

Lab 09c - Implement Azure Kubernetes Service

- 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
 - **Scale the deployment by increasing of the number of pods to 2**

```
vladimir [ ~ ]$ kubectl scale --replicas=2 deployment/nginx-deployment
deployment.apps/nginx-deployment scaled
vladimir [ ~ ]$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
nginx-deployment-85c6d5f6dd-rf6zw	1/1	Running	0	2m11s
nginx-deployment-85c6d5f6dd-zj78q	1/1	Running	0	27s

- **Scale out the cluster by increasing the number of nodes to 2**

```
vladimir [ ~ ]$ RESOURCE_GROUP='az104-09c-rg1'

AKS_CLUSTER='az104-9c-aks1'

az aks scale --resource-group $RESOURCE_GROUP --name $AKS_CLUSTER --node-count 2
{
  "aadProfile": null,
  "addonProfiles": {
    "azureKeyvaultSecretsProvider": {
      "config": null,
      "enabled": false,
      "identity": null
    },
    "azurepolicy": {
      "config": null,
      "enabled": false,
      "identity": null
    }
  },
  "agentPoolProfiles": [
    {
      "availabilityZones": null,
      "count": 2,
      "creationData": null,
      "currentOrchestratorVersion": "1.24.10",
      "nodeLabels": {
        "kubernetes.io/hostname": "aks-agentpool-72105847-vmss000000"
      },
      "nodeOs": "Linux",
      "nodeVmSize": "Standard_DS1_v2",
      "orchestratorVersion": "1.24.10",
      "provisioningState": "Succeeded",
      "scaleSet": {
        "vmss": [
          {
            "name": "aks-agentpool-72105847-vmss000000",
            "vmssId": "aks-agentpool-72105847-vmss000000"
          },
          {
            "name": "aks-agentpool-72105847-vmss000001",
            "vmssId": "aks-agentpool-72105847-vmss000001"
          }
        ]
      },
      "upgradeSettings": {
        "kubeletVersion": "v1.24.10",
        "kubernetesVersion": "1.24.10"
      }
    }
  ]
}
```

```
vladimir [ ~ ]$ kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
aks-agentpool-72105847-vmss000000	Ready	agent	13m	v1.24.10
aks-agentpool-72105847-vmss000001	Ready	agent	6m12s	v1.24.10

- Scale the deployment

```
vladimir [ ~ ]$ kubectl scale --replicas=10 deployment/nginx-deployment
deployment.apps/nginx-deployment scaled
vladimir [ ~ ]$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
nginx-deployment-85c6d5f6dd-95cfc	1/1	Running	0	5s
nginx-deployment-85c6d5f6dd-9jf2w	1/1	Running	0	5s
nginx-deployment-85c6d5f6dd-ck5nz	0/1	ContainerCreating	0	5s
nginx-deployment-85c6d5f6dd-hgcqf	1/1	Running	0	5s
nginx-deployment-85c6d5f6dd-m7mn2	1/1	Running	0	5s
nginx-deployment-85c6d5f6dd-rf6zw	1/1	Running	0	15m
nginx-deployment-85c6d5f6dd-rp7zk	1/1	Running	0	5s
nginx-deployment-85c6d5f6dd-t5dm8	1/1	Running	0	5s
nginx-deployment-85c6d5f6dd-xcmmv	0/1	ContainerCreating	0	5s
nginx-deployment-85c6d5f6dd-zj78q	1/1	Running	0	13m

- Review the pods distribution across cluster nodes

```
vladimir [ ~ ]$ kubectl get pod -o=custom-columns=NODE:.spec.nodeName,POD:.metadata.name
```

NODE	POD
aks-agentpool-72105847-vmss000000	nginx-deployment-85c6d5f6dd-95cfc
aks-agentpool-72105847-vmss000000	nginx-deployment-85c6d5f6dd-9jf2w
aks-agentpool-72105847-vmss000001	nginx-deployment-85c6d5f6dd-ck5nz
aks-agentpool-72105847-vmss000001	nginx-deployment-85c6d5f6dd-hgcqf
aks-agentpool-72105847-vmss000001	nginx-deployment-85c6d5f6dd-m7mn2
aks-agentpool-72105847-vmss000000	nginx-deployment-85c6d5f6dd-rf6zw
aks-agentpool-72105847-vmss000000	nginx-deployment-85c6d5f6dd-rp7zk
aks-agentpool-72105847-vmss000001	nginx-deployment-85c6d5f6dd-t5dm8
aks-agentpool-72105847-vmss000001	nginx-deployment-85c6d5f6dd-xcmmv
aks-agentpool-72105847-vmss000000	nginx-deployment-85c6d5f6dd-zj78q

- Delete the deployment:

```
vladimir [ ~ ]$ kubectl delete deployment nginx-deployment
deployment.apps "nginx-deployment" deleted
```