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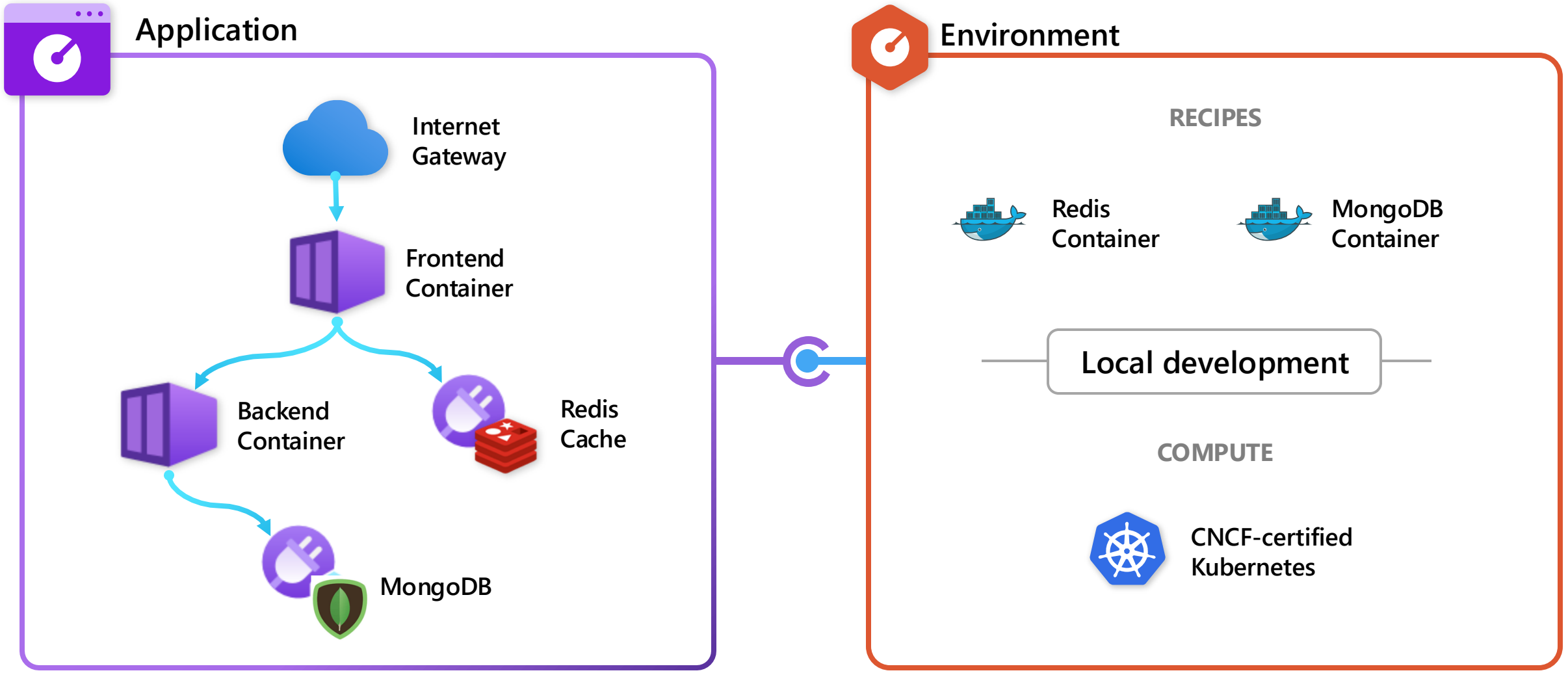
⚡How the Radius Dashboard Leverages Backstage to Build Visualizations of Cloud-Native Applications

