

# Microsoft Azure Administrator: Implement and Manage Virtual Networking

---

## IMPLEMENTING AZURE VIRTUAL NETWORKS



**Tim Warner**

AUTHOR EVANGELIST, PLURALSIGHT

@TechTrainerTim    TechTrainerTim.com



# Overview
















**Azure virtual network components**

**Deploy and configure a VNet**



# Exercise Files



What do you want to learn?

Timothy  
timothywarner316@gmail.com

## Troubleshooting with Microsoft Azure Network Watcher

by Tim Warner

Microsoft now gives you packet-level access to your Windows Server and Linux virtual machines (VMs) running in Azure. You'll learn how to use Network Watcher to troubleshoot network security groups (NSGs), perform packet captures, and much more.

[Resume Course](#) [Bookmark](#) [Add to Channel](#)

Table of contents

Description

Transcript

**Exercise files**

Discussion


Learning Check

Recommended

These exercise files are intended to provide you with the assets you need to create a video-based hands-on experience. With the exercise files, you can follow along with the author and re-create the same solution on your computer. We find this to be even more effective than written lab exercises.

[Download exercise files](#)

Course author

**Tim Warner**

Timothy Warner is a Microsoft Most Valuable Professional (MVP) in Cloud and Datacenter Management who is based in Nashville, TN.

Course info

Level	Intermediate
Rating	★★★★★
My rating	★★★★★
Duration	2h 12m
Released	31 Oct 2017

Share course

[f](#) [t](#) [g+](#) [in](#)



# Exercise Files

The screenshot displays a Windows desktop environment with three overlapping windows:

- File Explorer (Left):** Shows the 'Downloads' folder. A list of folders is visible, with '02' selected. The status bar at the bottom indicates '0 / 5 object(s) selected'.
- Text Editor (Center):** A Notepad window titled 'microsoft-azure-ad-privileged-identity-management-configuring-m4-links.txt'. It contains a list of 22 numbered items, each consisting of a title and a URL. The text is as follows:

```
1 Module 4: Organize and Perform Azure AD PIM Access Reviews
2
3 Microsoft Azure
4 https://azure.microsoft.com/en-us/
5
6 Azure Documentation
7 https://docs.microsoft.com/en-us/azure/
8
9 Azure AD Privileged Identity Management (PIM) documentation | Microsoft Docs
10 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/
11
12 Identity Governance - Azure Active Directory | Microsoft Docs
13 https://docs.microsoft.com/en-us/azure/active-directory/governance/identity-governance-overview
14
15 Create an access review of Azure resource roles in PIM - Azure Active Directory | Microsoft Docs
16 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-resource-roles-start-access-review
17
18 Review access to Azure AD roles in PIM - Azure Active Directory | Microsoft Docs
19 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-how-to-perform-security-review
20
21 View audit history for Azure AD roles in PIM - Azure Active Directory | Microsoft Docs
22 https://docs.microsoft.com/en-us/azure/active-directory/privileged-identity-management/pim-how-to-use-audit-log
```
- File Download Window (Right):** A small window showing a file named '02\demos\' with a size of 1,298 bytes and a download icon.



# Microsoft Azure Administrator

Objective  
Domain

## **Exam AZ-104: Microsoft Azure Administrator – Skills Measured**

### **Configure and manage virtual networking (30-35%)**

#### **Implement and manage virtual networking**

- create and configure VNET peering
- configure private and public IP addresses, network routes, network interface, subnets, and virtual network

