

Materials for this talk can be found at
aka.ms/azd-pycon



Accelerate your workflow from local Python prototype to the cloud

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👋 Hey! I'm Savannah.

Senior Product Manager @ Microsoft

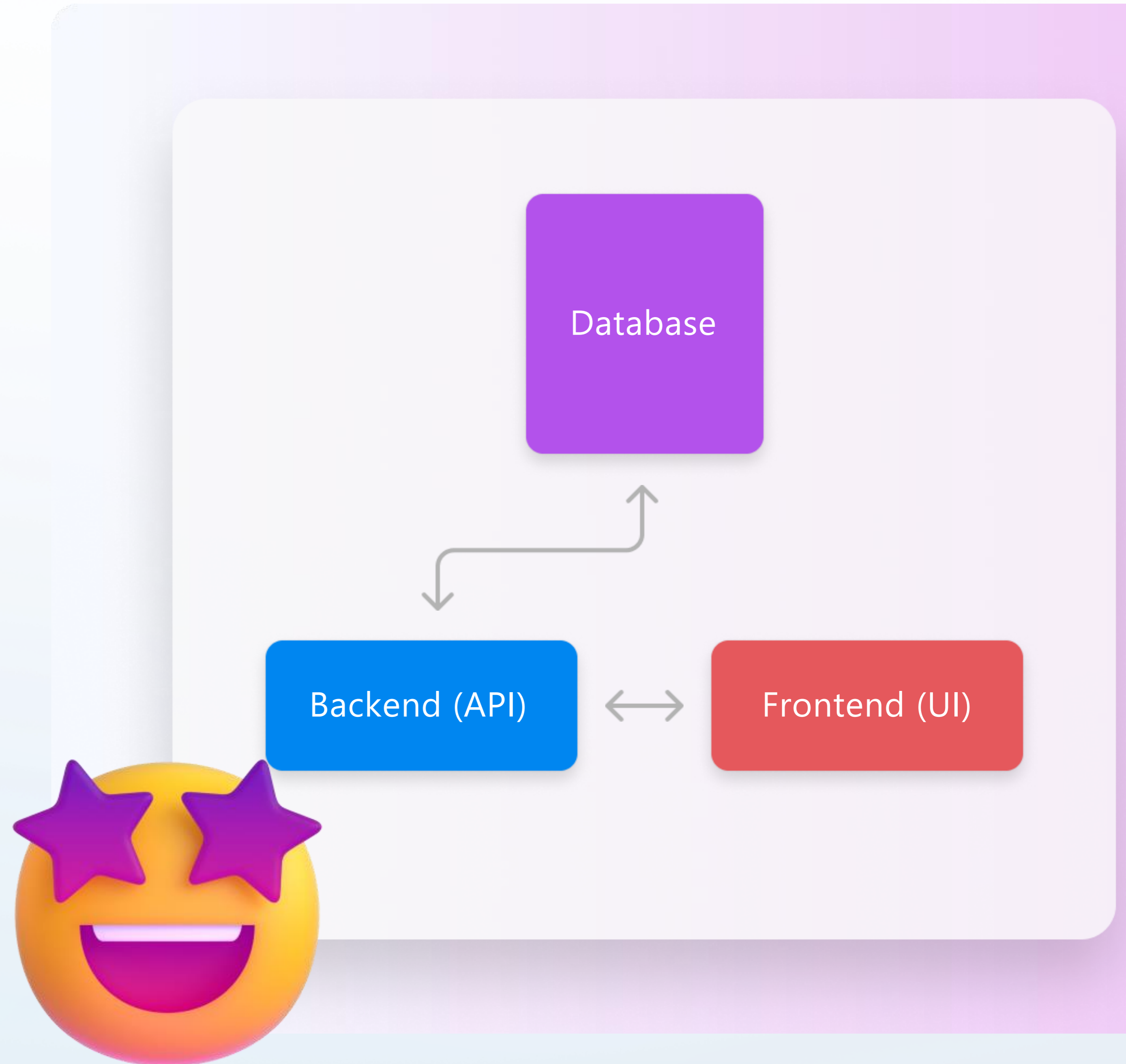
Currently: Product Lead for the Azure Developer CLI (azd)

