**Materials for this talk can be found at**

**aka.ms/azd-pycon**

Microsoft

# Accelerate your workflow from local Python prototype to the cloud

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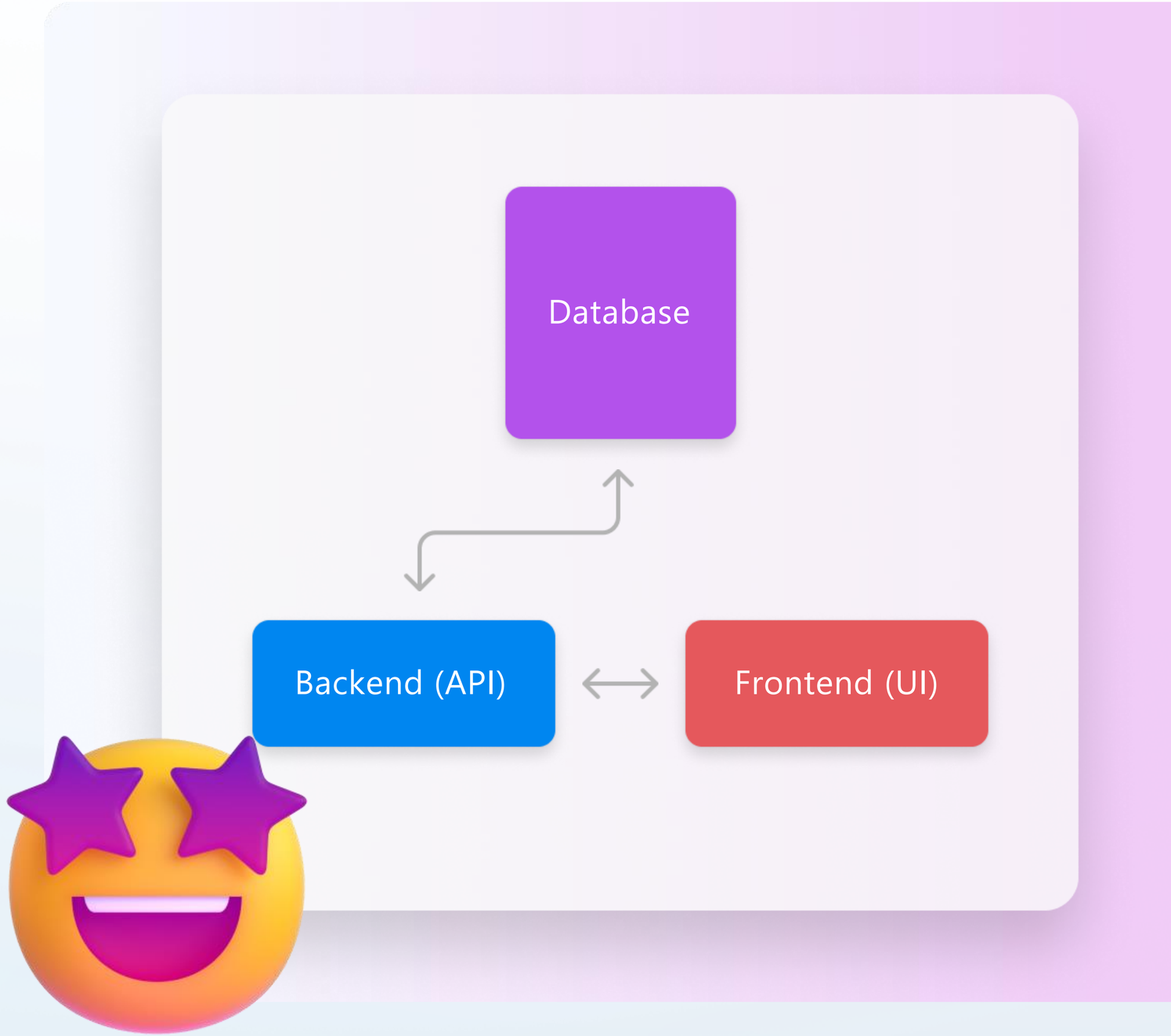
PyCon 2023

