

# Study Guide

## Exam AZ-700: Designing and Implementing Microsoft Azure Networking Solutions

### Purpose of this document

This study guide should help you understand what to expect on the exam and includes a summary of the topics the exam might cover and links to additional resources. The information and materials in this document should help you focus your studies as you prepare for the exam.

Useful links	Description
<a href="#">How to earn the certification</a>	Some certifications only require one exam, while others require more. On the details page, you'll find information about what skills are measured and links to registration. Each exam also has its own details page covering exam specifics.
<a href="#">Certification renewal</a>	Once you earn your certification, don't let it expire. When you have an active certification that's expiring within six months, you should renew it—at no cost—by passing a renewal assessment on Microsoft Learn. Remember to renew your certification annually if you want to retain it.
<a href="#">Your Microsoft Learn profile</a>	Connecting your certification profile to Learn brings all your learning activities together. You'll be able to schedule and renew exams, share and print certificates, badges and transcripts, and review your learning statistics inside your Learn profile.
<a href="#">Passing score</a>	All technical exam scores are reported on a scale of 1 to 1,000. A passing score is 700 or greater. As this is a scaled score, it may not equal 70% of the points. A passing score is based on the knowledge and skills needed to demonstrate competence as well as the difficulty of the questions.
<a href="#">Exam sandbox</a>	Are you new to Microsoft certification exams? You can explore the exam environment by visiting our exam sandbox. We created the sandbox as an opportunity for you to experience an exam before you take it. In the sandbox,

Useful links	Description
	you can interact with different question types, such as build list, case studies, and others that you might encounter in the user interface when you take an exam. Additionally, it includes the introductory screens, instructions, and help topics related to the different types of questions that your exam might include. It also includes the non-disclosure agreement that you must accept before you can launch the exam.
<a href="#">Request accommodations</a>	We're committed to ensuring all learners are set up for success. If you use assistive devices, require extra time, or need modification to any part of the exam experience, you can request an accommodation.
<a href="#">Take a practice test</a>	Taking a practice test is a great way to know whether you're ready to take the exam or if you need to study a bit more. Subject-matter experts write the Microsoft Official Practice Tests, which are designed to assess all exam objectives.

## Objective domain: skills the exam measures

The English language version of this exam was updated on November 1, 2022.

Some exams are localized into other languages, and those are updated approximately eight weeks after the English version is updated. Other available languages are listed in the **Schedule Exam** section of the **Exam Details** webpage. If the exam isn't available in your preferred language, you can request an additional 30 minutes to complete the exam.

### Note

The bullets that follow each of the skills measured are intended to illustrate how we are assessing that skill. Related topics may be covered in the exam.

### Note

Most questions cover features that are general availability (GA). The exam may contain questions on Preview features if those features are commonly used.

## Skills measured

- Design, implement, and manage hybrid networking (10–15%)
- Design and implement core networking infrastructure (20–25%)
- Design and implement routing (25–30%)
- Secure and monitor networks (15–20%)

- Design and implement Private access to Azure Services (10–15%)

## Functional groups

### Design, implement, and manage hybrid networking (10–15%)

#### Design, implement, and manage a site-to-site VPN connection

- Design a site-to-site VPN connection for high availability
- Select an appropriate virtual network (VNet) gateway SKU
- Identify when to use policy-based VPN versus route-based VPN
- Create and configure a local network gateway
- Create and configure an IPsec/IKE policy
- Create and configure a virtual network gateway
- Diagnose and resolve virtual network gateway connectivity issues

#### Design, implement, and manage a point-to-site VPN connection

- Select an appropriate virtual network gateway SKU
- Plan and configure RADIUS authentication
- Plan and configure certificate-based authentication
- Plan and configure OpenVPN authentication
- Plan and configure authentication by using Microsoft Azure Active Directory (Azure AD), part of Microsoft Entra
- Implement a VPN client configuration file
- Diagnose and resolve client-side and authentication issues

#### Design, implement, and manage Azure ExpressRoute

- Choose between provider and direct model (ExpressRoute Direct)
- Design and implement Azure cross-region connectivity between multiple ExpressRoute locations
- Select an appropriate ExpressRoute SKU and tier
- Design and implement ExpressRoute Global Reach
- Design and implement ExpressRoute FastPath
- Choose between private peering only, Microsoft peering only, or both
- Configure private peering
- Configure Microsoft peering
- Create and configure an ExpressRoute gateway
- Connect a virtual network to an ExpressRoute circuit
- Recommend a route advertisement configuration
- Configure encryption over ExpressRoute
- Implement Bidirectional Forwarding Detection
- Diagnose and resolve ExpressRoute connection issues

## **Design and implement core networking infrastructure (20–25%)**

### **Design and implement private IP addressing for VNets**

- Create a VNet
- Plan and configure subnetting for services, including VNet gateways, private endpoints, firewalls, application gateways, and VNet-integrated platform services
- Plan and configure subnet delegation
- Plan and configure subnetting for Azure Route Server

### **Design and implement name resolution**

- Design public DNS zones
- Design private DNS zones
- Design name resolution inside a VNet
- Configure a public or private DNS zone
- Link a private DNS zone to a VNet

### **Design and implement cross-VNet connectivity**

- Design service chaining, including gateway transit
- Design VPN connectivity between VNets
- Implement VNet peering

