

**QNAP**

# QHora-301W

The game-changing QuRouter OS  
upgrades your network experience



**QuWAN**  
Sub scription-

**Free**

# Agenda

---

- The market exclusive functions cause a sensation
- The new features of QuRouter OS
- QHora-301W is your first step toward next generation networking
- Dual 10GbE ports meets all your application scenarios
- Enable subscription-free QNAP SD-WAN on QHora-301W



# The market exclusive functions cause a sensation



**Paul donovan**  
★★★★★ 10gbe x2 and wifi 6 ax  
2021年1月2日在美國評論  
Very nice easy setup amazing features for the price practically a steal  
This is my first time with qnap I'm already looking at their switches  
I'm simply amazed at the future proofing of this router

★★★★★ Great hardware design and excellent performance  
2021年1月1日在美國評論  
Amazon 驗證購買

**PROS**

- 2x 10GbE Port Router, Copper too
- Stick Router GUI with easy access
- WiFi 6 Support
- 8 antennae
- FAST setup and inc wall brackets
- Fanless/noiseless
- USB 3.2 Gen 1 Ports
- Works straight out of the box
- Free SD-WAN software and services included
- Works with Several QNAP NAS Apps

2020年12月29日在美國評論  
★★★★☆  
Amazon 驗證購買  
Nice fanless design.  
So far ipv6 is not supported on this router.  
DHCP range can be changed via VLAN settings.

點止 10G 連接咁簡單  
內建QuWAN、負載平衡、AX無線網絡切分

## The market exclusive functions

---

- 8 internal antennas for Wi-Fi 6 (802.11ax)
- Dual-port 10GbE high speed routing
- QNAP SD-WAN QuWAN
- User friendly QuRouter OS



# QuRouter OS

Upgrades your network experience



# Enable 160MHz to boost wireless speed

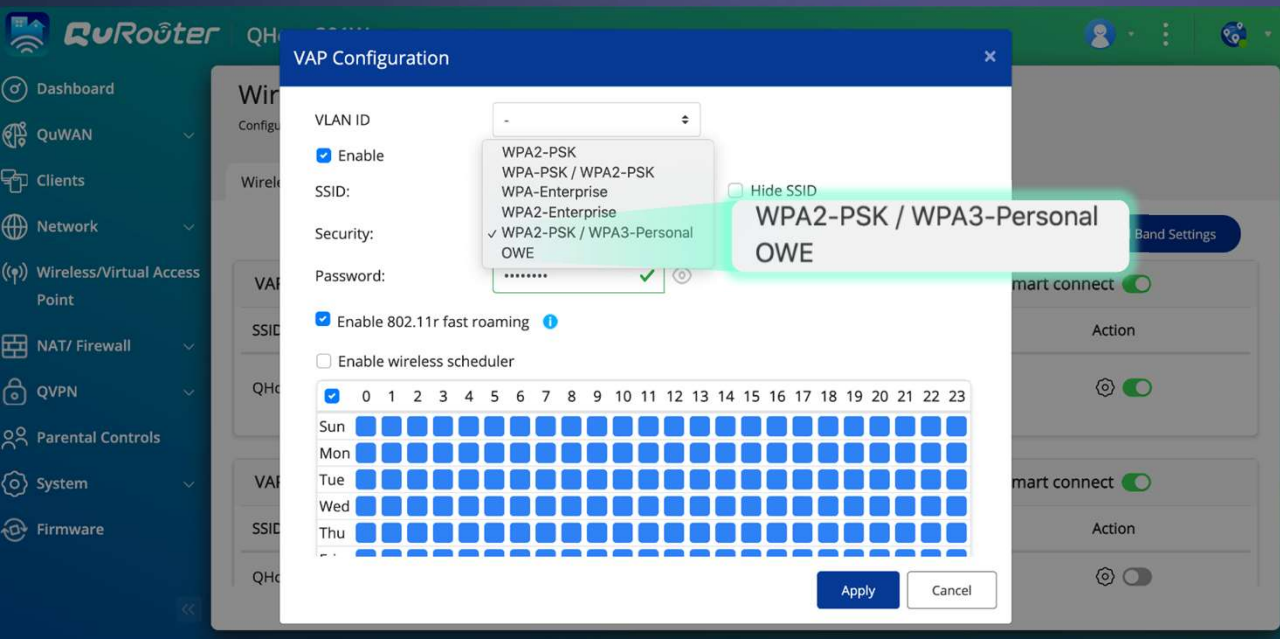
QHora-301W supports 2x2 160MHz channels and provides up to 2.4Gbps theoretical wireless speed.

Stop buffering and start enjoying uninterrupted streaming media.  
Say goodbye to character freezing & enjoy lagfree gaming.



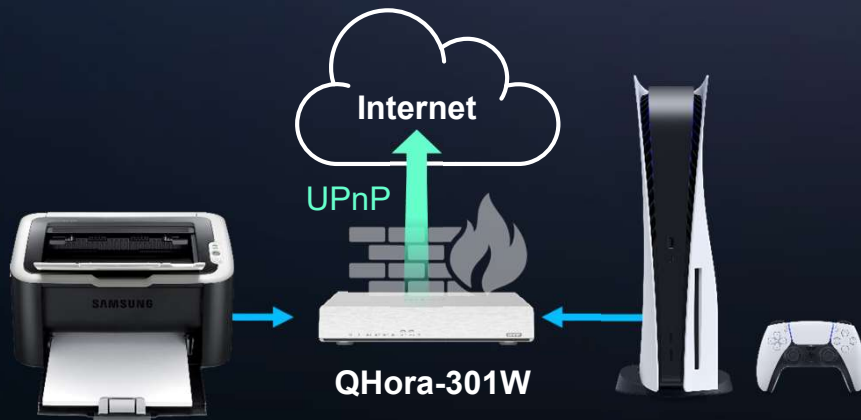
\* \* The 160MHz channels can be enabled in areas governed by CE, IC, NCC, TELEC, OFCA safety regulations

# Select WPA3 or OWE to better protect your data transmission between devices and QHora-301W



# Enable UPnP to connect various services in one-click

- Services under NAT , such as video entertainment, game consoles, and smart devices can automatically communicate with firewall through the UPnP protocol to establish port forwarding function. Users don't need to set the device one by one, it can connect to Internet automatically.
- UPnP page provides a list of UPnP services, allowing you to fully manage the status of port opening ◦
- UPnP function can be turned off when cybersecurity request of the network environemnt is high.



The screenshot shows the QHora-301W router's web interface. The left sidebar contains navigation options: Dashboard, QuWAN, Clients, Network, Wireless/Virtual Access Point, NAT/ Firewall, QVPN, and Parental Controls. The main content area is titled 'NAT/ Firewall / UPnP' and includes a toggle for 'UPnP' which is currently turned on. Below the toggle, there is a table for the 'UPnP Service List'.

ID	Service Name	External Port	Protocol	Internal IP Address	Internal Port
----	--------------	---------------	----------	---------------------	---------------



# QHora-301W QoS reserves bandwidth for important applications

No interruption during streaming or data backup even when bandwidth usage is full.

- Application service level can be set on QuWAN Orchestrator.
- QHora-301W has built-in DPI engine to automatically detect and distinguish applications, and reserve bandwidth for important applications.



**QoS**

**50% VoIP**

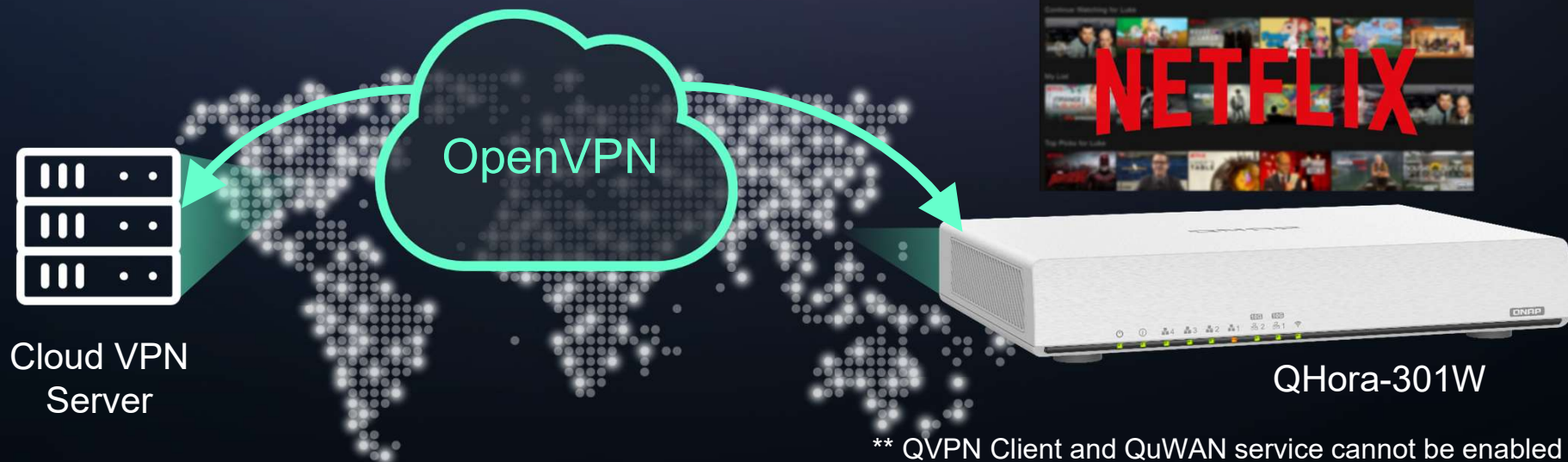
**30% ERP**

**20% File transfer**

QoS Rule	Source	Destination	DPI Application Group	Network Steering	QoS Type
Service Class 1					30%
Service Class 2					20%
Service Class 3					14%
Service Class 4					14%
Service Class 5					7%
Service Class 6					7%
Service Class 7					1%

# Watch region limited Netflix by enabling QVPN Client to connect to Cloud VPN Service

- Connect QHora-301W to Cloud VPN service, such as ExpressVPN, CyberVPN or NordVPN by setting the OpenVPN protocol to direct network to a cross-region VPN Server, allowing you to easily watch region limited video streaming or news.
- Setting VPN service on QHora-301W can eliminate the need of setting VPN for each home device.



\*\* QVPN Client and QuWAN service cannot be enabled at the same time

# Set DNS on WAN

Manually configure DNS services to meet your special needs  
Make the Internet environment faster and more customized

The screenshot displays the QuRouter QHora-301W web interface. The left sidebar contains navigation options: Dashboard, QuWAN, Clients, Network, Port Definition, WAN, LAN, VLAN, Routing, Wireless/Virtual Access Point, and NAT/Firewall. The main content area shows the 'Port 1 Configuration' dialog box for the WAN interface. The dialog includes the following fields and options:

- Interface: WAN
- WAN interface: DHCP
- Current IP address: 172.17.30.174
- Connect to DNS Server Server automatically:  Auto  Manually
- DNS server: 10.8.2.11, 172.16.2.11 ✓
- Description: ✓
- NIC Information
  - MTU: 1500 ✓
  - Transferring (Tx) ISP line rate: 1000 Mbps ✓
  - Receiving (Rx) ISP line rate: -- Mbps ✓

At the bottom of the dialog are 'OK' and 'Cancel' buttons. A callout box on the right side of the dialog highlights the 'Current IP address' and 'Connect to DNS Server' options.

