

**QNAP**

**Smart Edge Switch x QTS NAS**

# QGD-1600 / QGD-1602

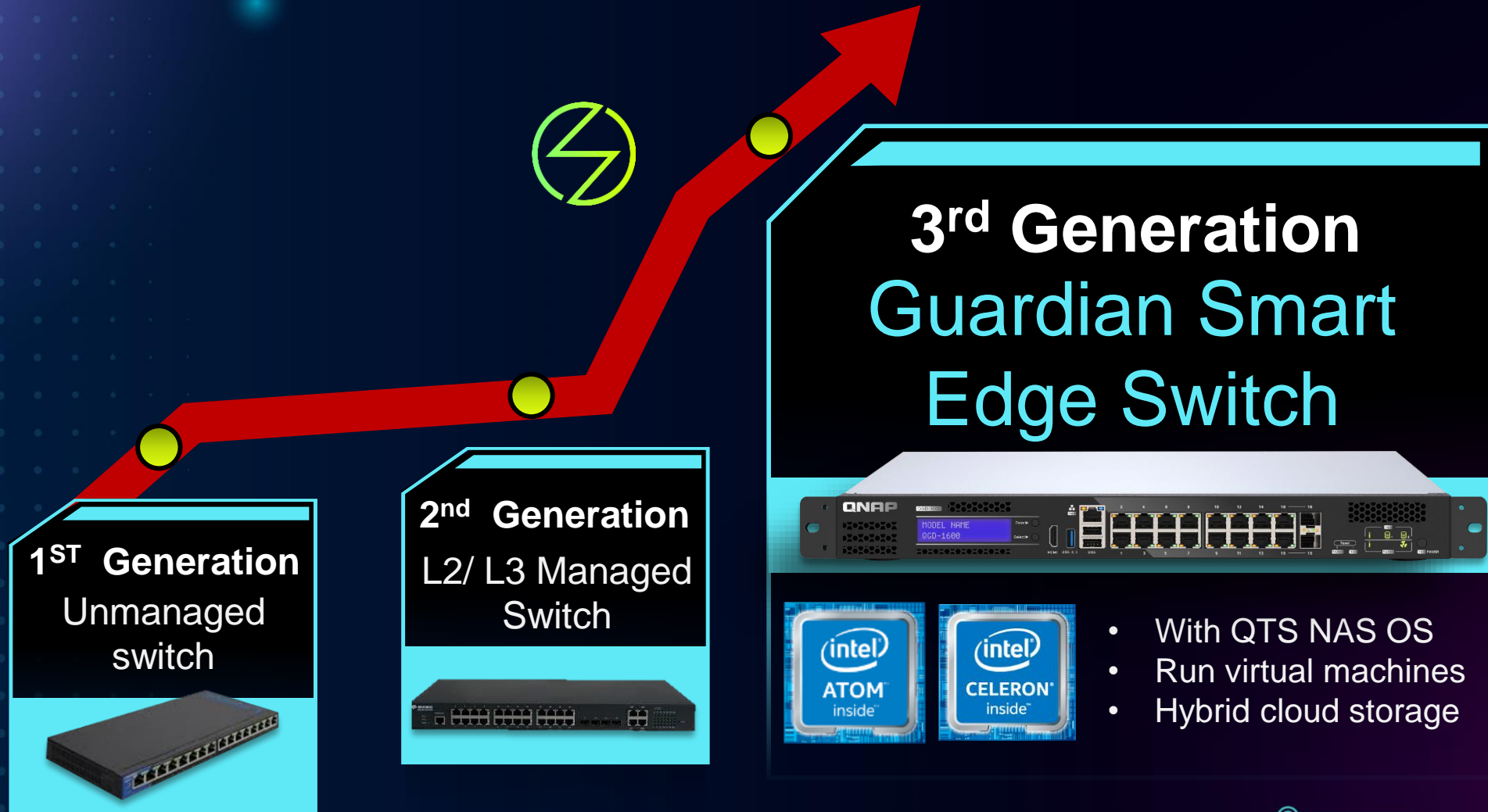
Supports ADRA NDR solution, or QTS VM and applications  
to satisfy business networking needs



# Overview

- Hardware Features & Advantages
- Software Features & Advantages
  - ✓ L2 Network management functions
  - ✓ QTS applications
  - ✓ ADRA NDR
- Multi-purpose for one machine: support network management, storage, computing, etc.
- Guardian's diverse use scenes

# QNAP Networking Equipment Product Evolution





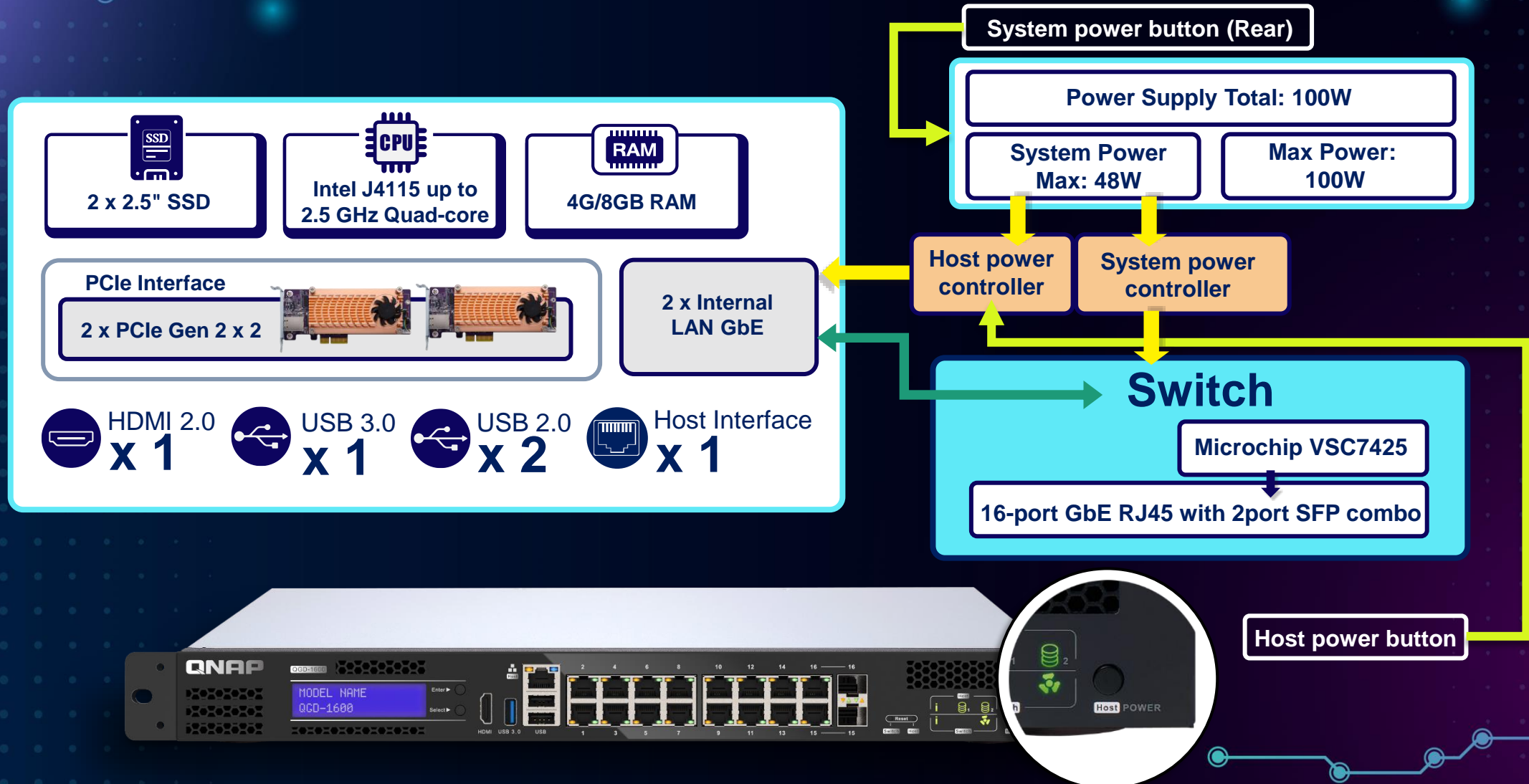
Guardian's unique  
strengths and features

# Hardware Advantages

QGD-1600 / QGD-1602

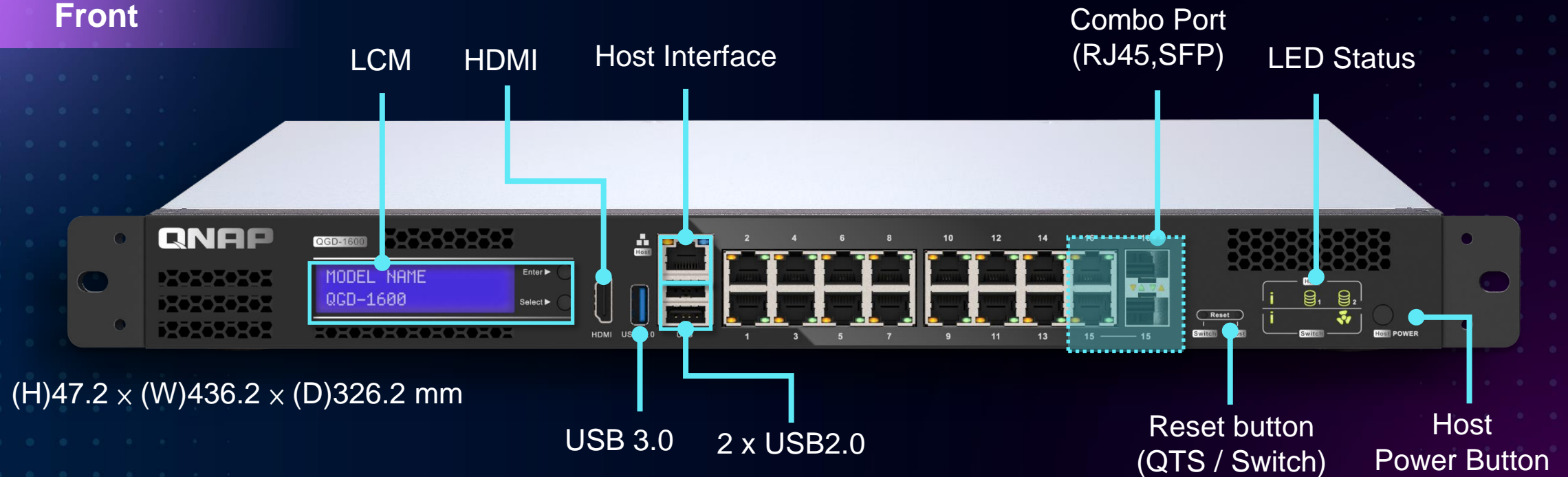


# QGD-1600 hardware architecture



# QGD-1600 hardware features

## Front



## Rear





# QGD-1600 internal view

## 2 X PCIe Gen2 Slots

Supports installation of 10GbE NICs, QM2 expansion cards or USB 3.2 Gen 2 (10Gbps) expansion cards for maximum application expansion flexibility.

## DDR4 Memory

Supports two DDR4 dual-channel SO-DIMM memory slots up to 8GB (2 x 4GB).

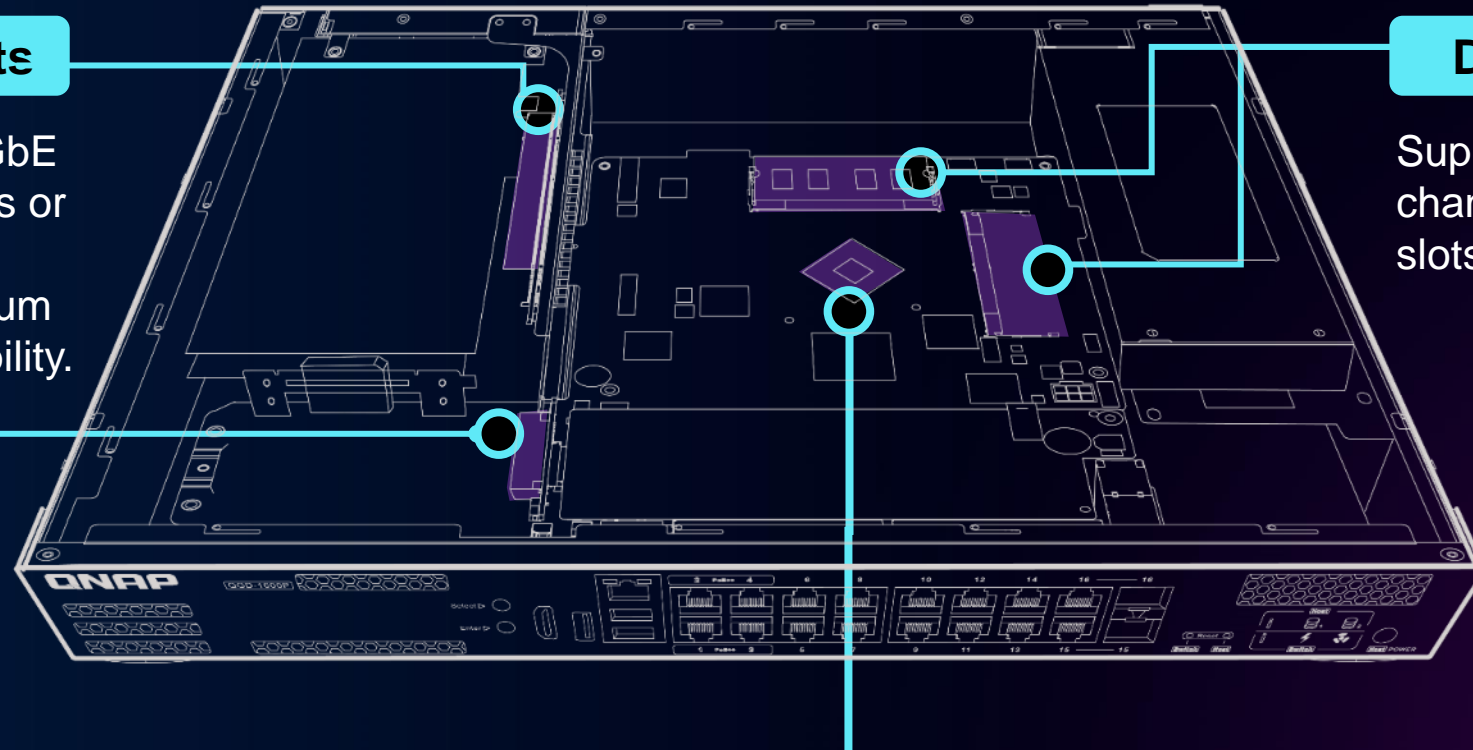
## 2 X 2.5" SATA 6Gb/s SSD/HDD Slots

Two 2.5" SSD/ HDD SATA slots are built in, allowing you to store surveillance video files