Cloud-native application platform that works on any cloud

SANDBOX

April 2024


Application
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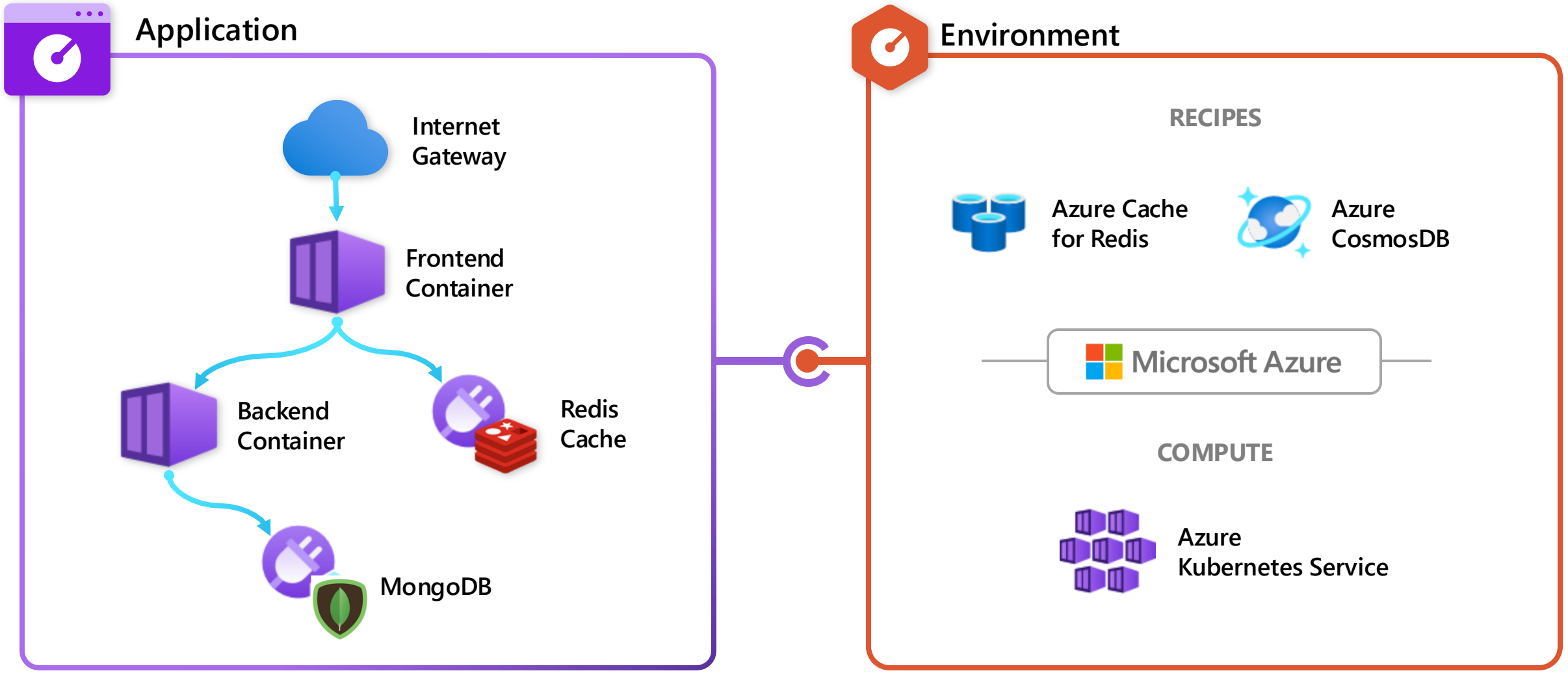
Frontend Container
Backend Container
Redis Cache
MongoDB
Environment
RECIPES
Redis Container
MongoDB Container
Local development
COMPUTE
CNCF-certified Kubernetes


