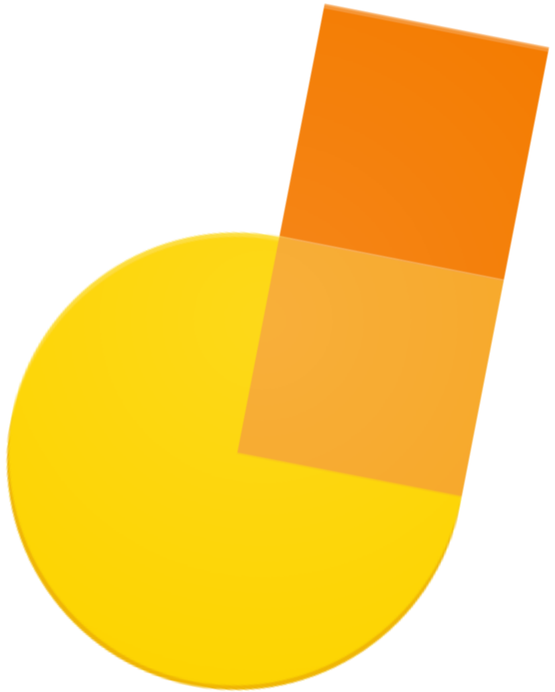
Community driven Open source accelerator!
https://goupaz.com

Are you ready?

Let's Begin!

CHITCHAT

JAMBOARD

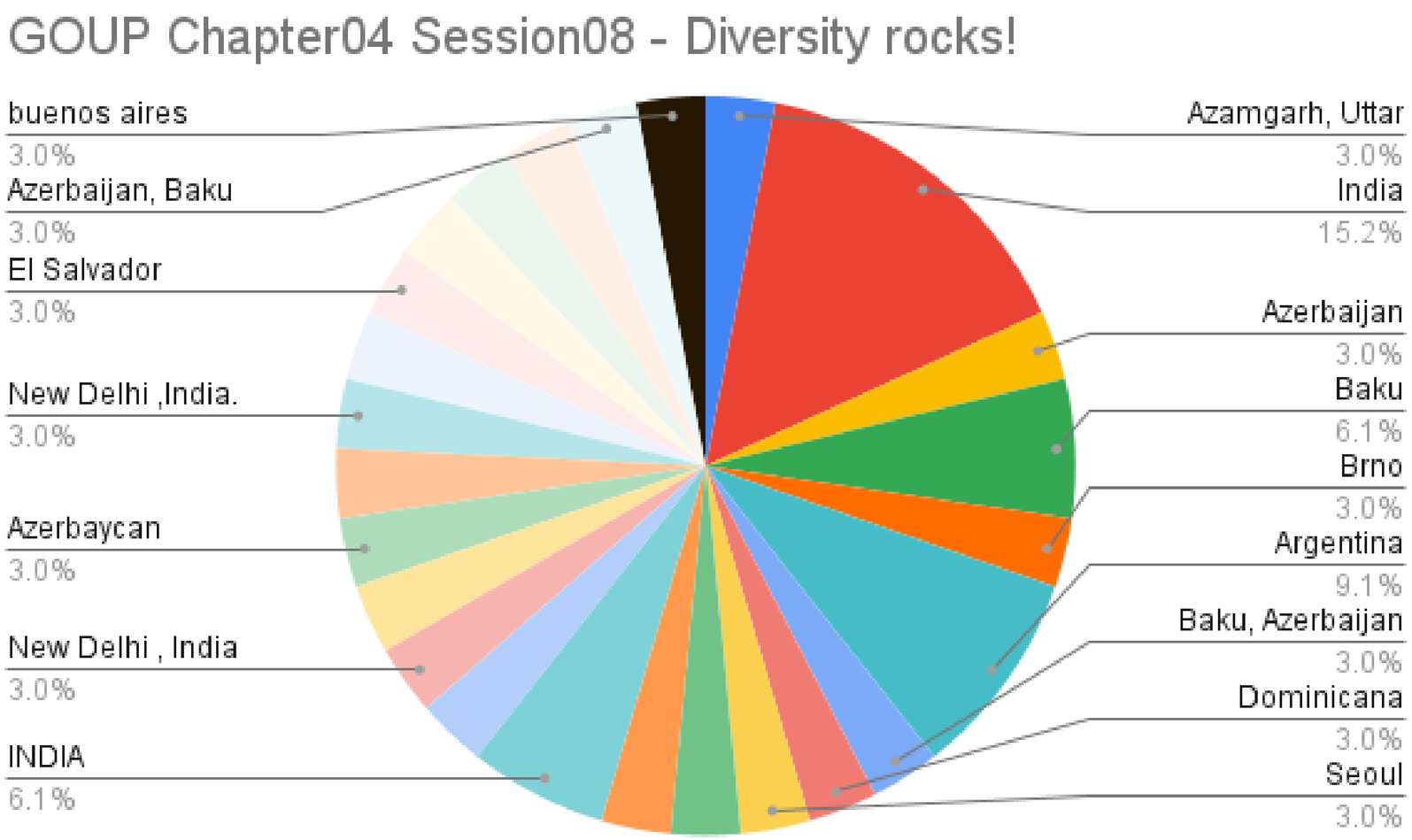


https://tinyurl.com/hz6f378c

POLL

How well you are experienced with application security & vulnerability management?

Audience


GOUP Chapter04 Session08 - Diversity rocks!
buenos aires
3.0%
Azerbaijan, Baku
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El Salvador
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New Delhi ,India.
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India
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Azerbaijan
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Baku
6.1%
Brno
3.0%
Argentina
9.1%
Baku, Azerbaijan
3.0%
Dominicana
3.0%
Seoul
3.0%

Code of Conduct

1. Learn, benefit, contribute
2. No marketing, selling, competing
3. Equality despite roles & bg

Photo Shoot Time

Please turn on your camera :D

Presentation

FARADAY

Open Source Vulnerability Management

GOUP
https://github.com/goupaz

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@fede_k

About Us

We believe that understanding your security posture is the main key to making smarter security investments.