Previously: Product Manager for Pylance/Python dev experience

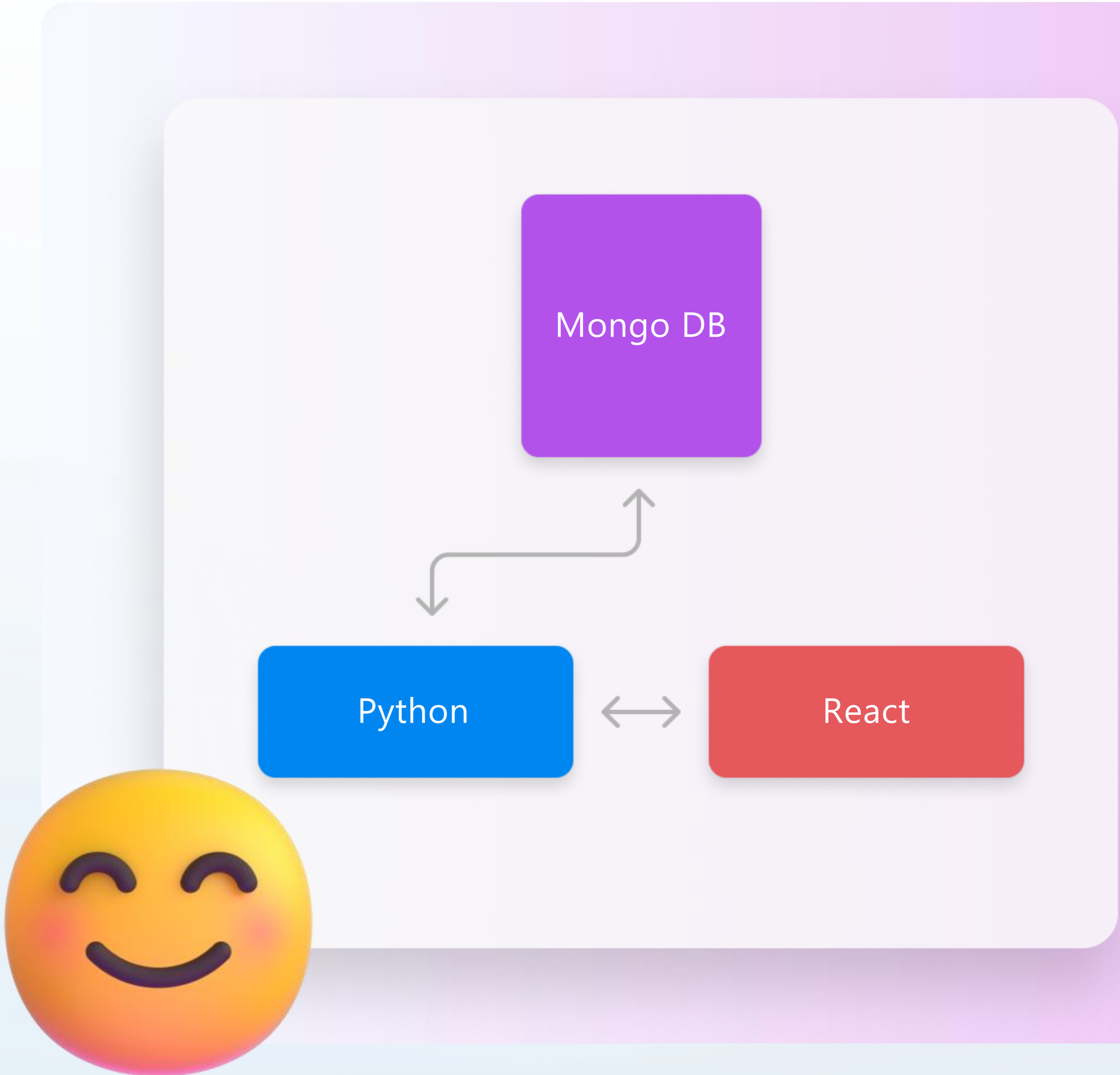
Before that: Software Engineer at startups/consultancies



