



CELEBAL TECHNOLOGY INTERNSHIP (CSI)

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Topic 4: - Site to Site VPN Connection

1. What are VPN gateways?

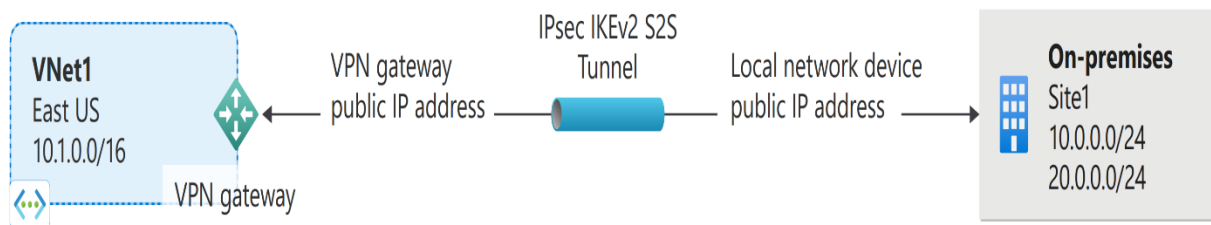
VPN gateways provide secure connectivity between multiple sites, such as on-premises data centers, Google Cloud Virtual Private Cloud (VPC) networks, and Google Cloud VMware Engine private clouds. Traffic is encrypted because the VPN connections traverse the internet. Each VPN gateway can support multiple connections.

2. Site-to-Site VPN Defined?

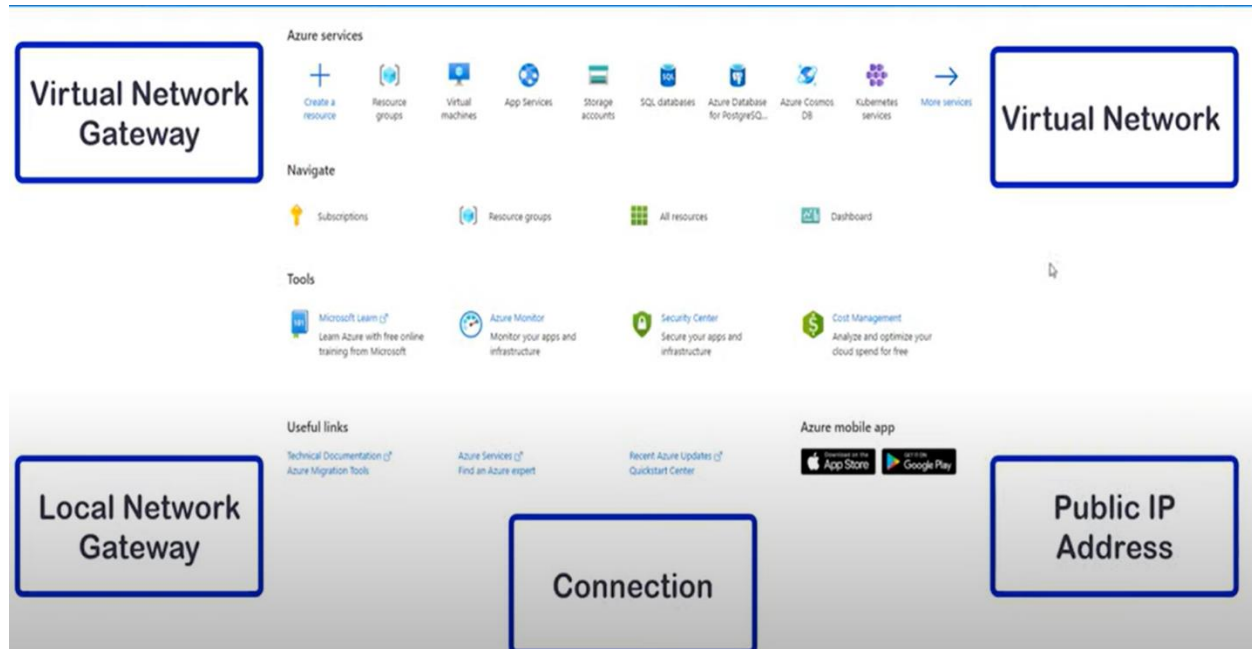
A site-to-site virtual private network (VPN) refers to a connection set up between multiple networks. This could be a corporate network where multiple offices work in conjunction with each other or a branch office network with a central office and multiple branch locations.

