OpenVPN on Mikrotik

GLC Networks

SUPONO

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Intro into VPN

What is VPN

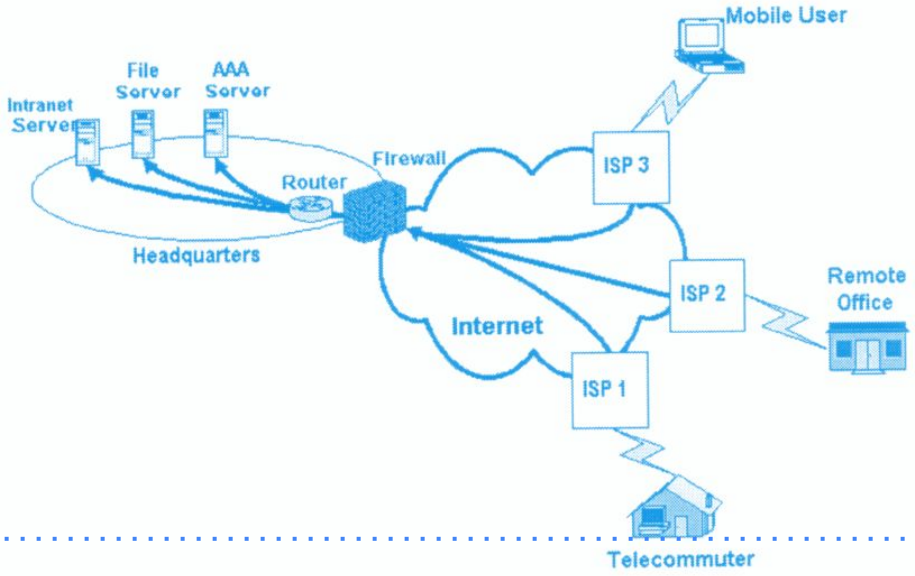
Why Should I Use a VPN?

How Does a VPN Work?

Type of Implementation

What is VPN ?

VPNs are private networks over public network



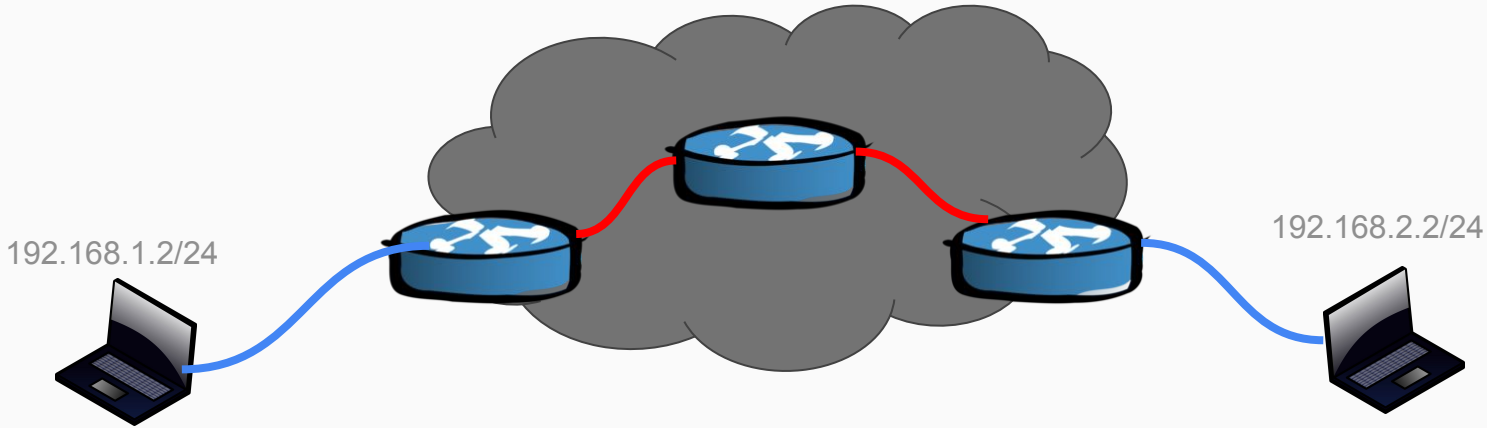
Why Should I Use a VPN?

