



What's new with OpenShift and beyond

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OpenShift Roadmap

Near Term

(2Q 2023)

PLATFORM

- Custom tags on Azure (TP)
- IPI for GCP shared VPC (XPN)
- Confidential computing and Shielded VMs on GCP
- vSphere multi-cluster, multi-datacenter support (GA)
- vSphere 8 support
- vSphere VMcrypt support (UPI)
- IBM Secure Execution on IBM zSystems and IBM LinuxONE GA
- Control node Scaling with ControlPlane Machine sets (AWS, Azure, GCP & vSphere)
- Stronger Cipher support for etcd encryption (AESGCM)
- Support for multiple values for ServiceAccountIssuer
- GCP cloud provider for OpenShift on ARM
- CoreOS Layering off-cluster builds (GA)
- Gateway API / Ingress Controller support
- Network Topology and Analysis Tooling
- SmartNIC Integrations, eBPF Support
- Utilize cgroups v2 (GA); Crun in Openshift (GA)
- Run once duration override
- CMA (custom metric autoscaler) GA
- Hosted Control Planes on AWS (incl. Arm control plane) TP
- Hosted Control Planes in ACM/MCE AWS/BM (TP)
- Hosted Control Planes in ACM/MCE KubeVirt (TP)
- Hosted Control Planes TP for Agent in ACM & MCE
- Node firewall support
- Azure CSI migration
- IBM PowerVS IPI (GA)

Mid Term

(2H 2023)

PLATFORM

- OpenShift on Oracle Cloud Infrastructure with VMs
- KMM in-tree kmod replacement, kmod granular upgrade flow
- Azure managed identity support
- Custom tags on GCP (TP)
- Agent Installer install OpenShift from ISO
- vSphere static IPs and multi-subnet support
- vSphere datastore clusters without storage vMotion
- vSphere CSI migration
- Multi-Arch Hosted Control Planes (Hypershift)
- Hosted Control Planes in ACM/MCE AWS/BM (GA)
- Multi-Architecture Compute support
- CoreOS Layering on-cluster build option
- Pod Security Admission enforcement GA
- Agent Installer (air-gapped installs) GUI
- Assisted Installer enable MCE and Hypershift
- ACM support for ZTP of BM clusters from ROSA
- BGP Advertised Services (FRR)
- Multi cluster Network Observability
- Automated etcd backup
- SWAP in Openshift (TP)
- CRIO support for sigstore

Long Term

(CY 2024+)

PLATFORM

- OpenShift on Oracle Cloud Infrastructure with Baremetal
- Alibaba Cloud IPI (GA)
- Azure China
- Hosted Control Planes in ACM/MCE KubeVirt (GA)
- Stretched Cluster support on multiple Openstack AZs (GA)
- OpenStack Full Dual Stack support (control & workload) (GA)
- User Namespace
- Bandwidth-Aware Scheduler (QoS)
- Gateway API (GA)
- Ingress traffic mirroring/splitting
- Network Policy v2
- Routable IPs for Pods
- ESNI/ECH Support
- Automatic Intelligent Sharding
- Automatic etcd restore
- Kube KMS w/user provided plugin
- OpenShift CLI manager (via KREW) GA
- CoreOS Layering custom first-boot images
- CoreOS y-stream updated first-boot images
- Enable user namespaces

OpenShift Roadmap

Near Term

(2Q 2023)

DEV	<ul style="list-style-type: none">• Shared Resource CSI Driver (GA)• Image build cache• Pipelines: pipeline/task resolvers, extended retention• GitOps: Progressive delivery, Image Updater (TP)• Builds: Framework maturity
APP	<ul style="list-style-type: none">• File-based Operator catalog management• Serverless function build using Pipeline as Code• Security Guard for Serverless deployments
HOSTED	<ul style="list-style-type: none">• Cost mgmt integration to Subs Watch, ACM• ROSA: Hosted Control Plane (Public Preview)• ROSA/OSD: HIPAA• ROSA: Terraform provider• ROSA/OSD: FedRAMP High on AWS GovCloud• ROSA/OSD: Regions: Melbourne, UAE, Hyderabad• OSD-GCP: support for shared VPC (XPN)• ARO: support for OVN as default• ARO: No public IP for private cluster• ARO II4 in Azure Government• ARO new instance types (gen 4, gen 5)

Mid Term

(2H 2023)

