dynatrace

PRESENTER

**Andreas Grabner**

CNCF Ambassador
@grabnerandi

# Successful Platform Engineering

**Reality vs Hype**
***From the viewpoint of a CNCF Ambassador***
***With a focus on „The Role of Observability“***

***With inspiration from https://ksick.dev***

AMBASSADOR
CLOUD NATIVE COMPUTING FOUNDATION

OpenFeature

keptn

OpenTelemetry

# Houston: It seems we have a problem!


**~40%**

of engineering time
is productive

**~36%**

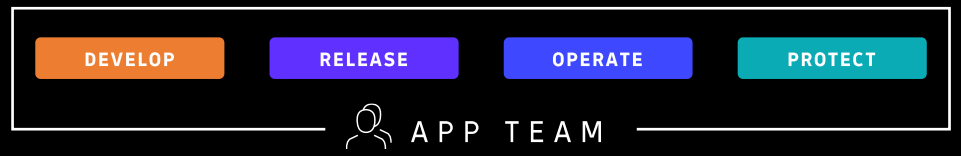
of developers leave because of
bad developer experiences

Source: State of DevOps / Platform Engineering Edition

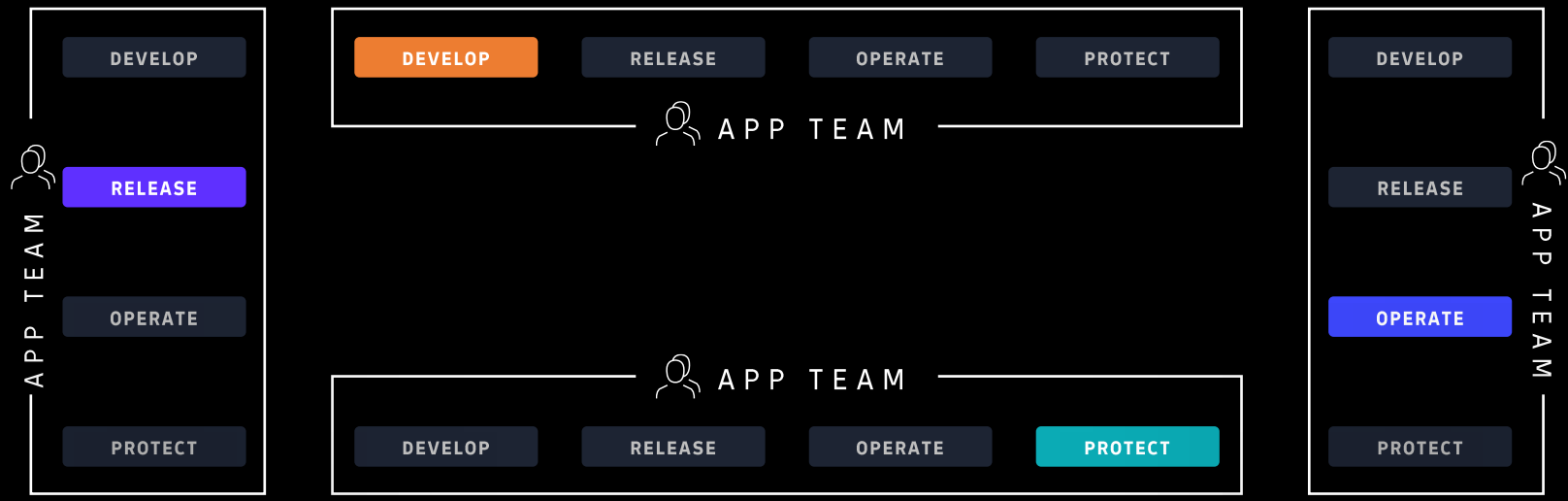
# What happened?

Photo Credit: https://betterprogramming.pub/9-javascript-features-that-can-make-any-java-developer-scream-e4160a044fc8

# Shifting left!
# Teams taking on more responsibility



# When Organizations grow - Teams start do things “their way”!



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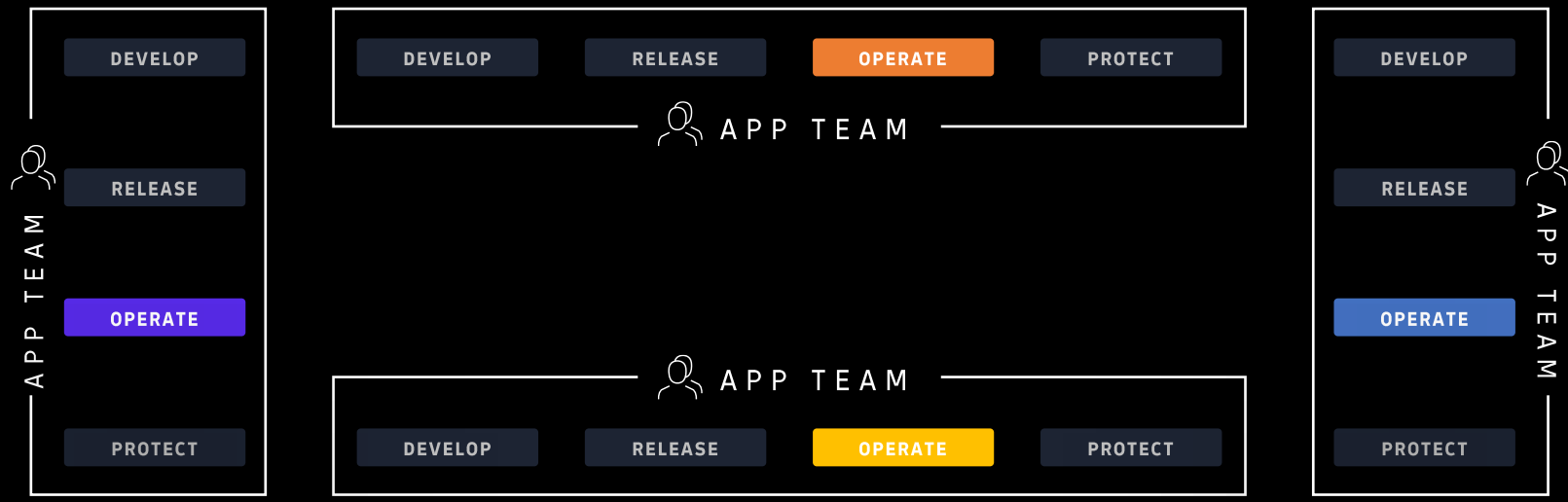
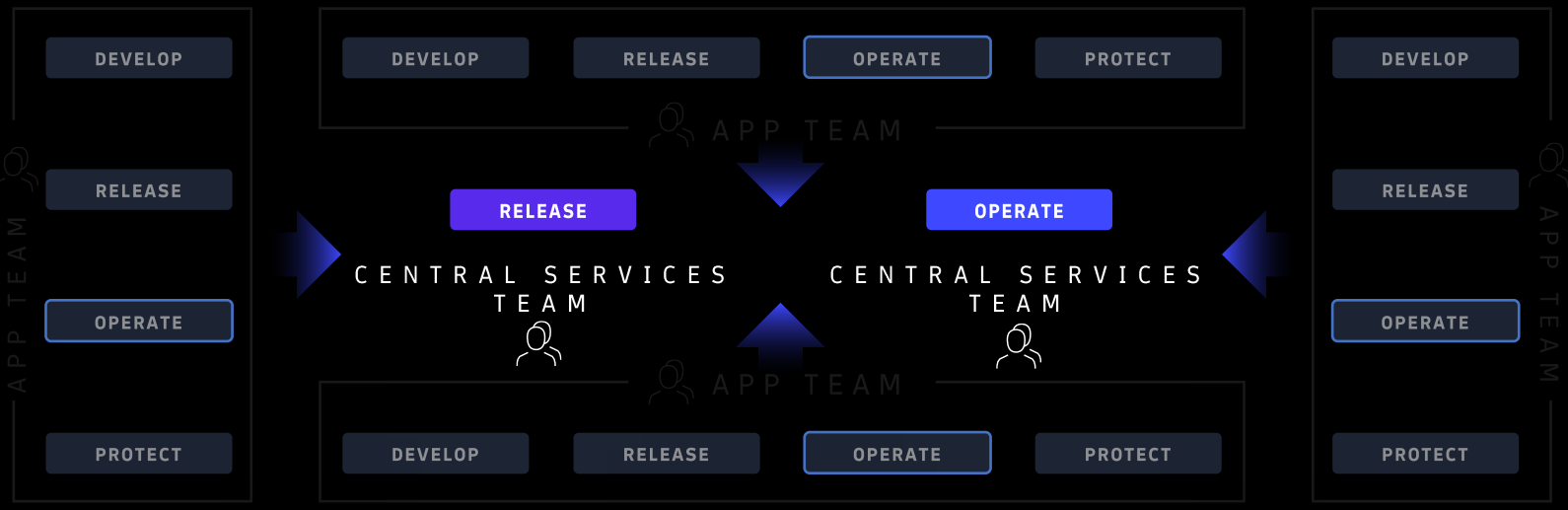
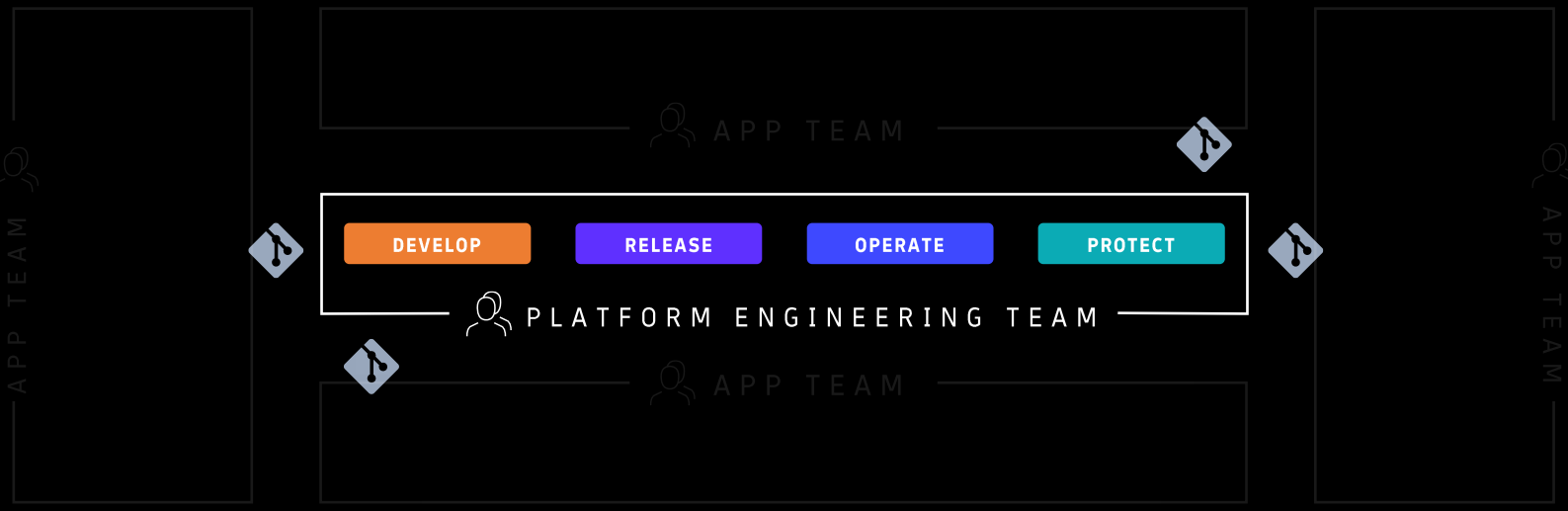
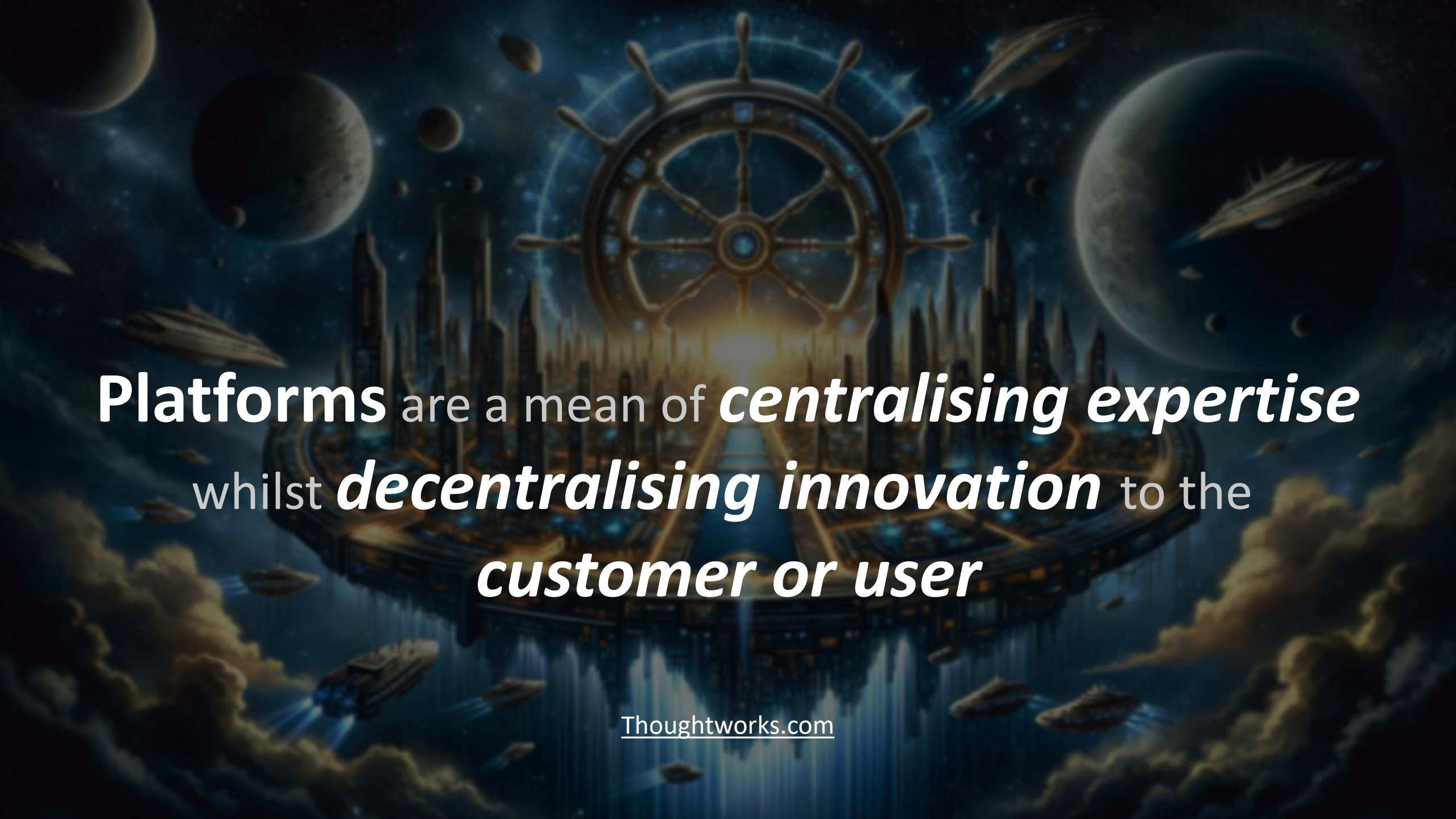


