



Amadeus  
**Engineers**

 @JJAlonso91

 @fabricepipart

# Everything as Code

## A dozen of “as code” concepts beyond Infrastructure or Configuration as Code

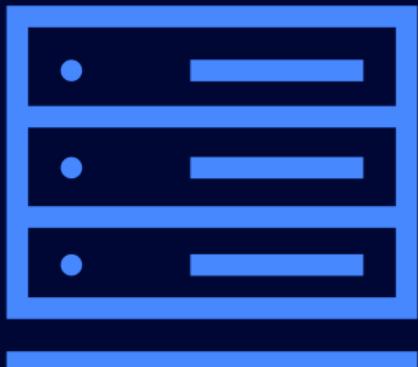
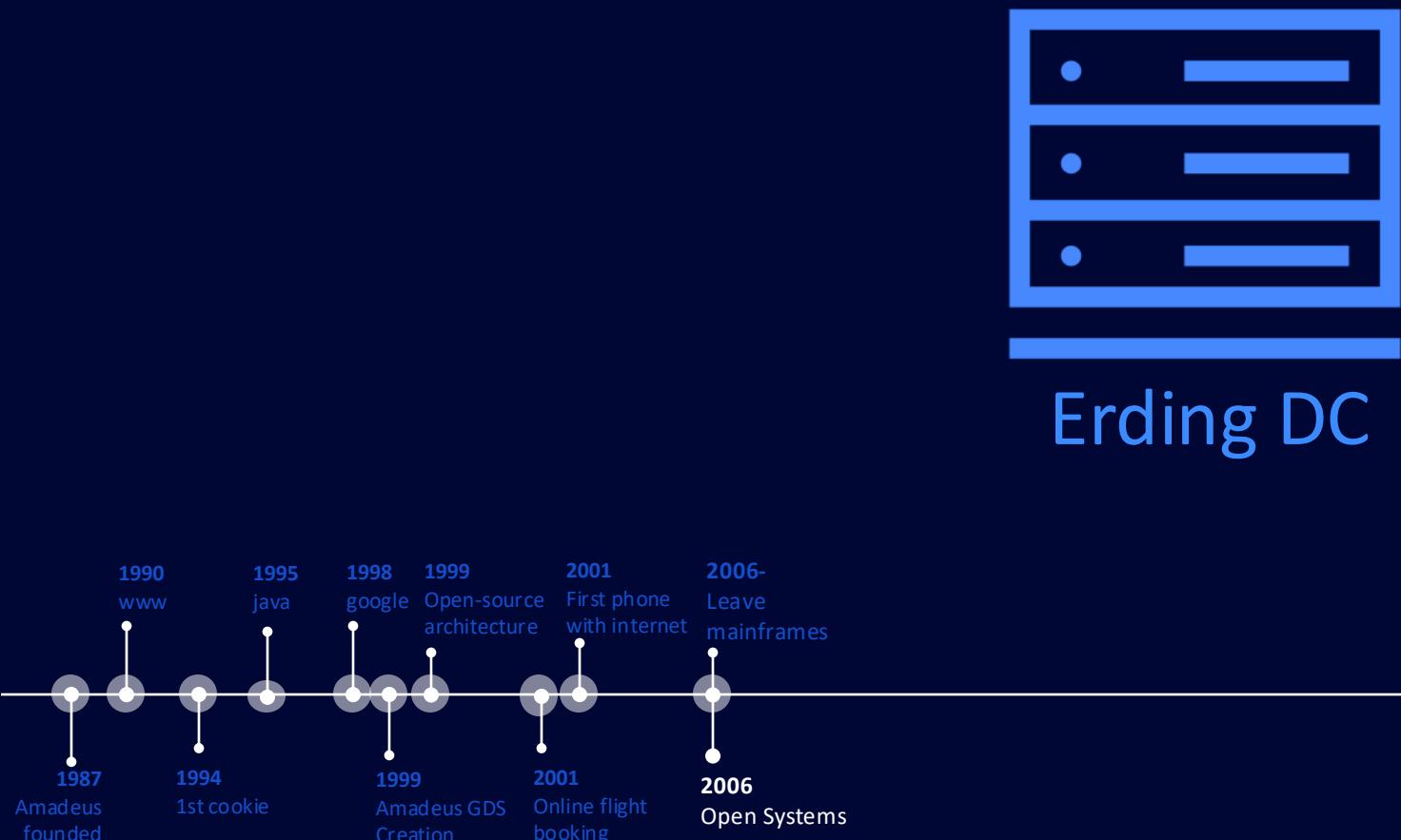
José Javier Alonso Moya, Principal Engineer  
Fabrice Pipart, Technical Expert