# 👋 Hey! I'm Savannah.

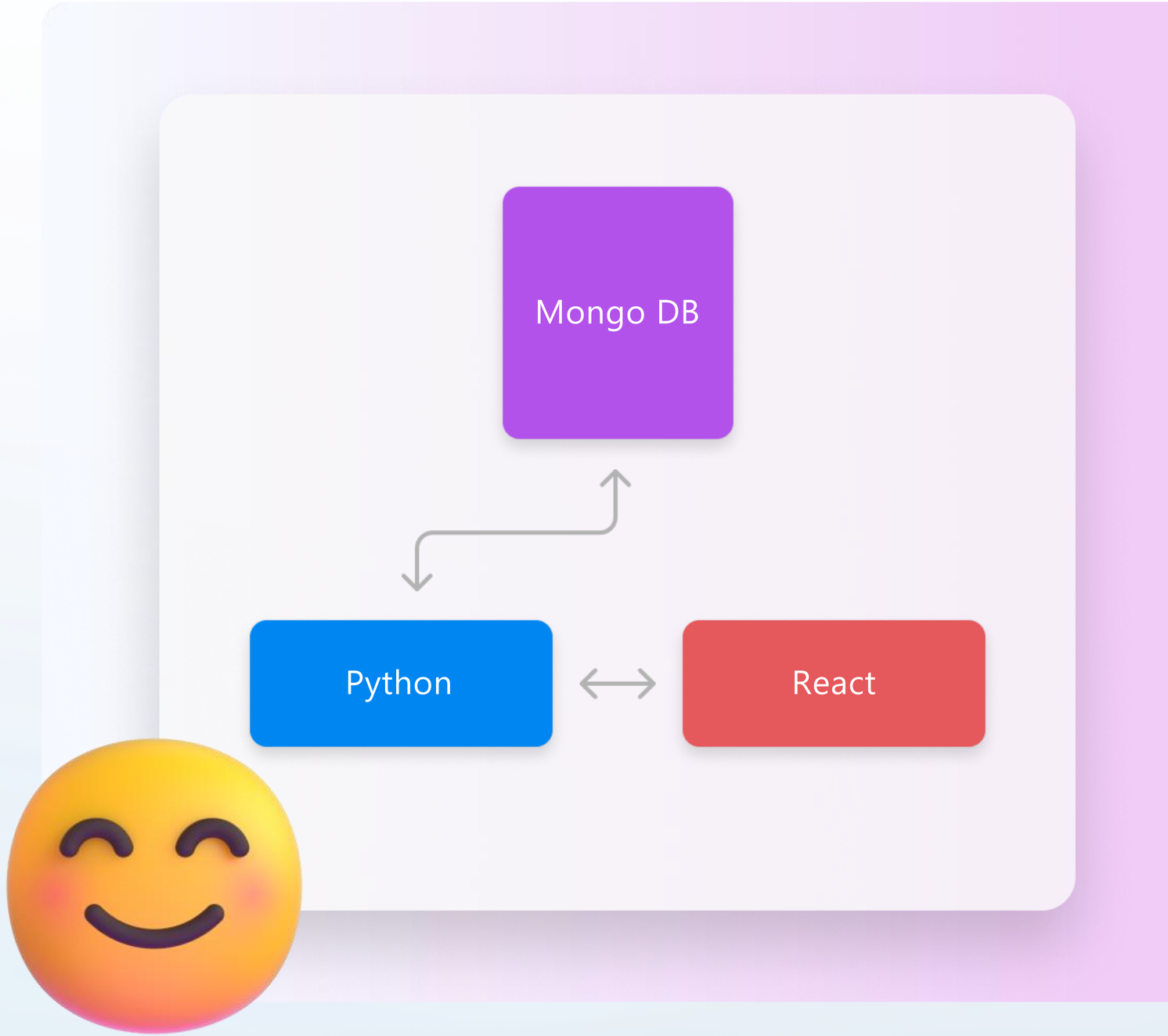
## Senior Product Manager @ Microsoft

**Currently:** Product Lead for the Azure Developer CLI (azd)
**Previously:** Product Manager for Pylance/Python dev experience
**Before that:** Software Engineer at startups/consultancies

# From idea...



# ...to local development



# ...to the cloud???

# A common, albeit suboptimal, workflow

The local app to “I’ll just put it on a VM” pipeline

**Feel completely uncertain about what to do next**

**Decide to investigate the “right” approach**

**Can’t find solution, head hurts, time wasted**

**Put your stuff on a VM and hope that it’s good enough**

As developers

# We know there *has* to be a better way

(but it’s too time consuming and difficult)

