

Paving the Golden Path for your developers with backstage.io and an Internal Development Platform (IDP)

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Agenda

- ▶ What is an IDP and Golden Path?
- ▶ How do you create an IDP with OpenShift?
- ▶ Demo - project Janus
- ▶ Summary & what's next



What is an IDP and Golden Path?







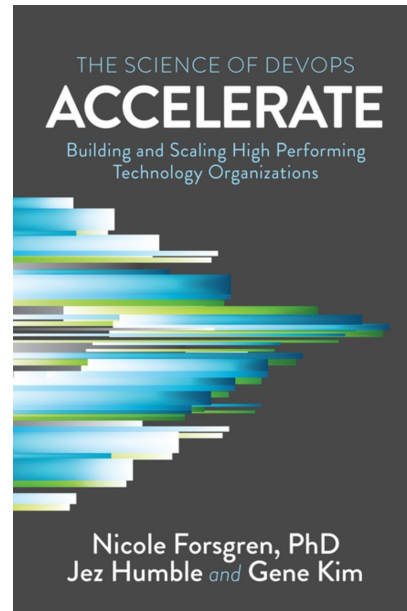
In the new world,
it is not the big fish
which eats the
small fish, it's the
fast fish which
eats the slow fish

Klaus Schwab
Founder and Executive Chairman
World Economic Forum

Drivers and Metrics Driven Transformation (DORA)

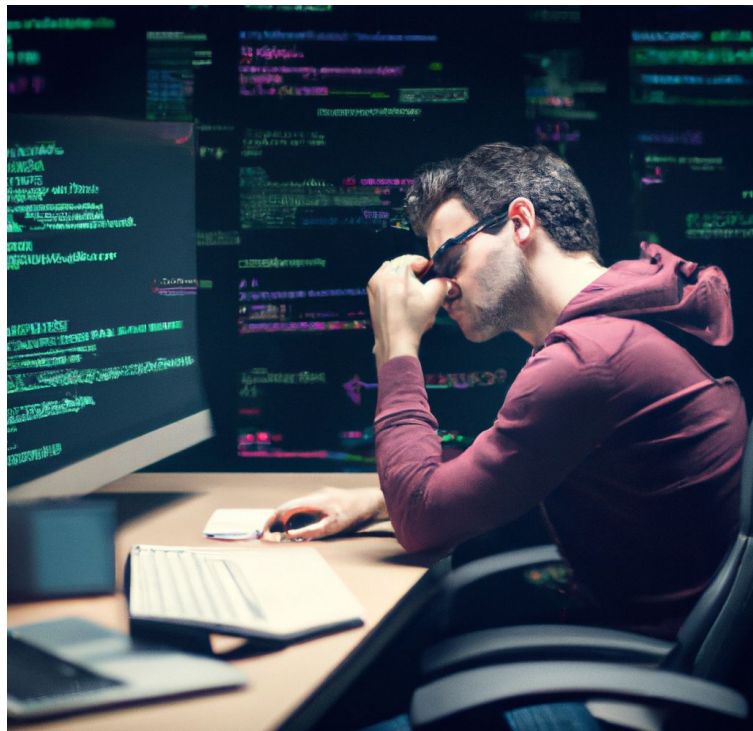
DevOps Research and Assessments Metrics

| |  LEAD TIME FOR CHANGE |  DEPLOYMENT FREQUENCY |  MEAN TIME TO RECOVERY (MTTR) |  CHANGE FAILURE RATE* |
|------|--|--|--|--|
| | Measures of MARKET AGILITY | | Measures of RELIABILITY | |
| WHAT | Time from code committed to deployed to production | Proxy for batch size, how often does an app deploy to production | How long it takes systems to recover from failures in production | Percentage of deployments requiring rollback and/or fixes |
| WHY | Shorter is better. Enables faster feedback cycles and makes you better able to adjust to the marketplace | Indicator of batch size. Smaller batch size leads to more market agility | Critical to ensure that we aren't speeding up delivery at the expense of negative customer impacts | *Secondary indicator of stability |



DORA (DevOps Research and Assessment)

The great DevOps Burnout and Cognitive overload



- ▶ **83%** percent of surveyed developers reported feelings of burnout from high workloads, inefficient processes, and unclear goals and targets
- ▶ **26%** of participants reported working solely on product development, whereas **74%** reported working on operations tasks in some capacity

Internal Developer Platform (IDP) & Golden Path

- ▶ An IDP is built by a **platform team** to enable developer **self-service**
- ▶ Consists of many different technologies and tools **integrated** together
- ▶ Designed to **lower cognitive load** on developers without abstracting away context and underlying technologies
- ▶ Is build, **constantly improved** and maintained following product management principles
- ▶ A Golden Path is an **opinionated and supported** path to build 'something' (e.g. backend service, website, data pipeline)



“Platforms are means of centralizing
expertise while decentralizing
innovation to the customer or user”

Peter Gillard-Moss, Thoughtworks



Pillars of an Internal Development Platform (IDP)

All four pillars must be designed for to achieve excellence.

