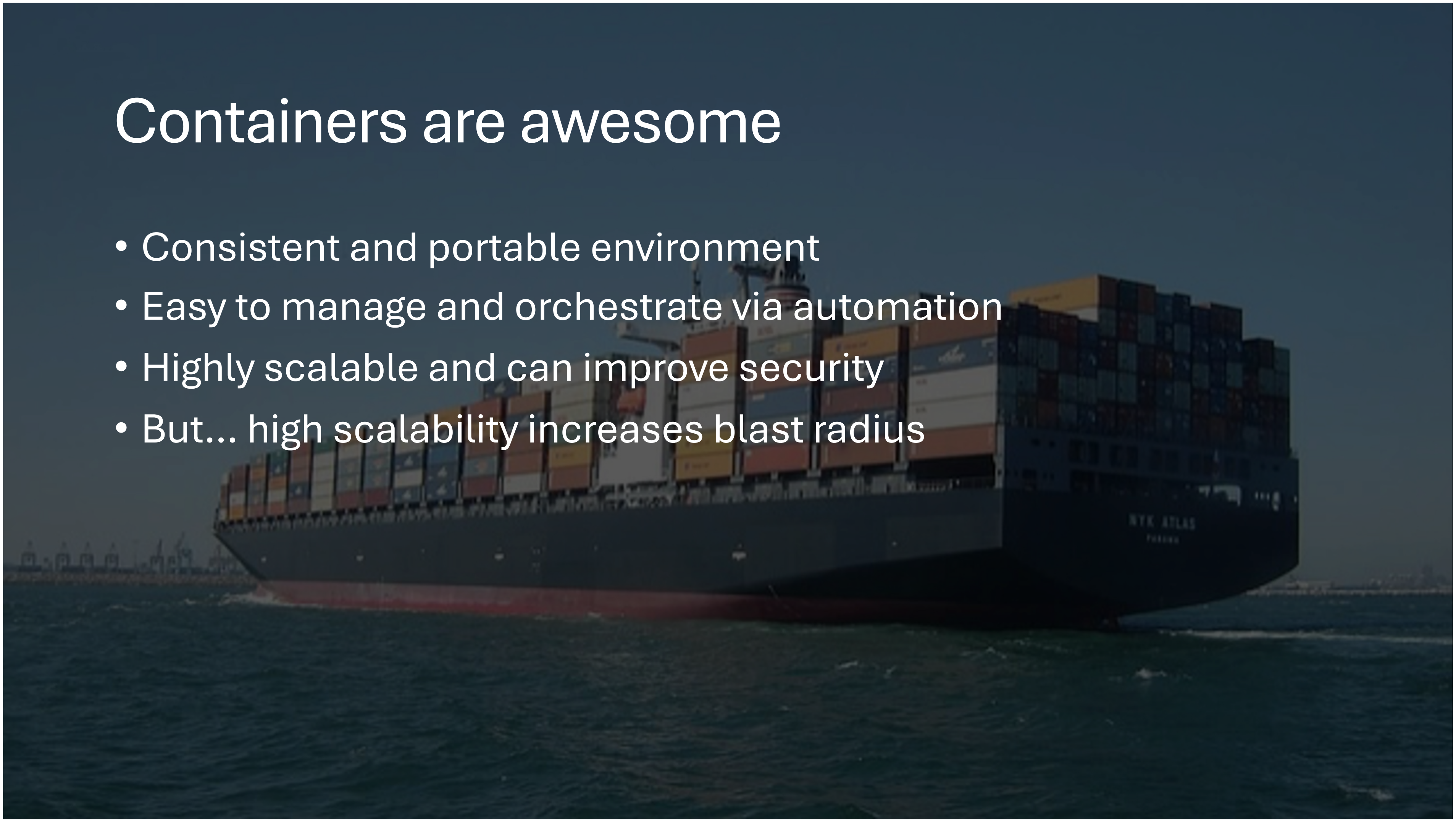
Strengthening the Secure Supply Chain with Open-Source Tools