Functional Group

Objective

Skills

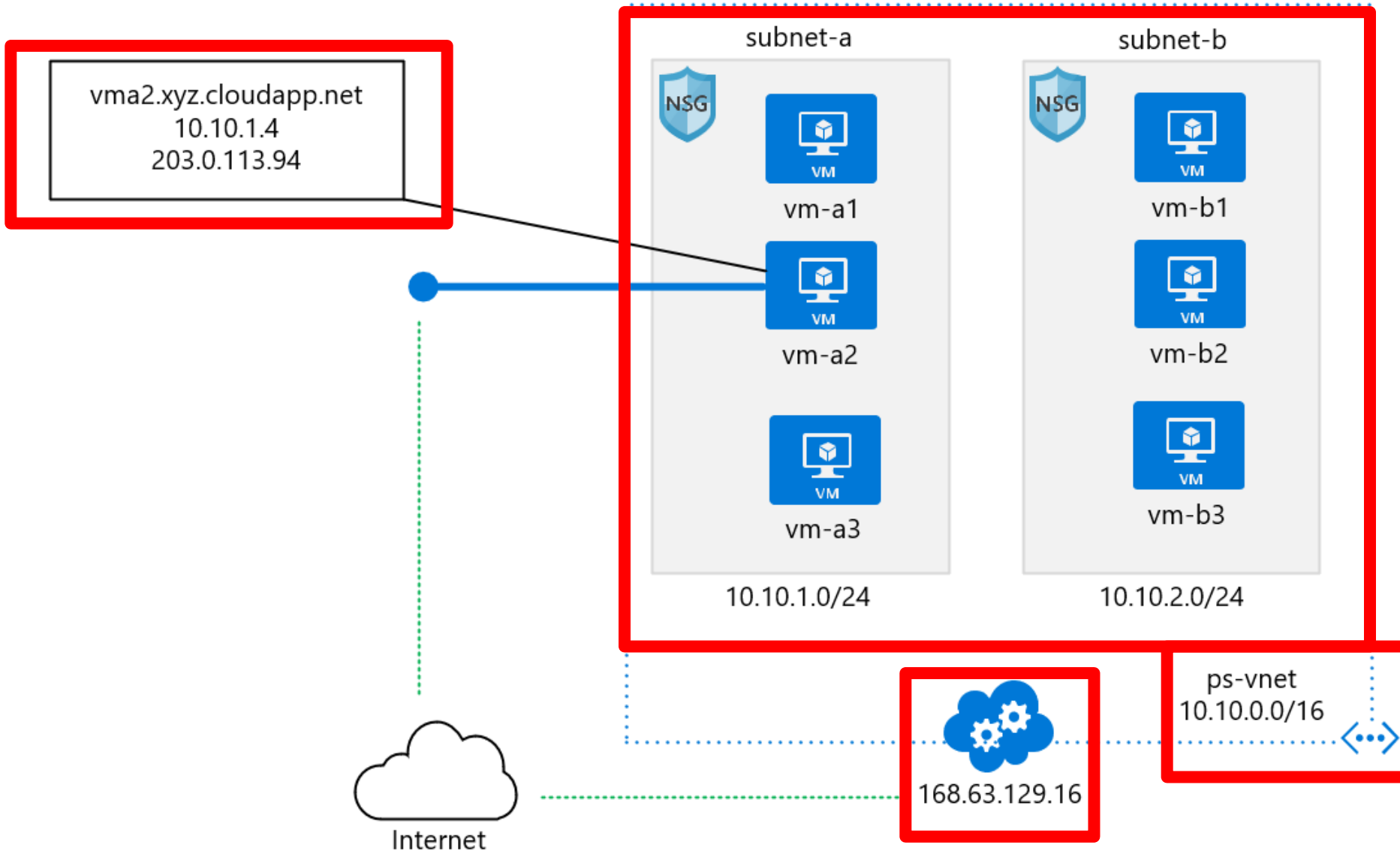


# Azure Virtual Network Components

---



# The ~~Social~~ Virtual Network



# Azure Wire Server

VIP 168.63.129.16

DHCP

Default gateway

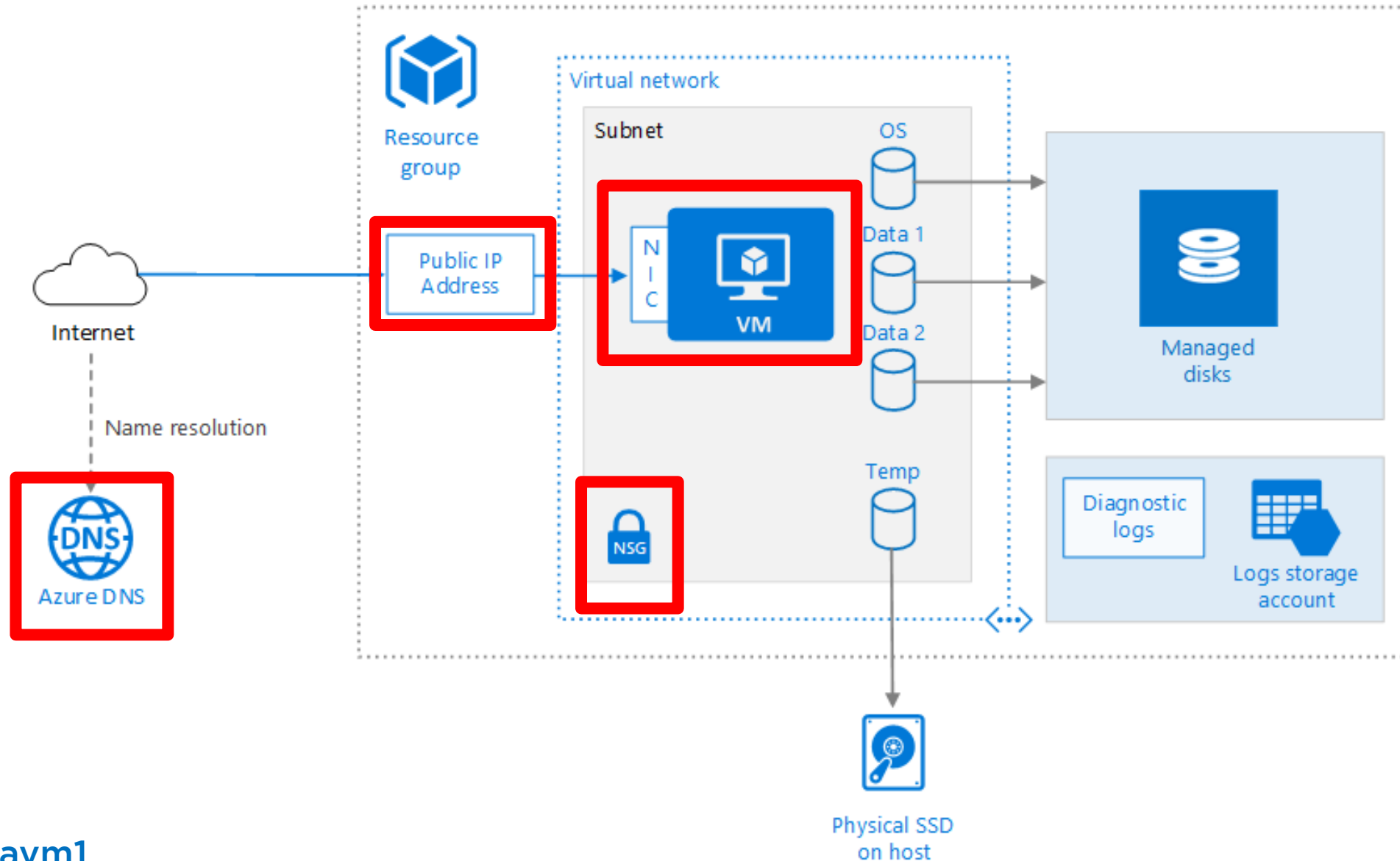
DNS

VM Agent  
communication





# The Virtual Machine and the VNet



# Public and Private IP Addresses



**All Azure services are available on public IP addresses**

- Service tags

**Consider public IP addresses for ingress traffic only**



# Public and Private IP Addresses



## VM management

Azure Bastion

Azure load balancer

Application Gateway

Azure Firewall

JIT VM Access





# Name Resolution Options

## Azure-provided name resolution

- Single name resolution
- Within single VNet only
- No custom DNS names

## Use your own DNS server(s)

- Full control over resolution and forwarding