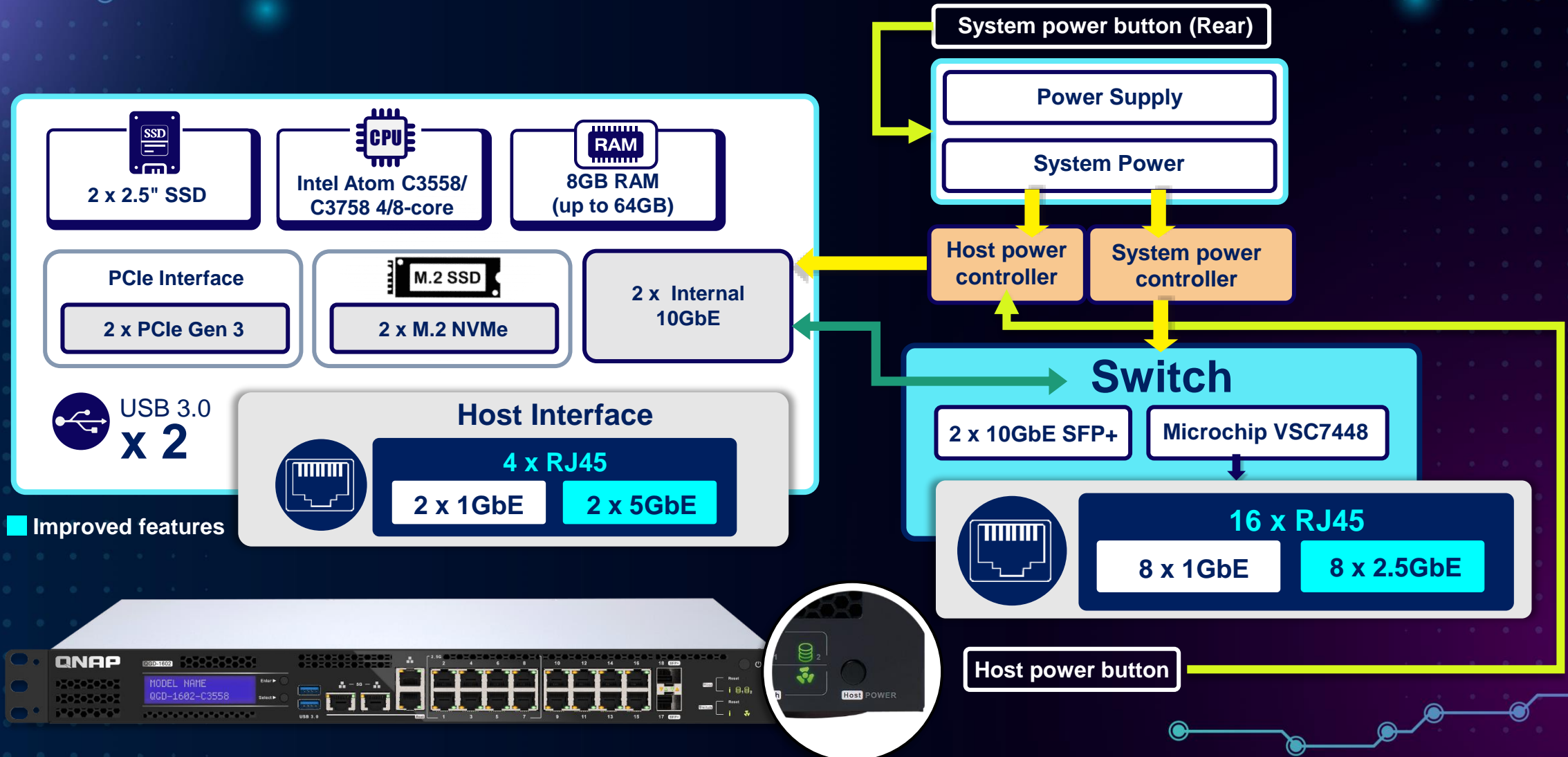
## Intel® Celeron® 4-core CPU



The Intel® Celeron® J4115 quad-core 1.8 GHz processor with 2.5GHz burst speed delivers efficient computing power to Guardian.



