



Azure DevOps Lab

MICROSOFT AZURE

**Implementing and managing Azure apps services
final task**

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1. AGENDA

The Azure App Service provides an easy way to deploy and host code, configure and manage the environment for the application.

In this task, we are asking you to build a production design. The current design meets the requirements of high available infrastructure. It allows distributing clients traffic between multiple regions. Another benefit is Traffic Manager improves application responsiveness by directing traffic to the endpoint with the lowest network latency for the client.

The goal of the task is to build two applications based on different technologies: first is App Service plan with app service and the second is Azure Kubernetes service. Additionally, you will need to choose under what load balancing technology to put them: under Traffic Manager solution or under Application gateway (both options are possible).

As a backend application will be used Azure key vault service with custom keys inside it.

!!! In any question please review **useful links** in section 5.

2. TASK

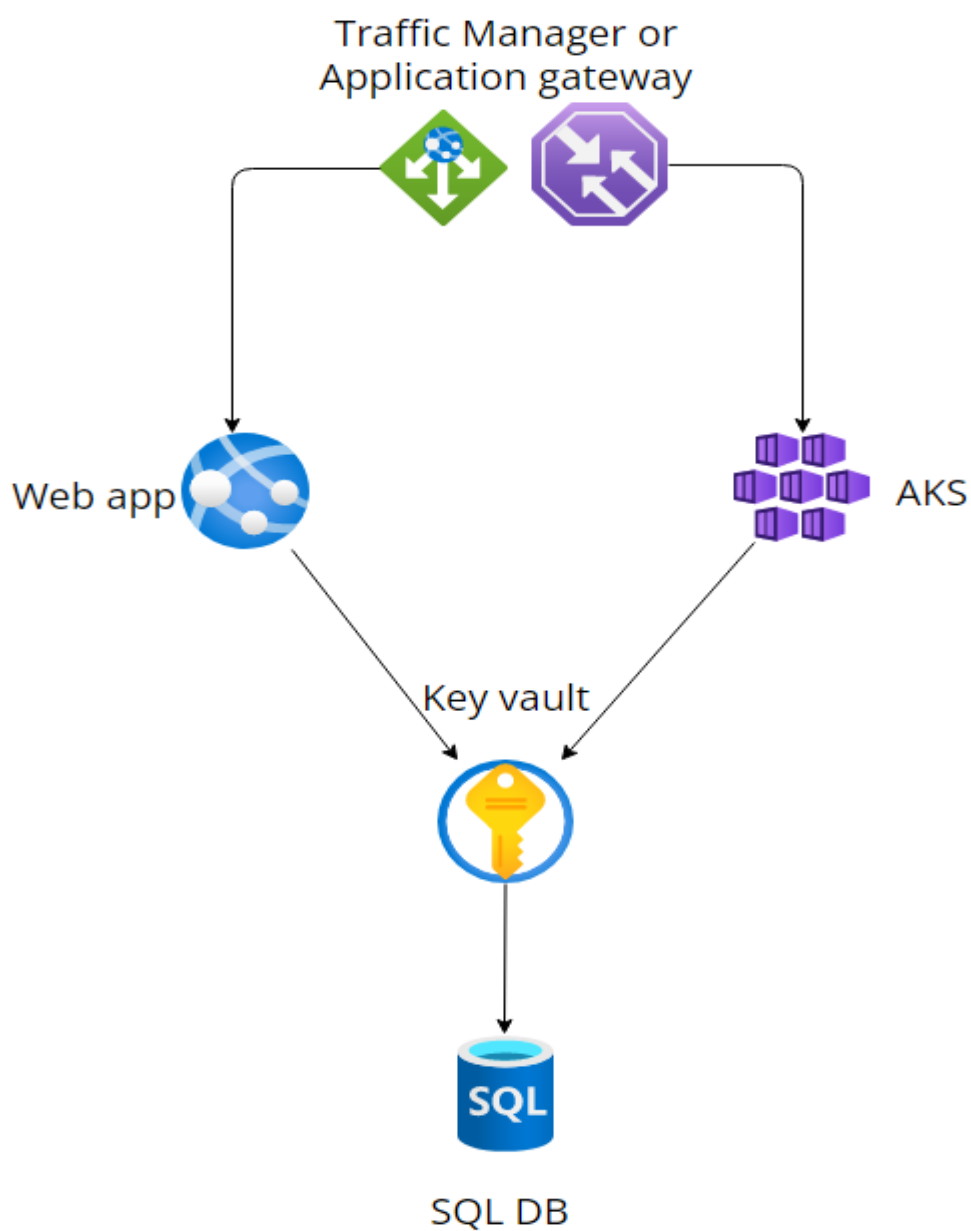
- Create Azure App Service Plan with Azure App Service inside it.
- Create Azure Kubernetes service and deploy any pod inside it (pod shall be accessible from the internet)
- Build high available load balancer infrastructure based on Traffic Manager or Application gateway solution.
- Create Azure key vault service and put two secrets inside it.
- Create Azure SQL database and put access key it to Azure key vault.

