**Experimental Steps**

**Step 1: Register and Configure Cloud Virtual Machine (Lighthouse Node)**

1. Choose one of the recommended cloud service providers, register an account, and create a virtual machine
   * Ensure the VM has a public IP address
   * Select an appropriate operating system (Ubuntu Server recommended)
   * Configure security groups to open port 4242 (Nebula's default port)
2. Connect to the cloud virtual machine
   * Use a remote connection tool (such as PuTTY or Windows Terminal)
   * Connect to the VM's public IP address via SSH
3. Install Nebula on the cloud virtual machine

**Step 2: Install Nebula on Windows Computer**

* 1. Download the Windows version of Nebula
     + Visit Nebula's GitHub Releases page: <https://github.com/slackhq/nebula/releases>
     + Download the appropriate version for Windows (e.g., nebula-windows-amd64.tar.gz)
  2. Extract files
     + Create a folder (e.g., C:\nebula)
     + Extract the downloaded archive to this folder
  3. Verify installation
     + Open Command Prompt (CMD) or PowerShell
     + Navigate to the Nebula installation directory
     + Run the following command to verify the version:



**Step 3: Prepare Certificate Files**

1. Create a directory for certificates
   * Create a certs folder in the Windows Nebula directory



1. Place certificate files
   * Copy the three certificate files provided by the lecturer (your name.crt, your name.key, ca.crt) into the certs folder

**Step 4: Create Configuration File**

1. Create a config.yaml file in the Windows Nebula directory



1. The configuration file content is as follows (modify according to your actual situation):
2. Configuration file explanation:
   * pki section: Specifies the paths to certificate files
   * static\_host\_map: Maps the lighthouse's overlay IP to its public IP and port
   * lighthouse: Specifies that this node is not a lighthouse and sets the lighthouse node
   * tun: Configures the virtual network interface, including the overlay IP assigned to this node
3. Use a file comparison tool (such as Beyond Compare) to compare configuration file differences and ensure correct configuration

**Step 5: Start Nebula and Test Connection**

1. Start Nebula on Windows
   * Open Command Prompt as Administrator
   * Navigate to the Nebula directory
   * Run the following command:



1. Test connection to the lighthouse node
   * Open another Command Prompt window
   * Run the ping command to test connectivity:



1. Verify network connection status
   * You can use the ipconfig command to view the virtual network interface
   * Confirm that the virtual network card created by Nebula is properly configured