3. A Site-to-Site VPN gateway connection?

A Site-to-Site VPN gateway connection is used to connect your on-premises network to an Azure virtual network over an IPsec/IKE (IKEv1 or IKEv2) VPN tunnel. This type of connection requires a VPN device located on-premises that has an externally facing public IP address assigned to it.



4. Steps to configure site to site VPN connection?



- Create a virtual network
- Create a VPN gateway
- Create a local network gateway
- Create a VPN connection
- Verify the connection
- Connect to a virtual machine

Create a virtual network

The screenshot shows the 'Create virtual network' page in the Microsoft Azure portal. The page is divided into tabs: Basics, IP Addresses (selected), Security, Tags, and Review + create. The 'IP Addresses' tab is active, showing the 'IPv4 address space' section with a text box containing '172.16.1.0/24'. Below this, there is a checkbox for 'Add IPv6 address space'. The 'Subnets' section shows a table with columns: Subnet name, Subnet address range, and NAT gateway. A single subnet named 'subnet1' is listed with the address range '172.16.1.0/26' and no NAT gateway. A note at the bottom states: 'A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#)'. At the bottom of the page, there are buttons for 'Review + create', '< Previous', 'Next: Security >', and 'Download a template for automation'. The Windows taskbar at the bottom shows the date as 19-07-2023 and the time as 18:33.

Create a VPN gateway

The screenshot shows the 'VNet1GW' page in the Microsoft Azure portal. The page is divided into a left sidebar with navigation options (Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Connections, Point-to-site configuration, NAT Rules, Properties, Locks, Monitoring, Logs, Alerts, Metrics) and a main content area. The 'Overview' tab is selected. The main content area displays the 'VNet1GW' resource details, including its location (East US), subscription ID, and public IP address (52.188.144.67). It also shows a 'Health check' section with a 'Go to Resource health' link, an 'Advanced troubleshooting' section with a 'Go to VPN Troubleshooting' link, and a 'Documentation' section with a 'View documentation' link. The page also includes a 'Total tunnel ingress' and 'Total tunnel egress' section. The Windows taskbar at the bottom shows the date as 20-07-2023 and the time as 03:19.

Create a local network gateway

The screenshot shows the Microsoft Azure portal interface. The left sidebar displays the 'Local network gateways' section with a list containing 'Site1'. The main pane shows the 'Overview' tab for 'Site1'. The 'Essentials' section on the right provides key details:

- Resource group: [TestRG1](#)
- Location: East US
- Subscription: [Subscription ID ee1230ce-d447-4846-8522-3192f0fc14](#)
- Tags: [Click here to add tags](#)
- IP address: 124.155.254.247
- Address Space(s): 10.0.0.0/24, 20.0.0.0/24

The bottom of the screen shows a Windows taskbar with the system clock at 03:18 on 20-07-2023.

Create a VPN connection

The screenshot shows the Microsoft Azure portal interface. The left sidebar displays the 'All resources' section with a list containing 'VNet1toSite1'. The main pane shows the 'Overview' tab for 'VNet1toSite1'. The 'Essentials' section on the right provides key details:

- Resource group: [TestRG1](#)
- Status: Not connected
- Location: East US
- Subscription: [Subscription ID ee1230ce-d447-4846-8522-3192f0fc14](#)
- Tags: [Click here to add tags](#)
- Data in: 0 B
- Data out: 0 B
- Virtual network: [VNet1](#)
- Virtual network gateway: [VNet1GW](#)
- Local network gateway: [Site1 \(124.155.254.247\)](#)

The bottom of the screen shows a Windows taskbar with the system clock at 03:20 on 20-07-2023.