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

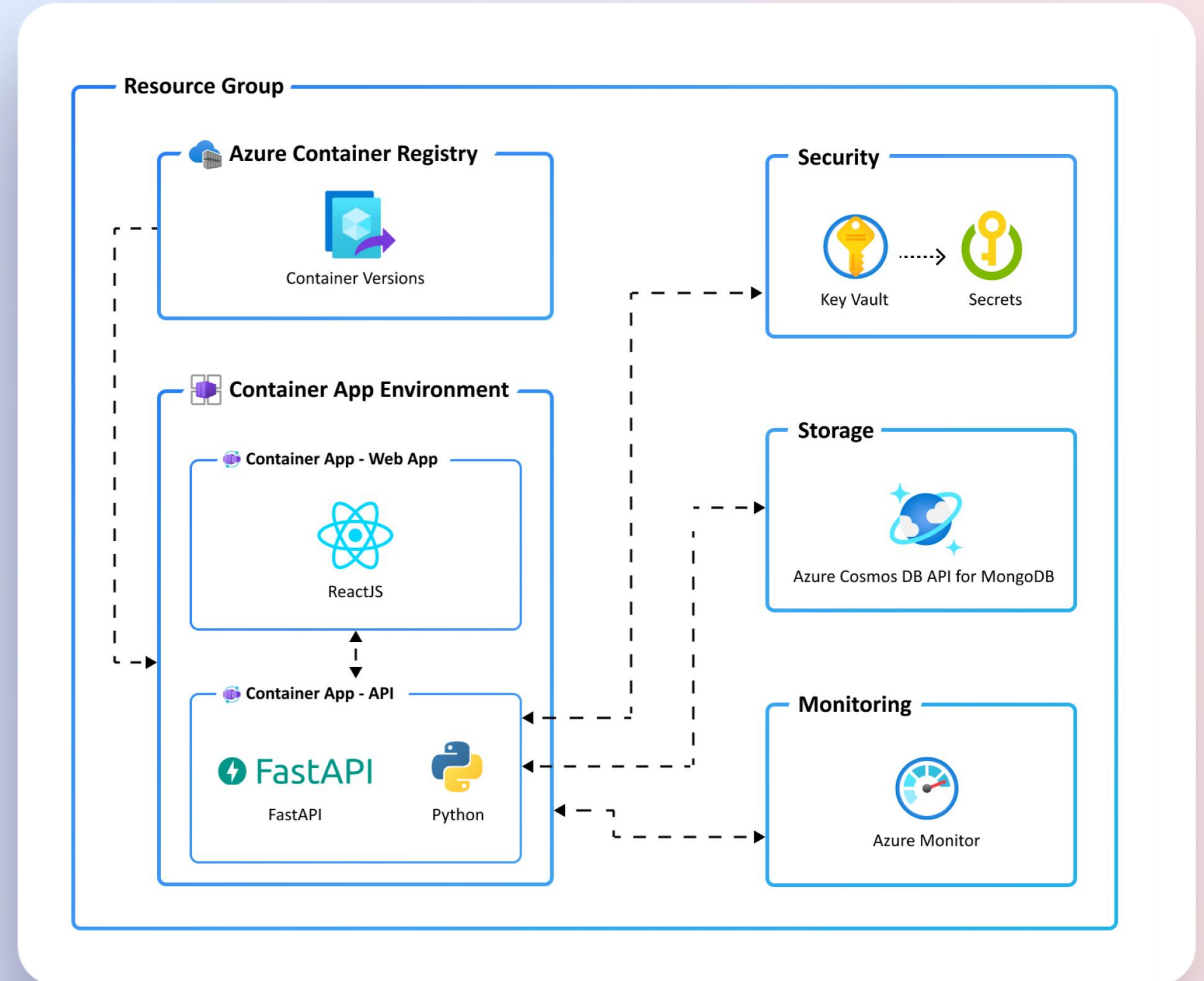
- Container Apps Environment (1)
- Container Registry (1)
- Container App (2)
- Key Vault (1)
- Azure Cosmos DB for MongoDB (1)
- Configuration of infrastructure services
- Configuration of permissions and roles
- Local dev support for working with resources

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.

