Implement Azure Kubernetes Service

Lab scenario

Contoso has a number of multi-tier applications that are not suitable to run by using Azure Container Instances. In order to determine whether they can be run as containerized workloads, you want to evaluate using Kubernetes as the container orchestrator. To further minimize management overhead, you want to test Azure Kubernetes Service, including its simplified deployment experience and scaling capabilities.

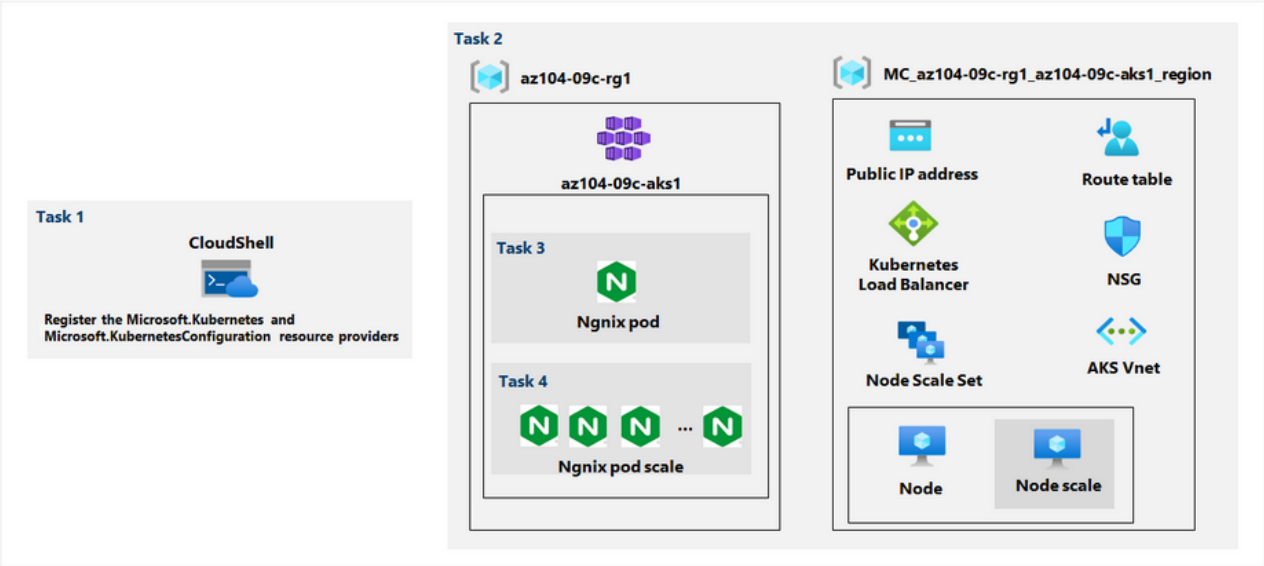
In this lab, you will:

Task 1: Register the Microsoft.Kubernetes and Microsoft.KubernetesConfiguration resource providers.

Task 2: Deploy an Azure Kubernetes Service cluster

Task 3: Deploy pods into the Azure Kubernetes Service cluster

Task 4: Scale containerized workloads in the Azure Kubernetes service cluster



PROF

Exercise 1
First login to you azure aacount and open **PowerShell**

From the Cloud Shell pane, run the following to register the Microsoft.Kubernetes and Microsoft.KubernetesConfiguration resource providers.

```
Register-AzResourceProvider -ProviderNamespace Microsoft.Kubernetes

Register-AzResourceProvider -ProviderNamespace
Microsoft.KubernetesConfiguration
```

Task 2

In task 2 we have to create new cluster, navigate to **Kubernetes services** / and then in **Kubernetes services** click **Create** + + **Create a Kubernetes cluster**

Task 3
run

```
kubectl get nodes

NAME                                STATUS   ROLES   AGE     VERSION
aks-agentpool-15031957-vmss000000   Ready    agent   4m56s   v1.24.10

kubectl create deployment nginx-deployment --image=nginx
deployment.apps/nginx-deployment created


kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-85c6d5f6dd-sw5lf   1/1     Running   0          54s

kubectl get deployment
NAME               READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment   1/1     1            1           93s

kubectl expose deployment nginx-deployment --port=80 --type=LoadBalancer
service/nginx-deployment exposed

kubectl get service
NAME               TYPE           CLUSTER-IP     EXTERNAL-IP
PORT(S)        AGE
kubernetes         ClusterIP      10.0.0.1       <none>
443/TCP        9m22s
nginx-deployment   LoadBalancer   10.0.197.176   52.188.218.174
80:31209/TCP   23s
```

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Task 4: Scale containerized workloads in the Azure Kubernetes service cluster
kubectl scale --replicas=2 deployment/nginx-deployment
deployment.apps/nginx-deployment scaled

```
kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-85c6d5f6dd-6rpw6   1/1     Running   0          36s
nginx-deployment-85c6d5f6dd-sw5lf   1/1     Running   0          6m6s

kubectl get nodes
NAME                                STATUS   ROLES   AGE     VERSION
aks-agentpool-15031957-vmss000000   Ready    agent   24m     v1.24.10
virtual-node-aci-linux              Ready    agent   8m40s   v1.19.10-
```

```
vk-azure-aci-1.4.8

kubectl scale --replicas=10 deployment/nginx-deployment
deployment.apps/nginx-deployment scaled

kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-deployment-85c6d5f6dd-6rpw6   1/1     Running   0          13m
nginx-deployment-85c6d5f6dd-94th4   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-cxng6   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-l9lbn   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-m8z2p   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-nhllp   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-rd95p   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-sf85x   1/1     Running   0          8s
nginx-deployment-85c6d5f6dd-sw5lf   1/1     Running   0          19m
nginx-deployment-85c6d5f6dd-vxlh7   1/1     Running   0          8s

kubectl get pod -o=custom-columns=NODE:.spec.nodeName,POD:.metadata.name
NODE                                POD
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-6rpw6
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-94th4
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-cxng6
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-l9lbn
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-m8z2p
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-nhllp
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-rd95p
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-sf85x
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-sw5lf
aks-agentpool-15031957-vmss000000   nginx-deployment-85c6d5f6dd-vxlh7

kubectl delete deployment nginx-deployment
deployment.apps "nginx-deployment" deleted
```