# Central Services became the “Patch Solution”

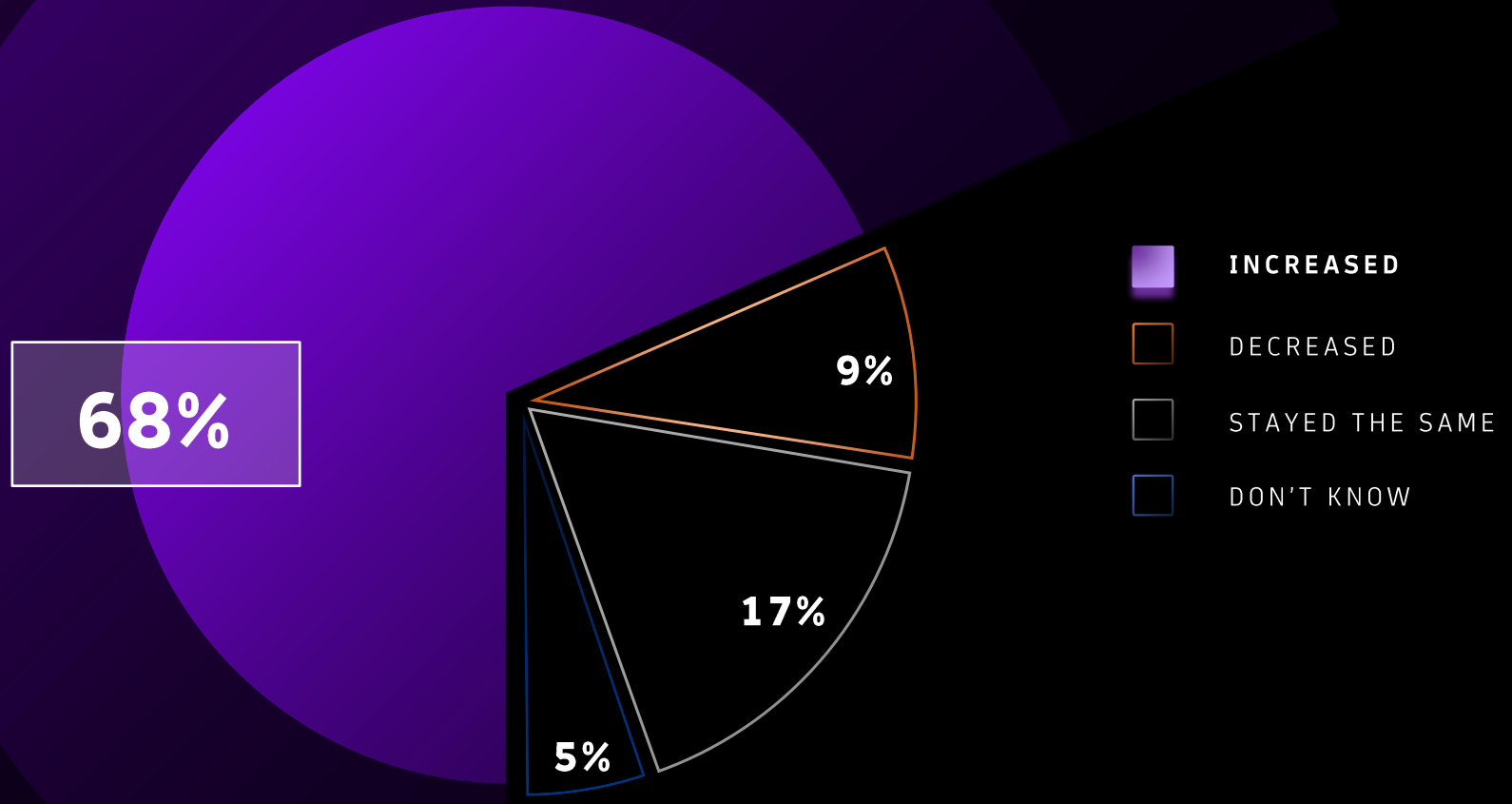


# Leading to Platform Engineering: Git* as one Interface for Self-Service




**Platforms** are a mean of ***centralising expertise***
whilst ***decentralising innovation*** to the
***customer or user***
Thoughtworks.com

# Developer Productivity as Key Measure of Success to Platform Engineering!




Source: State of DevOps / Platform Engineering Edition

# More tangible KPIs to measure success

## Business benefits achieved and lessons learned

### Outcomes

**83%** of developer time is spend in productive activities

**50K** active projects with **12.7K** active users

**42.7M** pipeline runs by 2023 (*up from 3M, 2019*)

**324K** user stories by 2023 *(up from 22K in FY20)*

**99%** of MTT Instrument reduction (days down to minutes)

Significant reduction in incident count with major improvements in code quality

### Lessons learned

- ✓ Understand the developer journey and how they spend their time
- ✓ Automating standards enables developers to code quickly & with increased security
- ✓ Provide flexibility, but with guardrails
- ✓ Use metrics to measure progress
- ✓ Put the customer at the center (consider product model)