# Specify the connection path of myQNAPcloud DDNS

**QnRouter** | QHora-301W

## DDNS (My DDNS)

Configure DDNS related settings on the page.

Enable My DDNS  
DDNS Settings: WAN port 1

- You can connect to the network services on your router by using the following internet address:  
AiQHora.myqnapcloud.com
- To change myQNAPcloud DDNS domain name, please click [here](#)

Note: If the default port is not used, you will need to specify the port number when accessing the network services.

---

Recent DDNS Update Result ↻

DDNS IP Address: 60.248.95.192  
Last update time: 2021-02-01 18:01:19  
Status: Successfully updated myQNAPcloud

You can choose static IP or specify WAN port for myQNAPcloud DDNS connection

### Select WAN Interface

DDNS Settings: WAN interface ✓

Select WAN Interface: WAN port 1

OK Cancel

# Functions Coming soon...

## IPTV

VLAN setting on WAN  
and IPTV service

To better fulfill various  
services provided by regional  
ISP

## IPv6

IPv6 Support

IPv6 is extensively used in  
some areas such as Japan  
and China.

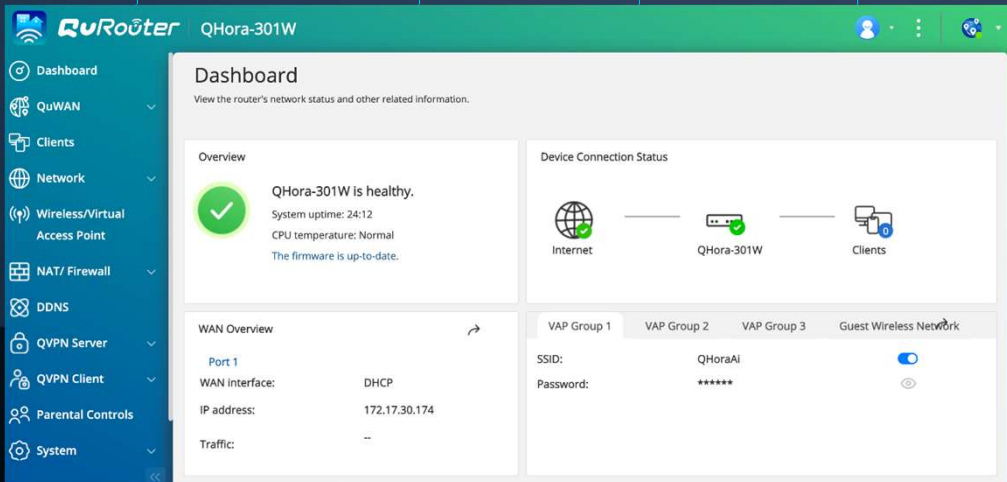


Classic Site to Site  
VPN settings

Allow QHora-301W to establish  
VPN connections with other routers  
or cloud service providers

# QuRouter OS fulfills all you need for SMB and home office networking

Spec	Status	Opertation Mode	Access Control	Security	QVPN	Advanced network setting	System setting	QuWAN SD-WAN
<b>QHora-301W</b>	<ul style="list-style-type: none"> <li>• Device status</li> <li>• Wired network status</li> <li>• Wireless status</li> </ul>	<ul style="list-style-type: none"> <li>• Router Mode</li> <li>• Access Point Mode</li> </ul>	<ul style="list-style-type: none"> <li>• Parental controls: domain name filtering</li> </ul>	<ul style="list-style-type: none"> <li>• Layer 3 firewall</li> <li>• NAT</li> <li>• UPnP</li> </ul>	<ul style="list-style-type: none"> <li>• Can become VPN server or client</li> <li>• Support remote access by using QBelt, L2TP and OpenVPN</li> <li>• Client management</li> <li>• Event log</li> </ul>	<ul style="list-style-type: none"> <li>• WAN selection</li> <li>• WAN/LAN port definition</li> <li>• Tx/Rx status</li> <li>• VLAN setting</li> <li>• IPv4 static routing</li> <li>• MyDDNS for myQNAPcloud</li> </ul>	<ul style="list-style-type: none"> <li>• Restart, reset, nackup, audio alert setting</li> <li>• Local account and QID management</li> <li>• USB Setting : FTP server</li> </ul>	<ul style="list-style-type: none"> <li>• Org, region, site and connection role selectio</li> <li>• Max tunnel scale 30</li> <li>• QuWAN QoS</li> </ul>



# QuRouter OS Wireless Setting

## Spec

### QHora-301W

Dual-Band  
5G (2475Mbps): 4x4 (80MHz), 2x2 (160MHz)  
2.4G (1182Mbps): 4x4 (40MHz)

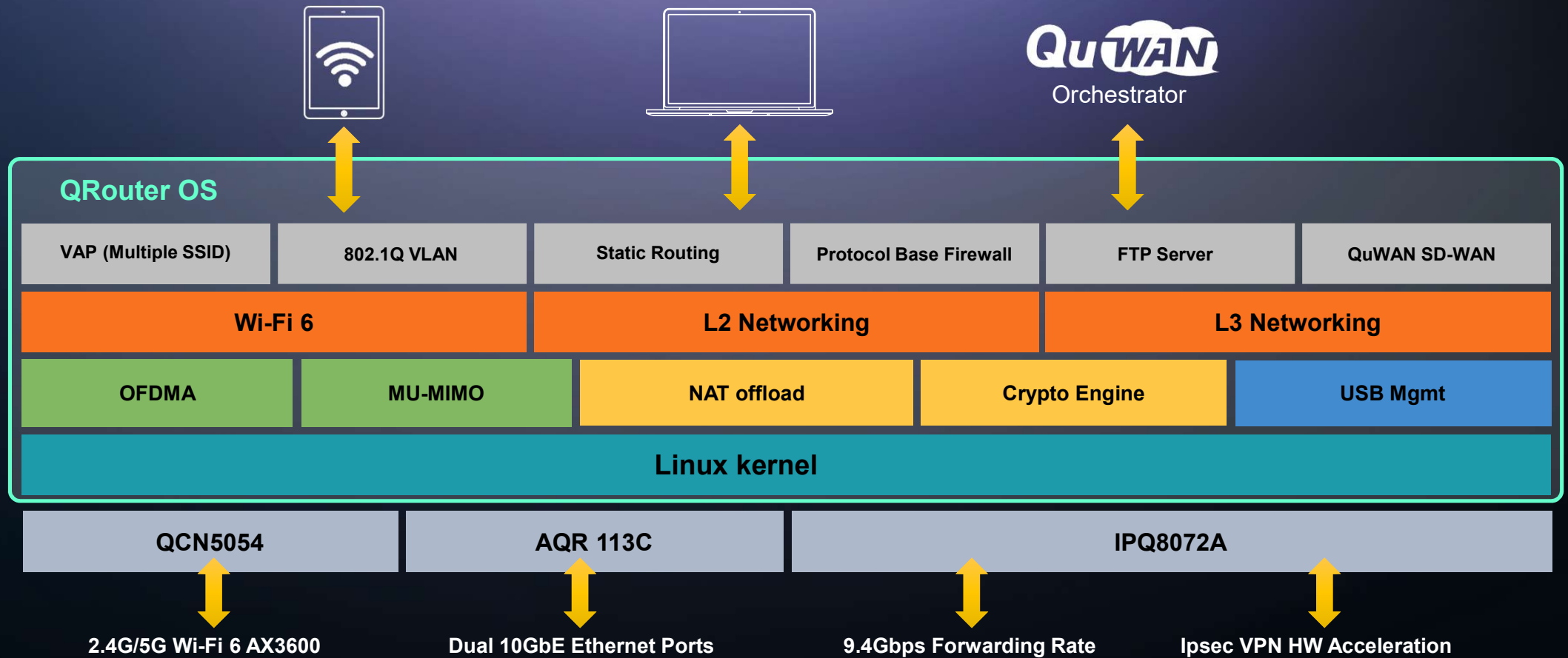


## Wi-Fi AP (Wi-Fi 6)

## Wireless Network Management

- Supports IEEE 802.11ax (Wi-Fi 6)
- Supports MU-MIMO
- Supports band steering for dual-band (2.4GHz and 5GHz) access points
- Transmission power (high, middle, and low)
- 20/40/80/160 MHz bandwidth
- Dynamic Frequency Selection (DFS) channels (Auto, custom)
- RTS/CTS (Request to Send/Clear to Send) function
- Dual-band 2.4G and 5G settings
- Guest wireless
- IEEE 802.3Q Virtual LAN (Supports wired and wireless connections)
- Smart connect
- SSID and password configuration • Wireless Protected Access (WPA2-PSK, WPA-PSK + WPA2-PSK, WPA-Enterprise, WPA2-Enterprise, WPA3, OWE)
- Supports IEEE 802.11r fast roaming • Wireless scheduling
- Wireless (Protected Setup (WPS)
- Wireless client connection status and block lists

# QuRouter Architecture





# Enterprise-grade Feature: Virtual Access Point

- QHora-301W supports VAP (Virtual AP) function, allowing for running up to 6 virtual APs. Each VAP has its own SSID & access right profiles and customized routes/policy to WAN Internet.
- By connecting to a wireless SSID, different group of users (or device clients) will be bridged to a different VLAN, such as office-intranet, home & guest network. Different VLAN group can have different network policy rule and can be separated by using firewall.



# Demo

## QuRouter OS



# QHora-301W

QHora-301W is your first step toward  
next generation networking



# New-gen Router Requires WiFi 6

## High-speed connectivity

With the revolutionary combination of OFDMA, MU-MIMO and BSS Coloring technologies

WiFi 6 technology provides higher network capacity and reduces latency in traffic-intensive environments



## WiFi 6 is the next-gen WiFi standard

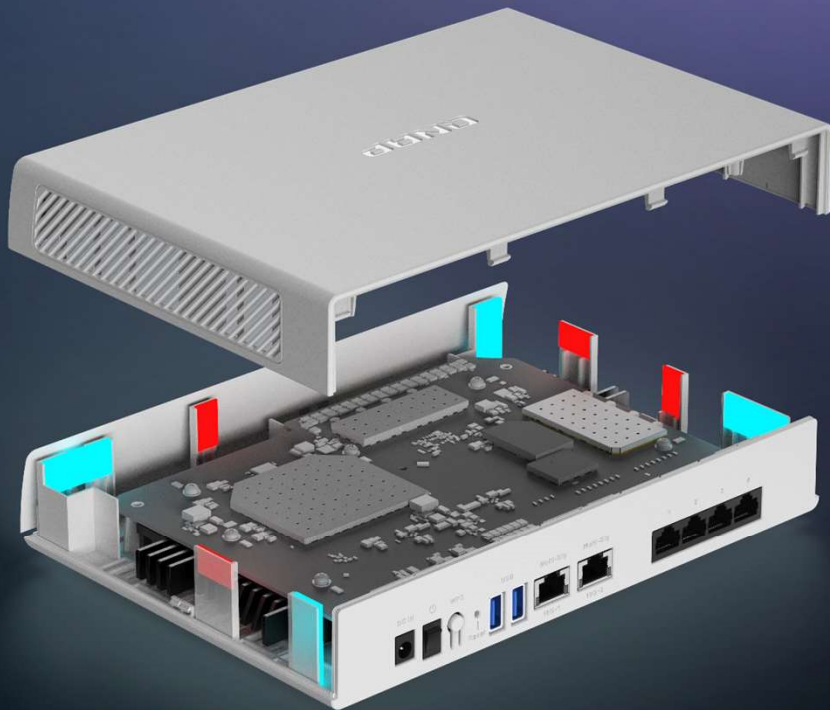
In 2020, more and more client devices began to support WiFi 6, including computers, mobile phones and tablets.