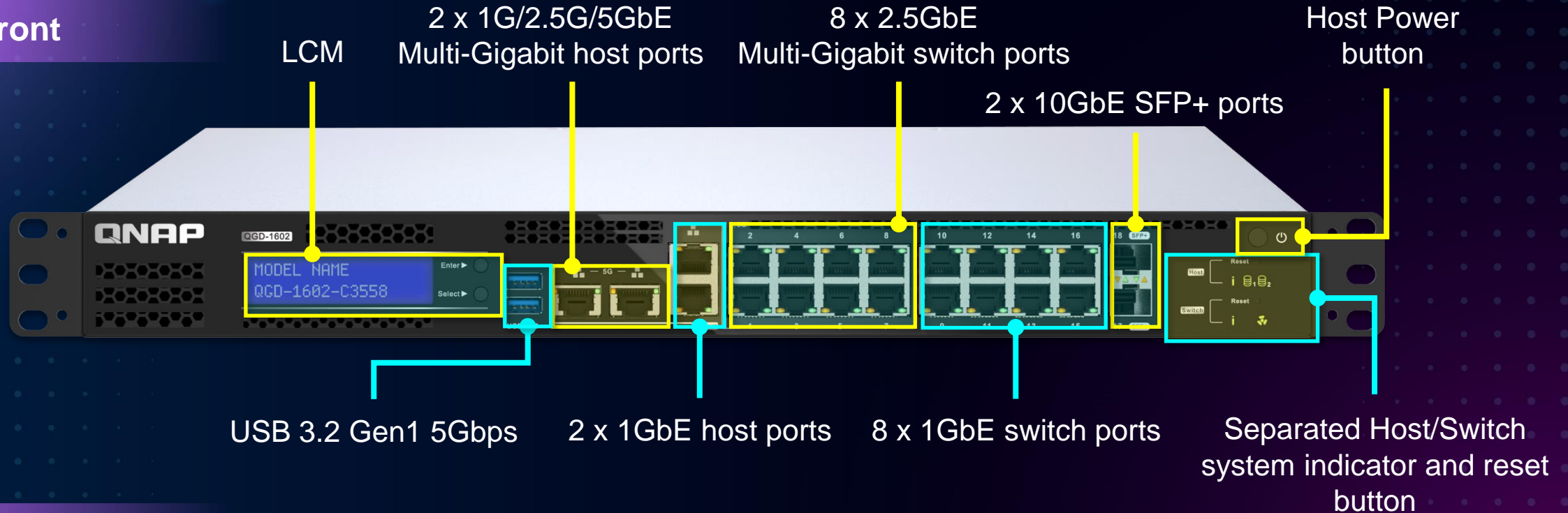
# QGD-1602 hardware architecture





# QGD-1602 hardware features

## Front



## Back



# QGD-1602 internal view



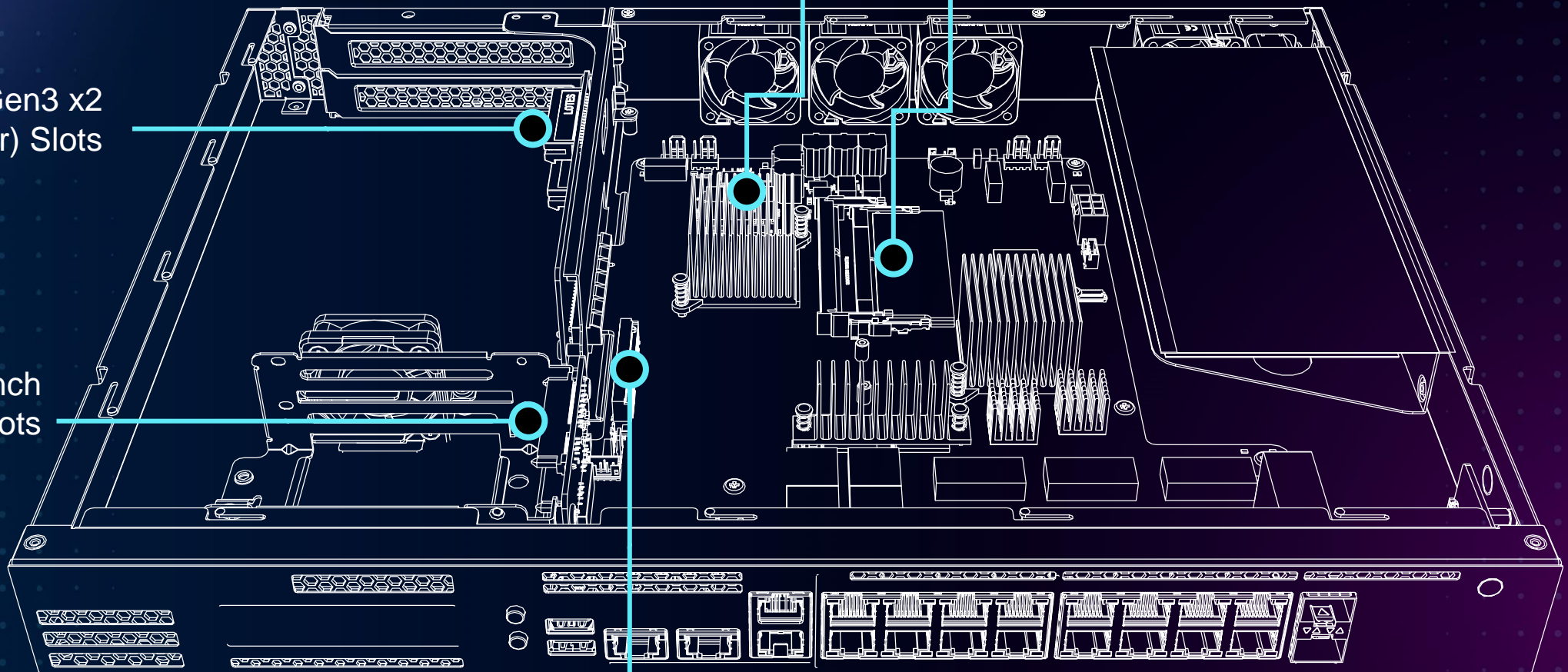
Intel® Atom® Processor

DDR4 Memory

2 x PCIe Gen3 x2  
(x4 connector) Slots

2.5-inch  
HDD / SSD slots

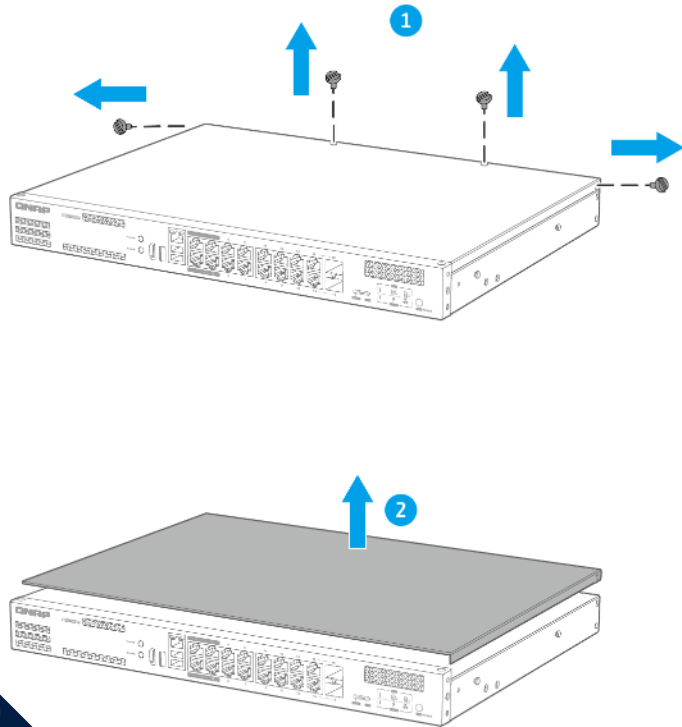
2 x M.2 NVMe SSD slots



# Hard disk and SSD installation

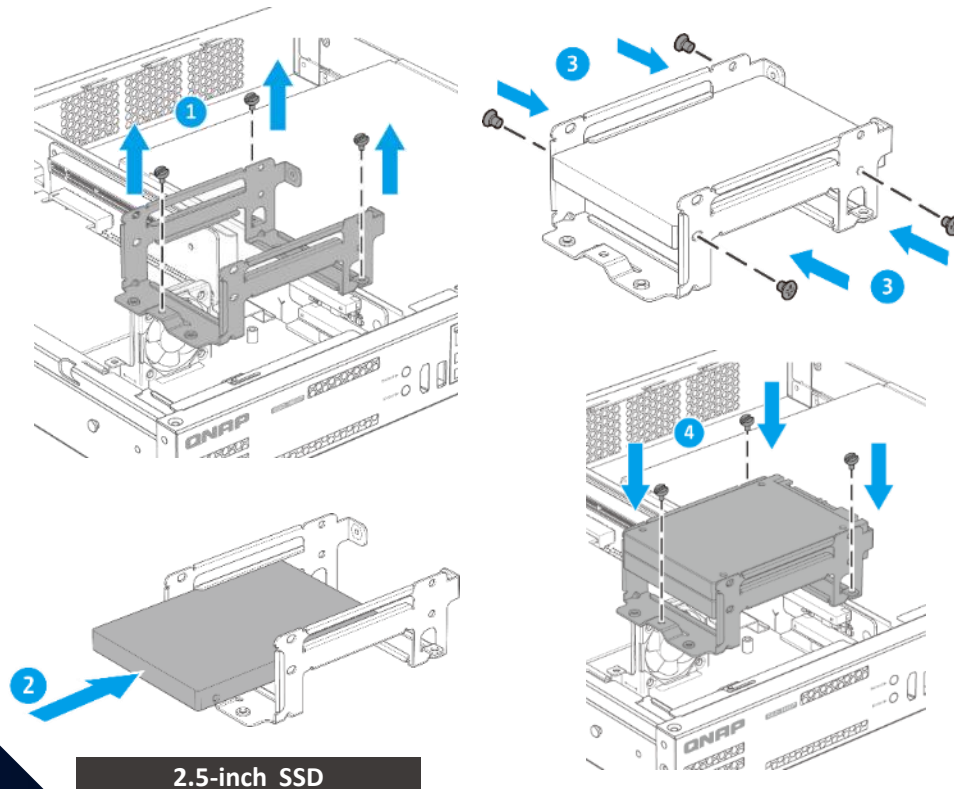
## Step 1

Open the cover of the switch



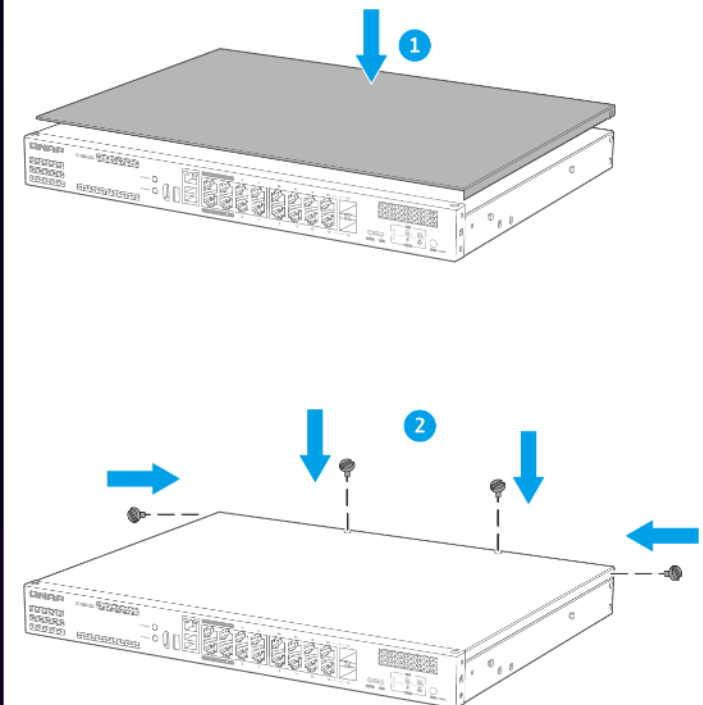
## Step 2

Remove the hard disk slot, put it in the hard disk and fix it, and then fix the hard disk slot



## Step 3

Cover the cover of the switch





# Choose the HDD/SSD for Guardian

## Solid State (SSD)

For users who are looking for efficient computing power



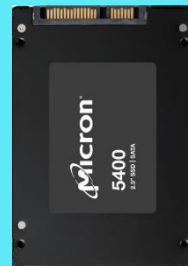
### Suitable for NAS

Maximum capacity up to 3.84TB  
(Seagate IronWolf 125)  
(WD Red™ SA500 NAS SATA SSD)



### High performance & capacity

Maximum capacity up to 3.84TB  
(Samsung 870 EVO)



### Industrial reliability

Maximum capacity up to 7.68TB  
(Micron 5400)

# Extend Guardian functionality with the PCIe slot

The Guardian QGD-1600/1602 features two PCIe expansion slots, and you can flexibly configure a variety of QNAP PCIe expansion cards as needed.

## QM2



### SSD

- QM2-2S-244A
- QM2-2P-344A
- QM2-2P-384A

## QWA-AC2600



QWA-AC2600

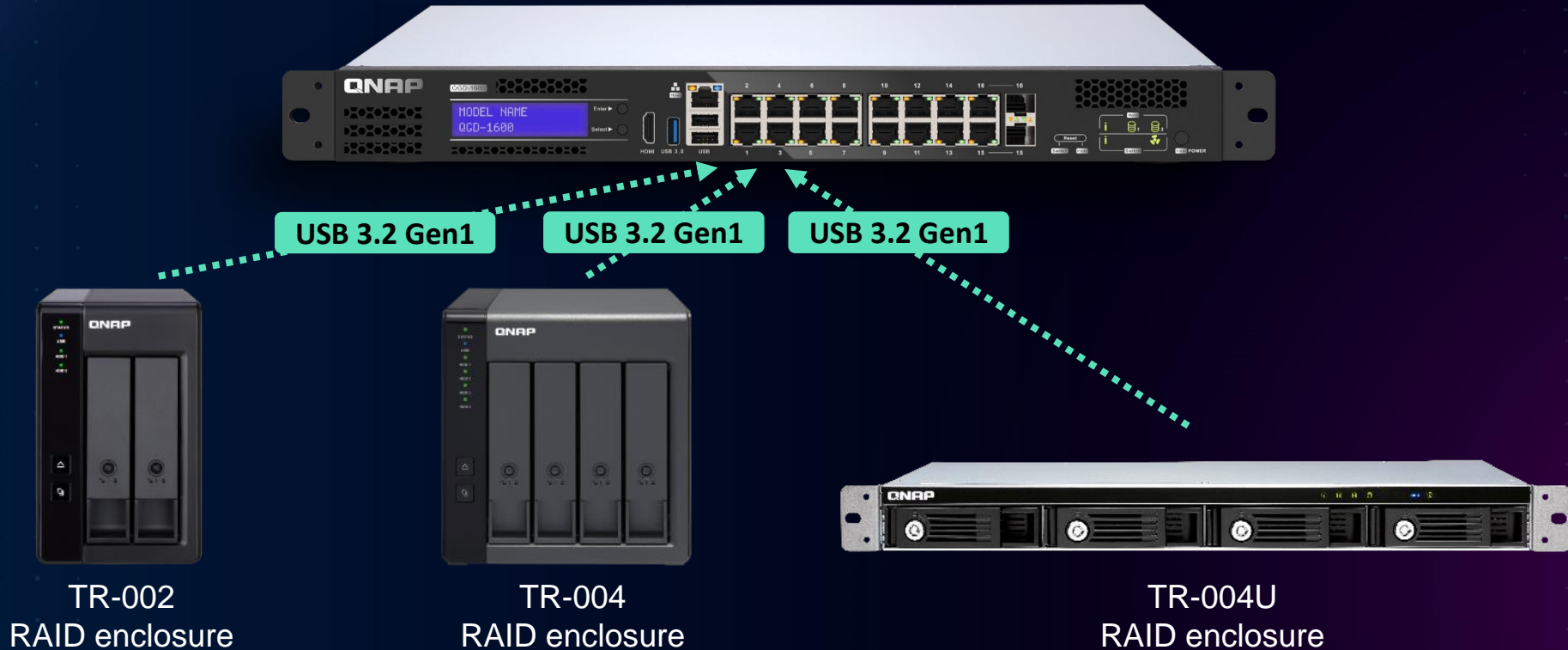
## USB 3.1 Gen 2 (10Gbps)



QXP-10G2U3A

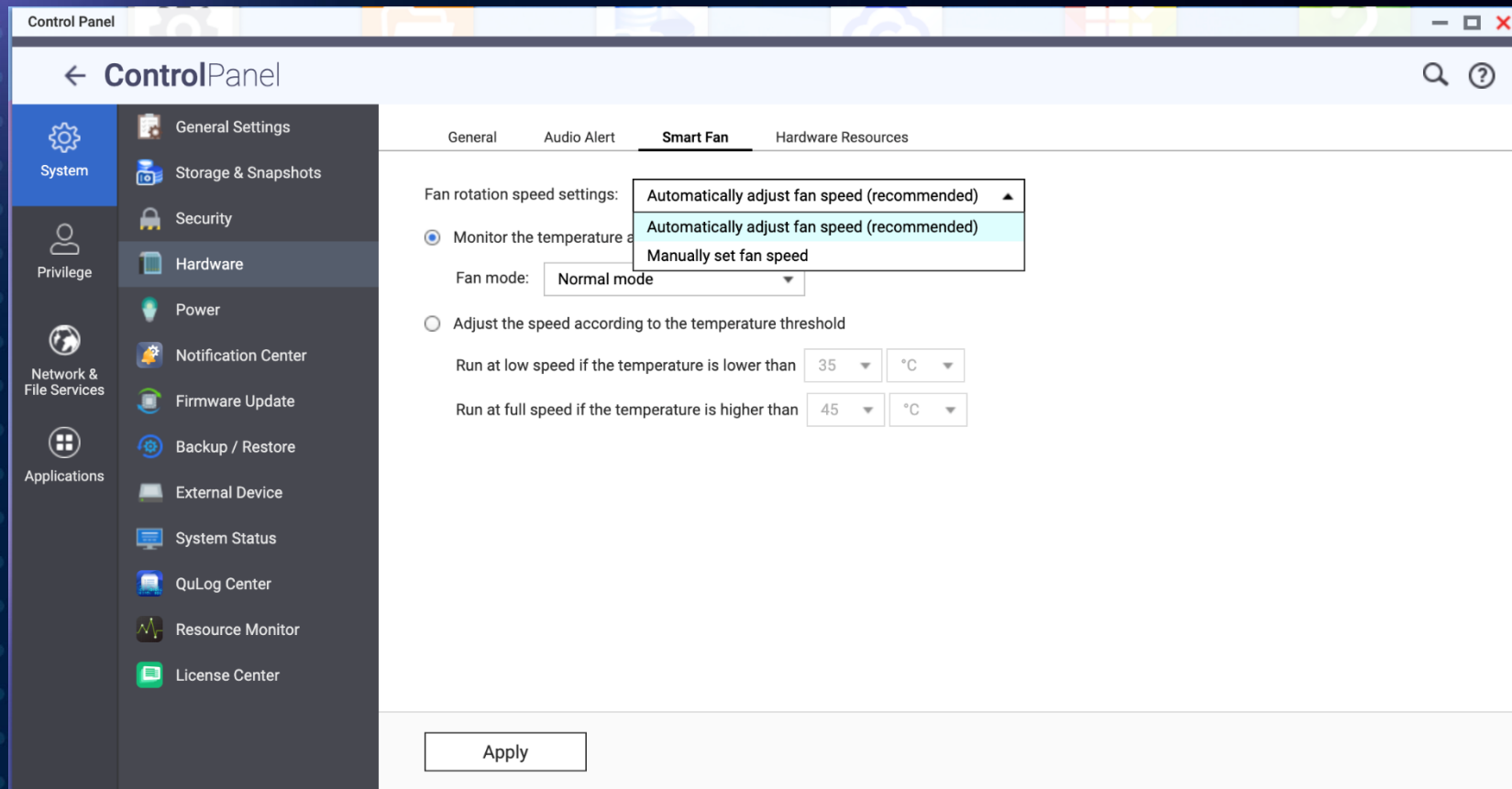
# Efficient and economical, flexible expansion of storage space

The TR-002/004 and TR-004U are the best choice for you to expand your Guardian storage space. The USB 3.2 Gen1 Type-C transmission interface makes storage and backup tasks smoother!





# High quality hardware components

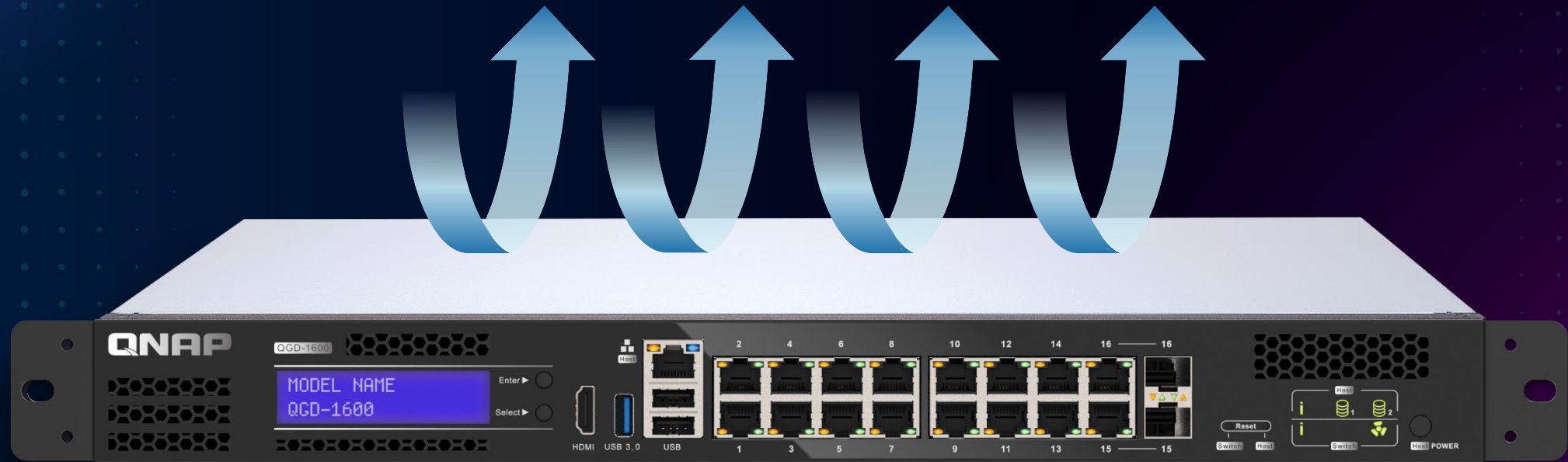


## Smart fan

Support automatic and manual adjustment of fan speed, effectively improve the hardware cooling capacity of the mechanism

# Metal body for efficient heat dissipation and anti-interference

With metal body design, the thermal conductivity is better, the heat dissipation is more outstanding, and the electromagnetic interference can be effectively shielded to ensure long-term stable operation, which provides a strong guarantee for the efficient and stable operation of the overall network.



