# Analysis

## ExpressRoute

* Design and implement ExpressRoute
* Design and implement ExpressRoute Global Reach
* Design and implement ExpressRoute FastPath
* Troubleshoot ExpressRoute connection issues

1. Pricing
2. Options
3. How should you configure
4. Minimum number of Express Route circuits
5. Order / how do you connect sth with sth using ExpressRoute
6. Diffirence : ExpressRoute -vs- etc etc
7. Comble needs : link sth to sth / how

## NAT Gateway

* Describe the Azure NAT Gateway service.
* Recognize scenarios where Azure NAT Gateway is applicable.
* Perform basic deployment of the Azure NAT Gateway service.

1. Choose best tool for specyfic needs
2. What is supported

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| ExpressRoute | ExpressRoute lets you extend your on-premises networks into the Microsoft cloud over a   * private connection * to Microsoft Azure * to Microsoft 365. * from an any-to-any (IP VPN) network, * from a point-to-point Ethernet network, * from a virtual cross-connection through a connectivity provider at a colocation facility. * As no public offer more reliability, faster speeds, consistent latencies, and higher security. |
| Options   * ExpressRoute FastPath * ExpressRoute Global Reach * ExpressRoute Direct * ExpressRoute Local   Provide reliable and secure connectivity to Azure services.-vs-Connect your network to the public internet. |  |
| SKU  PRICING  Site-to-site vs point-to-site |  |
| ExpressRoute gateway |  |
| ExpressRoute circuit |  |
| peering for an ExpressRoute |  |
| ExpressRoute circuit to a virtual network |  |
| ExpressRoute circuit to a virtual network |  |
| Improve data path performance between networks with ExpressRoute FastPath |  |
| connection issues   * properties |  |

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| NAT Gateway | Network Address Translation  used for decades for mapping local IP addresses to public addresses. |
| Problem solves | resolving connectivity problems |
| Can’t | can’t use Azure NAT Gateway to configure inbound connections handling. |
| Can |  |

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| private access to Azure Services |  |
| 1. Azure Private Link, and 2. virtual network service endpoints.   Private Endpoint | Solve problem  replaces the resource's public endpoint. |
|  | |
| * Understand the difference between private link and private endpoints * Design and configure Private Endpoints * Integrate a Private Link with DNS and on-premises clients * Create, configure, and provide access to Service Endpoints |  |
|  | Adding service endpoints doesn't remove the public endpoint. It simply provides a redirection of traffic.  To enable a Service Endpoint, you must do the following two things:   * Turn off public access to the service. * Add the Service Endpoint to a virtual network. |
| **Private Links are dependent on Private Endpoints.**  **A Service Endpoints connects to external resources. A Private Endpoint enable a private and secure connection between your virtual network and Azure.** | |

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A diagram of a computer network

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## Az-700 Simplier

Vnet – is for a Virtual network, which is like a virtual Space, for connecting.   
it encapsulate the content like on-premise or azure services. And keep it isolated letting to configure all kind of input output tools.

The problems solved by Vnet are :

* Isolation
* Control
* Connectivity

For connections

The alternatives exist provided by AWS, Google, Third parties, Container oriented technologies, and hybrid oriented focusing more on app layer