Onboarding

This includes all the task that a developer needs to do to get his/her team, application, component on the platform

This is the first impression that a developer gets of the platform, usually a leading indicator of the rest of the experience.

Code Time

This includes setting up the coding workstation and the inner loop

A quick workstation setup and fast and reliable inner loop both improve the developer productivity

Build Time

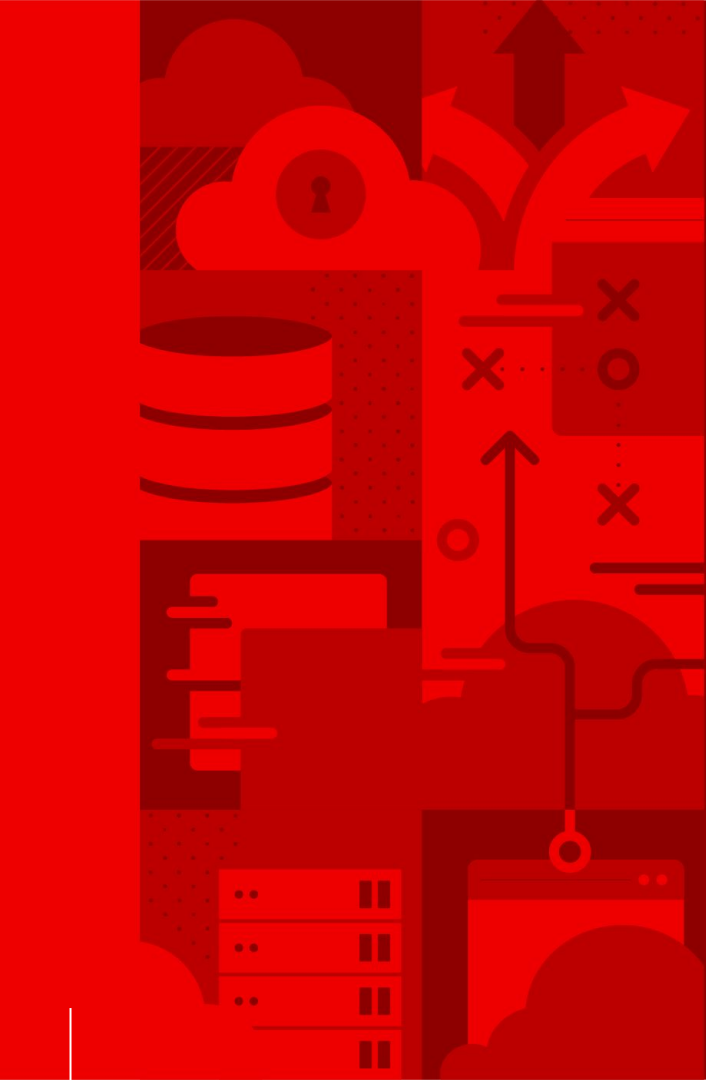
This is basically the ci/cd process that promotes code to production

A reliable and comprehensive ci/cd process is one of the most important factors in team productivity and application reliability.

Run Time

This includes the creation of the infrastructure to run the app and all of the post-production processes (monitoring, incident management)

A self-serviceable and observable infrastructure is what team need to be fully autonomous.

An abstract graphic on the left side of the slide, rendered in various shades of red. It features a vertical stack of server racks at the bottom, a cloud with a keyhole icon, a database cylinder, and several curved arrows pointing upwards and to the right, suggesting a flow or process. There are also some 'X' and 'O' symbols scattered within the graphic.

How do you create an IDP with OpenShift?

Two ways to build a successful platform

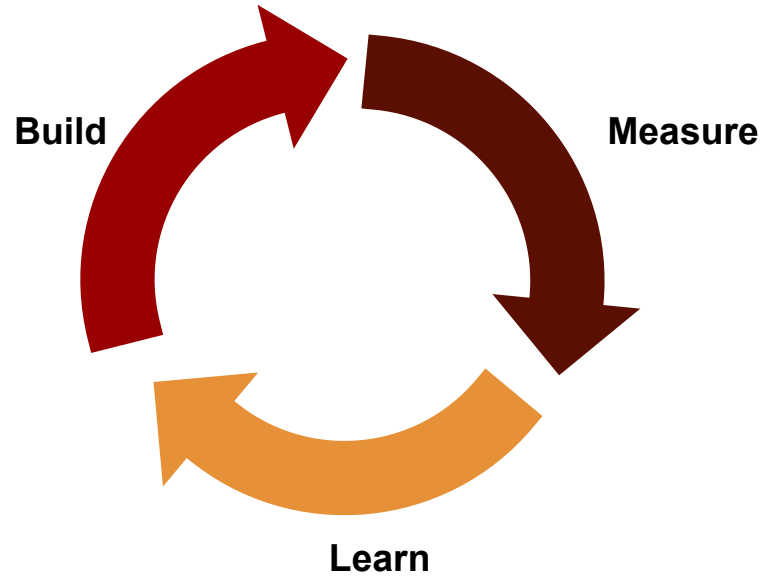
**Be smarter than
everyone else
and anticipate all
their needs**