# Eight Internal Antennas

## Advantages

- Not only Wi-Fi 5 has a built-in antenna, QHora-301W provides a built-in antenna for Wi-Fi 6
- It is easy to place and is in line with family design style
- Provide stable performance, users do not need to adjust the antenna angle by themselves
- High-power amplifiers & antennas help extend WiFi coverage throughout large homes & even backyards



2.4 GHz  
Antennas (5dBi) x 4

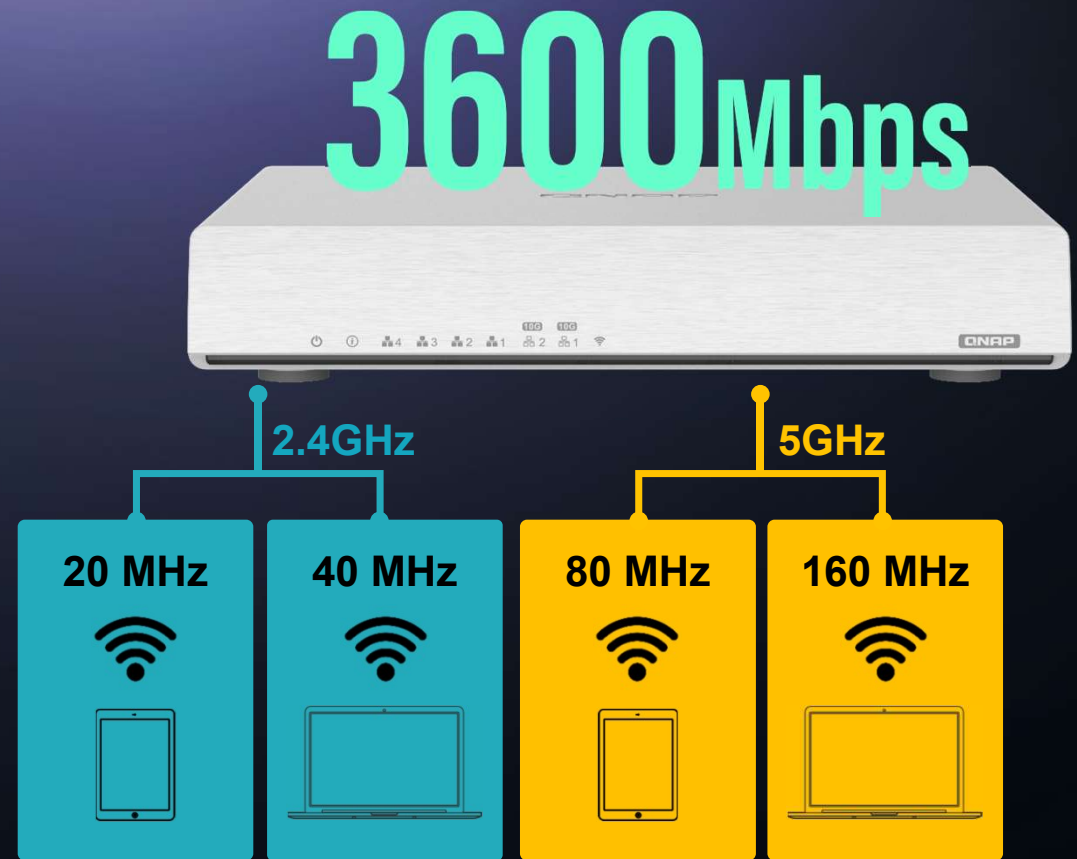
5 GHz  
Antennas (5dBi) x 4

8  
Antennas (5dBi)

# High-performance Wireless Network

WiFi 6 – Huge Gains in Multi-user Access Efficiency  
An essential tool for IoT smart home

- AX3600 Theoretical throughput
- 5G (2475Mbps): 4x4 (80MHz), 2x2 (160MHz)  
2.4G (1182Mbps): 4x4 (40MHz)
- The highest supported bandwidth is 160MHz (channels are opened to areas that governed by CE, IC, NCC, TELEC and OFCA safety regulations)



# High-performance is tuned by High Standard Lab



Point to point test



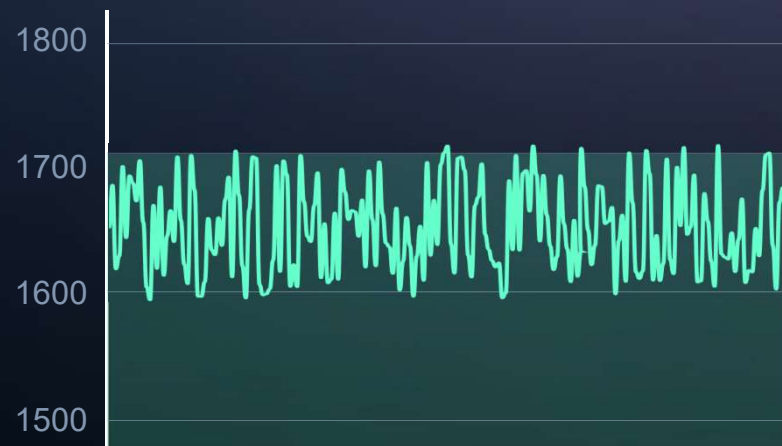
Multiple client test

# QHora-301W Wireless Performance

802.11ax / 5G

## 160MHz

Tx	Rx
<b>1700</b>	<b>1600</b>
(Mbps)	(Mbps)



2x2 Throughput  
(Mbps)

## 80MHz

Tx	Rx
<b>900</b>	<b>850</b>
(Mbps)	(Mbps)



2x2 Throughput  
(Mbps)



# New-gen Router Requires Dual 10GbE Port

QHora-301W provides 10GbE port  
Provide up to 9.6 Gbps NAT routing

Support high-speed internal and external network transmission  
Meet the needs of remote backup of large business files



# New-gen Router needs to provide SD-WAN service

Built-in SD-WAN solution (QuWAN), supporting full Mesh VPN for easy multi-site VPN deployment.



## Subscription-Free

No need to purchase other devices for multi-site VPN



## Flexible Deployment

- Auto VPN tunneling
- Support network optimization to ensure connection quality

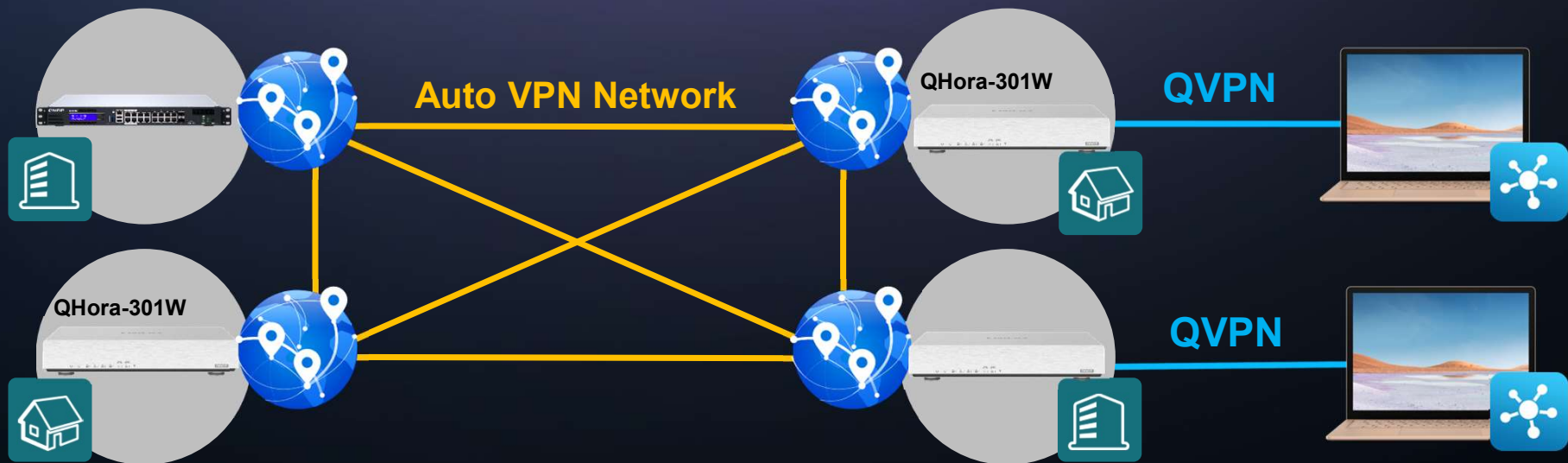


## Center Management

QuWAN Orchestrator

# QuWAN is a complete SD-WAN solution

QNAP QuWAN is a complete SD-WAN solution that provides enterprise IT managers with a simple, fast, secure and efficient network connection structure. You can easily and quickly build a multi-site VPN network and centrally manage it from a cloud platform.



# A centrally managed platform solves the management issues of multiple devices

01 Intuitive graphical user interface

02 Geological location of each device

03 Overview connection status of all devices

04 Simultaneously execute various parameter settings



## Instant Notification

The dashboard provides a comprehensive overview of the QuWAN network. It features a world map showing device deployment across various regions, a network topology diagram, and a detailed list of devices with their connection and VPN statuses.