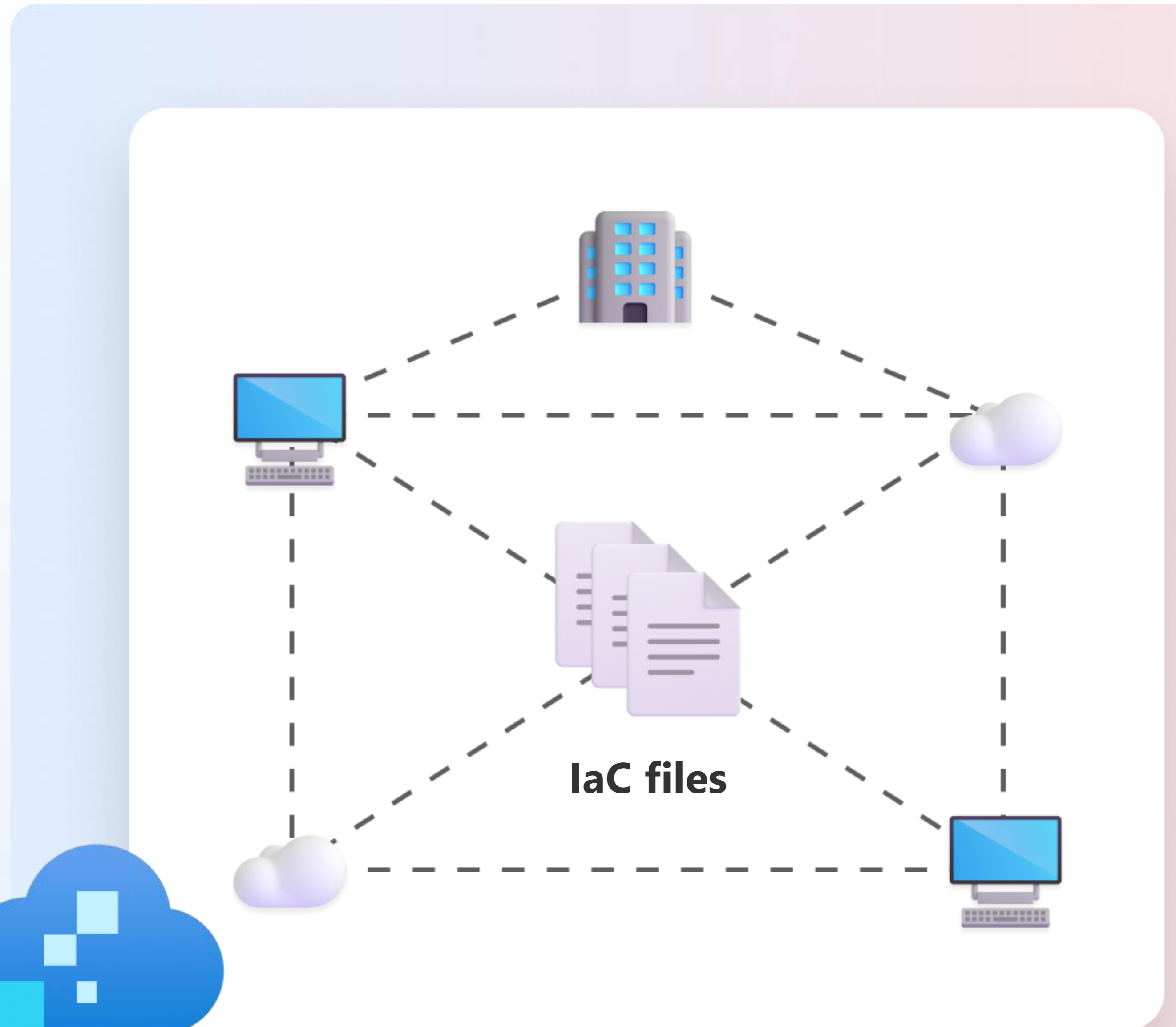
The screenshot shows the 'awesome-azd' website's 'Template Library'. The page features a search bar, a filter section, and a grid of 18 templates. A modal window is open over the 'ToDo Application - Java MongoDB AppService' template, which is Microsoft Authored. The modal displays the following information:

