



podman desktop

# Extending Podman Desktop



Red Hat

# What we'll discuss today

- ▶ Podman Desktop Overview
- ▶ Architectural Overview
- ▶ Extending Podman Desktop

# What is Podman Desktop?



Podman Desktop provides an intuitive and user-friendly interface for developers to easily work with Containers and Kubernetes. It simplifies container management, streamlines Kubernetes workflows, and transitions from local development to production.

## Podman and Kubernetes

- Install and run anywhere: Windows, Mac and Linux
- Keep it up-to-date

## Containers and Pods

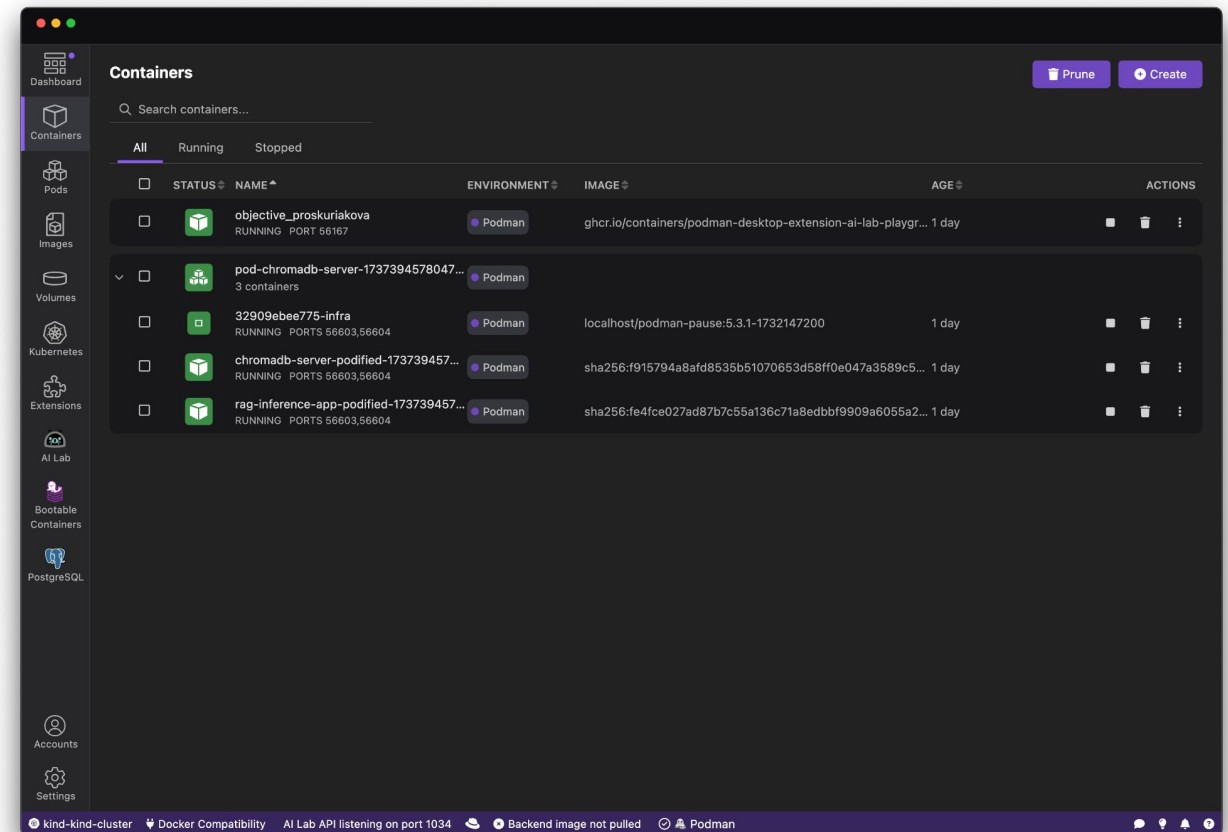
- Build, run, manage and debug Containers and Pods
- Run Pods with or without Kubernetes
- Manage multiple container Engines
- Compatibility with Docker and Compose

## Enterprise Readiness

- VPN and Proxies configuration
- Image registry management
- AirGapped Installation