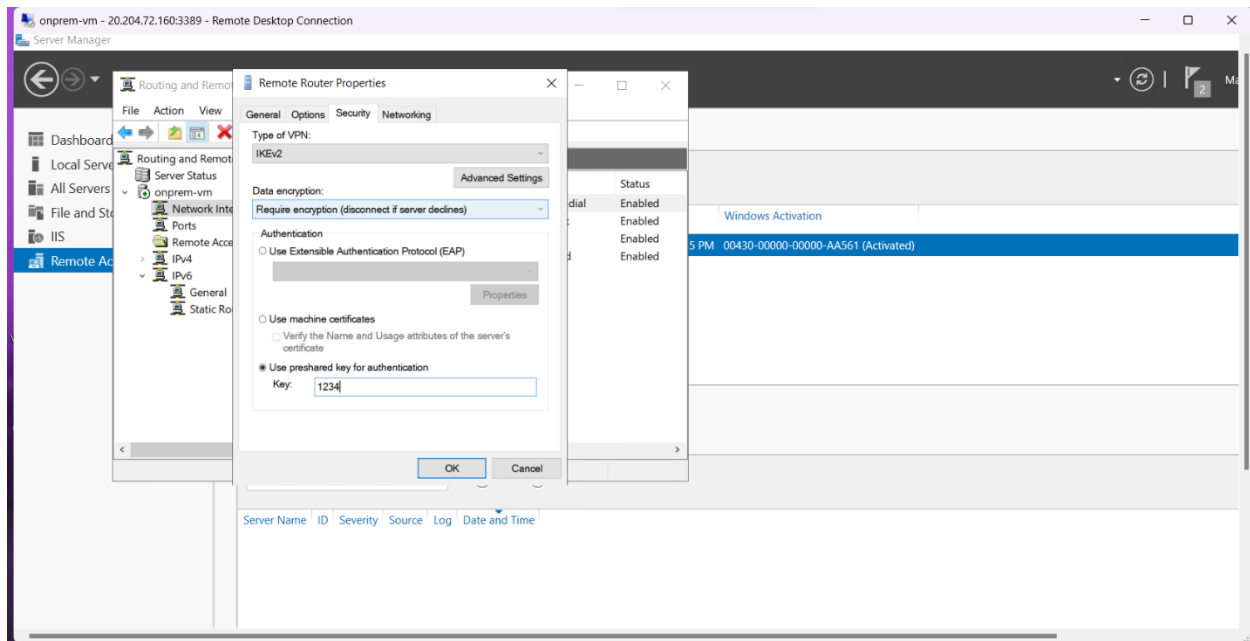
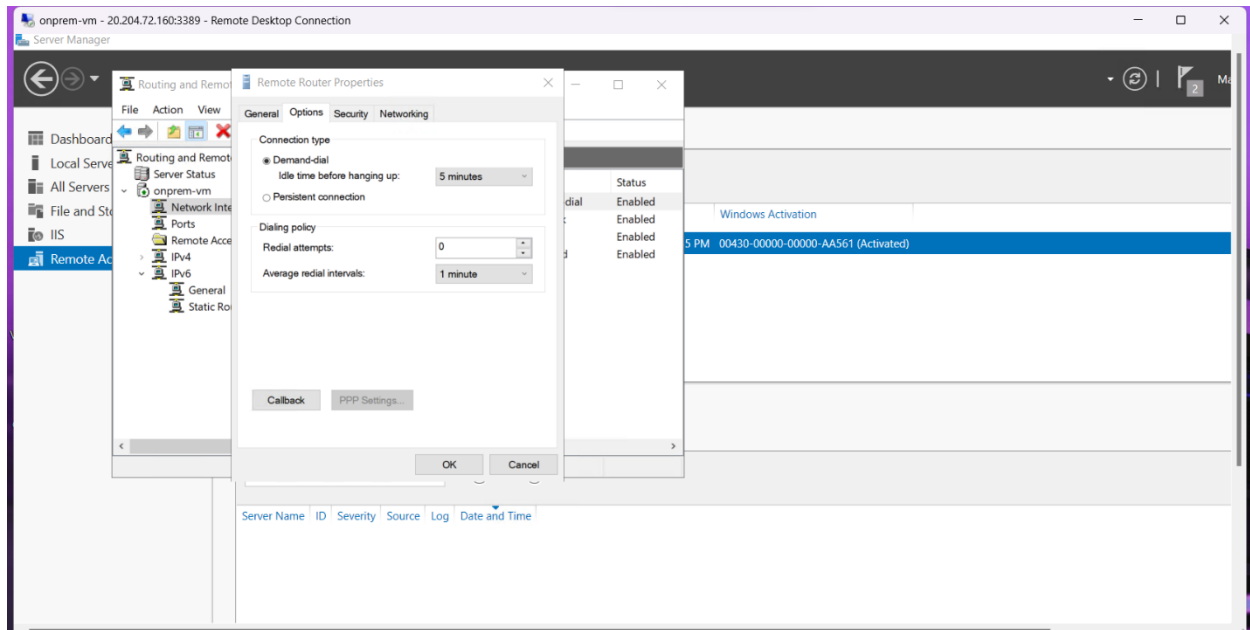
Connect to a virtual machine