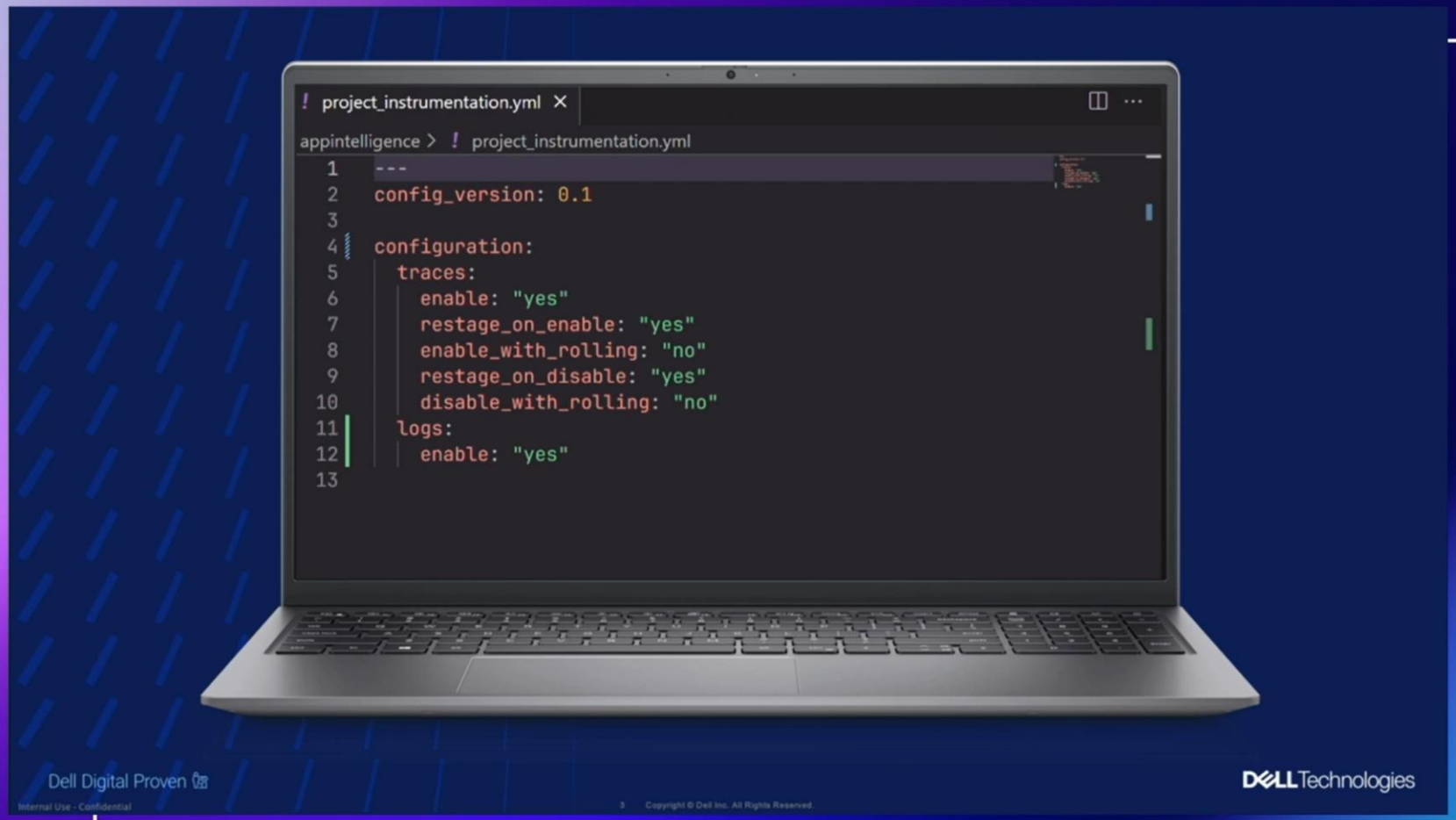
Dell Digital Proven

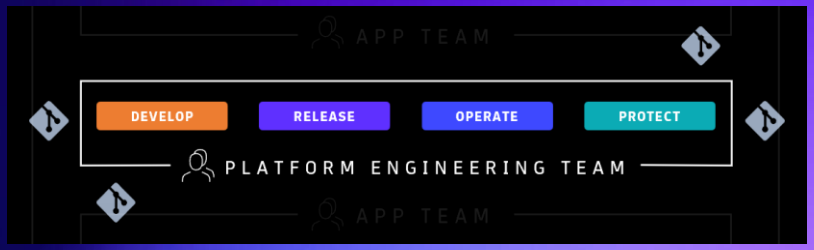


DELL Technologies

Source: Marcio Lena, Sr. Dir App Intelligence and SRE @ Dell – Dynatrace Perform 2024

# Git enables “Observability as Self-Service”

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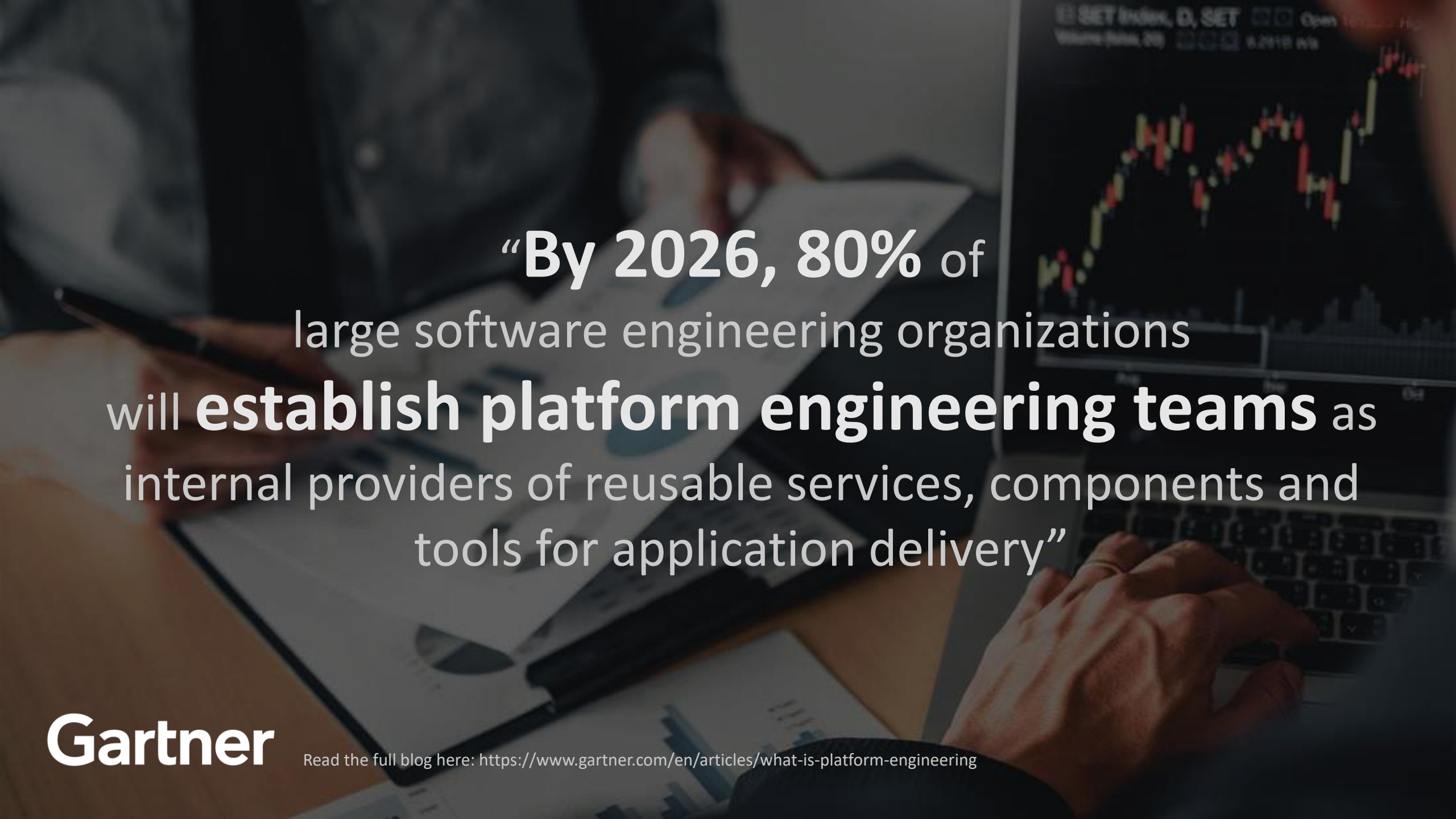
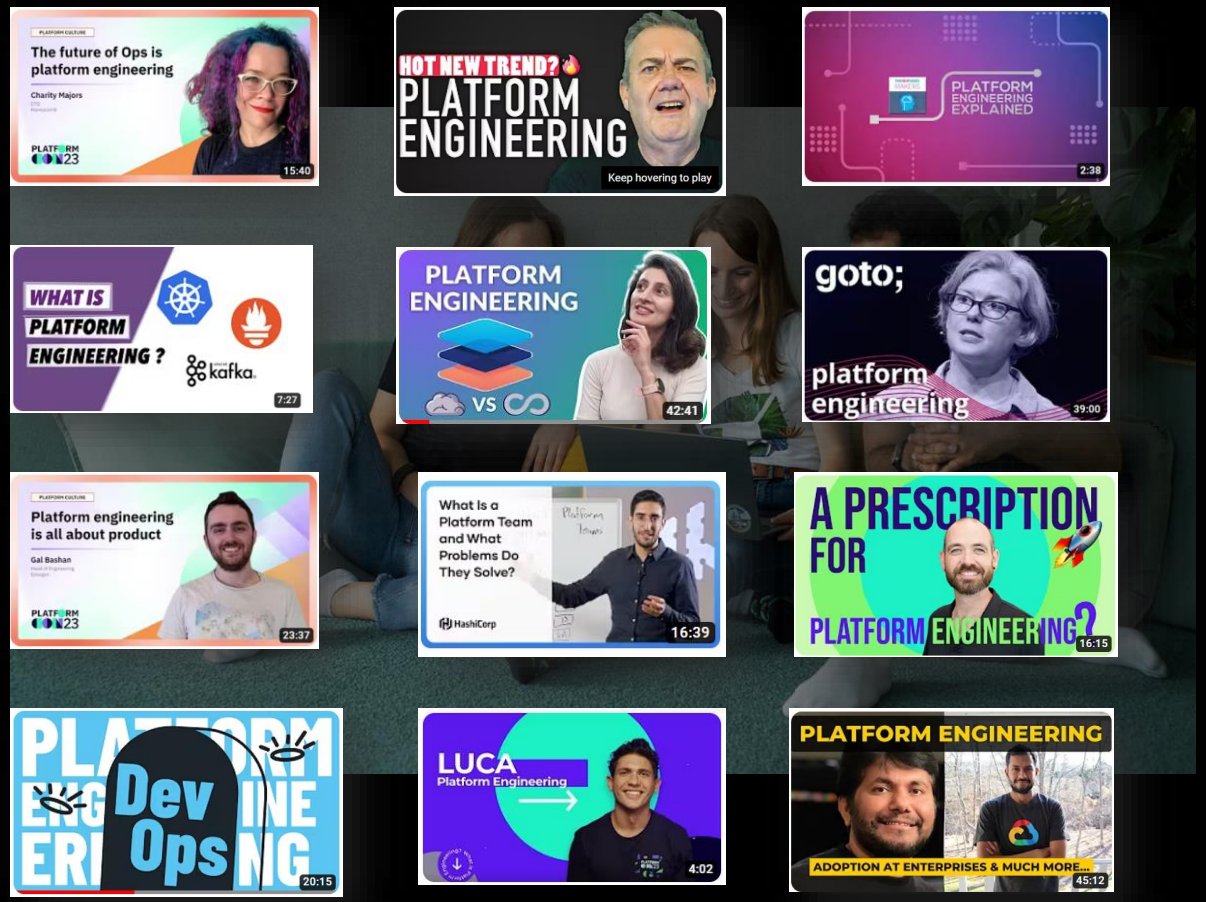
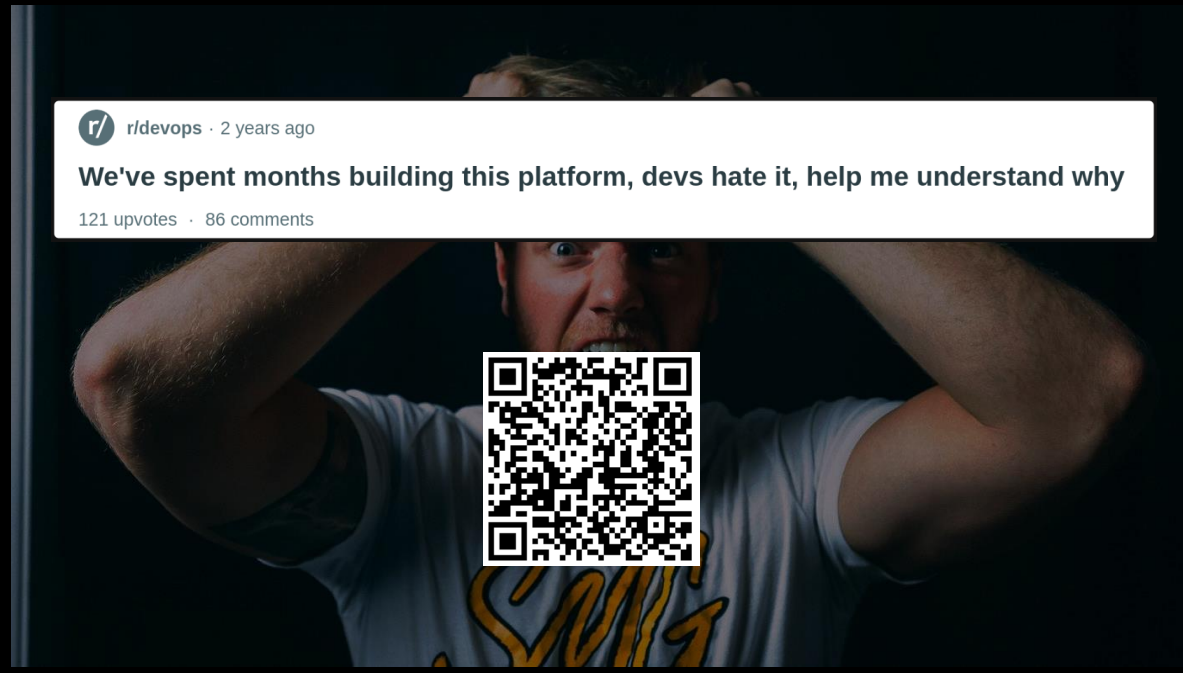