Paul Yu

Developer Advocate

Microsoft

@pauldotyu | /in/yupaul

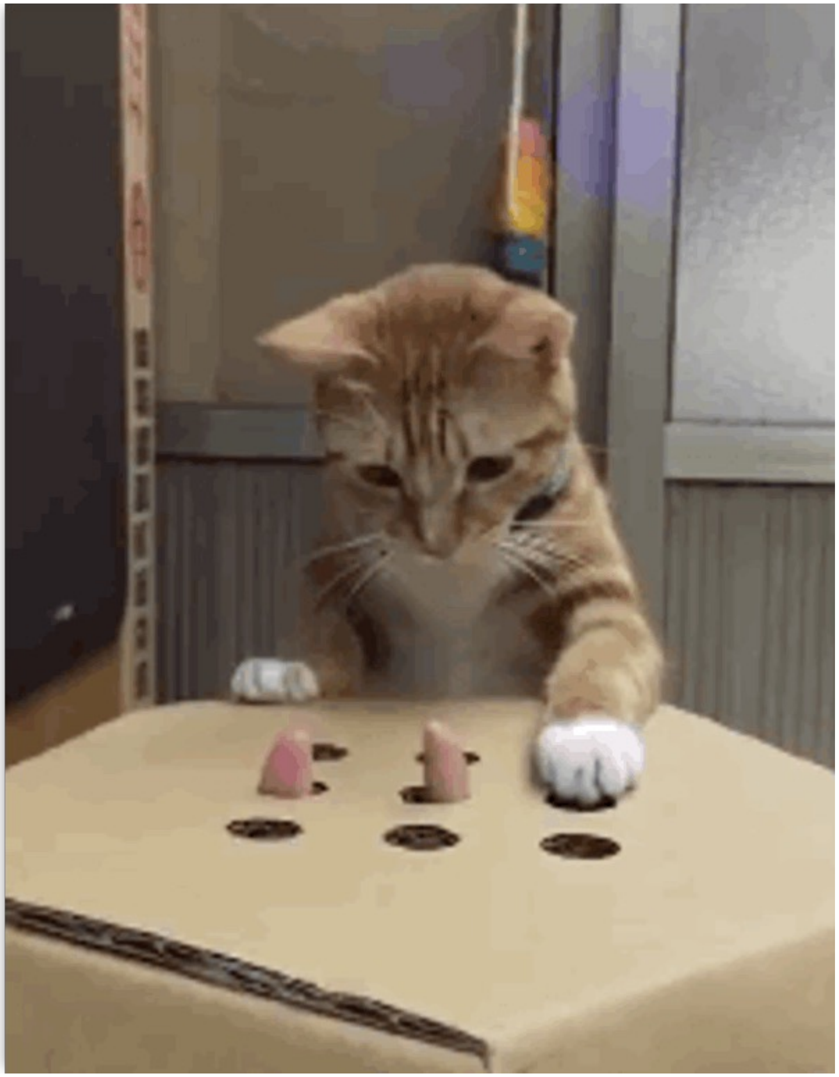


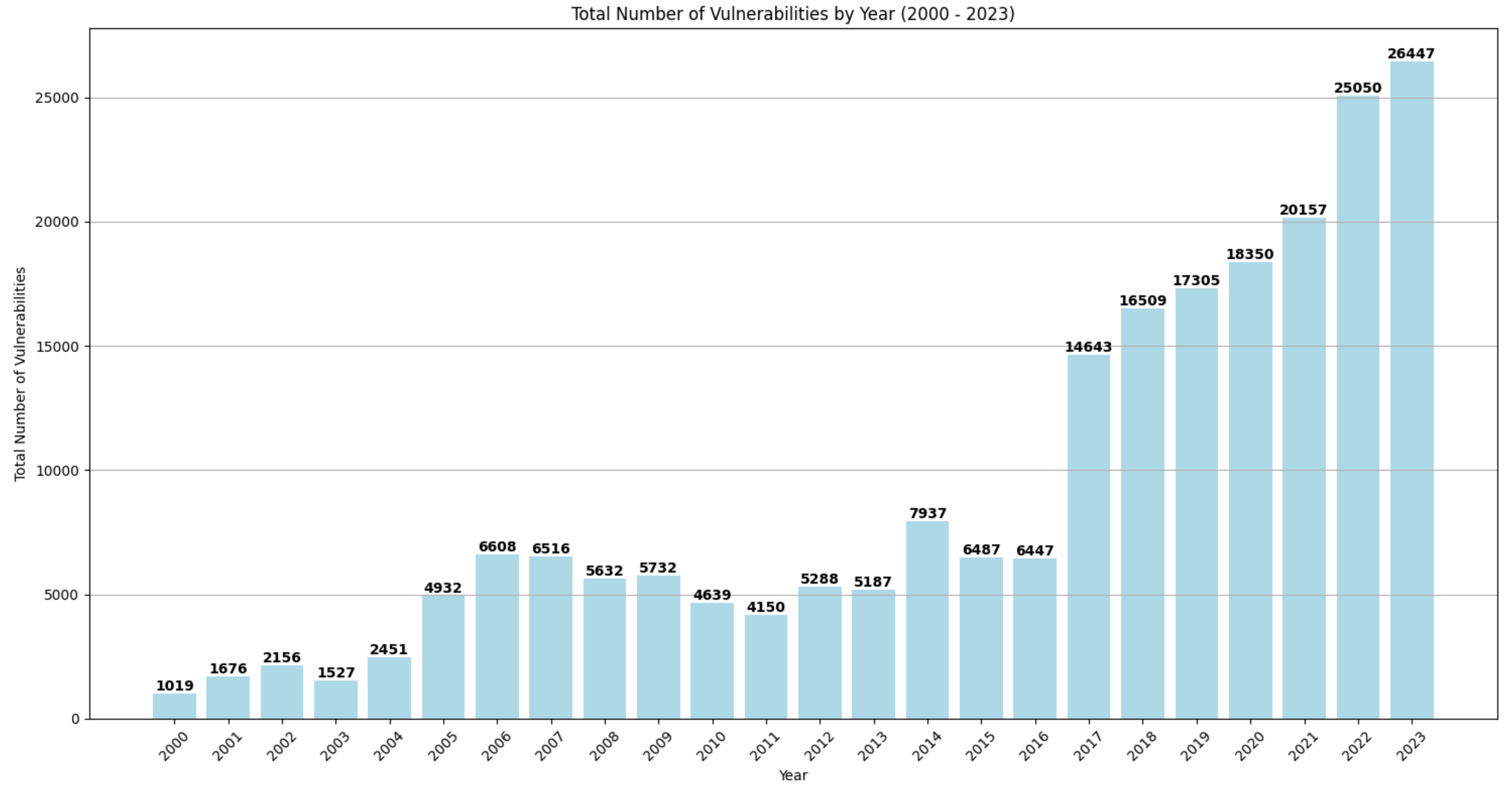
Containers are awesome

- Consistent and portable environment
- Easy to manage and orchestrate via automation
- Highly scalable and can improve security
- But… high scalability increases blast radius