**QuWAN Device Deployment**

Map and Topology Expand/ Collapse

**Topology**

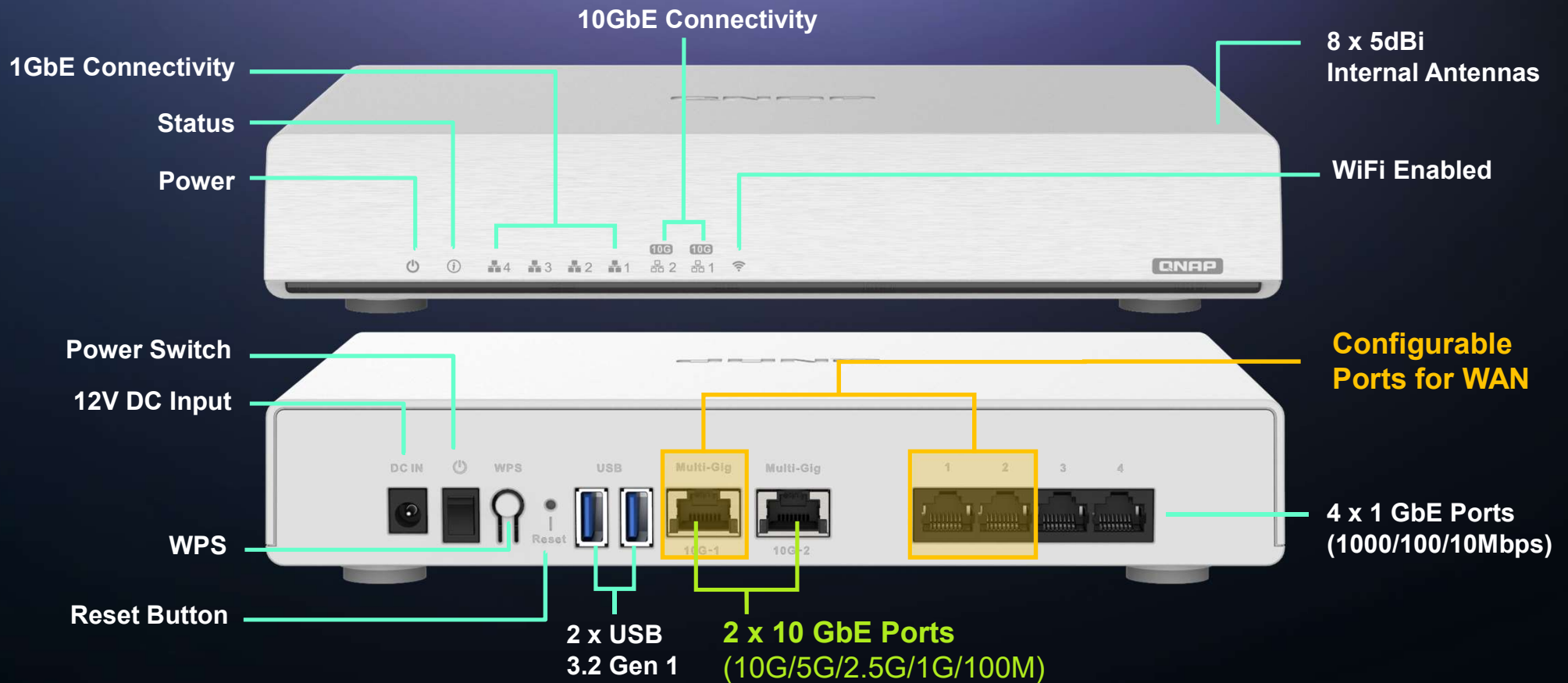
Hub ● Edge Domain: Global ○ China

VPN status: Connected (green), Partially connected (yellow), Disconnected (red)

**QuWAN Device List** Total: 56

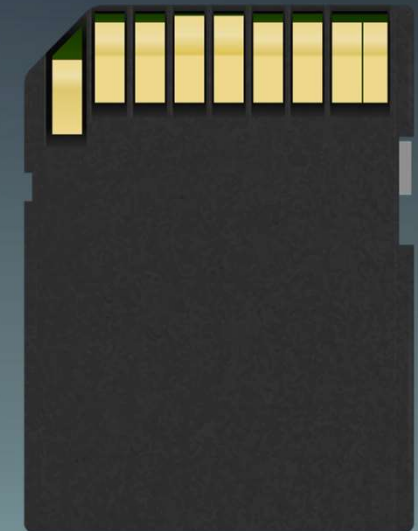
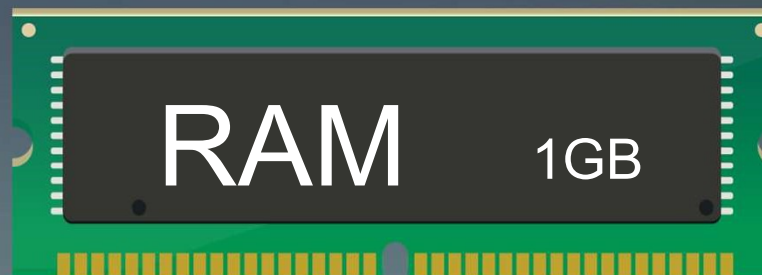
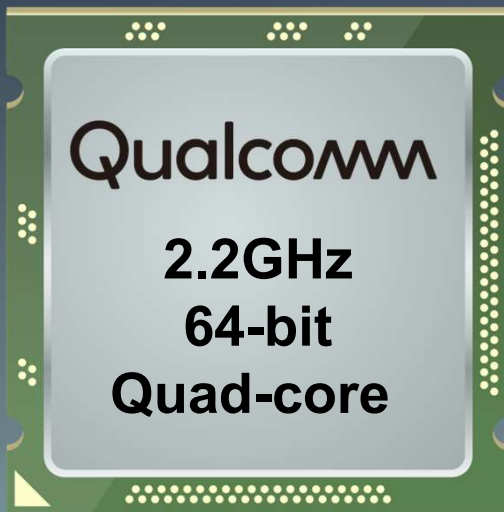
Region	QuWAN Device Name	Device Role	WAN status	VPN status	QuWAN Device Status
SyunServerRoom1	<a href="#">AndyXizhi002</a>	Edge	Connected	Hub-to-edge: Partially connected (1 / 2)	Active
My china region	<a href="#">ASH_453MINI_IT</a>	Edge	Connected	Hub-to-edge: Connected	Active
My china region	<a href="#">ASH_QCD1600_2</a>	Edge	Disconnected	Hub-to-edge: Disconnected	Offline

# Hardware Appearance



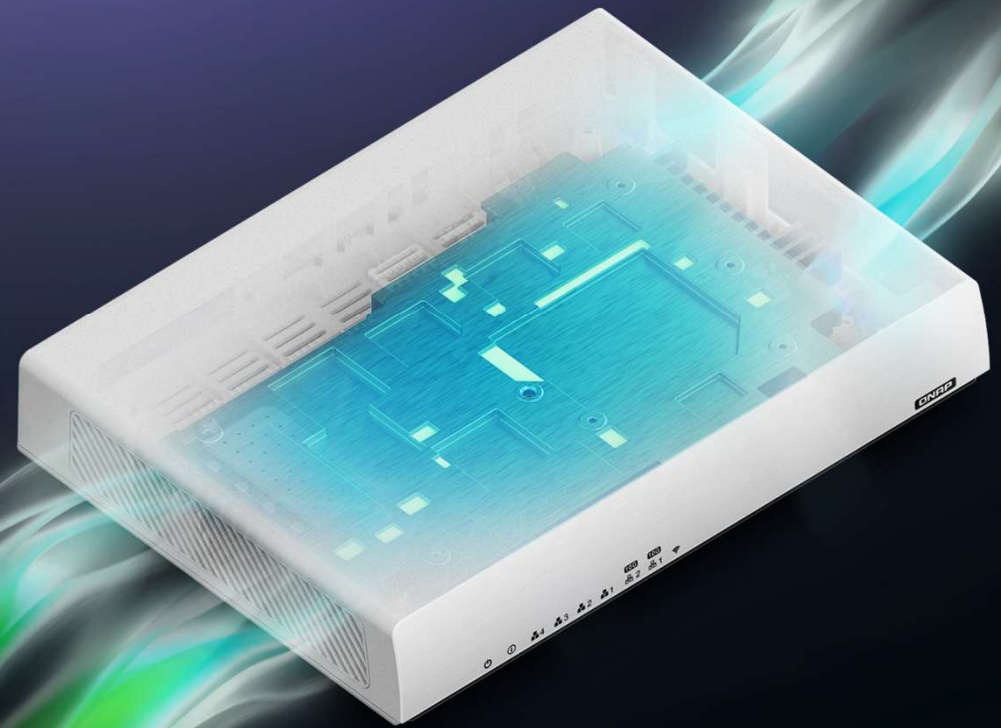
# Powerful Performance

- Powered by Hawkeye v2 IPQ8072A quad-core 2.2GHz 64-bit processor
- Can quickly handle 10G throughput network transmission
- 1GB system memory. QHora-301W can reliably support more concurrent users
- 4GB eMMC Flash Storage
- Provide multiple functions on Qhora-301W. ex, QVPN, SD-WAN



# Fanless Design: Silent Operation x Maintain Performance

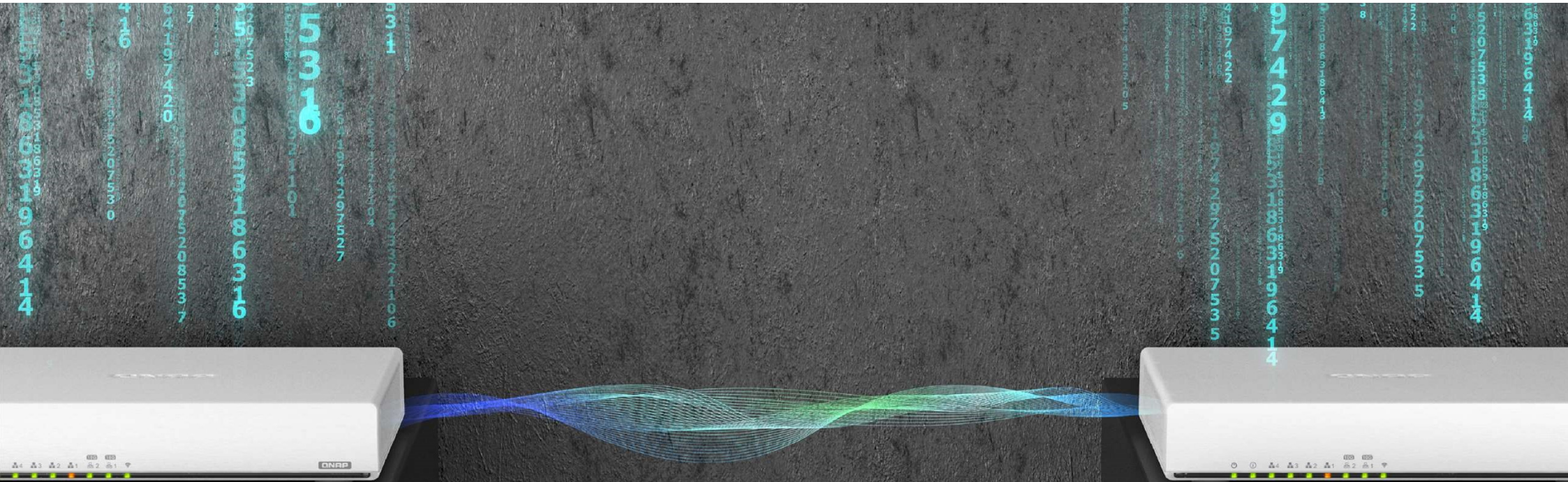
- Fanless with unique ventilated construction allows QHora-301W to maintain its throughput efficiency within 0-40°C operating temperature.
- Quiet operation makes QHora-301W the perfect home routing solution for worldwide use.