**Evolve the
platform based
on user needs,
which can be
sensed from
platform usage**

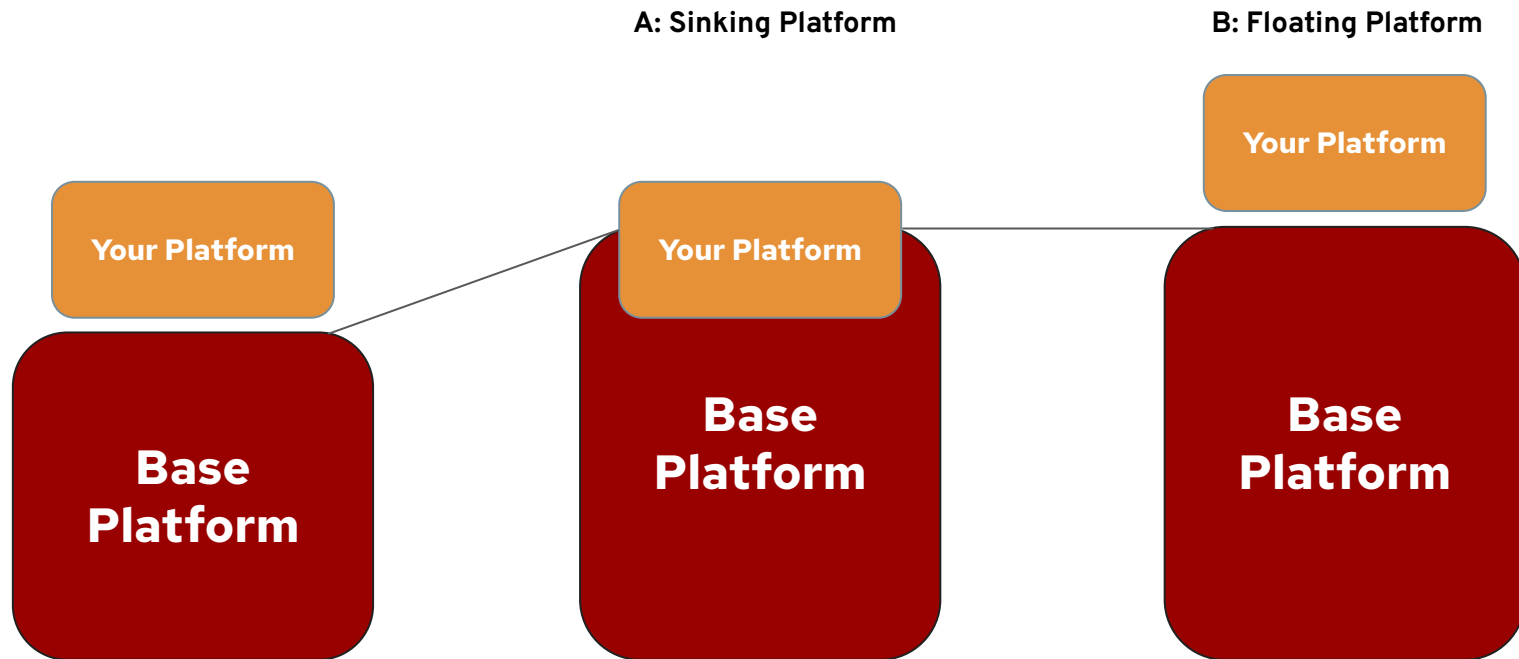
One is more likely than the other...

Gregor Hohpe

Platform evolution



Building a platform: Floating or Sinking



OpenShift Platform - the base platform



Red Hat
Advanced Cluster Management
for Kubernetes

Multicloud management

Observability | Discovery | Policy | Compliance |
Configuration | Workloads



Red Hat
Advanced Cluster Security
for Kubernetes

Cluster security

Declarative security | Container vulnerability
management | Network segmentation |
Threat detection and response



Red Hat
Quay

Global registry

Image management | Security scanning |
Geo-replication Mirroring | Image builds



Red Hat
OpenShift
Data Foundation

Cluster data management

RWO, RWX, Object | Efficiency |
Performance | Security | Backup |
DR Multicloud gateway

Manage workloads

Platform services

- Service mesh | Serverless
- Builds | CI/CD pipelines
- GitOps | Distributed Tracing
- Log management
- Cost management

Build cloud-native apps

Application services

- Languages and runtimes
- API management
- Integration
- Messaging

Data-driven insights

Data services

- Databases | Cache
- Data ingest and preparation
- Data analytics
- AI/ML

Developer productivity

Developer services

- Developer CLI | IDE
- Plugins and extensions
- CodeReady workspaces
- CodeReady containers

Kubernetes cluster services

Install | Over-the-air updates | Networking | Ingress | Storage | Monitoring | Log forwarding | Registry | Authorization | Containers | VMs | Operators | Helm

Kubernetes (orchestration)



Red Hat
Enterprise Linux

Linux (container host operating system)



Red Hat
Enterprise Linux
CoreOS



Physical



Virtual



Private cloud



Public cloud



Edge



Red Hat

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)



Red Hat Summit

AnsibleFest

See all automation-related sessions available May 23-25.