# What does your app look like on Azure?

A flavor of doing things the “right” way

**Build — Resources and Considerations**

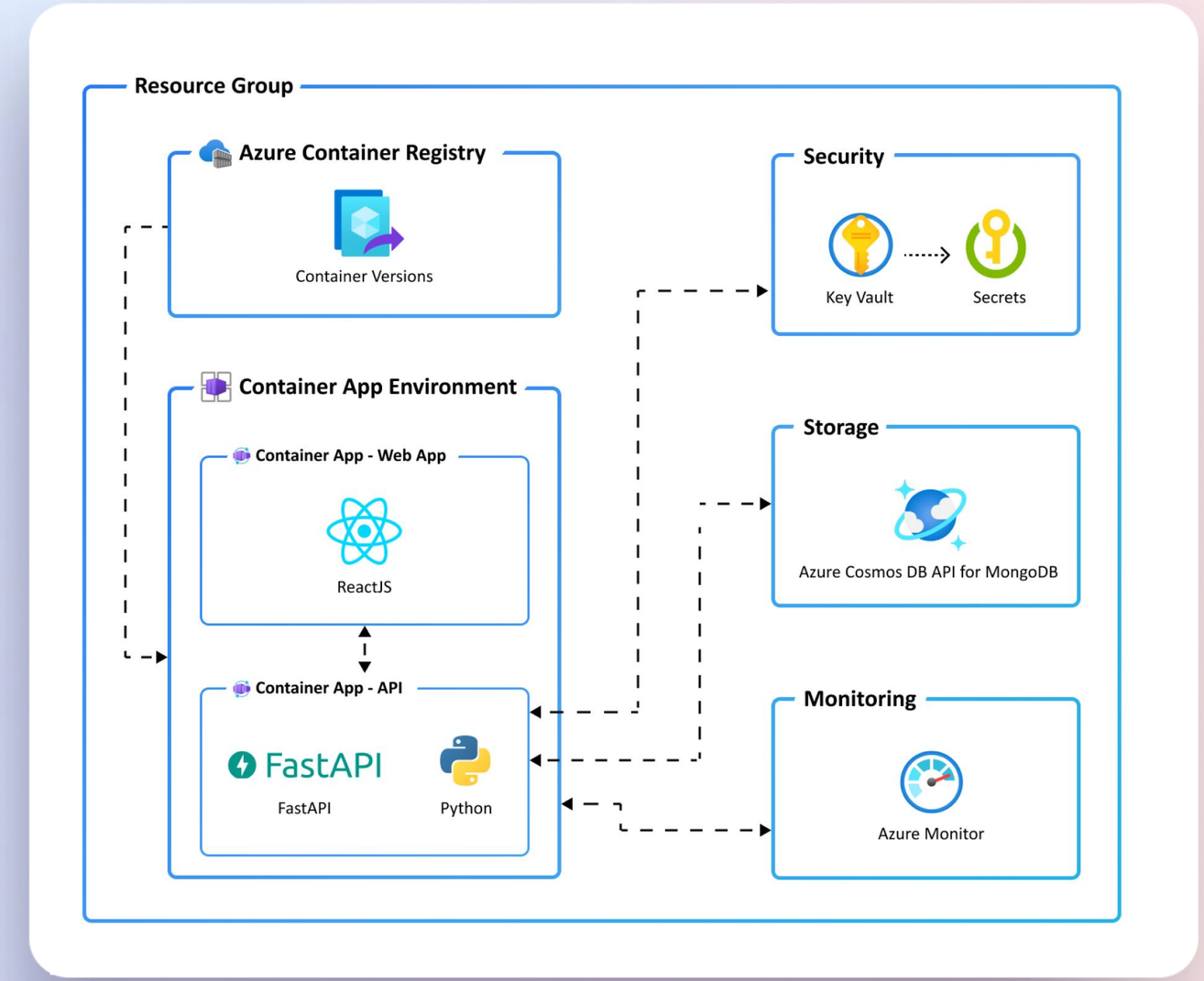
- Container Apps Environment (1)
- Container Registry (1)
- Container App (2)
- Key Vault (1)
- Azure Cosmos DB for MongoDB (1)
- Configuration of infrastructure services
- Configuration of permissions and roles
- Local dev support for working with resources

**Monitoring**

- Log Analytics Workspace (1)
- Application Insights (1)
- Portal dashboard (1)

**Test and Release**

- CI/CD pipeline via GitHub Actions



Let’s talk about the (infamous)

# *Cloud Native* application

What does that even mean?

**And, Savannah, I don’t know about *all* the cloud things!!**

# Do cloud things the right way with the Azure Developer CLI (azd)

From local development environment to the cloud in a single step

```
azd init
azd up
azd monitor
azd pipeline config
```