We develop technologies to detect, track and mitigate risks faster and easier. Building a platform that allows you to automate repetitive vulnerabilities detection procedures, summarize results, accomplish custom workflows and visualize risks faster and easier.

- **+15 years of experience providing innovative solutions and cutting-edge security consulting services.**
- **Our specialists are presenters at the best security research conferences such as Defcon, BlackHat, Shakacon, H2HC, Troppers, Code Blue, AV Tokyo, SECCON and HITB**
- **Exclusive Investigation Center. Several results from our research were published in the last years.**
- **Constant contribution to the global security community. Faraday's founders are the organizers of Ekoparty, the biggest technical security information conference in Latin America with +3000 attendees.**

Vulnerability Management

Vulnerability
/vʌln(ə)rəˈbɪlɪti/

The quality or state of being exposed to the possibility of being attacked or harmed, either physically or emotionally.

Vulnerability Management (cont.)

In **computer security**, a vulnerability is a ***weakness which can be exploited*** by a **threat actor**, such as an attacker, to perform unauthorized actions within a computer system. To exploit a vulnerability, an attacker must have at least one applicable tool or technique that can connect to a system weakness. In this frame, vulnerability is also known as the **attack surface.**

Vulnerability Management (cont.)

Vulnerability management is the ***"cyclical practice of identifying, classifying, prioritizing, remediating, and mitigating"*** software vulnerabilities.

VM is not a Vulnerability Assessment:
Vulnerability management is the process surrounding vulnerability scanning, also considering other aspects such as risk acceptance.

VA is not a Penetration Testing:
Vulnerability assessment is just part of the first phase of a penetration testing methodology, normally part of the information gathering phase.

Vulnerability Management

Detection Schedule:
Any vulnerability not detected after a schedule scan takes place, will only be detected at the next scheduled scan.

For example, the following policies:

- ➔ Annual Penetration Testing
- ➔ Quarterly Vulnerability Assessment
- ➔ Monthly Scanning
- ➔ Continuous Scanning

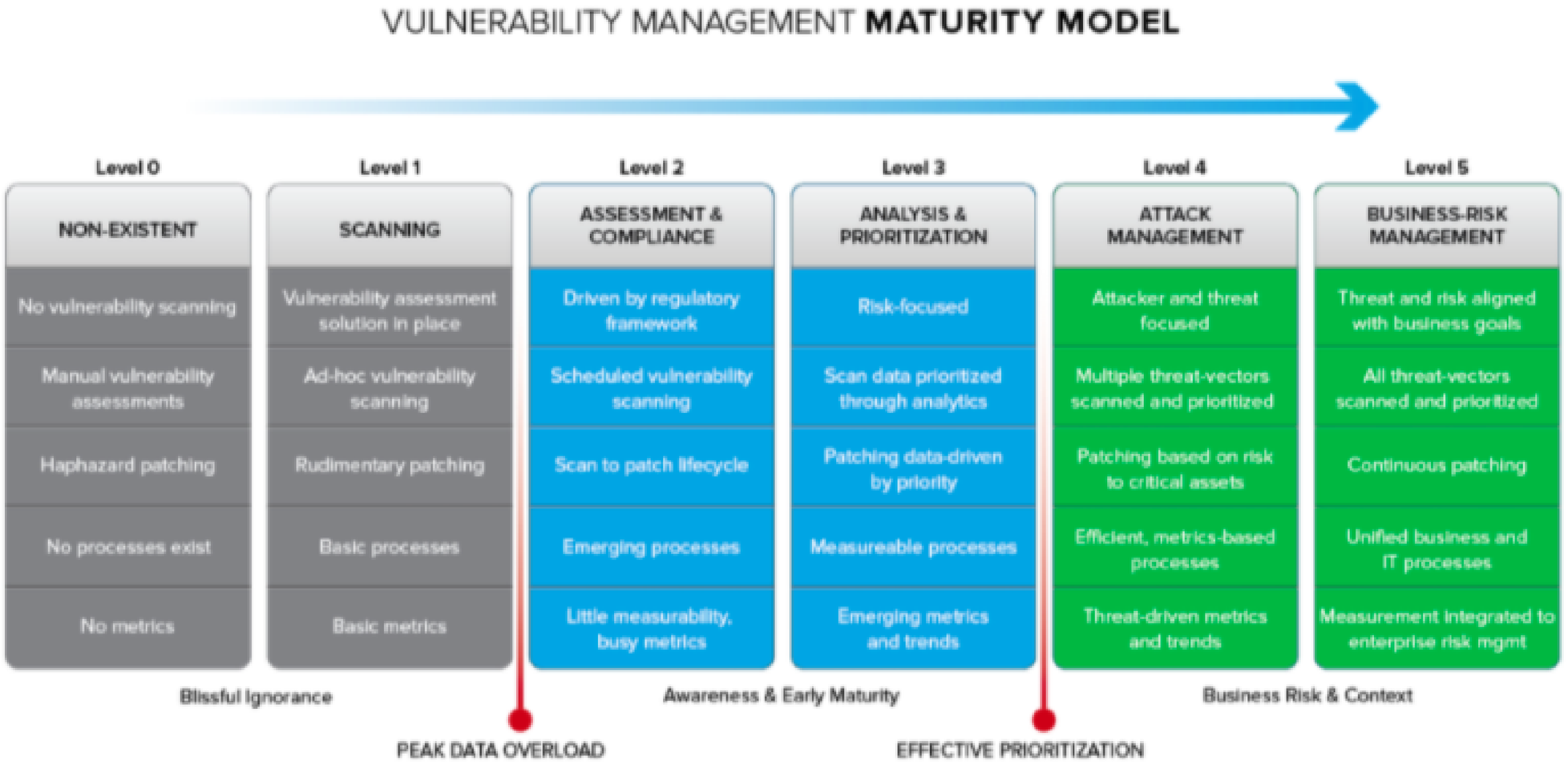
Vulnerability Management

Having a process in place greatly reduces the risks an organization is facing.