Amadeus IT



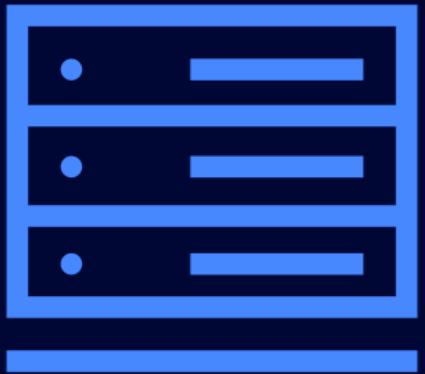
October 2024

# Open Systems

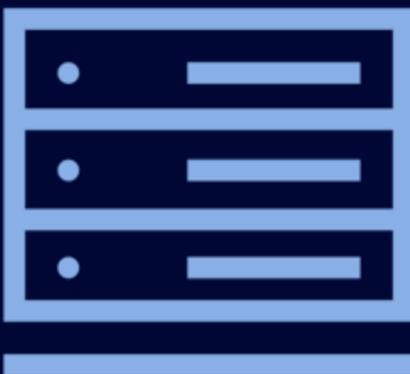


Erding DC

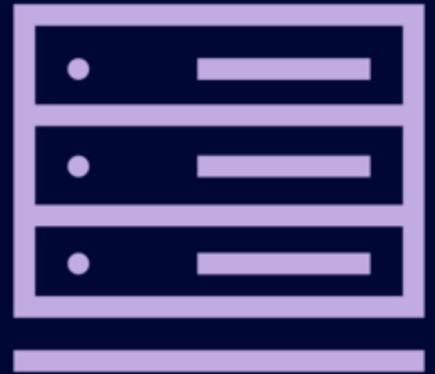
# Multi-DC



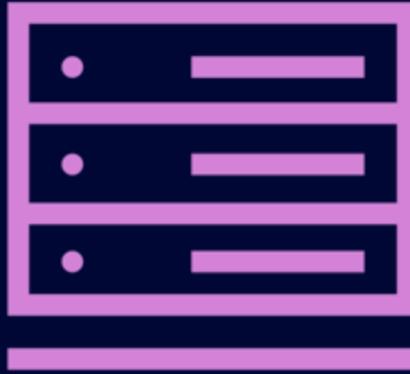
Erding DC



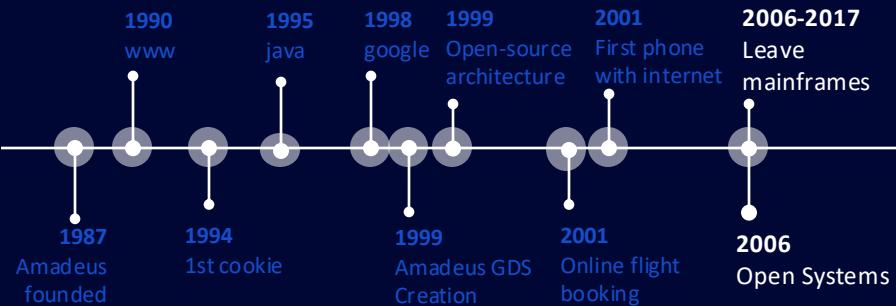
Neuperlach DR



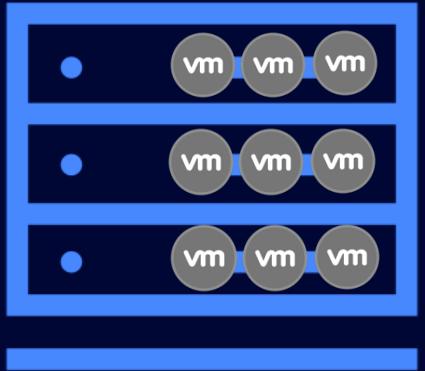
Nice DC



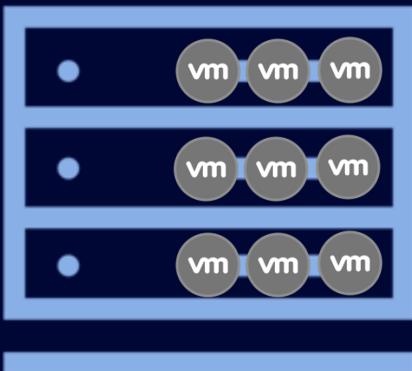
Americas DC



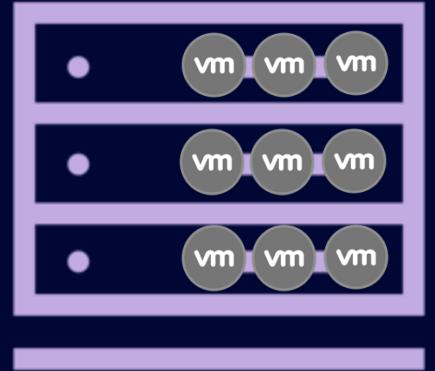
# Hypervisors



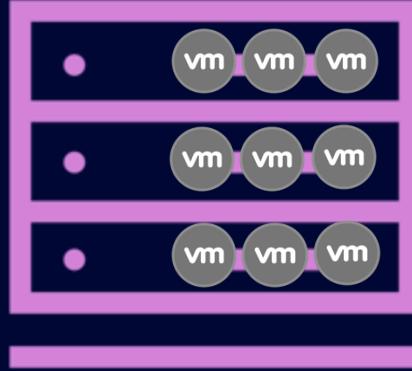
Erding DC



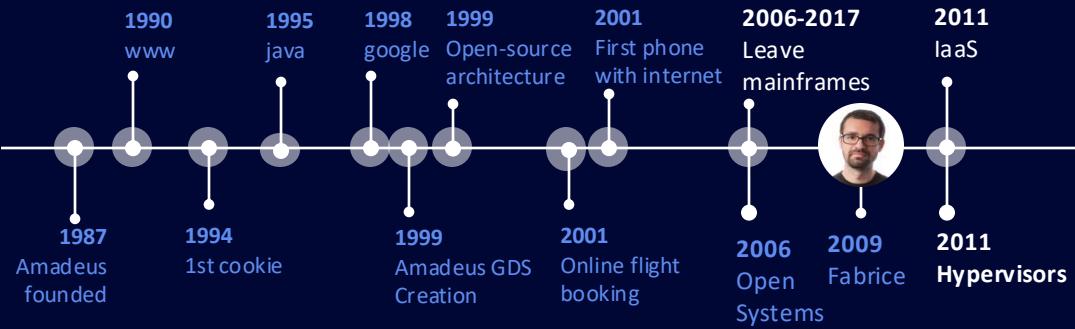
Neuperlach DR



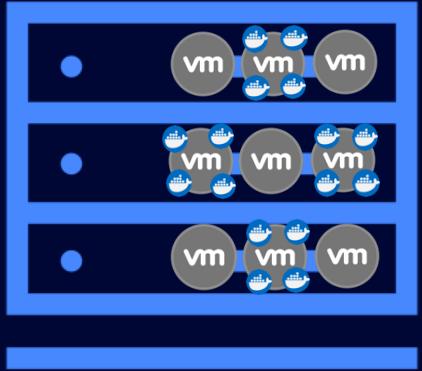
Nice DC



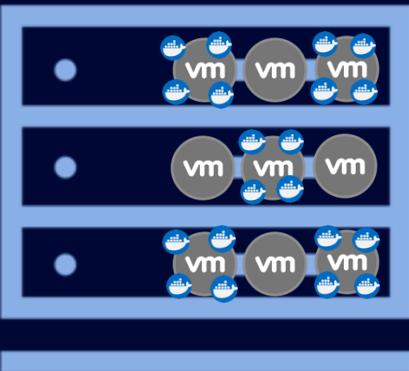
Americas DC



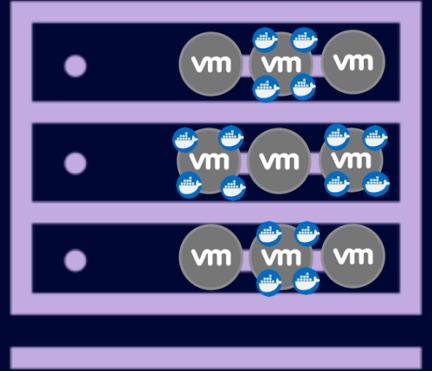
# Containers are born



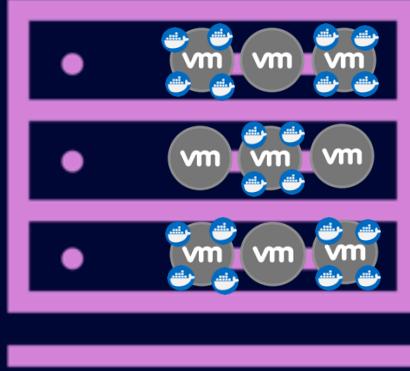
Erding DC



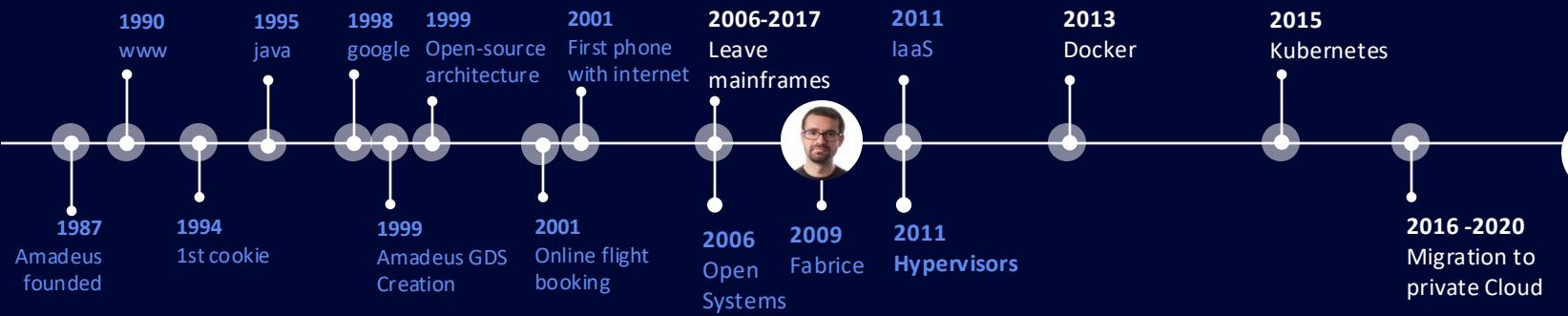
Neuperlach DR



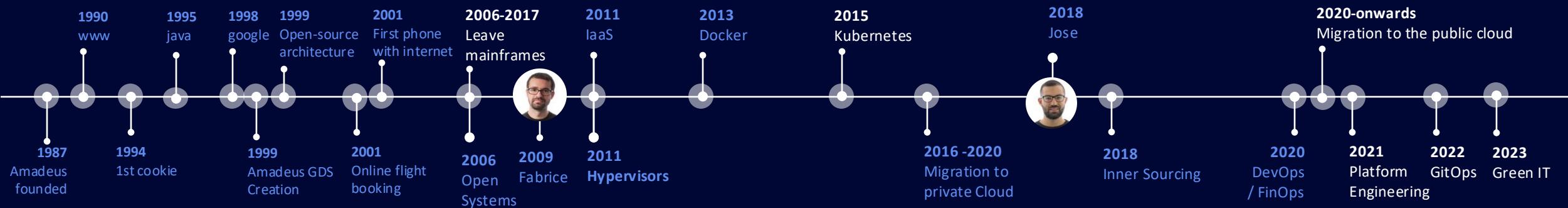
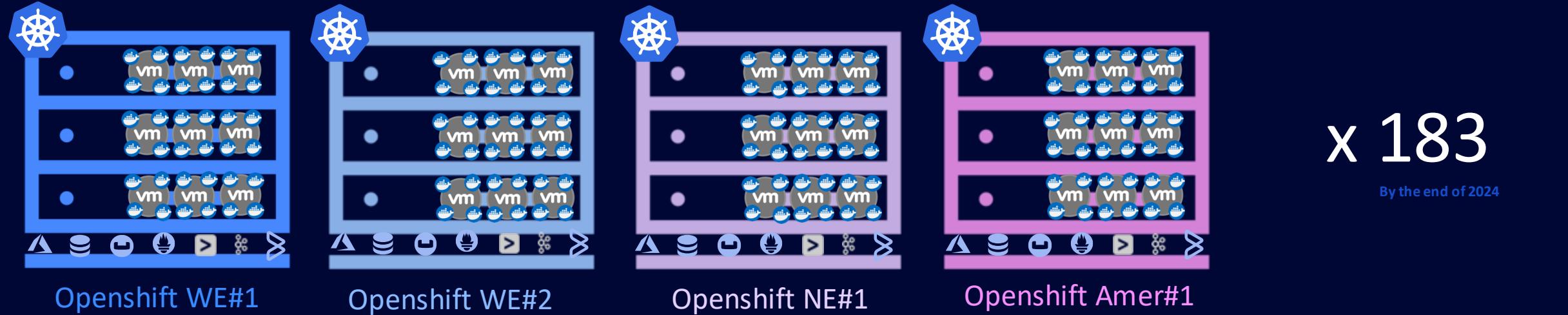
Nice DC



