

# 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?
- ▶ Demo - project Janus
- ▶ Summary & what's next

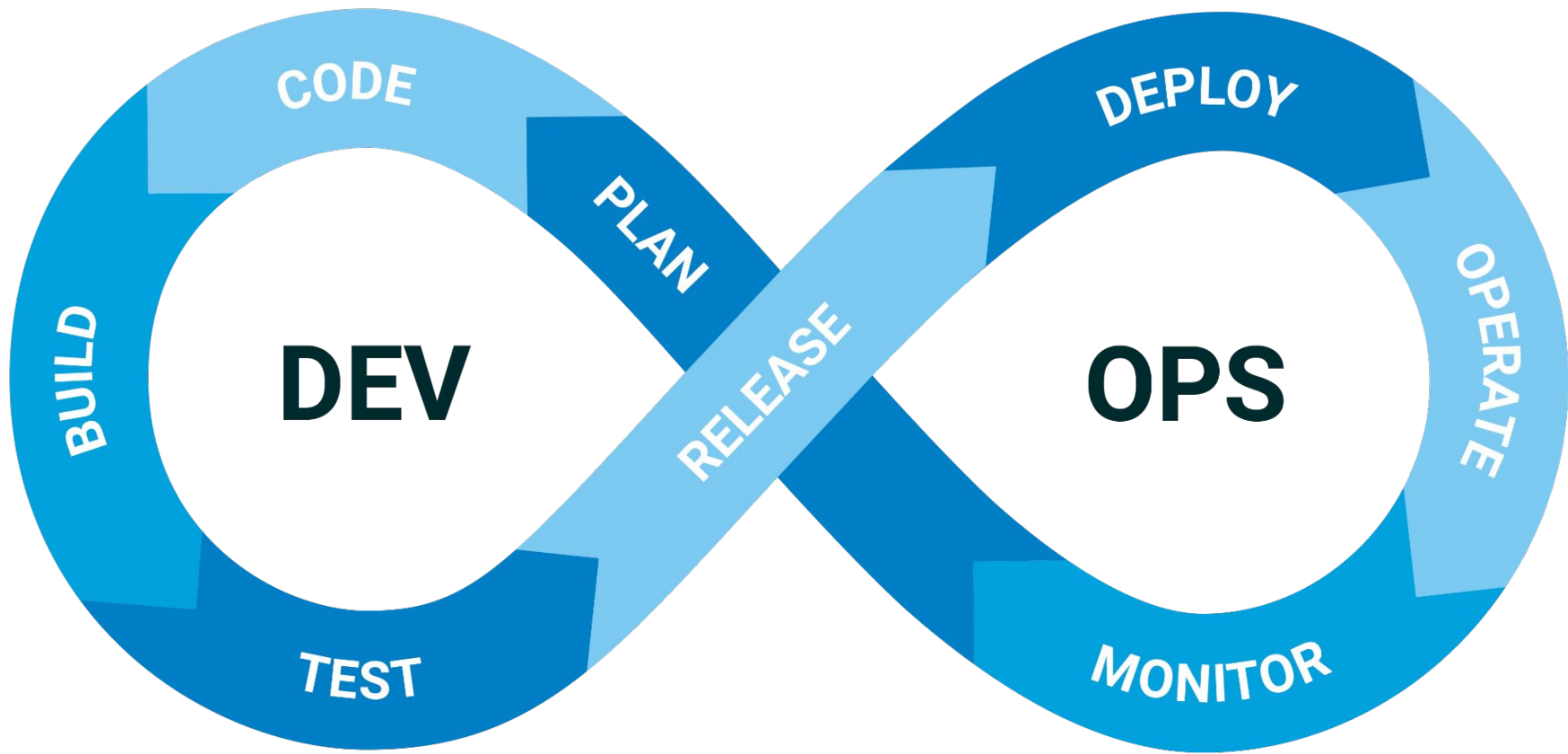


# What is an IDP and Golden Path?







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

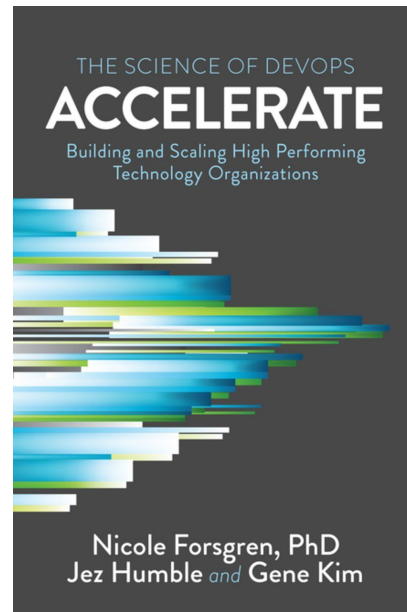
Klaus Schwab  
Founder and Executive Chairman  
World Economic Forum



# Drivers and Metrics Driven Transformation (DORA)

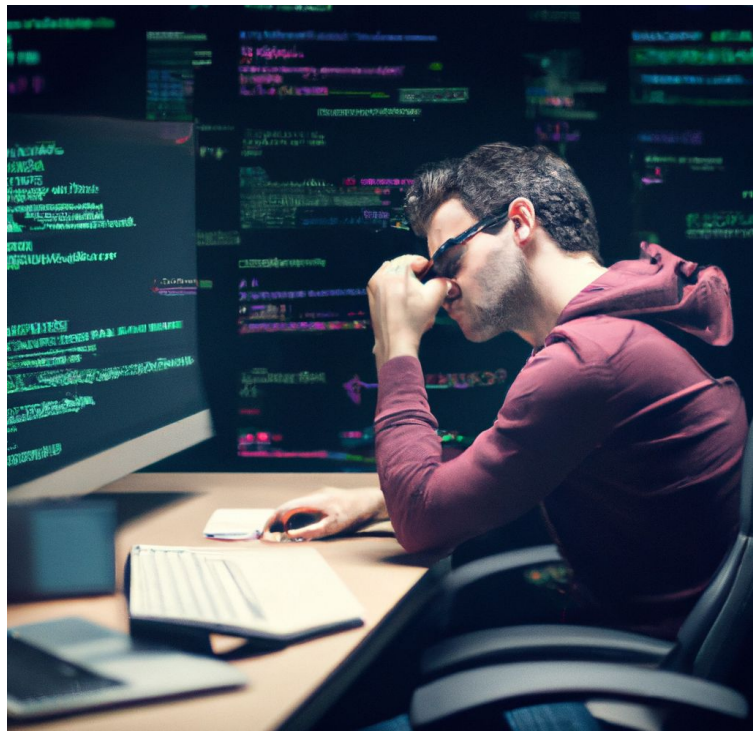
DevOps Research and Assessments Metrics

	 <b>LEAD TIME FOR CHANGE</b>	 <b>DEPLOYMENT FREQUENCY</b>	 <b>MEAN TIME TO RECOVERY (MTTR)</b>	 <b>CHANGE FAILURE RATE*</b>
	Measures of <b>MARKET AGILITY</b>		Measures of <b>RELIABILITY</b>	
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 built, **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.