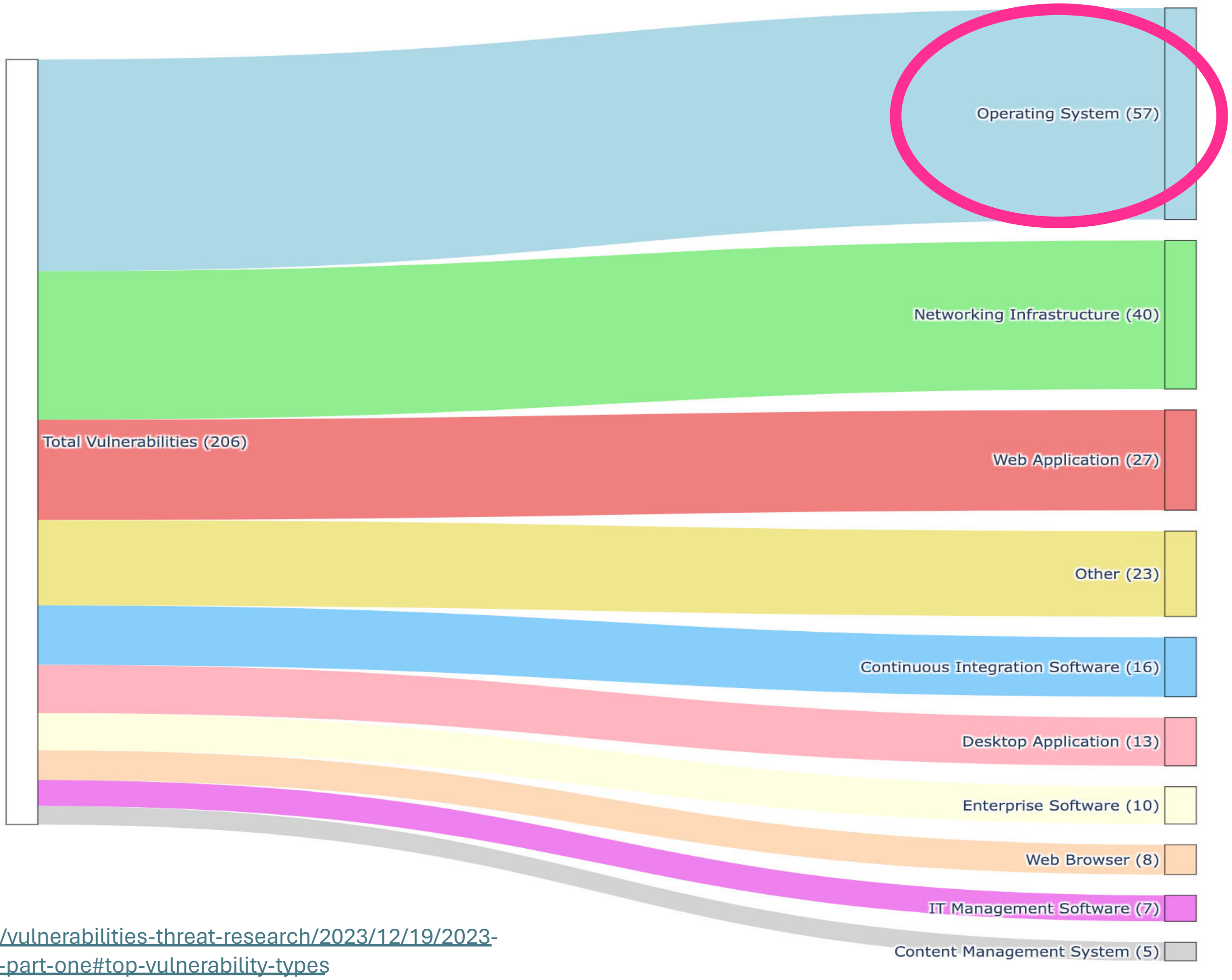
Security vulnerabilities galore

- 50+ CVEs reported daily
- Never ending game of whack-a-mole





Source: https://blog.qualys.com/vulnerabilities-threat-research/2023/12/19/2023-threat-landscape-year-in-review-part-one



