

Designing and Implementing Microsoft Azure Networking Solutions

Duration: 3 Days

Course Description:

This course teaches Network Engineers how to design, implement, and maintain Azure networking solutions. This course covers the process of designing, implementing, and managing core Azure networking infrastructure, Hybrid Networking connections, load balancing traffic, network routing, private access to Azure services, network security and monitoring. Learn how to design and implement a secure, reliable, network infrastructure in Azure and how to establish hybrid connectivity, routing, private access to Azure services, and monitoring in Azure.

Intended Audience:

This course is for Network Engineers looking to specialize in Azure networking solutions. An Azure Network engineer designs and implements core Azure networking infrastructure, hybrid networking connections, load balance traffic, network routing, private access to Azure services, network security and monitoring. The azure network engineer will manage networking solutions for optimal performance, resiliency, scale, and security.

Successful Azure Network Engineers start this role with experience in enterprise networking, on-premises or cloud infrastructure and network security.

- Understanding of on-premises virtualization technologies, including: VMs, virtual networking, and virtual hard disks.
- Understanding of network configurations, including TCP/IP, Domain Name System (DNS), virtual private networks (VPNs), firewalls, and encryption technologies.
- Understanding of software defined networking.
- Understanding hybrid network connectivity methods, such as VPN.
- Understanding resilience and disaster recovery, including high availability and restore operations.

Course Outline:

Introduction to Azure Virtual Networks

- Introduction
- Explore Azure Virtual Networks
- Configure public IP services

- Exercise: Design and implement a virtual network in Azure
- Design name resolution for your virtual network
- Exercise: Configure domain name servers settings in Azure
- Enable cross-virtual network connectivity with peering
- Exercise: Connect two Azure virtual networks using global virtual network peering
- Implement virtual network traffic routing
- Configure internet access with Azure Virtual NAT

Design and implement hybrid networking

- Introduction
- Design and implement Azure VPN Gateway
- Exercise: Create and configure a virtual network gateway
- Connect networks with Site-to-site VPN connections
- Connect devices to networks with Point-to-site VPN connections
- Connect remote resources by using Azure Virtual WANs
- Exercise: create a Virtual WAN by using the Azure portal
- Create a network virtual appliance (NVA) in a virtual hub

Design and implement Azure ExpressRoute

- Introduction
- Explore Azure ExpressRoute
- Design an ExpressRoute deployment
- Exercise: configure an ExpressRoute gateway
- Exercise: provision an ExpressRoute circuit
- Configure peering for an ExpressRoute deployment
- Connect an ExpressRoute circuit to a virtual network
- Connect geographically dispersed networks with ExpressRoute global reach
- Improve data path performance between networks with ExpressRoute FastPath
- Troubleshoot ExpressRoute connection issues

Load balance non-HTTP(S) traffic in Azure

- Introduction
- Explore load balancing
- Design and implement Azure load balancer using the Azure portal
- Exercise: Create and configure an Azure load balancer
- Explore Azure Traffic Manager
- Exercise: Create a Traffic Manager profile using the Azure portal

Load balance HTTP(S) traffic in Azure

- Introduction
- Design Azure Application Gateway
- Configure Azure Application Gateway
- Exercise: deploy Azure Application Gateway
- Design and configure Azure Front Door
- Exercise: create a Front Door for a highly available web application

Design and implement network security

- Introduction
- Get network security recommendations with Microsoft Defender for Cloud
- Deploy Azure DDoS Protection by using the Azure portal
- Exercise: Configure DDoS Protection on a virtual network using the Azure portal
- Deploy Network Security Groups by using the Azure portal
- Design and implement Azure Firewall
- Exercise: Deploy and configure Azure Firewall using the Azure portal
- Secure your networks with Azure Firewall Manager
- Exercise: secure your virtual hub using Azure Firewall Manager
- Implement a Web Application Firewall on Azure Front Door

Design and implement private access to Azure Services

- Introduction
- Explain virtual network service endpoints
- Define Private Link Service and private endpoint
- Integrate private endpoint with DNS
- Exercise: Restrict network access to PaaS resources with virtual network service endpoints using the Azure portal
- Exercise: Create an Azure private endpoint using Azure PowerShell

Design and implement network monitoring

- Introduction
- Monitor your networks using Azure monitor
- Exercise: monitor a load balancer resource using Azure monitor
- Monitor your networks using Azure network watcher

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