

Deploy MikroTik RouterOS router software with a QNAP NAS



Explore Software Router



What is software router?



MikroTik RouterOS Intro

- License purchase and validation



NAS x RouterOS

- NAS Hardware support
- NAS Software support
- Virtual Router topology



Demo

- Basic setup
- Advanced user story



What is software router ?



Router

Forwards data between computer and network.



Software Router

Running software-based routers in a virtual environment or an appliance.

+ *MikroTik*

Why You Need It



1

**Leveraging
virtualization
technology to
build a network
environment
rapidly**

2

**Allocating
computing
resources on
demand**

3

**Provides full-
function routing
functions**

MikroTik RouterOS



- Proprietary
- Linux-based operating system
- Installation
 - ISO image – PC/ x86
 - CHR (Cloud Hosted Router) – virtual machines
- Licensing
 - PC/ x86 – by the scalability of usage, e.g. num. of tunnels
 - CHR – by the speed of data transfer

Installation



ISO image for :

- RouterBOARD
- PC
- x86

CHR (Cloud Hosted Router) for :

- Virtual Machine
- Amazon AWS marketplace

Purchase / Activate License



Purchase

Purchase key

1. Select key level

License L4/P1

☒ USD 45.00

License L5/P10

☐ USD 95.00

License L6/PU

☐ USD 250.00

2. Select key type

☒ License key

Software ID

☐ Prepaid key

Select amount

1. Register a MikroTik account
2. Log-in and purchase

Activate (for prepaid keys)

Convert prepaid key to licence key

Prepaid keys

Software ID*

License L4/P1 (1)

Place in folder

Generated keys 2019

Generate

License

System ID:	6K99WGUYv+O	OK
Level:	free	Generate New ID
Next Renewal At:		Renew License
Deadline At:		
☐ Limited Upgrades		

1. Log-in MikroTik
2. Enter Software ID

NAS x RouterOS (1/2)

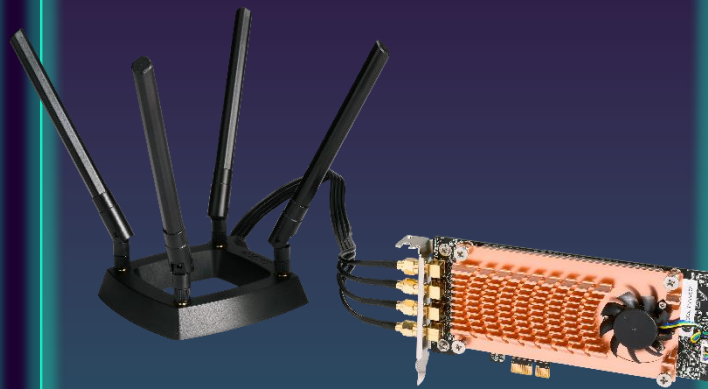


NAS Hardware Support:

**X86 NAS from
SOHO to Enterprise**

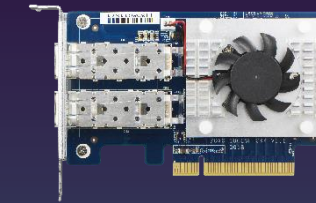


**QWA-AC2600 WiFi
expansion card**

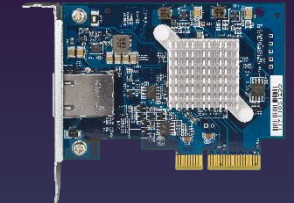


QWA-AC2600

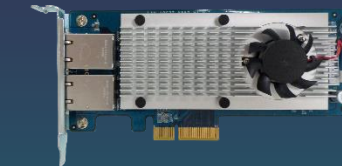
**1GbE - 40GbE Network
expansion cards**



40 GbE Mellanox



10 GbE Aquantia



10 GbE Intel X550

NAS x RouterOS (2/2)



NAS Software Support

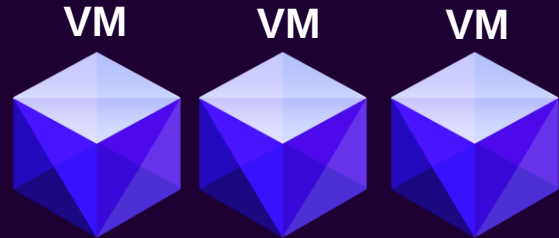
**Flexible
resource
allocation, e.g.
CPU, memory
and interfaces.**

**Dynamically
adjust
network
topology via
Virtual
Switches**

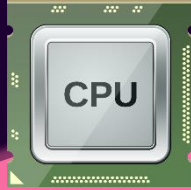
**Wireless AP
Station
supports Wi-
Fi Access
Point (AP)**

