

## Course duration

- 3 days

## Course Benefits

- Design, implement and manage hybrid network connections.
- Design and implement core Azure networking infrastructure.
- Design and implement routing and load balancing in Azure.
- Secure and monitor networks.
- Design and implement private access to Azure Services.

## Course Outline

1. Introduction to Azure Virtual Networks
  1. Explore Azure Virtual Networks
  2. Configure public IP services
  3. Design name resolution for your Virtual Network
  4. Enable Cross-VNet connectivity with peering
  5. Implement virtual network traffic routing
  6. Configure internet access with Azure Virtual NAT
  7. Lab : Exercise: design and implement a Virtual Network in Azure
  8. Lab : Exercise: configure DNS settings in Azure
  9. Lab : Exercise: connect two Azure Virtual Networks using global virtual network peering
  10. Implement virtual networks
  11. Configure public IP services
  12. Configure private and public DNS zones
  13. Design and implement cross-VNET connectivity
  14. Implement virtual network routing
  15. Design and implement an Azure Virtual Network NAT
2. Design and Implement Hybrid Networking
  1. Design and implement Azure VPN Gateway
  2. Connect networks with Site-to-site VPN connections
  3. Connect devices to networks with Point-to-site VPN connections
  4. Connect remote resources by using Azure Virtual WANs
  5. Create a network virtual appliance (NVA) in a virtual hub
  6. Lab : Exercise: create a Virtual WAN by using Azure Portal
  7. Lab : Exercise: create and configure a virtual network gateway
  8. Design and implement a site-to-site VPN connection
  9. Design and implement a point-to-site VPN connection
  10. Design and implement Azure Virtual WAN Resources

3. Design and implement Azure ExpressRoute
  1. Explore Azure ExpressRoute
  2. Design an ExpressRoute deployment
  3. Configure peering for an ExpressRoute deployment
  4. Connect an ExpressRoute circuit to a VNet
  5. Connect geographically dispersed networks with ExpressRoute global reach
  6. Improve data path performance between networks with ExpressRoute FastPath
  7. Troubleshoot ExpressRoute connection issues
  8. Lab : Exercise: configure an ExpressRoute gateway
  9. Lab : Exercise: provision an ExpressRoute circuit
  10. Design and implement Expressroute
  11. Design and implement Expressroute Direct
  12. Design and implement Expressroute FastPath
4. load balancing non-HTTP(S) traffic in Azure
  1. Explore load balancing
  2. Design and implement Azure load balancer using the Azure portal
  3. Explore Azure Traffic Manager
  4. Lab : Exercise: create a Traffic Manager profile using the Azure portal
  5. Lab : Exercise: create and configure an Azure load balancer
  6. Design and implement Azure Load Balancers
  7. Design and implement Azure Traffic Manager
5. Load balancing HTTP(S) traffic in Azure
  1. Design Azure application gateway
  2. Configure Azure application gateway
  3. Design and configure Azure front door
  4. Lab : Exercise: deploy Azure application gateway
  5. Lab : Exercise: create a front door for a highly available web application
  6. Design and implement Azure Application Gateway
  7. Implement Azure Front Door
6. Design and implement network security
  1. Secure your virtual networks in the Azure portal
  2. Deploy Azure DDoS Protection by using the Azure portal
  3. Deploy Network Security Groups by using the Azure portal
  4. Design and implement Azure Firewall
  5. Working with Azure Firewall Manager
  6. Implement a Web Application Firewall on Azure Front Door
  7. Lab : Exercise: deploy and configure Azure Firewall using the Azure portal
  8. Lab : Exercise: secure your virtual hub using Azure Firewall Manager
  9. Lab : Exercise: configure DDoS Protection on a virtual network using the Azure portal
  10. Configure and monitor an Azure DDoS protection plan
  11. implement and manage Azure Firewall
  12. Implement network security groups
  13. Implement a web application firewall (WAF) on Azure Front Door
7. Design and implement private access to Azure Services
  1. Define Private Link Service and private endpoint
  2. Explain virtual network service endpoints

3. Integrate Private Link with DNS
4. Integrate your App Service with Azure virtual networks
5. Lab : Exercise: create an Azure private endpoint using Azure PowerShell
6. Lab : Exercise: restrict network access to PaaS resources with virtual network service endpoints
7. Define the difference between Private Link Service and private endpoints
8. Design and configure private endpoints
9. Explain virtual network service endpoints
10. Design and configure access to service endpoints
11. Integrate Private Link with DNS
12. Integrate your App Service with Azure virtual networks
8. Design and implement network monitoring
  1. Monitor your networks with Azure Monitor
  2. Monitor your networks with Azure Network Watcher
  3. Lab : Exercise: Monitor a load balancer resource by using Azure Monitor
  4. Configure network health alerts and logging by using Azure Monitor
  5. Create and configure a Connection Monitor instance
  6. Configure and use Traffic Analytics
  7. Configure NSG flow logs
  8. Enable and configure diagnostic logging
  9. Configure Azure Network Watcher

## Class Materials

Each student will receive a comprehensive set of materials, including course notes and all the class examples.

### Class Prerequisites

Experience in the following *is required* for this Azure class:

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