


Backstage & Tanzu Application Platform

Same same, but different

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1/7/2023



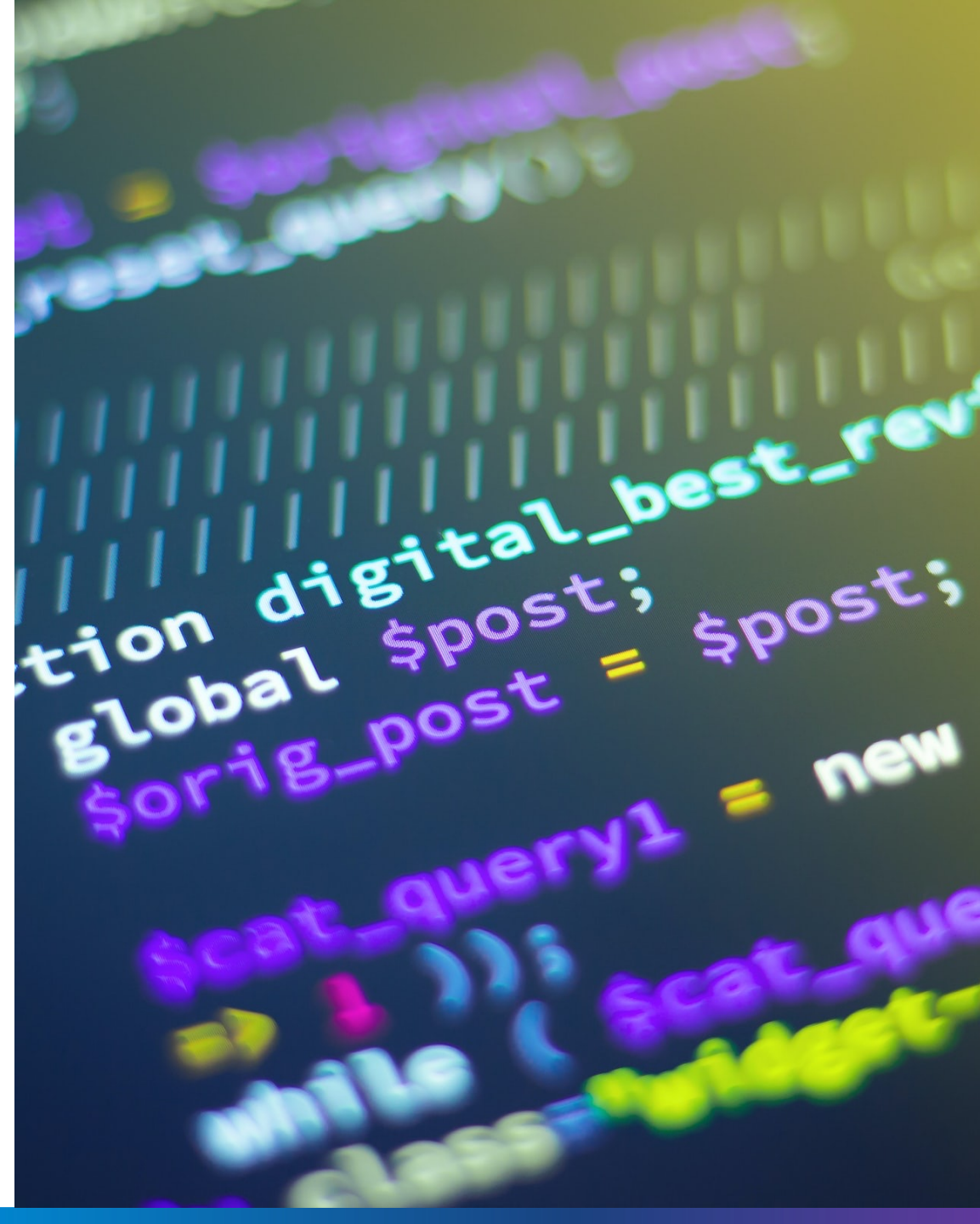
Agenda

- VMware and Open Source
- What is a developer portal
- The Spotify Journey and Backstage
- VMware and Tanzu Application Platform
- Demo

Inspiration for this talk



VMware & Open Source



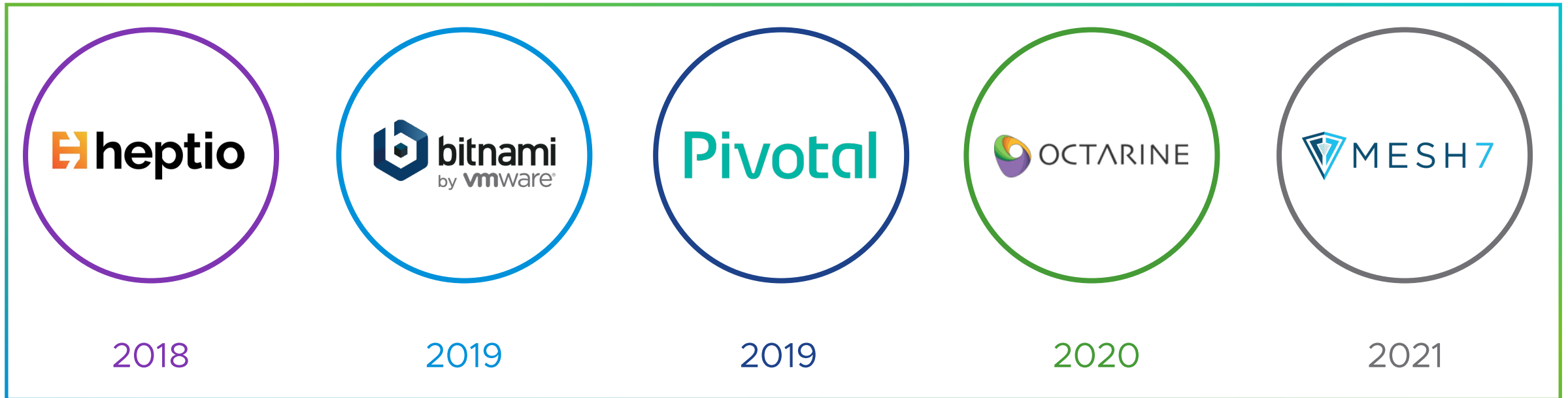
VMware? VMware Tanzu?

vmware®




VMware
Tanzu™

VMware Pivots



VMware Tanzu™



“Open source participation is a win-win for the company and the community... This isn’t about philanthropy, it’s about the opportunity for all and innovation at speed.”