## Bridge between local and remote

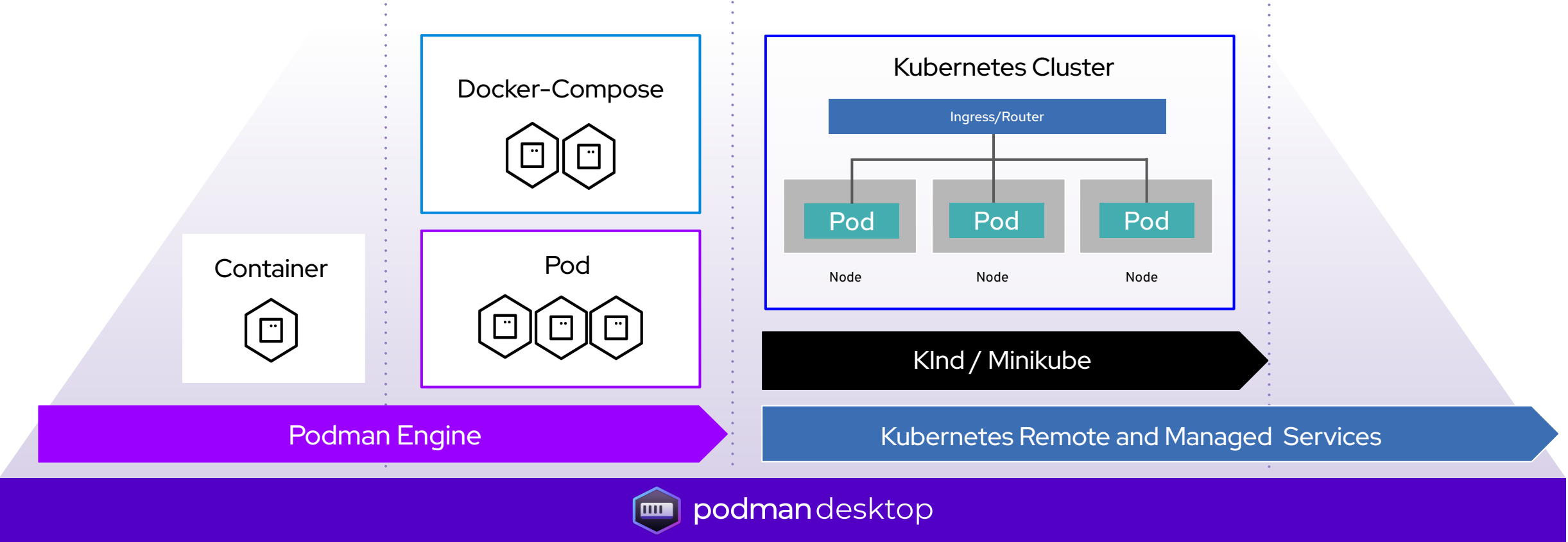
- Connect and deploy to remote Kubernetes clusters
- Enable remote managed services locally



# Mission Statement



Provides an simple onboarding for the application developers to go from applications to containers, to pods, to Kubernetes.