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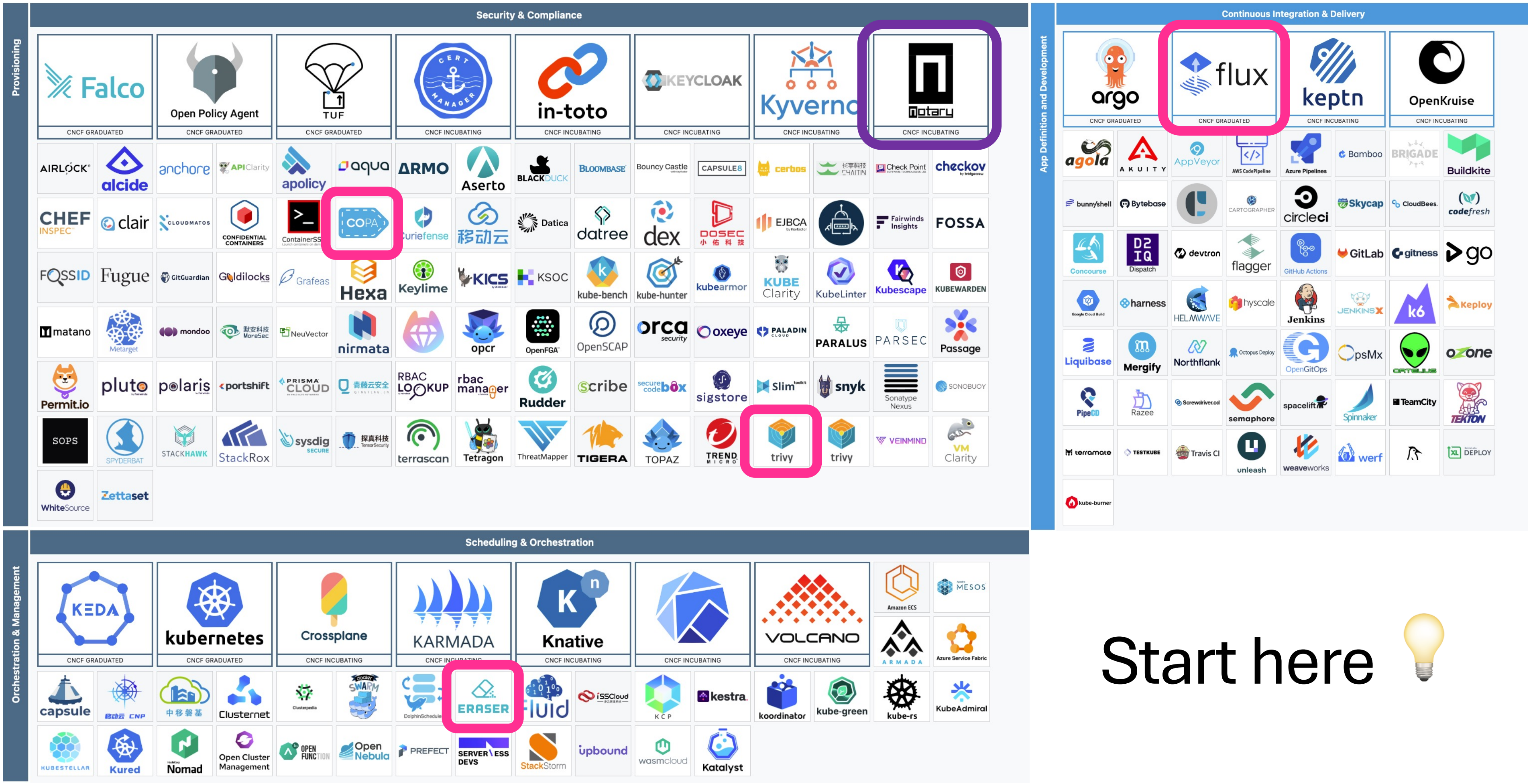
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TUF
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notary
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alcide
anchore
APIClarity
apolicy
aqua
ARMO
Aserto
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Metarget
mondoo
NeuVector
nirmata
opcr
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OpenSCAP
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Concourse
Dispatch
devtron
flagger
GitHub Actions
GitLab
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kube-rs
KubeAdmiral
KUBESTELLAR
Kured
Nomad
Open Cluster Management
OPEN FUNCTION
Open Nebula
PREFECT
SERVERLESS DEVS
StackStorm
upbound
wasmcloud
Katalyst