Security is dynamic

Information security has changed drastically in a short amount of time, but defense strategies are not keeping pace with its dynamic nature.

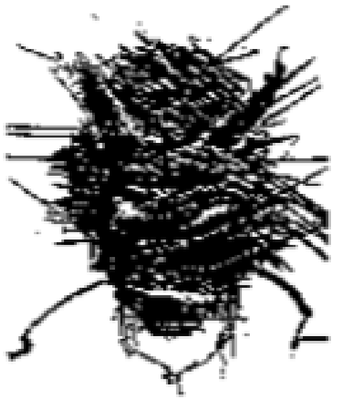
Vulnerability Management



https://security.gatech.edu/vulnerability-management

Improving the Security of Your Site by Breaking Into it

1993




MIND BLOWN

Is security still in the 90s'?
What has changed?

Vulnerability Management

- Vulnerabilities are the gateways through which threats are manifested.
- Vulnerability scans **without** remediation have **little value**.
- A little scanning and lot of remediation is better than a lot of scanning and little remediation.
- Vulnerabilities in need of fixing must be prioritized based on which ones pose the most immediate risk to the organization.
- Security practitioners need a process that will allow them to stay on the trail of vulnerabilities so the fixes can be more frequent and effective.

Vulnerability Management

Common pitfalls in Security Operations

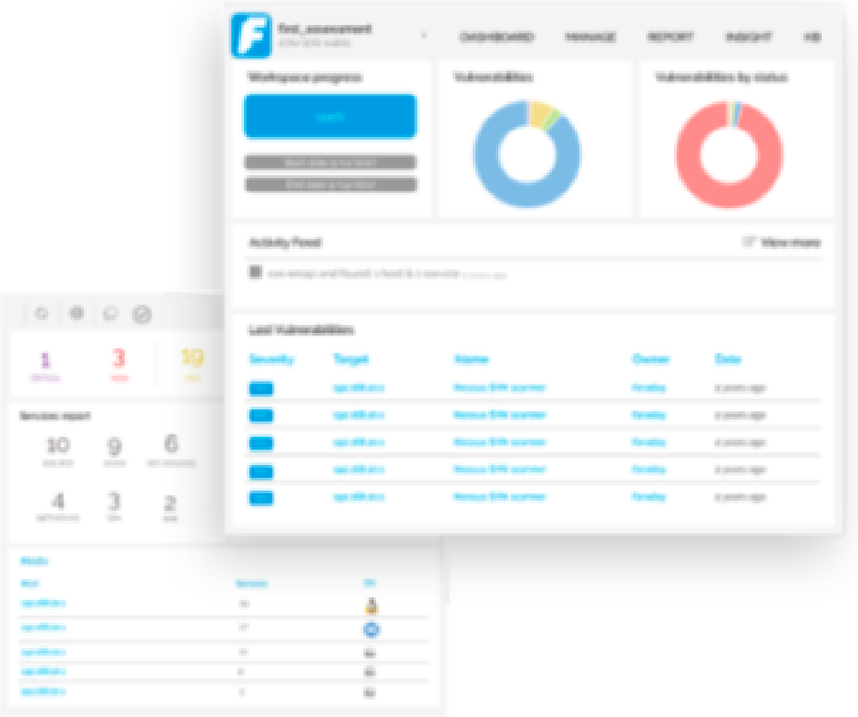
- Friction with engineering/ops teams
- Security Tooling Information lives in silos.
- Information duplicated in numerous platforms.
- Reporting takes too much time.
- Coverage
- No Metrics
- Lack of Asset tracking

To the rescue?

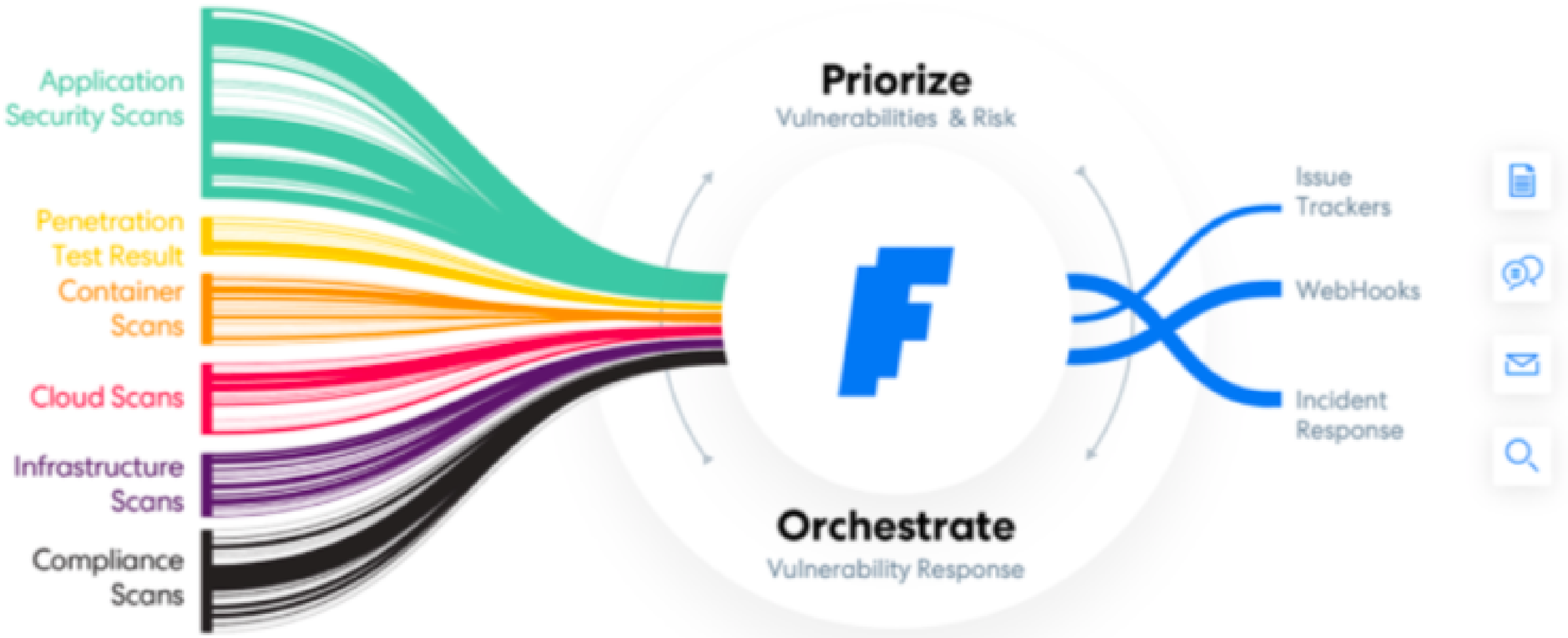
Introduction to Faraday

What if you could automate daily tasks, like running your favorite scanners and actions based on findings?