Joe Beda, Retired Principal Engineer VMware

VMware is committed to Open Source

<https://tanzu.vmware.com/open-source>



CNCF Projects



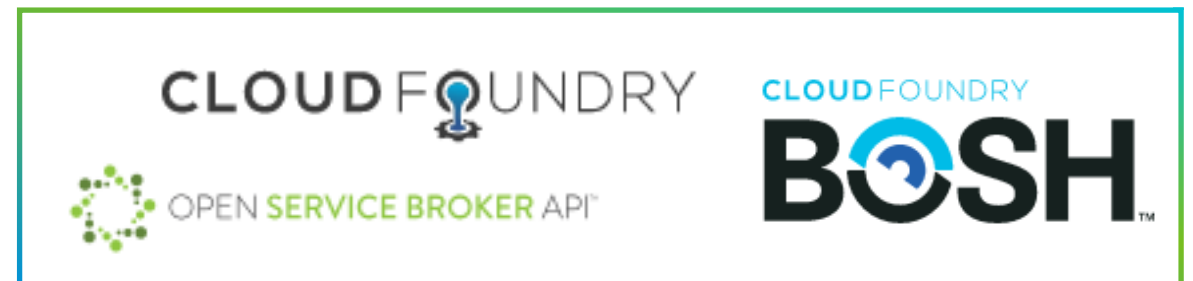
Apache Software Foundation Projects



VMware-Driven Projects



Community Projects



Cloud Foundry Foundation Projects

Open Source Packaging



| | |
|---|---------------------------------|
| 1M+ Deployments Per Month | Every Major Cloud |
| 130+ Open Source Applications | Any Deployment Format |

Open Source Contributions around K8S



Cluster API

2 of 7
steering committee members

4 of 24
special interest groups led by VMware

3 of 8
working groups led by VMware

Contributions to Kubernetes Last 3 years

| | |
|-----------|--------|
| Google | 356352 |
| vmware | 200444 |
| Red Hat | 142376 |
| Microsoft | 93669 |

source: k8s.devstats.cncf.io

VMware driven projects



CLOUDFOUNDRY



Donations to Cloud Native Computing Foundation

Graduated



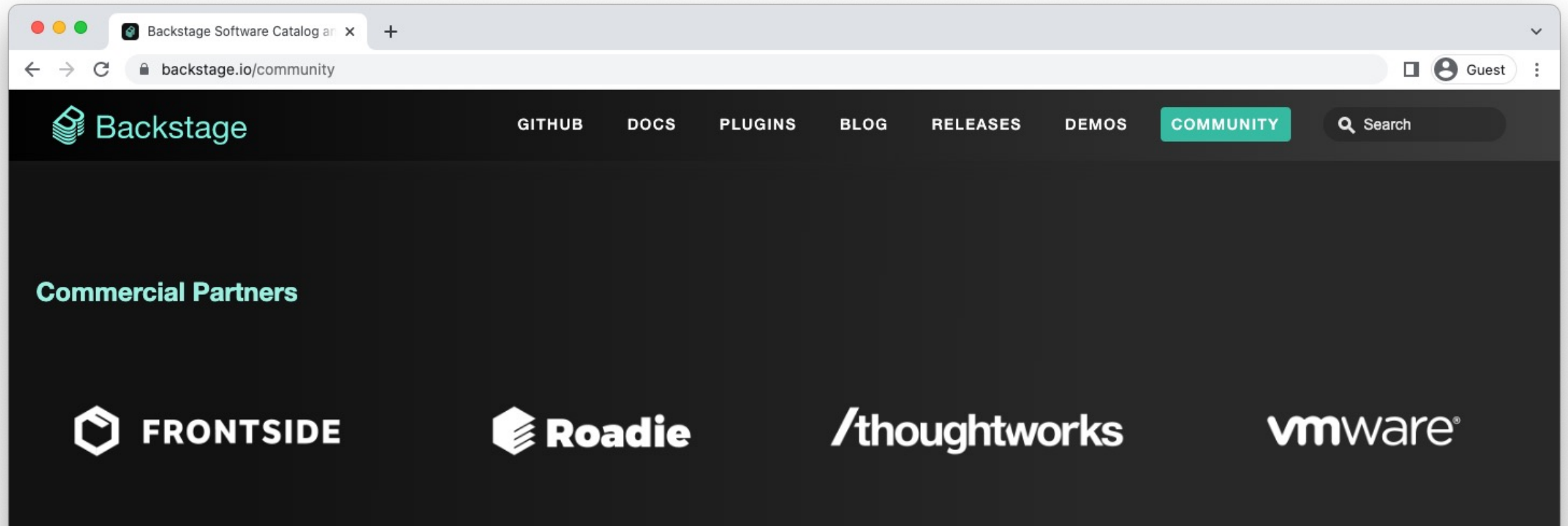
Incubated



Sandbox



VMware is one of 4 commercial partners of Backstage?



What is a Developer Portal ?



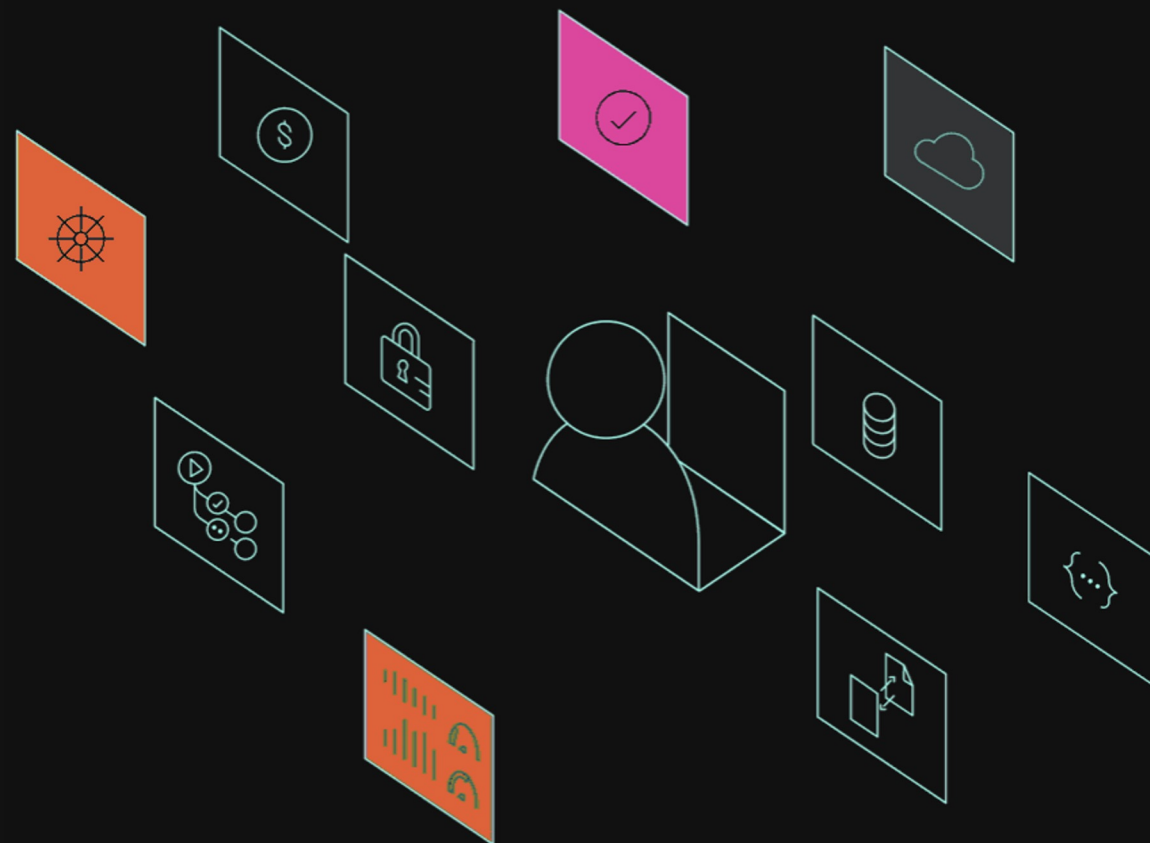
A developer portal = one frontend for your entire infrastructure