- Microsoft Authored**
- ToDo Application - Java MongoDB AppService**
- by Azure Dev
- A complete sample To Do application that demonstrates how to build an Azure solution using React.js for the Web application, Java for the API,...
- Tags: .NET, C#, Azure App Insights, Azure Functions, Tag, Azure Log Analytics, Azure Health Data Service, FHIR Service, Bicep, Additional Tag, CosmoDB
- Quick Use: `azd up -t Azure-Samples/azure-health-d`

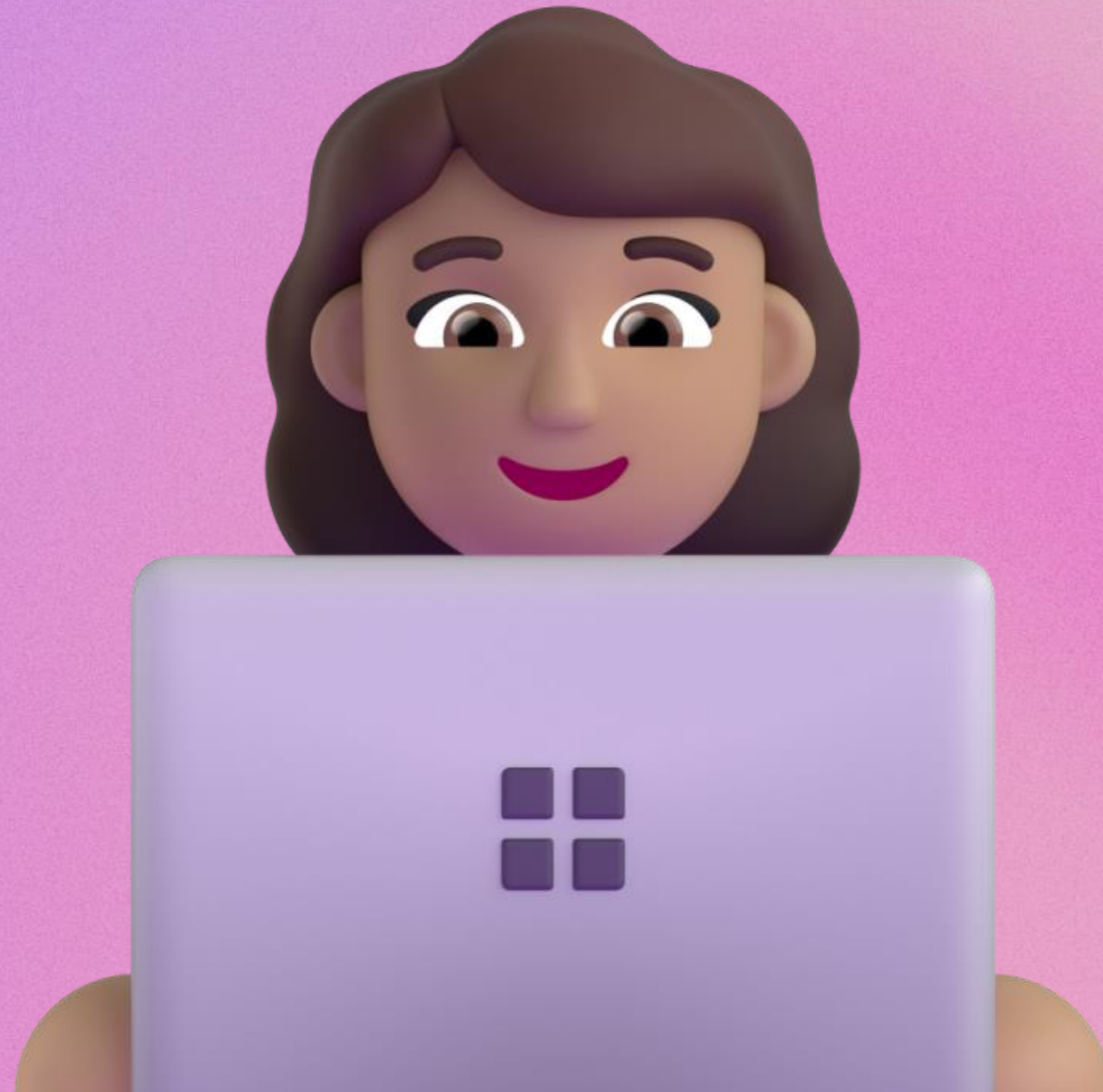
The background grid shows other templates such as 'Azure Health Data Services Toolkit Azure Function Quickstart', 'Microservices App - Dapr PubSub C# ACA ServiceBus', 'Microservices App - Dapr PubSub Node.js ACA ServiceBus', 'OpenAI Query based Summarization', 'Rock, Paper, Orleans (RPO) - Distributed .NET', and 'ToDo Application - C# AzureSQL AppService'.