Normalize and review results from different sources, manage, tag, track vulnerabilities as a team.



Introduction to Faraday



Integration & Flexibility

Faraday

With more than +75 plugins, an easy-to-use REST API and a flexible scheme to develop your own Faraday Agents, our platform brings a unique alternative to create your own automated security pipelines into faraday's vulnerability management ecosystem.

Scanners

Connectors

Modules

Extenders

https://github.com/infobyte/faraday_plugins

Possibilities with Faraday

- Aggregate from different sources
  - Tools, Bug Bounties, Pentest
- Vulnerabilities can be processed using the same workflow
  - Triaging creates High Signal Output
  - Accountability and tracking of all vulnerabilities detected.
- Create Dashboard with actionable information
  - KPIs / SLAs
- Create Project so everyone in the team has access
- Use our APIs to automate as much as possible
- Understand Coverage
- Create standard workflows
- Asset tracking

Our “New” Users are Busy Engineers

Benefits Faraday

- ➔ Automate repetitive team's actions and save time
- ➔ **Understand Attack Surface by Tracking assets and services**
- ➔ Visualize findings and get deeper understanding
- ➔ **Orchestrate risk detection methods and aggregate results**
- ➔ Vulnerability management ecosystem in one platform
- ➔ **Reduce mitigation time and compliance with your Time To Market**
- ➔ Increase team's maturity with collaboration and automation
- ➔ **Create Metrics while identifying and mitigating vulnerabilities**

Introduction to Faraday

Common use cases

- ➔ Consulting Services Companies
  - Red/Blue/Purple Teams
- ➔ Managed Security Service Providers.
  - Attack Surface
- ➔ CERTS
  - Vulnerability Management
- ➔ Internal Security Teams
  - Regression testing, Compliance, Scanning
- ➔ DevSecOps
  - Security Pipelines

Automation

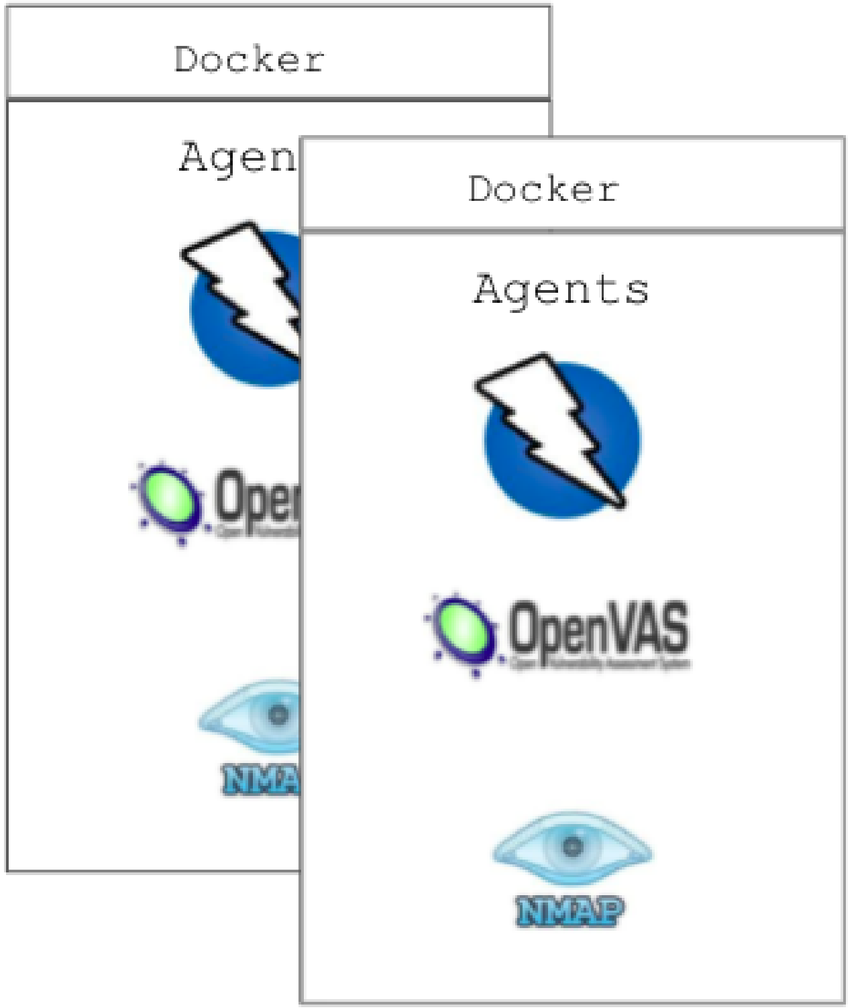
To make integrations with Faraday as easy as possible, we developed a project we called **Faraday Agent Dispatcher** that oversees handling the communication between the Faraday Server and your own agents.

The only thing you'll need to build your own integrations is a script (we call it an **Executor**) that prints to standard output every data you want to send to Faraday (hosts info, vulnerabilities, etc.) encoded in JSON.