# How do you create an IDP?

## Two ways to build a successful platform

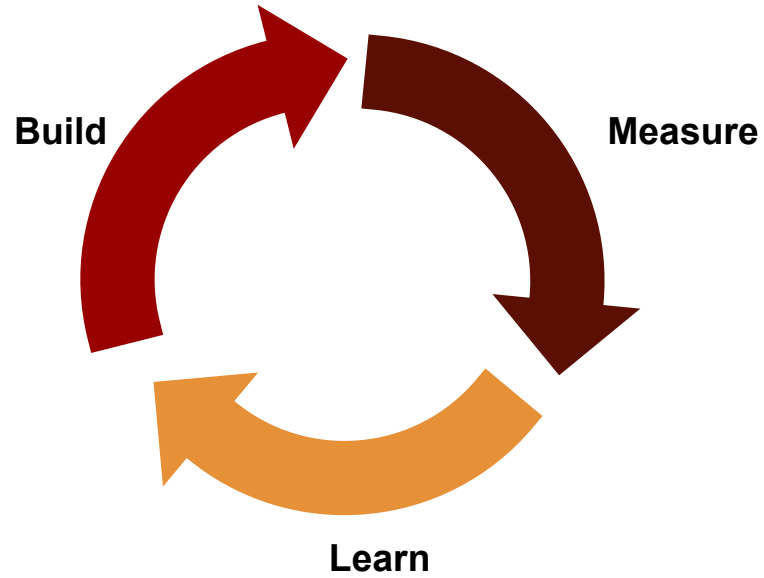
**Be smarter than  
everyone else  
and anticipate all  
their needs**

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

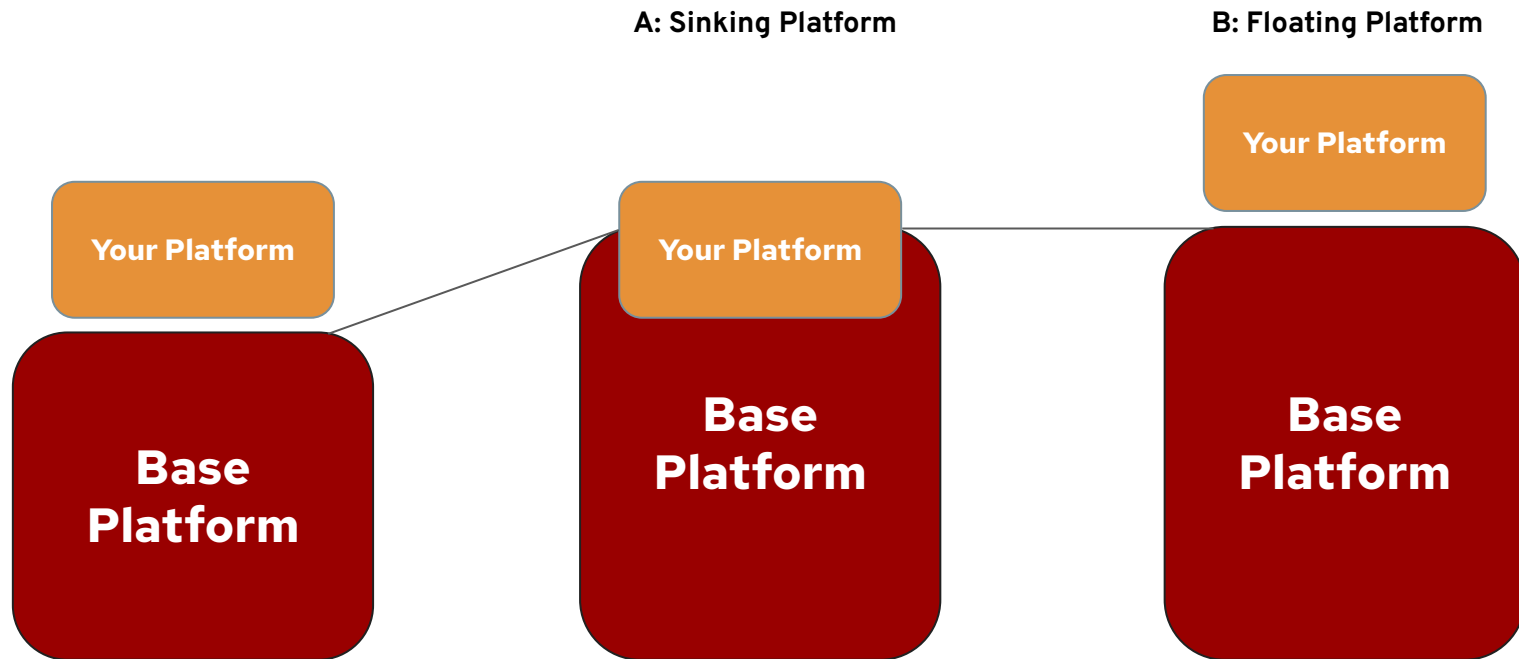
One is more likely than the other...