Americas DC



# Platform Engineering



*We live in a world that demands  
tooling to manage complexity*

# But first, who are we?

# echo \$(whoami)



October 8-10th 2024



## Jose Javier Alonso Moya

YAML DevOps Engineer at Amadeus



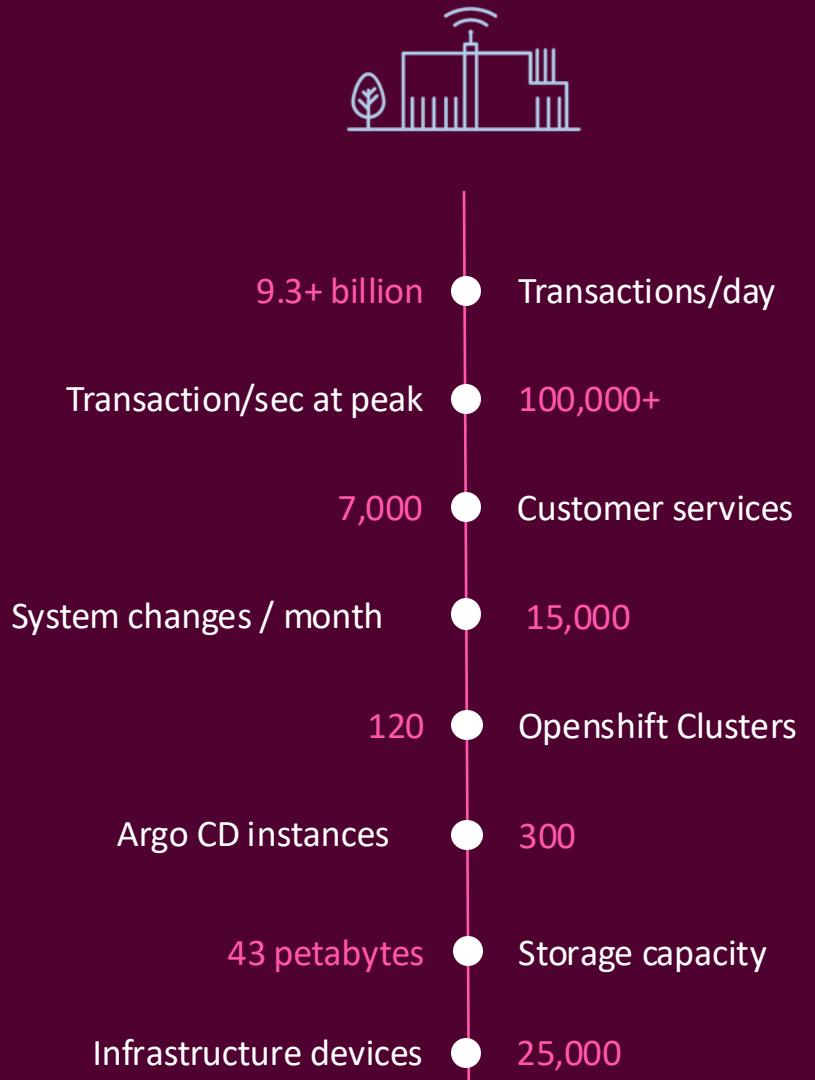
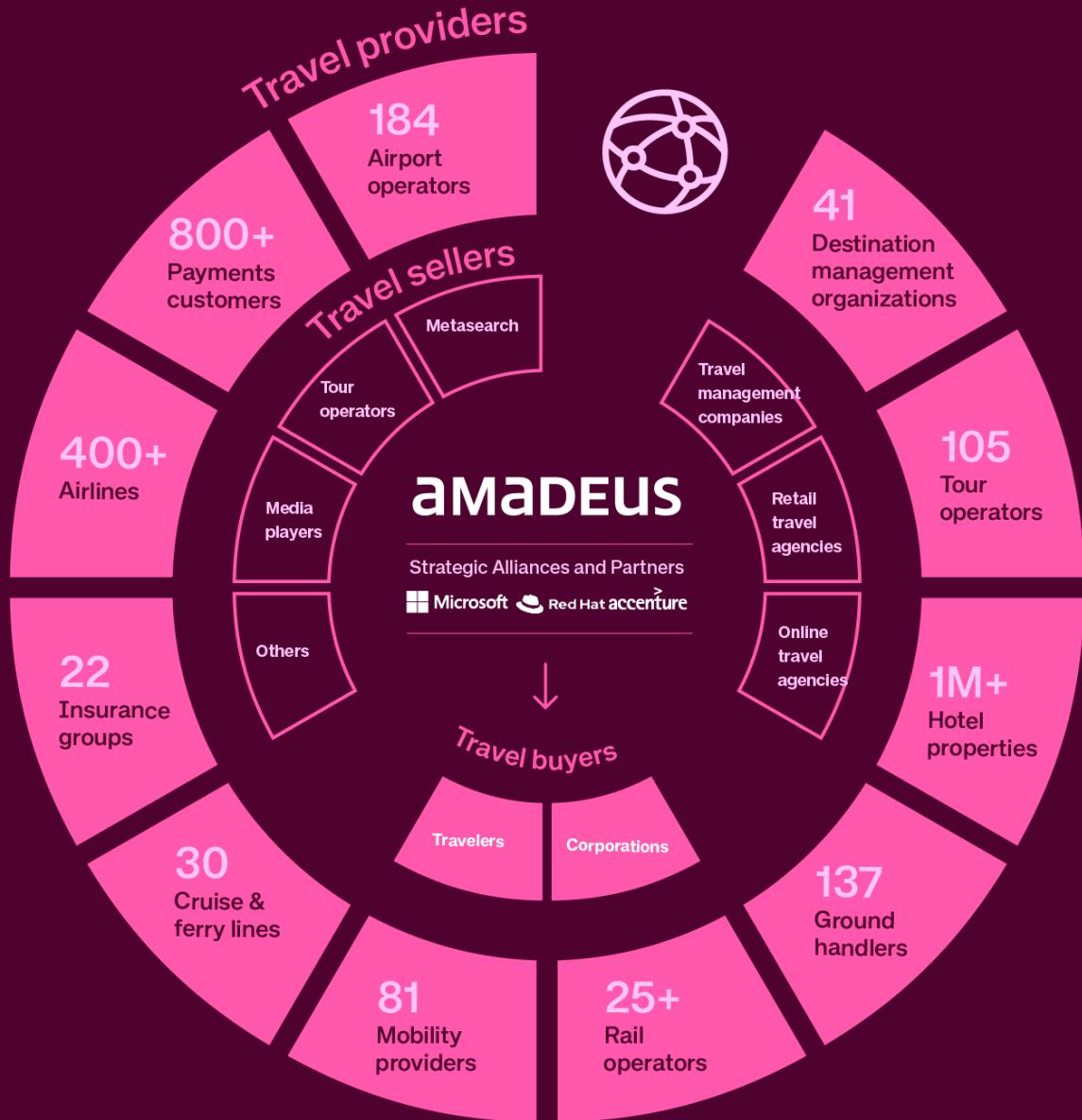
October 8-10th 2024



## Fabrice Pipart

“Please automate” Senior Technical Expert at Amadeus

# We connect the travel ecosystem



# How can you make my life easier?



# Permission as code

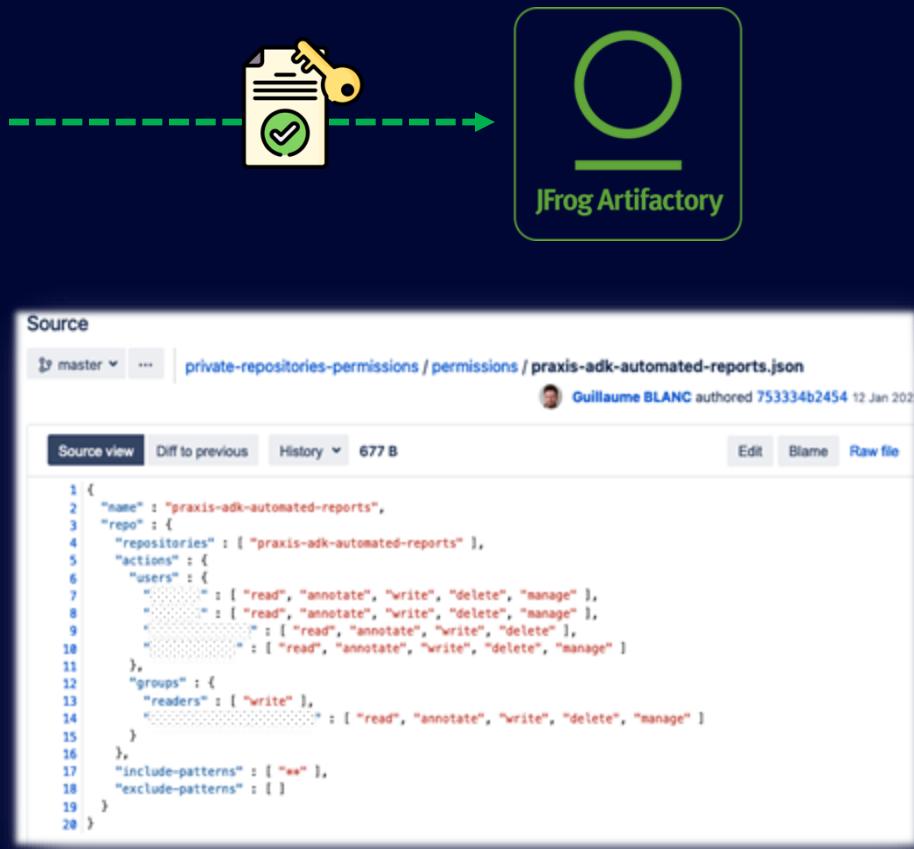
*Everything as Code #2*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Permissions as Code

Call Artifactory API to setup access permissions



1

#great

## Discovering GitOps

Perfectly simple  
PRs are natural. Audit and approval.  
Immediate adoption and remained reference