- VPNs use advanced encryption and ‘tunneling’ technology to establish secure connection
- Employees can access the network (Intranet) from remote locations.
- The Internet is used as the backbone for VPNs
- Saves cost tremendously from reduction of equipment and maintenance costs.
- Scalability

How Does a VPN Work?

https://www.reddit.com/r/memes/comments/9vcpac/how_a_vpn_works/

How Does a VPN Work?



Types of Implementations

- Remote Access – Employee to Business
- Intranet – Within an organization
- Extranet – Outside an organization

Encryption

What is Encryption

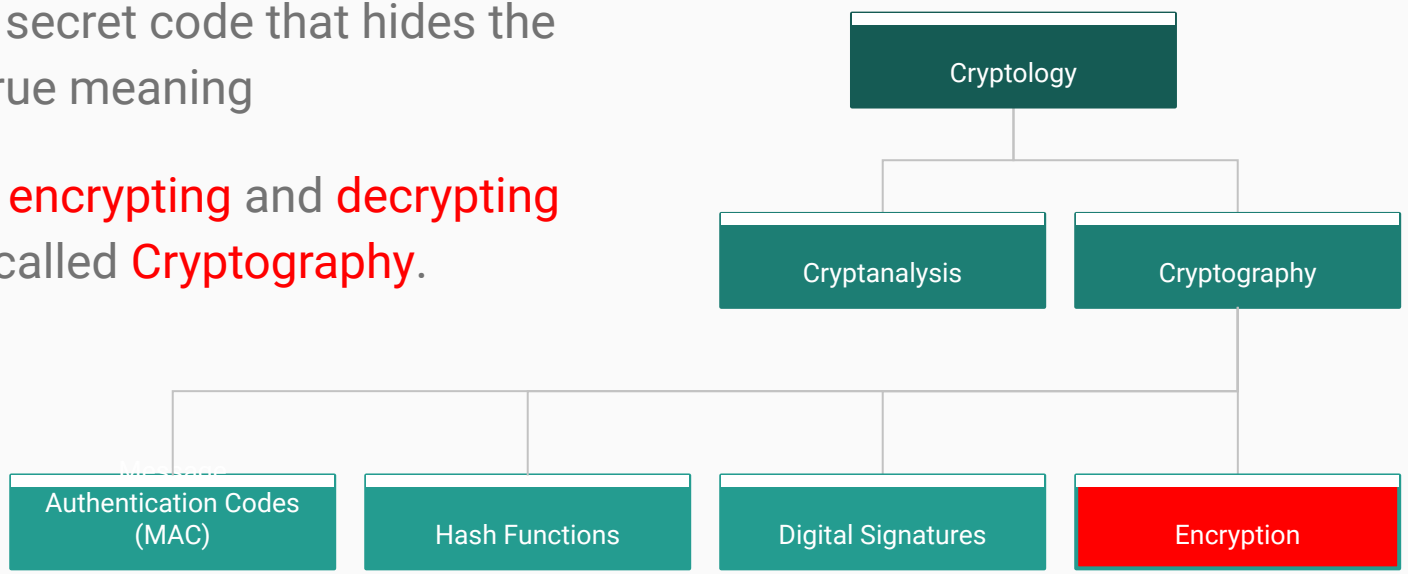
Symetric Encryption

Asymetric Encryption

What is Encryption ?

Encryption is the method by which information is covered into secret code that hides the information's true meaning

The science of encrypting and decrypting information is called Cryptography.



Encryption Schemes

Symmetric encryption

Uses a single key that needs to be shared among the people who need to receive the message.

Asymmetric encryption

Uses a pair of public key and private key to encrypt and decrypt messages when comunicating.