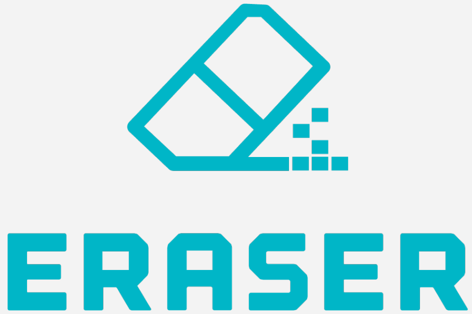
Start here 💡

GitHub Actions

- Continuous integration and continuous delivery platform
- Workflows trigger off an event
- Runners can be GitHub provided or self-hosted

Flux

- CNCF Graduated project (2022)
- Continuous delivery solution via GitOps
- Image update automation to detect and deploy new images



Eraser

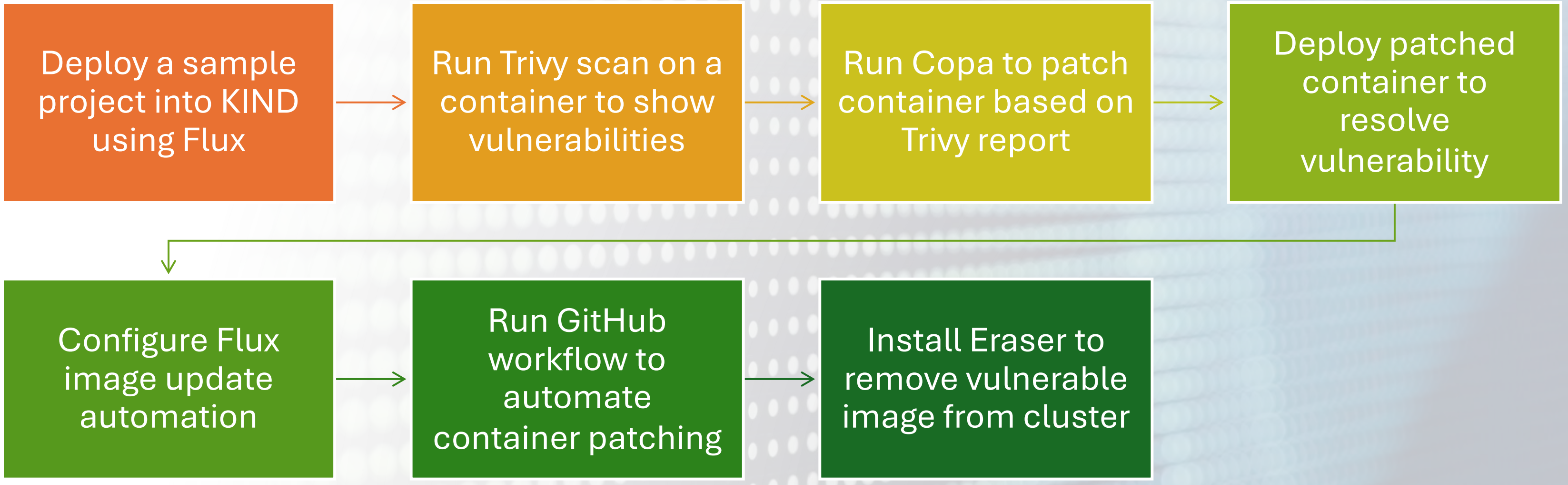
- CNCF Sandbox project (2023)
- Removes non-running images based on vulnerability scans
- Supports Trivy but can integrate with others

COPA

Project Copacetic

- CNCF Sandbox project (2023)
- Patch container images based on vulnerability scans
- Supports Trivy but can integrate with others