# Hardware Spec

Function	QHora-301W
Network Interface (RJ45)	<ul style="list-style-type: none"><li>• 4 x RJ-45 1GbE (WAN/LAN configurable)</li><li>• 2 x RJ-45 10GbE (10G/5G/2.5G/1G/100Mbps, WAN/LAN configurable)</li></ul>
Antenna	8 Internal 5dBi Antennas
Processor	Qualcomm IPQ8072A Hawkeye 2 Quad-core 2.2 GHz 64-bit CPU
Memory	1GB RAM
Flash Storage	4GB eMMC
Wireless	<ul style="list-style-type: none"><li>• Dual-band AX3600 5G (2475Mbps): 4x4 (80MHz), 2x2 (160MHz) 2.4G (1182Mbps): 4x4 (40MHz)</li><li>• WPS button</li></ul>
Mounting Support	VESA 75 x 75 mm (Optional third-party mounting kits are available for wall-mount, table mount and pole mount).
Fanless Design	Maintain consistent system performance within 0-40C operating temperature
SD-WAN Max VPN Tunneling	30



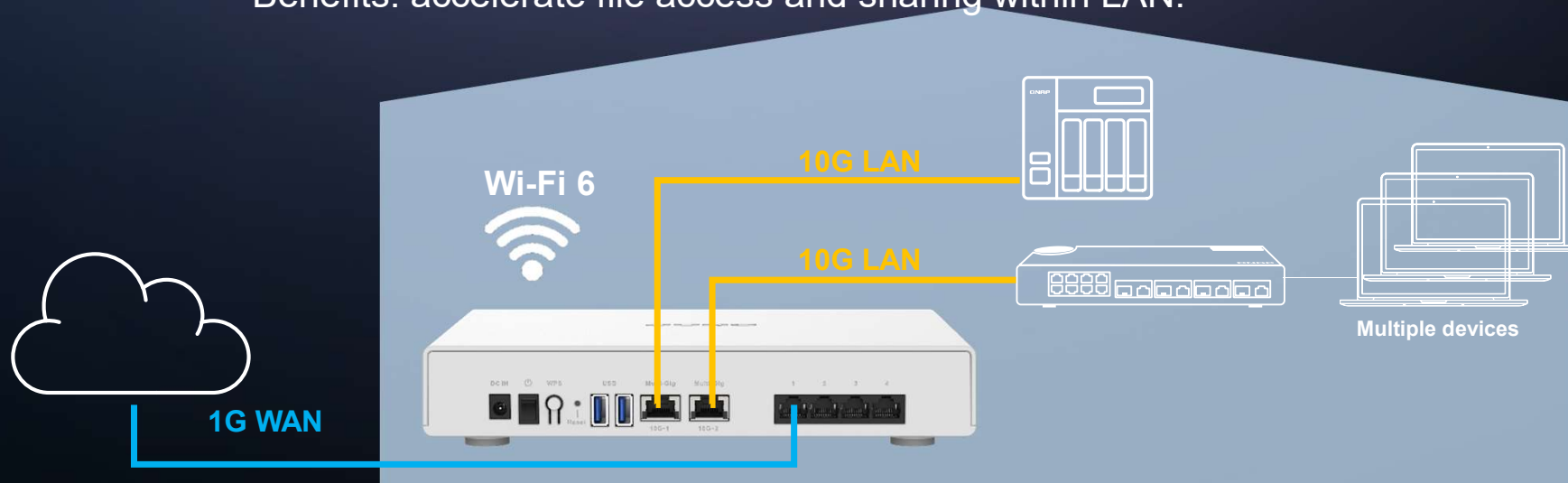


Dual 10GbE ports meets all  
your application scenarios

# Scenario 1: 2 x 10GbE LAN Connections

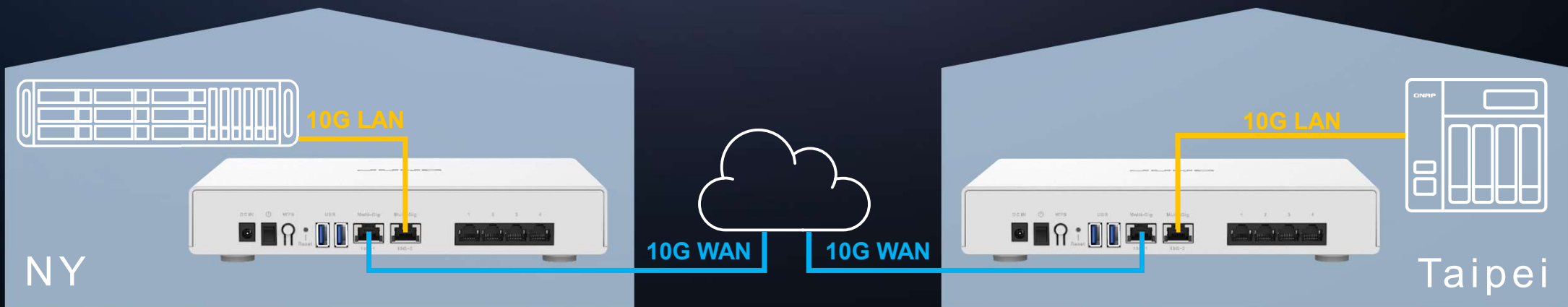
## One of 1GbE WAN and Two of 10GbE LAN

- Build a high-speed 10GbE Intranet network by connecting 2 x 10GbE ports to 10GbE devices in LAN environment.
- Benefits: accelerate file access and sharing within LAN.



# Scenario 2: 1 x 10GbE WAN & 1 x 10GbE LAN Connections

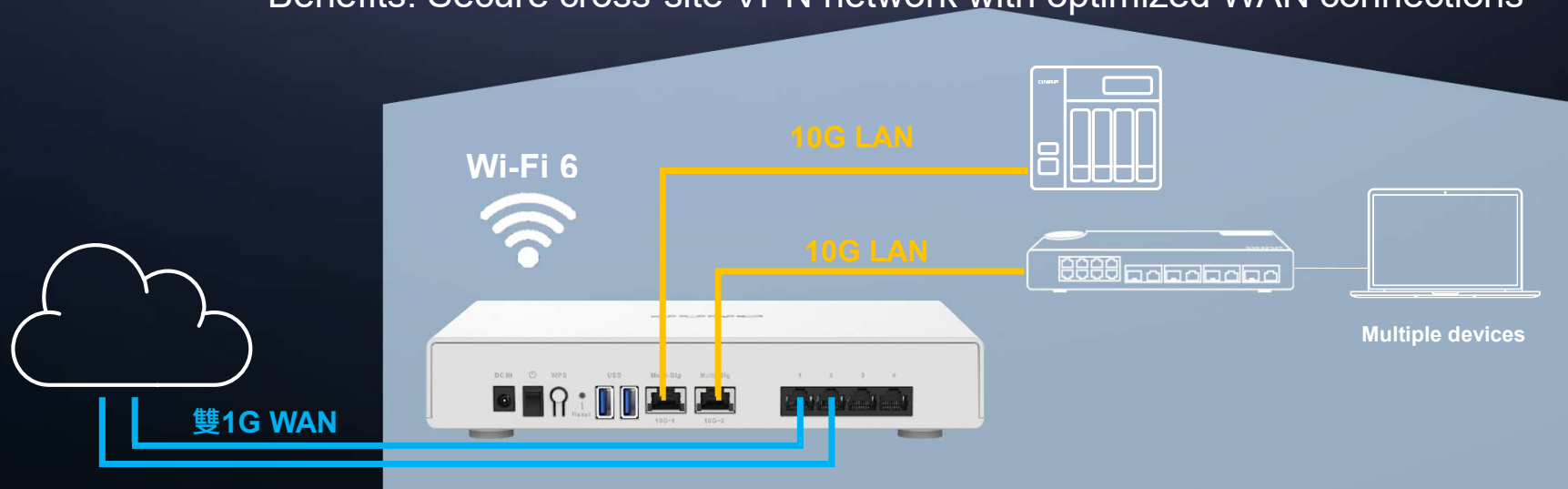
- High-speed inter-office VPN network with 10GbE Internet and 10GbE Intranet connectivity.
- Benefits: streamlined cross-site file backup, synchronization and sharing.



# Scenario 3: Multi-WAN with SD-WAN & 2 x 10GbE LAN Connections

## Two of 1GbE WAN

- WAN optimization with WAN aggregation, WAN failover & load balancing, and flexible static routing to increase data transfer efficiency across WANs
- Auto mesh VPN for easy multi-site VPN network deployment
- Benefits: Secure cross-site VPN network with optimized WAN connections



**QuWAN**

# QHora-301W

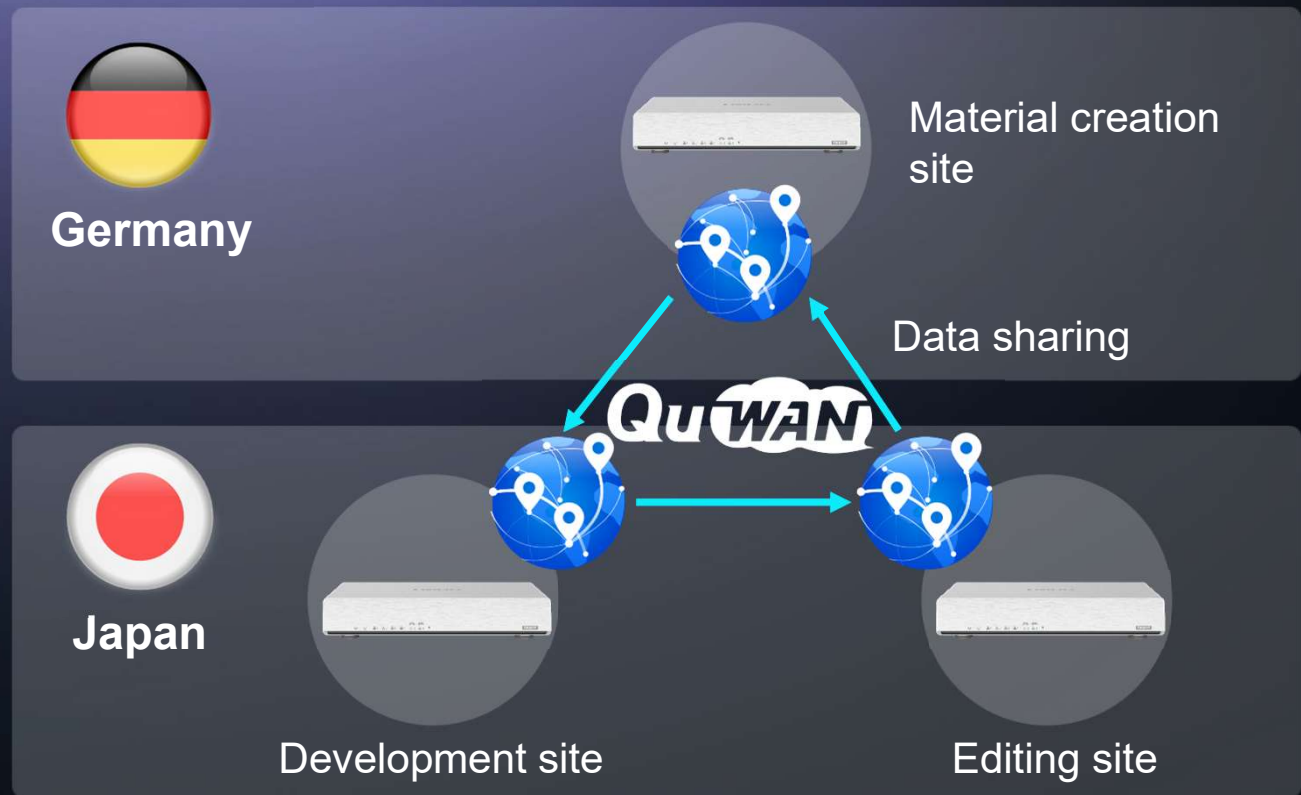
Subscription-Free  
SD-WAN QuWAN



# Efficiently build multi-site VPN

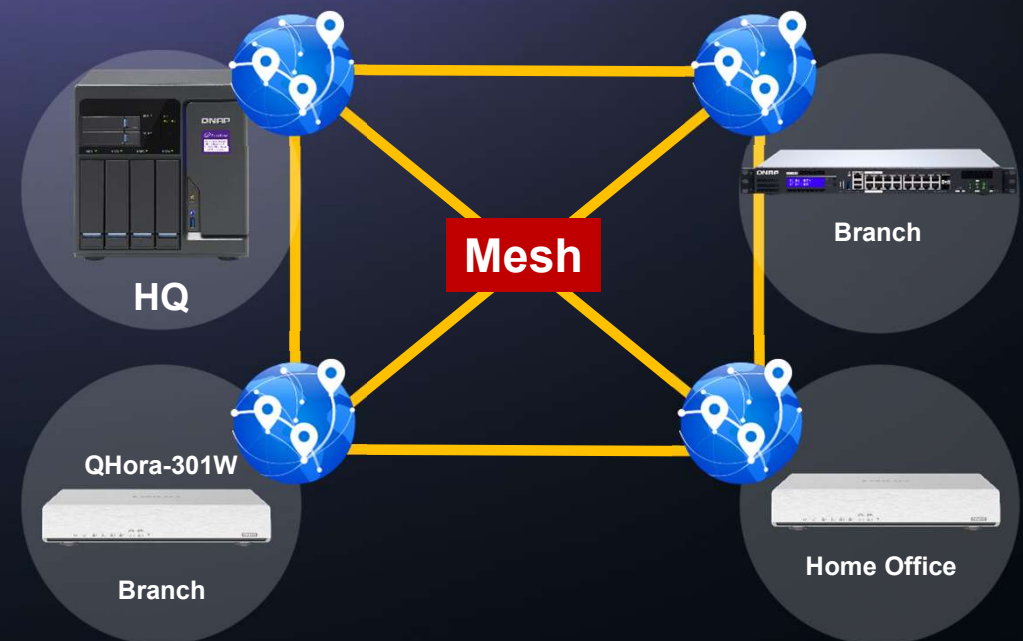
## Secure business data

As long as QHora-301W is connected to QuWAN Orchestrator, a private network can be established in the same organization