Application
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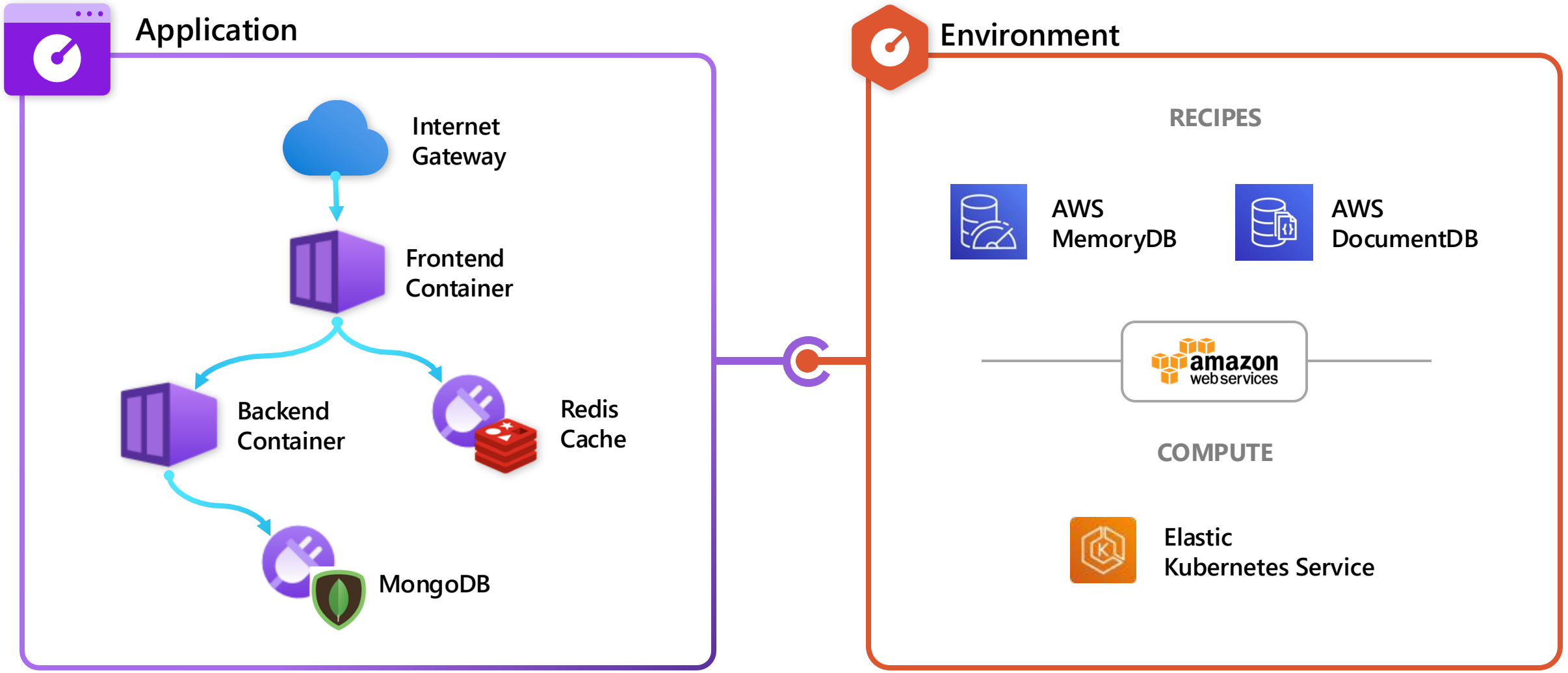
Backend Container
Redis Cache
MongoDB
Environment
RECIPES
Azure Cache for Redis
Azure CosmosDB
Microsoft Azure
COMPUTE
Azure Kubernetes Service


Application
Internet Gateway
Frontend Container
Backend Container
Redis Cache
MongoDB
Environment
RECIPES
AWS MemoryDB
AWS DocumentDB
amazon web services
COMPUTE
Elastic Kubernetes Service