2

#great

## Simplistic

JSON format  
Overwrites manual mods



# Documentation as code Diagrams as code

*Everything as Code #3 & #4*

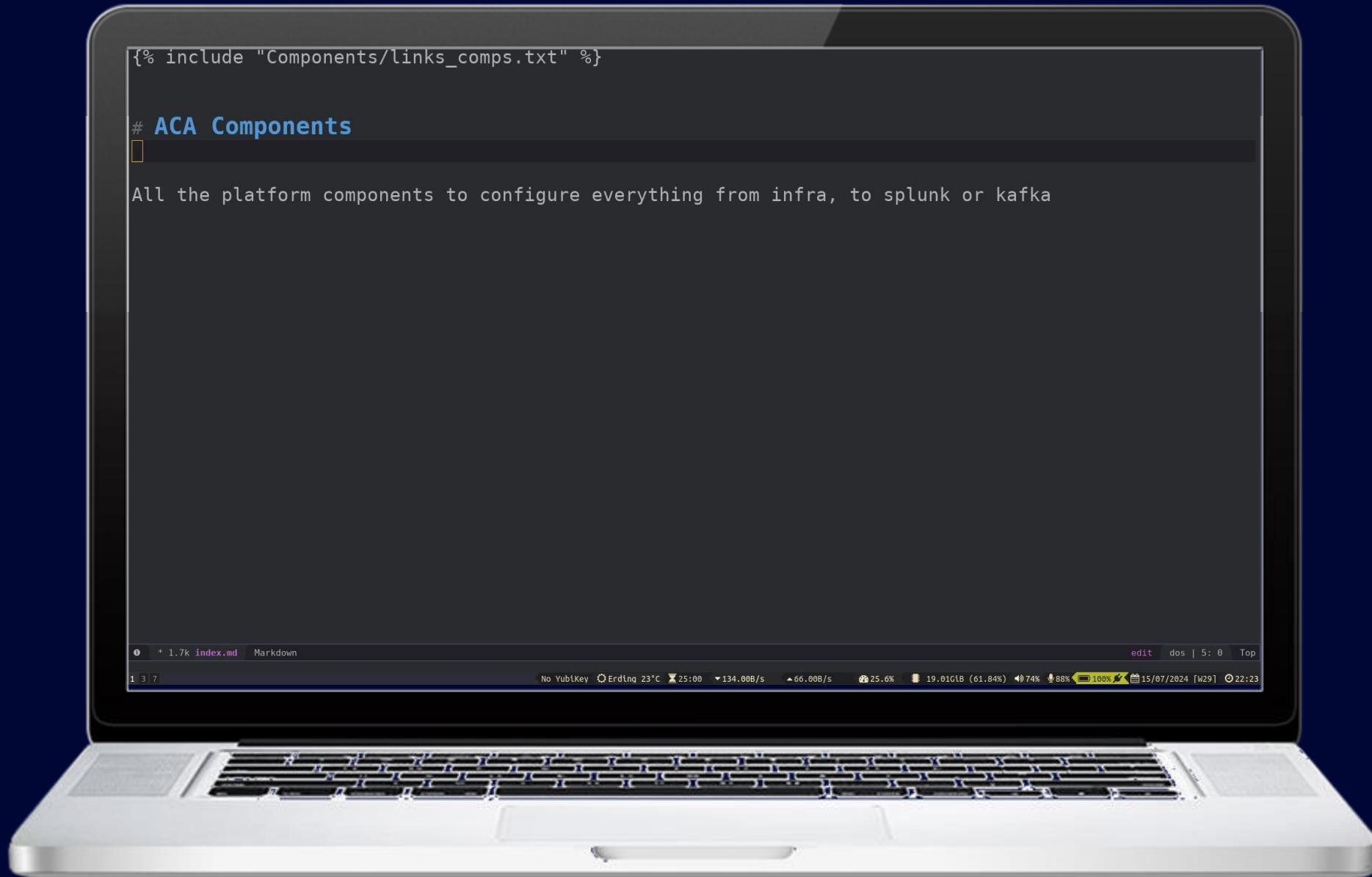
#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Docs as Code