- More expensive to deploy and manage

## Azure DNS

- Public zone
- Private zone



# Demo



1

Review VM network settings

VM creation and importance of placing it  
on the correct VNet



# Deploy and Configure a VNet

---



# VNet Deployment Methods



Portal



PowerShell



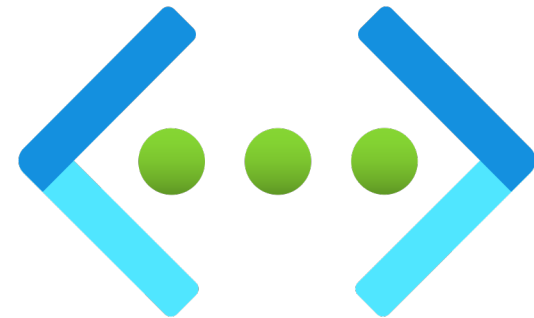
Command-Line Interface (CLI)



Template



ARM REST API



# Simple VNet Deployment - PowerShell

```
$virtualNetwork = New-AzVirtualNetwork `
    -ResourceGroupName myResourceGroup `
    -Location EastUS `
    -Name myVirtualNetwork `
    -AddressPrefix 10.0.0.0/16
```

```
$subnetConfig = Add-AzVirtualNetworkSubnetConfig `
    -Name default `
    -AddressPrefix 10.0.0.0/24 `
    -VirtualNetwork $virtualNetwork
```

```
$virtualNetwork | Set-AzVirtualNetwork
```