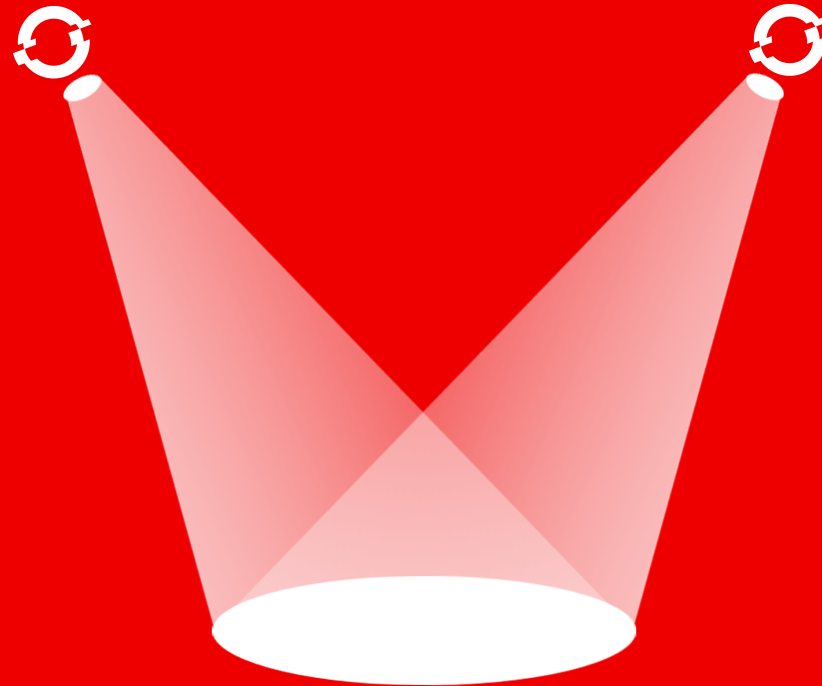
DEV	<ul style="list-style-type: none">• GitOps: Progressive delivery/Rollouts• Pipelines: Tekton Results, Dashboard, manual approval, Red Hat Tekton Catalog, Chains GA• Builds: Expand least-privilege functionality
APP	<ul style="list-style-type: none">• Multi Tenancy for Serverless via ServiceMesh(TP)• Integration of Knative (Serverless) with KEDA TP• Serverless function UX experience on Dev Console• Serverless Logic (TP)• RHODS with Serverless (TP)• Serverless on Single Node OpenShift• OLM granular permission management• Unified Console (GA)
HOSTED	<ul style="list-style-type: none">• ROSA: Hosted Control Plane• ROSA: AWS Managed Policies• ROSA/OSD: Wavelength• ROSA/OSD: Outposts• ROSA/OSD: Regions: Switzerland, Spain• OSD-GCP: new instance types• OSD-GCP: Regions: Paris, Tel Aviv• ARO: Tagging of ARO resources• ARO: Terraform provider• ARO managed identity

Long Term

(CY 2024+)

DEV	<ul style="list-style-type: none">• GitOps: Secrets manager integration, application dependencies• Pipelines: Caching, OOTB artifact, Secure build• Builds: Increase integrations
APP	<ul style="list-style-type: none">• Custom Metric Dashboard• Custom Themes (PF5)• OLM cluster-wide operators• Platform Operators (composable OpenShift)• mTLS natively in Serverless (GA)• Integration of Knative with KEDA GA• Serverless on MicroShift
HOSTED	<ul style="list-style-type: none">• ARO: Hosted Control Plane (External Preview)• OSD: AWS STS support

OpenShift 4.13 Spotlight Features



OpenShift 4.13 + RHEL 9

**RHEL CoreOS is
now based on
RHEL 9.2**

RHEL where you are

The latest generation of RHEL is designed to meet the needs of the hybrid cloud environment, from the edge to the cloud

9.2 kernel (5.14, 8 4.18)

The latest in hardware support & performance
Cgroups v2 enhancements

Security & innovation

Industry-leading security response & upstream engineering leadership

Tackle scaling, node failure in control plane

- ▶ Vertical control plane scaling automatically on Azure and Google Cloud Platform
- ▶ Leverages [ControlPlaneMachineSet](#) to manage the cluster's control plane machines and adds additional automation on existing Machine API concepts
- ▶ (in addition to [Vertical control plane scaling on AWS](#))

More at [Control plane machine management and 1-click scaling](#) and [About the Control Plane Machine Set Operator](#)