There is no need to use complex APIs or communication methods, as all of this is abstracted by the Dispatcher. You just need to print JSON to standard out, and the Dispatcher will handle the rest!

https://github.com/infobyte/faraday_agent_dispatcher

Automation with Agents



Faraday

Automate all The Things

- Faraday has a Server RESTful API by **default** running on 127.0.0.1:5985
- You can check all API endpoints with the command:

```
$ faraday-manage show-urls
```

- Or check out our Swagger:

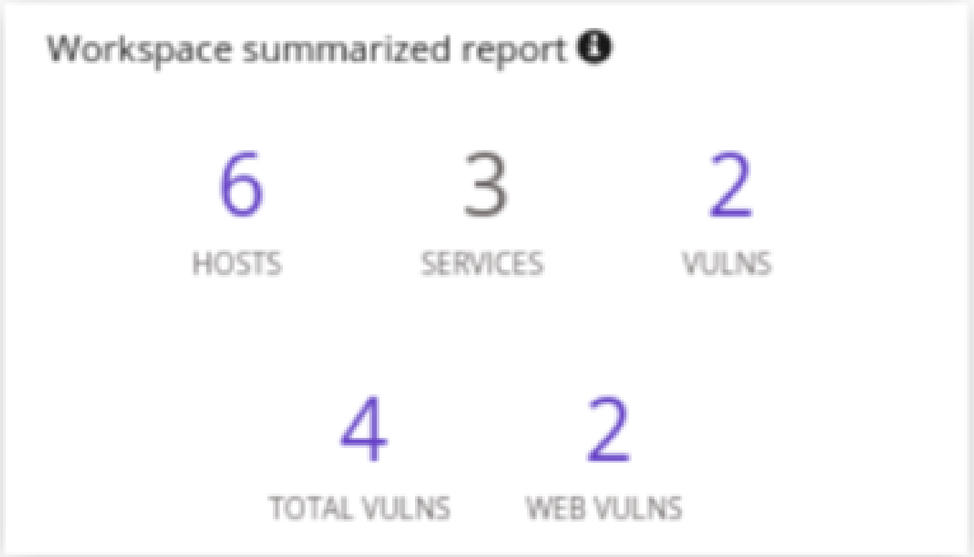
https://api.faradaysec.com/


```
{
    params: "",
    path: "/.git/config",
    name: "Git Config Disclosure",
    type: "VulnerabilityWeb",
  - metadata: {
        update_user: null,
        update_controller_action: "",
        creator: "faraday_csv",
        create_time: "2021-07-03T07:26:43.997864+00:00",
        update_action: 0,
        owner: "faraday",
        update_time: "2021-07-03T07:26:43.997869+00:00",
        command_id: 13
    },
    _id: 2062,
  - service: {
        status: "open",
        summary: "(443/tcp) https",
        ports: 443,
        name: "https",
        version: "",
        protocol: "tcp",
        _id: 195
    },
```

Faraday in each phase

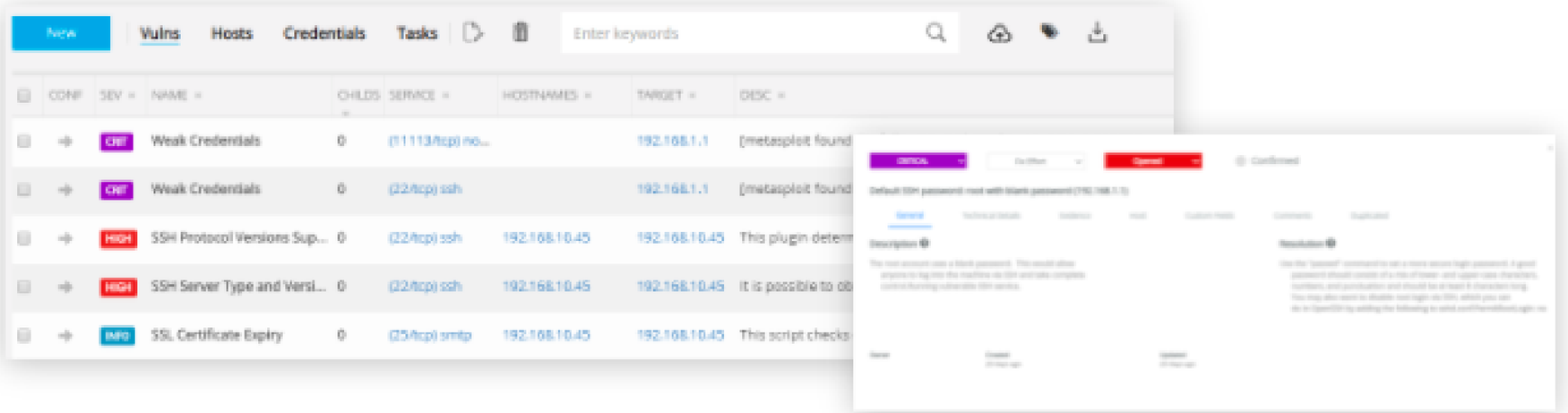
Discovery

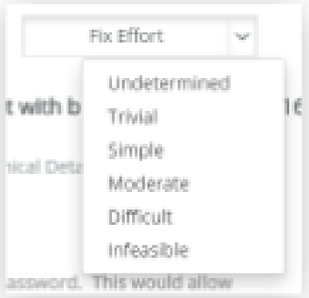
When a process is discovering network hosts, all this information can be aggregated in Faraday. All this information will be summarized in the platform.