Gregor Hohpe

# Platform evolution



# Building a platform: Floating or Sinking





# 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

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[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



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Press releases > Red Hat Unveils Red Hat Developer Hub to Help Fuel Developer Productivity

# Red Hat Unveils Red Hat Developer Hub to Help Fuel Developer Productivity

The internal developer portal standardizes the developer experience, providing an internally-curated and managed set of tools and deployment paths to help deliver software faster and more efficiently

BOSTON – RED HAT SUMMIT - May 23, 2023 – Red Hat, Inc., the world's leading provider of open source solutions, today announced [Red Hat Developer Hub](#), a enterprise-grade, unified and open portal designed to streamline the development process through a supported and opinionated framework. Crafted from the CNCF incubating open source project [Backstage](#), the

IN SHORT

Red Hat Developer Hub, and the

# 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*

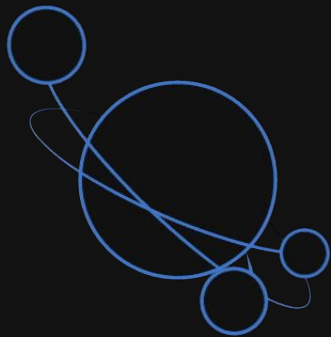
*Resulting in lowering the cognitive load and unlocking developer productivity*

*Happy developers makes happy code!*

## **Core features:**

- Software templates
- Centralized Software Catalog
- Plugins
- 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

# Where is Red Hat investing?



Upstream

Backstage Core



Charts



Midstream

Best practices

Custom actions



Plugins



Charts

Sample Golden Path Templates

Showcase Application



**Red Hat**  
Developer Hub

Downstream

Enterprise grade, self-managed and fully supported

Red Hat build and distribution of Backstage core & selected plugins

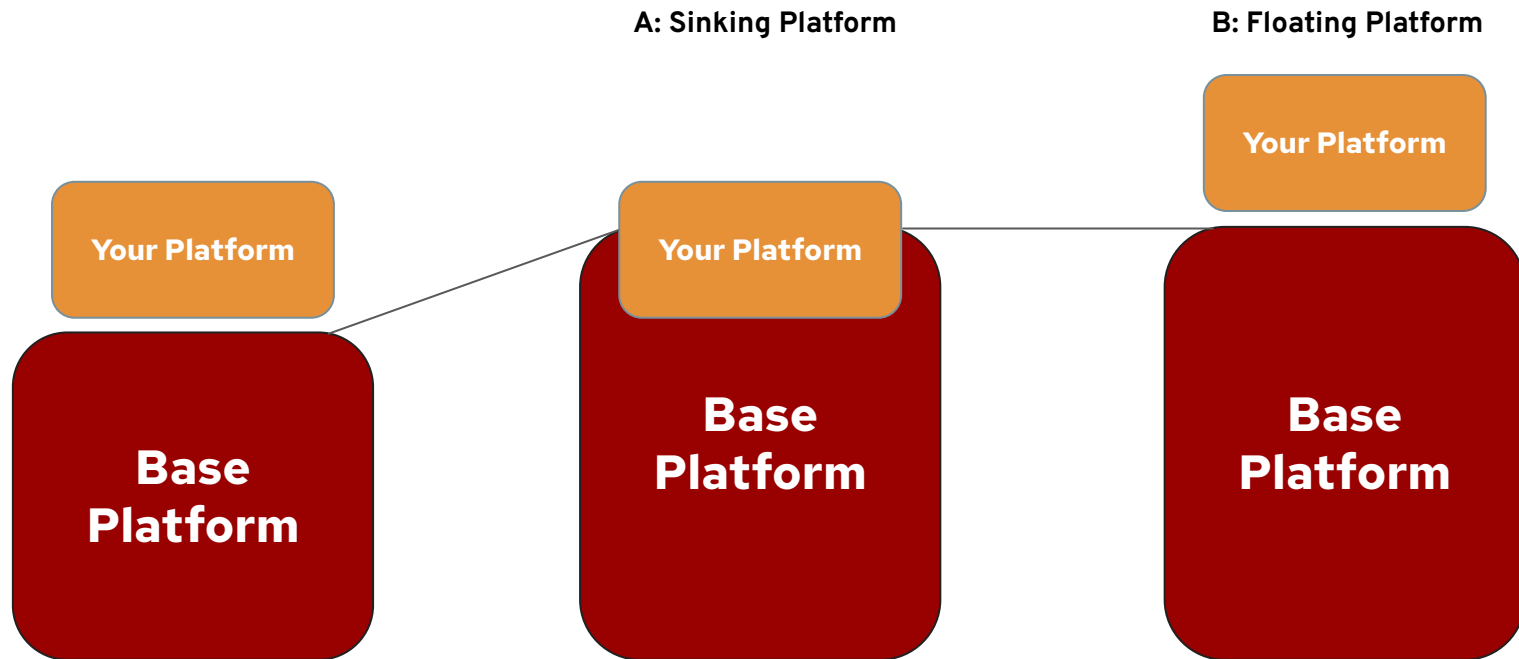




But the front-end is just the tip of the iceberg. A developer platform is usually a complex integration between several diverse systems.

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.