### **Design and implement an Azure Virtual WAN architecture**

- Design an Azure Virtual WAN architecture, including selecting types and services
- Connect a VNet gateway to Azure Virtual WAN
- Create a hub in Virtual WAN
- Create a network virtual appliance (NVA) in a virtual hub
- Configure virtual hub routing
- Create a connection unit

## **Design and implement routing (25–30%)**

### **Design, implement, and manage VNet routing**

- Design and implement user-defined routes (UDRs)
- Associate a route table with a subnet
- Configure forced tunneling
- Diagnose and resolve routing issues
- Design and implement Azure Route Server

### **Design and implement an Azure Load Balancer**

- Choose an Azure Load Balancer SKU (Basic versus Standard)
- Choose between public and internal

- Create and configure an Azure Load Balancer (including cross-region)
- Implement a load balancing rule
- Create and configure inbound NAT rules
- Create explicit outbound rules for a load balancer

### **Design and implement Azure Application Gateway**

- Recommend Azure Application Gateway deployment options
- Choose between manual and autoscale
- Create a back-end pool
- Configure health probes
- Configure listeners
- Configure routing rules
- Configure HTTP settings
- Configure Transport Layer Security (TLS)
- Configure rewrite sets

### **Implement Azure Front Door**

- Choose an Azure Front Door SKU
- Configure health probes, including customization of HTTP response codes
- Configure SSL termination and end-to-end SSL encryption
- Configure multisite listeners
- Configure back-end targets
- Configure routing rules, including redirection rules

### **Implement an Azure Traffic Manager profile**

- Configure a routing method (mode)
- Configure endpoints
- Create HTTP settings

### **Design and implement an Azure Virtual Network NAT**

- Choose when to use a Virtual Network NAT
- Allocate public IP or public IP prefixes for a NAT gateway
- Associate a Virtual Network NAT with a subnet

### **Secure and monitor networks (15–20%)**

#### **Design, implement, and manage an Azure Firewall deployment**

- Design an Azure Firewall deployment
- Create and implement an Azure Firewall deployment
- Configure Azure Firewall rules
- Create and implement Azure Firewall Manager policies

- Create a secure hub by deploying Azure Firewall inside an Azure Virtual WAN hub
- Integrate an Azure Virtual WAN hub with a third-party NVA

### **Implement and manage network security groups (NSGs)**

- Create an NSG
- Associate an NSG to a resource
- Create an application security group (ASG)
- Associate an ASG to a NIC
- Create and configure NSG rules
- Interpret NSG flow logs
- Validate NSG flow rules
- Verify IP flow

### **Implement a Web Application Firewall (WAF) deployment**

- Configure detection or prevention mode
- Configure rule sets for Azure Front Door, including Microsoft managed and user defined
- Configure rule sets for Application Gateway, including Microsoft managed and user defined
- Implement a WAF policy
- Associate a WAF policy

### **Monitor networks**

- Configure network health alerts and logging by using Azure Monitor
- Create and configure a Connection Monitor instance
- Configure and use Traffic Analytics
- Configure NSG flow logs
- Enable and configure diagnostic logging
- Configure Azure Network Watcher

### **Design and implement private access to Azure services (10–15%)**

#### **Design and implement Azure Private Link service and Azure Private Endpoints**

- Create a Private Link service
- Plan private endpoints
- Create private endpoints
- Configure access to private endpoints
- Integrate Private Link with DNS
- Integrate a Private Link service with on-premises clients

#### **Design and implement service endpoints**

- Create service endpoints
- Configure service endpoint policies

- Configure service tags
- Configure access to service endpoints

## Configure VNet integration for dedicated platform as a service (PaaS) service

- Configure App Service for regional VNet integration
- Configure Azure Kubernetes Service (AKS) for regional VNet integration
- Configure clients to access App Service Environment

# Study Resources

We recommend that you train and get hands-on experience before you take the exam. We offer self-study options and classroom training as well as links to documentation, community sites, and videos.

Study resources	Links to learning and documentation
<b>Get trained</b>	<a href="#">Choose from self-paced learning paths and modules or take an instructor-led course</a>
<b>Find documentation</b>	<a href="#">Azure documentation</a> <a href="#">Virtual Private Networking (VPN)</a> <a href="#">Azure Active Directory (AD)</a> <a href="#">RADIUS authentication with Azure Active Directory</a> <a href="#">Azure ExpressRoute Overview</a> <a href="#">Create virtual network (VNet)</a> <a href="#">DNS Zones and Records overview - Azure DNS</a> <a href="#">Azure Virtual WAN Overview</a> <a href="#">Azure Route Server documentation</a> <a href="#">Load Balancer</a> <a href="#">Azure Application Gateway documentation</a> <a href="#">Azure Front Door and CDN Documentation</a> <a href="#">Azure Traffic Manager</a> <a href="#">Azure Virtual Network NAT Documentation</a> <a href="#">Azure Firewall documentation</a> <a href="#">Web Application Firewall documentation</a> <a href="#">Azure Monitor documentation</a> <a href="#">What is Azure Private Link?</a>

Study resources	Links to learning and documentation
<b>Ask a question</b>	<a href="#">Manage Azure Private Endpoints</a>
<b>Get community support</b>	<a href="#">Microsoft Q&amp;A   Microsoft Docs</a>
<b>Follow Microsoft Learn</b>	<a href="#">Azure Community Support</a>
<b>Find a video</b>	<a href="#">Microsoft Learn - Microsoft Tech Community</a>
	<a href="#">Exam Readiness Zone</a>
	<a href="#">Azure Fridays</a>
	<a href="#">Browse other Microsoft Learn shows</a>