**azd commands**

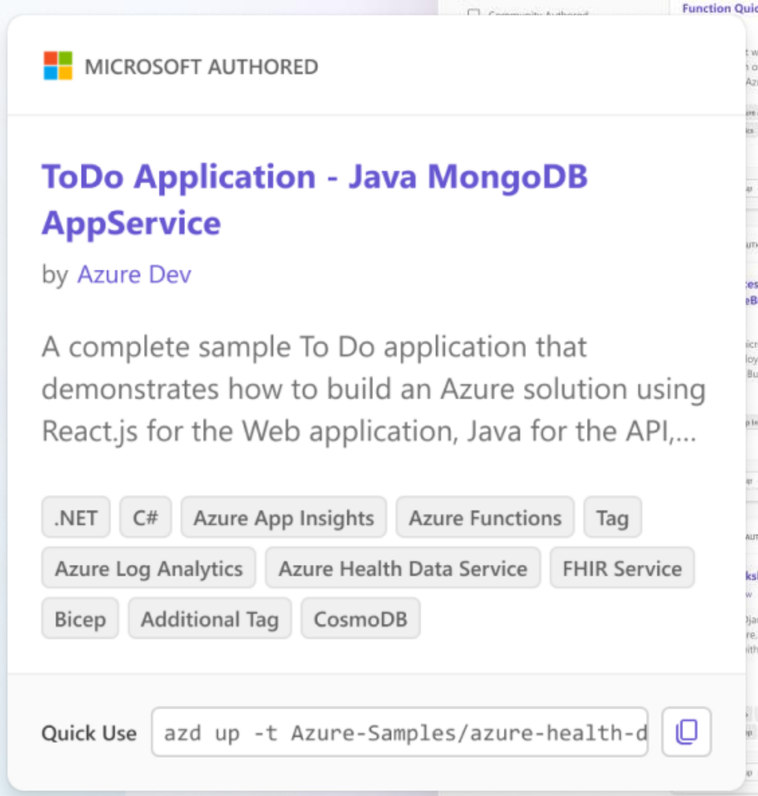
**Your app**

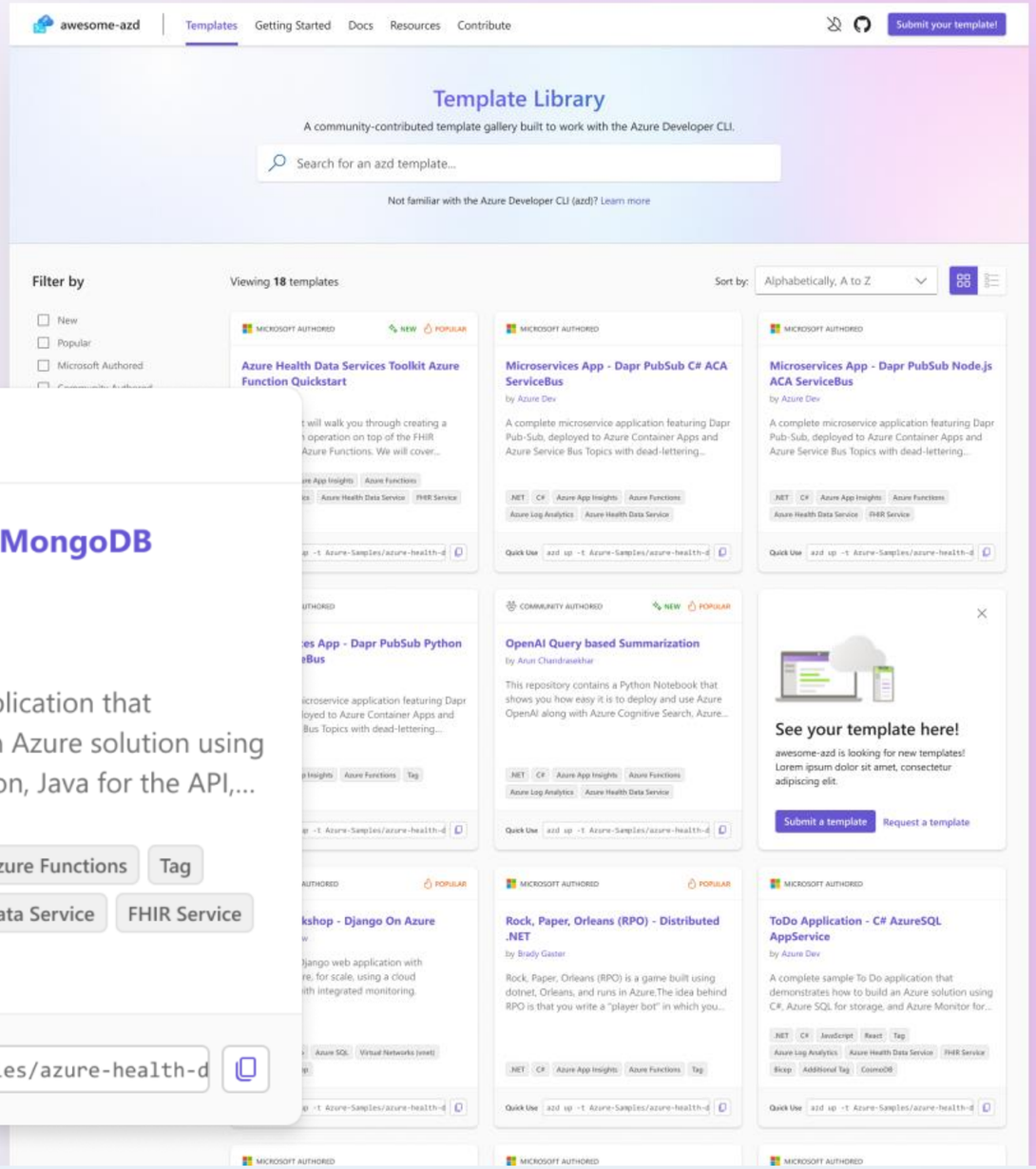
azd up

**The cloud**

# Build on application templates infused with best practices

## Idiomatic and extensible templates make going code to cloud easy



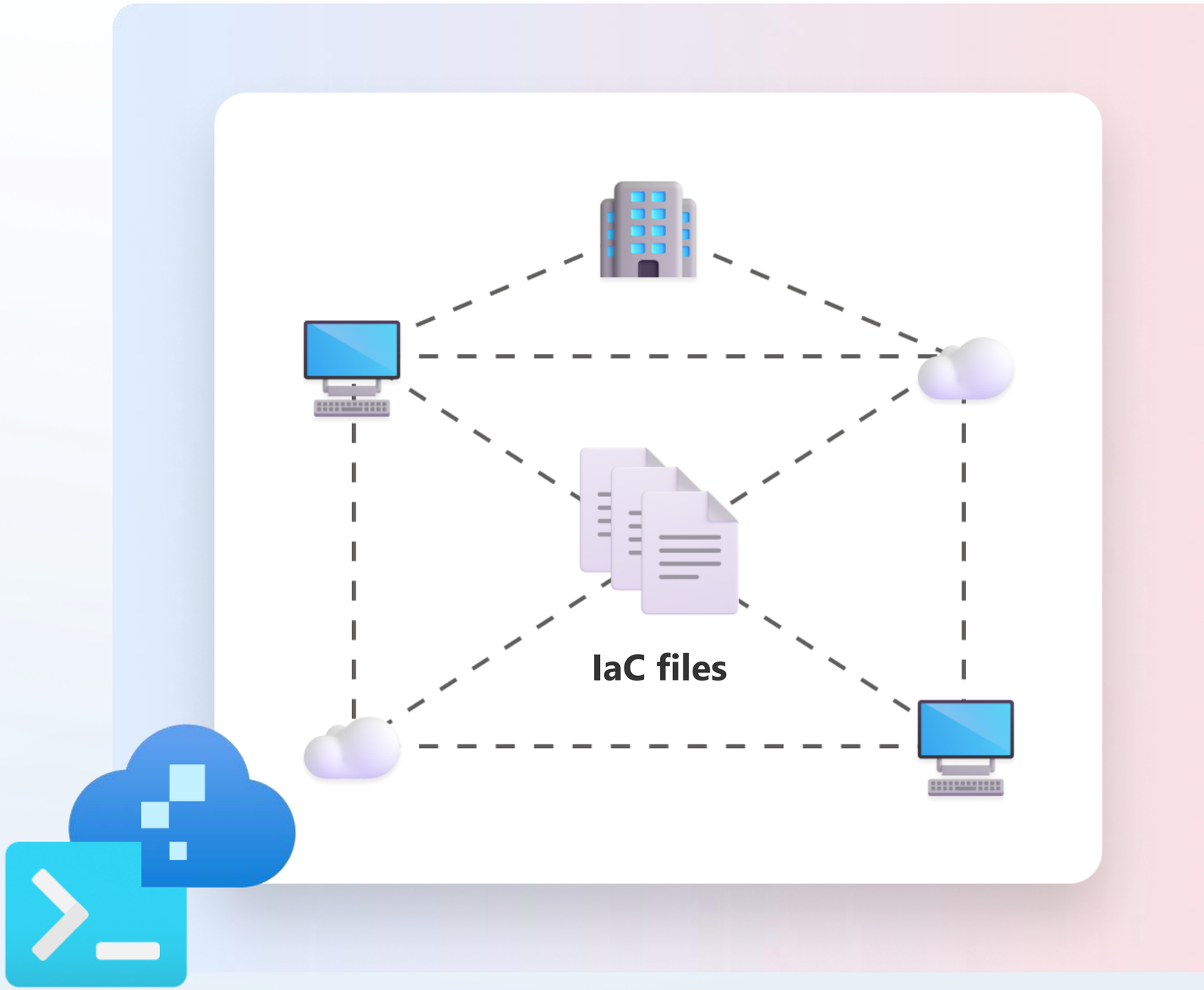




https://azure.github.io/awesome-azd/

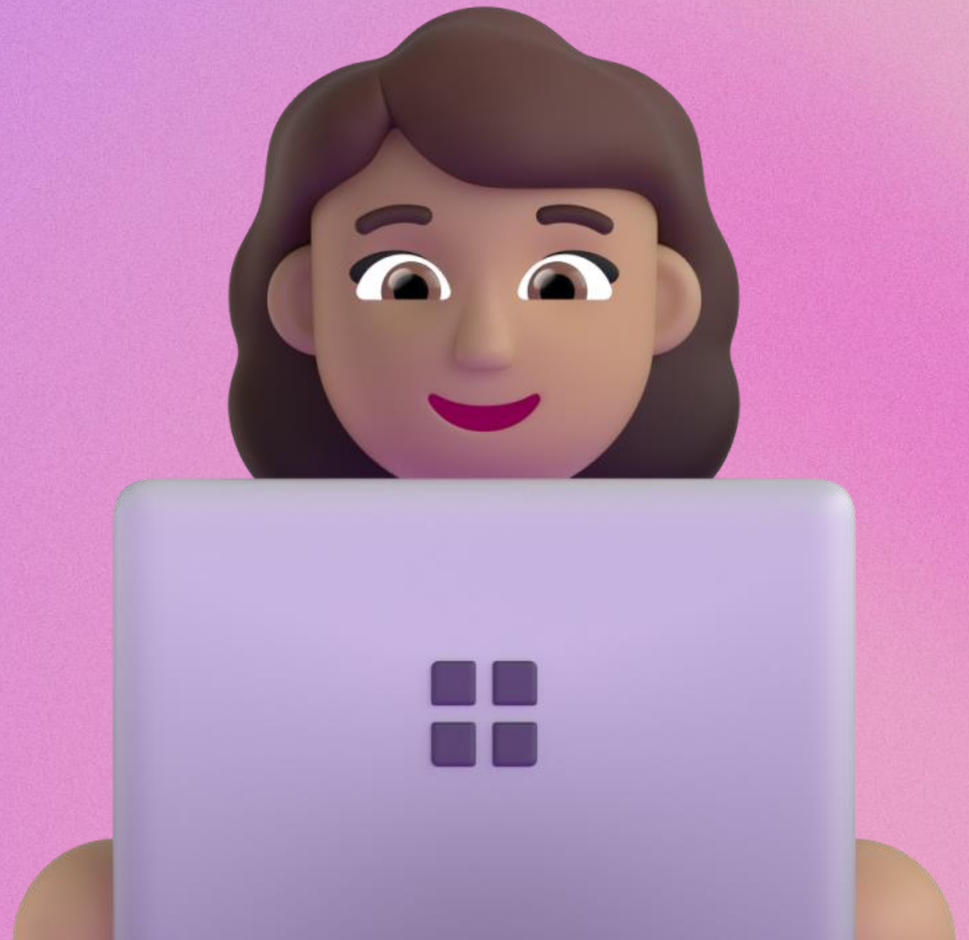
Checkout Awesome azd, a community supported library of azd compatible templates.

# Infrastructure as Code-centric

Use declarative IaC for repeatability and reusability



# Workshop time!



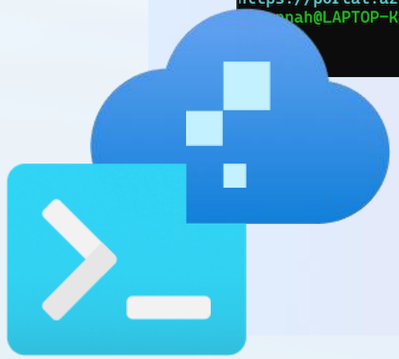
# aka.ms/azd-install

# GitHub to cloud in minutes

Provision infrastructure and deploy your code on Azure

```
azd provision
azd deploy
```

```
savannah@LAPTOP-KRU4894P:~/pycon$ azd up
? Please select an Azure Subscription to use: 19. Azure SDK Developer Playground
? Please select an Azure location to use: 44. (US) East US 2 (eastus2)