# 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

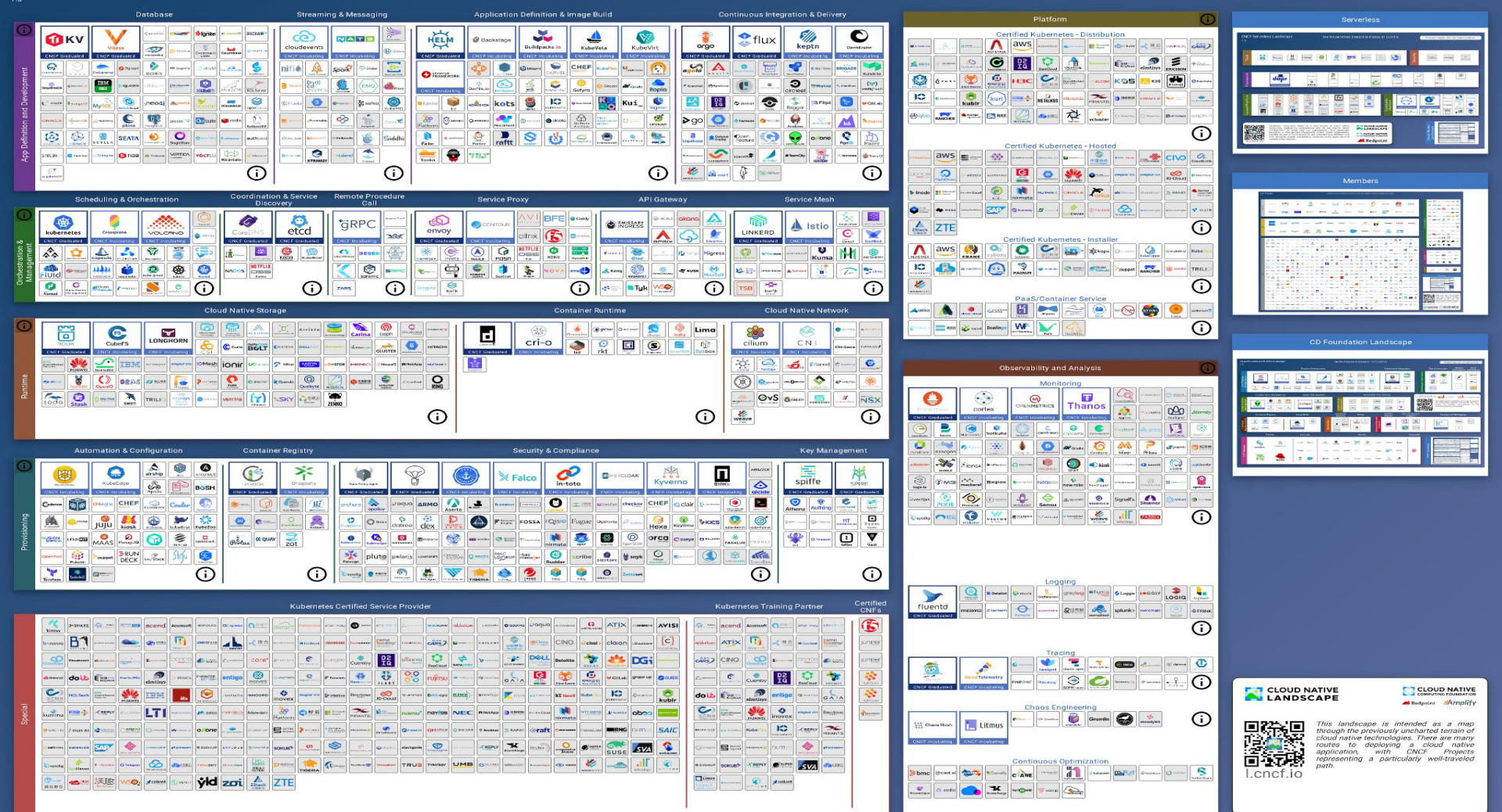


Edge



**Red Hat**





# Project Janus

## Community plugins



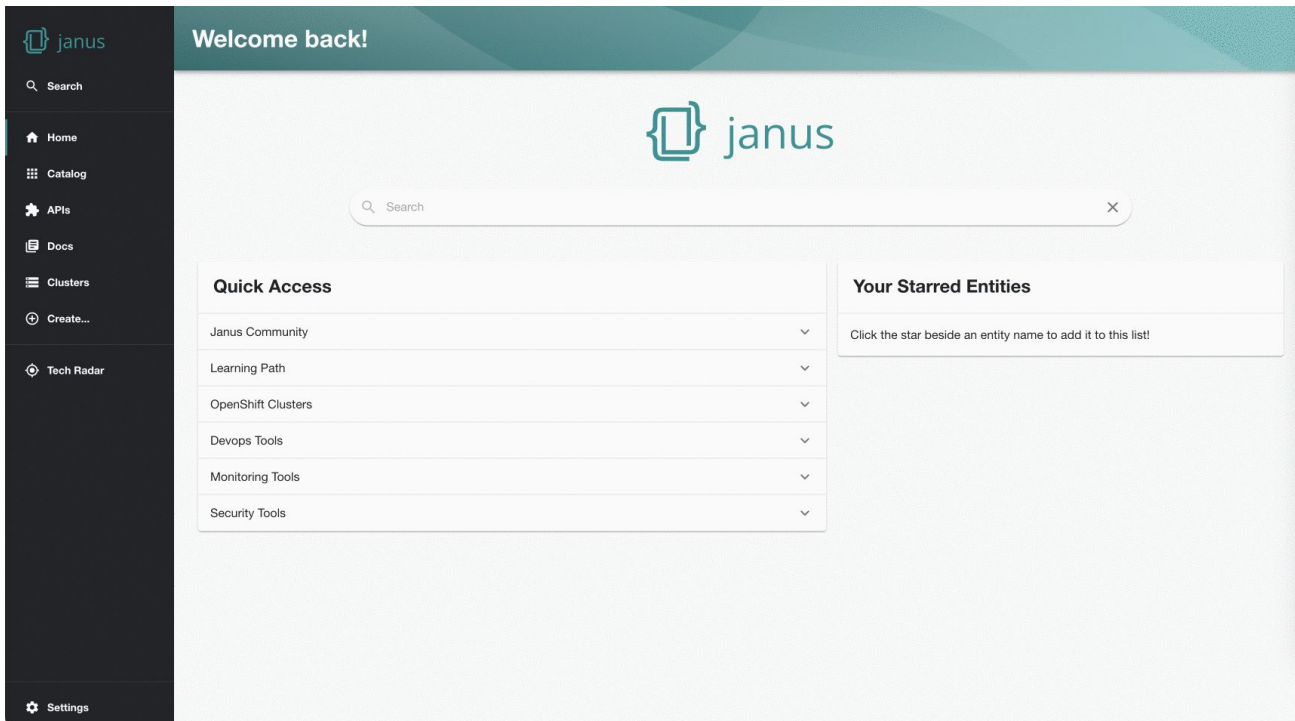
### Available in Q2 2023

- 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/>