Unifies all your tooling, services, apps,
data, and docs with a single, consistent UI

Makes sense of everything in your
ecosystem, regardless of how and where
individual components are running

Let developers focus on what they do best
(leading to much less activity in #aaargh
Slack channel)

NerdOut Podcast



Backstage





Backstage

«Happy developers make happy code»

“Software is still eating the world”



CAUSES FRICTION

AFFECTING DEVELOPER HAPPINESS

Trends like microservices, SaaS sprawl, and cloud-everything create a chaotic ecosystem for engineers.

Every company uses different subsets of these tools and faces different challenges.

Your whole stack is getting more complex; onboarding and collaboration are becoming more difficult.

<https://landscape.cncf.io>

The Spotify Journey

.. back in 2016



hyper-growth
mode



speed-to-
market



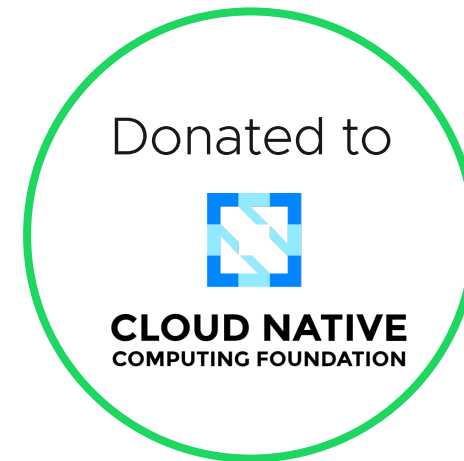
developer
effectiveness



Backstage is an open platform for building developer portals.

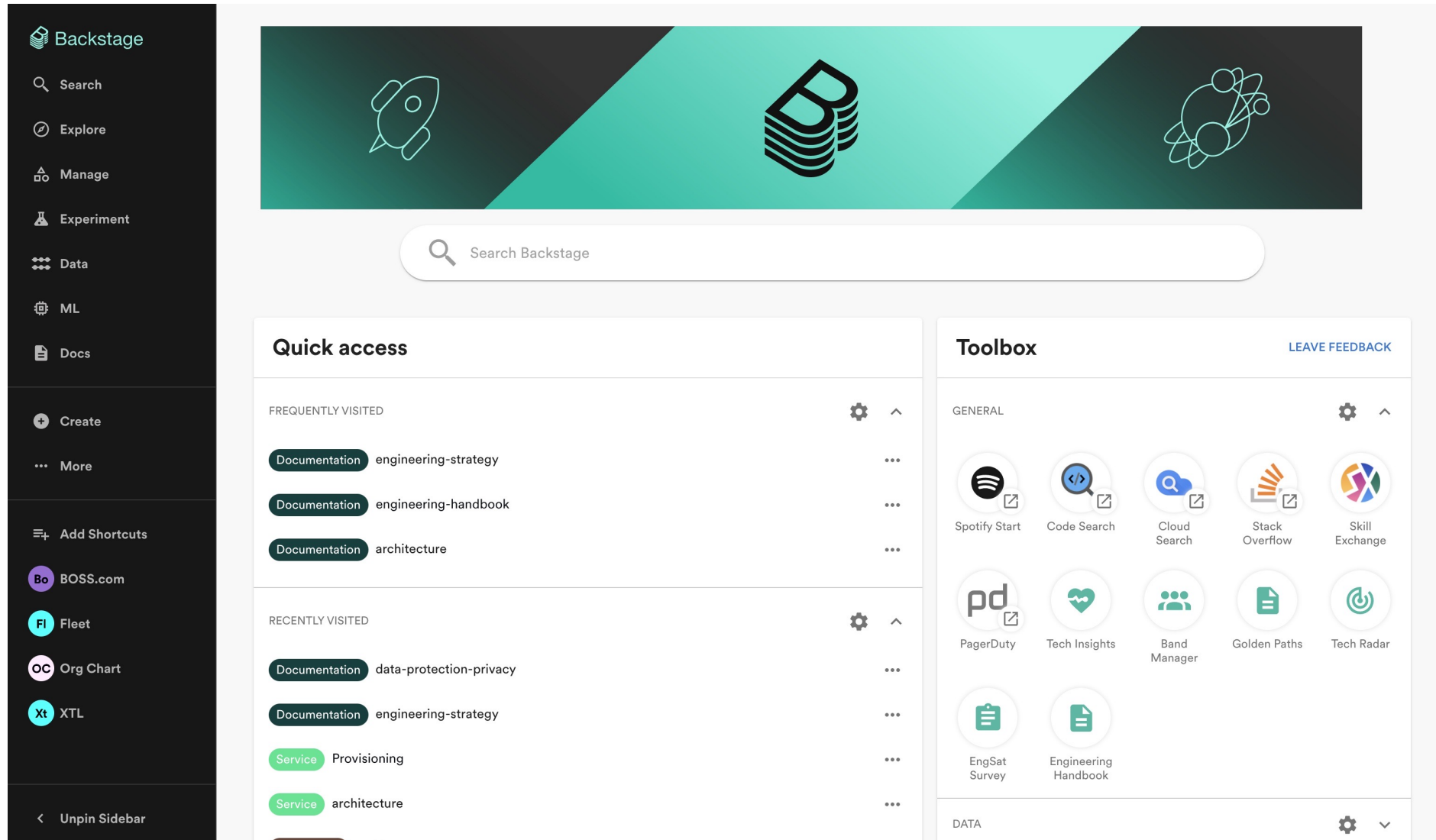


2016



2020

Backstage is a developer portal



Attributes Of Developer Portal

Lowers **cognitive load** for developers and boosts Developer Productivity by creating