Guardian's unique  
strengths and features

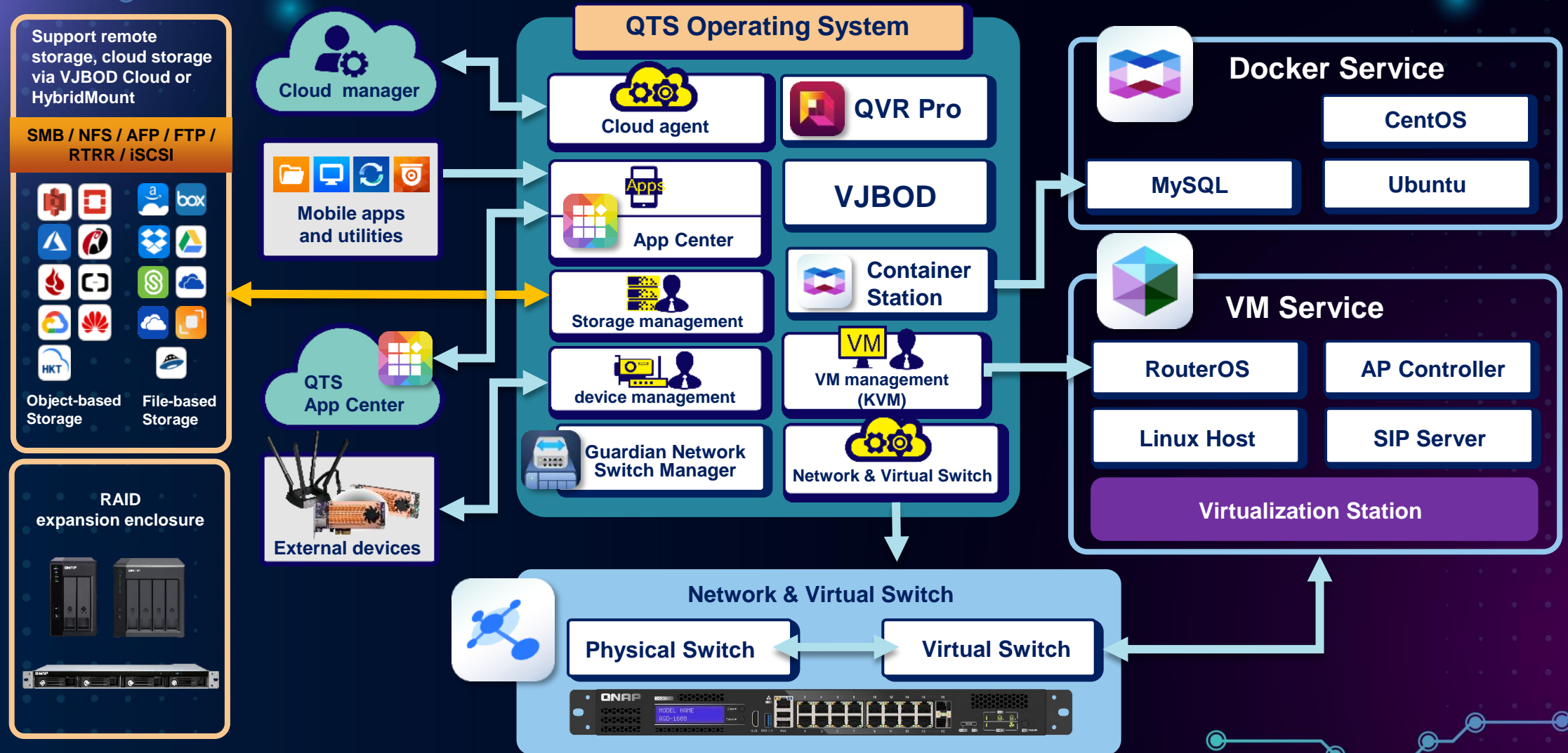
# Software Advantages

QGD-1600 / QGD-1602





# QGD-1600/1602 software architecture



Guardian's unique  
strengths and features

# L2 Network Management Advantages



# QuNetSwitch's friendly and intuitive graphical management user interface

Guardian provides an intuitive and friendly web management interface that allows users to easily perform device monitoring, configuration, firmware updates, and advanced network management functions.







# Complete Layer 2 network management function

## IGMP Snooping

Optimizing multicast performance helps in-line media streaming, VoIP and other bandwidth-intensive applications that are sensitive to time delays.

## Link Aggregation (LACP)

Combine two physical lines to form a high-speed virtual data transmission path, increase transmission speed, and enhance network connection reliability.

## VLAN

Enhance network security by isolating traffic within the enterprise based on requirements such as administrators, general users, employees, or visitors.

## Quality of Service

Different network usage priorities can be configured according to the port or VLAN group to ensure the quality of service and optimize network transmission efficiency.



# Complete Layer 2 network management function

## Access-Control List (ACL)

Support for access control mechanisms, you can set multiple access rules, specify specific protocols, IP addresses, subnet masks, and port access conditions.

## Port Mirroring

Allows network administrators to capture data (packets) for specific ports to monitor the network or troubleshoot.

## Loop detection and protection

When the network generates a loop, the network that generates the loop will be closed, effectively avoiding network interruption.

## Jumbo frame

Support Jumbo frame huge packet selection, which helps improve overall data transmission efficiency.

Guardian's unique  
strengths and features

# QTS Applications

QGD-1600 / QGD-1602

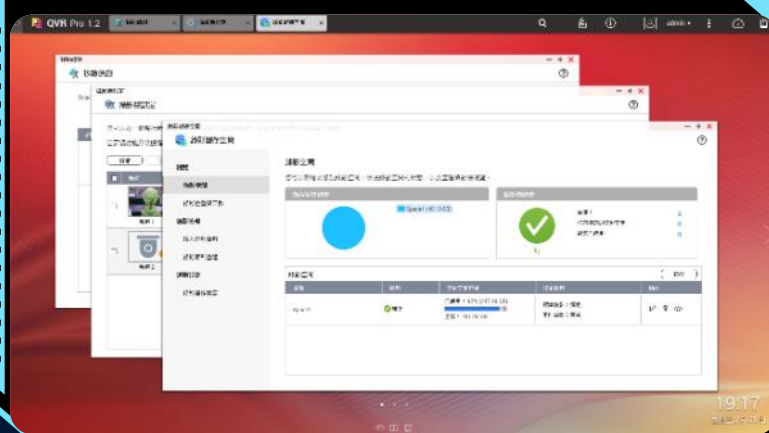




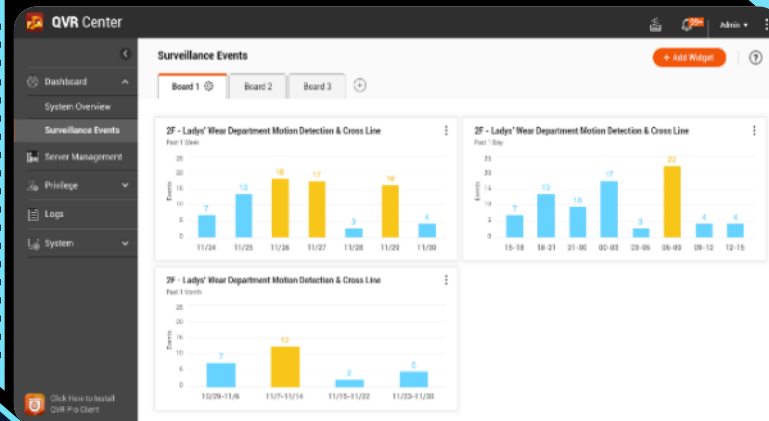
# Guardian X QVR Pro complete solution



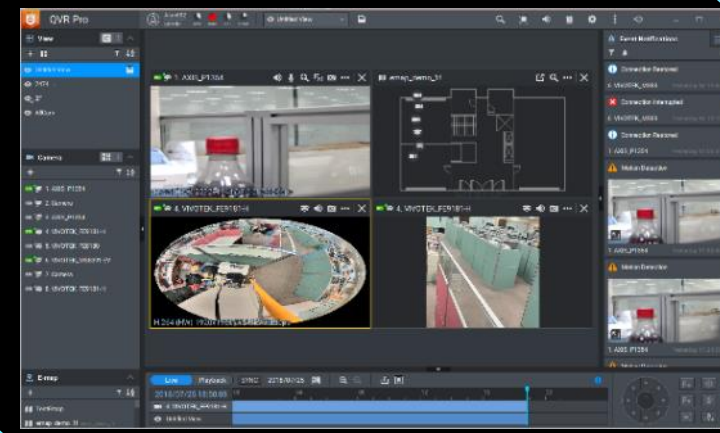
QVR Pro



QVR Center



QVR Pro Client



QVR Guard

QVR Guard Management

QVR Pro Server: Normal

QVR Guard: Standby

Model name: 191988

QVR version: 4.0.0.0000

QVR Pro version: 1.2.0.0 2018/07/28

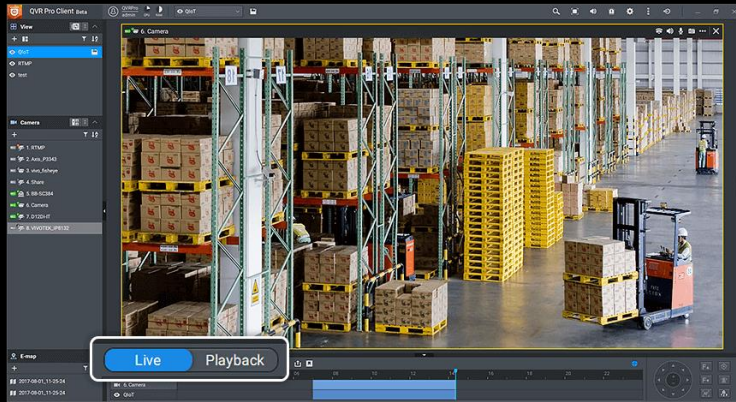
Model	Level	Date & Time	Server IP	Event Name	Event Type	Content
427	1	2019/07/28 10:00:45	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn over PowerOn
428	1	2019/07/28 10:00:46	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn become normal. Guard present to disarming over PowerOn
429	1	2019/07/28 10:00:47	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn not found in normal
430	1	2019/07/28 10:00:48	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn taking over PowerOn
431	1	2019/07/28 10:00:49	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn taking over PowerOn
432	1	2019/07/28 10:00:50	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn taking over PowerOn
433	1	2019/07/28 10:00:51	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn taking over PowerOn
434	1	2019/07/28 10:00:52	192.168.1.101	PowerOn	TVS-000	(Guard)PowerOn taking over PowerOn

Display Area: 1/1, Total: 41 | Show: 10 | Page: 1

# Guardian X QVR Pro complete solution

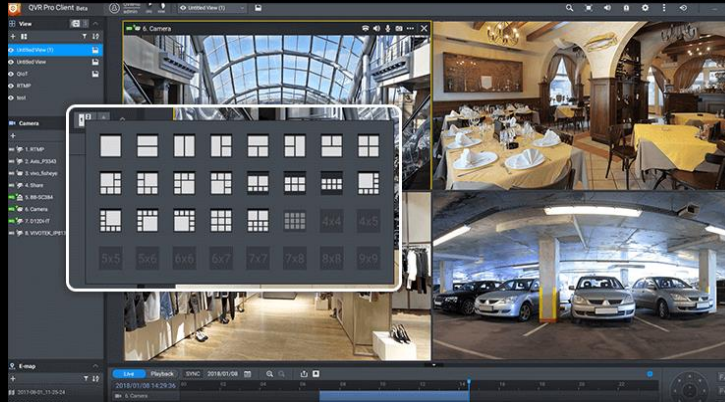
## Instant Playback

Monitor the live view of multiple channels and play recordings on a single interface. With just one click you can switch between live, individual playback and sync playback modes. You can also view recordings at a specific time by clicking the time line or by selecting a time range.



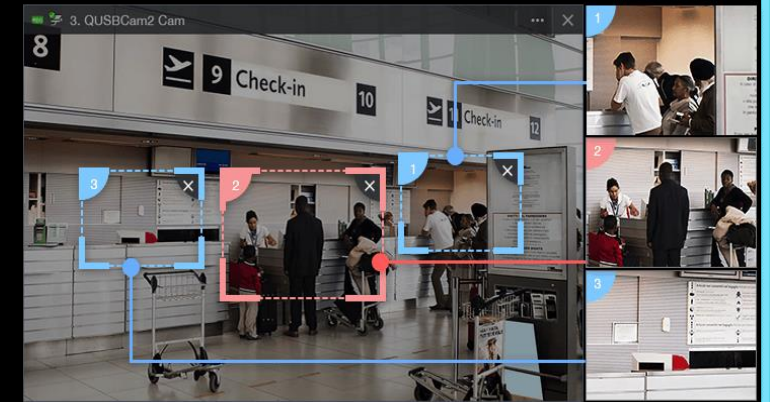
## Dynamic Layout

The QVR Pro Client provides a highly-customizable display panel. You can change each channel's display ratio, arrange the display, or use the built-in display module to fulfill your surveillance needs.



## Region of Interest

The updated Region of Interest (ROI) feature supports multiple regional images from the same camera in live view and playback mode. You can define and enlarge multiple areas on the overview image with no selection limitations or additional licenses required.





# Guardian X QVR Pro complete solution

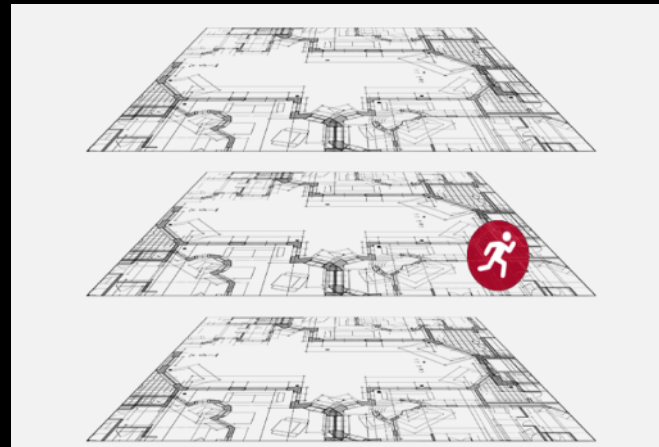
## Qdewarp Technology

The innovative Qdewarp enables users to view standard fisheye camera recordings in proportional ratios and sizes without affecting original recordings. The distorted parts on the edges can be turned into a clear panoramic view.