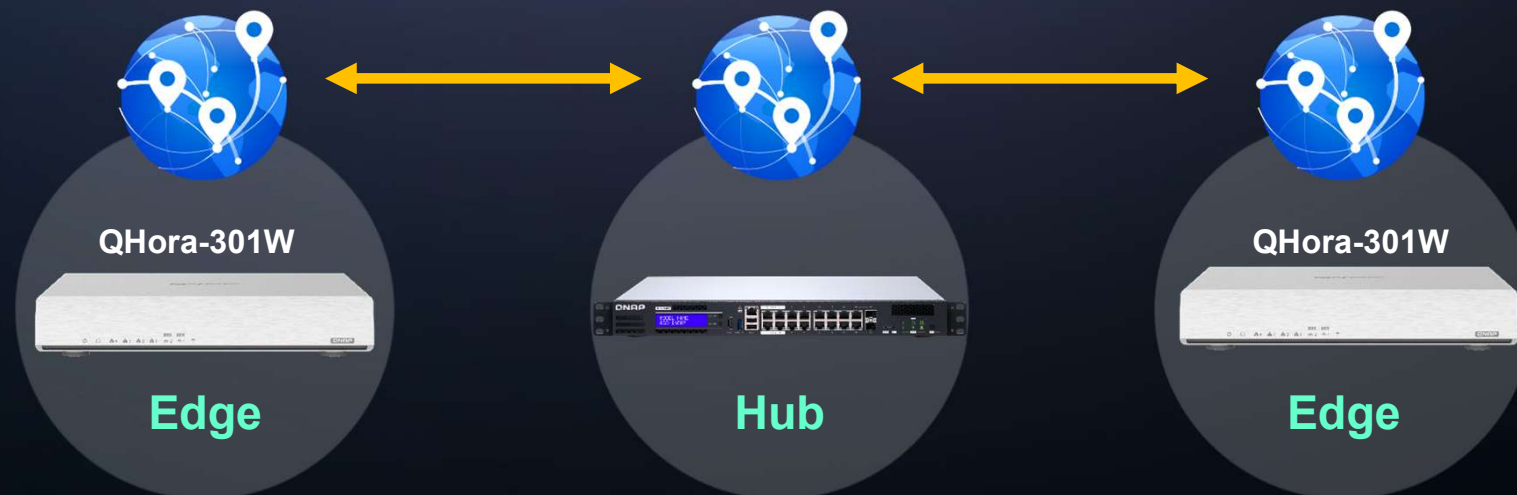
# Flexible VPN Topology: Mesh VPN

- Mesh VPN topology is suitable for a network architecture that requires fast and multiple route network.
- It is recommended to use Public IP for being a Hub.
- If you use Private IP to set for Hub, please make sure that the UDP Port 7788, 4500, 500, 5555 of the upper router is opened. (\*\* Function will be released in QuWAN Orchestrator 2.1 or later version)
- Hub can automatically form Mesh VPN with all other Hubs in the same domain.



# Flexible VPN Topology: Hub & Spoke

- Hub & Spoke topology is suitable for a network architecture that requires fast deployment, extension and backup route.
- All data transmission between edges will go through a hub
- If your device uses private IP, it can connect to network topology as Edge





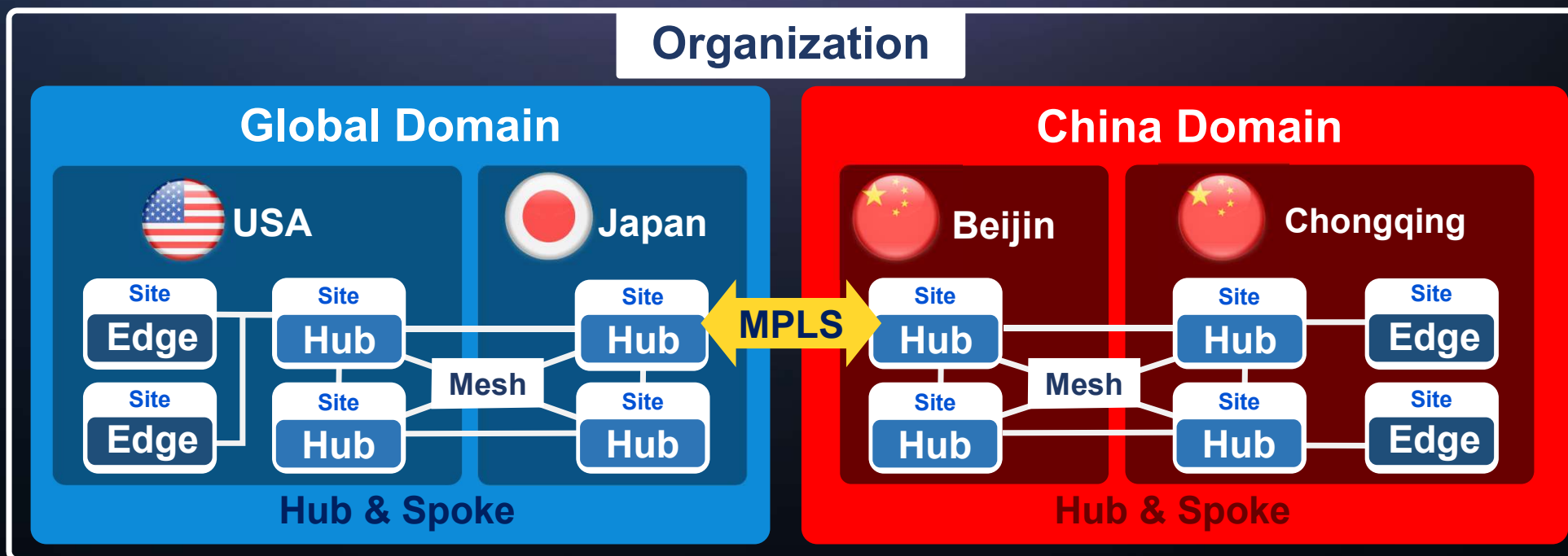
# QuWAN Network Topology

## Inter-Domain Link

- To comply to China network regulation, user needs to apply for Inter-Domain Link by his or herself for the two domain to have VPN connection.
- Inter-domain Link can only be set on hub.

\*\*Inter-domain link will be supported in 2021 Q3

## Organization

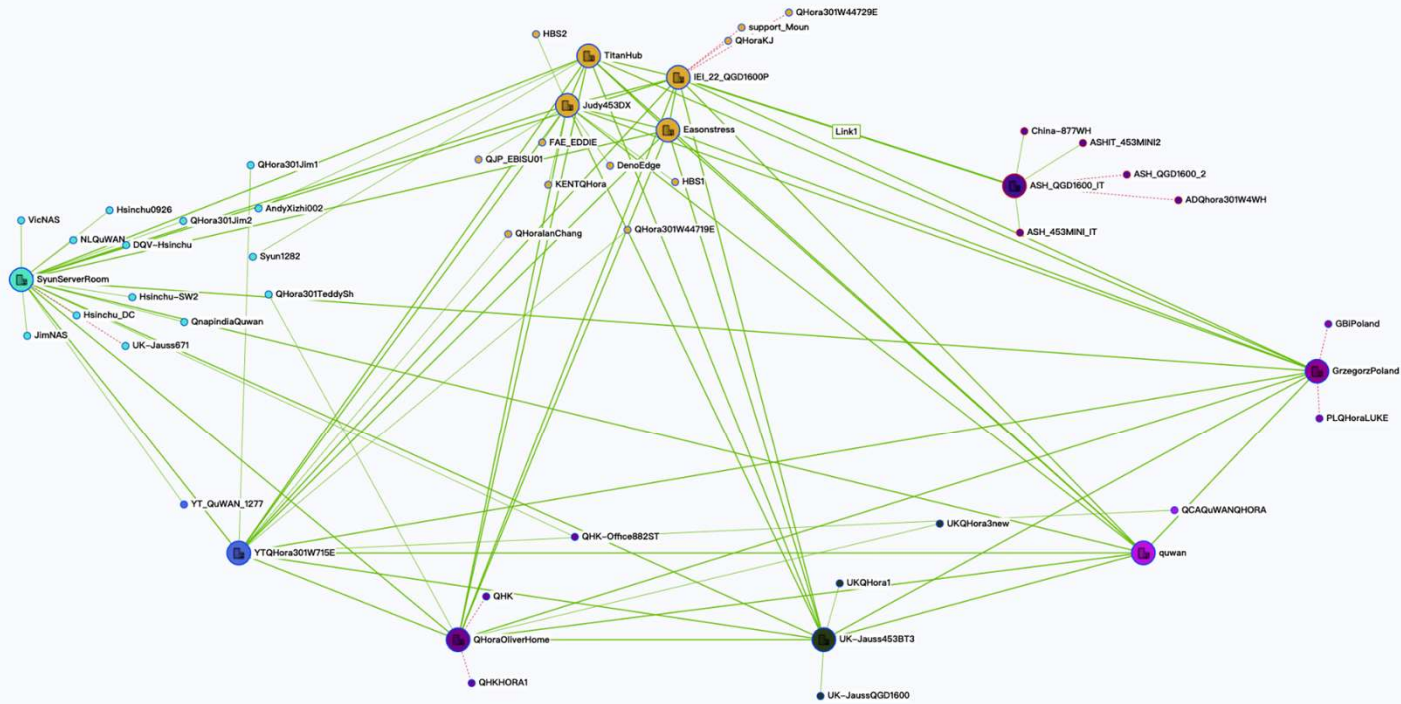


# QuWAN Topology

## Topology

Hub ● Edge Domain: ○ Global ○ China

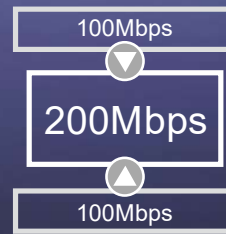
VPN status: — Connected — Partially connected — Disconnected