Demo



Deploy a sample project into KIND using Flux

Run Trivy scan on a container to show vulnerabilities

Run Copa to patch container based on Trivy report

Deploy patched container to resolve vulnerability

Configure Flux image update automation

Run GitHub workflow to automate container patching

Install Eraser to remove vulnerable image from cluster

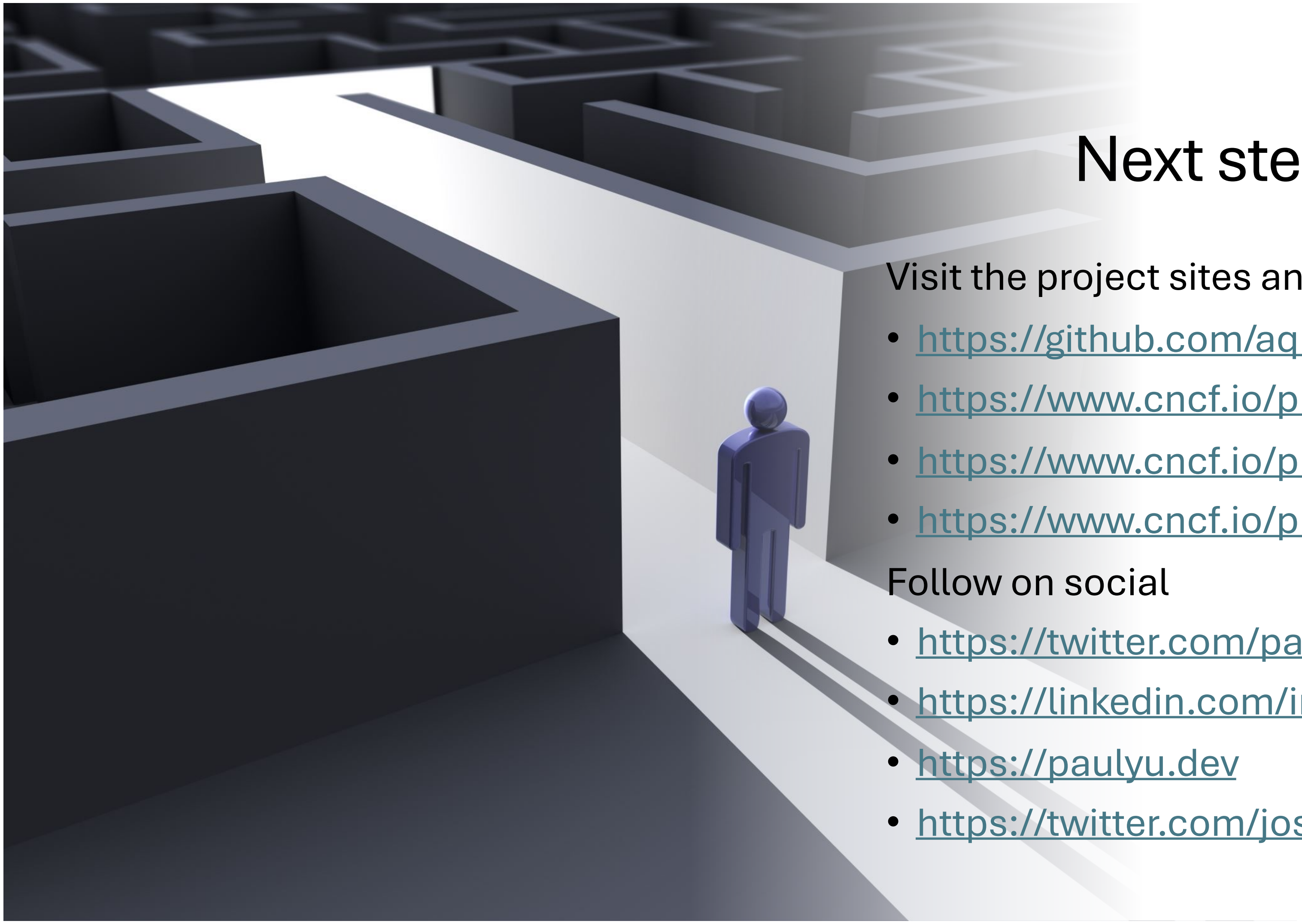
Summary

✓ Containers are the best thing since sliced bread

Keeping up with container security is challenging

Open-source tools can help to strengthen the secure supply chain

Supply chain security is just one aspect



Next steps

Visit the project sites and contribute

- https://github.com/aquasecurity/trivy
- https://www.cncf.io/projects/copa
- https://www.cncf.io/projects/flux
- https://www.cncf.io/projects/eraser

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