Container Apps Provisionig using Terraform

Prerequisites

1. Azure Account with Subscription.
2. Terraform installed.

Steps

1. Create the **container-apps-terraform** directory.
2. Folders structure for the above-created directory is as follows:

```
container-apps-terraform
├──.terraform.lock.hcl
├──locals.tf
├──main.tf
├──outputs.tf
├──providers.tf
├──terraform.tfstate
├──terraform.tfstate.backup
└──.terraform
```

> We need to only create *providers.tf*, *main.tf*, *outputs.tf*, & *locals.tf* file. Other files are generated while initiating terraform.

3. Create a *providers.tf* file inside the above-created directory.
4. Inside it, define the following:
    - terraform
        - required_providers
    - provider
        - azurerm
5. Click code for reference.
6. The definition of *providers.tf* file is complete.
7. Now, create the *main.tf* file.
8. Inside *main.tf* file, we will use the following predefined modules:
    - resource-group
    - virtual-network
    - acr
    - mysql-flexible
    - container-apps
9. Click code for reference.
10. The definition of *main.tf* file is complete.
11. Now we will create *outputs.tf* file.
12. Inside it, define the following outputs.
    - acr-login-server

    - acr-admin-username
    - acr-admin-password
    - DB_HOST
    - container-apps-url
13. Click code for reference.
14. The definition of *outputs.tf* file is complete.
15. Now we will create *locals.tf* file.
16. Inside it, define the following variables:
    - resource-group-properties
    - virtual-network-properties
    - acr-properties
    - mysql-flexible-properties
    - container-apps-properties
17. Click code for reference.
18. The definition of *locals.tf* file is complete.

> Make sure you give the appropriate values to the varibles defined in *locals.tf* file.

Provisioning the Infrastructure

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

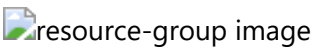
> Ensure Azure CLI is configured with appropriate Azure Account credentials with enough permissions.

Steps:

1. Open the PowerShell.
2. Change the directory to the above-created **eks-terraform** directory using `cd` command.
3. Run the `terraform init` command to initialize the *terraform*.
4. Run the `terraform fmt -recursive` command to format the syntax of the files.
5. Run the `terraform validate` command to validate the configuration files.
6. Run the `terraform plan` command to plan the resources to be created.
7. Run the `terraform apply` command and if prompted, type `yes` to provision the infrastructure.
8. Run the `terraform output` command to get the values of defined variables in *outputs.tf* file.
9. Then,
    - Copy the *container-app-url*.
    - Paste the address in the browser to access the application.
10. Head to the Azure Console, and verify the created resources.

Screenshots of Provisioned Infrastructure

Resource Group Image

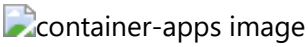

resource-group image

Virtual Network Image

ACR Image

MySQL Flexible Server Image

Container Apps Image



Build and push Docker Image to ACR

1. Open a new Powershell window.
2. Run the following commands to login into ACR:
    - `az login`
    - `az acr login --name "acr-name"`
3. Then tag & push the docker image using the following commands:
    - `docker tag "image-name:tag" "acr-name".azurecr.io/"image-name:tag"`
    - `docker push "acr-name".azurecr.io/"image-name:tag"`
      Substitute *acr-name* with the value defined in the above-created locals.tf file. Also, substitute *image-name:tag* with it's respective name.

Destroy the provisioned infrastructure

1. To destroy infrastructure, change directory to the above-created **container-apps-terraform** directory using `cd` command.
2. Run `terraform destroy` & if prompted, type `yes`.
3. Infrastructure will be destroyed.