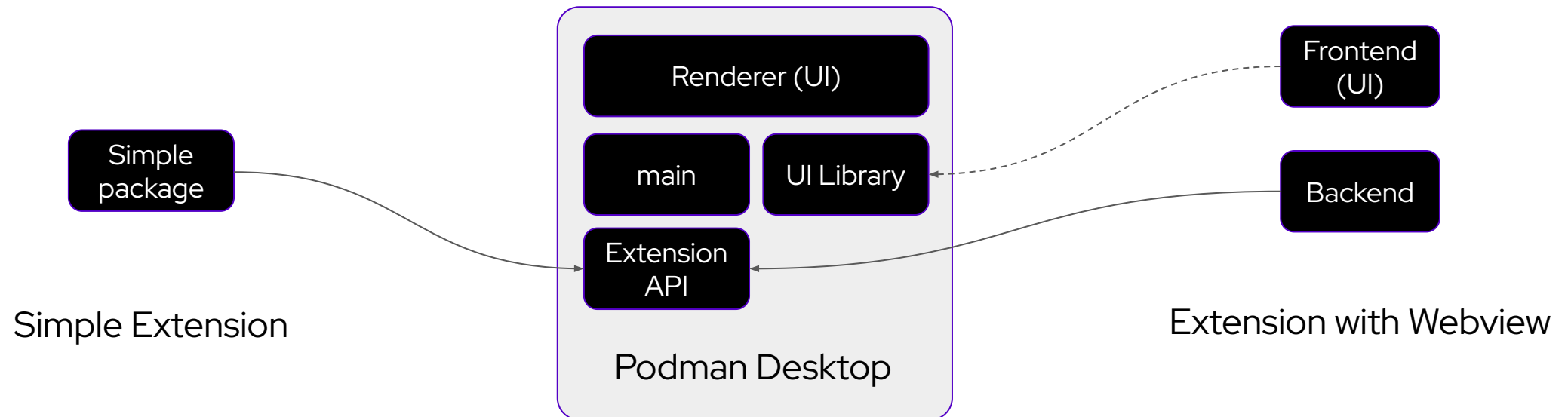


# Architectural Overview

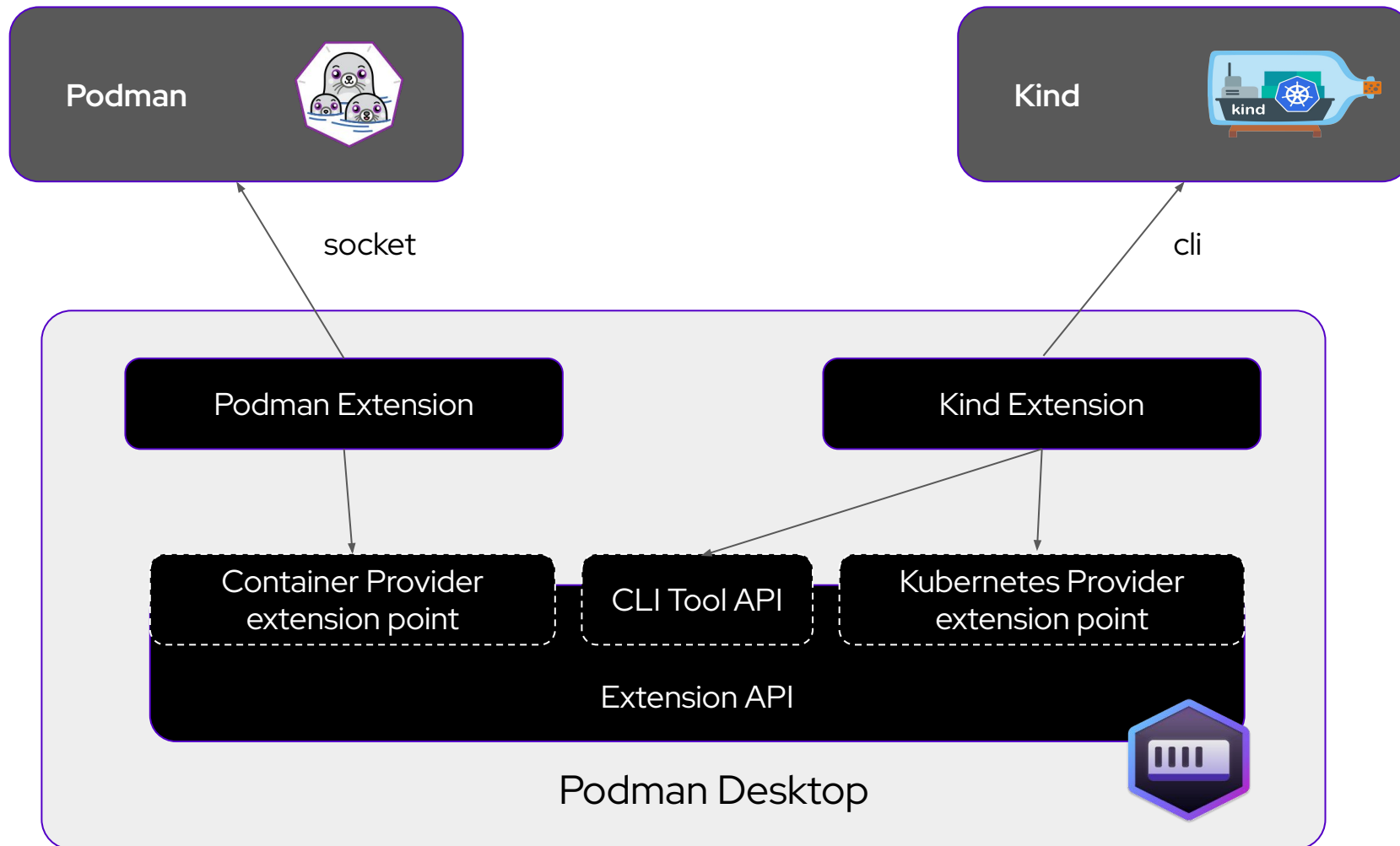
# Technical Overview



- ▶ Built using Svelte, Tailwind, and Electron
- ▶ Very extendable: container engines, Kubernetes providers, CLI tools, menus, Webviews, Docker Desktop extensions, ...