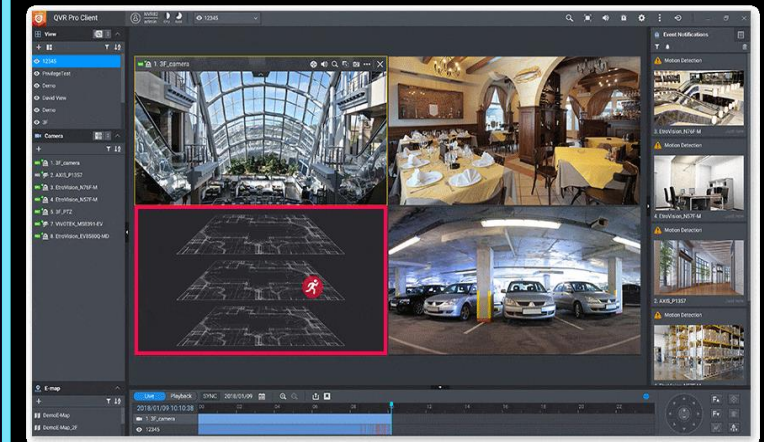
## E-map

If an event occurs, you can quickly know the camera's location on the e-map to ensure a timely response.



## Multiple Notification Methods

The event notification provides multiple ways of being informed of emerging events, including flashing red borders of channels, alert buzzers, and the motion icon on the e-map.





# Run virtual machines and containers, one machine and multiple systems

Virtualization Station and Container Station lead a full range of hybrid virtual application solutions. Regardless of your needs, you can rely on QNAP's complete virtualization application support. Choosing the right deployment strategy for your virtualization needs can be easy!

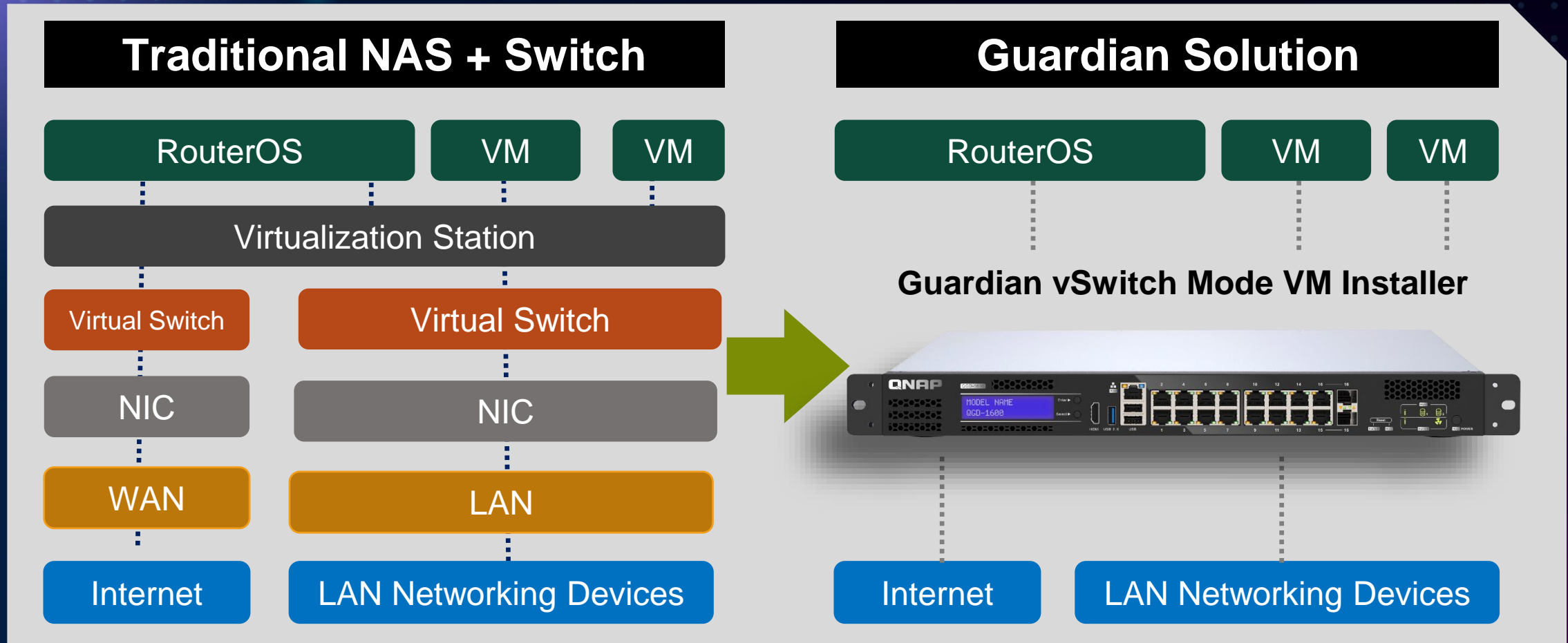


Virtualization Station



Container Station

# Guardian provides fast and convenient VM hosting and management services



# Support VM Installer for quick and easy VM software setup

Simple installation in three steps, saving a lot of setup troubles.

1

Select the VM service you want to install

The screenshot shows the 'Virtual Machine Installer' window with the 'Virtual Machine' tab selected. The title is 'Configure a virtual machine'. It prompts the user to 'Please choose a virtual machine you want to build:' with a dropdown menu showing 'RouterOS'. Below this, it shows 'Version: 6.45.1' and 'Issued by: MikroTik'. Then, it says 'Here you can select a location where you want to create the virtual machine and naming.' with fields for 'VM image location:' (with a 'Browse' button) and 'VM Name:' (with 'RouterOS' entered). 'Back' and 'Next' buttons are at the bottom.

2

Set the corresponding WAN Port

The screenshot shows the 'Virtual Machine Installer' window with the 'WAN Setting' tab selected. The title is 'Network for WAN'. It says 'Build a WAN or more with setting a virtual switch and assigned physical port on (model)'. There's a visual representation of a network switch with 12 ports. Port 7 is highlighted. Below, the 'Description' is 'RouterOS WAN-1'. A 'Port' selection grid shows ports 1 through 12, with Port 1 selected. 'Back' and 'Next' buttons are at the bottom.

3

Finish the settings

The screenshot shows the 'Virtual Machine Installer' window with the 'Summary' tab selected. The title is 'Virtual Machine for your \$RouterOSName'. It shows 'RouterOS VM image location: /Public', 'RouterOS VM Name: RouterOS test', and 'Network Setup:'. Below is a table showing the network configuration:

Virtual Switch	Port
\$WAN1	1
\$WAN2	2
\$WAN3	9

'Back' and 'Apply' buttons are at the bottom.



# Double your productivity output

## Access files on External Devices



### File Station

Use File Station to directly access files on USB devices - including optical disc drives. Files from USB devices can be easily backed up to the QGD.

## Full-text Search



### Qsirch

Qsirch supports keyword search for finding images, music, videos, documents, and emails, making it easier than ever to locate files.

## File Digitalization



### OCR Converter

OCR Converter extracts text from images, helping to facilitate file organization, editing, and searching.

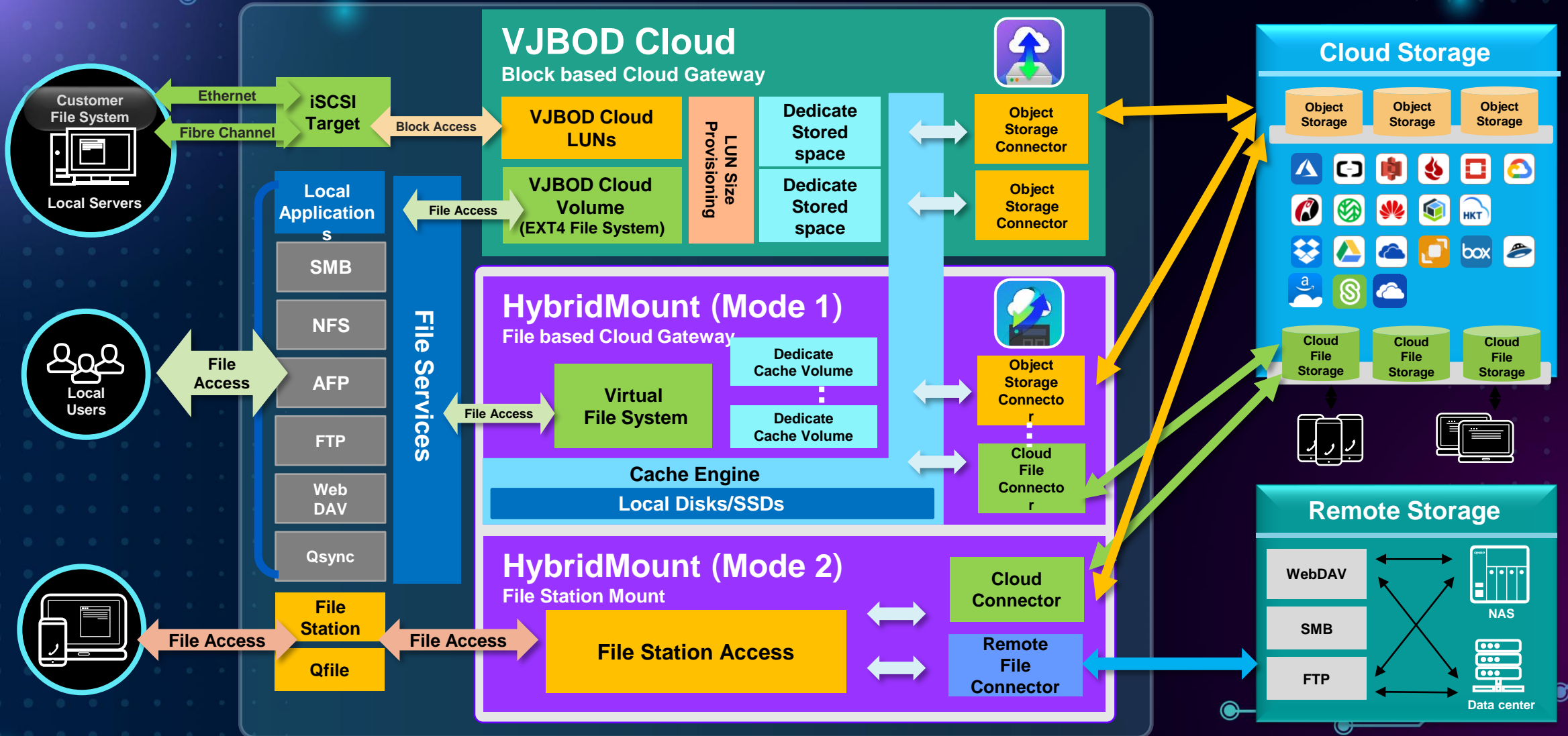
## Smart Filing



### Qfiling

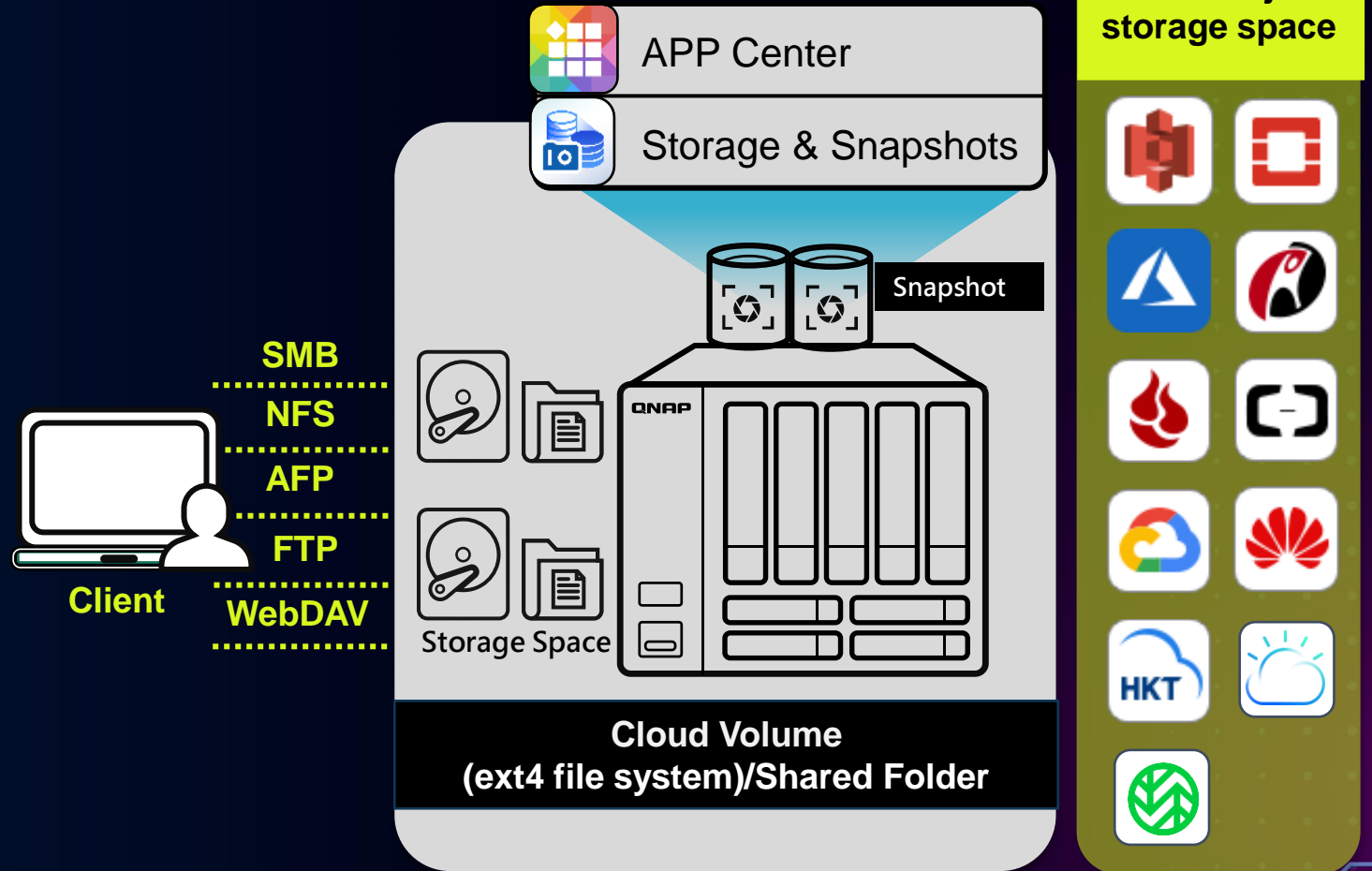
Qfiling automates file organization. Files are automatically archived into folders based on your settings.

# QTS / Guardian storage







# Local data cloud backup solution

- QNAP's VJBOD Cloud feature is a block-based Gateway block cloud gateway.
- The VJBOD Cloud Gateway allows users to easily connect to the cloud's storage and convert it to disk on the local side.
- Enterprise IT staff or general users can use the more familiar file access protocol (NFS, SMB, AFP, FTP, WebDAV) for access.