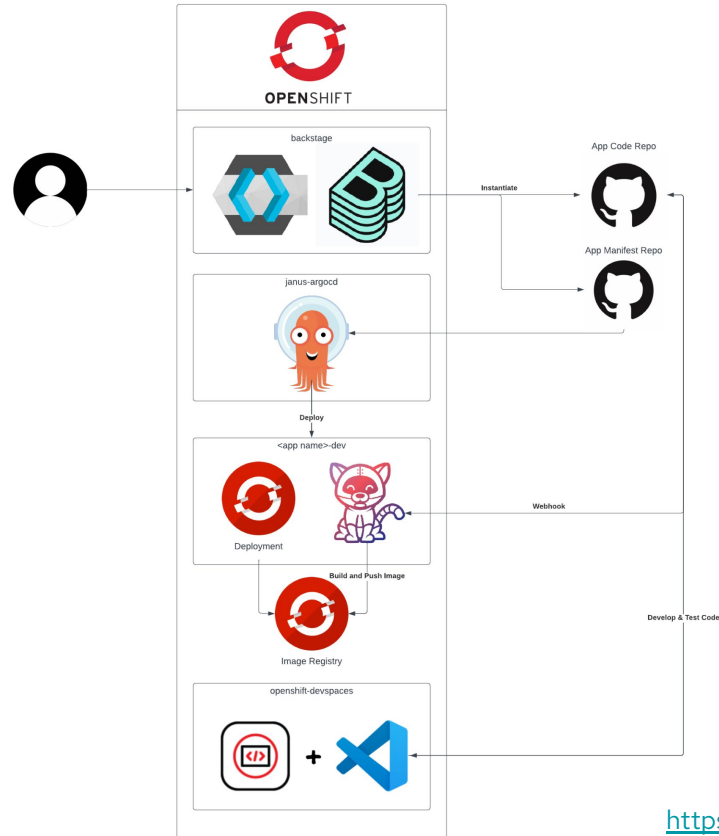
# Demo



# 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



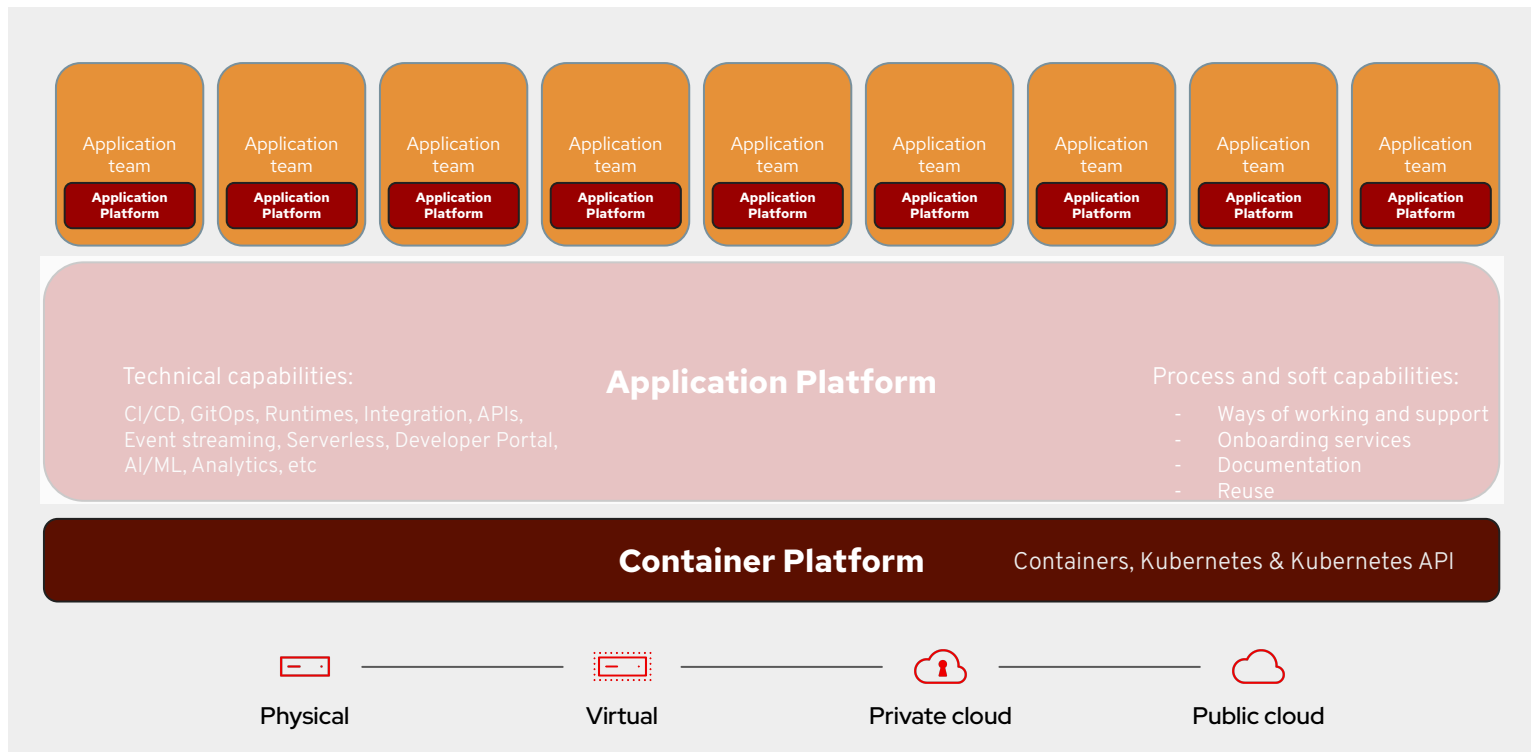
<https://showcase.janus-idp.io/>



# Summary & What's next

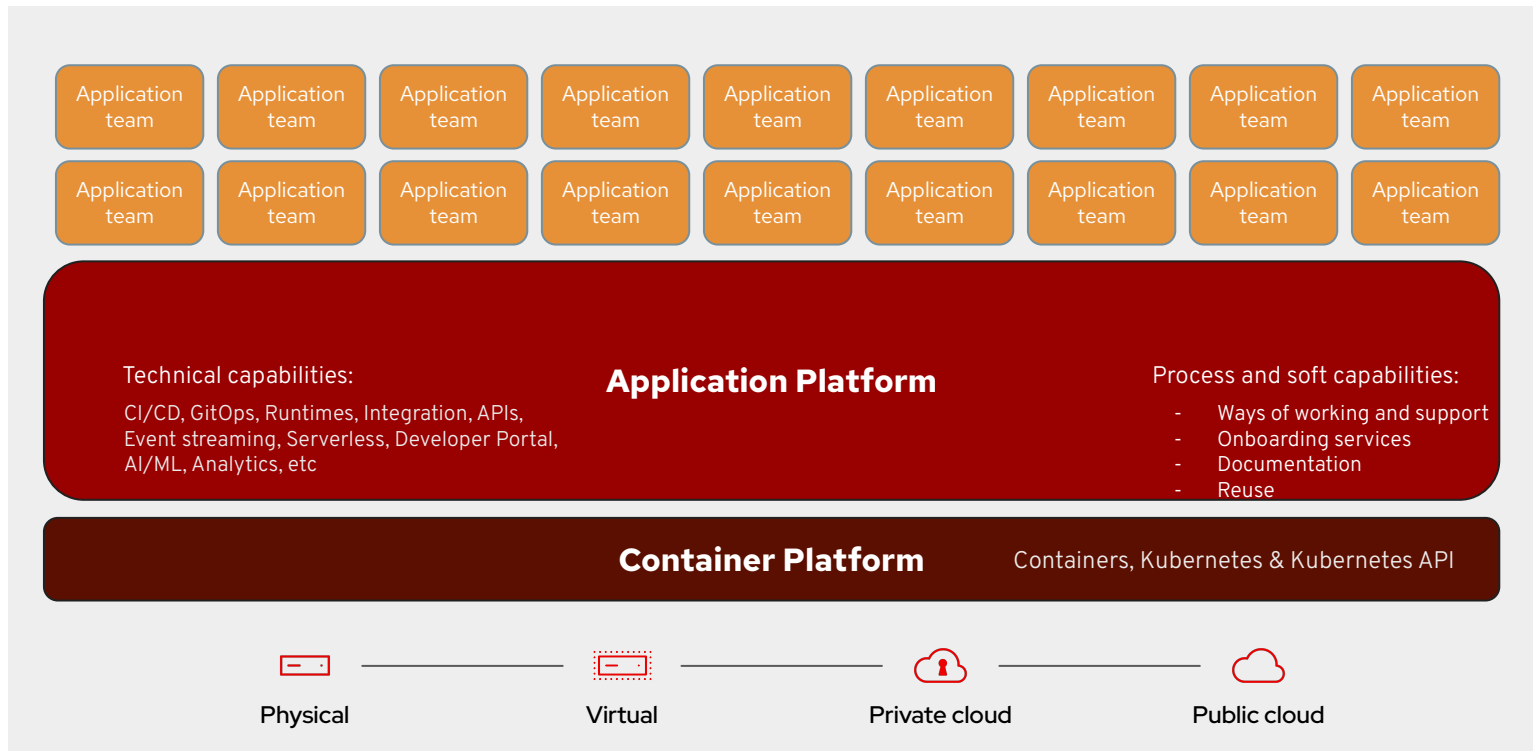
# Application and Platform model - (non optimal use)