Material for MkDocs



AMADEUS

Coffee

Permissions

Docs

Diagrams

Pipeline

Security

Infra

Network

Middleware

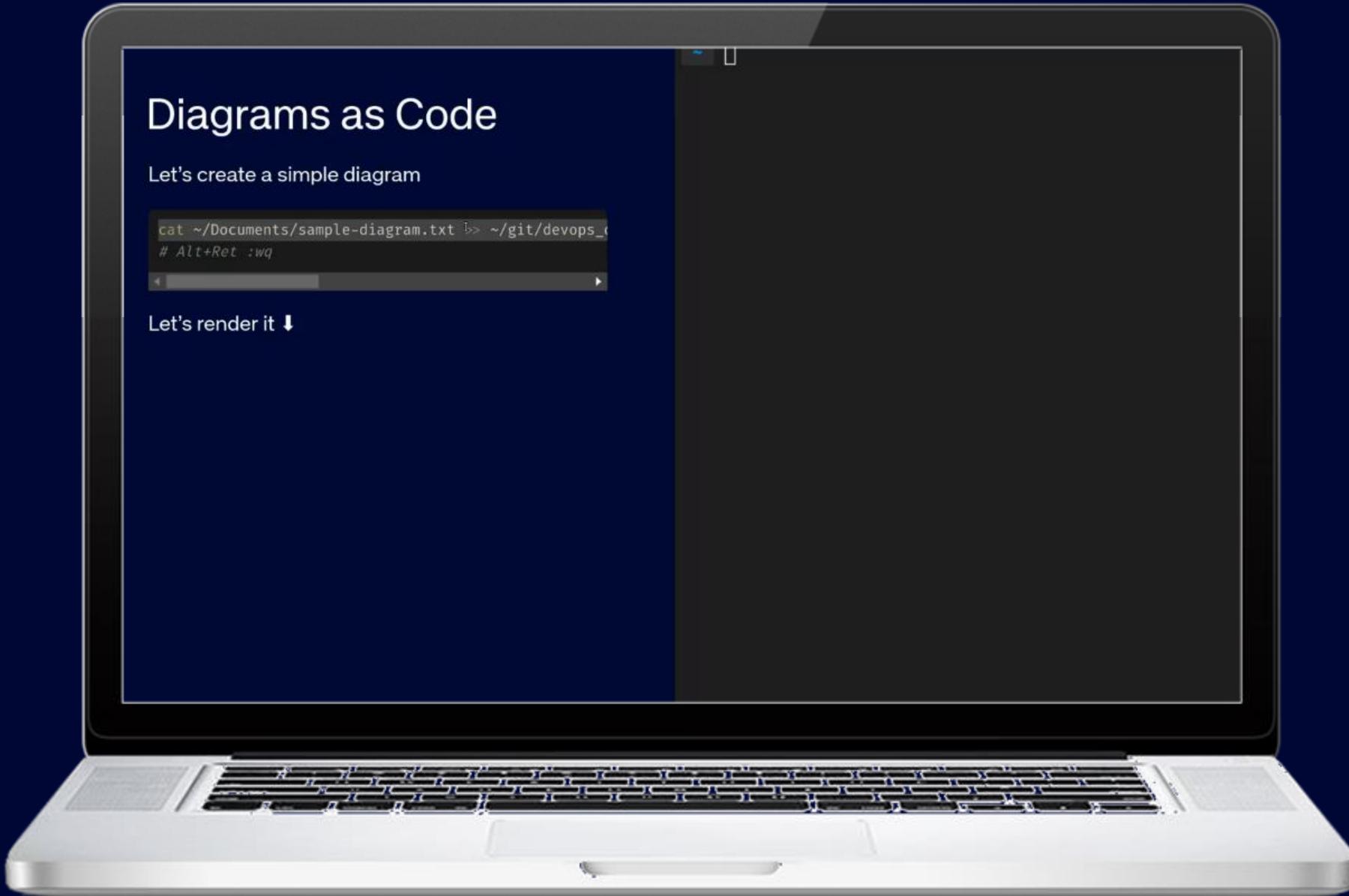
Deployment

Code review

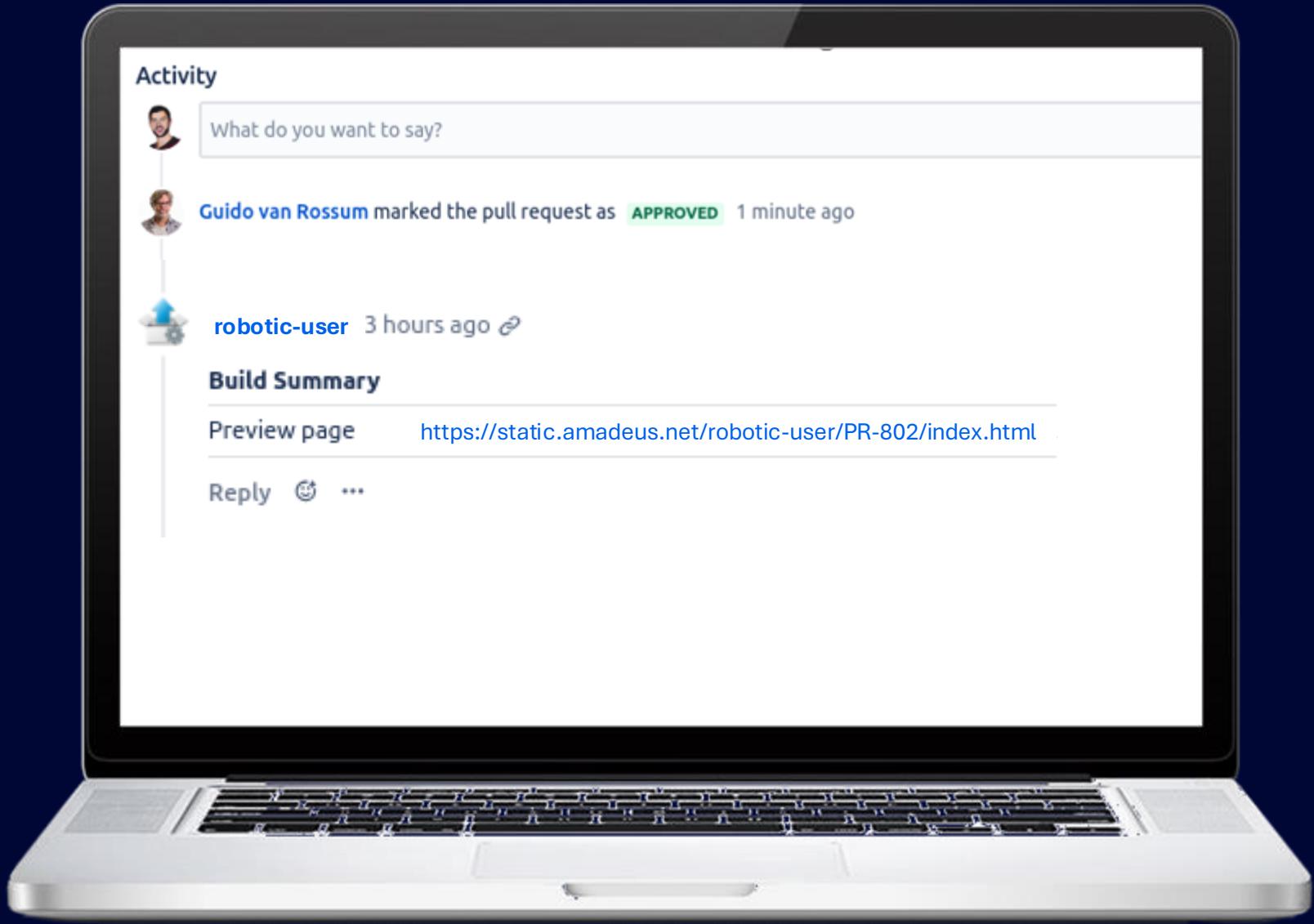
Monitoring

Change Management

# Diagrams as Code



# Docs as Code





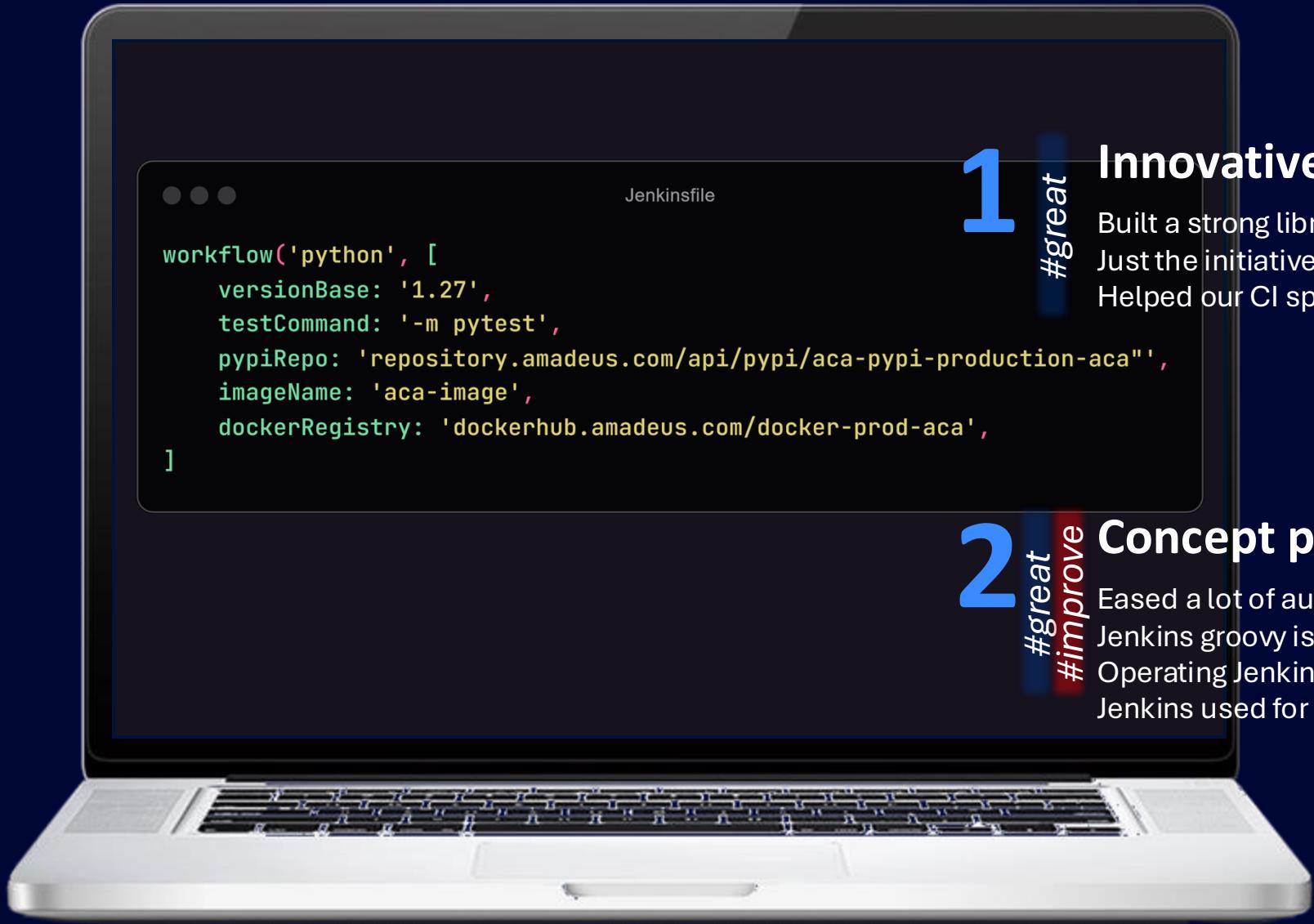
# Pipeline as code

*Everything as Code #5*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Pipeline as Code



# Pipeline as Code

The laptop screen shows a GitHub pull request activity feed and a security scan report. The activity feed includes a message from Guido van Rossum, a review from Security Scanners Reviewer, and a message from aca-robot. The security scan report shows vulnerabilities for curl and libwebp packages.

ID	packageName	packageVersion	status	cvss	severity	link
CVE-20...	curl	7.7	open	9.8	critical	<a href="https://security-tracker.debian.org/cve/CVE-2023-1234">https://security-tracker.debian.org/cve/CVE-2023-1234</a>
CVE-20...	libwebp	0.6	fixed in 0.6	8.8	high	<a href="https://security-tracker.debian.org/cve/CVE-2023-1235">https://security-tracker.debian.org/cve/CVE-2023-1235</a>
CVE-20...	curl	7.7	fixed in 7.7	8.8	high	<a href="https://security-tracker.debian.org/cve/CVE-2023-1236">https://security-tracker.debian.org/cve/CVE-2023-1236</a>

**Gaël Selig**  
Amadeus IT Group  
How we manage >1500 Git repo's CI/CD with a full InnerSource solution

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Not Open Source

Missed Open Source possibility  
Framework is innovative  
Library is rich

#notgreat #great #SecurityAsCode #InnerSource #SharingAsCode #b6



# Infrastructure as code

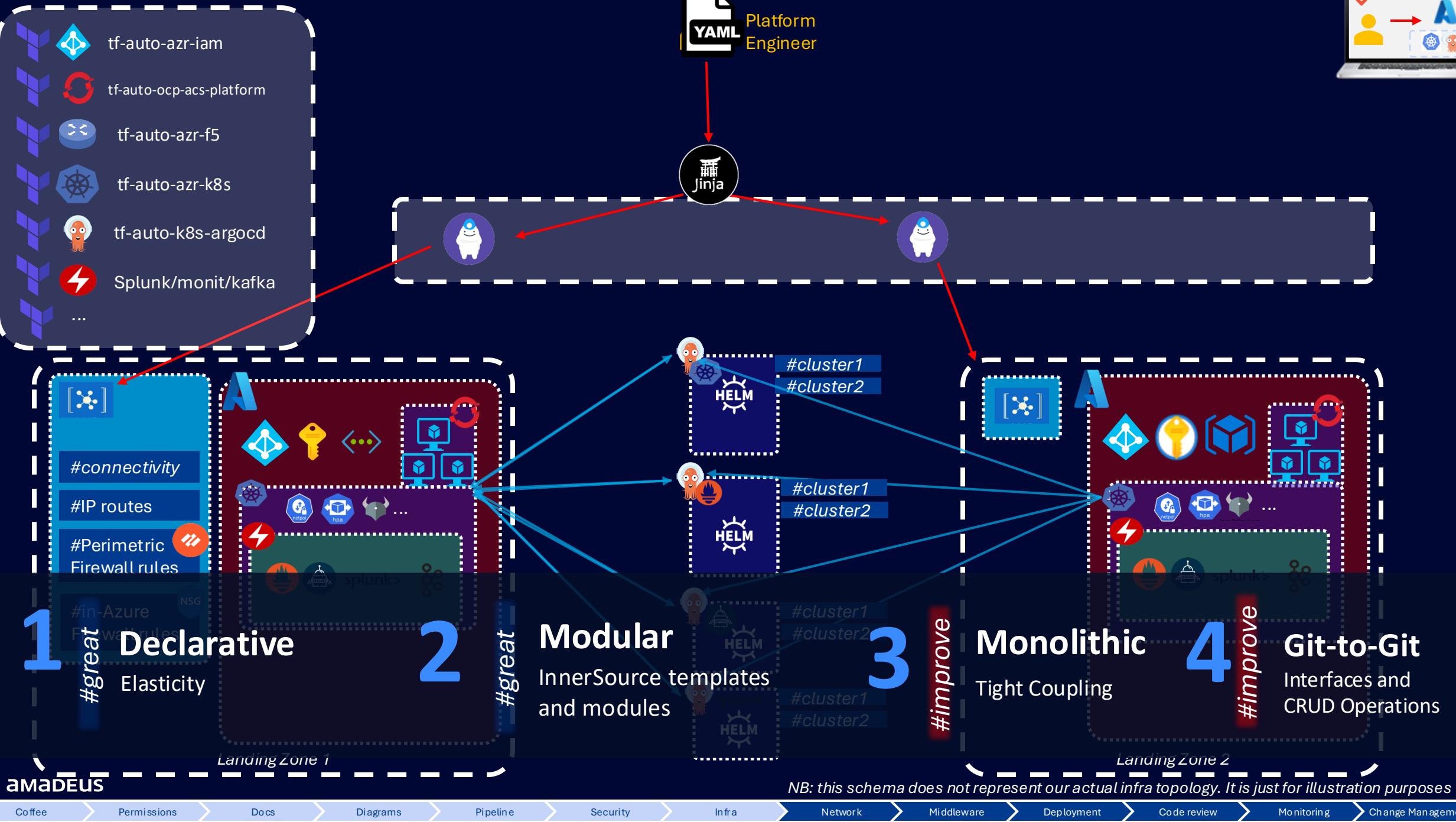
*Everything as Code #7*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations