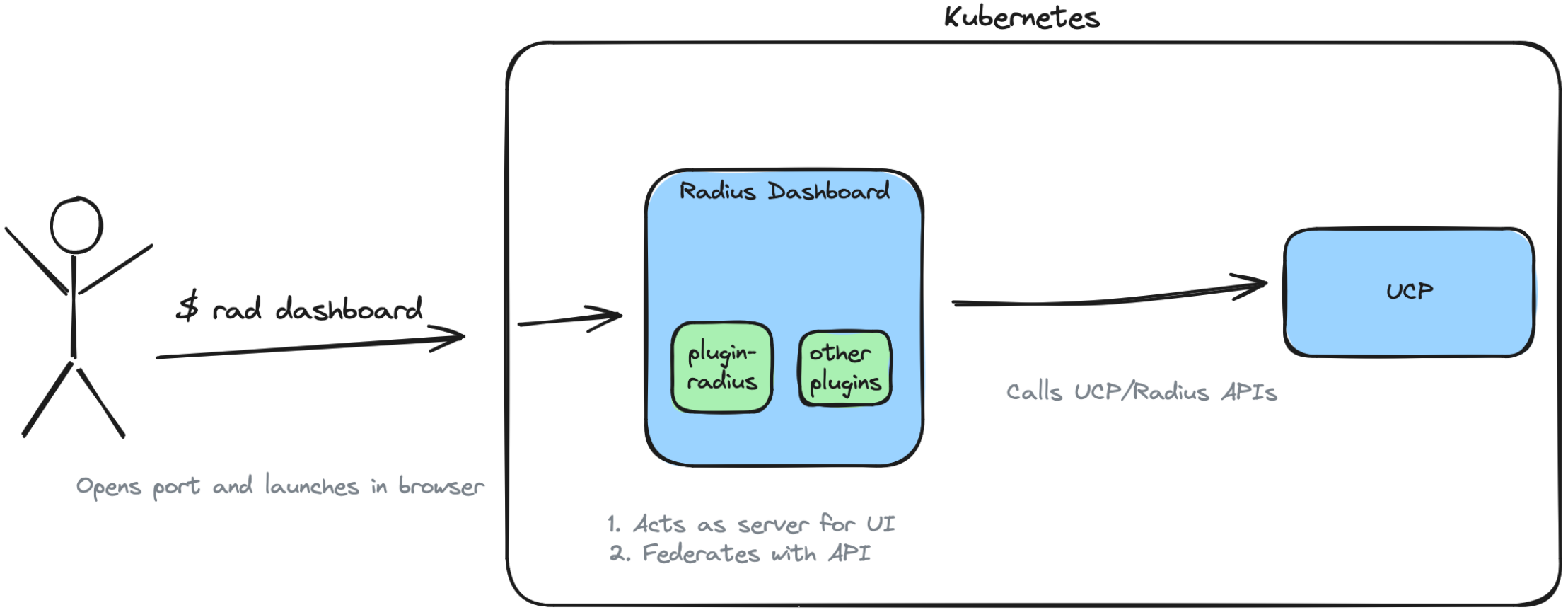
Radius Dashboard

- Problem: Radius concepts need to be visualized
  - Solution: Ship a dashboard as a part of Radius distro
- Problem: GUI work is specialized and often duplicative
  - Solution: Build using Backstage to leverage framework and libraries
- Problem: Users are happy with their existing dashboards
  - Solution: Implement as plugins for extensibility and customization