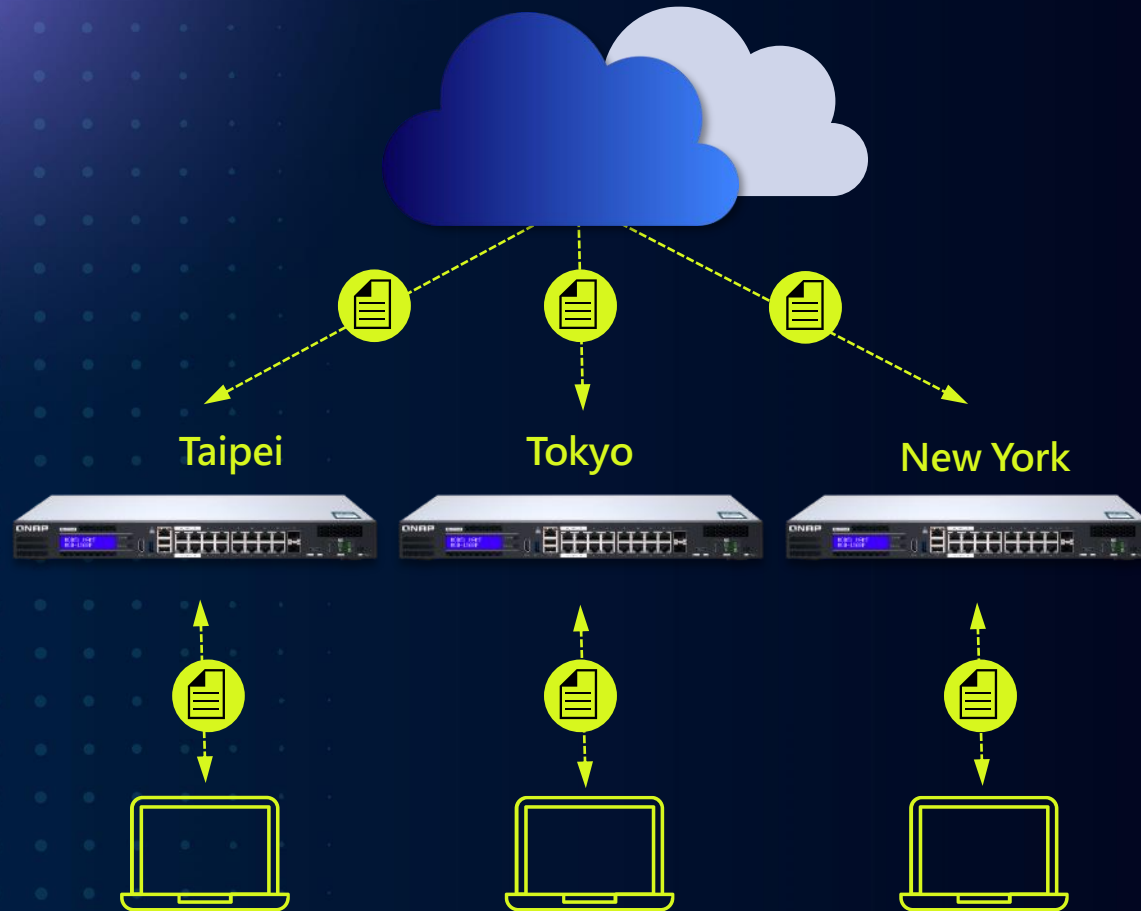




# HybridMount with 2 modes for data usage

	Cloud Drive Mount	Network Drive Mount
Setup Method	Mount cloud drives	Choose "File Cloud Gateway" mode and create a cache space
Connections	2 life-time free connections Buy license for more connections No limit	No limit
Accessing Performance	Depends on network speed	High performance due to the cache space
Access in File Station	Supported	Supported
Access in SMB / NFS / AFP	NOT Supported	Supported
Sync with Cloud	Sync only when browsing	NOT Supported
Support QTS application	NOT Supported	Supported    

# Synchronization and co-management of global multi-site office files



With a cloud space, it can be accessed all over the world and achieve file synchronization. Collect data from global locations and freely expand space.

Configure Guardian as a file-based cloud gateway at each point office.

Easy and efficient access to the cloud by office users

1. Support access protocol
2. local cache allows access to cloud files as if it were a local experience

**Eliminate the traditional VPN time-consuming and laborious access method**

# QNAP QvPC innovation technology

With QNAP's exclusive QvPC technology (QNAP virtualized Personal Computer Technology), you can connect your Guardian to a keyboard, mouse, and connect to the monitor via HDMI to use the Guardian switch as a PC.



Connect the mouse keyboard,  
**Guardian Switch** can also be  
used as a **PC**

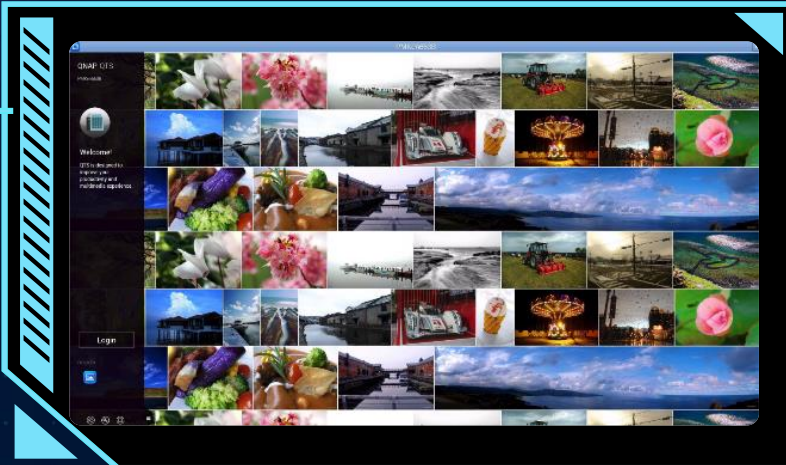




# HD Station rich application

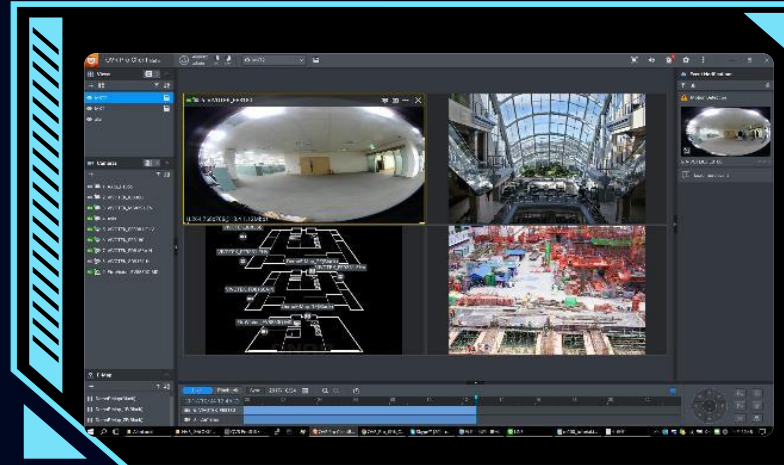
A variety of web apps let you get started quickly.

QTS

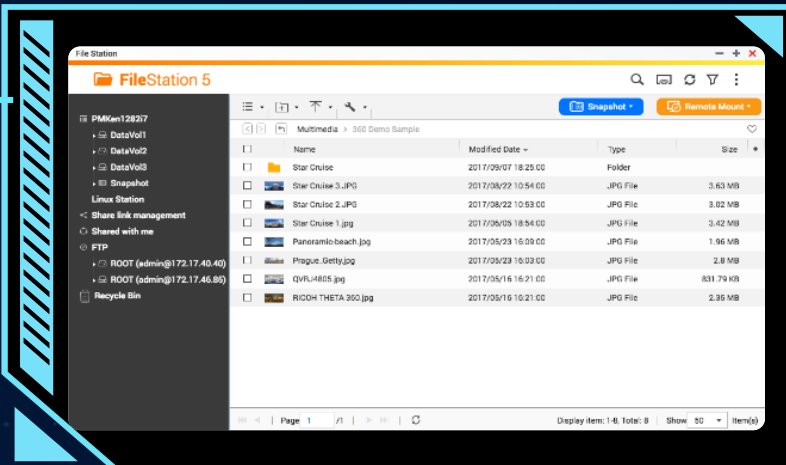


QVR Pro Client

QVR Pro Client  
can also view  
monitoring  
screens directly



File Station



QuNetSwitch



- Note: QGD-1602 doesn't have an HDMI output port; therefore, only QGD-1600 supports HD station.

Guardian's unique  
strengths and features

**ADRA  
NDR**

**QGD-1600 / QGD-1602**





# ADRA NDR

## Global

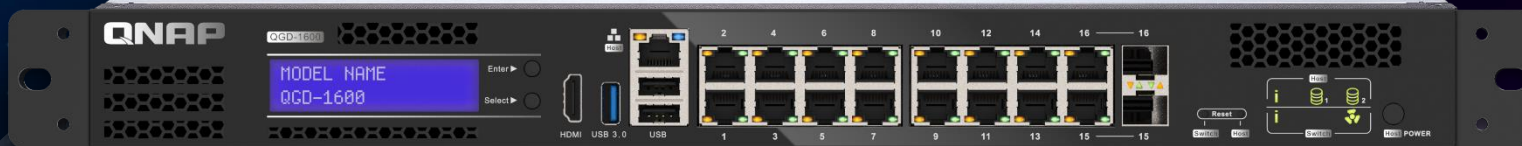
ADRA NDR for Global  
1 Year Subscription

**USD \$399.00 /Year**

## Global

ADRA NDR for Global  
3 Years Subscription

**USD \$1,099.00 /3Year**



**Adaptive  
Threat  
Detection**  
Threat Watch  
Threat Trap

**Real-  
time Threat  
Analysis**  
Correlation Analysis  
Deep Threat Analysis

**Isolation  
Response**  
Access Switch  
Isolate Victims/Zone  
Risk Management

- Note: After upgrading to ADRA NDR O.S., the QGD switch cannot run QTS NAS OS and VMs.



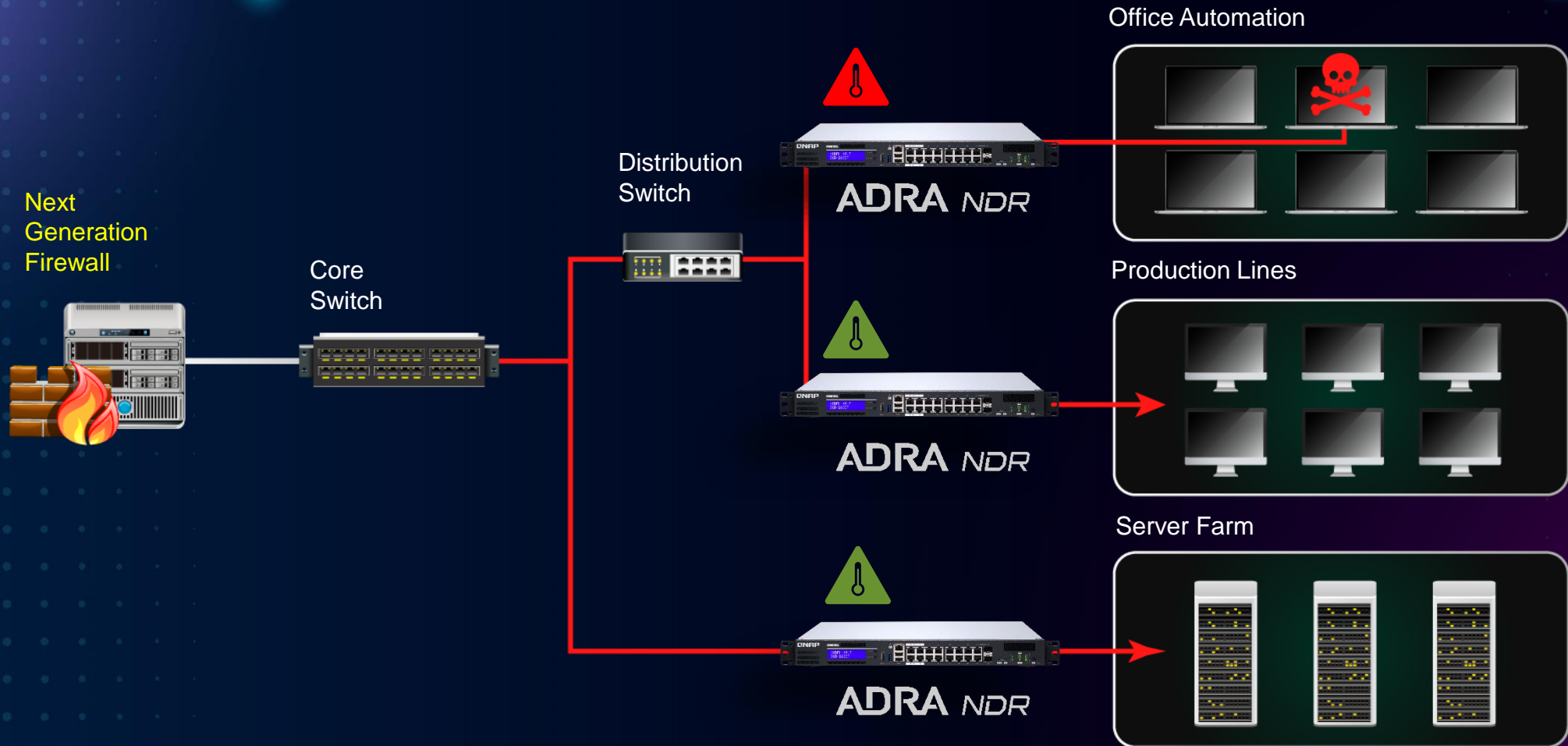
# ADRA NDR key features

- Near-Zero configuration
- Deploy without changing network infrastructure
- Line-rate performance (VMs/NAS/Server farm)
- Transparent & Adaptive detection
- Automated correlations and analysis
- Automated Isolation



# Firewall + ADRA

## complete the secure network from internet to intranet



# Suspicious network activities detectable by ADRA NDR

Type	Threat behaviors
Scan	<ul style="list-style-type: none"><li>• Device/network scanning</li><li>• TCP/UDP/ICMP/ARP scanning</li></ul>
Abnormal operation	<ul style="list-style-type: none"><li>• Network flooding</li><li>• TCP flag attacking</li><li>• Unknown domain request</li><li>• Credential phishing</li></ul>
Vulnerability	<ul style="list-style-type: none"><li>• CVE vulnerabilities relate zero day attack<ul style="list-style-type: none"><li>• MS MAPP relate zero day attack</li></ul></li><li>• Patch Tuesday relate zero day attack</li></ul>
Malware/Ransomware suspicious operation*	<ul style="list-style-type: none"><li>• C&amp;C call back</li><li>• Exploit-kit detect</li><li>• Network spoof<ul style="list-style-type: none"><li>• DDoS</li></ul></li></ul>

- Note: ADRA is designed to detect the behaviors generated by malware/ransomware, rather than analyzing the content of files or performing decryption for analysis.