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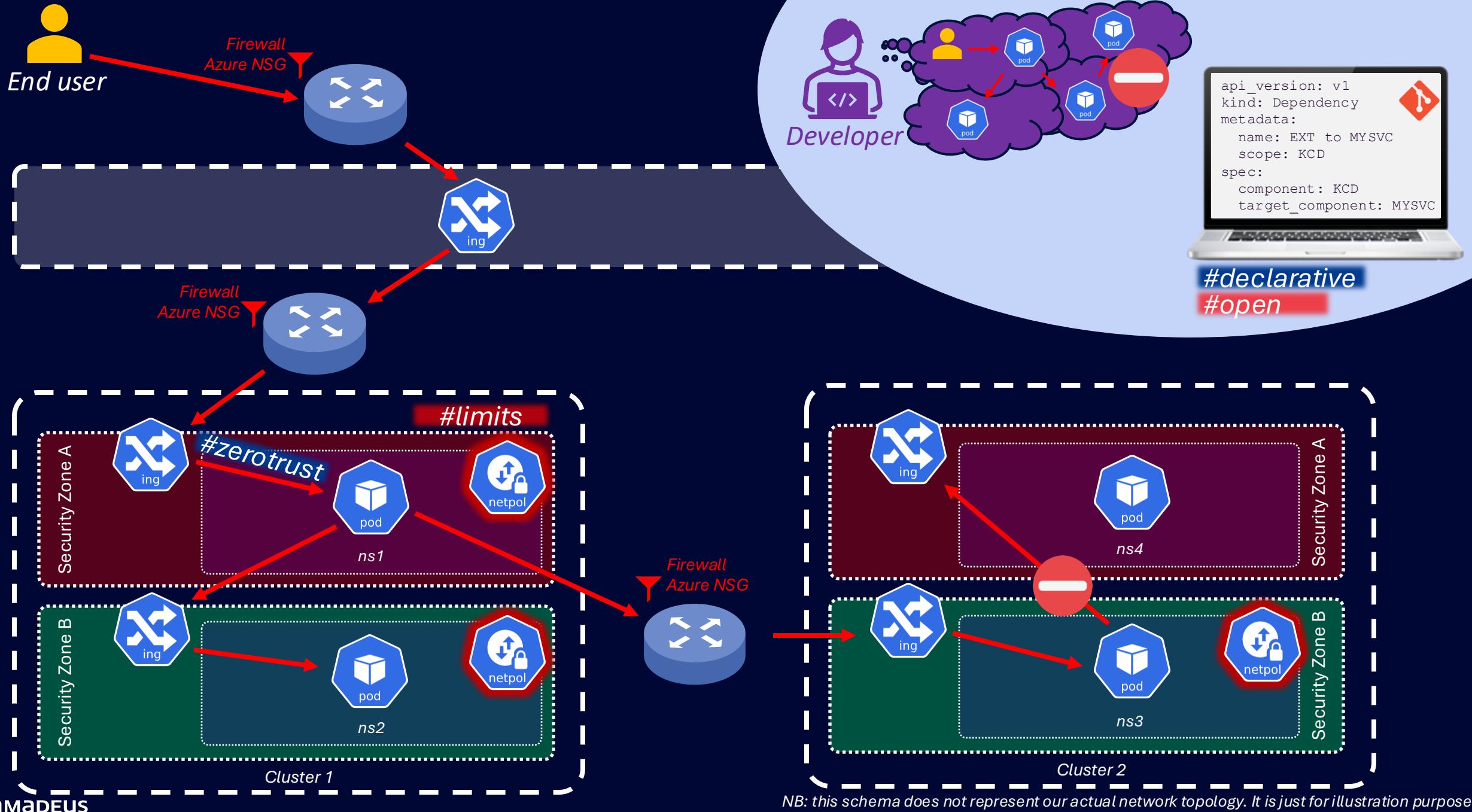


# Connectivity as code

*Everything as Code #8*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations







# Middleware as code

*Everything as Code #9*

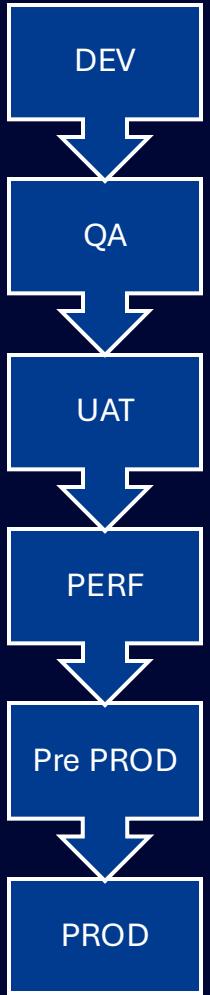
#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Middleware as code



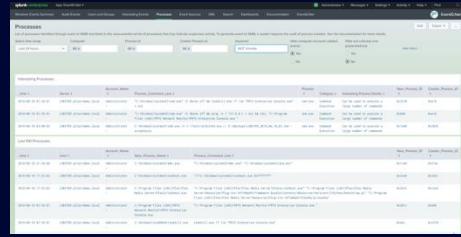
Applications



Environments



Regions



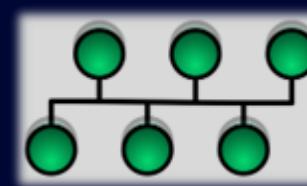
Dependencies



X



Γεισού



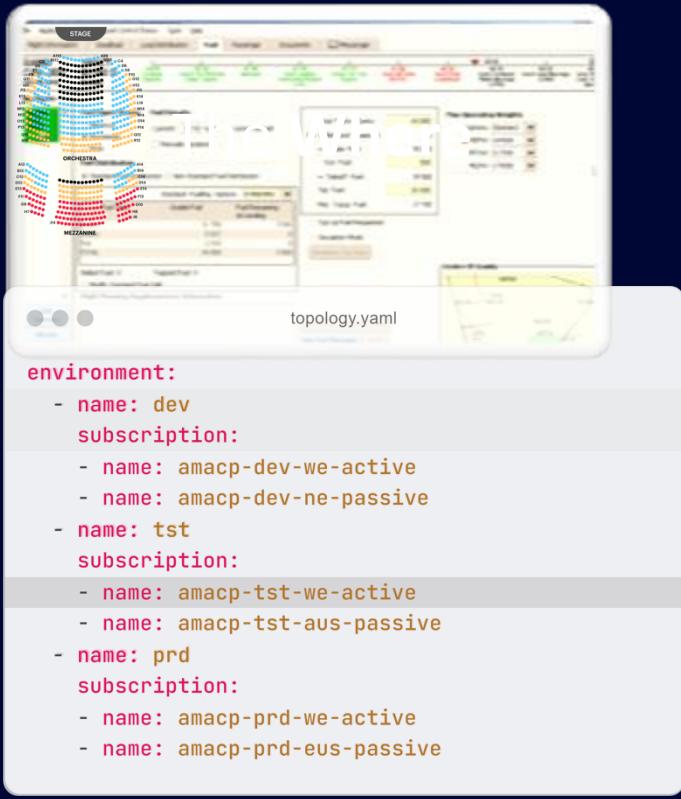
01011100011001011111000111  
10011110011111111111001111  
11110110000001001111111111  
00000111011111111111111111  
10001001011111111111111111  
11001100101111111111111111  
11110000100001011111111111  
11000110011111111111111111

Configuration

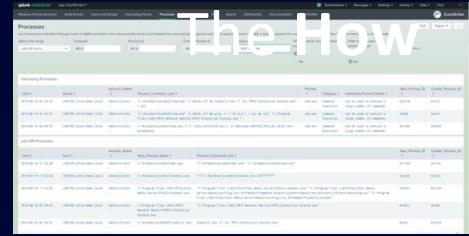
你好

สวัสดี

# Middleware as code



# 1 #great DRY (Don't Repeat Yourself) Overlays



# The How



你好

สวัสดี

## Γιασού



# As Code != GitOps



# Deployment as code

*Everything as Code #10*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Deployment as Code





# Deployment as code Code review as code

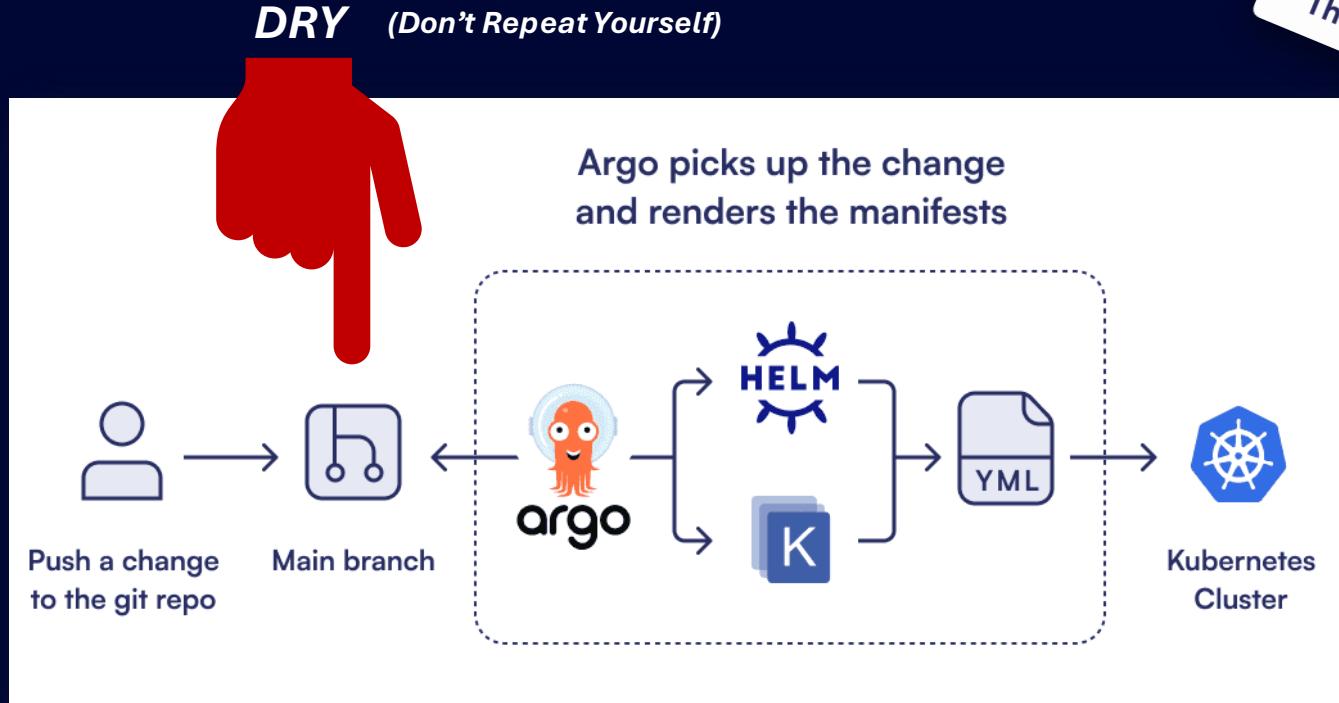
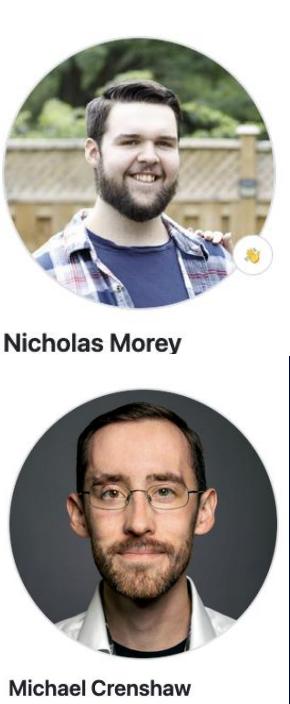
*Everything as Code #11*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Code review as code