Provides a developer centric view



Abstracts away underlying technology

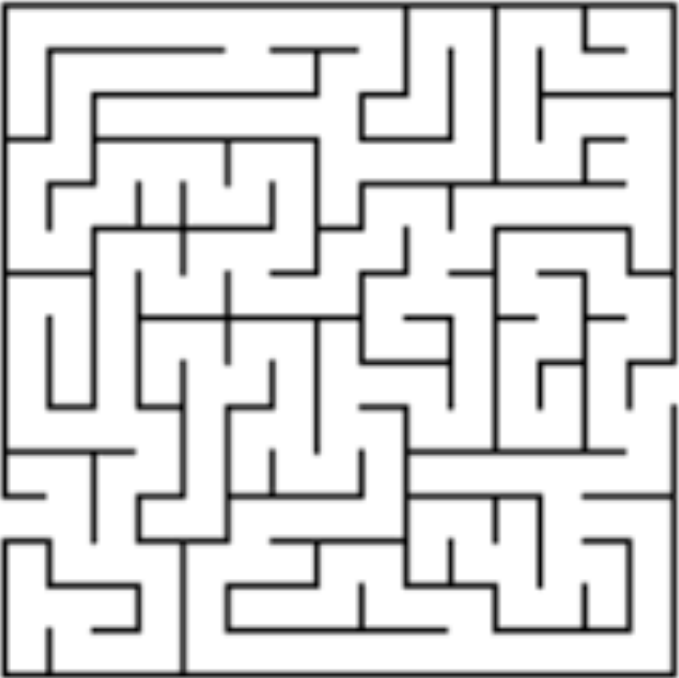


Provides a pluggable framework

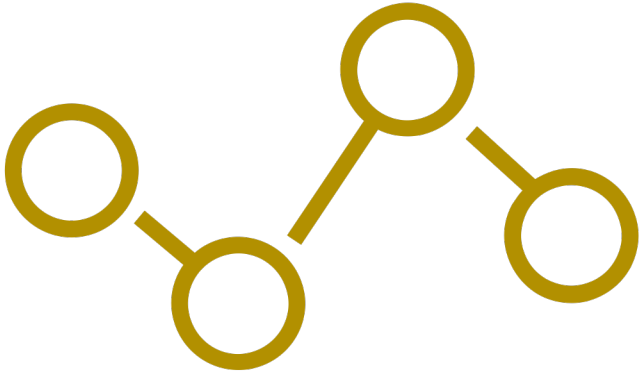


Maximizes Time to Value

Finding the golden path | path to production



This is the way















Golden Path

Backstage plugin ecosystem

Customizable and extensible plugin architecture

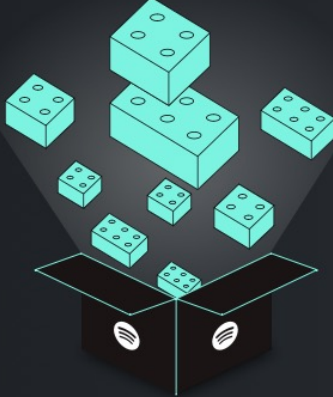
- Built with modern technologies and common frameworks
- Makes it easy to develop for and contribute to your dev portal
- Cloud-agnostic and vendor-neutral



| | | |
|--|--|--|
|  Azure Sites by FRISS Infrastructure Azure Sites (Apps & Functions) support for a given entity. View the current status of the site, quickly jump to site's Overview page, or Log Stream page. Explore |  backstage-plugin-api-linter by Zalando Linting API Linter is a quality assurance tool that checks the compliance of API's specifications to Zalando's API rules. Explore |  Badges by Andreas Stenius Discovery The badges plugin offers a set of badges that can be used outside of Backstage, showing information related to data from the catalog. Explore |
|  Bazaar by Axis Communications AB Discovery A marketplace where engineers can propose projects suitable for inner sourcing Explore |  Bitrise by SDA SE CI/CD View Bitrise builds and download the build artifacts within Backstage. Explore |  Bugsnag by roadie.io Monitoring View and monitor Bugsnag errors. Explore |
|  Buildkite by roadie.io CI/CD View Buildkite CI builds for your service in Backstage. Explore |  Catalog Graph by SDA SE Discovery Extend the Backstage Software Catalog with a graph that shows all entities and their relationships providing an easier way to discover the ecosystem. Explore |  CircleCI by Spotify CI/CD Automate your development process with CI hosted in the cloud or on a private server. Explore |
|  Cloud Carbon Footprint by Thoughtworks Metrics View your cloud carbon footprint by estimating energy use (kilowatt-hours) and carbon emissions (metric tons CO2e) from public cloud usage. Explore |  Cloudify by Cloudify Orchestration Cloudify provides a remote execution and environment management backend for Kubernetes, Terraform, Ansible, etc. Explore |  CodeScene by CodeScene Quality CodeScene is a multi-purpose tool bridging code, business and people. See hidden risks and social patterns in your code. Prioritize and reduce technical debt. Explore |

Paid plugins

- 15 December 2022 announcement
- New marked for Spotify ?



Spotify Plugins for Backstage BETA

Spotify Plugins for Backstage is a paid subscription that includes a bundle of premium plugins designed to bring even more of Spotify's maturity with Backstage to our adopters.

Built by our developers — for your developers — these plugins put humans at the center of developer experience and accelerate your Backstage goals.

[Contact us](#)

Meet the plugins

- Soundcheck**
Ensure quality, reliability, and alignment of software development with codified checks and guidance. [↗](#)
- Role-Based Access Control (RBAC)**
Control access to actions and data in Backstage with ease. [↗](#)
- Skill Exchange**
Build an internal marketplace for learning and growth opportunities within R&D. [↗](#)
- Pulse**
Collect data that drives continuous improvements to your R&D tooling, processes, and culture. [↗](#)
- Insights**
Identify, benchmark, and understand Backstage usage trends. [↗](#)