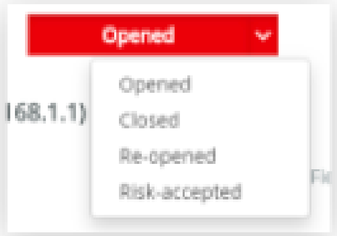


Managing Vulnerabilities

Vulnerability Life Cycle



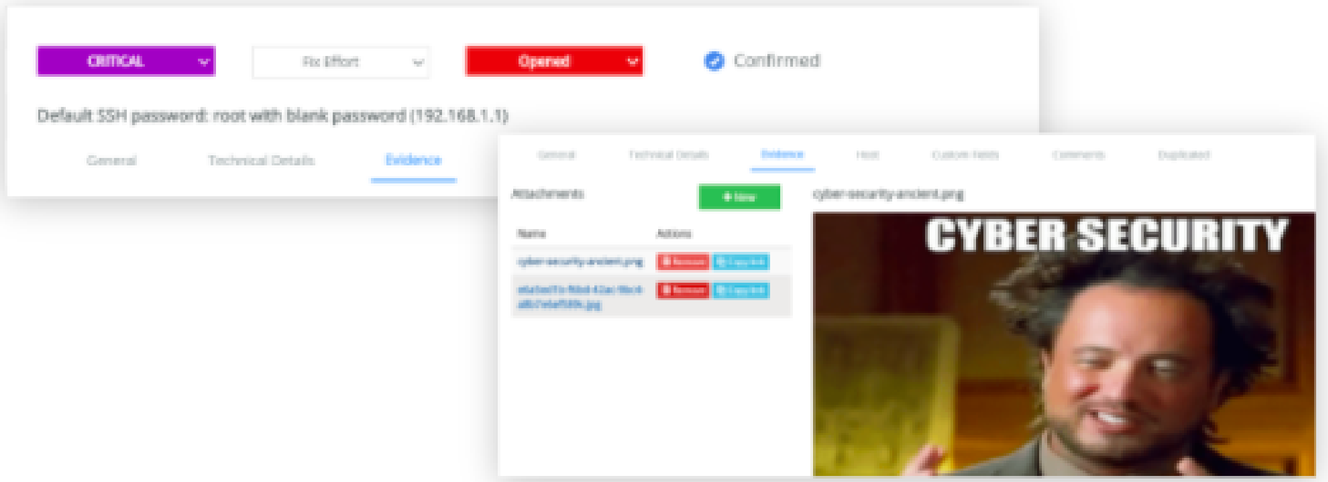




Managing Vulnerabilities

Vulnerability Life Cycle

Add evidence to any finding, allowing easier verification by OPs



faraday-cli

Vulnerabilities in your terminal

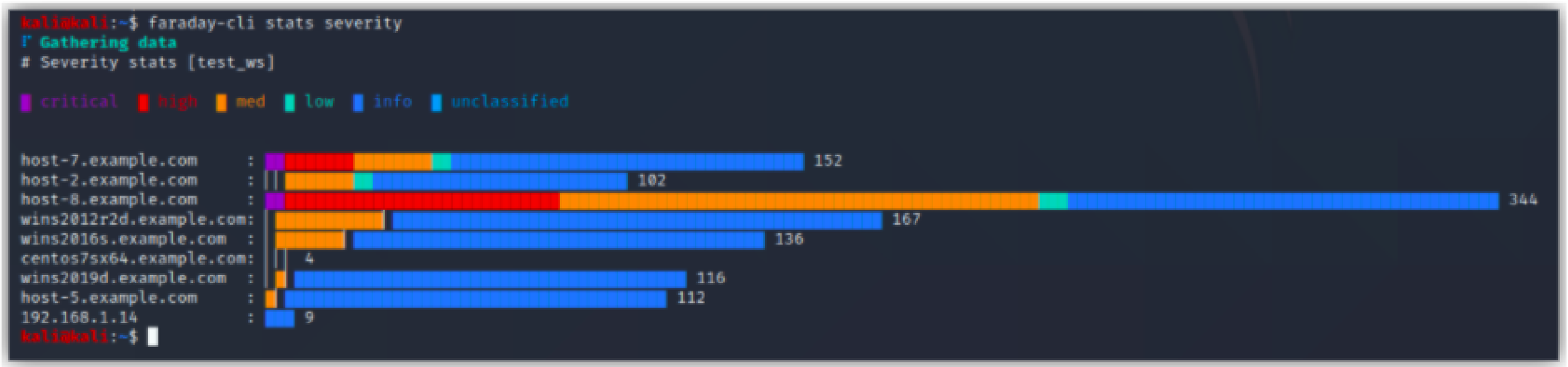
```
kali@kali:~$ faraday-cli

Server: https://avjxdzfi.de
[ws:test_ws]>
```

```
Faraday> workspace dashboard
+-------------+-------------+-------------+-----------------------------------------------------------------------
| WORKSPACE   | SUMMARY     | SEVERITIES  | ACTIVITY
+=============+=============+=============+=======================================================================
| goup        | hosts: 30   | critical: 0 | Nessus (report) found 29 hosts, 75 services and 1241 vulns (
|             | services: 76| high: 1     | nuclei (report) found 1 hosts, 1 services and 4 vulns (0/1/1
|             | vulns: 1247 | med: 34     |
|             |             | low: 0      |
|             |             | info: 1212  |
+-------------+-------------+-------------+-----------------------------------------------------------------------
| present     | hosts: 34   | critical: 1 | faraday_csv (report) found 34 hosts, 35 services and 246 vul
|             | services: 35| high: 4     |
```