"By 2026, 80% of
large software engineering organizations
will establish platform engineering teams as
internal providers of reusable services, components and
tools for application delivery"
Gartner
Read the full blog here: https://www.gartner.com/en/articles/what-is-platform-engineering


“80% of all organizations
indicate expanding use, using, or piloting an
IDP (Internal Developer Platform) –
compared to
55,9% in the previous year.”
IDC
Read the full blog here: https://www.idc.com/getdoc.jsp?containerId=US51622924


So – that's it!
Everyone is
happy!
My job is done here ☺

# Hype vs Reality



# How to Build a Successful Platform?

**Find** the **pain** points and **needs** of your **users**

**Have** a clear **mission** with measurable **KPIs**

**Design** for a good **User/Dev Experience**

**Start** with the TVP (**Thinnest Viable** Platform)

**Make** everything **observable**

# Advice: Build your Platform like a Product!

**SELF SERVICE**
PLATFORM END-USER FEATURES

Dev | DevOps | Security | SRE | Support

## USER INTERFACE(S)
TAILORED TO THE NEEDS OF YOUR USERS

Command Line | REST API | Git Repo | Dev Portal | Something else

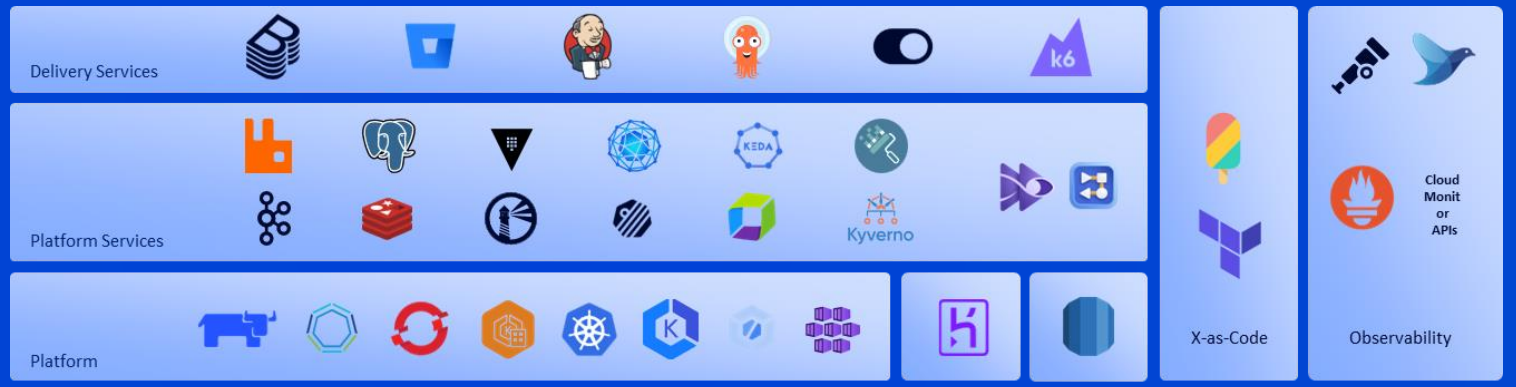
```
---
config_version: 0.1

configuration:
  traces:
    enable: "yes"
    restage_on_enable: "yes"
    enable_with_rolling: "no"
```

service
**DTP Application Onboarding**
THIS TEMPLATE IS WORK IN PROGRESS
This template is used to onboard a new Apps

Request
Database as a Service for MSSQL
Create a Database on SQL Managed Instance or the...

## CORE PLATFORM
TAILORED TO FIT THE REQUIRMENTS




Availability, Resiliency, Security

**Observed**
SUCCESS KPIS

- Active Users NPS SPACE
- SLOs DORA
- FinOps Utilization

# Use Case: Self-Service Observability @ Bank

## Devs uses template: git commit!

Journey

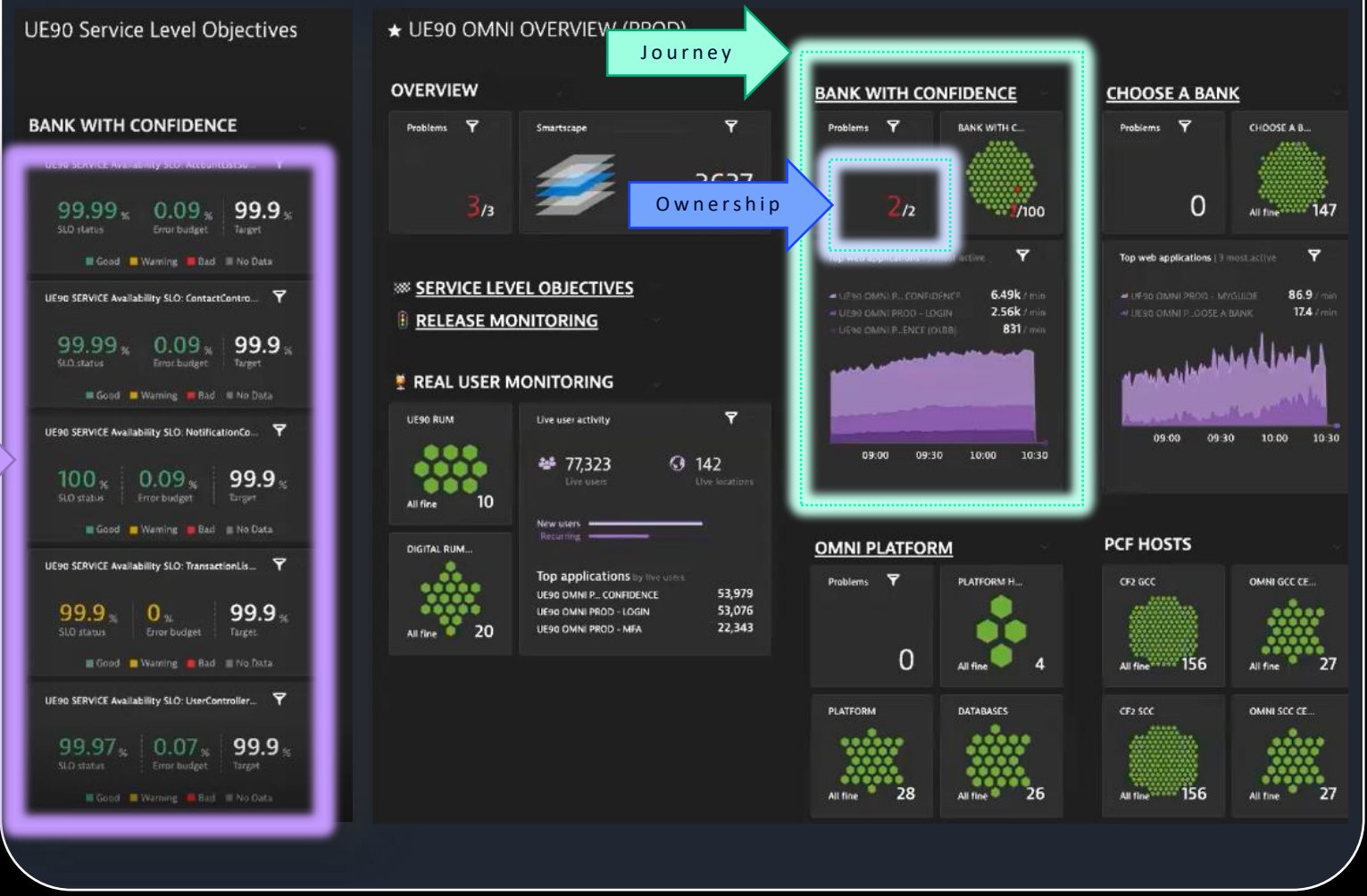
Owner

SLO

```
{
  "deployTemplate":  "java-service",
  "dtServicePriority":  "false",
  "manifestDirPath":  "BOOT-INF/classes",
  "AksConfigsDirPath":"BOOT-INF/classes",
  "journey":  [
                "HOME", "OMNI-PLATFORM"
              ],
  "internalAutoScaleConfig": "true",
  "setEurekaHostname": true,
  "appType": "apptype-spring-boot",
  "squad":  [
              "BLUE-STEEL",
              "SPRINTENDO",
              "SQUAD-RABBITHOLE"
            ],
  "appName":  "home-client-api",
  "dynatraceConfig": {
            "dtEntityConfig": [{
                        "dtEntity": "ClientController",
                        "dtEntityType": "SERVICE",
                        "dtTargetSLO": 99.98,
                        "dtWarningSLO": 99.99,
                        "dtSLOType": "Availability"
                    },
                    {
                        "dtEntity": "ClientContactDetailsController",
                        "dtEntityType": "SERVICE",
                        "dtTargetSLO": 99.97,
                        "dtWarningSLO": 99.98,
                        "dtSLOType": "Availability"
                    }
            ]
    }
}
```

SLO

## Automated Observability and Targeted Alerting to Owners



# Tip: Follow Cloud Native Best Practices

Community providing practices on releases / apps


## Labels

In order to take full advantage of using these labels, they should be applied on every resource object.