Backstage in open source



**CLOUD NATIVE
COMPUTING FOUNDATION**



**1,500+
contributors**



**3,200+
project forks**



**400+
adopters**



**7,300+
members**



**13,000+
contributions**

Backstage success

80%

of contributions come from
outside the core team

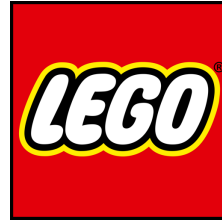
180+

plugins contributed

Backstage is building a proven track record across industries

DK Companies

LUNAR



bankdata



NETFLIX

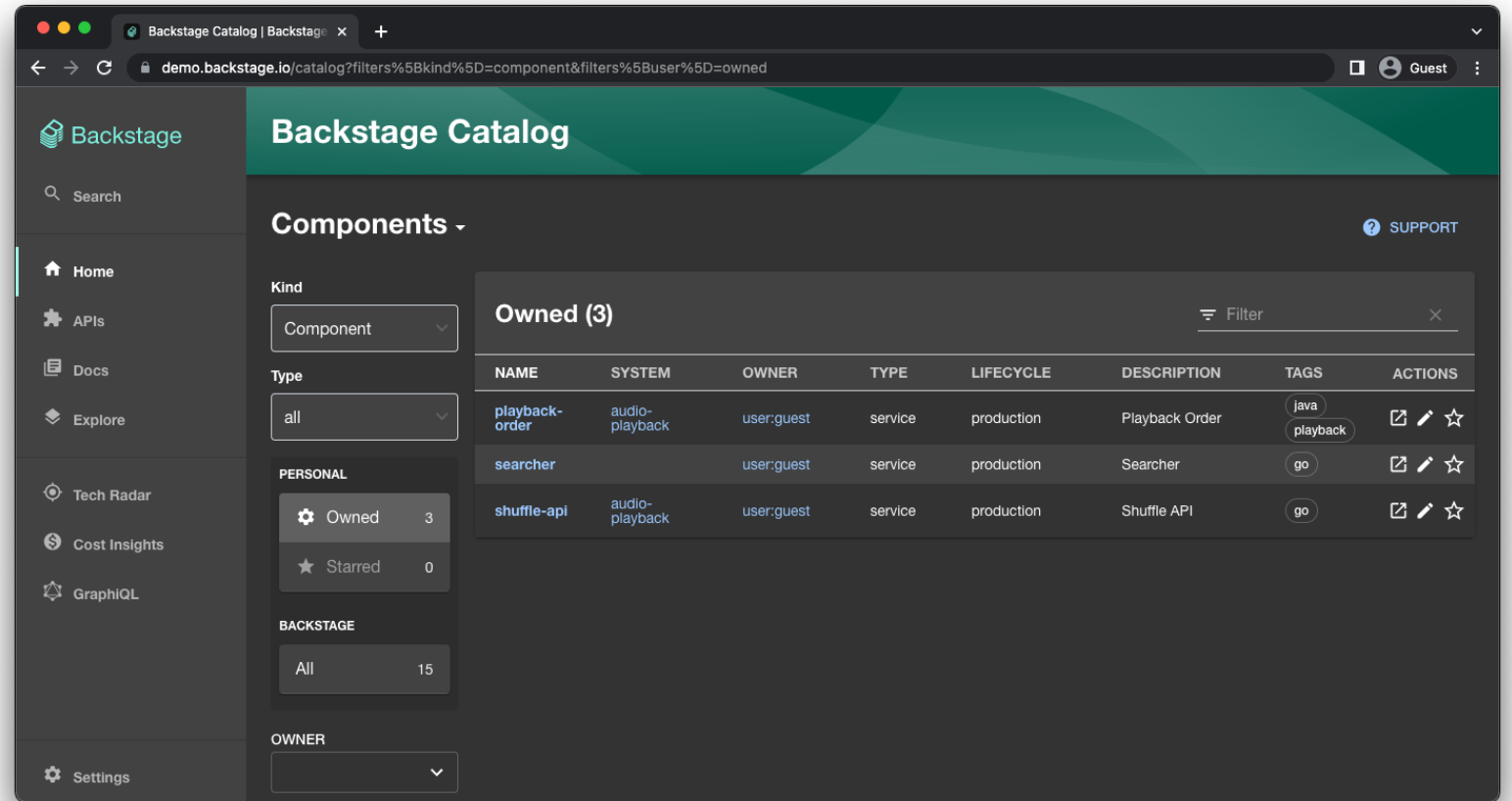
ROKU



Currently ~~75-224~~ 226 246 public adopters

<https://github.com/backstage/backstage/blob/master/ADOPTERS.md>

Demo Backstage OSS

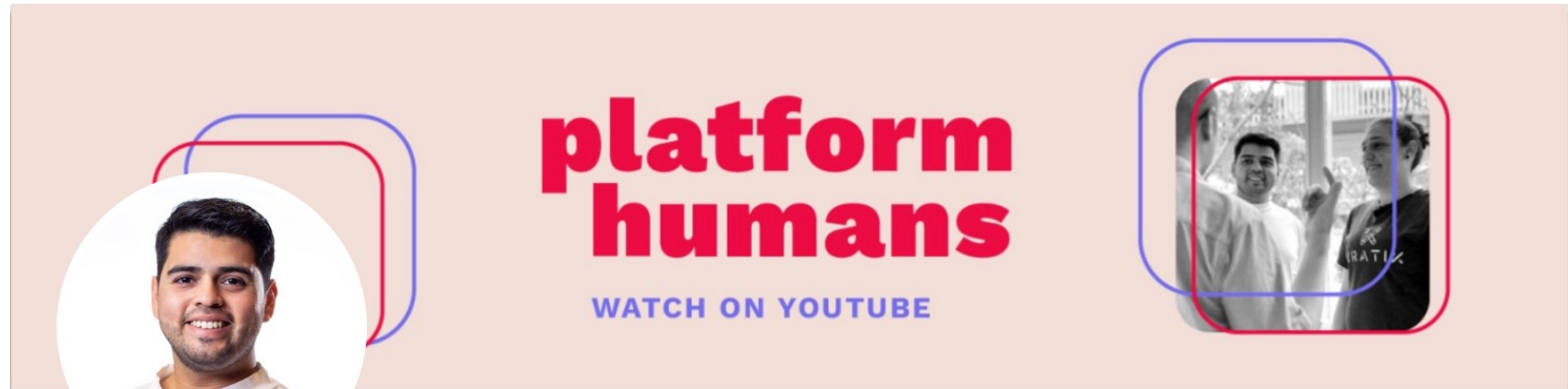


The screenshot shows the Backstage Catalog interface. The left sidebar contains navigation options: Home, APIs, Docs, Explore, Tech Radar, Cost Insights, GraphQL, and Settings. The main content area is titled "Backstage Catalog" and displays a "Components" section. The "Owned (3)" filter is selected, showing a table of three components:

| NAME | SYSTEM | OWNER | TYPE | LIFECYCLE | DESCRIPTION | TAGS | ACTIONS |
|----------------|----------------|------------|---------|------------|----------------|----------------|----------------------|
| playback-order | audio-playback | user:guest | service | production | Playback Order | java, playback | [Link] [Edit] [Star] |
| searcher | | user:guest | service | production | Searcher | go | [Link] [Edit] [Star] |
| shuffle-api | audio-playback | user:guest | service | production | Shuffle API | go | [Link] [Edit] [Star] |

Below the table, there are filters for "PERSONAL" (Owned: 3, Starred: 0) and "BACKSTAGE" (All: 15). The "OWNER" filter is currently empty.