faraday-cli

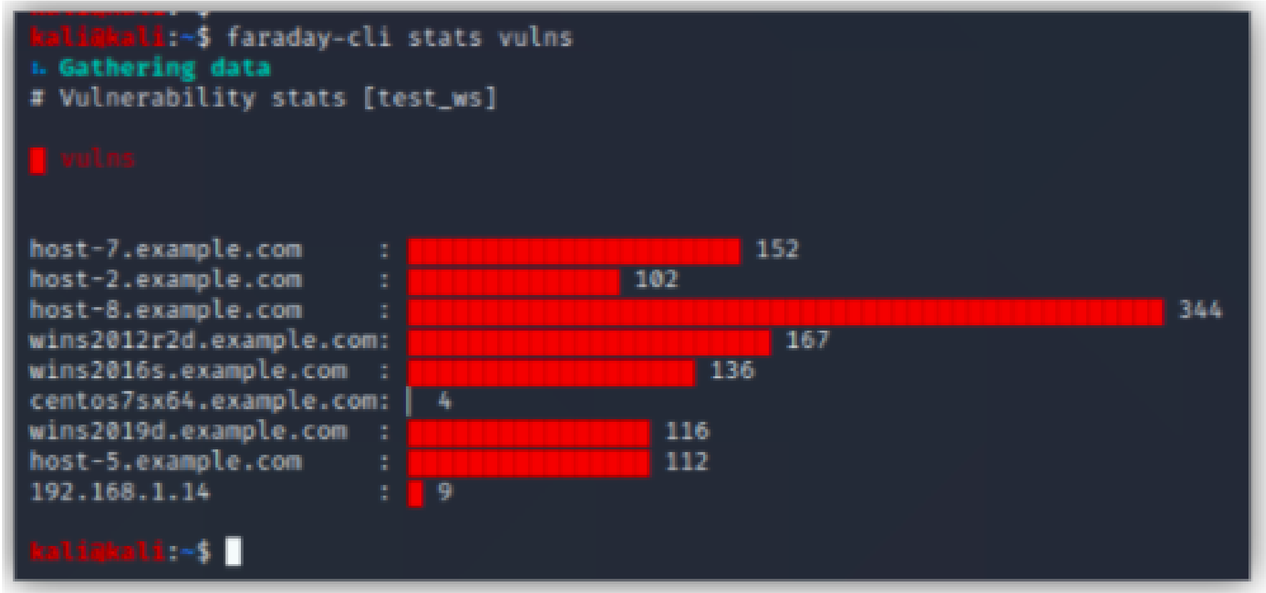
Vulnerabilities in your terminal



faraday-cli

Vulnerabilities in your terminal

- You can install it on any box running Python
- It will help you manage your Faraday Server remotely.
- Upload results from your favorite Tools.
- Pull information from your Faraday Server
- Automate your security workflows.
- Helper for CI/CD



What we know so far?

- We can't kill ALL the bugs, but we can definitely kill a few
- You can't fully protect a computer, but you can at least make it expensive to attack.
- Can we elevate baseline security by automating all the things?
- Content creation for scanners is difficult to scale
  Using offensive methodologies creates high signal but does not scales
- Security should be an enabler
- Security is a **culture** not a tool

FARADAY

Thanks for your time

Questions?