| Key | Description |
|---|---|
| app.kubernetes.io/name | The name of the application |
| app.kubernetes.io/instance | A unique name identifying the instance of an application |
| app.kubernetes.io/version | The current version of the application (e.g., a SemVer 1.0, revision hash, etc.) |
| app.kubernetes.io/component | The component within the architecture |
| app.kubernetes.io/part-of | The name of a higher level application this one is part of |
| app.kubernetes.io/managed-by | The tool being used to manage the operation of an application |

```yaml
kind: Deployment
metadata:
  name: accountservice
spec:
  selector:
    matchLabels:
      app: accountservice
  template:
    metadata:
      labels:
        app: accountservice
        app.kubernetes.io/version: 44e1878
        app.kubernetes.io/part-of: easytrade
        dt.owner: team-workshop
```

Devs: Label your CRDs

SREs:
Get release-aware observability

| Name | Version | Stage | Product |
|---|---|---|---|
| contentcreator.easytrade | 44e1877 | easytrade | easytrade |
| simplenode.simplenode-dev | 3.0.2 | simplenode- | simplenode-product |
| offerservice.easytrade | 44e1877 | easytrade | easytrade |
| accountservice.easytrade | 44e1878 | easytrade | easytrade |
| engine.easytrade | 44e1877 | easytrade | easytrade |
| aggregatorservice-*.easytrade | 44e1877 | easytrade | easytrade |

# Use Case: Self-Service Feature Flagging

Developer adds OpenFeature

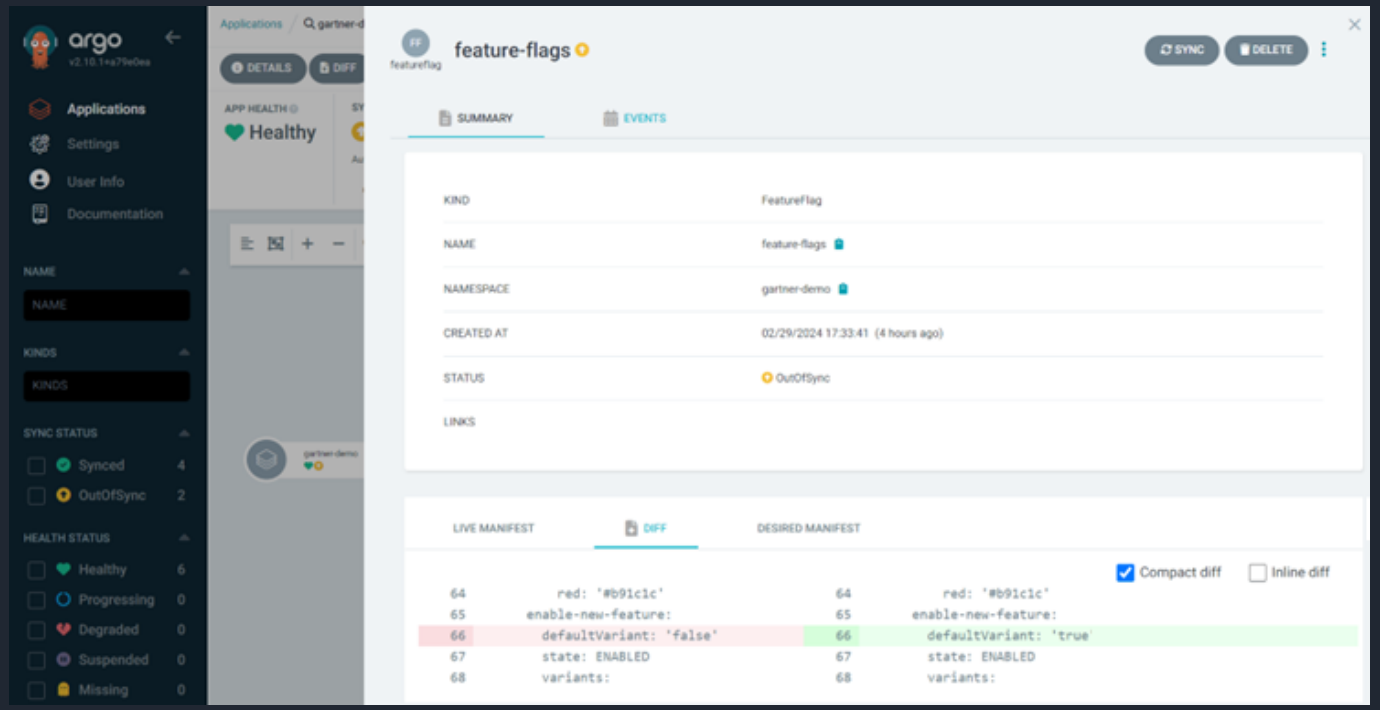
```
OpenFeature.setProvider(new MyProvider());

const featureFlags = OpenFeature.getClient();

const withCows = await featureFlags.getBooleanValue("with-cows", false);
if (withCows) {
  res.send(cowsay.say({ text: "Hello, world!" }));
} else {
  res.send("Hello, world!");
}
```

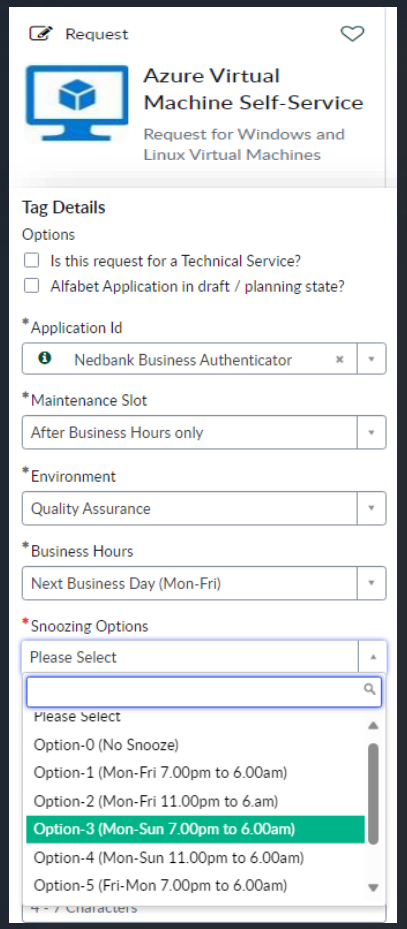
Developer gets immediate feedback


DevOps control rollout of new features via Git, e.g: flagd provider

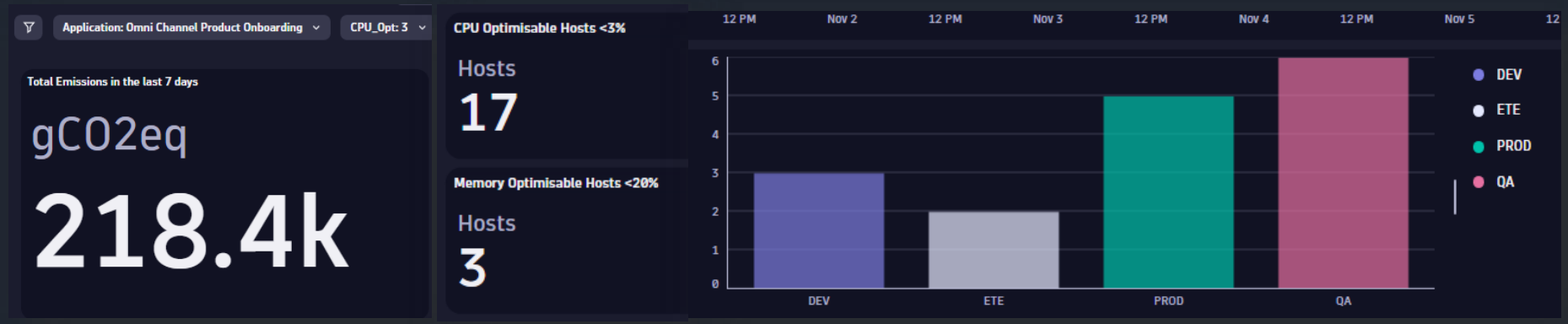


# Use Case: Automated FinOps @ Bank

Devs priovision resource




SRE / FinOps have observability to and optimize Carbon & Costs across all environments




**Emissions in the last 7 days by Hypervisor - gCO2eq**

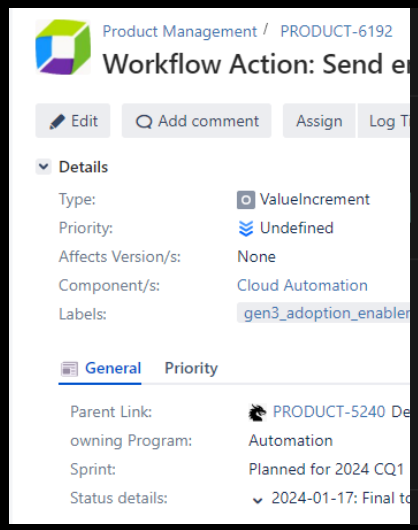
| Hypervisor | gCO2eq |
|---|---|
| VMWARE | 15,914.7 |
| AWS_NITRO | 75,566.13 |
| LPAR | 227,477.44 |

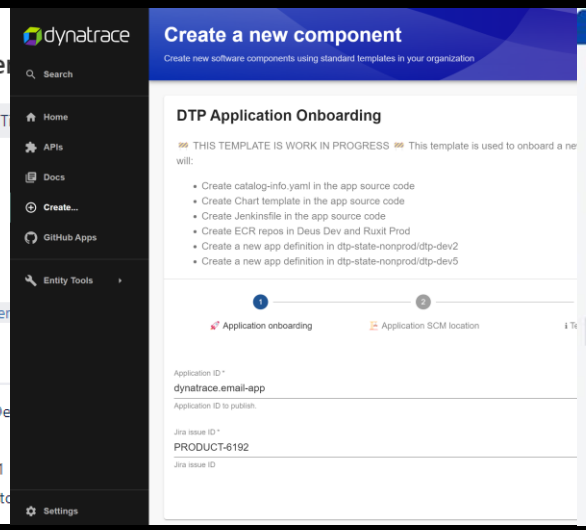
**60%**

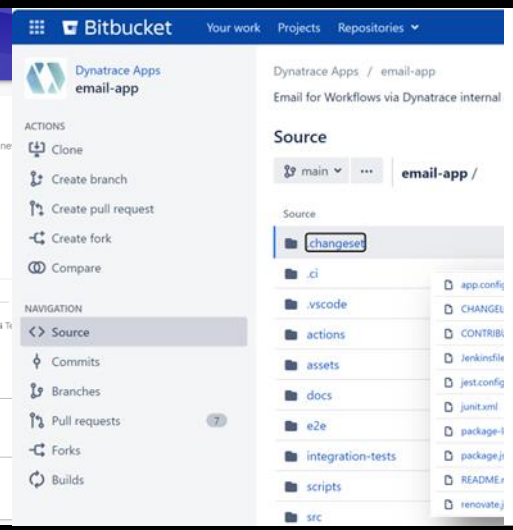
Cost Reduction Target

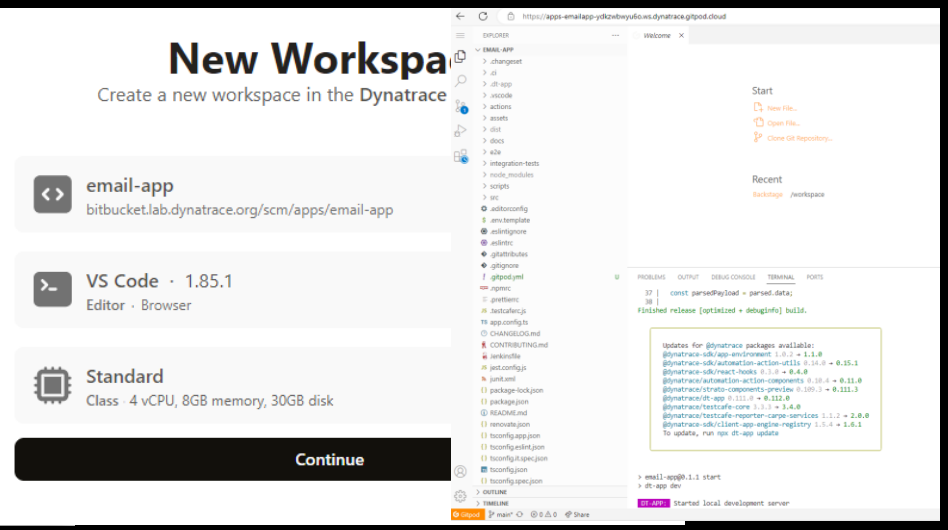
# Use Case: Self-Service Onboarding @ Dynatrace