3. TASK DETAILS

- For granting access from web app to key vault. In webapp should be enable managed identity feature. In the key vault please configure access policy based on web app name.
- For key vault secrets please use next naming patter `<name_surname_number[1-2]>`. Key vault secret should store access key for Azure SQL database.
- AKS service should have one deployment with at least one pod (nginx as example) and service.
- In Traffic Manager or Application gateway solution use web app and AKS endpoints as backends, as balancing method choose any which you want.
- For connecting frontend app with backend. Please add “new application setting” in webapp configuration section, one per each web app. Please use next string as setting value:
- `@Microsoft.KeyVault(VaultName=<YoursKeyVaultName>;SecretName=<name_surname_number[1-2]>;SecretVersion=)`
- Second secret should be added inside the AKS and used by pod.*

4. TASK RESULT

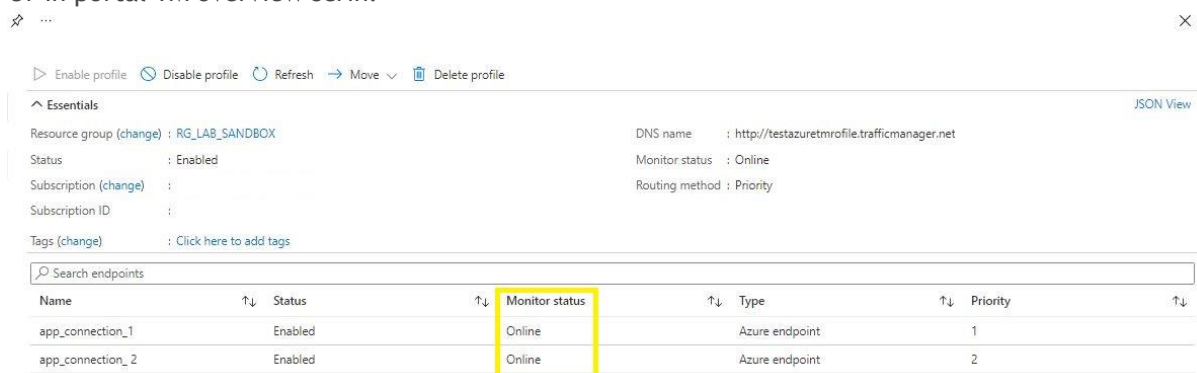
- Running one Azure App Service and one AKS under the Azure Traffic Manager Application gateway solution.
- Web app and AKS exposing any application to the internet
- Web app should take a variable from the key vault.
- AKS pod should take a variable from the key vault.*



*- It is an additional task. Do it only after finishing all the above

For checking task results, please use next steps:

- Command to test traffic-manager configuration:
az network traffic-manager endpoint list -g <YoursResourceGroupName> --profile-name <YoursTmProfileName>
In output you should see next rows:
"endpointMonitorStatus": "Online",
"endpointStatus": "Enabled",
- Or in portal TM overview scrin:



Name	Status	Monitor status	Type	Priority
app_connection_1	Enabled	Online	Azure endpoint	1
app_connection_2	Enabled	Online	Azure endpoint	2

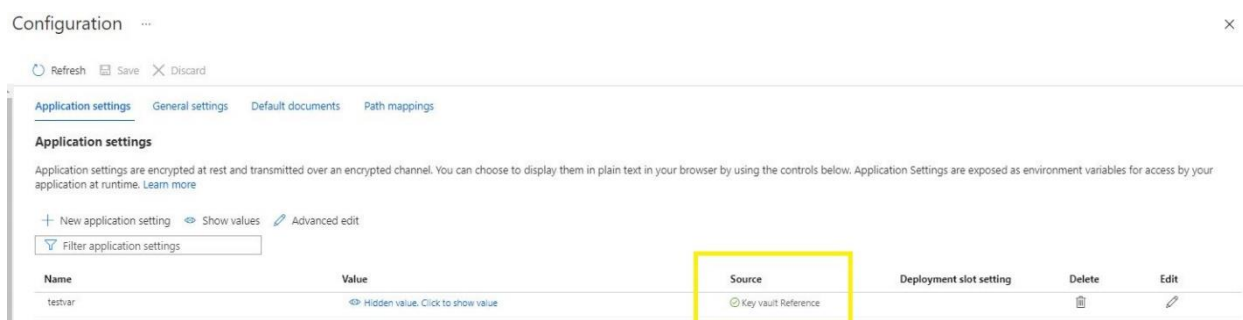
Command to test web apps settings:

az webapp config appsettings list --name <YoursWebAppName> --resource-group <YoursResourceGroupName>

In output you should see next rows:

```
{
  "name": "YoursTestVarName",
  "slotSetting": false,
  "value":
    "@Microsoft.KeyVault(VaultName=<YoursKeyVaultName>;SecretName=<name_surname_number[1-2]>;SecretVersion=)"
}
```

- Or in portal WebApp configuration scrin:



Name	Value	Source	Deployment slot setting	Delete	Edit
testvar	Hidden value. Click to show value	Key vault Reference			

The field should be green.

5. USEFUL LINKS

<https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-overview>

<https://docs.microsoft.com/en-us/azure/traffic-manager/traffic-manager-faqs>

<https://docs.microsoft.com/en-us/azure/application-gateway/overview>

<https://docs.microsoft.com/en-us/azure/app-service/overview>

<https://docs.microsoft.com/en-us/azure/key-vault/general/basic-concepts>

<https://docs.microsoft.com/en-us/azure/aks/intro-kubernetes>

<https://kubernetes.io/docs/tasks/run-application/run-stateless-application-deployment/>