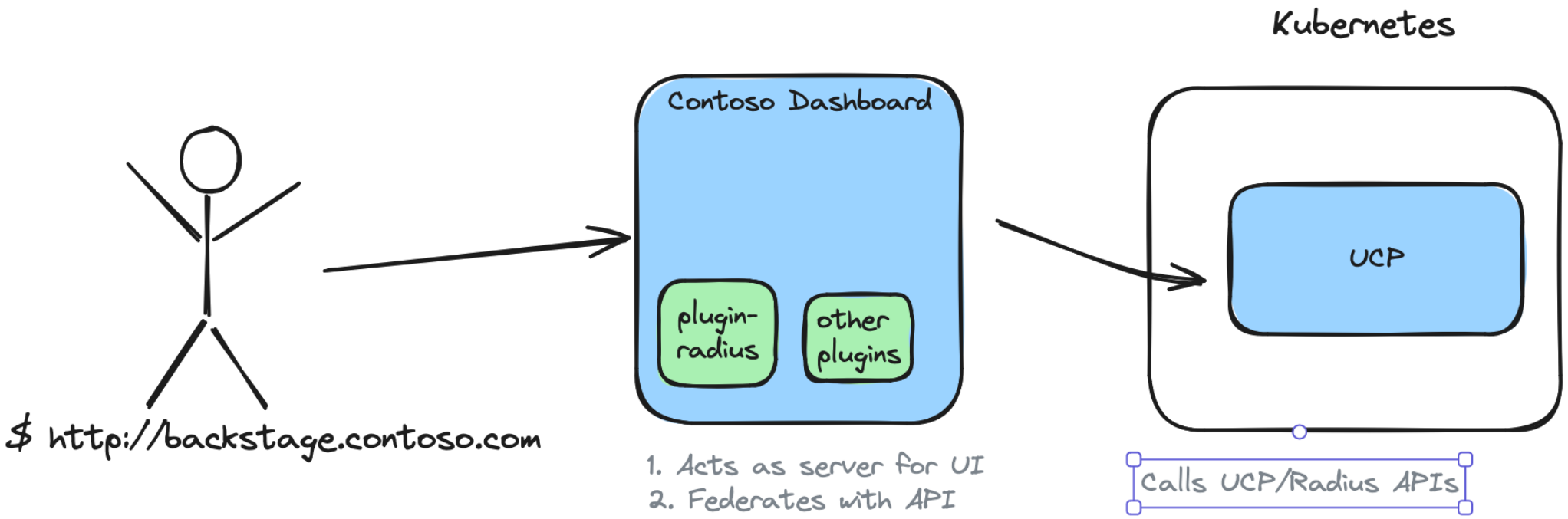
DEMO

Radius Dashboard

Architecture and Design: Dashboard in Radius

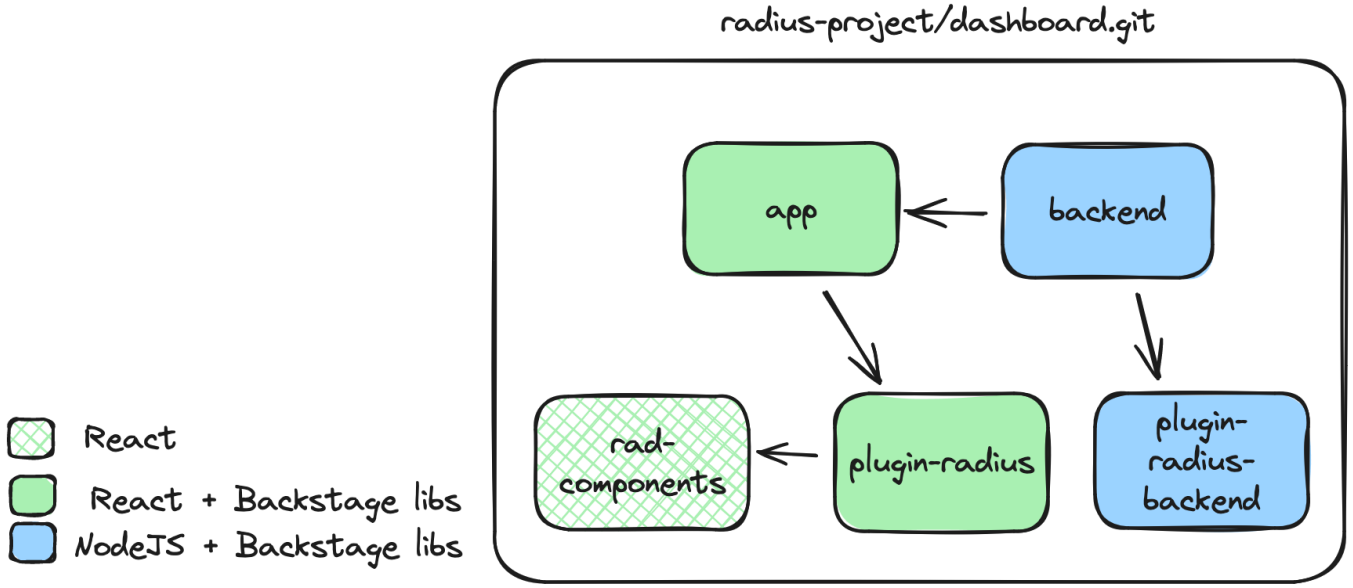


Architecture and Design: User-hosted Backstage



Architecture and Design: Technology & Packages

- Typescript/TSX
- Backstage:
  - app: frontend UI (React)
  - backend: backend (NodeJS)
- Plugins:
  - plugin-<name> (React)
  - plugin-<name>-backend (NodeJS)
  - Backend is optional
  - Plugins get compiled-into app or backend
- rad-components contains AppGraph visualization
  - Pure react, no dependency on Backstage
  - We will reuse this in other places like GitHub Copilot integration



Good, Bad, and Not-sure

- Good
  - Easy to get started: project creation, theming, plugins.
  - Easy to add to our existing architecture and call existing API
- Bad
  - Container size. Took a lot of work to get to ~950mb (minimal plugins)
  - Dashboard is included in Radius install and increases install time moderately
  - Could shrink install size with two-phase build but ended up fighting with JS build system.
- Not-sure
  - Started building integration between app-graph and catalog.
  - Not sure if it's a good idea.

Future Work

- Improvements to application graph UI
- Integration between application graph and software catalog
- Build additional plugins to expose other Radius features, e.g. recipes management, resource modifications, etc.
- Interop with other plugins to enrich existing dashboard experiences

Learn More

Documentation

docs.radapp.io

Learn how to get started with Radius and start radifying your own applications

GitHub

github.com/radius-project

Log bugs, suggest features, and view source code

Discord

aka.ms/radius/discord

Ask questions, troubleshoot problems, and show off your Radius applications