Free Backstage Course



Jorge Lainfiesta (He/Him) · 1st

Author of the Linux Foundation Backstage course, certified sommelier

Talks about #devex, #backstageio, #cloudnative, and #platformengineer
Barcelona, Catalonia, Spain · [Contact info](#)



Roadie



University of California, Los Angeles

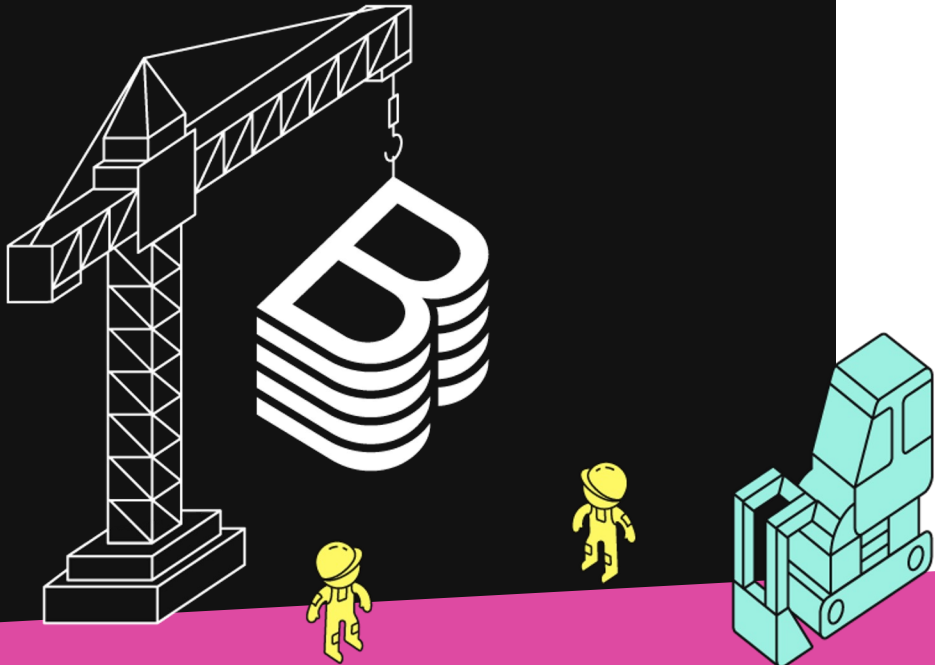
Great resources

Case studies, explainers, and one-on-one demos:
backstage.spotify.com

Community Sessions:
github.com/backstage/community

Newsletter:
<https://spoti.fi/backstagenewsletter>

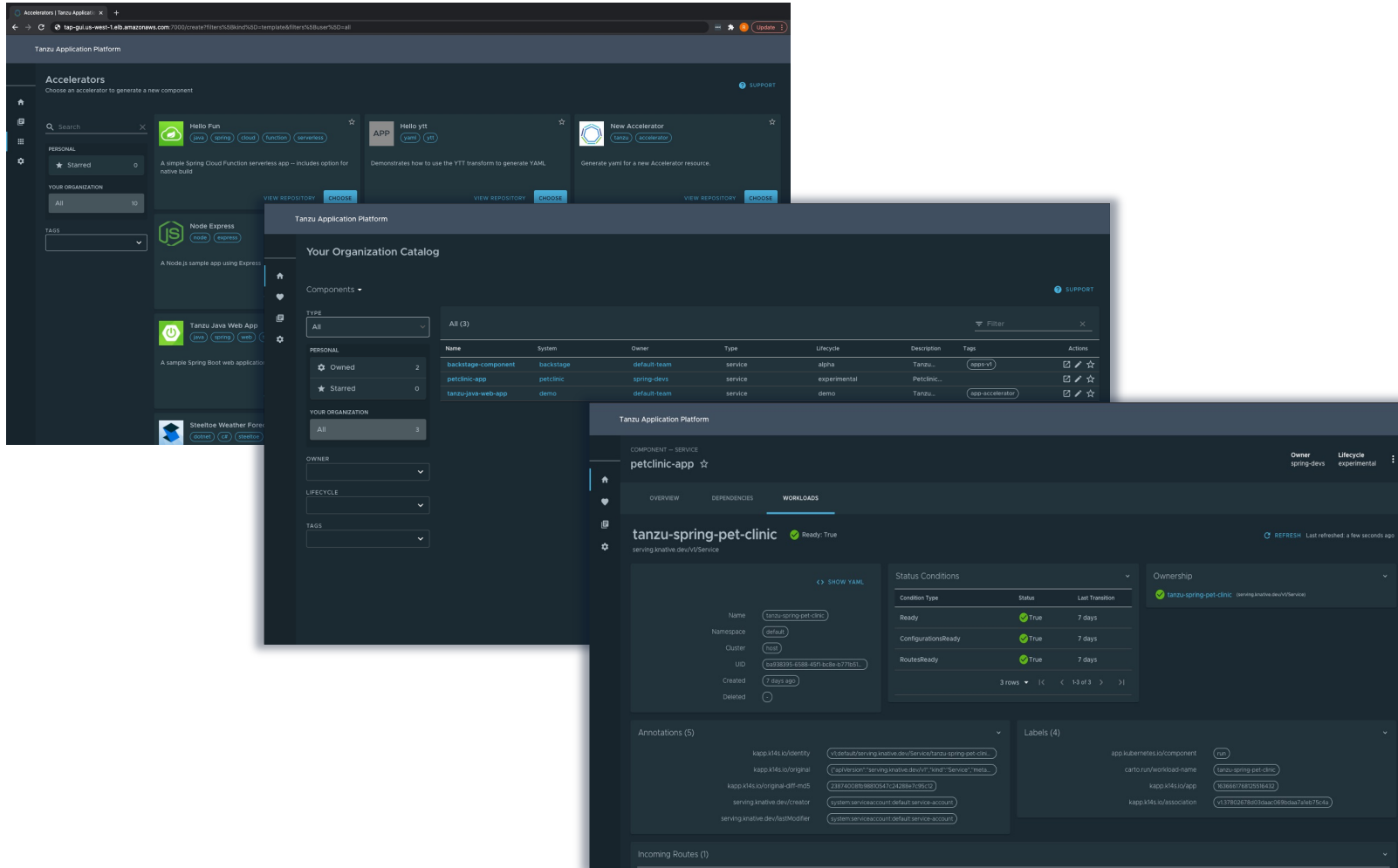
Discord:
<https://discord.gg/MUpMjP2>



Tanzu Application Platform (TAP)