Reviewer needs to know what actually changed



The hydration concept

AKUITY

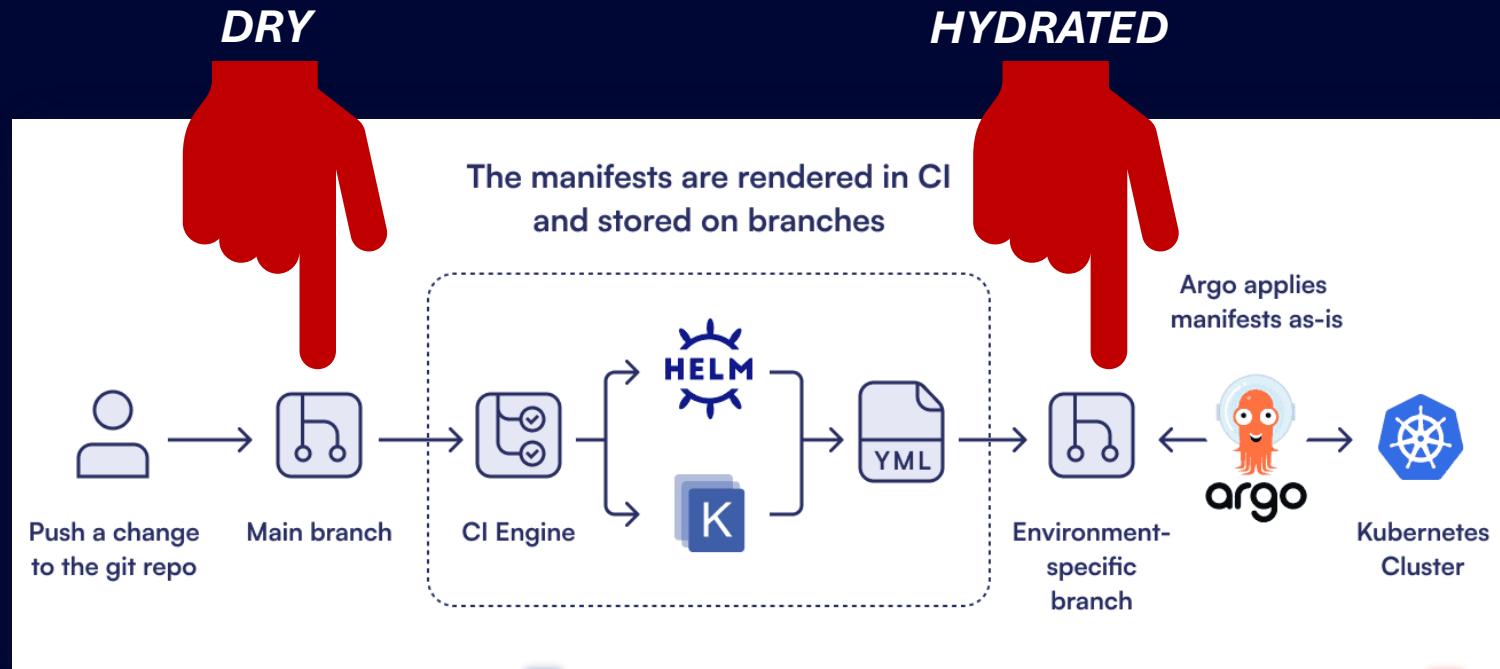
Nicholas Morey  
10 October 2023

The Rendered Manifests Pattern

Twitter LinkedIn Facebook

# Code review as code

The hydration concept



1  
#great

## Less mistakes

Can see what will really happen  
Can write automation

## 2 Follow Open Source

#great<sup>to</sup>  
Started at KubeCon Paris 2024  
Michael , I want to do more!

## Tool dependent

Need the same for all git changes:  
Ansible, Jenkins, Terraform ...



# Monitoring as code

*Everything as Code #12*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# How we went to build thousands of dashboards and alerts

474 Airlines 132 Airport operators 1M+ Hotel properties 133 Ground handlers

Cloud Carbon Emissions Dashboard

Electricity consumption

Carbon emissions

Model-based electricity computation

Cloud Carbon Emissions

CPU Utilization

CPU Power Consumption

CPU Energy Consumption

CPU Carbon Emissions

KCD Austria

Recap last year KCD presentation

Monitoring as Code: Managing your Observability Assets the ...

... Monitoring as Code." In this thought-provoking talk, Jose ... KCD Austria...

Jose Javier Alonso

26:46

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Infrastructure Transactions OpenShift metrics...

Dashboard info

Application overview

OTF application

Error log detail

Throughput - query vsrReply

Max elapsed time

FE queue fill level

Fakeservice

Basic CPU / Mem / Disk Gauge

Cloud Carbon Emissions Dashboard

Electricity consumption

Carbon emissions

Model-based electricity computation

Cloud Carbon Emissions

CPU Utilization

CPU Power Consumption

CPU Energy Consumption

CPU Carbon Emissions

KCD Austria

Recap last year KCD presentation

Monitoring as Code: Managing your Observability Assets the ...

... Monitoring as Code." In this thought-provoking talk, Jose ... KCD Austria...

Jose Javier Alonso

26:46

amADEUS

Coffee > Permissions > Docs > Diagrams > Pipeline > Security > Infra > Network > Middleware > Deployment > Code review > Monitoring > Change Management

# Fresh news! Meet the new kid in the CNCF Sandbox

[About](#)[Projects](#)[Training](#)[Community](#)[Blog & News](#)[Join](#)[PROJECTS](#)

## Perses



# PERSES

**Perses is a dashboard tool to visualize observability data from Prometheus/Thanos/Jaeger.**

Perses was accepted to CNCF on August 29, 2024 at the **Sandbox** maturity level.