- Decentralized and not standardised across teams



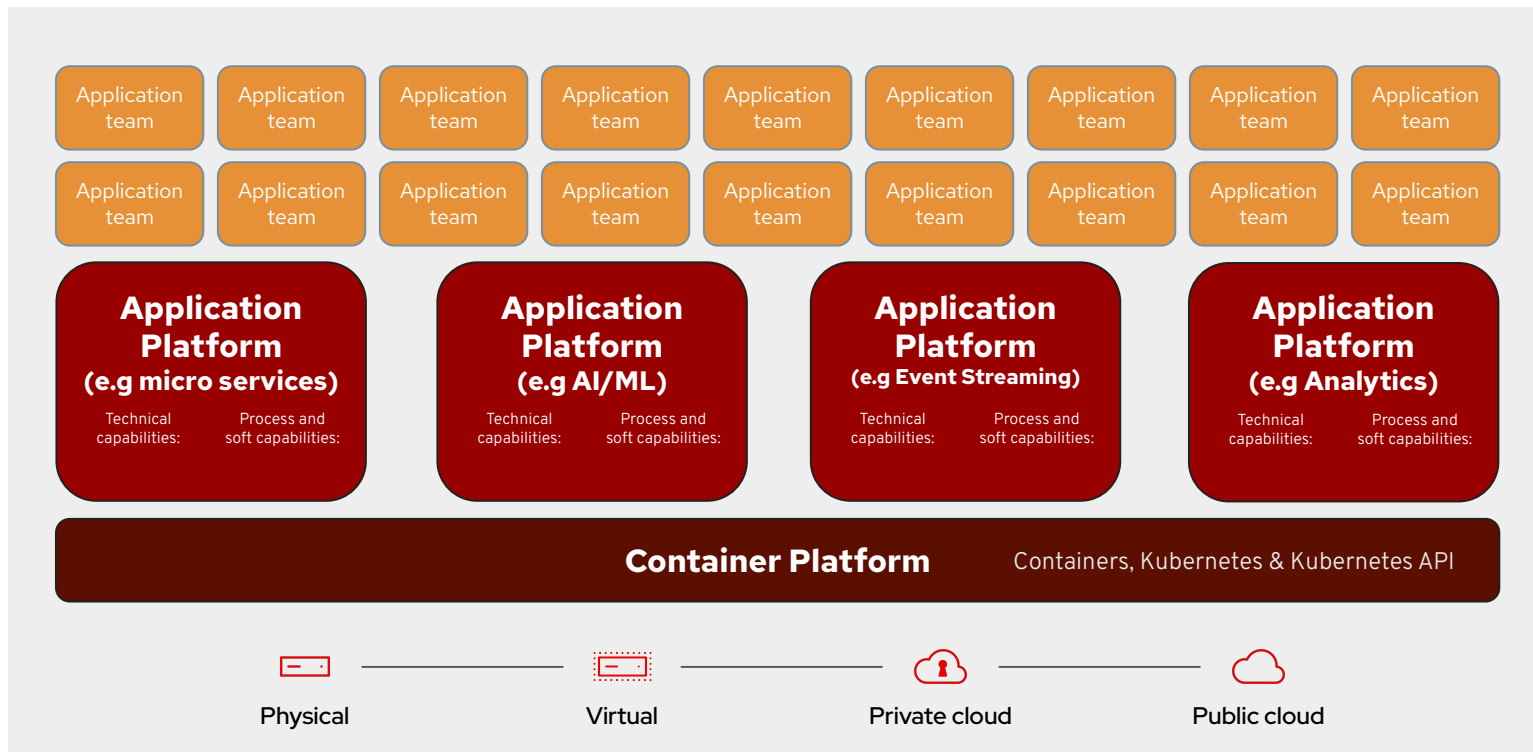
# Application and Platform model

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



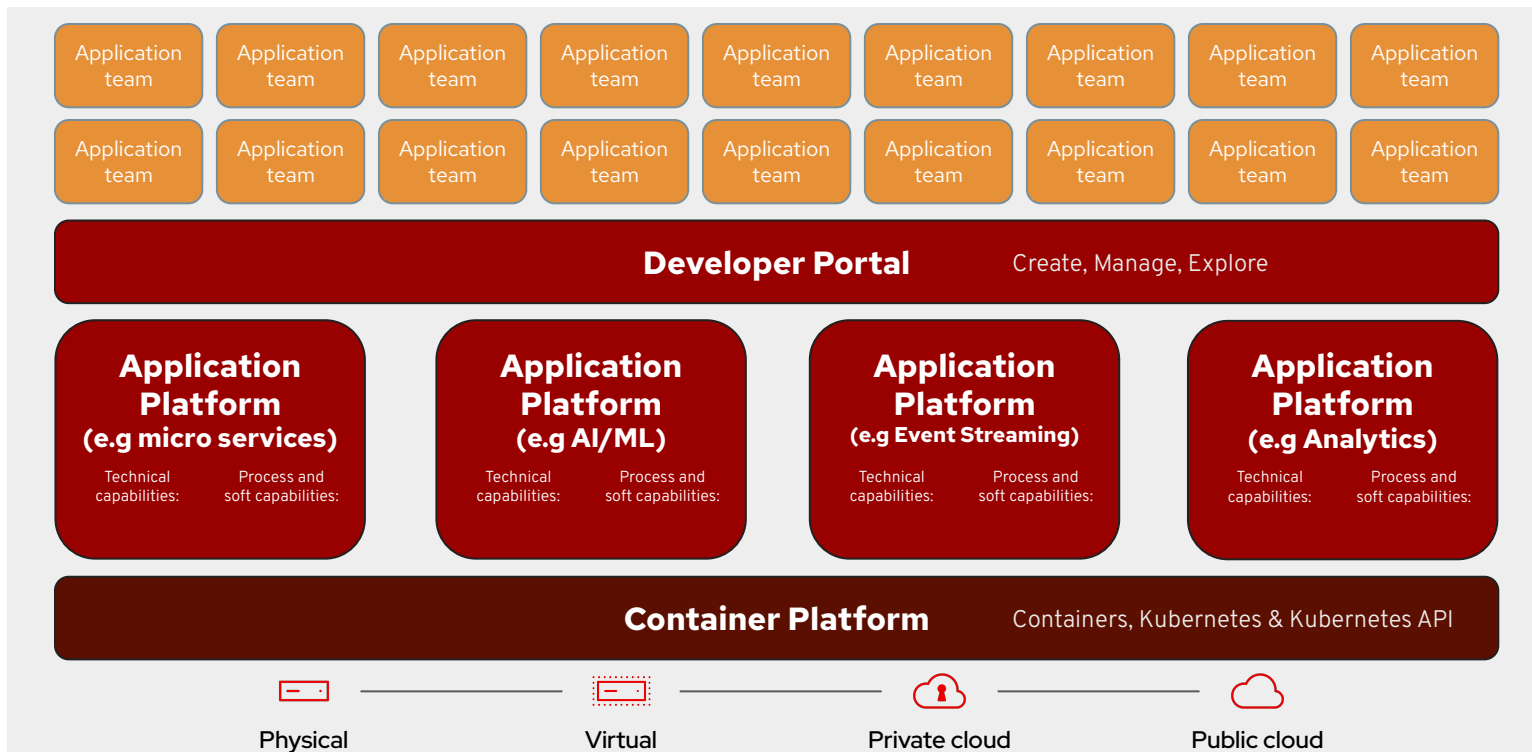
# Application and Platform model

- Multiple platforms covering specific technology domains



# Application and Platform model

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