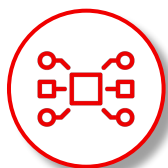
```
apiVersion: machine.openshift.io/v1
kind: ControlPlaneMachineSet
metadata:
  name: cluster
  namespace: openshift-machine-api
spec:
  ...
  state: Active
  replicas: 3
  strategy:
    type: RollingUpdate [2]
  template:
    machineType: machines_v1beta1_machine_openshift_io
    machines_v1beta1_machine_openshift_io:
      failureDomains: [3]
      ...
    metadata:
      ...
    spec:
      providerSpec: [1]
      value:
        <platform specific provider spec>
```

Systems Enablement



OpenShift on Arm

- Run OpenShift on highly efficient, high performance per watt architectures
-
- Support for Arm on Azure (UPI)
- Single Node OpenShift on Arm (bare metal)
- Assisted Installer on Arm



Multi-architecture Cluster

- Allow more flexibility in a cluster, use different cloud platforms
-
- Multi-architecture compute platforms:
 - AWS Arm support (GA)
 - Azure Arm support (GA)
 - Bare Metal Arm (TP)
- Multi-architecture compute migration and upgrade support
- Hosted Control Plane:
 - AWS Arm control plane



IBM Power and zSystems

- Run OpenShift on highly available, highly secure, scalable hardware
-
- FIPS Mode supported
- Cluster Resource Override Operator
- Network Bound Disk Encryption
- Metal LB support
- Egress IP support

Customizable RHEL CoreOS

GA in 4.13



RHEL CoreOS images can now be customized using industry-standard OCI container building tools

- ▶ Add 3rd party content to the RHCOS base image
- ▶ Manage configuration files with a simpler UX
- ▶ You define the image, the Machine Config Operator rolls it out

More info:

[RHCOS Image Layering examples](#) and [FCOS Layering examples](#)