# QuWAN's Features and Benefits



Auto Mesh VPN



WAN Optimization



Cloud Management



Cost Optimization



Intuitive Web Management



Networking Security

# WAN aggregation to improve data transmission rate

WAN aggregation is effective in achieving a faster data transmission for remote backup and remotely mounted file system



# WAN Failover

- Multi-site connection can form a backup system automatically that allow uninterrupted collaborative operations.
- The central management platform sends warnings and notifications in real time



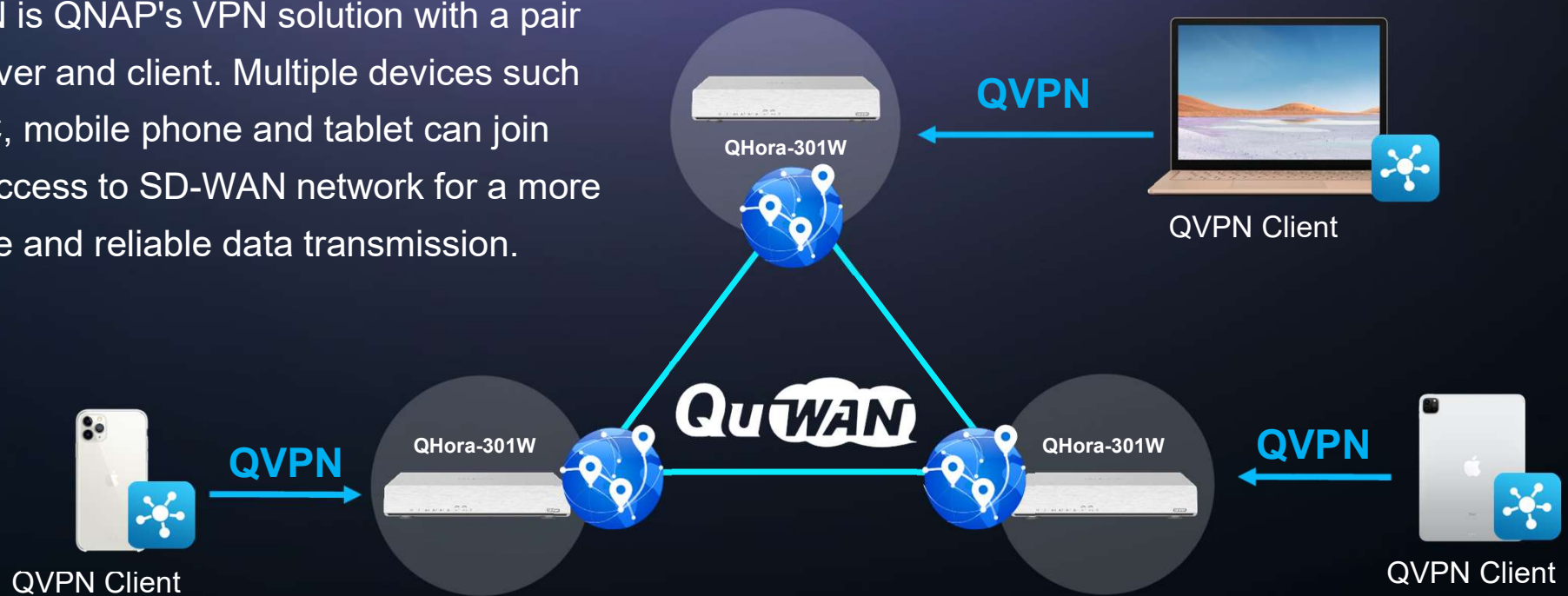
# WAN Load Balancing

- Using Multipath TCP (MPTCP) technology to automatically detect current network jitter, delay, and packet loss conditions, so that each packet takes the best network path to the destination, so as to achieve intelligent routing and uninterrupted connection for transmission
- Maintain long-term and efficient transmission by distributing traffic through multiple WANs



# Connect Multiple Devices to SD-WAN Network with QVPN

QVPN is QNAP's VPN solution with a pair of server and client. Multiple devices such as PC, mobile phone and tablet can join and access to SD-WAN network for a more secure and reliable data transmission.



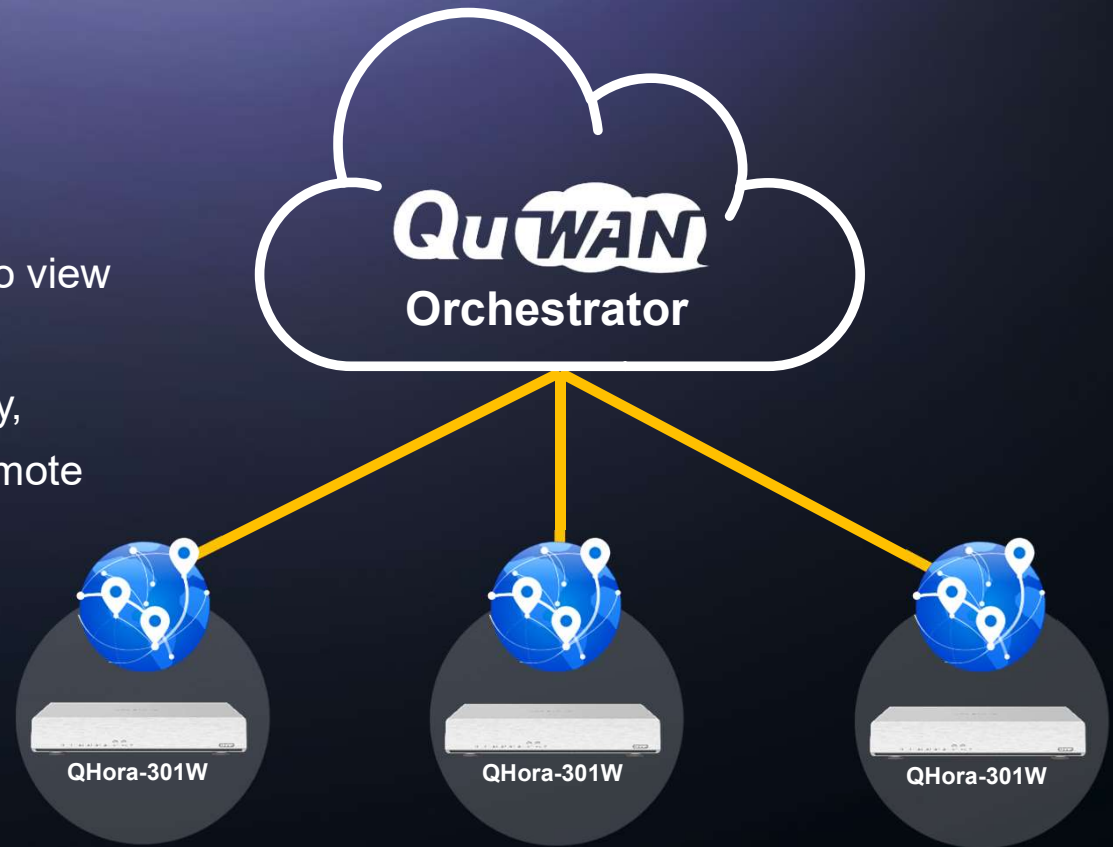
\*\* QVPN Server and client cannot be enabled at the same time.

\*\* QuWAN service and L2TP on QVPN server cannot be enabled at the same time.

# Enable QuWAN to manage QHora-301W through the cloud platform

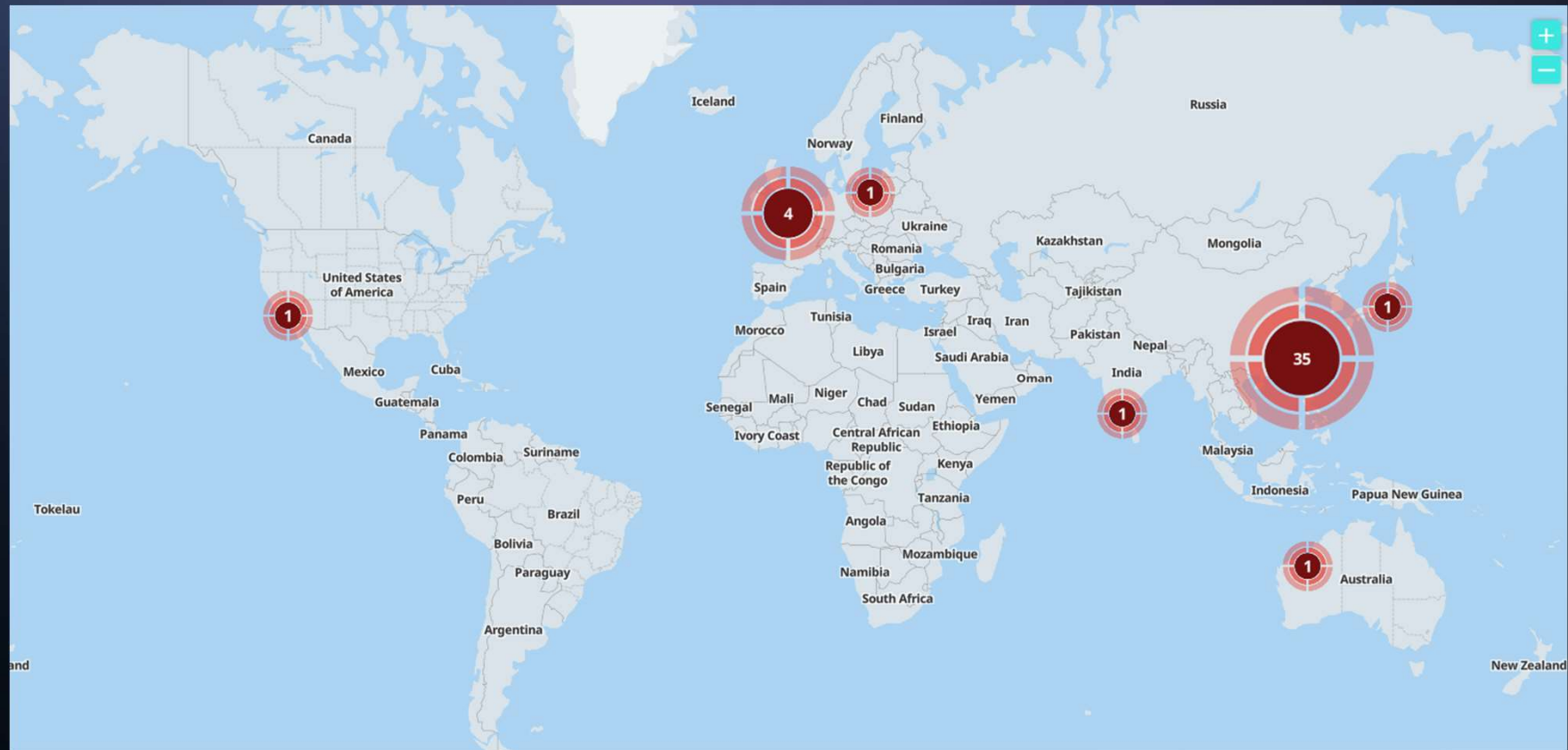
## QuWAN Orchestrator

Go to [quwan.qnap.com](http://quwan.qnap.com) and log in with QID to view the QHora-301W device, network and VPN connection status, organization-wise topology, connection method. You can also perform remote debugging through the cloud platform