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: sha256:21e89521db3b2eff8d0b0dfcd887239c3b7573e89edfe71ed512dc23ae2a366
- 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%2Fsavannah-pycon-final

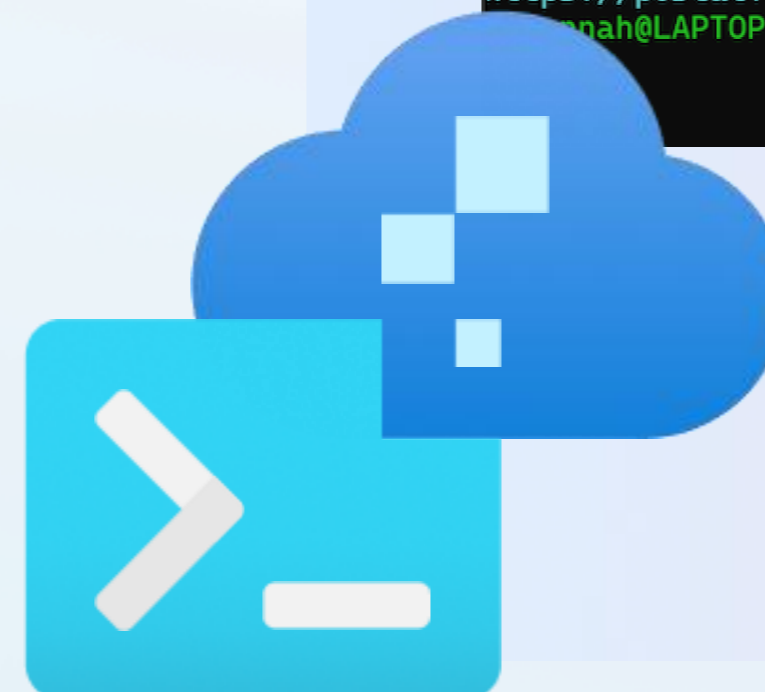
(✓) Done: Resource group: rg-savannah-pycon-final
(✓) Done: Log Analytics workspace: log-mv5mrnntx6ijm
(✓) Done: Key vault: kv-mv5mrnntx6ijm
(✓) Done: Application Insights: appi-mv5mrnntx6ijm
(✓) Done: Portal dashboard: dash-mv5mrnntx6ijm
(✓) Done: Container Registry: crmv5mrnntx6ijm
(✓) Done: Container 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/