<https://coreos.github.io/rpm-ostree/container/>

<https://github.com/containers/bootc>

Utilizing OpenShift Virtualization to Consolidate OpenShift Clusters

Hosted Control Planes with KubeVirt provider



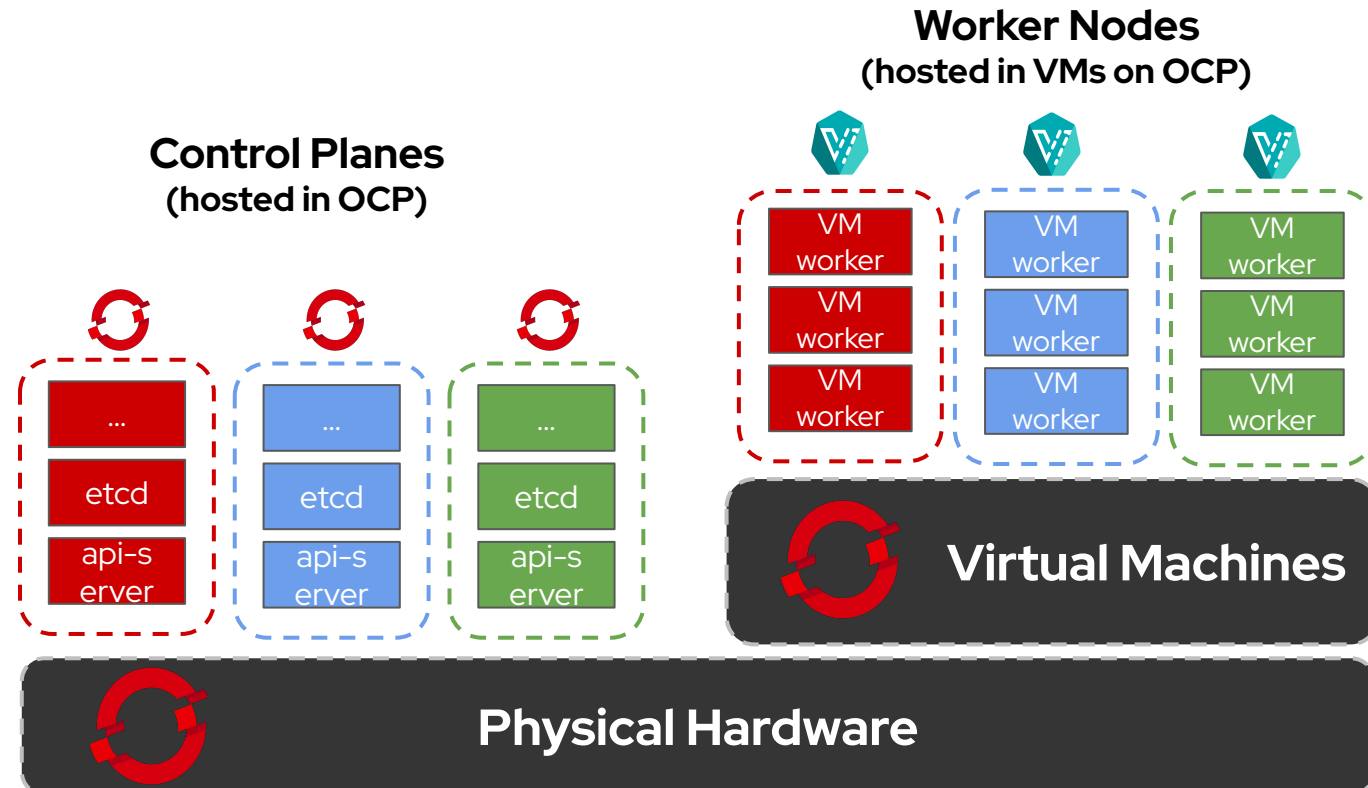
Increase Utilization of Infrastructure

- Reduce unused and underutilized infrastructure
- Increase bare metal node utilization by deploying multiple hosted clusters.



Reduce Dependency on Legacy Virtualization

- Eliminate legacy hypervisor hosting your container platform.
- Underlying virtualization layer is included with hosted OpenShift cluster entitlements (no separate licensing needed)



New

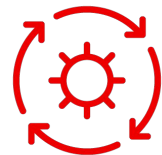
cert-manager Operator for Red Hat OpenShift GA

Certificate as a Service for Application workloads



Secure Application Access

Certificates made available to 1000s of Applications for Secure Ingress



Automate certificate management

Simplifies obtaining, renewing and using certificates



Validated Issuers

Validation for ACME, Self-Signed and CA certificates



Operator Configurations

Ability to configure custom CA for egress, HTTP and DNS Solvers



Available in OperatorHub

Custom Metric Autoscaler (GA)

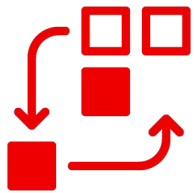
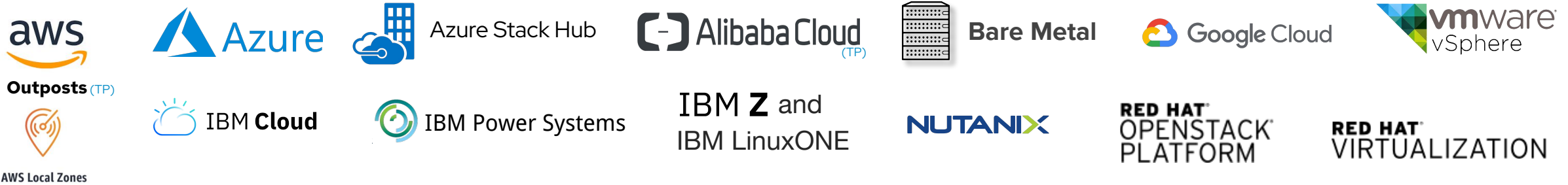
Scale workloads horizontally based on custom metrics

- Custom Metric Autoscaler is built on CNCF project [KEDA](#)
- Installed from Operator hub
- GA with [Prometheus](#) scaler, Technical preview with [Apache Kafka](#) scaler
- Manages workloads to scale to 0
- Provides metrics for Horizontal Pod Autoscaler (HPA) to scale on



OpenShift 4.13 Supported Providers

Installation Experiences



Automated

Installer Provisioned Infrastructure

- Auto-provisions infrastructure
- *KS like
- Enables self-service



Full Control

User Provisioned Infrastructure

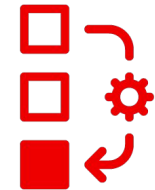
- Bring your own hosts
- You choose infrastructure automation
- Full flexibility
- Integrate ISV solutions



Interactive - Connected

Assisted Installer

- Hosted web-based guided experience
- Agnostic, bare metal, vSphere and Nutanix
- ISO driven



Local - Disconnected

Agent-based Installer

- Disconnected / air -gapped
- Automatable installations via CLI
- Bare metal, vSphere, SNO
- ISO driven

Developer Tools Update – Resp. OpenShift and beyond

Developer Tools Update

Video & slides provide a deep dive

HIGHLIGHTS

- ▶ The **Developer Perspective** in **OpenShift Console** includes so many new features and improvements ... from RFEs including the ability for admins to define pre-pinned resources on Dev navigation, improved Helm user experience, users can easily identify which pods are receiving traffic in Topology as well as the Pods list view and more!.
- ▶ **Podman Desktop** adds new capabilities to help developers to go from containers, to pods and to OpenShift. Air Gapped installation is becoming available.
- ▶ **Odo 3.9.0 is now available** , Integration with OpenShift Toolkit IDE extension on VSCode and IntelliJ.
- ▶ **Janus/Backstage** What's happening and which plug-ins are available in project Janus.