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Red Hat joins the Backstage.io community

October 24, 2022



[Helm, Kubernetes, Operators, Open Source](#)




Serena Chechile Nichols
Senior Principal Product Manager, OpenShift Developer Tooling, Distinguished Engineer

The concept of platform engineering and the end-to-end developer experience is a burgeoning topic industry wide. Building an IdP (Internal Developer Portal) is extremely complex. This topic is new for many, and there are still a lot of unknowns regarding how to evolve an organization that has no, or a low, concept of internal platforms.

Enter [Backstage](#). Backstage is an [open source](#) framework for building developer portals donated to the Cloud Native Computing Foundation by Spotify. Backstage has a vibrant ecosystem that development teams successfully use to streamline and rapidly onboard applications. It provides a portal into an internal developer platform by delivering an application catalog that can aggregate several sources of information regarding applications.

Backstage is becoming a standard for developer scaffolding. Building this type of platform to fit into your environment is both complex and time consuming. Knowledge around Backstage is still hard to find. Organizations are looking for a standardized approach on how to implement and adopt Backstage. We have seen an increased interest in Backstage by our Red Hat customers. We have a number of consulting engagements targeting building IdPs and implementing Backstage, which will allow



Recent Articles

[Why service mesh and API management are better together](#)

[How to add public Ingress to a PrivateLink ROSA cluster](#)

[Optimize container images for NGINX and Apache HTTPd](#)

[How to debug OpenShift operators](#)

An open platform for building developer portals



<http://backstage.io>

Allowing developers to focus on what they want to ... coding, rather than navigating to all the different tools

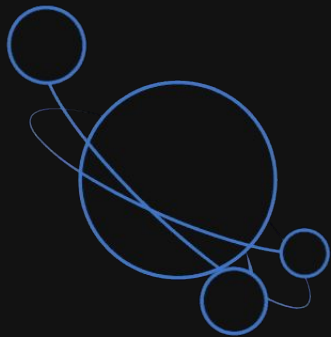
Resulting in lowering the cognitive load and unlocking developer productivity

Happy developers makes happy code!

Core features:

- Centralized Software Catalog
- Plugins
- Software templates
- Tech Docs
- Search

**What is
Backstage?**



Backstage lets any developer:

- ❑ **Create** new software in seconds, aligned to your best practices
- ❑ **Manage** all the software they own in one centralized location
- ❑ **Explore** the entire software ecosystem, enabling collaboration across your org



But the front-end is just the tip of the iceberg. A developer platform is usually a complex integration between several diverse systems.

The front-end is the developer's first impression, so it is important, but making a useful IDP involves lots of coordination under the surface.

Where are we investing?