# Janus community

Want to learn more?



[www.github.com/janus-idp](https://www.github.com/janus-idp)



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



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



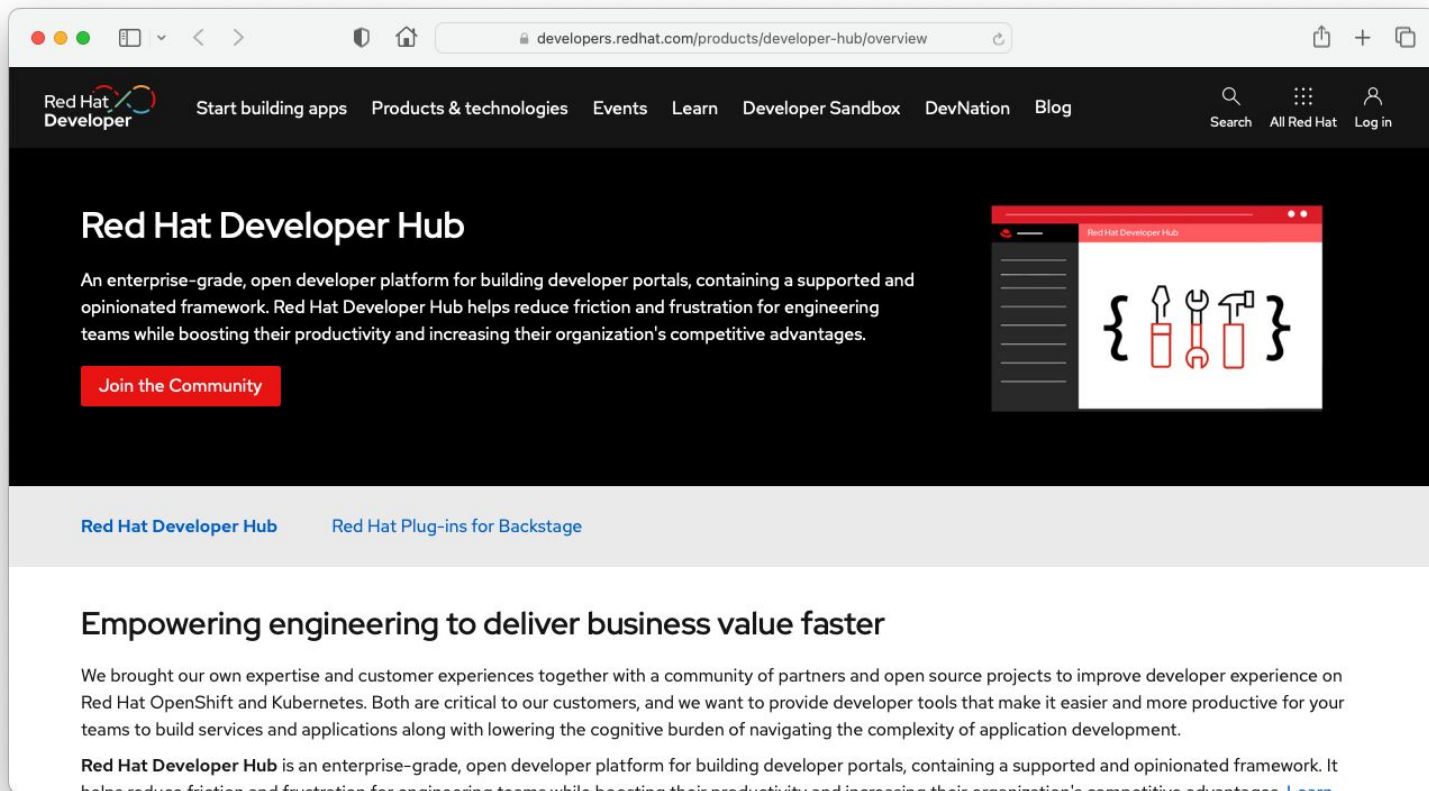
Join our bi weekly community calls! [Community calendar](#)