DEVELOPER EDITION

[Google Presentation](#)

[Video](#)

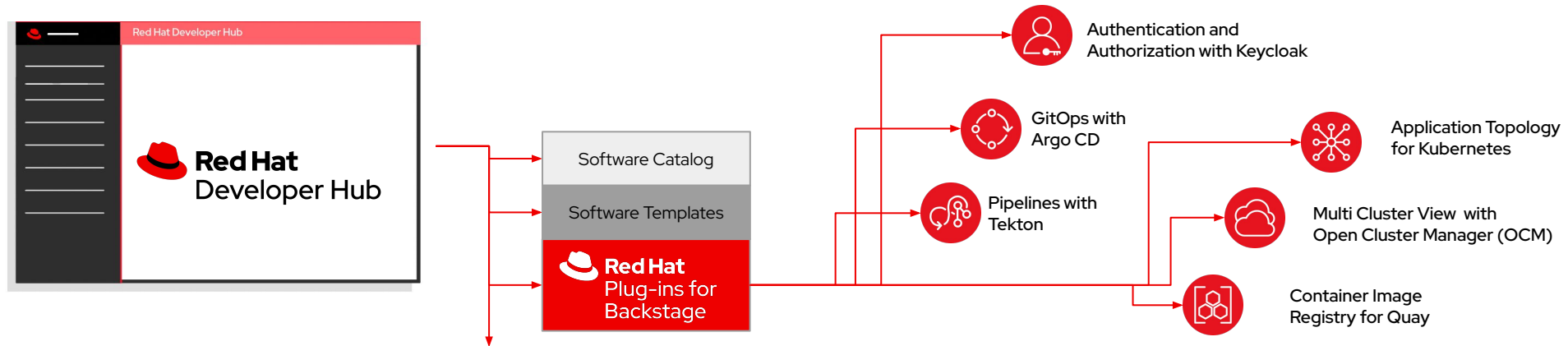
Empowering engineering to deliver business value faster.

Single pane of glass to increase engineering productivity.

Self-service with guardrails for cloud-native development.

Best practices with GitOps and automation.

Real-time view of application and infrastructure health and security.



Integrates with industry standards and technologies through a broad ecosystem.



Based on Backstage, an open source platform for building developer portals.



Consistent developer experience across environments.