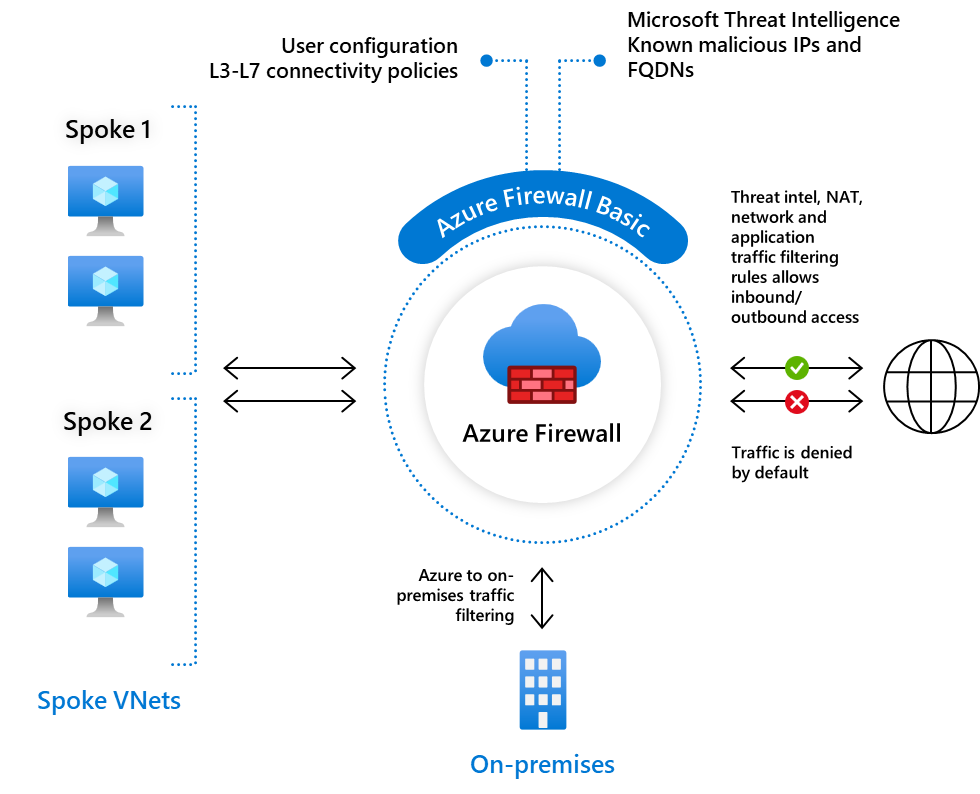
More fined tools

* Bqstion
* NSGs
* Application Gateway
* Azure Firewall

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| Azure Firewall | Control monitor access |
| * Firewall Manager * Evaluate whether Azure Firewall is the right solution to protect your Azure virtual networks from malicious incoming and outgoing traffic. * Firewall Premium * Evaluate whether Azure Firewall Manager is the right solution for deploying policies across multiple firewalls. * Identify and describe use cases for Azure Firewall and Azure Firewall Manager.   [**Start**](https://learn.microsoft.com/en-us/training/modules/introduction-azure-firewall/1-introduction/)Add | Set several FW, ex. create policies for several FW  TLS Inspection – decrypt, process, encrypt than send  IDPS – intrusion detection and prevention system,  URL Filtering – extends FQDN  Web categories – control over |
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Network service endpoints

* Direct connection to azure service, not accessible to the internetroute A diagram of a server

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Route table : is about global connectivity, it is about describing all connectivity possible for given context.

* Source: it is about how it was created
* Next Hop Type : where it goes, where it is connected into

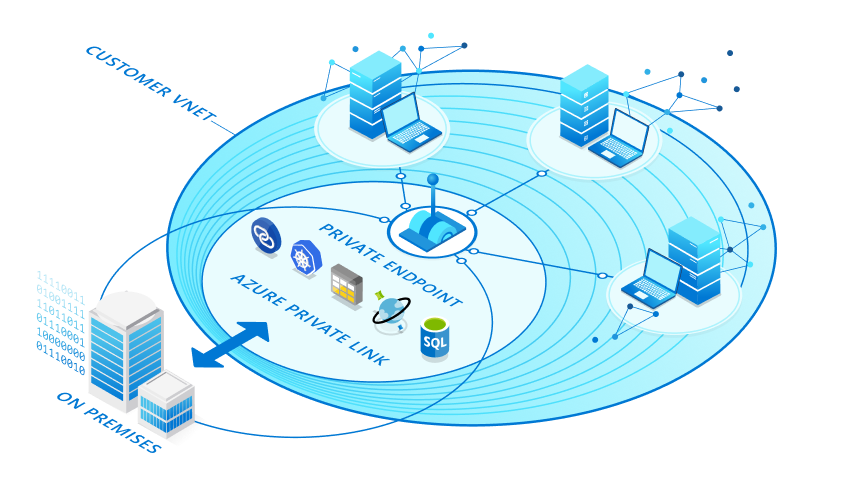
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Private Link – remove public part from the connection



* Private Endpoints are part of Private Link,
* Private link can contain more than one private endpoints
* Private link is a higher level service, and is encapsulating endpoints

Azure DNS Private Resolver – is like a smart number on the phone, which provides kind of names for the ip, so I know what computer I am connecting to

Private DNS Resolver - it is like the old style telephone operator connecting the call with the correct destination

DNS Zone is like the phone book, may be resolved by resolver or the vnet itself when inside vnet where no need for operator becouse direct connection