**Provides a VM
console to
manage router
configuration**

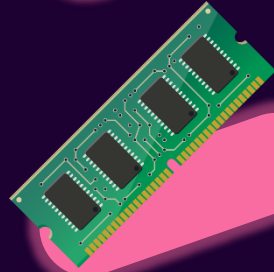
NAS Software – VM resources



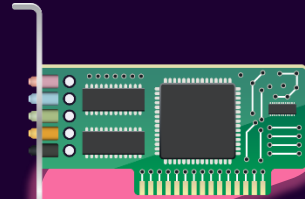
Virtualization Station



2 - 40 CPU cores



512 MB - 1TB Memory



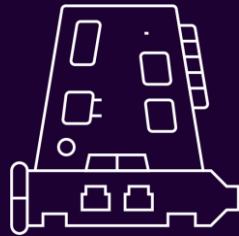
2 - 8 virtual NICs

NAS Software – Virtual Switch



Virtual Switch connects “physical” and “virtual” NICs and be used to build up a network environment.

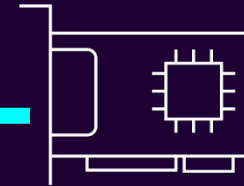
- 40 GbE Mellanox ConnectX-3
- 10 GbE Aquantia
- 10 GbE Intel X550
- QWA AC-2600



Physical NICs



Virtual Switch



Virtual NICs

- VM (LAN)
- RouterOS (LAN)
- RouterOS (WAN)

Bridged mode : connects different network segments (w/ IP assigned)

External-only mode : dedicate bandwidth to virtual switch (w/o IP assigned)