Based on Backstage, but with it's own opinions (and focus)



Pre installed with

- Docs
- Accelerators
- API's
- Supply Chain
- Security Analytics

Only runs on K8S

Documentation

The screenshot shows a dark-themed documentation page for 'Python Test'. At the top left, it says 'DOCUMENTATION / PYTHON TEST' and 'Python Test'. Below that is a 'Home' link. On the right, it says 'Component python-test'. A search bar is present with the text 'Search python-test docs'. On the left sidebar, there are links for 'Python Test', 'The Application', and 'Links'. The main content area is titled 'Python Demo app' and contains the following text: 'This demo app is showing Uber pickups in New York City', 'It's based on the Python module Streamlit, and is part of their demo applications. It a simple application, showing Uber pickups, in New Yoyk City.', and 'All data, da be manipulated, using sliders, and it's also possible to see the raw data.' Below this text is a section titled 'Uber pickups in NYC' with a subtitle 'Build using Tanzu Application Platform v1.3.2 - kongsberg'. It includes a 'Data loaded' indicator and a checkbox for 'Show raw data'. At the bottom of this section is a bar chart titled 'Number of pickups by hour' showing pickup counts for each hour of the day. The y-axis ranges from 500 to 800. The bars show a peak in the middle of the day, around 750 pickups.

- Based on Mkdocs
- Written in markdown
- Documentation & Code in same repo.
- Build when you push(sort of)

API

API — OPENAPI
fastapi-test-tanzu.dk ☆
Owner: denmark-team

Overview Definition

fastapi-test-tanzu.dk
OpenAPI Raw

FastAPI 0.1.0 OAS3

Servers: https://fastapi-test.default.tanzu.dk

default

GET / Root

Parameters: No parameters

EXECUTE

Responses

| Code | Description | Links |
|------|---------------------|----------|
| 200 | Successful Response | No links |

Media type: application/json

Example Value Schema

- Based on OpenAPI
- Auto updated with app
- Dependencies
- Internal / External Api's
- Swagger interface

Application Accelerators

The screenshot displays the VMware Application Accelerators interface. At the top, it says "Application Accelerators" and "Create new software components using accelerators". Below this, there's a search bar and a "SUPPORT" link. The main area is titled "Available Accelerators" and contains a grid of accelerator cards. Each card includes a title, a brief description, a "VIEW REPOSITORY" link, and a "CHOOSE" button. The accelerators shown are:

- AppSSO Starter Java**: Spring Boot application that supports single sign-on (SSO) via Spring Security OAuth 2 Client library. Tags: sso, authentication, openid, spring, java.
- Golang-accelerator**: Clean Golang environment ready to code. Tags: go, golang, web.
- Java Function**: A FaaS Java function powered by Function Buildpacks for Knative. Tags: beta, java, spring, function, serverless, knative, faas.
- Tanzu Java Restful Web App**: A Spring Boot Restful web application including OpenAPI v3 document generation and database persistence, based on a three-layer architecture. Tags: java, spring, web, jpa, postgresql, tanzu.
- Tanzu Java Web UI**: Spring Boot application with server side rendered web UI. Application supports single sign-on (SSO) via Spring Security OAuth 2 Client library. Tags: java, spring, web, tanzu, appssso, oidc.
- Node Express**: A Node.js sample app using Express. Tags: node, express, tanzu.
- Node Function**: A FaaS Node.js sample function using FaaS Node.js Runtime Framework. Tags: beta, node, function, serverless, knative, faas.
- python-accelerator**: Clean Python environment ready to code. Tags: python, streamlit, web.

- Templates for Apps, Baselines etc.
- Can be "anything"
- Takes input
- Customizable using Sed, YTT, etc.

Supply Chain

golang-demo

Supply Chain: source-test-scan-to-url
Supply Chain Cluster: host
Delivery Cluster: host

Stage Detail: Source Tester
a day ago

Overview

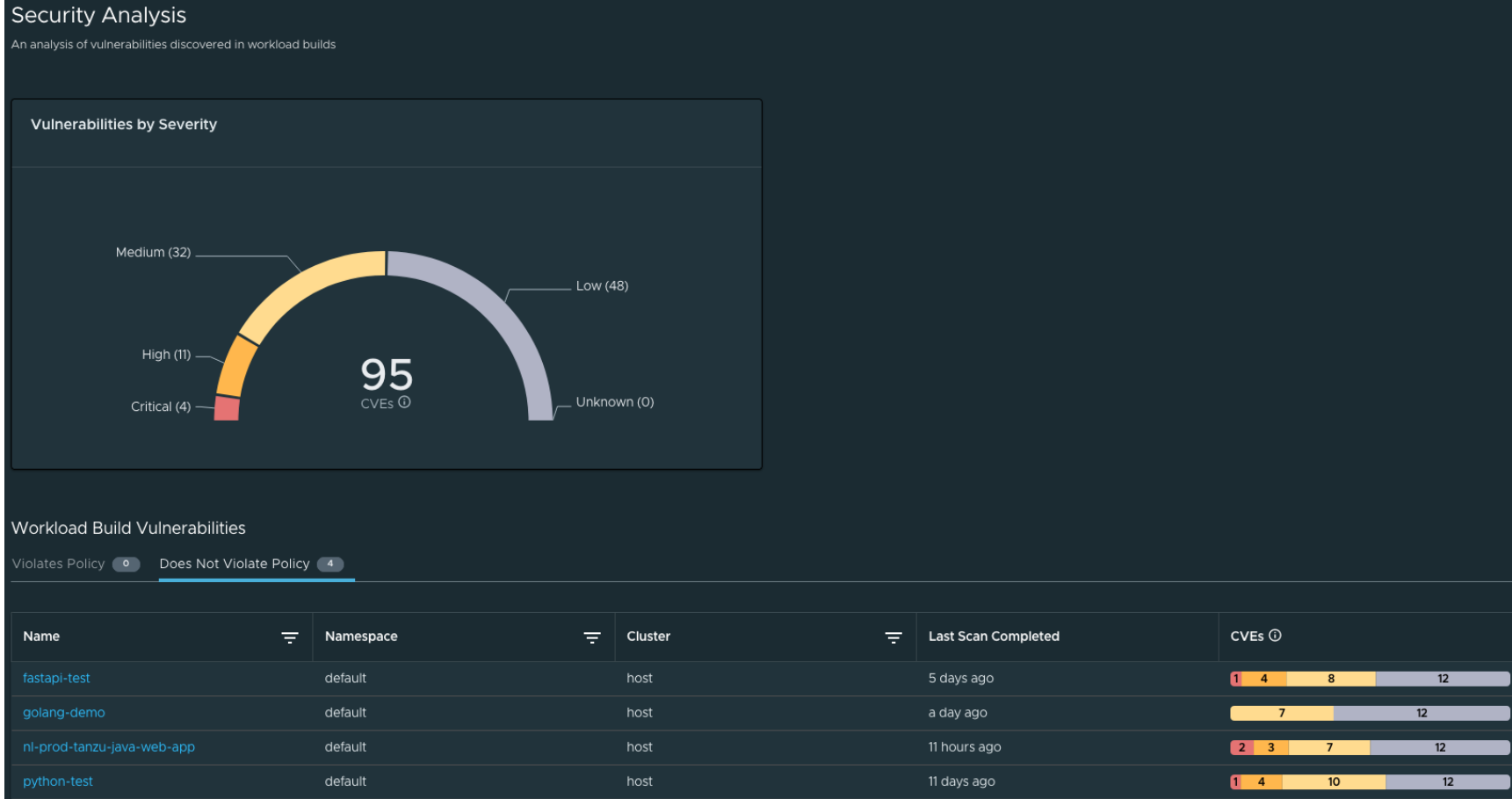
Name: golang-demo
Kind: Runnable
Version: carto.run/v1alpha1
Namespace: default