[VISIT PROJECT WEBSITE](#)**AMADEUS**

Coffee

Permissions

Docs

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Middleware

Deployment

Code review

Monitoring

Change Management

# Perses

## SDK

Golang



Cuelang



## Local CLI



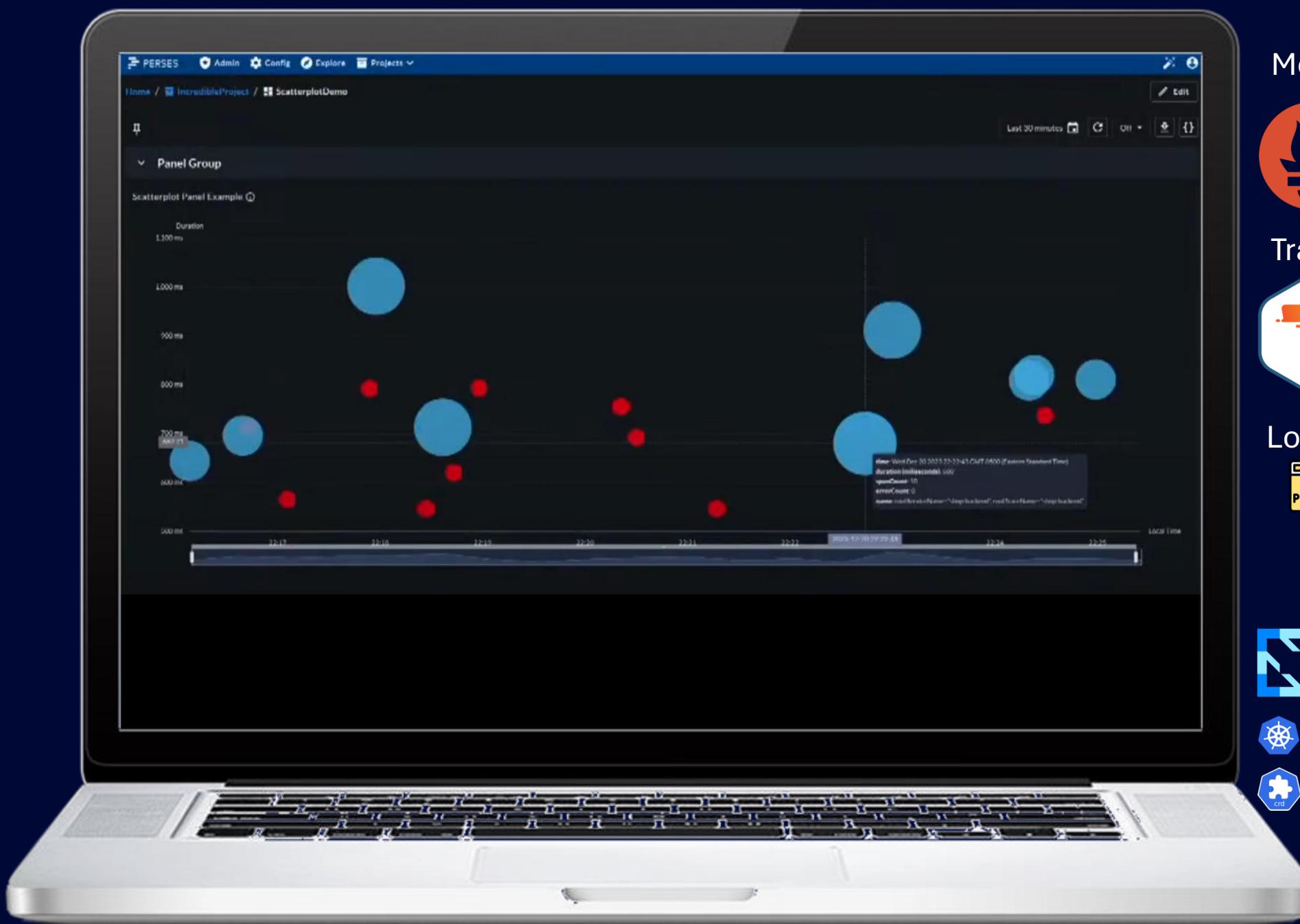
Validate & Automate



Perses JSON YAML

Embeddable

@perses-dev/dashboards  
@perses-dev/patterns-plugin



Metrics



Traces



Logs



Cloud Native



K8S Discovery

Dashboards with CRs



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Amadeus. It's how travel works better.

Coffee

Permissions

Docs

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Change Management



# Change Management as code

*Everything as Code #13*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Change Management requirements

**CLEAR**

**RECORD**

**IMPACT**

**TYPE**

**STATUS**

**SAFE**

**FREEZE**

**APPROVAL**

**REVIEW**

**LOAD WINDOW**

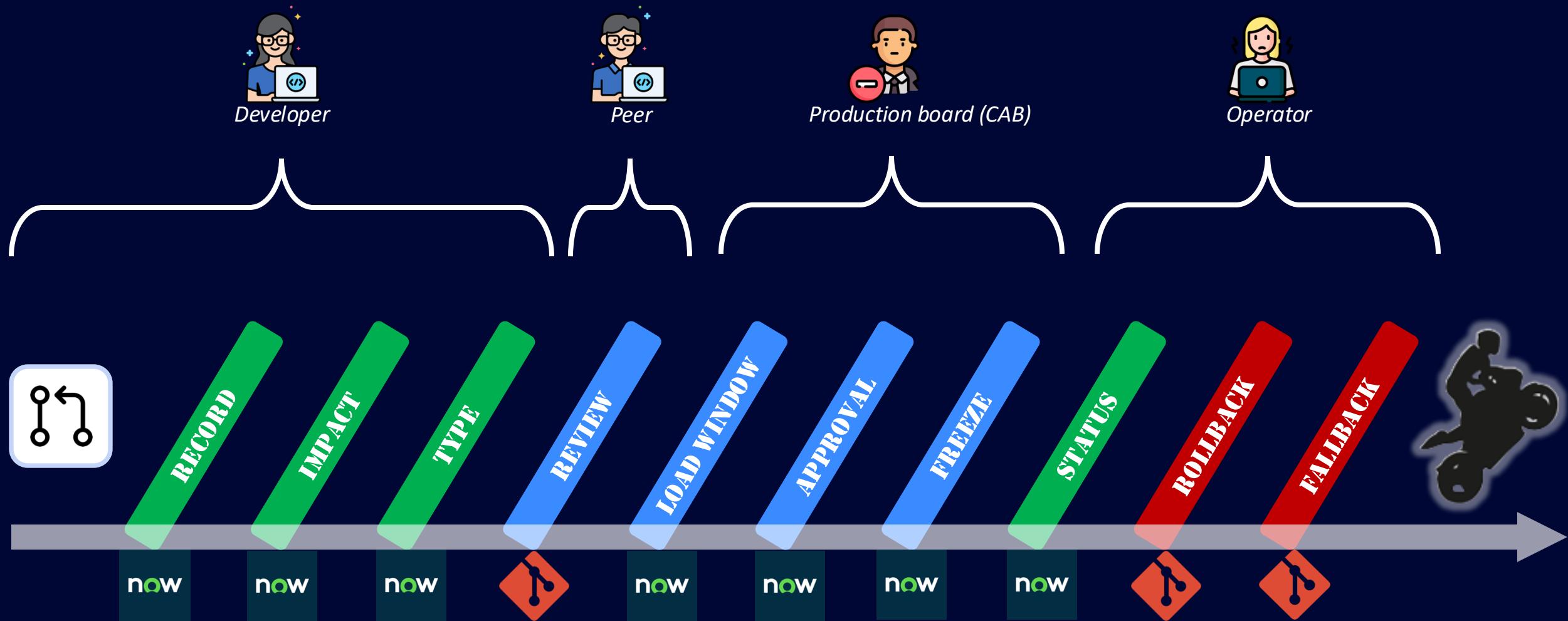
**FAST**

**ROLLBACK**

**FALLBACK**

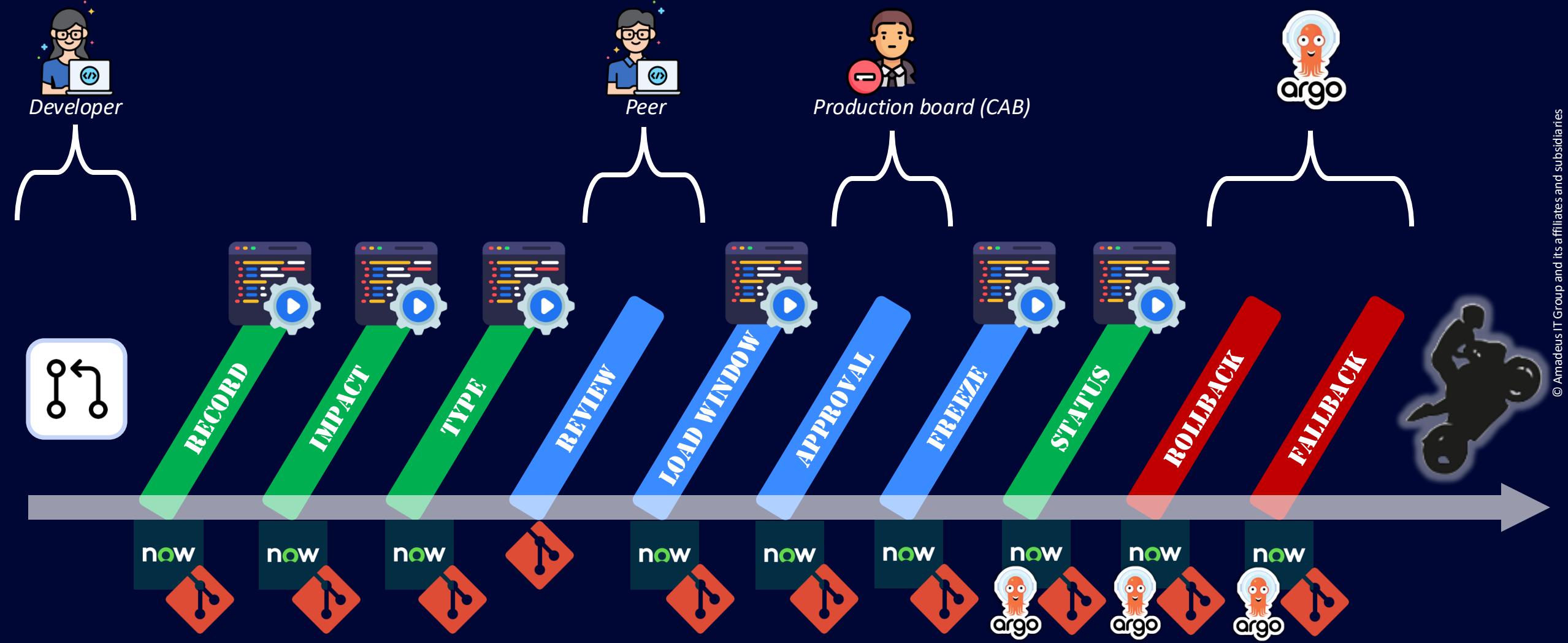


# Change Management requirements



# Change Management requirements

Streamlining change approvals from change advisory boards (CAB) while allowing change visibility/control





# Slides as code

*Everything as Code #14*

#kubernetes  
#security  
#platform  
#AI  
#observability  
#devexp  
#cloudnative  
#operations



# Slides as Code

- This is a sample slide
- With some bullet points and an embedded web-tty

Slides as code rock!

```
vim +539 ~/git/slides-theme-amadeus-neue/example.md  
# Alt+Ret :wq
```



Sliderv

# Our sort of internal CNCF

Connecting brains across our organization... and how Fabrice and Jose met



amADEUS

Communities      Unique Members      Years  
**110**      **6100**      **5**

Amadeus

**Communities of Practice**

*And many more....*

*“As code” automation is great but  
communities will help you  
develop the right ones*



*Download  
the slides !*

Amadeus  
**Engineers**



*We  
appreciate  
feedback!*

# Thank you



@JJAlonso91



@fabricepipart



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NextGenerationEU

Supported by:



Federal Ministry  
for Economic Affairs  
and Climate Action

on the basis of a decision  
by the German Bundestag



# Amadeus Engineers