Packaging services (azd package)

  (✓) Done: Packaging service api
  - Image Hash: sha256:a5535bb56bdda95db63dcd8d3fb1c80d0cc154e1fbd8dca56b451349c58eb2c8
  - Image Tag: todo-python-mongo-aca/api-savannah-pycon-final:azd-deploy-1681167827
  (✓) Done: Packaging service web
  - Image Hash: sha256:21e89521db3b2eff8d0b0dfcdf887239c3b7573e89edfe71ed512dc23ae2a366
  - Image Tag: todo-python-mongo-aca/web-savannah-pycon-final:azd-deploy-1681167979

Provisioning Azure resources (azd provision)
Provisioning Azure resources can take some time

  You can view detailed progress in the Azure Portal:
  https://portal.azure.com/#blade/HubsExtension/DeploymentDetailsBlade/overview/id/%2Fsubscriptions%2F
Fsavannah-pycon-final

  (✓) Done: Resource group: rg-savannah-pycon-final
  (✓) Done: Log Analytics workspace: log-mv5mrnntx6ijm
  (✓) Done: Key vault: kv-mv5mrnntx6ijm
  (✓) Done: Application Insights: appi-mv5mrnntx6ijm
  (✓) Done: Portal dashboard: dash-mv5mrnntx6ijm
  (✓) Done: Container Registry: crmv5mrnntx6ijm
  (✓) Done: Container Apps Environment: cae-mv5mrnntx6ijm
  (✓) Done: Container App: ca-api-mv5mrnntx6ijm
  (✓) Done: Container App: ca-web-mv5mrnntx6ijm
  (✓) Done: Azure Cosmos DB: cosmos-mv5mrnntx6ijm


Deploying services (azd deploy)

  (✓) Done: Deploying service api
  - Endpoint: https://ca-api-mv5mrnntx6ijm.wonderfulflower-7b0b905d.eastus2.azurecontainerapps.io/

  (✓) Done: Deploying service web
  - Endpoint: https://ca-web-mv5mrnntx6ijm.wonderfulflower-7b0b905d.eastus2.azurecontainerapps.io/


SUCCESS: Your Azure app has been deployed!
You can view the resources created under the resource group rg-savannah-pycon-final in Azure Portal:
https://portal.azure.com/#@/resource/subscriptions/faa080af-c1d8-40ad-9cce-e1a450ca5b57/resourceGroups/rg-savannah-pycon-final/overvie
nah@LAPTOP-KRU4894P:~/pycon$
```