# QGD family selection for ADRA NDR

Model series	Recommended max. number of detection devices	Recommended max. number of high- bandwidth detection devices	Recommended max. number of Threat Traps
<b>QGD-1600P Series</b>	1-50	1-10	1-2
<b>QGD-1602P-C3558-8G</b>	51-80	11-30	3-6
<b>QGD-1602P-C3758- 16G</b>	81-110	31-60	6-8
<b>QGD-1600 Series</b>	1-50	1-10	1-2
<b>QGD-1602-C3558-8G</b>	51-80	11-30	3-6
<b>QGD-1602-C3758-16G</b>	81-110	31-60	6-8

- Note: Choose the right model based on your number of detection edge devices and Threat Traps.

# Guardian smart edge switches

Best  
Solution  
for  
ADRA



Layer 2  
Management

QTS  
NAS O.S.

VM / Container  
supported

QVR Pro  
Surveillance solution



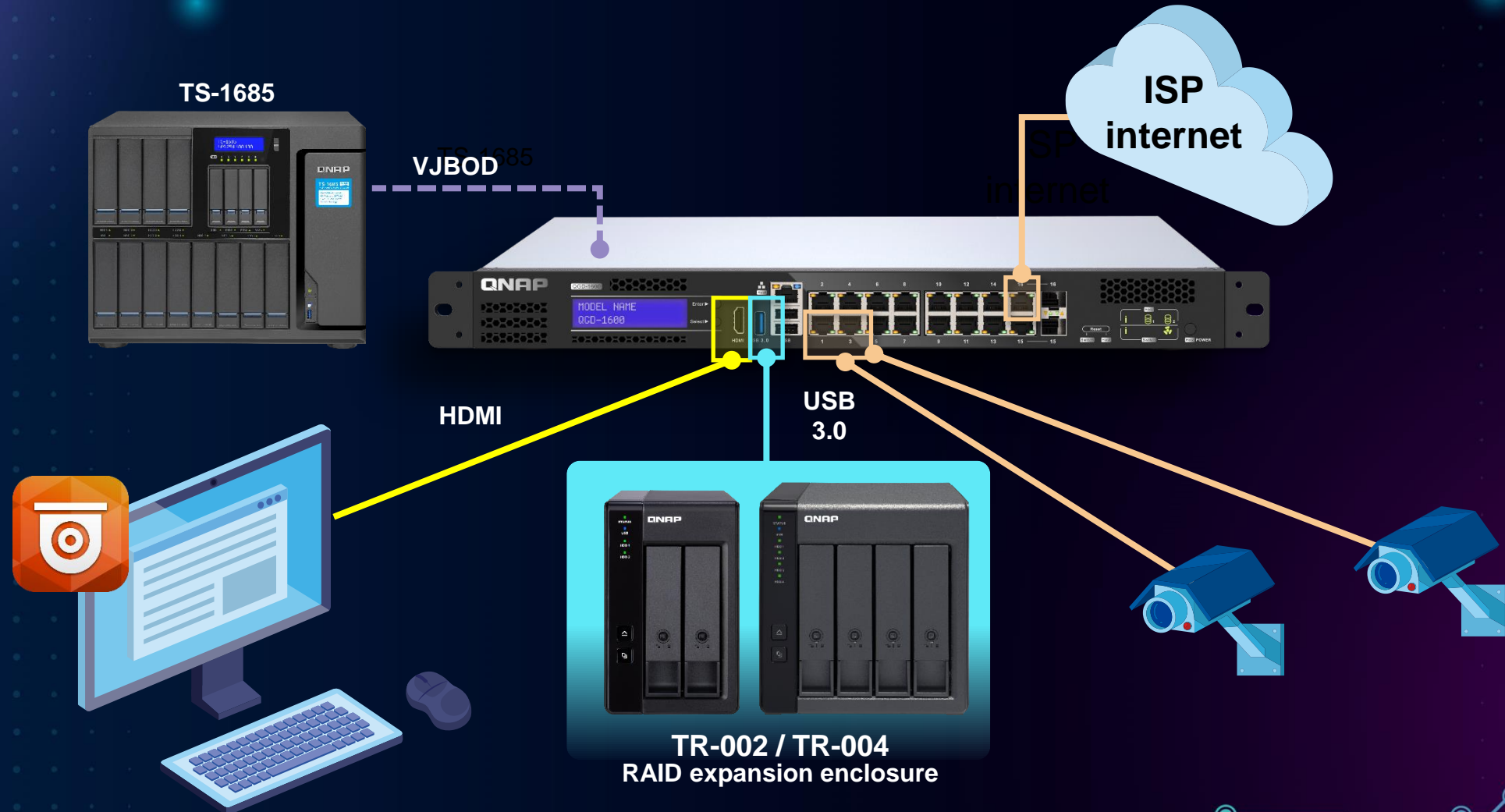
**Multi-purpose for one machine: Guardian's practical application in various environmental architectures**





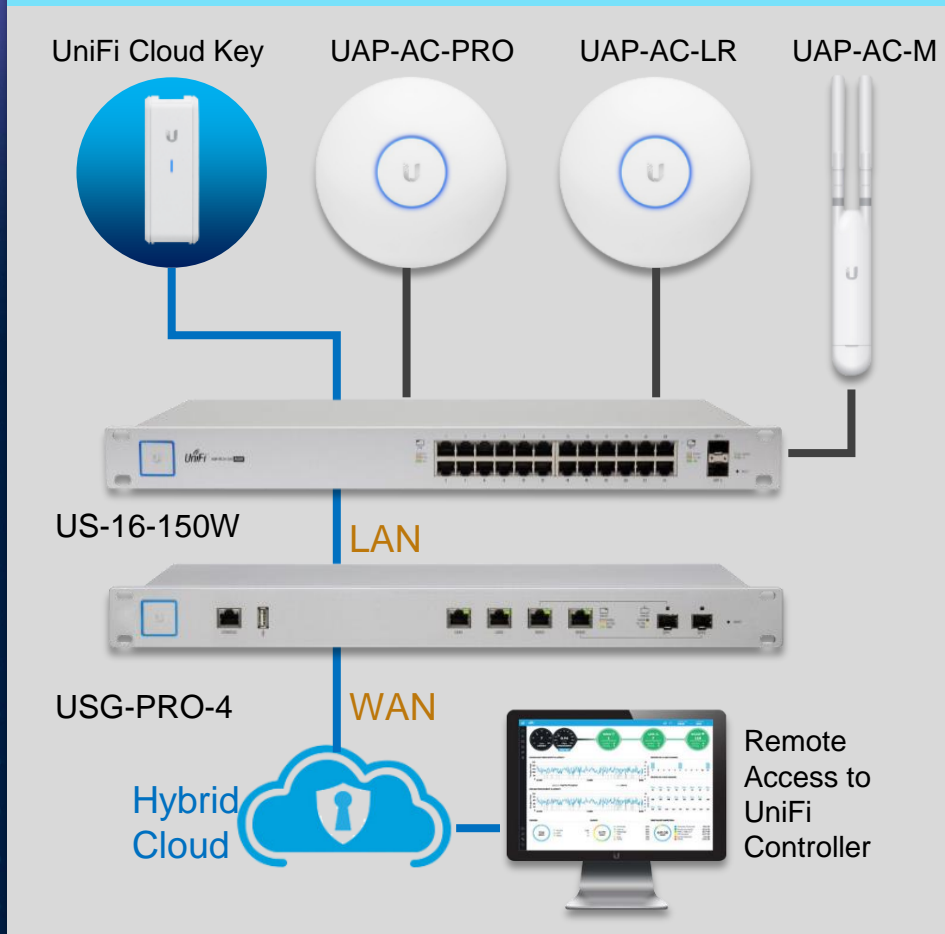
# Guardian X QVR Pro

## User deployment diagram



# Guardian commercial wireless AP Integrated Solution

## Traditional Deployment



## Guardian Solution

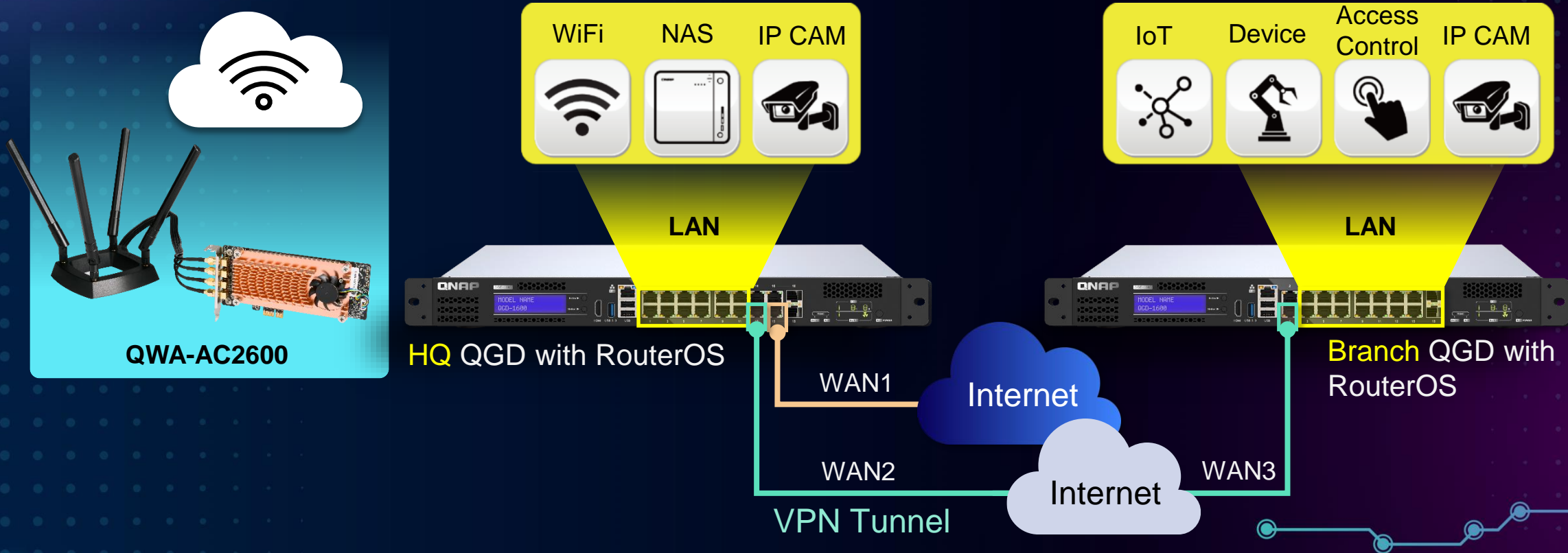


### Advantages

1. One machine covers all features, saving a lot of space
2. Highly expandable capabilities to meet future growth needs
3. Integrated solution

# Guardian X RouterOS X QWA-AC2600 network solution

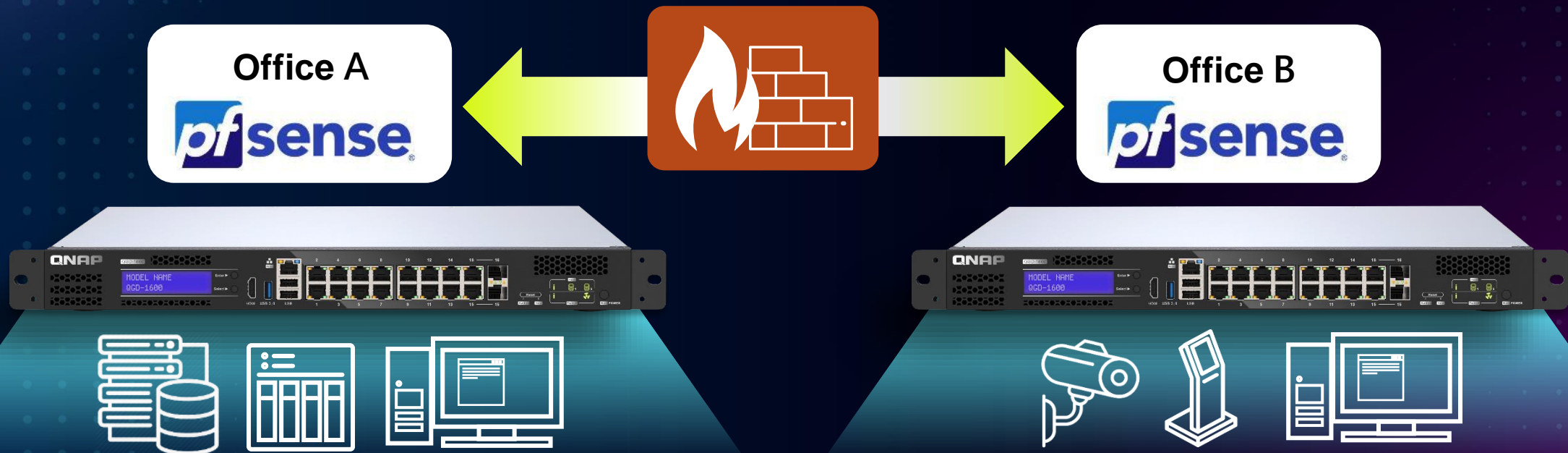
- Support for installing RouterOS, OpenWrt
- VPN encryption transmission can be established at each office
- Share the wireless network to the device with the QWA-2600AC wireless network card