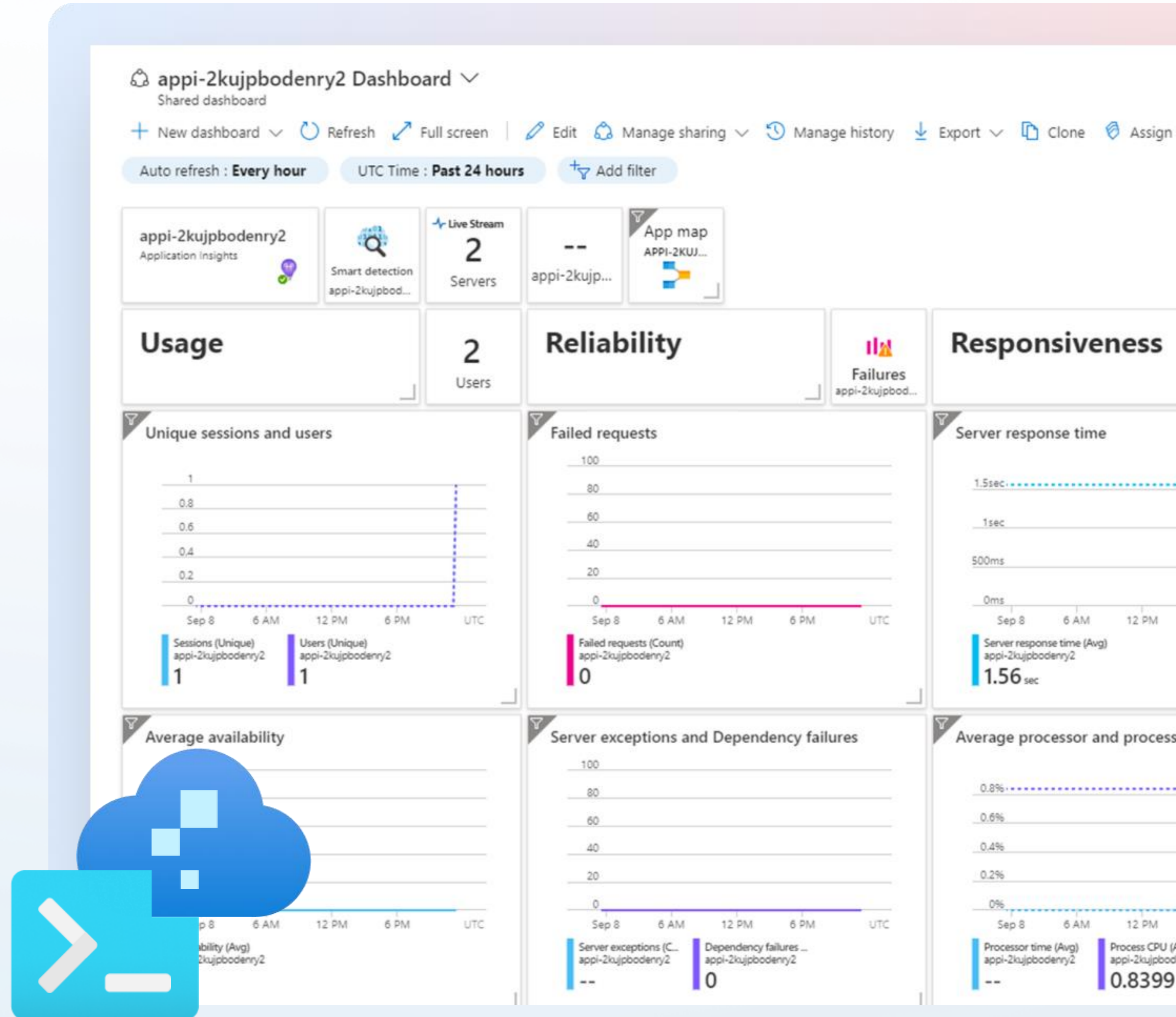
SUCCESS: Your Azure app has been deployed!
You can view the resources created under the resource group rg-savannah-pycon-final in Azure Portal:
https://portal.azure.com/#@/resource/subscriptions/faa080af-c1d8-40ad-9cce-e1a450ca5b57/resourceGroups/rg-savannah-pycon-final/overview
savannah@LAPTOP-KRU4894P:~/pycon$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



But azd can do *even more*...