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

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

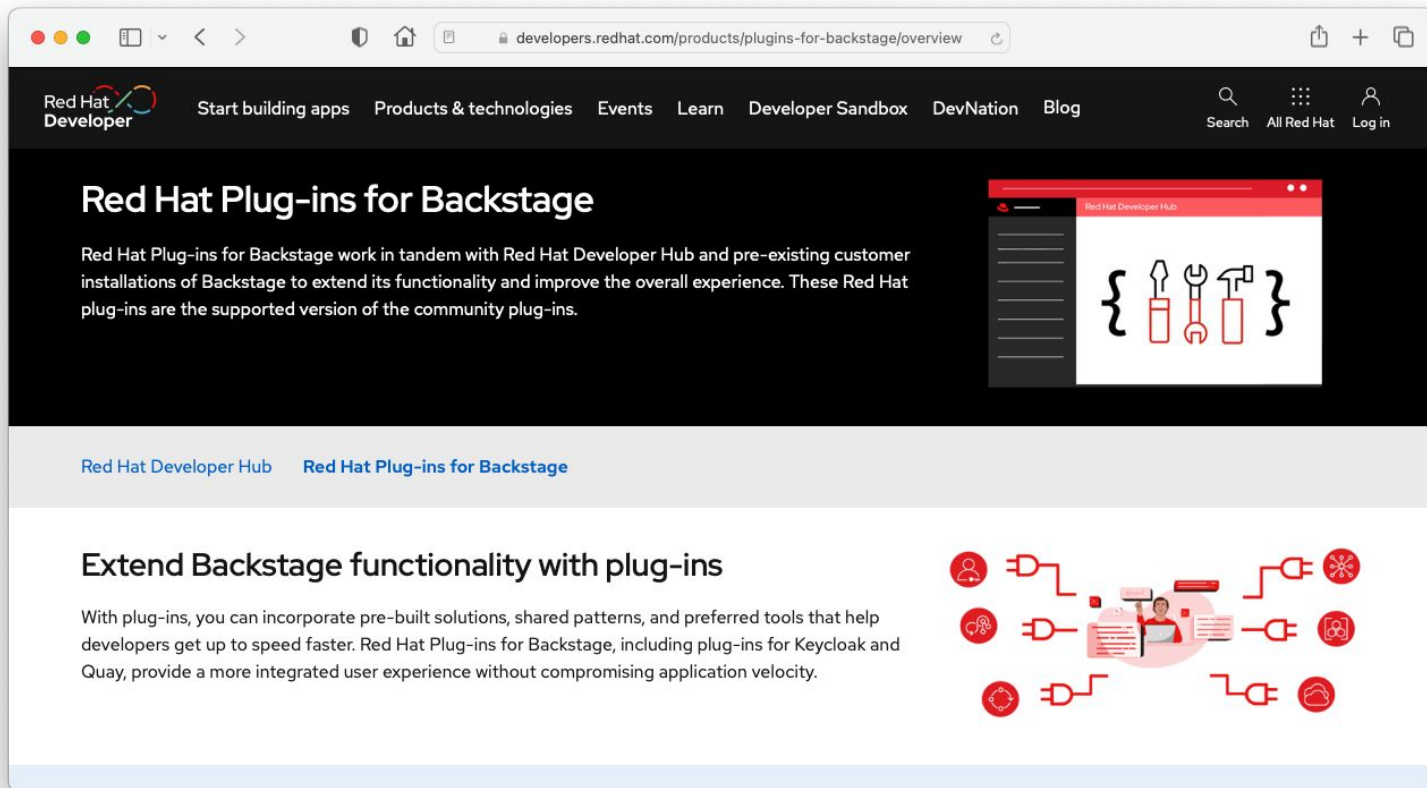
# Red Hat Developer Hub



<https://developers.redhat.com/products/developer-hub/overview>



# Red Hat Plug-ins for Backstage



The screenshot shows a web browser window with the URL `developers.redhat.com/products/plugins-for-backstage/overview`. The page features a dark header with the Red Hat Developer logo and navigation links: 'Start building apps', 'Products & technologies', 'Events', 'Learn', 'Developer Sandbox', 'DevNation', and 'Blog'. On the right of the header are search, 'All Red Hat', and 'Log in' options. The main content area has a dark background with the title 'Red Hat Plug-ins for Backstage' and a paragraph explaining that these plug-ins work with Red Hat Developer Hub and Backstage to extend functionality. To the right of the text is a small image of a 'Red Hat Developer Hub' window showing a code editor with a diagram of a person, a wrench, and a hammer. Below this, a light gray bar contains links for 'Red Hat Developer Hub' and 'Red Hat Plug-ins for Backstage'. The lower section, titled 'Extend Backstage functionality with plug-ins', describes how plug-ins incorporate pre-built solutions and tools like Keycloak and Quay. To the right of this text is a diagram showing a central figure surrounded by various red icons representing different tools and services connected by lines.

Red Hat Developer Hub

## Red Hat Plug-ins for Backstage

Red Hat Plug-ins for Backstage work in tandem with Red Hat Developer Hub and pre-existing customer installations of Backstage to extend its functionality and improve the overall experience. These Red Hat plug-ins are the supported version of the community plug-ins.

[Red Hat Developer Hub](#) [Red Hat Plug-ins for Backstage](#)

### Extend Backstage functionality with plug-ins

With plug-ins, you can incorporate pre-built solutions, shared patterns, and preferred tools that help developers get up to speed faster. Red Hat Plug-ins for Backstage, including plug-ins for Keycloak and Quay, provide a more integrated user experience without compromising application velocity.

# 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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