# Container Apps Provisioning using Pulumi

- We will provision the Container App using Pulumi as an Infrastructure as Code.
- We will deploy it in a custom Virtual Network for isolation.
- We will connect the Container App to ACR for Docker Image.
- We will also create a Storage Account Container to store the .env file.
- Also will deploy MySQL Flexible to store the relational data and connect it to the Container App.

# **Prerequisites**

- 1. An Azure account.
- 2. Azure CLI installed and configured with the appropriate Azure User or Service Principal.
- 3. Pulumi Installed.

### Write Pulumi Configuration files

First, we will initiate and edit Pulumi configuration files for Azure resources using predefined Pulumi Library available on the internet.

### Steps

- 1. Create a Pulumi Project directory.
- 2. Open the PowerShell.
- 3. Change the directory to the above-created Pulumi Project.
- 4. Run the pulumi new azure-python command to initialize the pulumi.
- 5. Provide the appropriate values to prompts such as *project-name*, *project-description*, *stack-name*, *toolchain*, *region-name*, etc.
- 6. This will generate some Pulumi files in this directory.
- 7. Now we will install predefined Pulumi modules.
- 8. Activate the **venv** by running **venv\Scripts\activate**.
- 9. Run pip install git+https://github.com/sahilphule/pulumi.git to install the modules.
- 10. Deactivate the **venv** by running **deactivate**.
- 11. Now open the directory in the preferred IDE.
- 12. Create commons folder
- 13. Inside the folder create *init*.py file.
- 14. Import the following in the *init*.py file:
  - from inflection\_zone\_pulumi.modules.azure.resource\_group import resource\_group
  - o from inflection\_zone\_pulumi.modules.azure.vnet import vnet
  - o from inflection\_zone\_pulumi.modules.azure.acr import acr
  - o from inflection\_zone\_pulumi.modules.azure.mysql\_flexible import mysql\_flexible
  - from inflection\_zone\_pulumi.modules.azure.container\_apps import container\_app
- 15. Click code for reference.
- 16. Definition of *init*.py is complete.

- 17. Now create the *values.py* file in the root folder of the above-created project directory.
- 18. Define the following values:
  - resource\_group\_properties
  - o vnet\_properties
  - o acr\_properties
  - mysql\_flexible\_properties
  - o container\_app\_properties
- 19. Click code for reference.
- 20. The definition of values.py is complete.
- 21. Now navigate to the *main.py* file present in the root folder of the above-created project directory.
- 22. Clear the sample code if present.
- 23. Import the following:
  - from commons import resource\_group, vnet, acr, mysql\_flexible, container\_app
  - values
- 24. Define the following objects and pass the values & dependencies as an argument:
  - RESOURCE\_GROUP
  - VNET
  - ACR
  - MYSQL FLEXIBLE
  - CONTAINER APP
- 25. Click code for reference.
- 26. Definition of *main.py* is complete.

### Provisioning the Infrastructure

Now we will provision the infrastructure by applying the above-created configuration files.

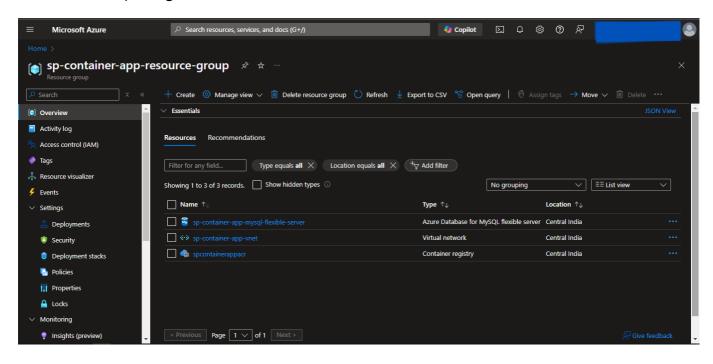
Ensure Azure CLI is configured with the appropriate Azure User or Service Principal.