Backstage Core



Charts



Best practices

Custom actions



Plugins



Charts

Sample Golden Path Templates

Showcase Application

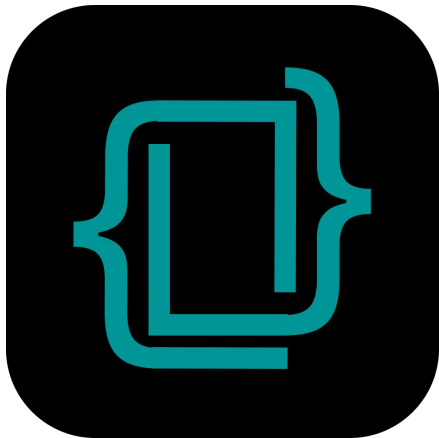


Enterprise support

Red Hat build and distribution of Backstage core & selected plugins

Project Janus

Community plugins



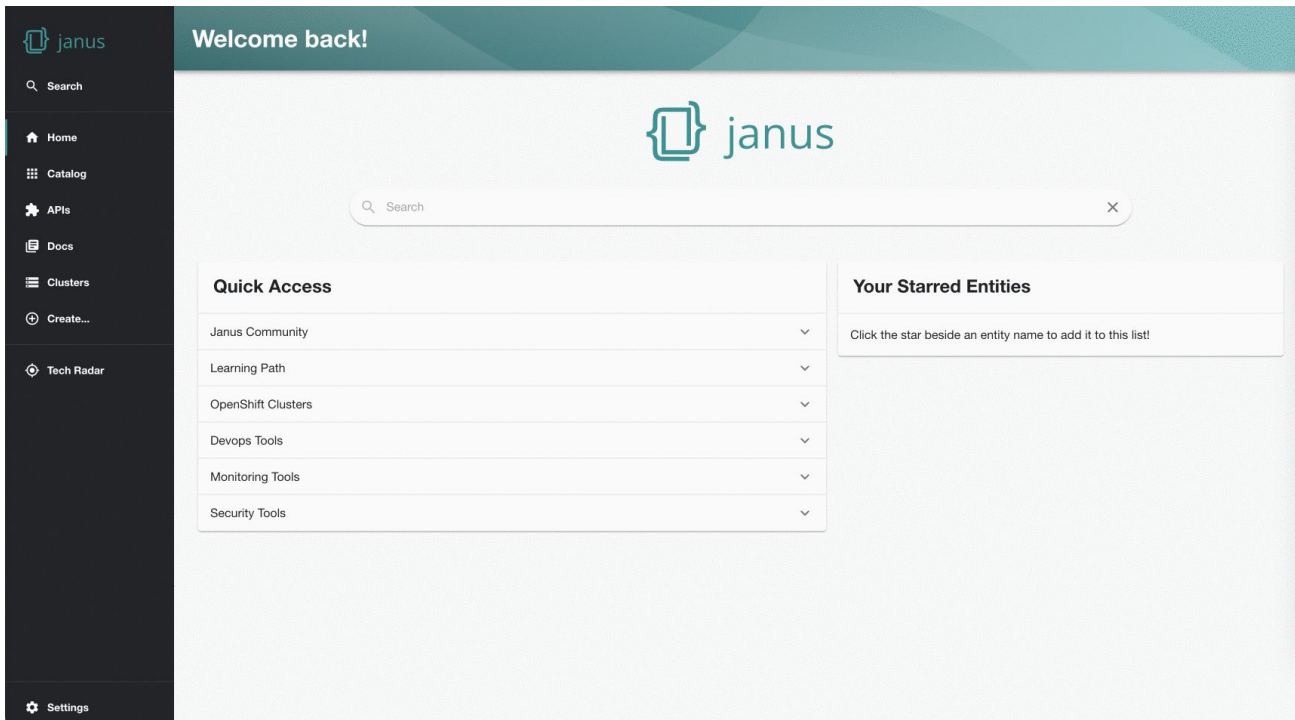
Available in Q2 2023

- Topology *
- Tekton
- Argo (enhancing the existing Roadie plugin)
- Artifactory *
- Keycloak plugin *
- Multi cluster plugin *
- Quay/OCI Image registry *
- 3scale *

* Plugins available today [here](#)

Project Janus

Janus Showcase Application



<https://showcase.janus-idp.io/>

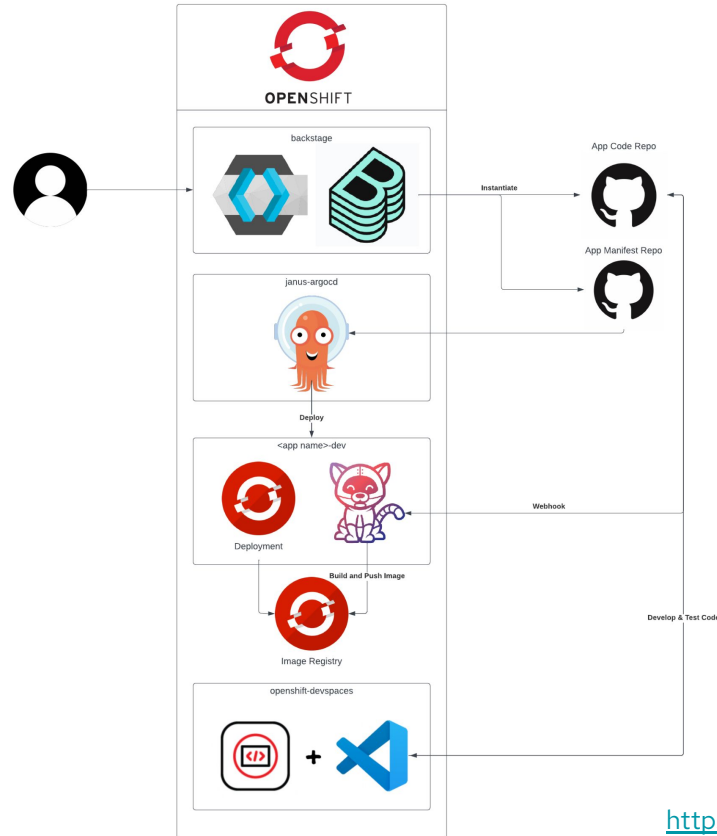


Demo

Demo overview

1. Backstage/Janus UI walkthrough
2. Create an application using a template
3. Make an update to the application
4. Build the application using OpenShift Pipelines
5. Deploy the application using OpenShift GitOps (ArgoCD)

Demo architecture



<https://showcase.janus-idp.io/>

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t@redhat.com

Summary & What's next

Janus community

Want to learn more?



www.github.com/janus-idp



janus-idp.slack.com - [Invite](#) to our community Slack workspace



<https://groups.google.com/g/janus-idp-community>



Join our bi weekly community calls! [Community calendar](#)