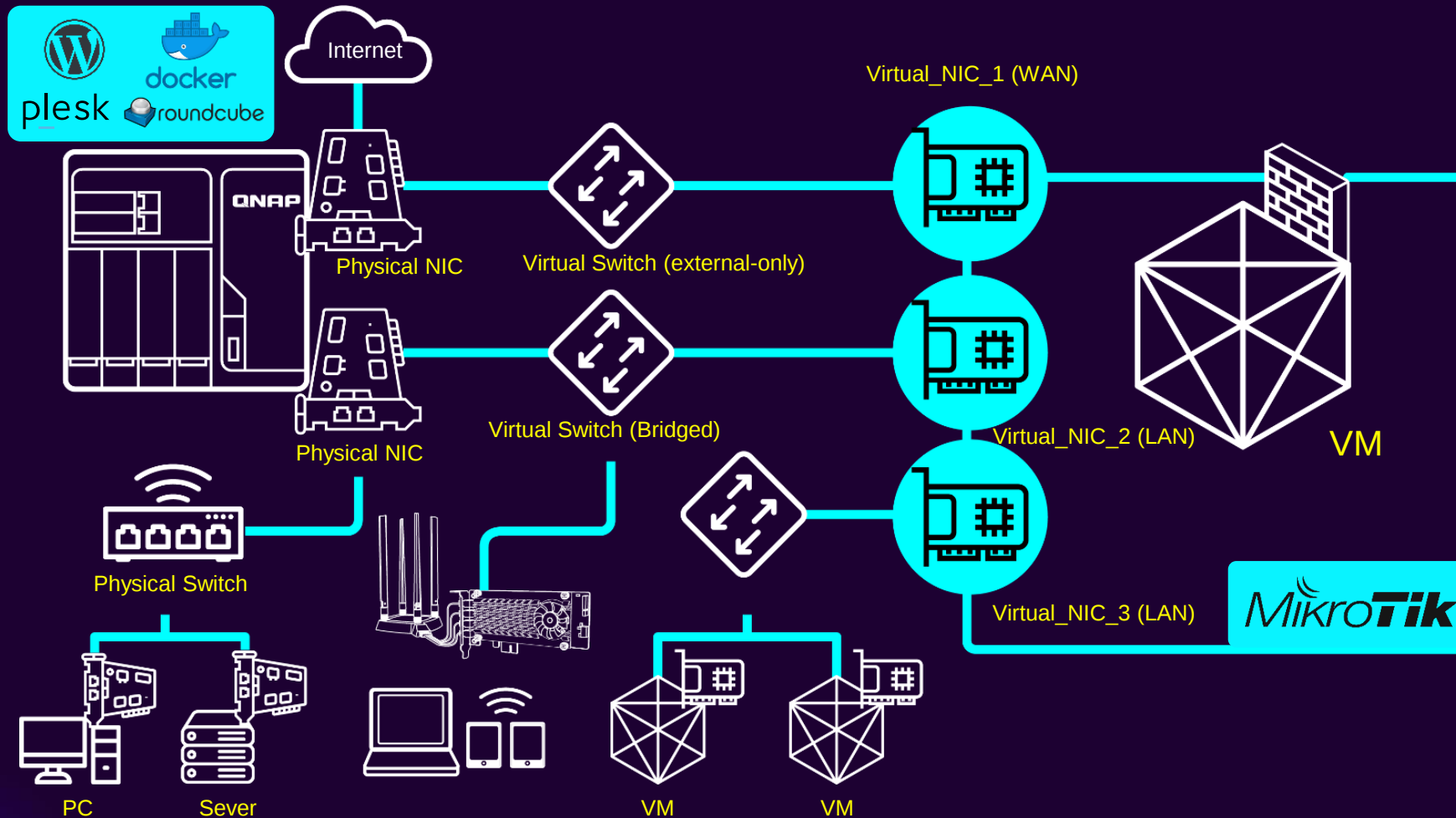
NAS Software – Wi-Fi AP



Composed of QNAP QWA-AC2600 and Wireless AP Station.



Virtual Router Topology



vNIC 1:

WAN interface, all the traffic throughout virtual router first.

vNIC 2:

LAN interface, applying network settings of virtual router via physical NIC and QWA-AC2600.

vNIC 3:

LAN interface, applying network settings of virtual router via Virtual Switch

Demo – Basic configuration setup (1/3)



1

Download
MikroTik
RouterOS CHR

2

Import
virtual
appliance

3

Add virtual
NICs for
WAN/LAN

4

Set up a LAN
interface IP
address

Demo – Virtual Switch Setup (2/3)



1

Create a Virtual Switch for WAN and setup as External-Only mode.

2

Create a Virtual Switch for LAN and setup as Bridged mode.

3

Connect vNICs of VMs and RouterOS to Virtual Switches respectively.

Demo – Wi-Fi AP Setup (3/3)