#### Steps:

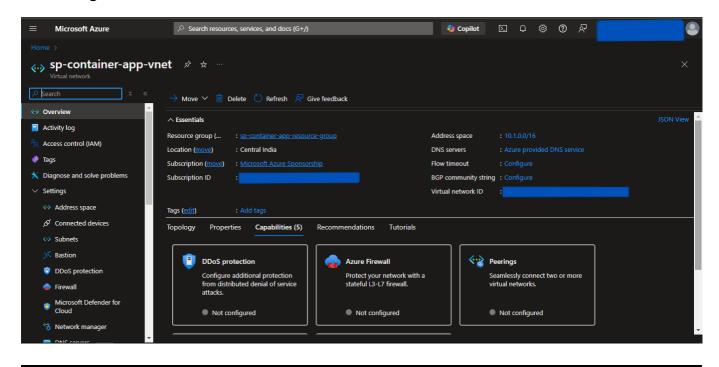
- 1. Open the PowerShell.
- 2. Change the directory to the above-created Pulumi Project.
- 3. Run the **pulumi** up command and if prompted, select **yes** to provision the infrastructure onto the Azure Cloud.
- 4. Head to the Azure Console, and verify the created resources.
- Access the service onto the browser using the url received by running pulumi stack output container-app-url.

#### Screenshots of Provisioned Infrastructure

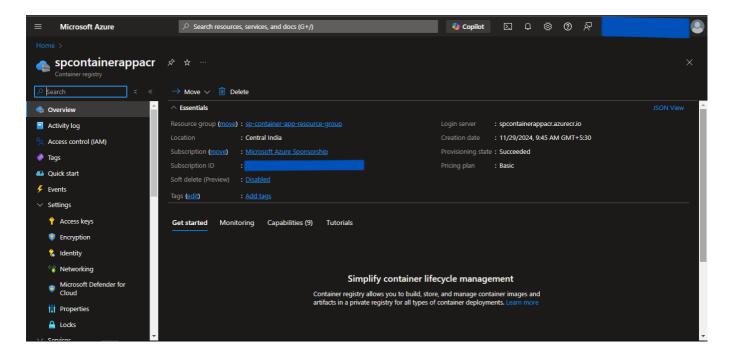
#### Resource Group Image



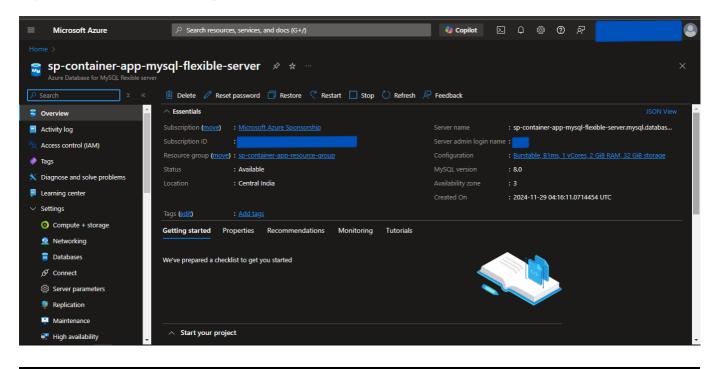
#### **VNet Image**



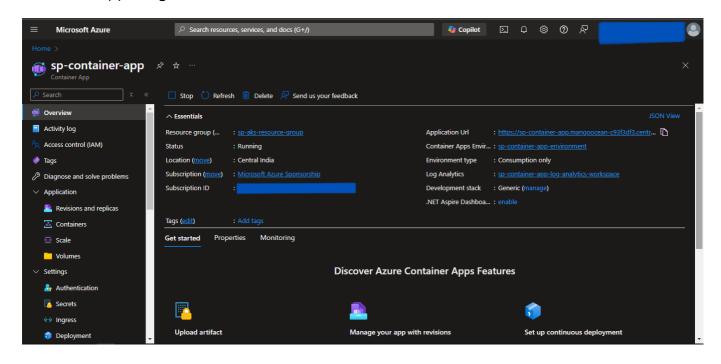
### **ACR Image**



### MySQL Flexible Server Image



### Container App Image



# Destroy the provisioned infrastructure

Lastly, we will destroy the above-created resources.

## Steps

- 1. To destroy infrastructure, open the Powershell Window and change the directory to the above-created Pulumi Project using the cd command.
- 2. Run pulumi destroy & if prompted, select yes.
- 3. Infrastructure will be destroyed.