# Simple VNet Deployment - Azure CLI

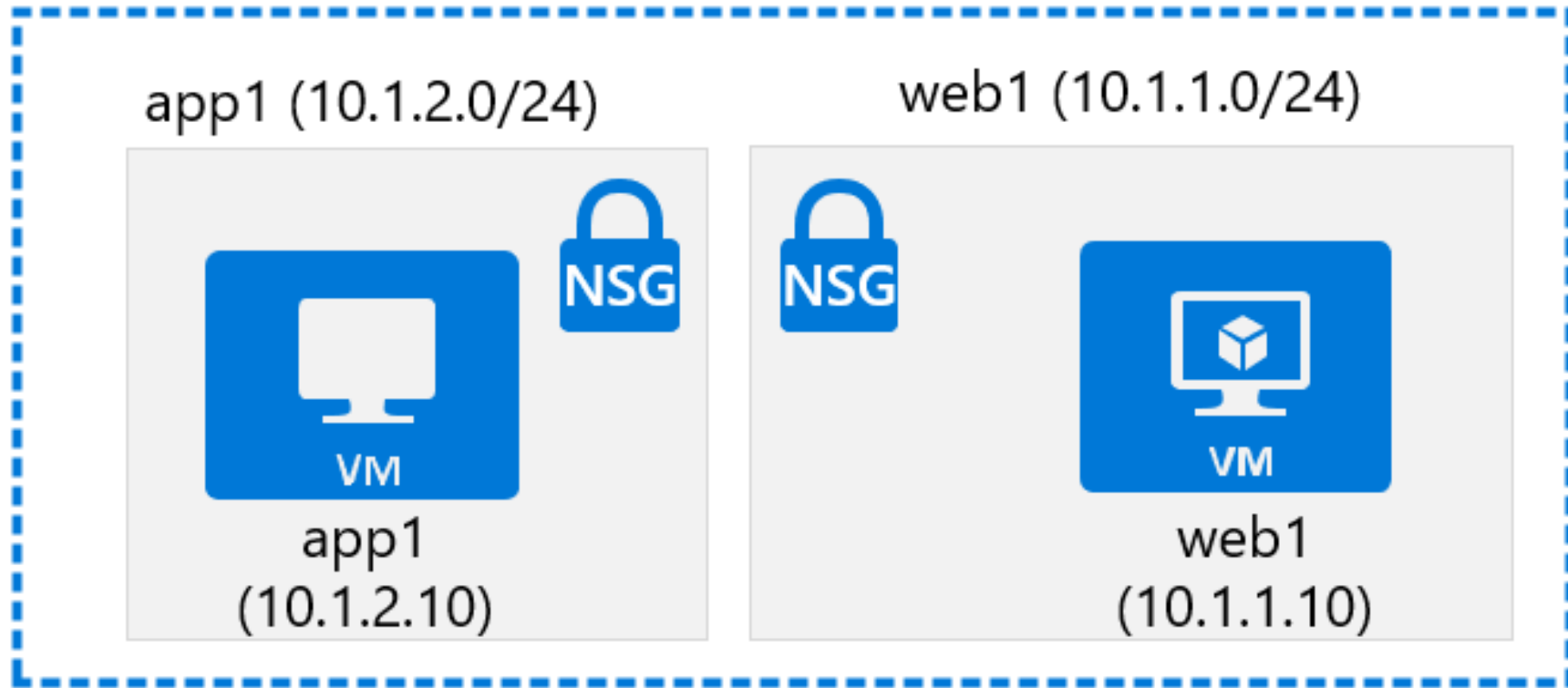
```
az network vnet create \  
  --name MyVnet \  
  --resource-group $RgName \  
  --location $Location \  
  --address-prefix 10.0.0.0/16 \  
  --subnet-name MySubnet-FrontEnd \  
  --subnet-prefix 10.0.1.0/24
```

```
az network vnet subnet create \  
  --address-prefix 10.0.2.0/24 \  
  --name MySubnet-BackEnd \  
  --resource-group $RgName \  
  --vnet-name MyVnet
```



# Lab Topology

VNet1 (10.1.0.0/16) <...>



# Demo



# 2

Create VNet

Populate with VMs

Test connectivity with Network Watcher



# Summary



## Virtual network planning is crucial

- Avoid IP address overlap
- VM placement

## Think about governance

- Azure Blueprints

**Next module: Managing Azure Virtual Networks**