Tests

| Id | Age | Duration | Message | Status |
|--------------------------------------|-----------|----------|---|---------|
| 6b75d15d-5419-43b9-8653-408d9761d741 | a day ago | 31s | Tasks Completed: 1 (Failed: 0, Cancelled 0), Skipped: 0 | Success |
| 6c31e029-95ae-447f-b017-b88c23e18e58 | a day ago | 30s | Tasks Completed: 1 (Failed: 0, Cancelled 0), Skipped: 0 | Success |
| 3d90b4ea-3ae4-4c25-90b3-9ab9f8394c39 | a day ago | 6s | Tasks Completed: 1 (Failed: 0, Cancelled 0), Skipped: 0 | Success |

- Supply Chain UI
- CVE info
- Test info
- Overview

Security Analysis



- Security overview

Built with an open source-first mindset

Innovative, interoperable, scalable and secure solutions

Tanzu Application Platform is backed by some of the most mature and popular open-source projects available today

In addition to Backstage Backstage

Garnering 200+ plugins Backstage has gained tremendous traction by helping organizations build self-service developer portals

Carvel CARVEL

Developers build, deploy, and manage their own apps and package them so they are more easily distributable

Cartographer CARTOGRAPHER

Operator teams create secure, reusable supply chains that define all of application CI and CD in one place

And many more....



TEKTON

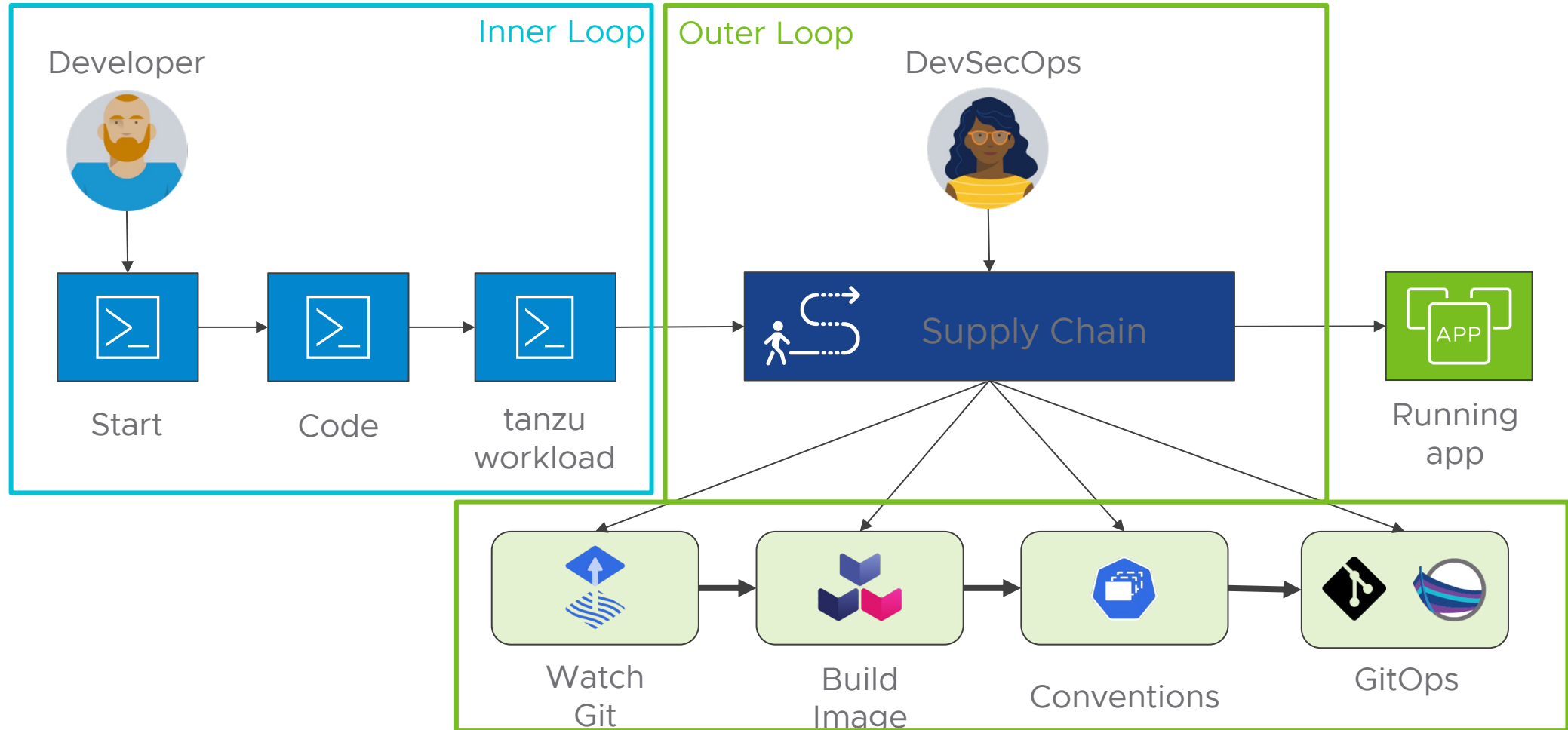
Buildpacks.io



TILT

Building open-source software and contributing to communities is at the core of VMware's engineering spirit

Deploying an App with Tanzu Application Platform



Demo



Recap: what have we saw today?

- VMware | VMware Tanzu OSS Contributions
- What a developer portal is
- The Spotify Journey and Backstage
- VMware and Tanzu Application Platform

More info about TAP



QUESTIONS