Jira · Backstage · GitHub · Bitbucket · Gitpod




Jenkins · Gradle · sonarqube · JFrog ARTIFACTORY · GitHub Actions · HARBOR · Kyverno · Argo CD · Crossplane · Open Feature · aws · Azure · Google Cloud

# Tip: Platform Observability from git to prod

git commit

Backstage

Jenkins

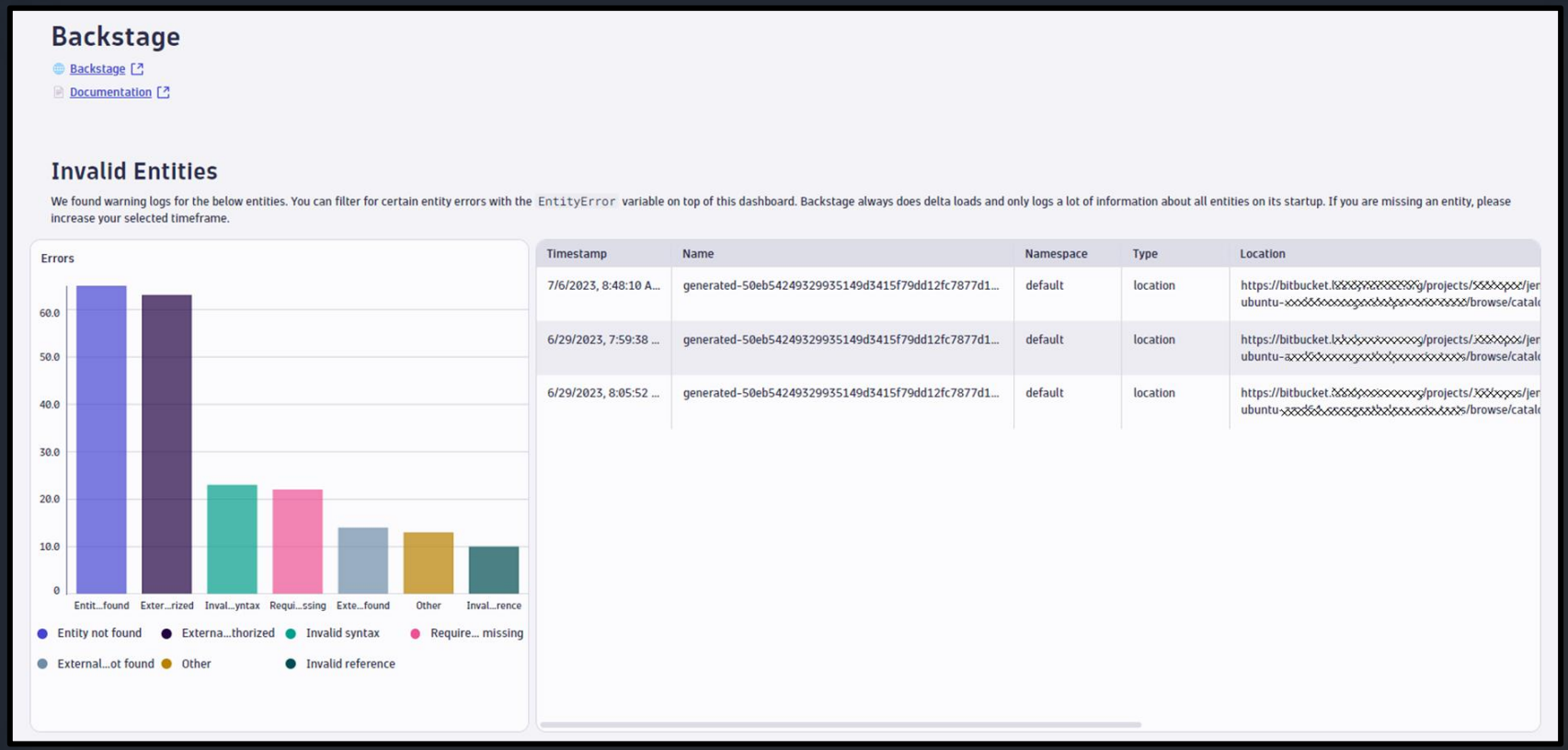
HARBOR

Kyverno

Argo CD

Crossplane

Platform Engineering: Are all templates properly configured and used?



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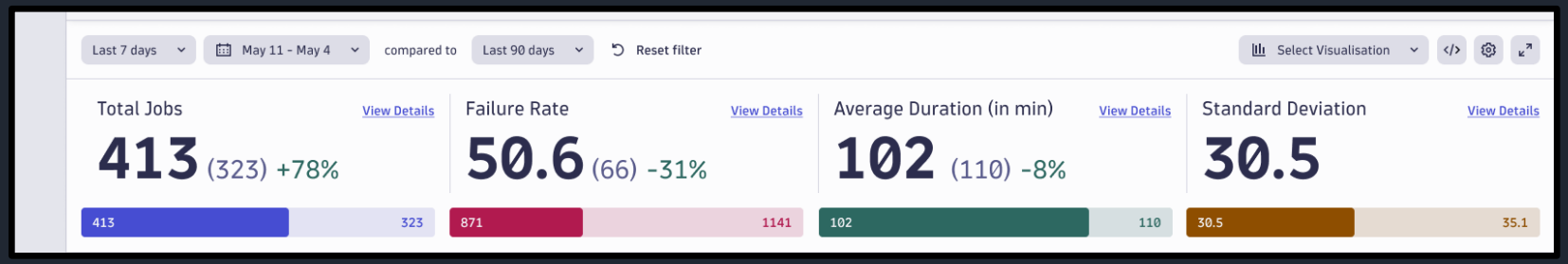
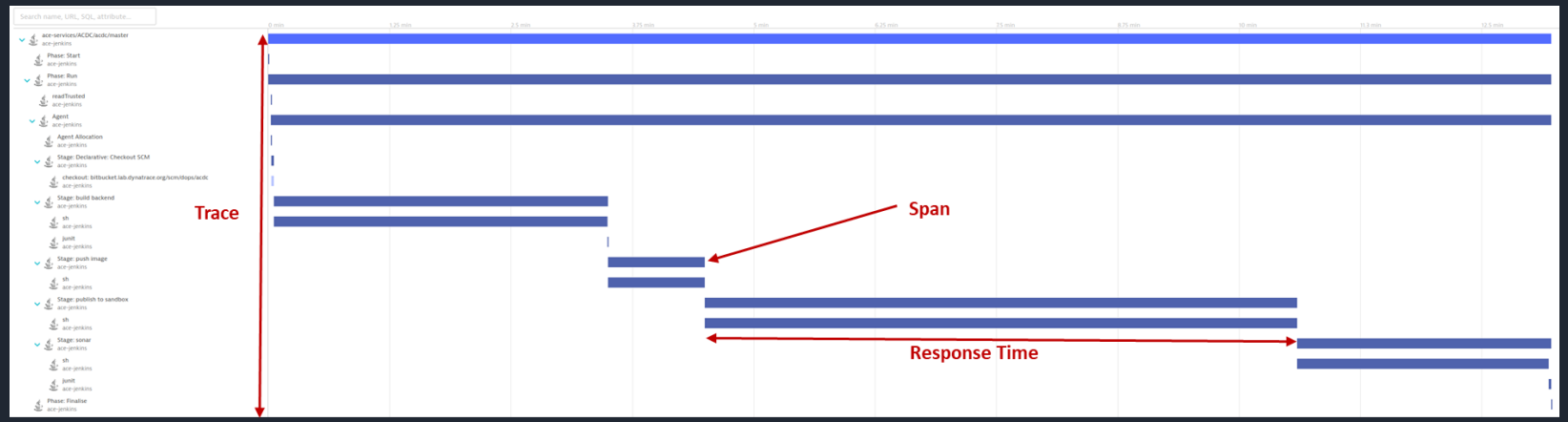
Platform Engineering: Do we have any issues and bottlenecks in our pipelines?



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Platform Engineering: Is our container registry running smoothly? Which teams use it?