Symmetric encryption

A single key to **encrypt** and **decrypt** (same key)

Doesn’t scale very well

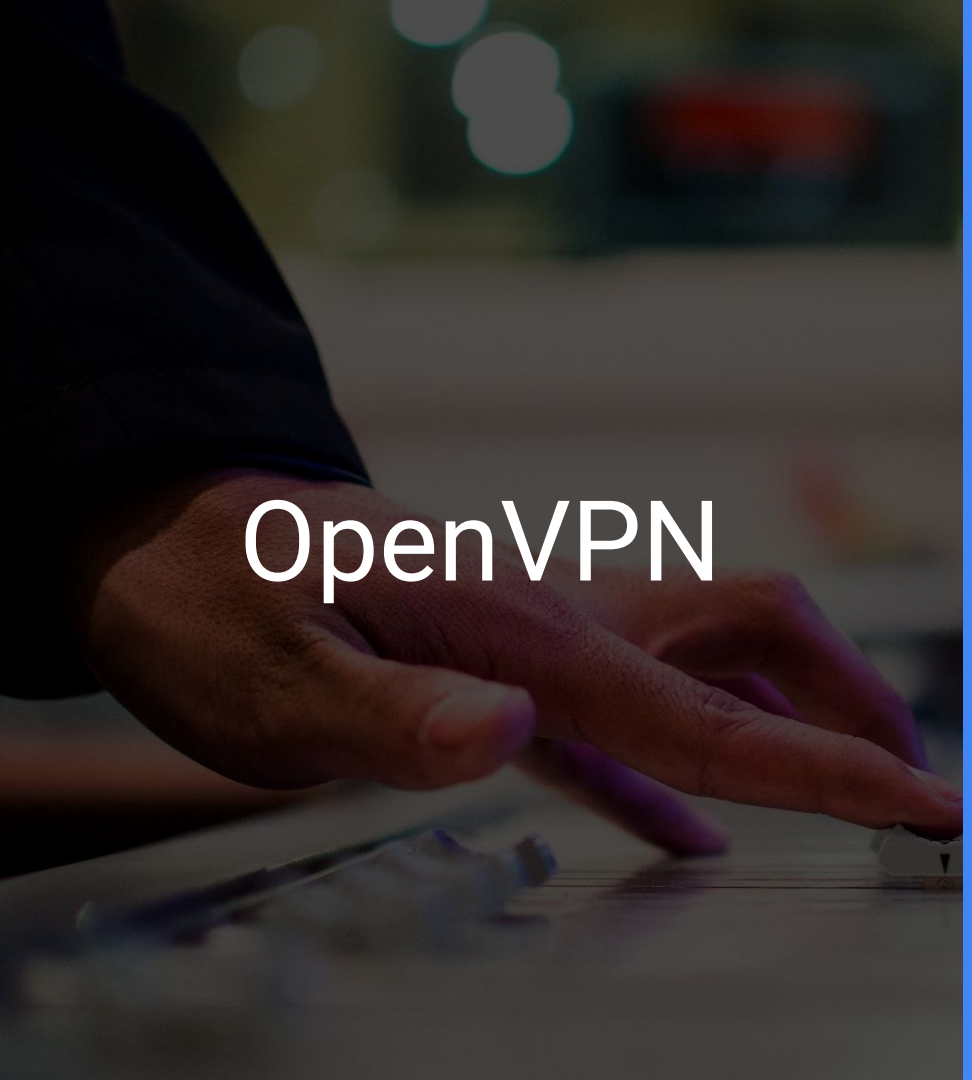
If it gets out, you will need another key for all

Asymmetric Encryption

Public Key Cryptography

a process that uses **a pair** of related **keys**

- **Private key**
  - Keep it private
  - Key that can **decrypt** data encrypted with the public key
- **Public Key**
  - Anyone can see the key
  - Key to **encrypt** data



OpenVPN

What is OpenVPN ?
Why use OpenVPN ?

What is OpenVPN ?

With OpenVPN, you can:

- Tunnel any IP subnetwork or virtual ethernet adapter
- Configure a scalable, load-balanced VPN server farm
- use all of the encryption, authentication, and certification features of the OpenSSL library to protect your private network traffic
- Create secure ethernet bridges using virtual tap devices

source : https://openvpn.net

Why use OpenVPN ?