1

**Plug in
QWA-AC2600**

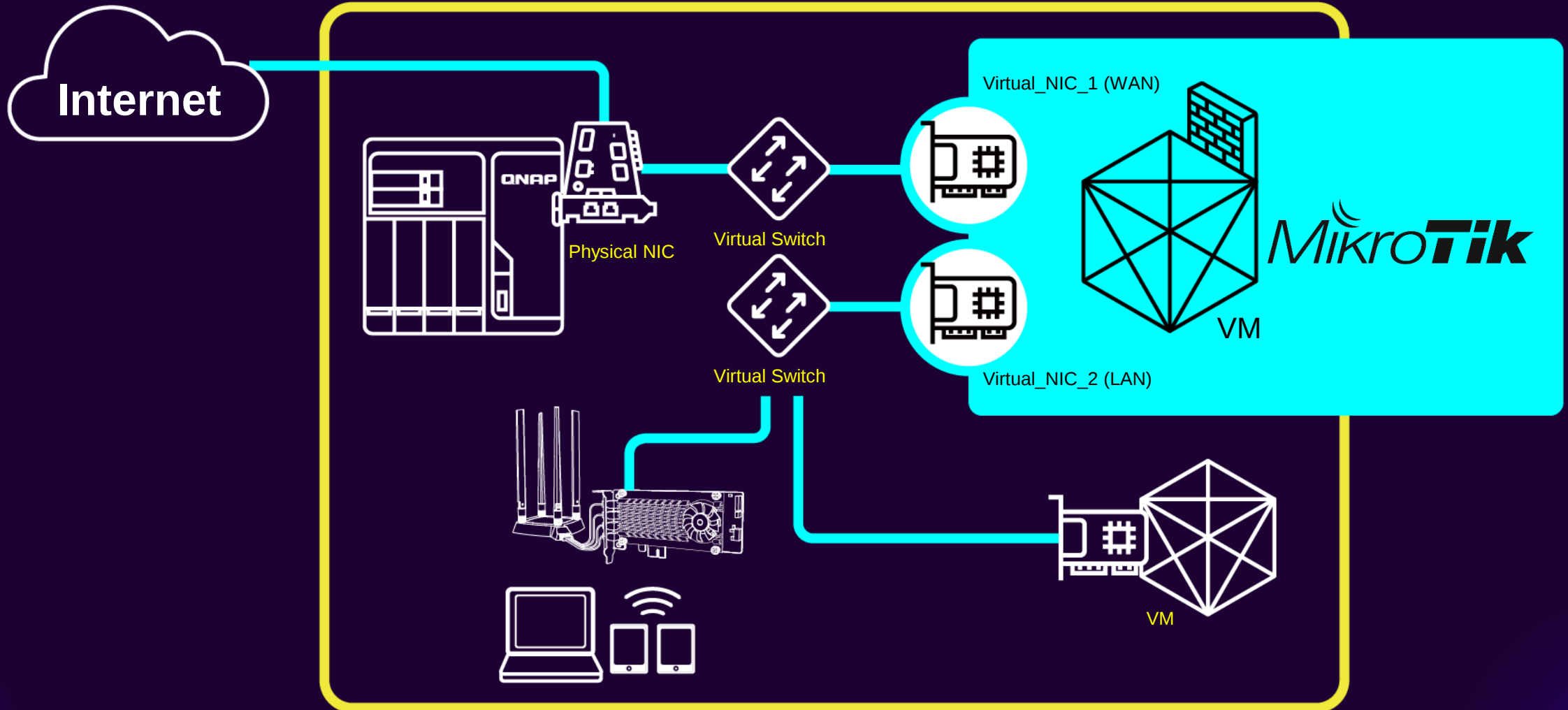
2

**Download
Wireless AP
Station from
App Center.**

3

**Add access
point with
5G/2.4G and
configure a
password.**

Demo Environment Topology



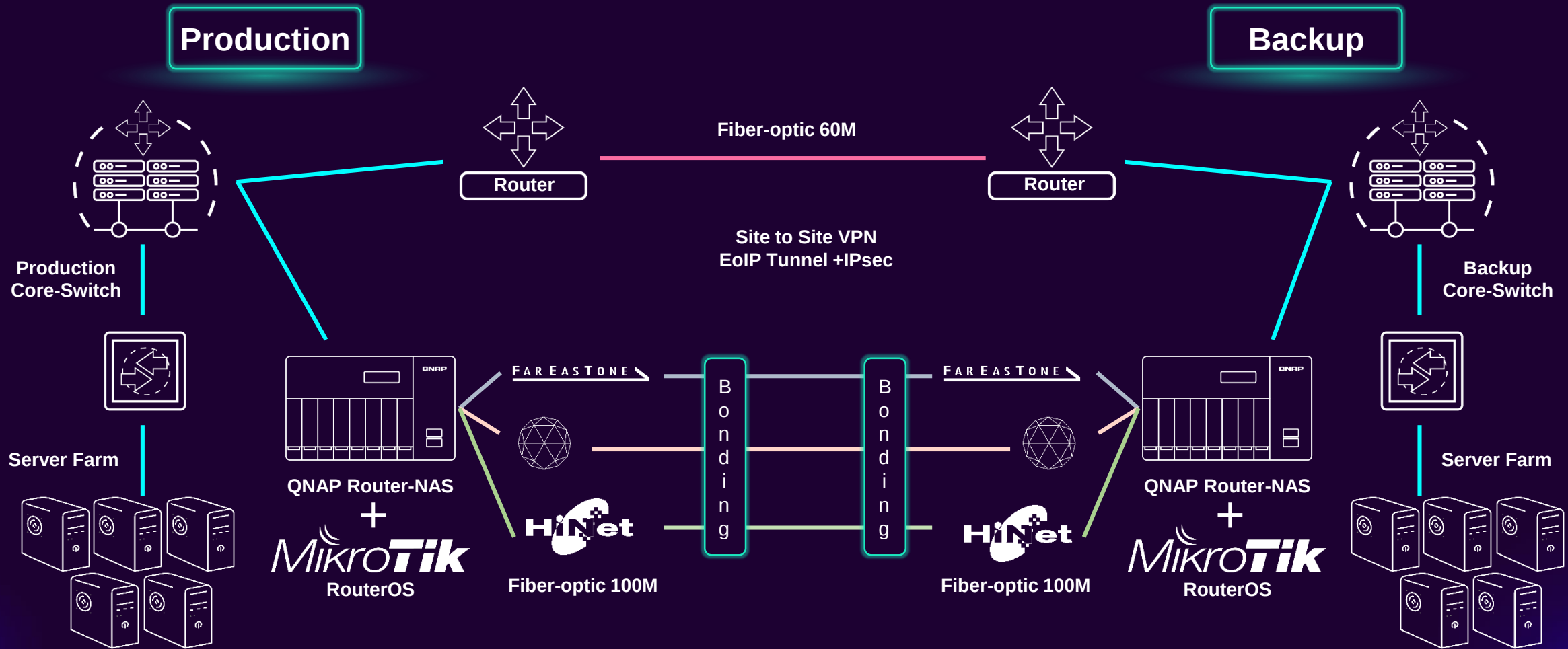
Demo



Demo – Advanced User Story



Site-to-Site EoIP Tunnel with IPsec and bonding different ISPs.



Demo



QNAP is your best choice!

QNAP NAS X MikroTik RouterOS