# Tip: Platform Observability from git to prod

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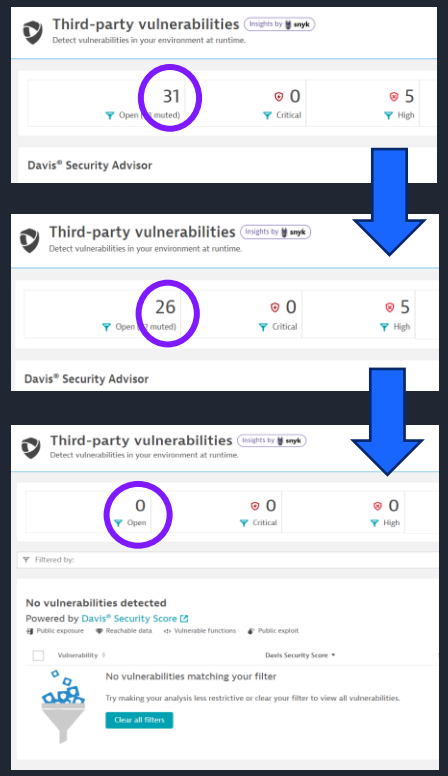
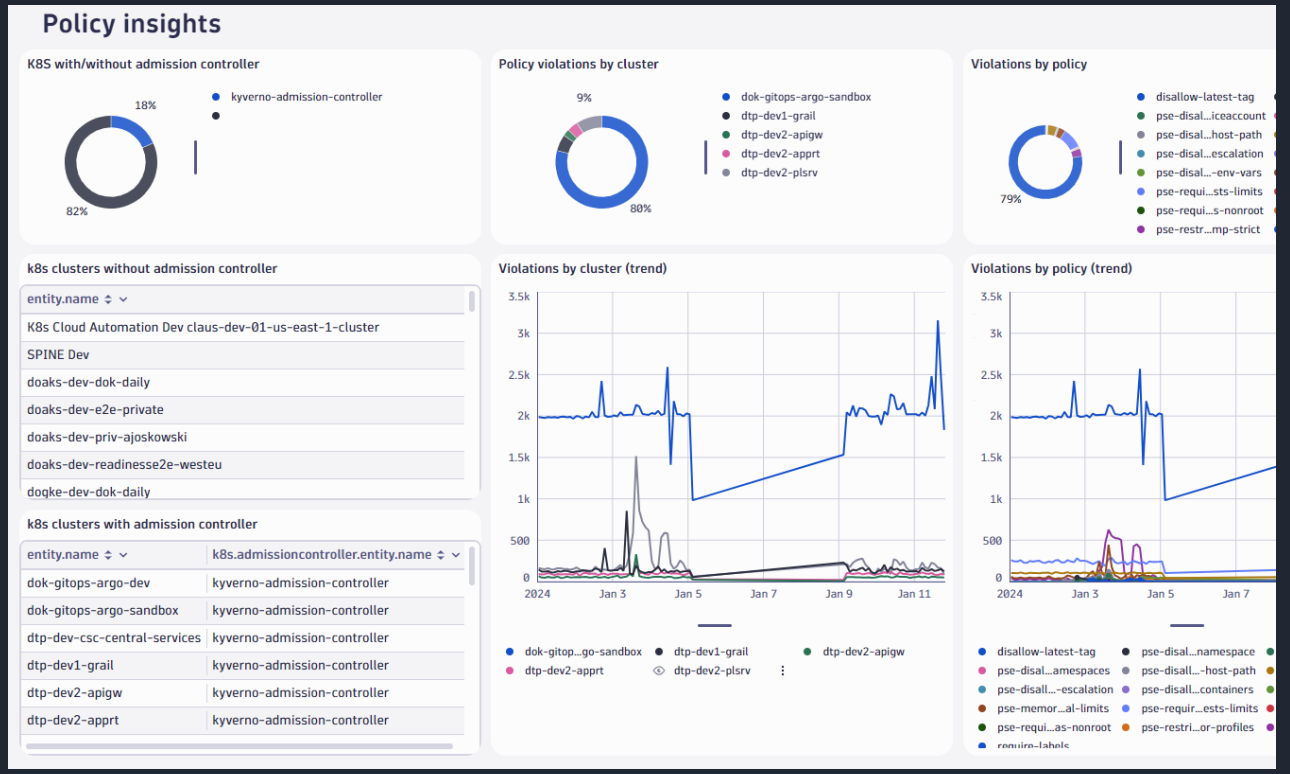
Platform Engineering: No vulnerabilities in prod? All policies enforced?

DEV

HARDE NING

PROD



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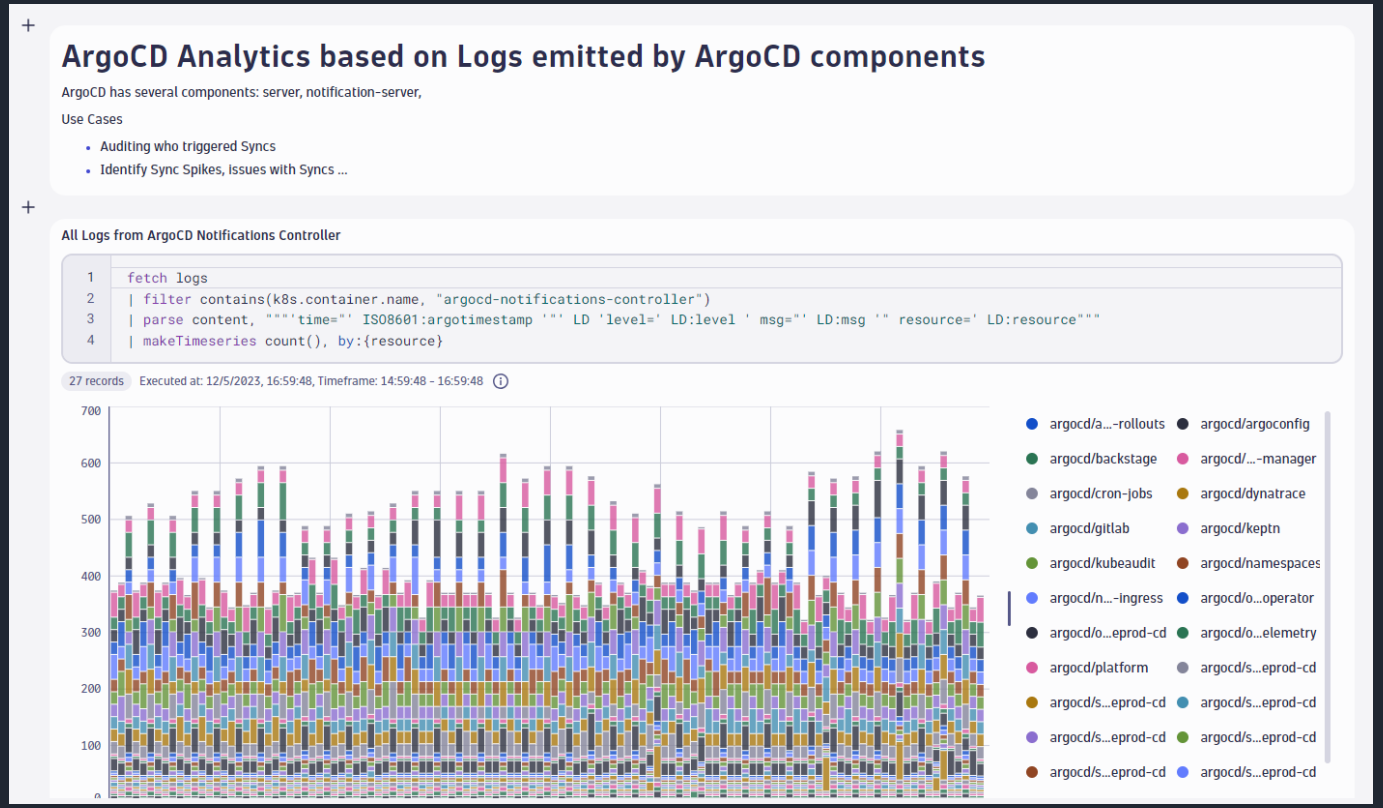
Platform Engineering: How many apps are onboarded? How well does it run?



# Tip: Platform Observability from git to prod

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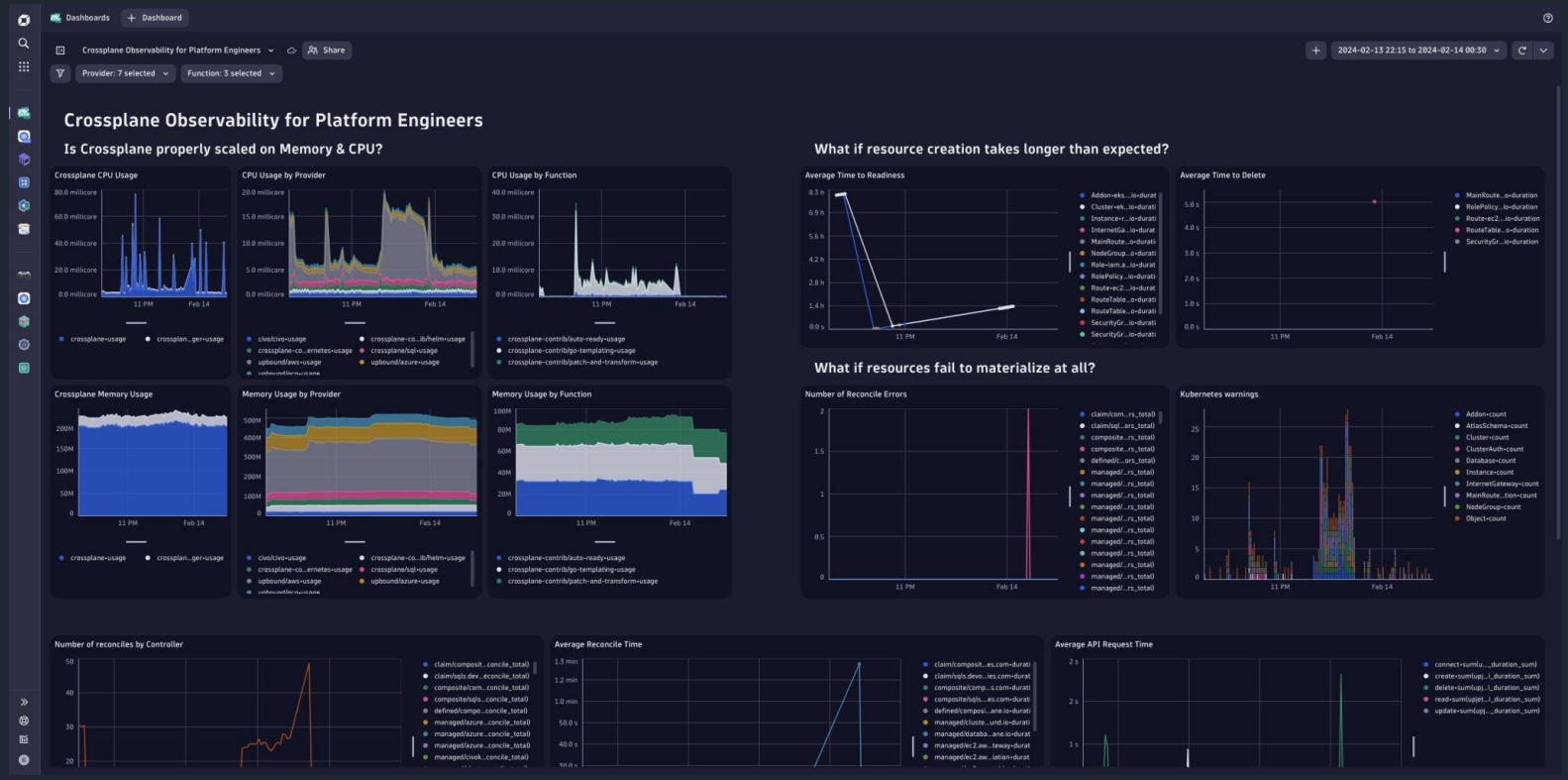
Platform Engineering: Can we deploy in-time or do we have issues in stages?