- OpenVPN has been ported to various platforms (Linux, Windows, Mac, Mobile phone) and it's configuration is throughout likewise on each of these systems
- Easier to support and maintain.
- OpenVPN is one of the few VPN protocols that can make use of a proxy, which might be handy sometimes.

OpenVPN on Mikrotik

OpenVPN Feature on Mikrotik

OpenVPN on Mikrotik

requires v3.x

install and enable the *ppp* package

only *tcp* is supported. *udp* will not work.

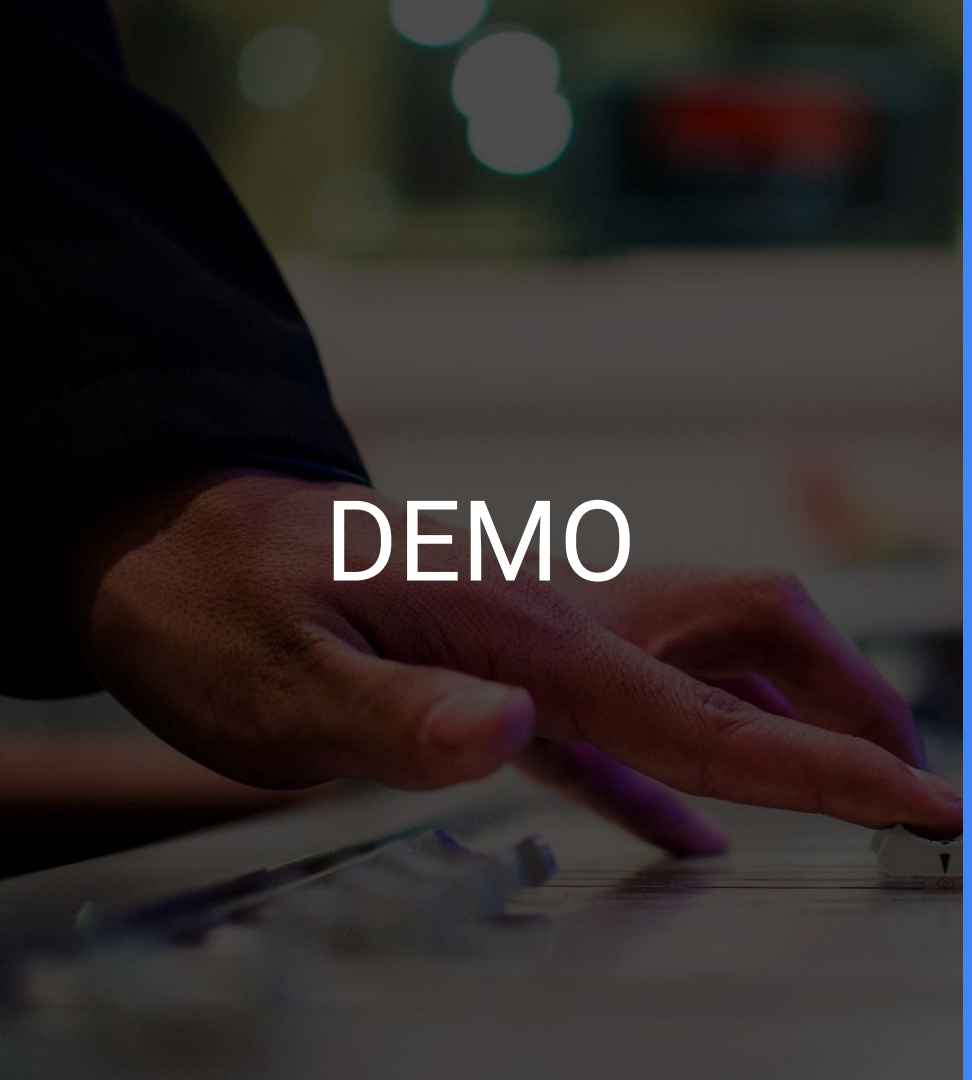
OpenVPN Features on Mikrotik

Supported

- TCP
- Bridging (tap device) (ethernet in Mikrotik)
- Routing (tun device) (ip in Mikrotik)
- Certificates
- p2p mode (refer to OpenVPN V2.1 manual page)