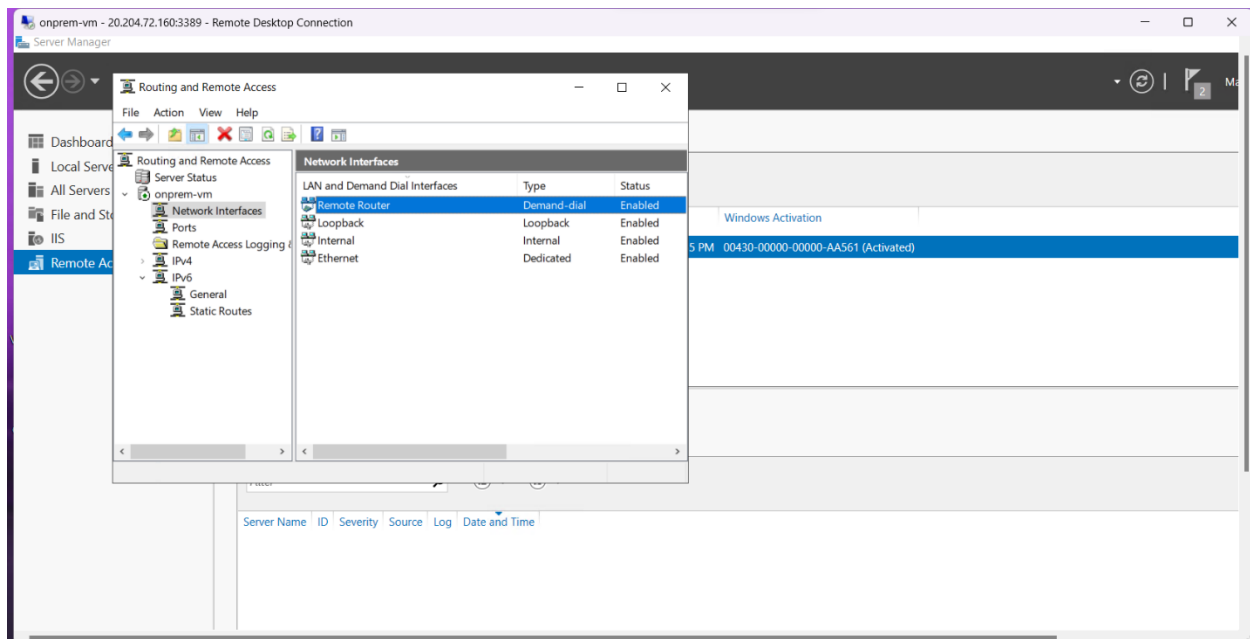
The screenshot shows the Microsoft Azure portal interface. The main content area displays the details for a virtual machine named 'vm1'. The left sidebar contains navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Networking, Connect, Windows Admin Center, Disks, Size, Microsoft Defender for Cloud, Advisor recommendations, Extensions + applications, Availability + scaling, Configuration, Identity, and Help. The main content area is divided into sections: Essentials, Properties, Monitoring, Capabilities (8), Recommendations, and Tutorials. The Essentials section shows the Resource group (TestRG1), Status (Running), Location (East US), Subscription (Azure for Students), and Subscription ID (ee1230ce-d447-4846-8522-3192f0ffc14). The Properties section shows the Virtual machine details: Computer name (vm1), Operating system (Windows (Windows Server 2016 Datacenter)), Image publisher (MicrosoftWindowsServer), Image offer (WindowsServer), Image plan (2016-datacenter-gensecond), VM generation (V2), and VM architecture (x64). The Networking section shows the Public IP address (20.172.138.170), Private IP address (10.1.0.4), Virtual network/subnet (VNet1/Frontend), and DNS name (Not configured).

Download Configuration

The screenshot shows the Microsoft Azure portal interface. The main content area displays the details for a connection named 'VNet1toSite1'. The left sidebar contains navigation options like Overview, Activity log, Access control (IAM), Tags, Settings, Authentication Type, Configuration, NAT Rules, Properties, Locks, Monitoring, Metrics, Automation, Tasks (preview), Export template, and Help. The main content area is divided into sections: Essentials, Properties, Monitoring, Capabilities (8), Recommendations, and Tutorials. The Essentials section shows the Resource group (TestRG1), Status (Not connected), Location (East US), Subscription (Azure for Students), and Subscription ID (ee1230ce-d447-4846-8522-3192f0ffc14). The Properties section shows the Connection details: Data in (0 B), Data out (0 B), Virtual network (VNet1), Virtual network gateway (VNet1), and Local network gateway (Site1). The Download configuration section shows the Download customer VPN device configuration template, Device vendor (Cisco), Device family (Cisco-ISR10S), and Firmware version (Cisco-ISR-15.x--IKEv2+BGP). A Download configuration button is visible at the bottom of the section.

Set the complete thing in the vm1





Ping from on-premises vm to the azure vm