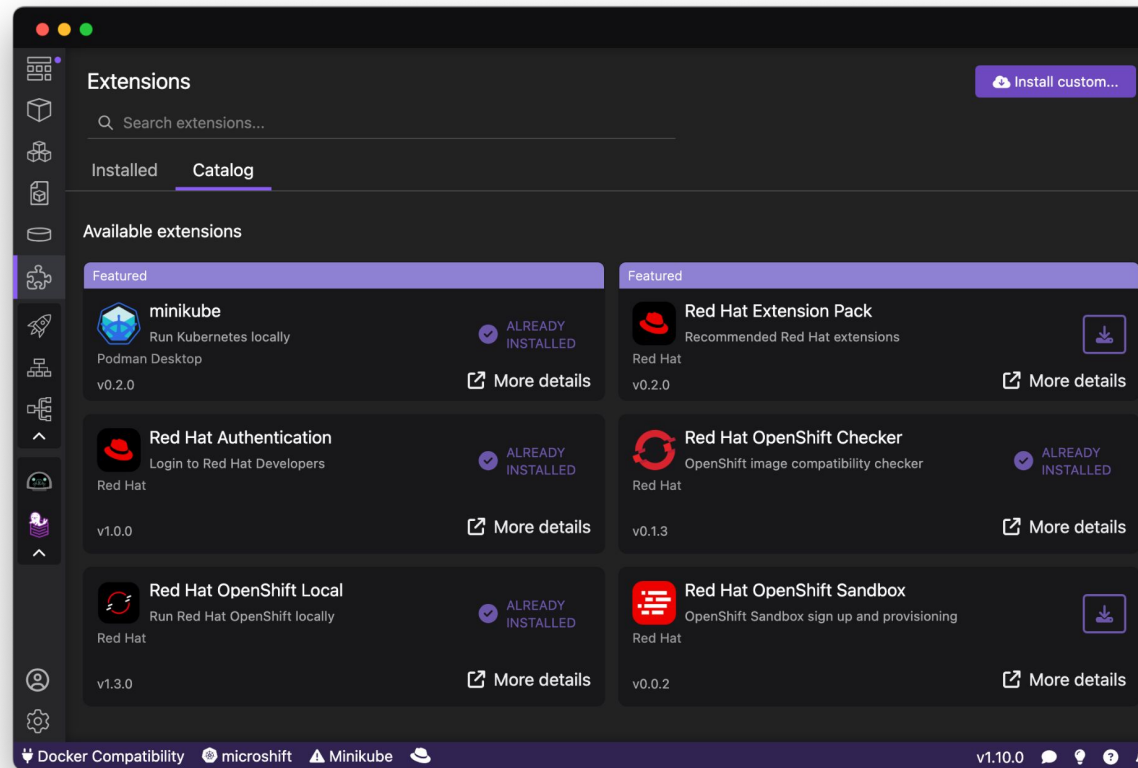
# Architecture Overview



# Extensibility



Supports Docker  
Desktop extensions



But Podman Desktop extensions can also do much more:

- **Container engine providers**
- **Kubernetes providers**
- Add actions
- Add menus
- Add configuration
- **Add default registries**
- Add to status bar
- Add to system tray
- Add webviews

Current  
extensions:



Podman



Kind

Lima

Lima



Docker

























OpenShift Local

& more!