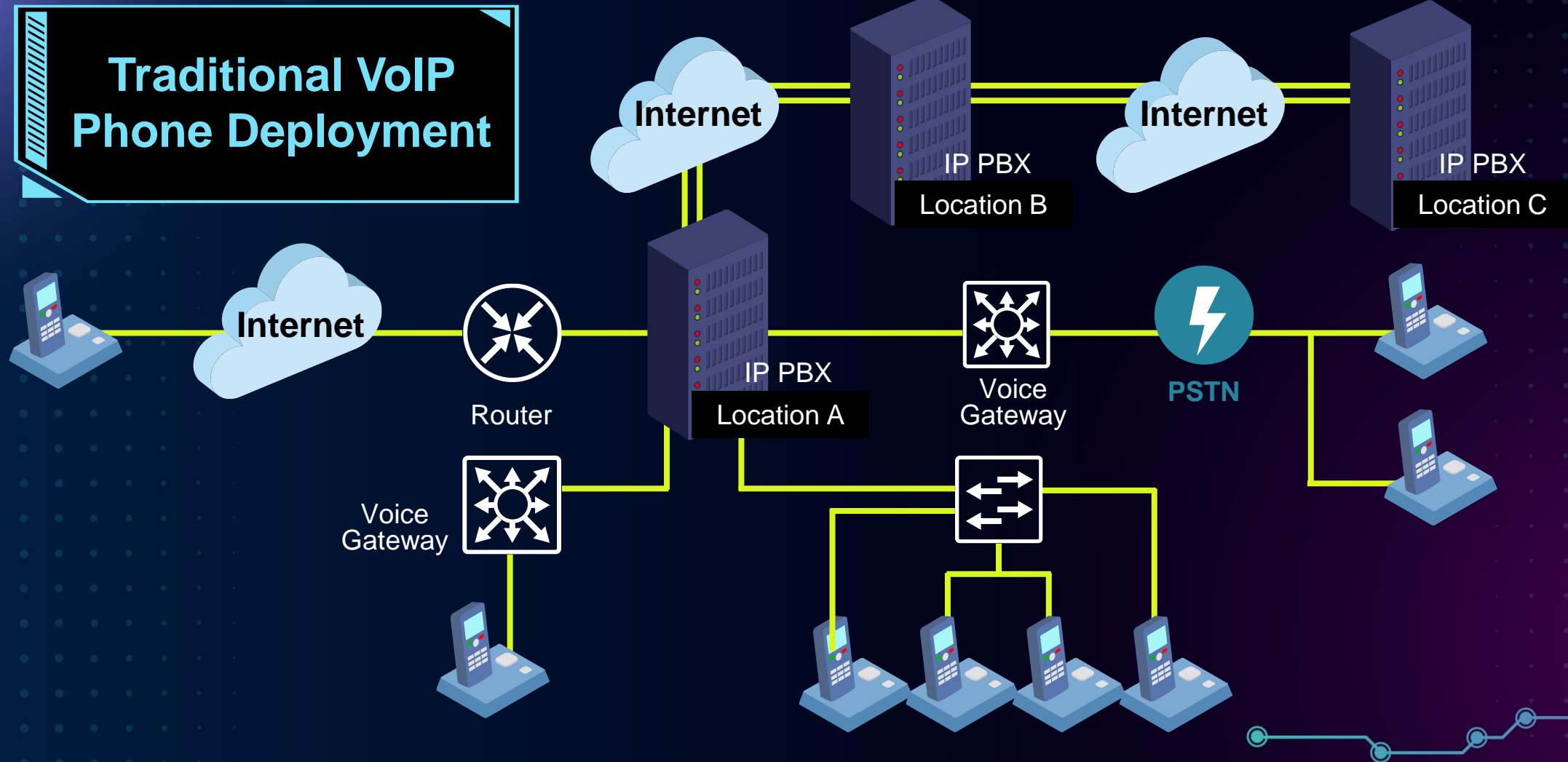


# Guardian X pfSense solution

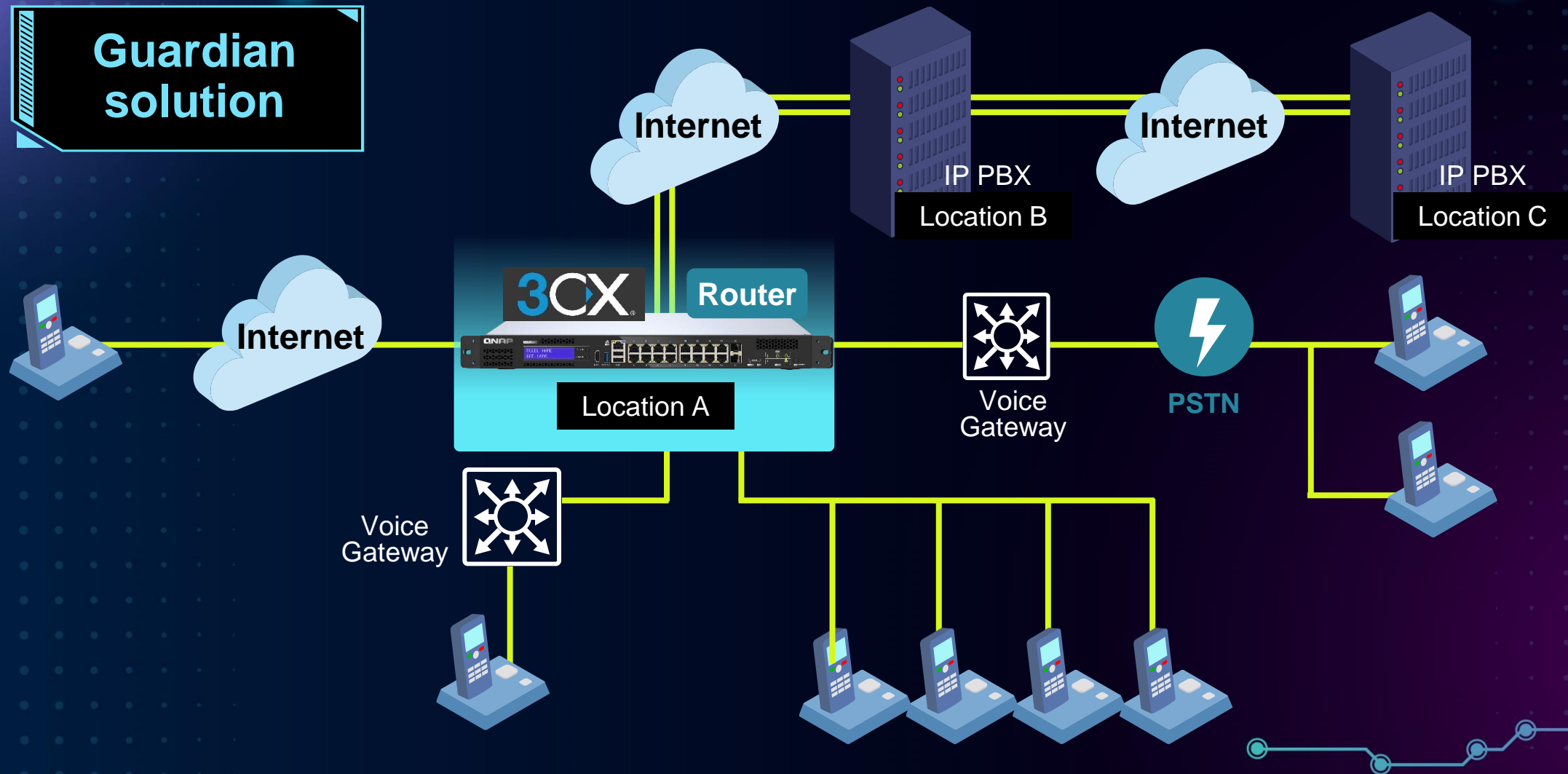
QGD-1600/1602 supports the installation of pfSense firewall software on virtual machines to effectively block external network intrusion threats. In addition, for enterprise intranets, protection and blocking can be implemented according to requirements, which can effectively improve the information security of devices in each intranet.



# Traditional IP Phone setup without QGD switches



# Guardian brings next-gen IP Phone integrated solution





# Guardian's diverse use scenes



# Chain store solution

Install a Guardian switch at each branch to create a complete solution and back up the data to headquarters through remote storage.

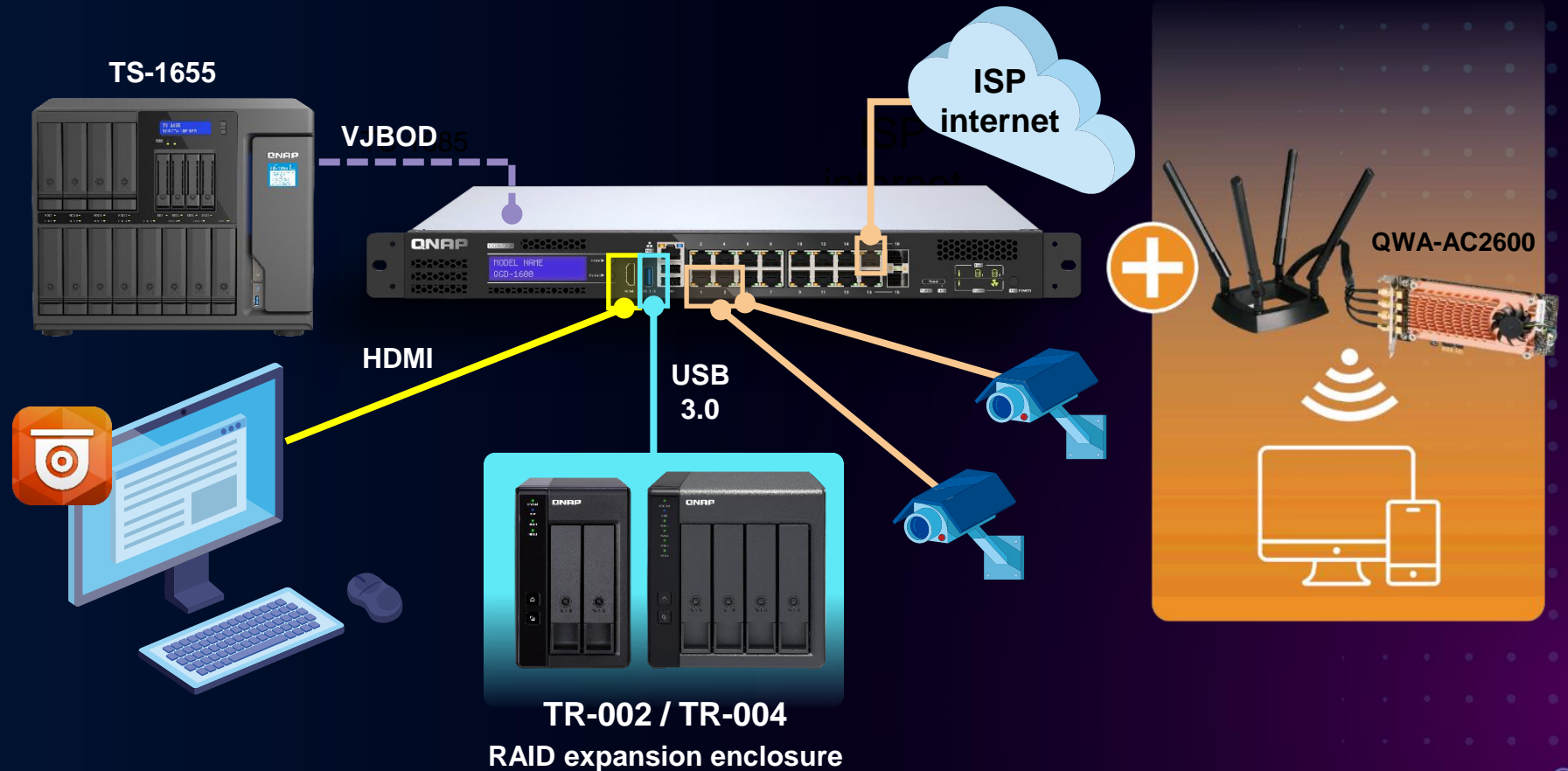


# Create a one-machine surveillance solution

## Live Demo

### Description :

- Soft routing software installed on a virtual machine
- Install QVR Pro
- Expand your storage with VJBOD & USB RAID
- With QWA-2600AC network card, support more devices wireless networking





Different from the traditional  
exchangers on the market, you  
have a better choice!

# Guardian Smart Edge Switch



# Guardian Smart Edge Switch : four benefits of all-in-one integrated solution

1

## Reduce costs

No need to buy a variety of different equipment, a single device can meet the needs of use; and save the cost of AC power, power lines, plugs and other materials.

2

## Reduce learning costs

A single centralized management interface that saves you the cost of learning familiar with the operation of different devices.

3

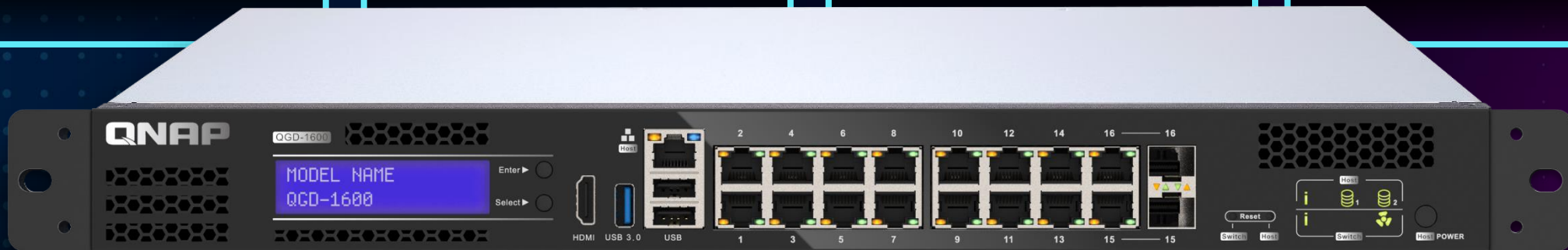
## Reduce maintenance costs

Provide you with a safer and more secure enterprise solution, no need to worry about the risk of single equipment damage, and effectively reduce the cost of subsequent maintenance.

4

## High expandability

Highly flexible functional design to effectively meet the needs of the company's future growth environment.





# LIVE DEMO

QGD-1600 / QGD-1602







Smart Edge Switch x QTS NAS

# QGD-1600 / QGD-1602

Innovative Hybrid managed switch  
+ NAS/NDR combo solution