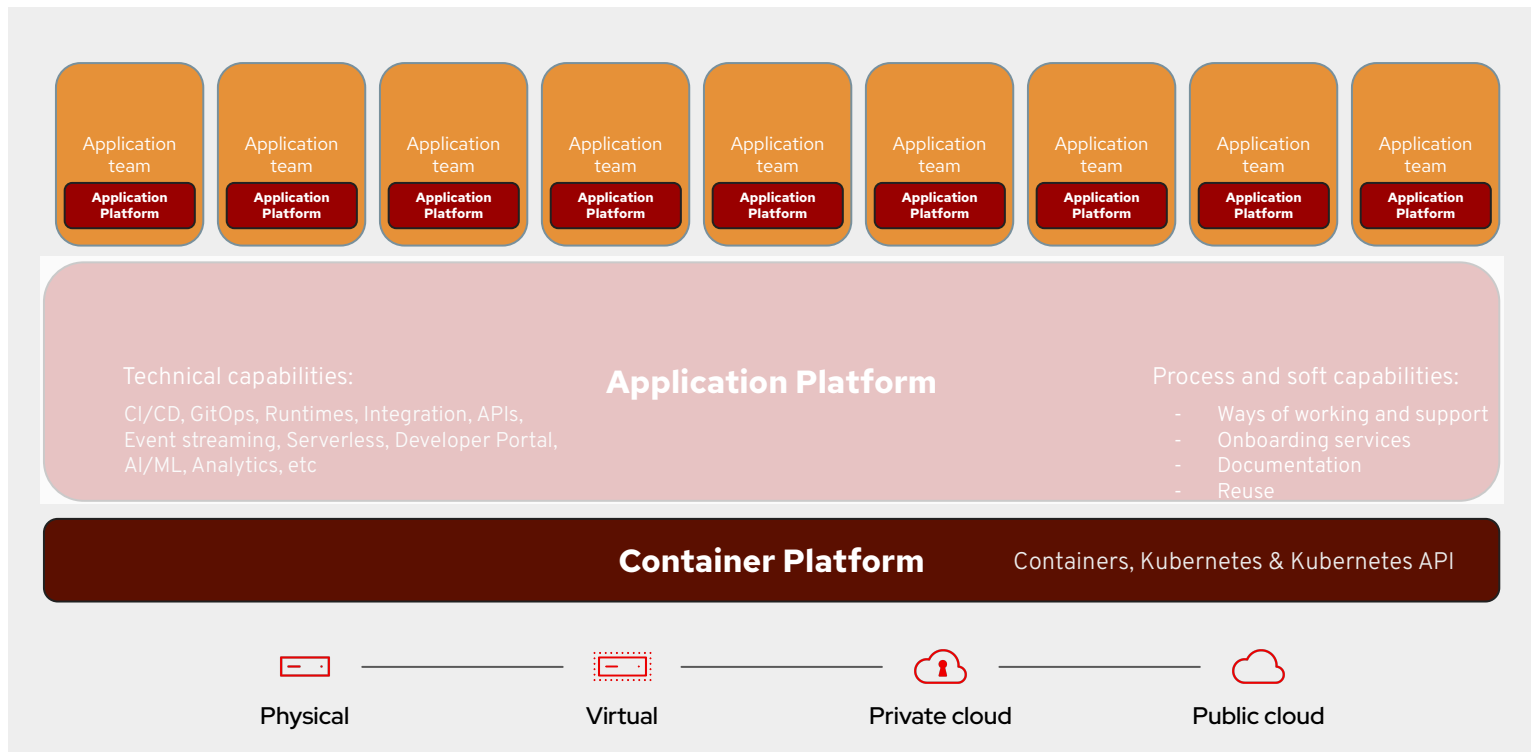


Community site: <https://janus-idp.io>

Showcase application: <https://showcase.janus-idp.io/>

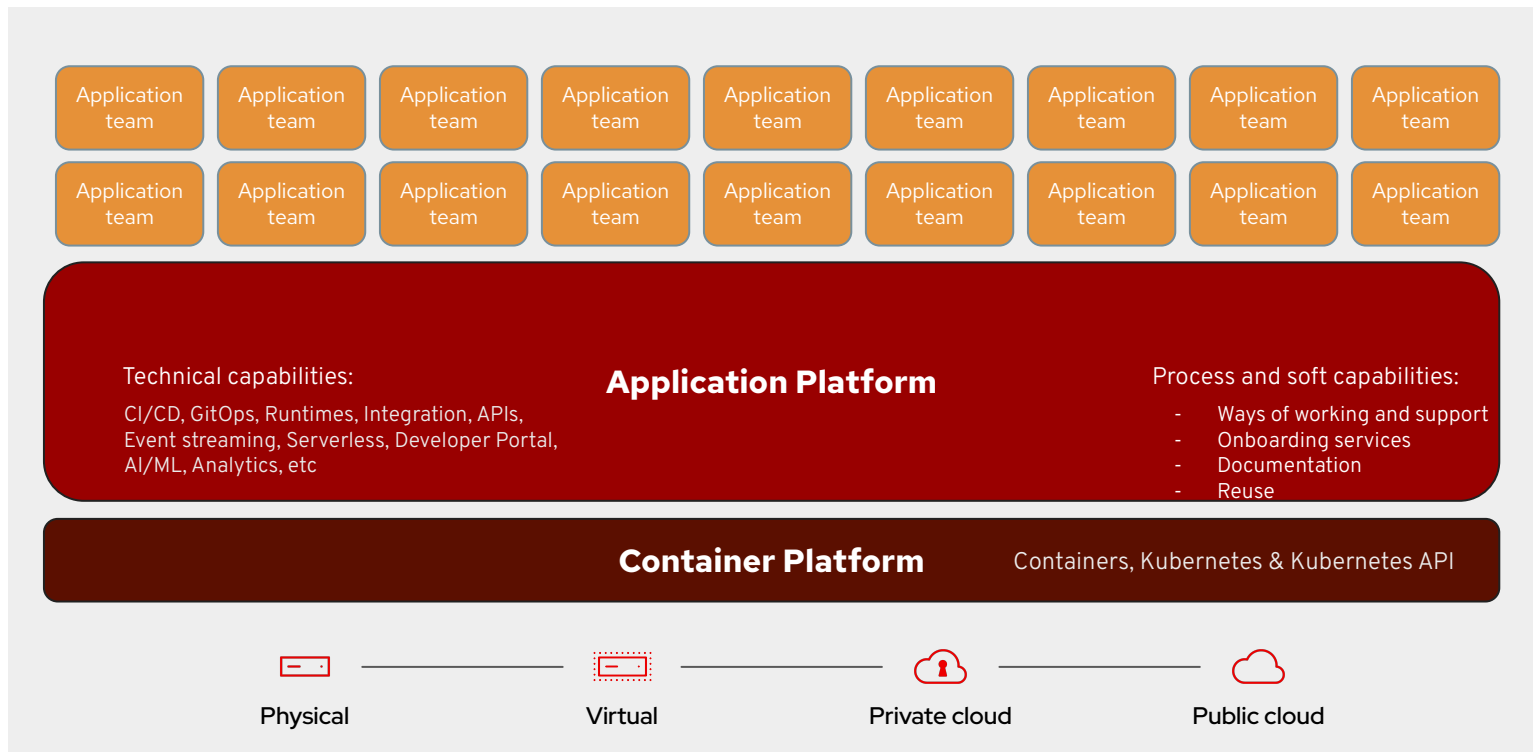
Application and Platform model - (non optimal use)

