

## Full Stack Blockchain Final Exam - Question 3

```
(base) aristotle@Aristotles-MacBook-Air-3 aks-terraform-question3 % ls
main.tf      outputs.tf   terraform.tfstate      terraform.tfstate.backup
(base) aristotle@Aristotles-MacBook-Air-3 aks-terraform-question3 % cat main.tf
provider "azurerm" {
  features {}
  subscription_id = "7b0a02df-610c-494c-9d32-e5883372662e"
}

resource "azurerm_resource_group" "rg" {
  name     = "aks-tf-rg"
  location = "Canada Central"
}

resource "azurerm_kubernetes_cluster" "aks" {
  name                = "aks-tf-cluster"
  location             = azurerm_resource_group.rg.location
  resource_group_name = azurerm_resource_group.rg.name
  dns_prefix          = "aks-tf"

  default_node_pool {
    name     = "default"
    node_count = 1
    vm_size  = "Standard_D2as_v4"
  }

  identity {
    type = "SystemAssigned"
  }

  storage_profile {
    blob_driver_enabled           = true
    disk_driver_enabled          = true
    file_driver_enabled          = true
    snapshot_controller_enabled  = true
  }

  tags = {
    environment = "terraform-demo"
  }
}

(base) aristotle@Aristotles-MacBook-Air-3 aks-terraform-question3 %
```

```
(base) aristotle@Aristotles-MacBook-Air-3 aks-terraform-question3 % terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of hashicorp/azurerm from the dependency lock file
- Using previously-installed hashicorp/azurerm v4.37.0

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
(base) aristotle@Aristotles-MacBook-Air-3 aks-terraform-question3 % terraform plan

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# azurerm_kubernetes_cluster.aks will be created
+ resource "azurerm_kubernetes_cluster" "aks" {
  + current_kubernetes_version = (known after apply)
  + dns_prefix                 = "aks-tf"
  + fqdn                      = (known after apply)
  + http_application_routing_zone_name = (known after apply)
  + id                        = (known after apply)
  + kube_admin_config         = (sensitive value)
  + kube_admin_config_raw     = (sensitive value)
  + kube_config               = (sensitive value)
  + kube_config_raw           = (sensitive value)
  + kubernetes_version        = (known after apply)
  + location                  = "canadacentral"
  + name                      = "aks-tf-cluster"
  + node_os_upgrade_channel   = "NodeImage"
  + node_resource_group       = (known after apply)
  + node_resource_group_id    = (known after apply)
  + oidc_issuer_url           = (known after apply)
  + portal_fqdn               = (known after apply)
  + private_cluster_enabled   = false
  + private_cluster_public_fqdn_enabled = false
  + private_dns_zone_id       = (known after apply)
}
```

```
azurerm_kubernetes_cluster.aks: Still creating... [00m10s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [00m20s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [00m30s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [00m40s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [00m50s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [01m00s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [01m10s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [01m20s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [01m30s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [01m40s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [01m50s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [02m00s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [02m10s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [02m20s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [02m30s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [02m40s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [02m50s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [03m00s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [03m10s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [03m20s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [03m30s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [03m40s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [03m50s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [04m00s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [04m10s elapsed]
azurerm_kubernetes_cluster.aks: Still creating... [04m20s elapsed]
azurerm_kubernetes_cluster.aks: Creation complete after 4m23s [id=/subscriptions/7b0a02df-610c-494c-9d32-e5883372662e/resourceGroups/aks-tf-Cluster/ContainerService/managedClusters/aks-tf-cluster]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.

Outputs:

kube_config = <sensitive>
```

Microsoft Azure

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**aks-tf-cluster**

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**Overview**

- Activity log
- Access control (IAM)
- Tags
- Monitor
- Diagnose and solve problems
- Microsoft Defender for Cloud (preview)
- Cost analysis
- Resource visualizer
- Kubernetes resources
- Settings
- Monitoring
- Automation
- Help

**Essentials**

Resource group: **aks-tf-rg**

Power state: Running

Cluster operation status: Succeeded

Subscription: [Azure for Students](#)

Location: Canada Central

Subscription ID: 7b0a02df-610c-494c-9d32-e5883372662e

Fleet Manager: [Click here to assign](#)

Tags ([edit](#)): environment : terraform-demo

**Properties** Monitoring Recommendations

**Kubernetes services**

Encryption type: Encryption at-rest with a platform-managed key

Virtual node pools: Not enabled

**Networking**

API server address: aks-tf-m9jtnm01.hcp.canadacentral.azmk8s.io

Network configuration: Azure CNI Overlay

Container registries: [Attach a registry](#)

Node pools: 1 node pool

Showing 1 - 1 of 1. Display count: auto

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**Overview**

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**Kubernetes services**

Encryption type: Encryption at-rest with a platform-managed key

Virtual node pools: Not enabled

**Node pools**

Node pools: 1 node pool

Kubernetes versions: 1.32.5

Node sizes: Standard\_D2as\_v4

**Upgrades**

Kubernetes version: 1.32.5

Auto Upgrade Type: Disabled

Automatic upgrade scheduler: -

Node upgrade channel type: Node Image

Node upgrade channel scheduler: -

**Security configuration**

Authentication and Authorization: Local accounts with Kubernetes RBAC

Local accounts: Enabled

**Extensions + applications**

No extensions installed

**Networking**

API server address: aks-tf-m9jtnm01.hcp.canadacentral.azmk8s.io

Network configuration: Azure CNI Overlay

Pod CIDR: 10.244.0.0/16

Service CIDR: 10.0.0.0/16

DNS service IP: 10.0.0.10

Cilium dataplane: Not enabled

Network Policy: None

Load balancer: standard

Private cluster: Not enabled

Authorized IP ranges: Not enabled

Application Gateway ingress controller: Not enabled

**Integrations**

Container insights: Not enabled

Workspace resource ID: -

Service Mesh - Istio: Not enabled

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