@faradaysec

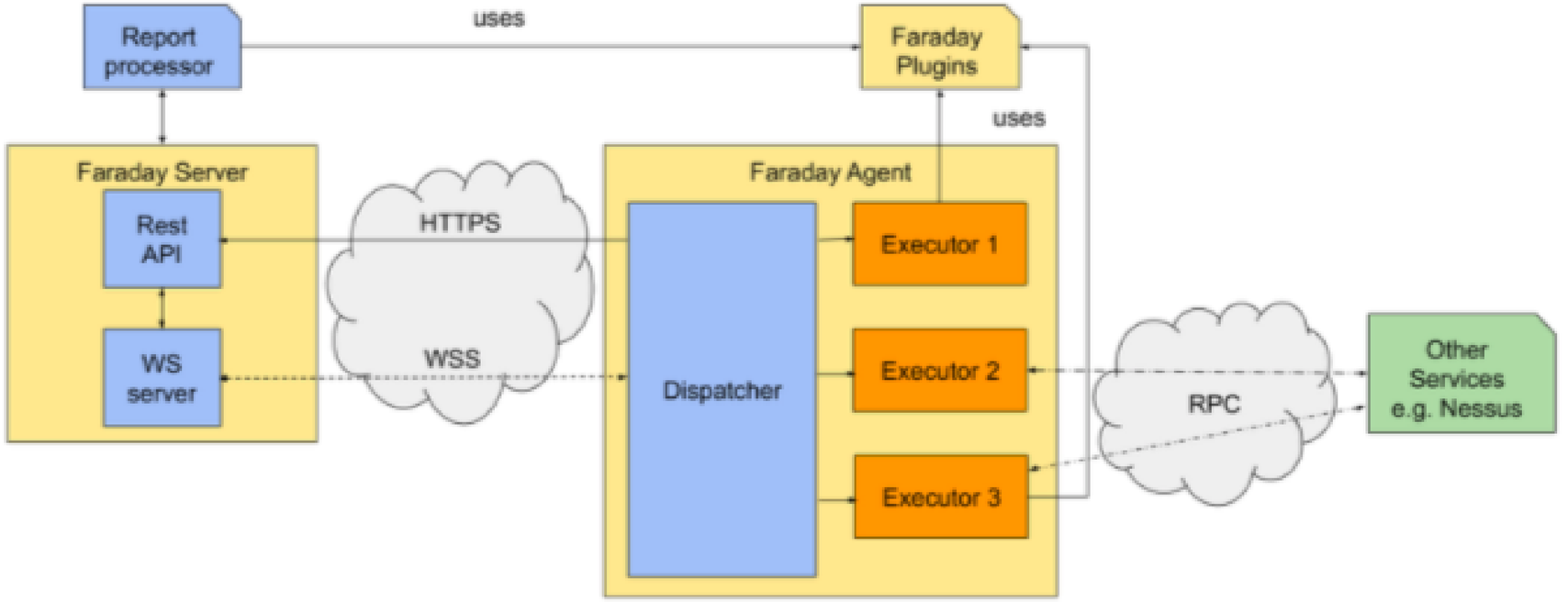
www.faradaysec.com

Stack

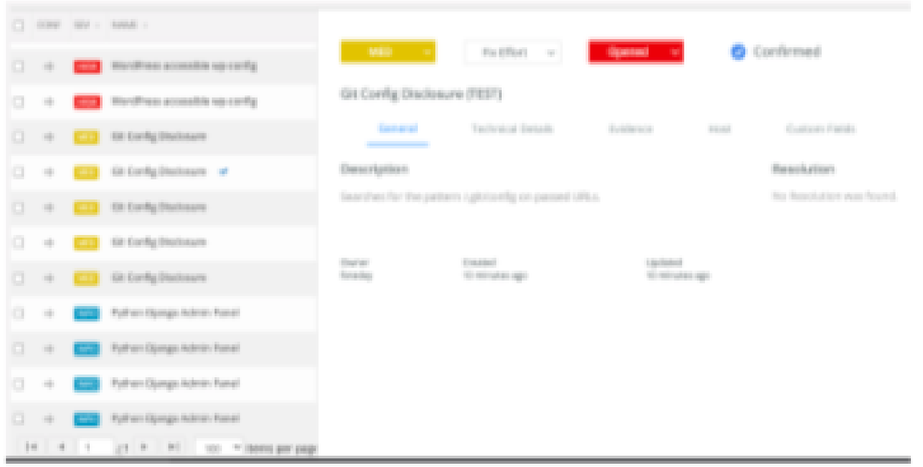



- Python
- Python-Flask
- AngularJS
- PostgreSQL
- HTML5

Agents Architecture



https://docs.agents.faradaysec.com/technical/arch/



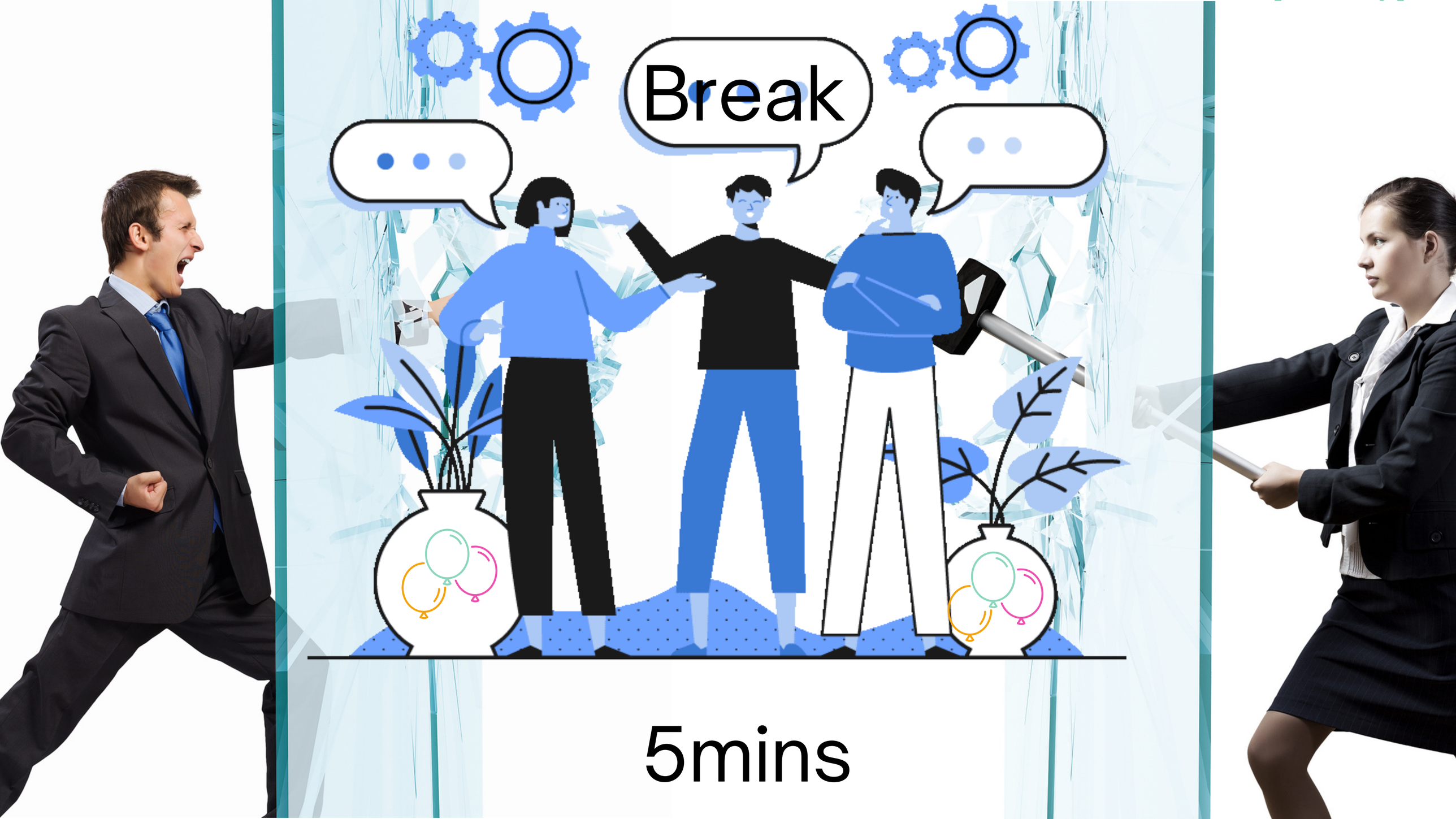

```
{
    params: "",
    path: "/.git/config",
    name: "Git Config Disclosure",
    type: "VulnerabilityWeb",
  - metadata: {
        update_user: null,
        update_controller_action: "",
        creator: "faraday_csv",
        create_time: "2021-07-03T07:26:43.997864+00:00",
        update_action: 0,
        owner: "faraday",
        update_time: "2021-07-03T07:26:43.997869+00:00",
        command_id: 13
    },
    _id: 2062,
  - service: {
        status: "open",
        summary: "(443/tcp) https",
        ports: 443,
        name: "https",
        version: "",
        protocol: "tcp",
        _id: 195
    },
```

Q&A | Discussion

Type your thought here

Type your thought here

Type your thought here


Break
5mins

Wrap Up

Remember!

- Re-Search
- Be short and clear
- Re-mind
- Q&A over Slack

Linkedin: @fedek
GOUP Slack: @Federico Kirschbaum

Federico Kirschbaum

Join Us!

1. Community Managers
2. Tech Writers
3. In/Out Ambassadors
4. Marketing Creators & Editors
5. Course Creators
6. Project Creators

HTTPS://GOUPAZ.COM

HTTPS://METABOB.COM

Thank You

Culture
#egoless #collaborative #competent #decentralized #scalable #fun

Open source
#creator #contributor

How can we do better?

Diversity
#age #gender #location #economics #religion #politicalview