

Virtual Networks

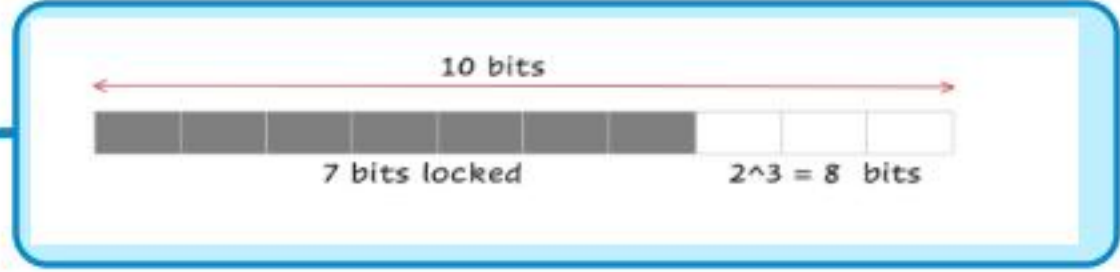
CIDR NAMING

Represent

Represent in Octet

Lock the bits in /X from (LEFT TO RIGHT)

2^Remaining Bits towards the right side (-5) = TOTAL AVAILABLE ADDRESSES



Azure Reserves 5 by default

What address ranges can I use in my VNets?

Any IP address range defined in [RFC 1918](#). For example, 10.0.0.0/16. You cannot add the following address ranges:

- 224.0.0.0/4 (Multicast)
- 255.255.255.255/32 (Broadcast)
- 127.0.0.0/8 (Loopback)
- 169.254.0.0/16 (Link-local)
- 168.63.129.16/32 (Internal DNS)

VIRTUAL GATEWAY

BASICS

Encrypted traffic between [on-premises ==> Azure] OR [Azure ==> Azure]

Establish gates between VNETS

Creates Gateway Subnets
Charged by bandwidth

Data transfers happen **azure backbone (not internet)**

VNET to VNET

- Specify VNET 1 ==> VNET 2 connection
- Specify shared key
- Specify VNET 2 ==> VNET 1 connection

ANOTHER WAY (of connecting VNETS!)

P2P (VPN in your office)

- Create a certificate
 - Configure VGN (virtual gateway network)
 - Export and install in client computer
 - Connect using VPN application
- ROUTE BASED (not policy based)

APPLICATION SECURITY GROUPS

Groups NSG in whatever order you like (application-specific)

VIRTUAL WAN

Connect 2 branch offices

PROTOCOLS

- When your ISP offers MPLS - peering is done.
- [Site to site network] only depends on **IKE S2s VPN**
- MACOS** connects to site VPN **via IKEv2 only** (P2P)
- Windows** tries **IKEv2** and **fallbacks on SSTP** (P2P)

Network Security Groups

Control Traffic

Logical Grouping of VMs

AZURE Connected DEVICES

Virtual Gateway (for VNETS)

Application Gateway (for WEB)

