Lab 06 - Implement Traffic Management

Student lab manual

Lab scenario

You were tasked with testing managing network traffic targeting Azure virtual machines in the hub and spoke network topology, which Contoso considers implementing in its Azure environment (instead of creating the mesh topology, which you tested in the previous lab). This testing needs to include implementing connectivity between spokes by relying on user defined routes that force traffic to flow via the hub, as well as traffic distribution across virtual machines by using layer 4 and layer 7 load balancers. For this purpose, you intend to use Azure Load Balancer (layer 4) and Azure Application Gateway (layer 7).

**Note:** An [**interactive lab simulation**](https://mslabs.cloudguides.com/guides/AZ-104%20Exam%20Guide%20-%20Microsoft%20Azure%20Administrator%20Exercise%2010) is available that allows you to click through this lab at your own pace. You may find slight differences between the interactive simulation and the hosted lab, but the core concepts and ideas being demonstrated are the same.

**Note**: This lab, by default, requires total of 8 vCPUs available in the Standard\_Dsv3 series in the region you choose for deployment, since it involves deployment of four Azure VMs of Standard\_D2s\_v3 SKU. If your students are using trial accounts, with the limit of 4 vCPUs, you can use a VM size that requires only one vCPU (such as Standard\_B1s).

Objectives

In this lab, you will:

* Task 1: Provision the lab environment
* Task 2: Configure the hub and spoke network topology
* Task 3: Test transitivity of virtual network peering
* Task 4: Configure routing in the hub and spoke topology
* Task 5: Implement Azure Load Balancer
* Task 6: Implement Azure Application Gateway

## Instructions

### **Exercise 1**

#### **Task 1: Provision the lab environment**

In this task, you will deploy four virtual machines into the same Azure region. The first two will reside in a hub virtual network, while each of the remaining two will reside in a separate spoke virtual network.

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#### **Task 2: Configure the hub and spoke network topology**

In this task, you will configure local peering between the virtual networks you deployed in the previous tasks in order to create a hub and spoke network topology.

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#### **Task 3: Test transitivity of virtual network peering**

In this task, you will test transitivity of virtual network peering by using Network Watcher.

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#### **Task 4: Configure routing in the hub and spoke topology**

In this task, you will configure and test routing between the two spoke virtual networks by enabling IP forwarding on the network interface of the **az104-06-vm0** virtual machine, enabling routing within its operating system, and configuring user-defined routes on the spoke virtual network.

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#### **Task 5: Implement Azure Load Balancer**

In this task, you will implement an Azure Load Balancer in front of the two Azure virtual machines in the hub virtual network.

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#### **Task 6: Implement Azure Application Gateway**

In this task, you will implement an Azure Application Gateway in front of the two Azure virtual machines in the spoke virtual networks.

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