- Decentralized and not standardised across teams



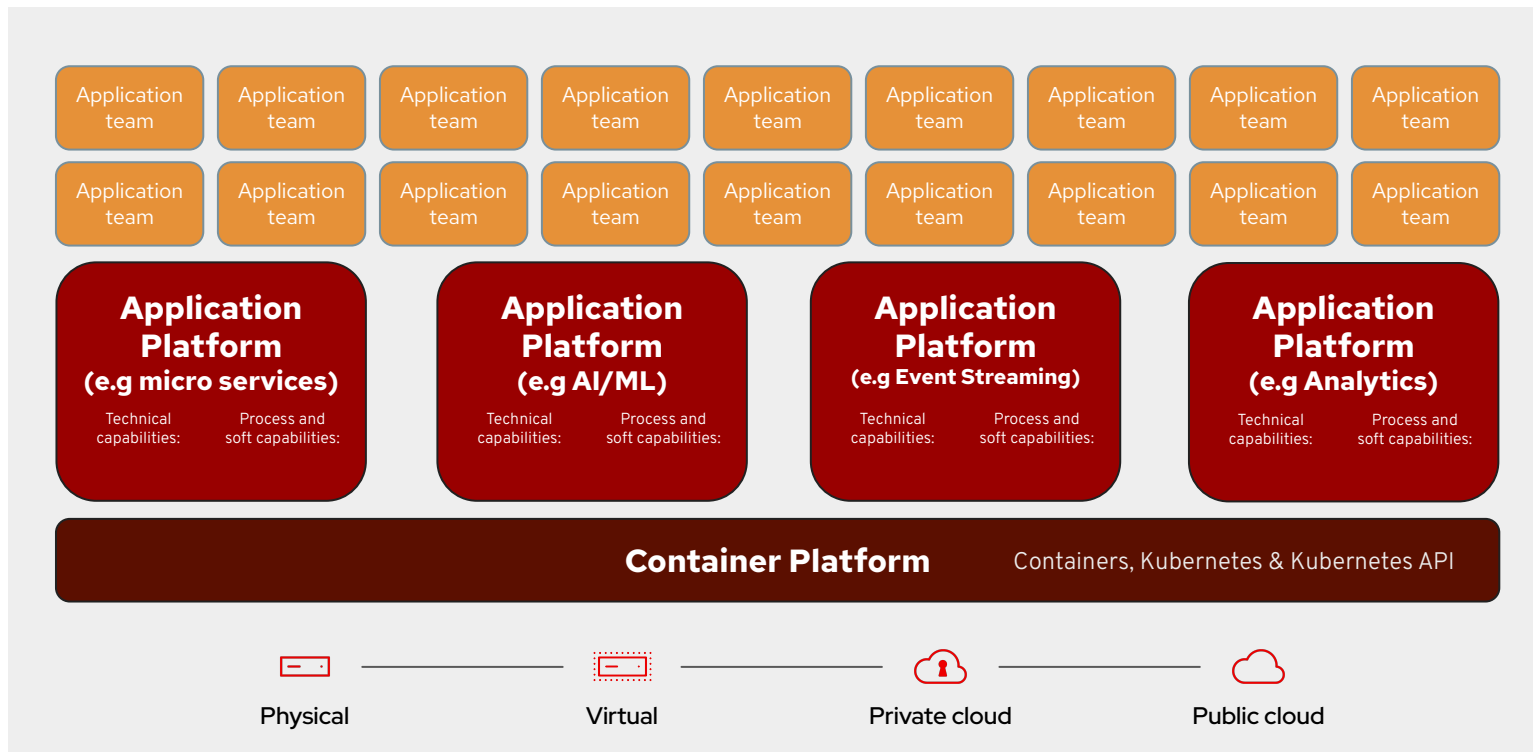
Application and Platform model

- Centralized and standardized innovation, multiple teams onboarded to the platform



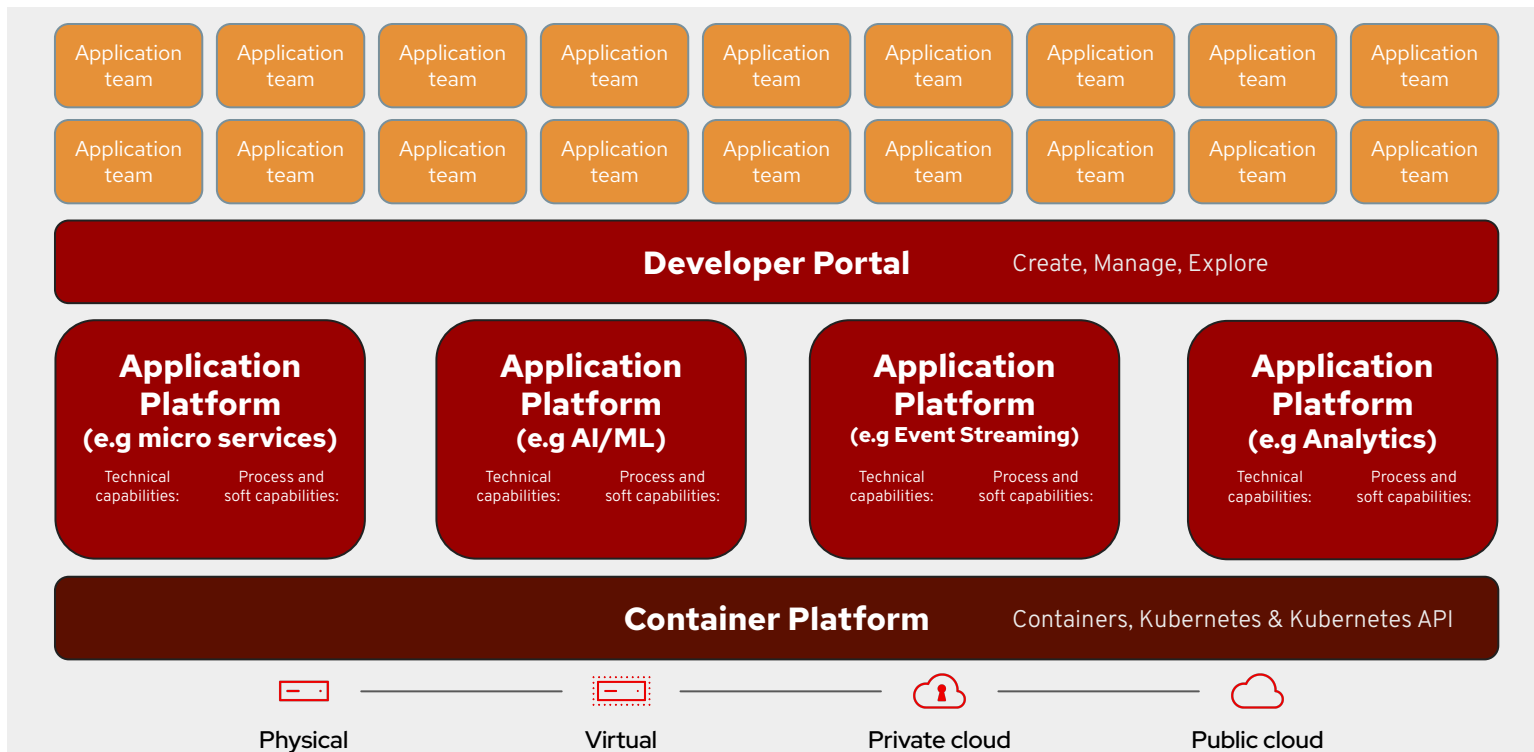
Application and Platform model

- Multiple platforms covering specific technology domains



Application and Platform model

- A developer portal unifies the developer experience to use the platforms



Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



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