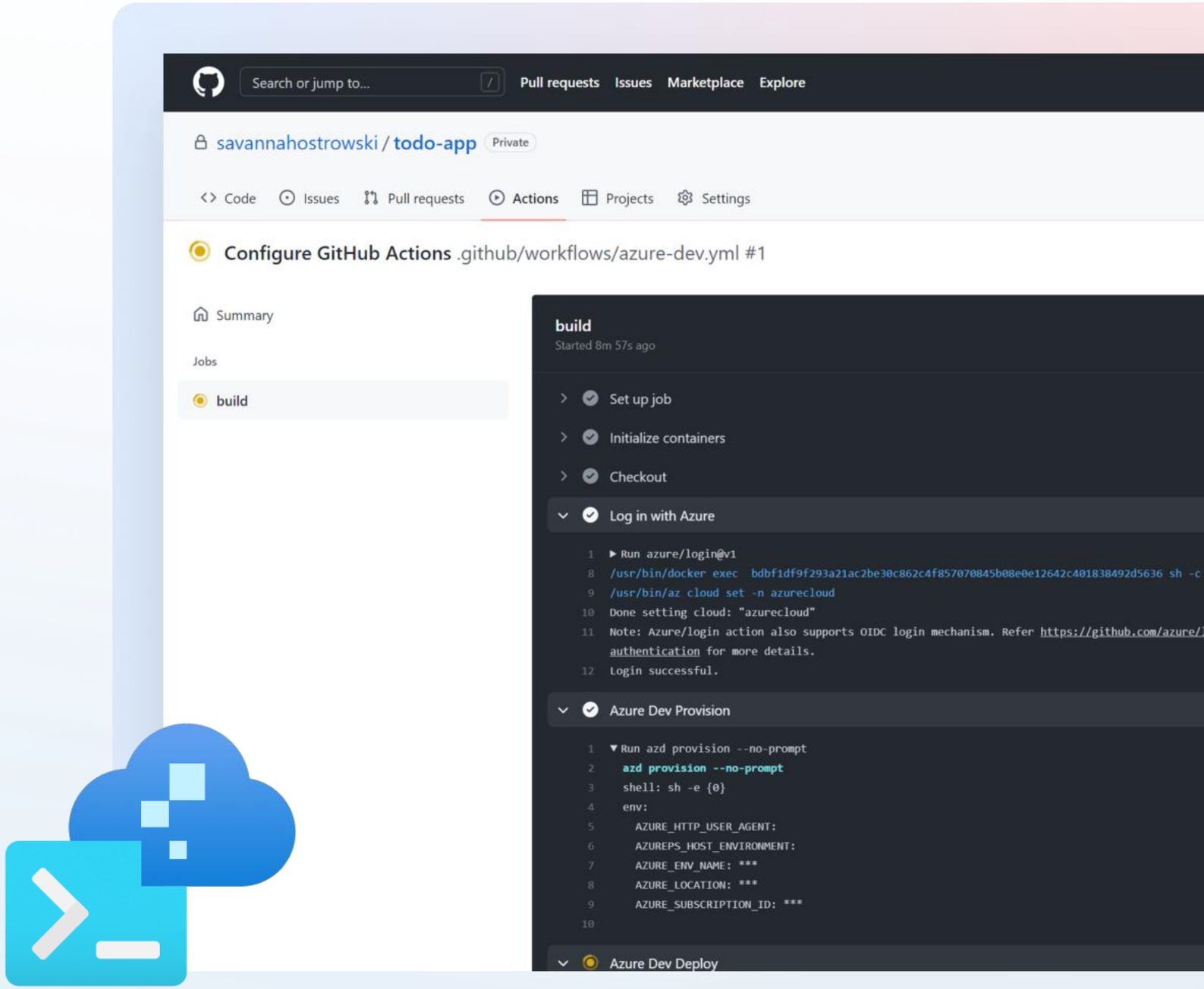


# But azd can do *even more*...

# CI/CD on every commit to the repo

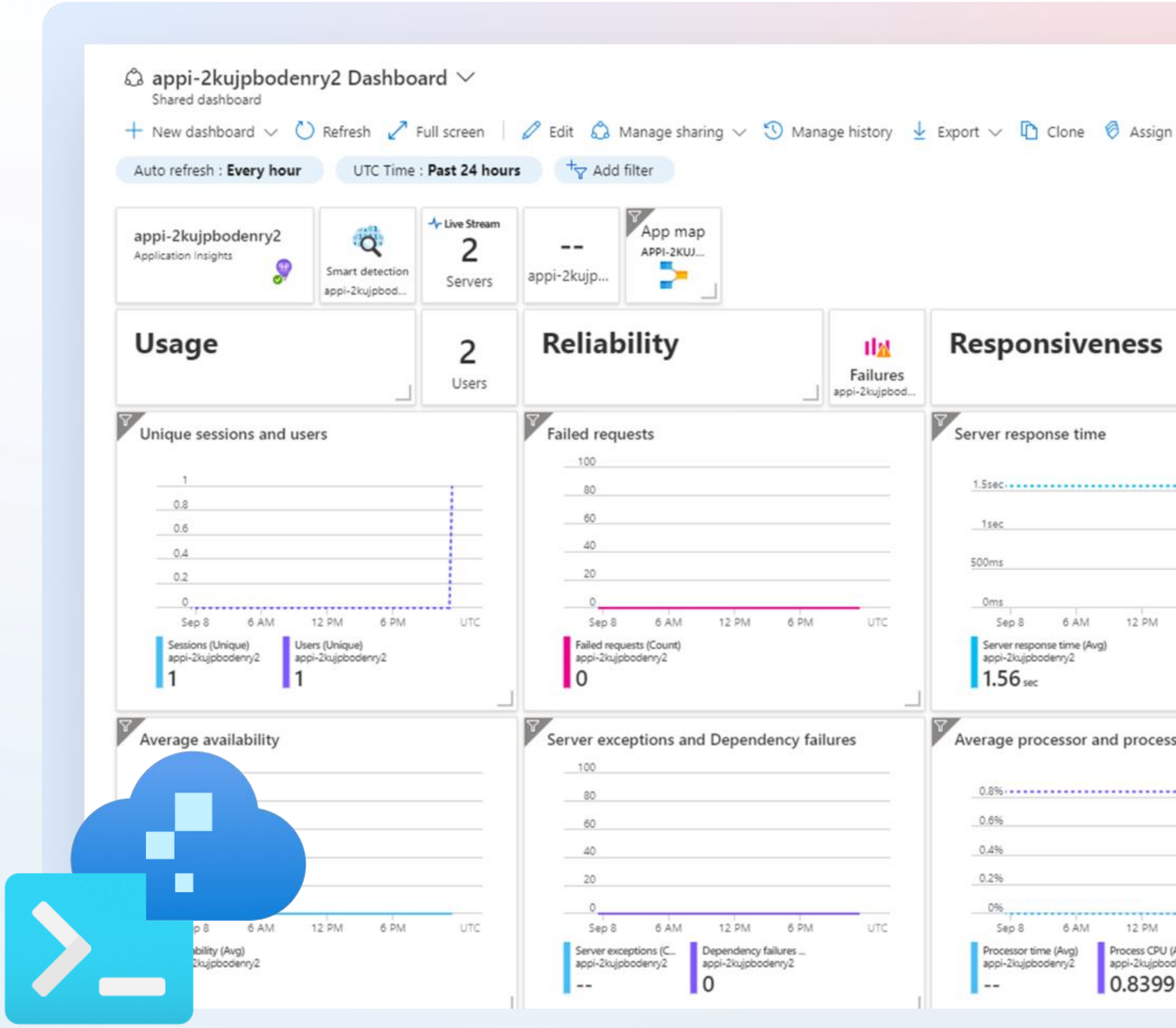
Run your pipeline against real Azure resources

```
azd pipeline config
```



# Set up application monitoring

```
azd monitor
```



# Code to Cloud with Azure Developer CLI

**All-in-one with azd up!**
Package, provision and deploy as a single step with the azd up command!

DISCOVER

## What do I want to build?

Initialize your own repository or leverage an existing idiomatic template to get started.

Each template includes real app code, local development support, Infrastructure as Code assets, and more!

Find tons of azd compatible templates at: https://azure.github.io/awesome-azd/

$ azd template list
$ azd init

INFRASTRUCTURE

## How do I create & connect services for my application?

Provision the right resources to run your application on Azure.

Every template includes IaC files written in Bicep or Terraform.

$ azd provision

DEPLOY

## How do I get my application running in the cloud?

Package and deploy your application code to Azure in minutes.

$ azd deploy

BEST PRACTICES

## How do I infuse best practices into my workflow?

Monitor your app's health with usage, performance and reliability metrics and dashboards.

Set up CI/CD to run against real Azure resources on every commit to the repo.

$ azd monitor
$ azd pipeline config

$ azd up

So maybe I’ve convinced you that

# the cloud is cool!

(when you have the right tools to support your workflow)

# Ready to get started?

**Resources for this talk**

aka.ms/azd-pycon

**Azure Developer CLI links**

- Install: aka.ms/azd-install
- Docs: aka.ms/azd
- GitHub: github.com/azure/azure-dev
- Community standups: aka.ms/azd-standups
- Template gallery: aka.ms/azd-python-templates