# Extension Catalog



Featured		Featured		Featured	
 <b>minikube</b> Run Kubernetes locally Podman Desktop v0.4.0	 <a href="#">More details</a>	 <b>Podman AI Lab</b> Empowers developers to AI Red Hat v1.4.0	 <a href="#">More details</a>	 <b>Red Hat Extension Pack</b> Recommended Red Hat extensions Red Hat v1.0.1	 <a href="#">More details</a>
 <b>Bootable Containers</b> Bootable OS containers (bootc)... Red Hat v1.6.0	 <a href="#">More details</a>	 <b>Developer Sandbox</b> Developer Sandbox sign up and... Red Hat v0.0.4	 <a href="#">More details</a>	 <b>Headlamp</b> An easy-to-use and extensible we... Headlamp v0.24.0	 <a href="#">More details</a>
 <b>Image Layers Explorer</b> Explore layers and files in container... Podman Desktop v0.2.0	 <a href="#">More details</a>	 <b>Podman Quadlet</b> Integrate Podman Quadlets in... Podman Desktop v0.7.0	 <a href="#">More details</a>	 <b>Red Hat Authentication</b> Login to Red Hat Developers Red Hat v1.0.2	 <a href="#">More details</a>
 <b>Red Hat OpenShift Checker</b> OpenShift image compatibility... Red Hat v0.1.5	 <a href="#">More details</a>	 <b>Red Hat OpenShift Local</b> Run Red Hat OpenShift locally Red Hat v2.0.0	 <a href="#">More details</a>		

Easy to install any extensions, including Docker Desktop extensions



# Extending Podman Desktop

# Extensions



- ▶ Building an extension is the fastest way to add function to Podman Desktop
  - (Although we're always open to contributions to the core, including new extension points)
- ▶ There is lots of help to get started - we'll cover the highlights here
- ▶ Main page: <https://podman-desktop.io/extend>
- ▶ Documentation: <https://podman-desktop.io/docs/extensions/developing>
- ▶ Tutorial on creating an extension: <https://podman-desktop.io/tutorial/creating-an-extension>

# Extension Options



- ▶ Extensions are distributed as OCI images from OCI registries
- ▶ Two styles of extensions are supported:
  - Podman Desktop extension model
    - Fine grained - contribute to individual actions or API
  - Docker Desktop extension model
    - Coarse grained - contribute a whole page to the navigation
- ▶ Are you the author of a Docker Desktop extension?
  - Use the 'Install custom' option to quickly test it in Podman Desktop

# Creating an Extension



- ▶ Node.js:
  - `npm install @podman-desktop/api`
- ▶ Extensions are activated and then register:
  - `activate()` function
  - `import {version} from '@podman-desktop/api';`
- ▶ Full API & extension point documentation: <https://podman-desktop.io/api>

# Getting Started



- ▶ We have several templates (fork & try) to start a new project:
  - <https://github.com/podman-desktop/extension-template-minimal>
  - <https://github.com/podman-desktop/extension-template-webview>
  - <https://github.com/podman-desktop/extension-template-full>
- ▶ Or look at the repos of other extensions in the catalog

# Just some of the things that can be extended



## Extension points:

- ▶ Configuration
- ▶ Container engines
- ▶ Kubernetes provider
- ▶ Authentication provider
- ▶ Registry providers
- ▶ CLI tools
- ▶ Commands
- ▶ Menu items
- ▶ Webviews
- ▶ Context
- ▶ Image checker
- ▶ System tray
- ▶ Status bar
- ▶ ...

## API:

- ▶ Navigation
- ▶ Environment
- ▶ Watch the filesystem
- ▶ Open a web browser
- ▶ List other extensions
- ▶ Exec a process
- ▶ Get proxy configuration
- ▶ Open dialogs, quick pick, notifications
- ▶ Launch tasks
- ▶ ...

# Matching the Podman Desktop UI



- ▶ There is a custom UI library for extensions that want to fit in seamlessly:
  - `npm install @podman-desktop/ui-svelte`
- ▶ Contains Buttons, StatusIcon, Checkbox, Dropdown, ErrorPage, layouts, etc.
- ▶ See documentation (stories) for all the components: <https://podman-desktop.io/storybook>



# Contributing to the Catalog



- ▶ The extension catalog can be found at:
  - Within Podman Desktop: puzzle icon
  - Online: <https://podman-desktop.io/extensions>
- ▶ The catalog repository: <https://github.com/podman-desktop/podman-desktop-catalog>
- ▶ Contributing to the catalog is simple, check existing extensions or PRs for examples



# Thank You!



<https://podman-desktop.io>



<https://github.com/podman-desktop>



<https://kubernetes.slack.com/podman-desktop>