Set up application monitoring

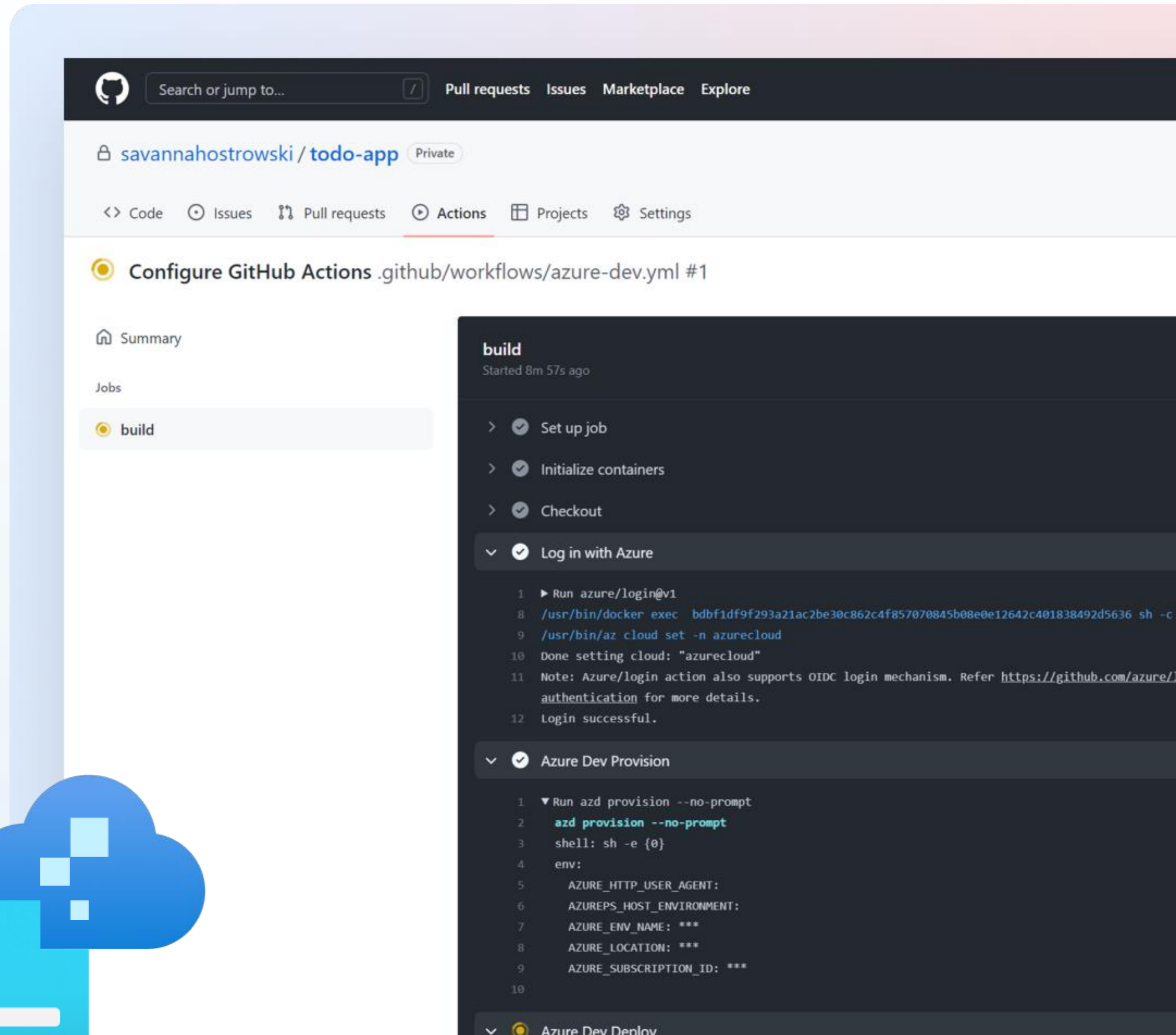
azd monitor



CI/CD on every commit to the repo

Run your pipeline against real Azure resources

azd pipeline config



The screenshot displays the GitHub Actions interface for a workflow named "Configure GitHub Actions .github/workflows/azure-dev.yml #1". The workflow is currently in a "build" state, which started 8m 57s ago. The workflow consists of several jobs, with the "build" job being the active one. The "build" job includes the following steps:

- Set up job
- Initialize containers
- Checkout
- Log in with Azure
- Azure Dev Provision
- Azure Dev Deploy

The "Log in with Azure" step is expanded, showing the following commands and output:

```
1 ▶ Run azure/login@v1
8 /usr/bin/docker exec bdbf1df9f293a21ac2be30c862c4f857070845b08e0e12642c401838492d5636 sh -c
9 /usr/bin/az cloud set -n azurecloud
10 Done setting cloud: "azurecloud"
11 Note: Azure/login action also supports OIDC login mechanism. Refer https://github.com/azure/azd/blob/main/docs/oidc.md for more details.
12 Login successful.
```

The "Azure Dev Provision" step is also expanded, showing the following commands and output:

```
1 ▼ Run azd provision --no-prompt
2 azd provision --no-prompt
3 shell: sh -e {0}
4 env:
5   AZURE_HTTP_USER_AGENT:
6   AZUREPS_HOST_ENVIRONMENT:
7   AZURE_ENV_NAME: ***
8   AZURE_LOCATION: ***
9   AZURE_SUBSCRIPTION_ID: ***
10
```

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