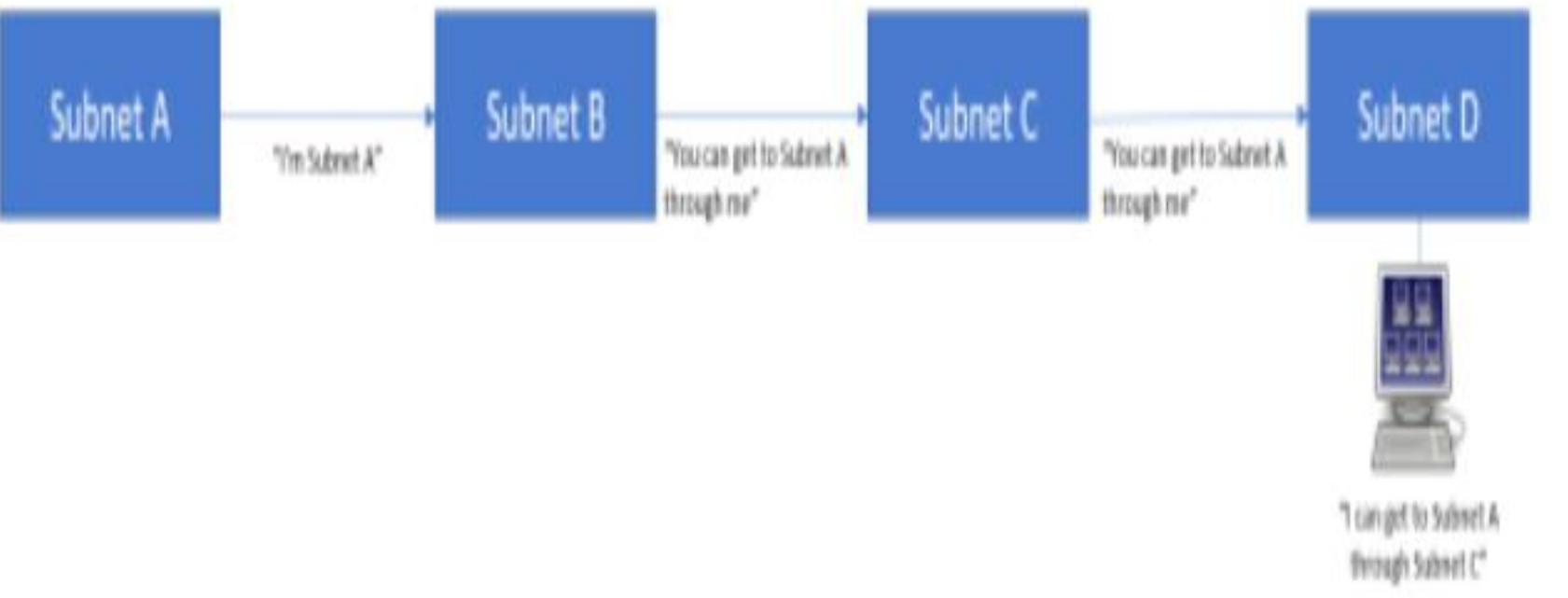
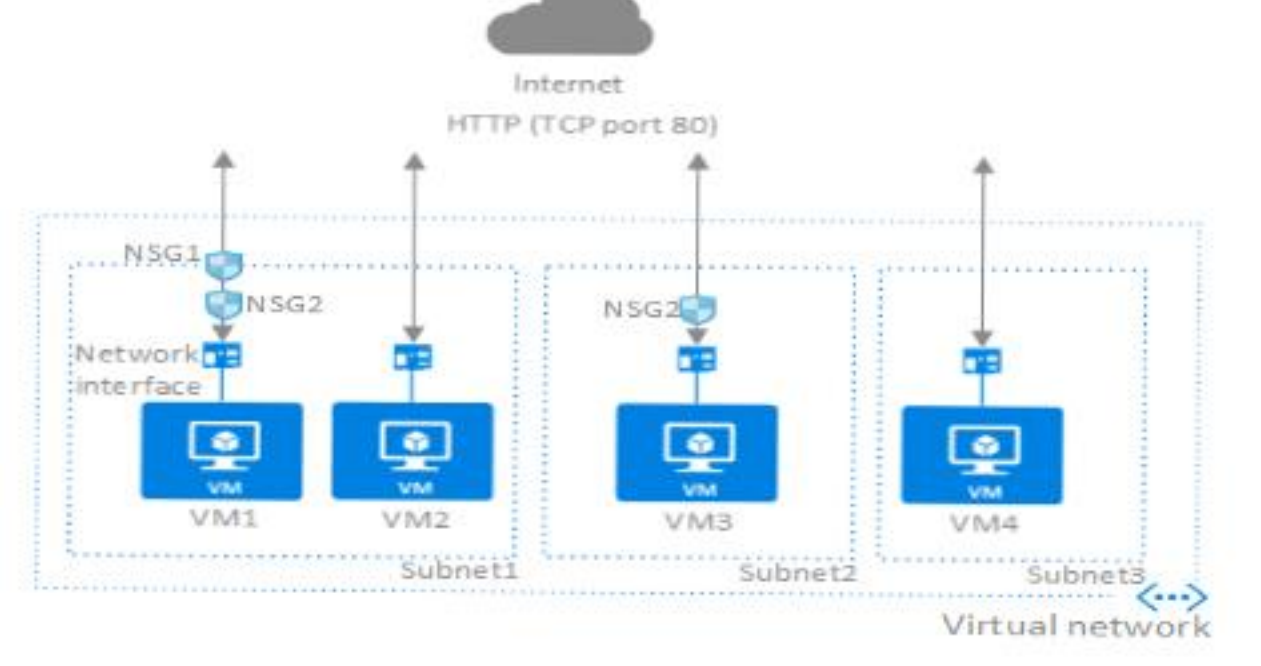
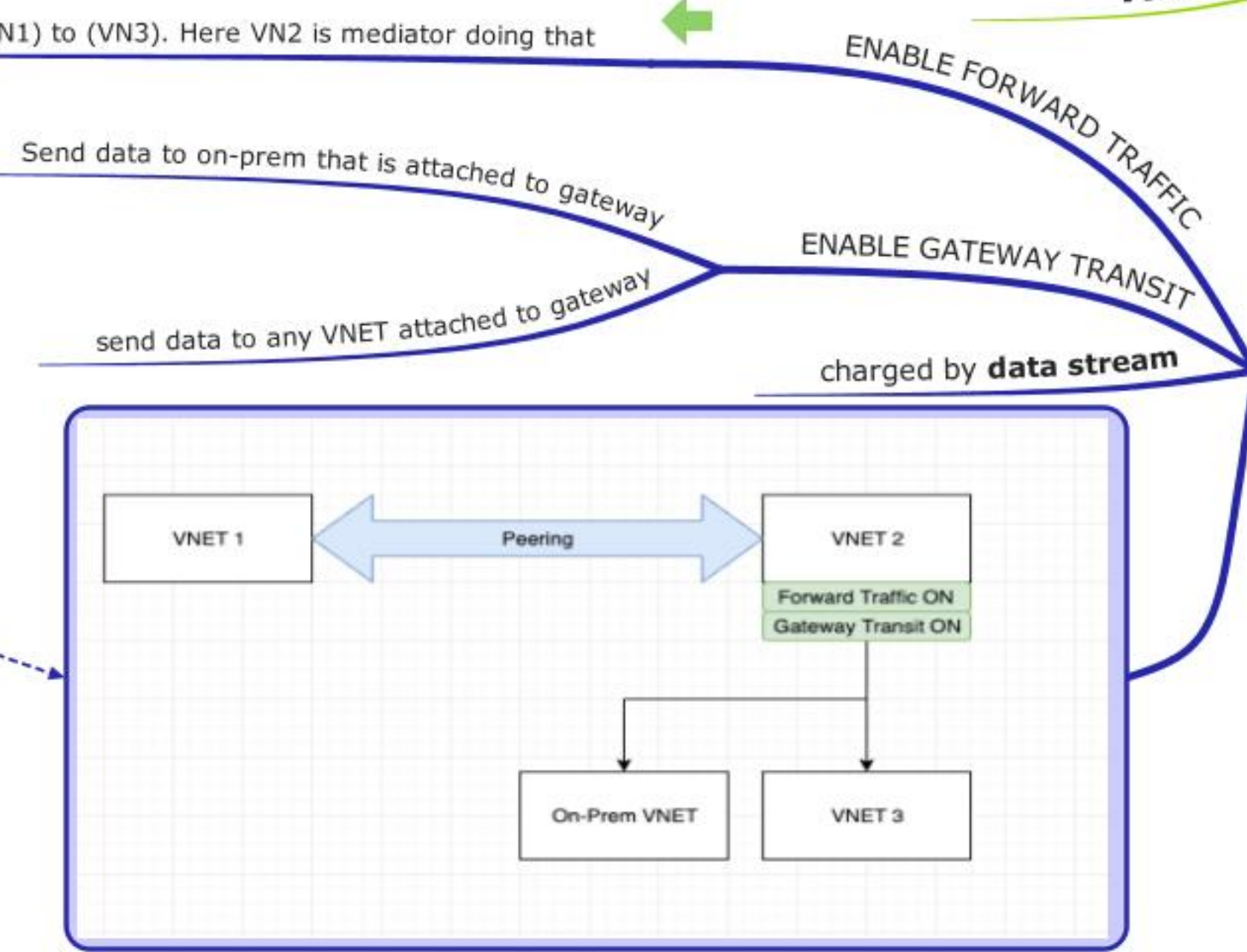
Network Interface Card (for VM)

EXPRESS ROUTE

- Support BGP protocol
 - Speeds upto **100Mbps**
 - MS backbone (**no internet**)
 - GET Command
 - Name
 - Peering Locs
 - BandWidth
 - No Public IP needed**
- If you think about it, **BGP is like word-of-mouth.**

PEERING

Connect 2 VPN's resources



Exchange **routing** and **reachability** information **between two or more networks**

ENABLE FORWARD TRAFFIC

ENABLE GATEWAY TRANSIT

charged by **data stream**