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**Факультет математики та інформатики
Кафедра інформаційних технологій**

Хмарні технології

Лабораторна робота №5

Тема: Implement Intersite Connectivity

Мета: Навчитися основам роботи з віртуальними машинами

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Група ІПЗ-41
Дата: 17 грудня 2025р.
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providers.tf

```
1 √ terraform {
2   required_version = ">= 1.0"
3   √ required_providers {
4     √ azurerm = {
5       source  = "hashicorp/azurerm"
6       version = "~> 3.0"
7     }
8   }
9 }
10
11 √ provider "azurerm" [
12   features {}
13 ]
```

main.tf

```
1 resource "azurerm_resource_group" "rg" {
2   name      = var.resource_group_name
3   location  = var.location
4 }
5
6 resource "azurerm_virtual_network" "core_vnet" {
7   name          = "CoreServicesVnet"
8   address_space = ["10.0.0.0/16"]
9   location      = azurerm_resource_group.rg.location
10  resource_group_name = azurerm_resource_group.rg.name
11 }
12
13 resource "azurerm_subnet" "core_subnet" {
14   name          = "Core"
15   resource_group_name = azurerm_resource_group.rg.name
16   virtual_network_name = azurerm_virtual_network.core_vnet.name
17   address_prefixes    = ["10.0.0.0/24"]
18 }
19
20 resource "azurerm_network_interface" "core_nic" {
21   name          = "CoreServicesVM-nic"
22   location      = azurerm_resource_group.rg.location
23   resource_group_name = azurerm_resource_group.rg.name
24
25   ip_configuration {
26     name          = "internal"
27     subnet_id    = azurerm_subnet.core_subnet.id
28     private_ip_address_allocation = "Dynamic"
29   }
30 }
31 }
```

```
32 resource "azurerm_windows_virtual_machine" "core_vm" {
33   name           = "CoreServicesVM"
34   resource_group_name = azurerm_resource_group.rg.name
35   location        = azurerm_resource_group.rg.location
36   size            = var.vm_size
37   admin_username  = var.admin_username
38   admin_password  = var.admin_password
39   network_interface_ids = [azurerm_network_interface.core_nic.id]
40
41   os_disk {
42     caching          = "ReadWrite"
43     storage_account_type = "Standard_LRS"
44   }
45
46   source_image_reference {
47     publisher = "MicrosoftWindowsServer"
48     offer      = "WindowsServer"
49     sku        = "2019-Datacenter"
50     version    = "latest"
51   }
52
53   boot_diagnostics {
54     storage_account_uri = null
55   }
56 }
57
58 resource "azurerm_virtual_network" "mfg_vnet" {
59   name           = "ManufacturingVnet"
60   address_space  = ["172.16.0.0/16"]
61   location        = azurerm_resource_group.rg.location
62   resource_group_name = azurerm_resource_group.rg.name
63 }
```

```
65 resource "azurerm_subnet" "mfg_subnet" {
66   name          = "Manufacturing"
67   resource_group_name = azurerm_resource_group.rg.name
68   virtual_network_name = azurerm_virtual_network.mfg_vnet.name
69   address_prefixes     = ["172.16.0.0/24"]
70 }
71
72 resource "azurerm_network_interface" "mfg_nic" {
73   name          = "ManufacturingVM-nic"
74   location      = azurerm_resource_group.rg.location
75   resource_group_name = azurerm_resource_group.rg.name
76
77   ip_configuration {
78     name          = "internal"
79     subnet_id    = azurerm_subnet.mfg_subnet.id
80     private_ip_address_allocation = "Dynamic"
81   }
82 }
83
84 resource "azurerm_windows_virtual_machine" "mfg_vm" {
85   name          = "ManufacturingVM"
86   resource_group_name = azurerm_resource_group.rg.name
87   location      = azurerm_resource_group.rg.location
88   size          = var.vm_size
89   admin_username = var.admin_username
90   admin_password = var.admin_password
91   network_interface_ids = [azurerm_network_interface.mfg_nic.id]
92
93   os_disk {
94     caching        = "ReadWrite"
95     storage_account_type = "Standard_LRS"
96   }
```

```

98  source_image_reference {
99    publisher = "MicrosoftWindowsServer"
100   offer     = "WindowsServer"
101   sku       = "2019-Datacenter"
102   version   = "latest"
103 }
104
105 boot_diagnostics {
106   storage_account_uri = null
107 }
108 }
109
110 resource "azurerm_virtual_network_peering" "core_to_mfg" {
111   name                  = "CoreServicesVnet-to-ManufacturingVnet"
112   resource_group_name   = azurerm_resource_group.rg.name
113   virtual_network_name  = azurerm_virtual_network.core_vnet.name
114   remote_virtual_network_id = azurerm_virtual_network.mfg_vnet.id
115   allow_virtual_network_access = true
116   allow_forwarded_traffic = true
117   depends_on            = [azurerm_virtual_network.core_vnet, azurerm_virtual_network.mfg_vnet]
118 }
119
120 resource "azurerm_virtual_network_peering" "mfg_to_core" {
121   name                  = "ManufacturingVnet-to-CoreServicesVnet"
122   resource_group_name   = azurerm_resource_group.rg.name
123   virtual_network_name  = azurerm_virtual_network.mfg_vnet.name
124   remote_virtual_network_id = azurerm_virtual_network.core_vnet.id
125   allow_virtual_network_access = true
126   allow_forwarded_traffic = true
127   depends_on            = [azurerm_virtual_network.core_vnet, azurerm_virtual_network.mfg_vnet]
128 }
```

```

130 resource "azurerm_subnet" "perimeter_subnet" {
131   name          = "perimeter"
132   resource_group_name = azurerm_resource_group.rg.name
133   virtual_network_name = azurerm_virtual_network.core_vnet.name
134   address_prefixes = ["10.0.1.0/24"]
135 }
136
137 resource "azurerm_route_table" "rt_core" {
138   name          = "rt-CoreServices"
139   location      = azurerm_resource_group.rg.location
140   resource_group_name = azurerm_resource_group.rg.name
141   bgp_route_propagation_enabled = false
142
143   route {
144     name          = "PerimetertoCore"
145     address_prefix = "10.0.0.0/16"
146     next_hop_type = "VirtualAppliance"
147     next_hop_in_ip_address = "10.0.1.7"
148   }
149 }
150
151 resource "azurerm_subnet_route_table_association" "core_assoc" {
152   subnet_id      = azurerm_subnet.core_subnet.id
153   route_table_id = azurerm_route_table.rt_core.id
154   depends_on     = [azurerm_subnet.core_subnet, azurerm_route_table.rt_core]
155 }
```

outputs.tf

```
1  output "CoreServicesVM_Private_IP" {
2    value = azurerm_network_interface.core_nic.private_ip_address
3  }
4
5  output "ManufacturingVM_Private_IP" [
6    value = azurerm_network_interface.mfg_nic.private_ip_address
7  ]
```

variables.tf

```
1  variable "resource_group_name" {
2    default = "az104-rg5"
3  }
4
5  variable "location" [
6    default = "North Europe"
7  ]
8
9  variable "admin_username" {
10   default = "localadmin"
11 }
12
13 variable "admin_password" {
14   default = "P@ssw0rd12345!"
15 }
16
17 variable "vm_size" {
18   default = "Standard_B1s"
19 }
```

Висновок

Було зроблено ще одну лабораторну. На цьому по суті все.
Гітхаб: https://github.com/Iolloizaur/azure_labs/tree/main/lab5