# Recap: Build your Platform like a Product!

**SELF SERVICE**
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## USER INTERFACE(S)
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THIS TEMPLATE IS WORK IN PROGRESS
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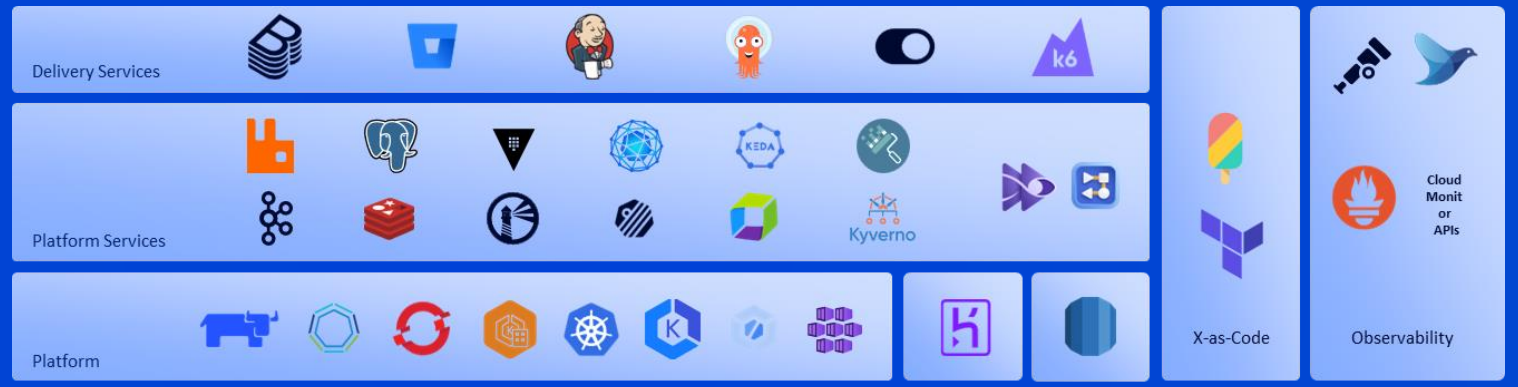


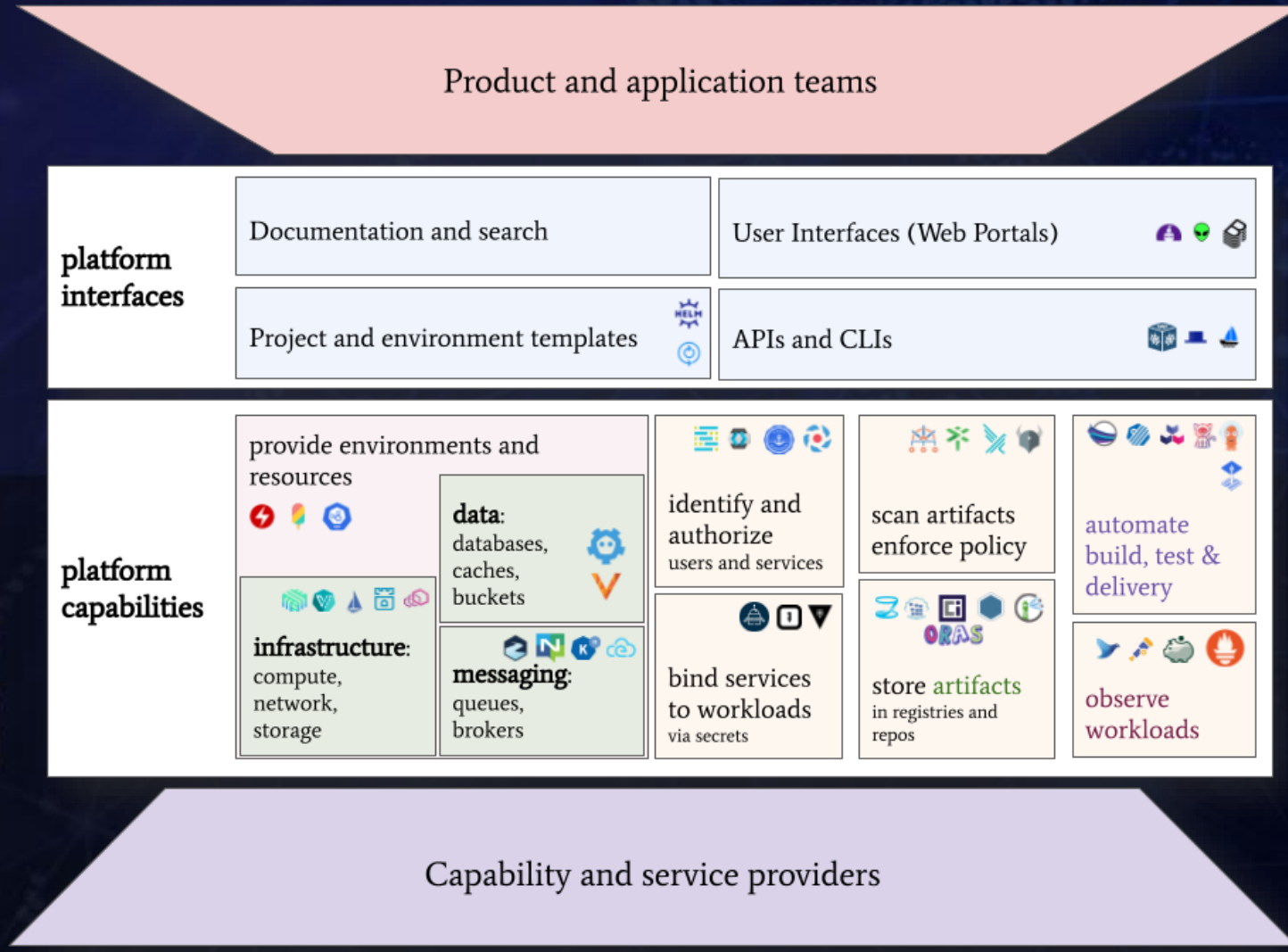

Availability, Resiliency, Security

**Observed**
SUCCESS KPIS

- Active Users NPS SPACE
- SLOs DORA
- FinOps Utilization

# Additional Resource: CNCF White Paper

CNCF Platforms White Paper:
https://tag-app-delivery.cncf.io/whitepapers/platforms




CLOUD NATIVE COMPUTING FOUNDATION

cncf.io | info@cncf.io

# Additional Resource: OpenGitOps.dev

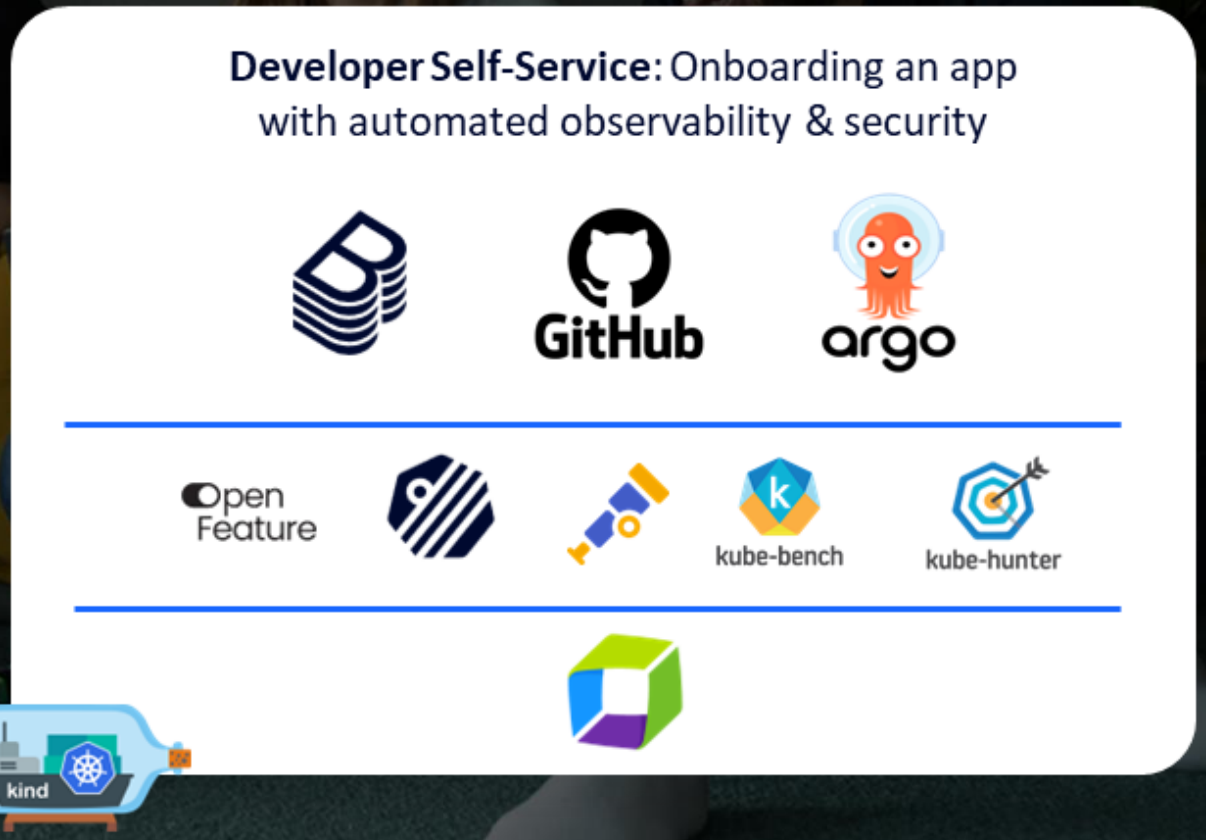
https://opengitops.dev/


CLOUD NATIVE COMPUTING FOUNDATION

cncf.io | info@cncf.io

# Additional Resource: GitHub Tutorial

https://dt-url.net/devrel-PE-demo



# Platform Engineering White Paper

https://dt-url.net/ebook-plateng-angr

FREE EBOOK

## Driving DevOps and platform engineering for digital transformation

Amid the ever-evolving landscape of software development, the debate surrounding DevOps vs. platform engineering has ignited. Which is the preferred approach to software delivery? Are these two disciplines interlinked?

Download the free ebook to discover the following:

- The nuances, best practices, and tangible benefits that DevOps and platform engineering bring to organizations.
- The challenges and complexities that organizations face in adopting and optimizing these methodologies.
- How a unified observability platform helps organizations unlock transformative potential with their platform engineering use cases.

## What's inside

# Successful Platform Engineering: Hype vs Reality!

## Status Quo

**~40%**

of engineering time is productive

**~36%**

of developers leave because of bad developer experiences

## Lessons learned on how to get there

**Find** the **pain** points

**Have** a clear **mission**

**Design** for **DevExperience**

**Start** with the **TVP**

**Make** everything **observable**

## What we see

**~83%**

of engineering time is productive

**~66%**

report increased dev efficiency / dev experience

# All the resources in one slide

**Report**
*“State of DevOps 2023”*

**CNCF White Paper**
*“WG on Platform Engineering”*

**GitHub Tutorial**
*https://dt-url.net/devrel-PE-demo*

**OpenGitOps**
*https://opengitops.dev/*

**Katharina Sick**
*https://ksick.dev/*

dynatrace

PRESENTER

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CNCF Ambassador
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# Thank You

From DevOps to Platform Engineering and Beyond!

AMBASSADOR
CLOUD NATIVE COMPUTING FOUNDATION

OpenFeature

keptn

OpenTelemetry