# Geological location of each device

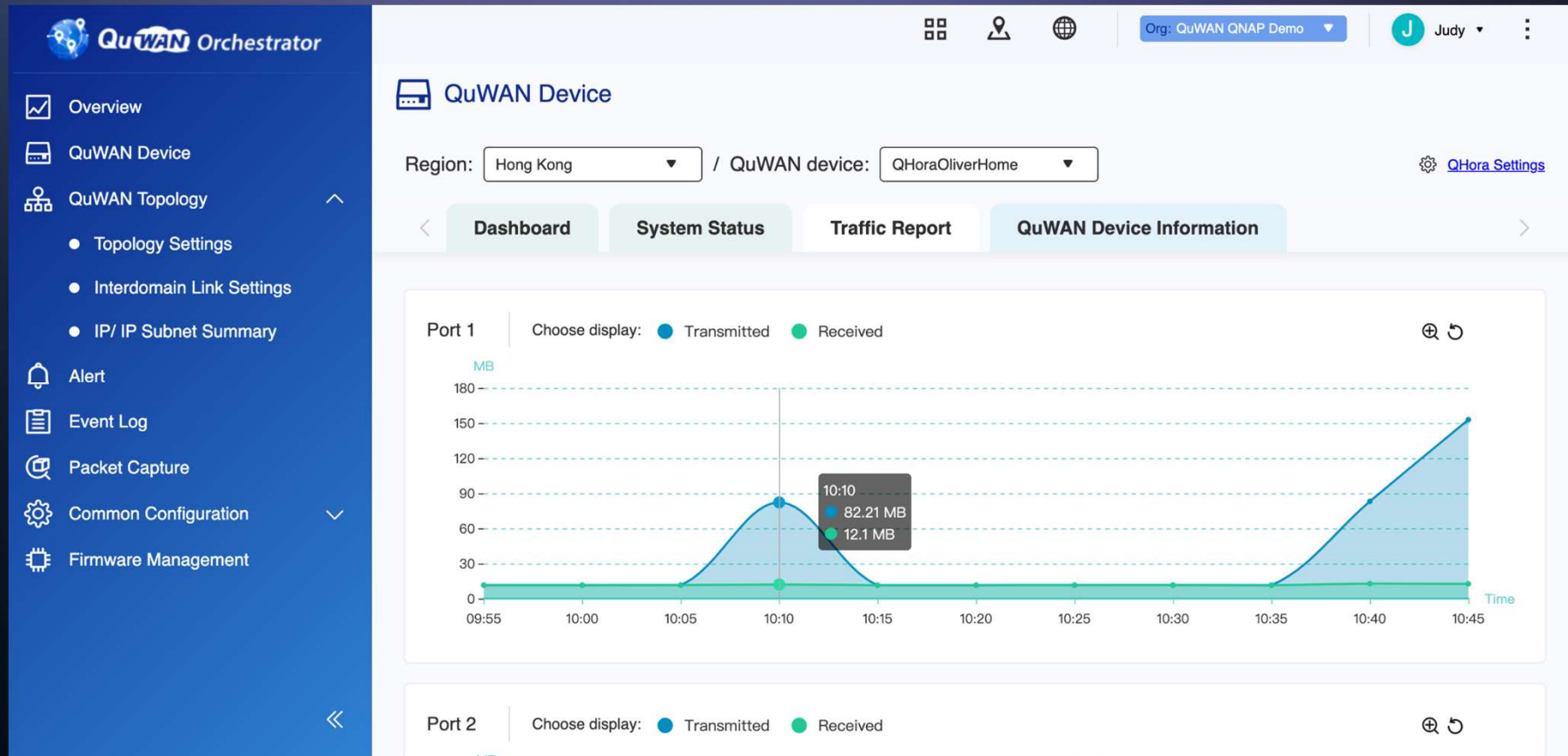


# Device and Network Status

The screenshot displays the QuWAN Network Management System interface. The top navigation bar includes a logo, the text "QuWAN Topology / IP/ IP Subnet Summary", and user information "Org: QuWAN QNAP Demo" and "Judy". A vertical sidebar on the left contains various icons for navigation. The main content area is divided into two sections: "Topology" and "IP/ IP Subnet Summary Table". The "Topology" section shows a network diagram with "Hub" and "Edge" nodes and a "Domain" filter set to "Global". The "IP/ IP Subnet Summary Table" section features a search bar and a table with the following data:

Region	QuWAN Device Port/ VLAN ID	Port Definition	IP	Description
Hong Kong	<a href="#">QHK</a> / Port 1	WAN	10.26.43.10 / 16	-
Hong Kong	<a href="#">QHK</a> / Port 8	LAN	192.168.200.1 / 24	-
Hong Kong	<a href="#">QHK-Office882ST</a> / Port 1	WAN	10.26.42.202 / 16	-
Hong Kong	<a href="#">QHK-Office882ST</a> / Port 8	LAN	192.168.26.1 / 24	-
Hong Kong	<a href="#">QKHORA1</a> / Port 1	WAN	10.26.42.18 / 16	-
Hong Kong	<a href="#">QKHORA1</a> / VLAN 4094	LAN	192.168.101.1 / 24	-
Hong Kong	<a href="#">QKHORA1</a> / VLAN 1000	LAN	192.168.104.1 / 24	-
Hong Kong	<a href="#">QKHORA1</a> / VLAN 1000	LAN	192.168.100.1 / 24	-

# QHora-301W Traffic Report



# Organizational IP Segment Allocation

QuWAN Topology / IP/ IP Subnet Summary

Topology

Hub ● Edge Domain: Global China

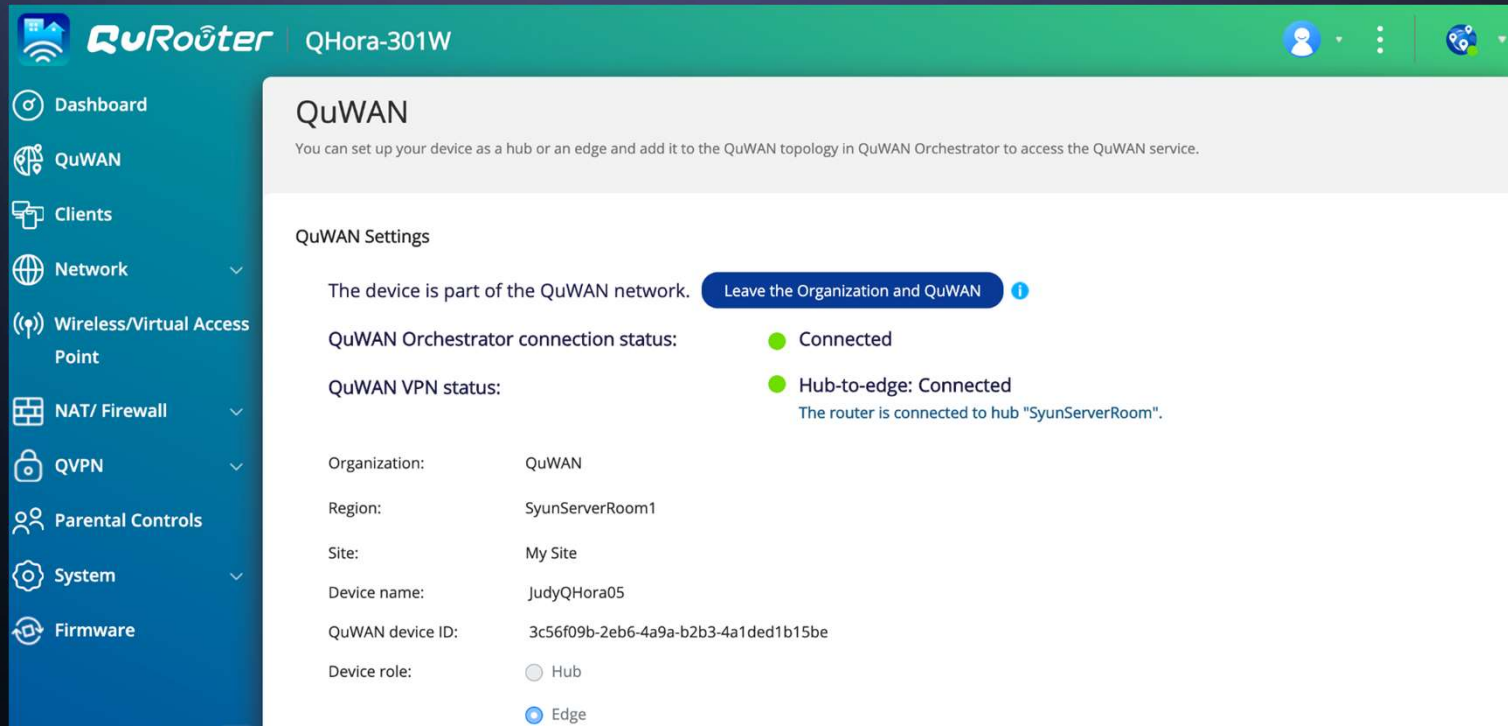
IP/ IP Subnet Summary Table

Static Route

Region	QuWAN Device Port/ VLAN ID	Port Definition	IP	Description
Hong Kong	<a href="#">QHK</a> / Port 1	WAN	10.26.43.10 / 16	-
Hong Kong	<a href="#">QHK</a> / Port 8	LAN	192.168.200.1 / 24	-
Hong Kong	<a href="#">QHK-Office882ST</a> / Port 1	WAN	10.26.42.202 / 16	-
Hong Kong	<a href="#">QHK-Office882ST</a> / Port 8	LAN	192.168.26.1 / 24	-
Hong Kong	<a href="#">QKHORA1</a> / Port 1	WAN	10.26.42.18 / 16	-
Hong Kong	<a href="#">QKHORA1</a> / VLAN 4094	LAN	192.168.101.1 / 24	-
Hong Kong	<a href="#">QKHORA1</a> / VLAN 1000	LAN	192.168.104.1 / 24	-
Hong Kong	<a href="#">QKHORA1</a> / VLAN 1000	LAN	192.168.100.1 / 24	-

# Enable QuWAN on QHora-301W

Just select the organization, region and connection role, and your QHora-301W can build VPN tunnel with other QuWAN devices within the same organization



The screenshot displays the QuRouter web interface for a QHora-301W device. The left sidebar contains navigation options: Dashboard, QuWAN, Clients, Network, Wireless/Virtual Access Point, NAT/ Firewall, QVPN, Parental Controls, System, and Firmware. The main content area is titled "QuWAN" and includes a sub-header "QuWAN Settings".

**QuWAN Settings**

The device is part of the QuWAN network. [Leave the Organization and QuWAN](#)

QuWAN Orchestrator connection status: ● Connected

QuWAN VPN status: ● Hub-to-edge: Connected  
The router is connected to hub "SyunServerRoom".

Organization: QuWAN

Region: SyunServerRoom1

Site: My Site

Device name: JudyQHora05

QuWAN device ID: 3c56f09b-2eb6-4a9a-b2b3-4a1ded1b15be

Device role:  Hub  Edge

**QNAP**

# QHora-301W



is Your Best Choice!

Copyright © 2021 QNAP Systems, Inc. All rights reserved. QNAP® and other names of QNAP Products are proprietary marks or registered trademarks of QNAP Systems, Inc. Other products and company names mentioned herein are trademarks of their respective holders.