Project Janus



4 Workstreams

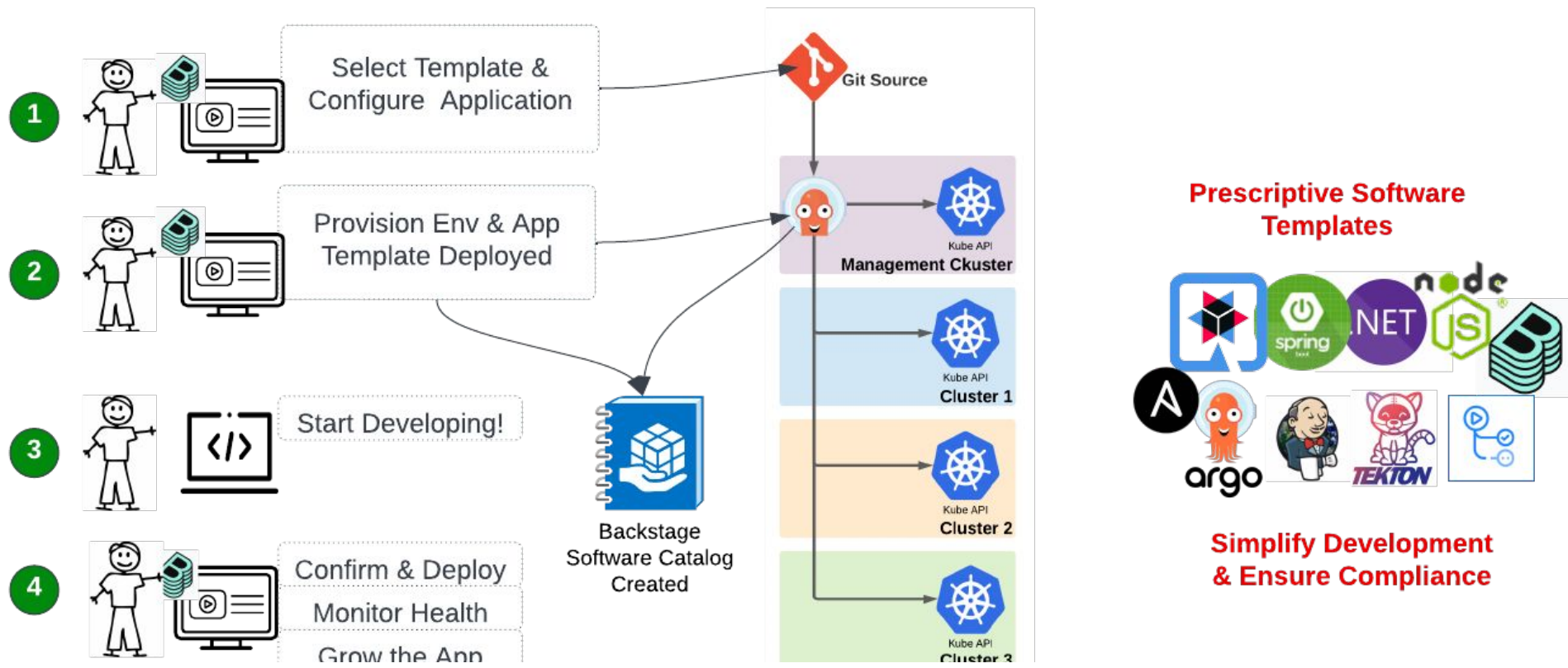


<https://github.com/janus-idp>

- Deployment targets & installation methods
- Developing & enhancing plugins
- Golden paths & templates
- Improving Backstage platform

Golden Path Use Case

We've defined the ideal template to help your teams onboard



Project Janus

Community plugins



Available NOW in Janus!

- 3scale
- Keycloak
- Multi cluster plugin
- OCI Image Registry
 - Quay
 - JFrog Artifactory
 - ACR
- Tekton
- Topology

Plugins available today [here](#)

Red Hat OpenShift Dev Spaces

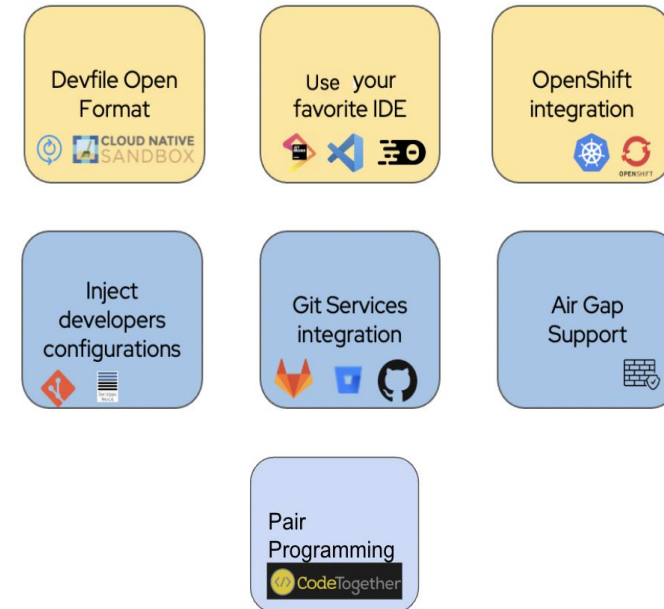
What's New

- VS Code is the default editor
- Support for the command podman build from within a container
- Integration with Azure DevOps git servers (besides GitHub, GitLab and Bitbucket)
- Workload Identity Federation (WIF) support
- Allow the installation of pre-release (early beta) versions of Dev Spaces
- Currently supports 4.12, 4.13 will be supported in a future release.

Resources

Dev Spaces Documentation

- [Admin Guide](#)
- [User Guide](#)
- [Known Issues and Release Notes](#)



IDE Supported	VSCode, (Deprecated: Eclipse Theia) (Tech Preview: JetBrains IntelliJ)
Languages	Languages supported by respective IDE
Repositories	GitHub, Gitlab, Bitbucket
Browser	Chrome,Firefox, Edge, Safari
Platforms	OCP 4.10,4.11,4.12

Thanks!

OpenShift Youtube Channel

<https://www.youtube.com/@OpenShift>



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