Unsupported

- UDP
- LZO compression



DEMO

Step

Step 1

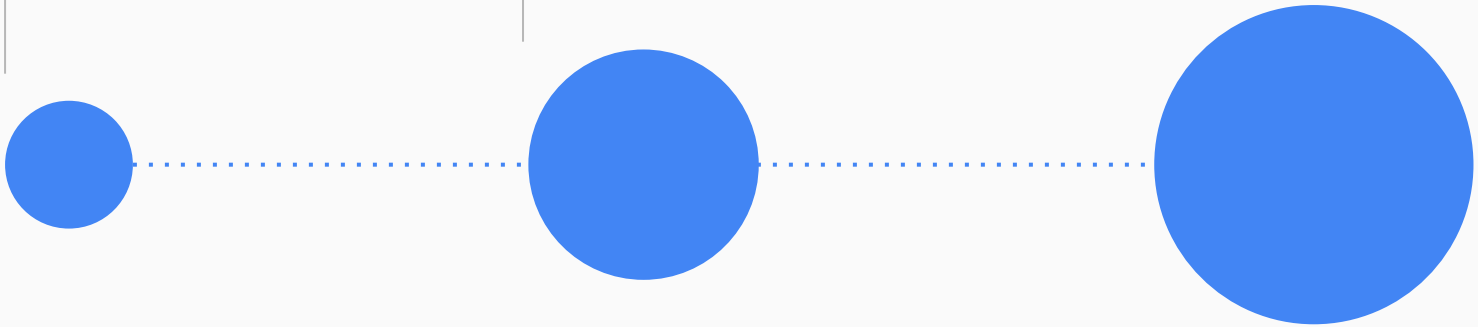
Create self sign certificate

Step 2

Configure Server

Step 3

Configure Client



Create self sign Certificate

https://github.com/supon0/MikrotikCertificate.git

/certificate

add name=rootCA common-name=supono.com

sign rootCA ca-crl-host=10.0.0.1

export-certificate rootCA export-passphrase=12345678 filename=rootCA

Configure Server

https://github.com/supon0/MikrotikOVPN/blob/main/server.rsc

#Setting nama Device

/system identity set name=R1

#Setting IP Address

/ip address

add address=10.0.0.1/24 interface=ether1

add address=192.168.1.1/24 interface=ether2

Configure Server

#Setting OVPN

/interface ovpn-server server set enabled=yes certificate=rootCA

#Menambah User OVPN

/ppp secret add name=R2 password=123 local-address=12.0.0.1 remote-address=12.0.0.2

#Menambah routing lewat OVPN

/ip route add dst-address=192.168.2.0/24 gateway=12.0.0.2

#Verifikasi

/interface ovpn-server server print

#Monitoring OVPN

/interface ovpn-server monitor 0

Configure Client

https://github.com/supon0/MikrotikOVPN/blob/main/client.rsc

#Setting nama Device

/system identity set name=R2

#Setting IP Address

/ip address

add address=10.0.0.2/24 interface=ether1

add address=192.168.2.1/24 interface=ether2

#Verifikasi IP Address

/ping 10.0.0.1

/ping 192.168.2.2

Configure Client

#Copy Certificate

/tool fetch mode=ftp user=admin password="" address=10.0.0.1 src-path=rootCA.key

/tool fetch mode=ftp user=admin password="" address=10.0.0.1 src-path=rootCA.crt

#Tambah Routing lewat OVPN

/ip route

add dst-address=192.168.1.0/24 gateway=12.0.0.1

Configure Client

#Import Certificate

/certificate

import name=rootCA file-name=rootCA.crt passphrase=12345678

import name=rootCA file-name=rootCA.key passphrase=12345678

#Buat OVPN Client

/interface ovpn-client add name=OVPN-to-R1 user=R2 password=123 connect-to=10.0.0.1 certificate=rootCA


Thank you