

QNAP

The first managed PoE switch  
supports QTS



Guardian

# QGD-1600P





# Overview



- Power over Ethernet Market Status and Challenges
- Hardware Features & Advantages
- Software Features & Advantages
  - ✓ PoE Features
  - ✓ L2 Network management functions
  - ✓ QTS applications
- Multi-purpose for one machine: support PoE, network management, storage, computing, etc.
- Guardian's diverse use scenes





# Power Sourcing Equipment product evolution



## 1<sup>ST</sup> Generation Unmanaged PoE switch



## 2<sup>ST</sup> Generation L2/ L3 Managed PoE Switch



## 3<sup>rd</sup> Generation Guardian Smart Edge PoE Switch



- Equipped with QTS
- Virtual machine
- Hybrid cloud storage
- IEEE 802.3bt Ready



# Expected requirements and solutions for power sourcing equipment

Current  
Issues for  
PoE

Want to have a high wattage, high-power equipment to meet all types of powered devices

Want integrated solutions that reduce learning, maintenance and cost

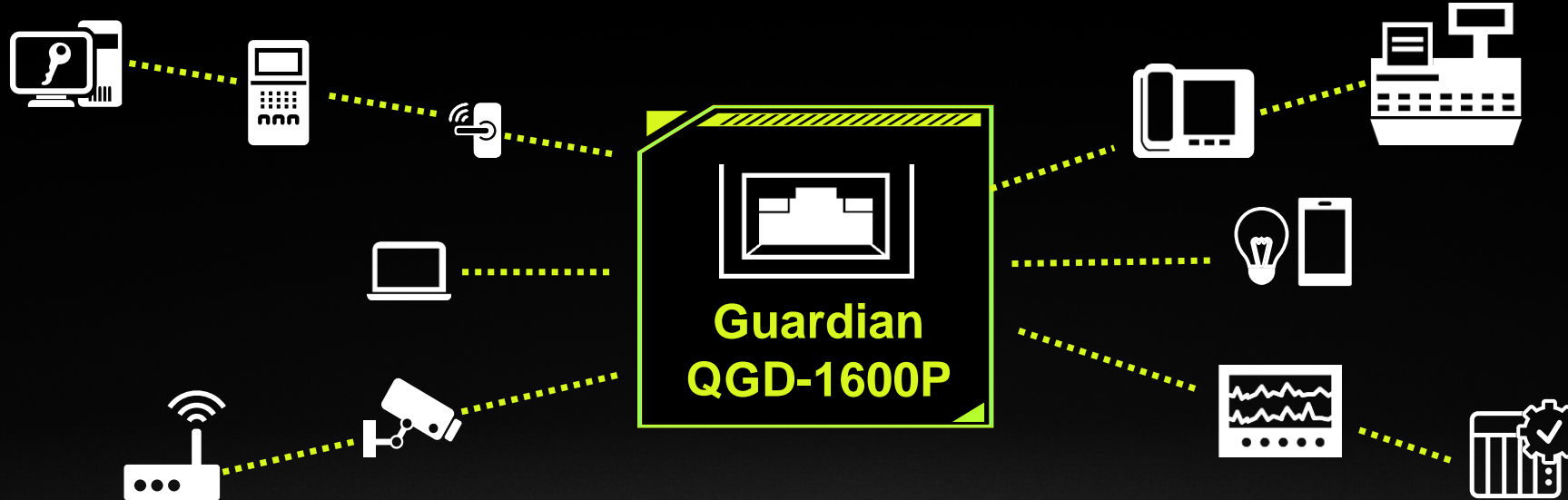
Want a high-expansion, high-elastic device to meet the future growing network needs





# Guardian Smart Edge PoE Switch

Best  
Solution  
for PoE



Layer 2  
Management

370W PoE Budget  
IEEE 802.3bt Ready

QTS  
compatible

VM / Container  
supported

QVR Pro  
Surveillance solution





QNAP

Guardian's unique strengths and features  
**Guardian's hardware advantages**

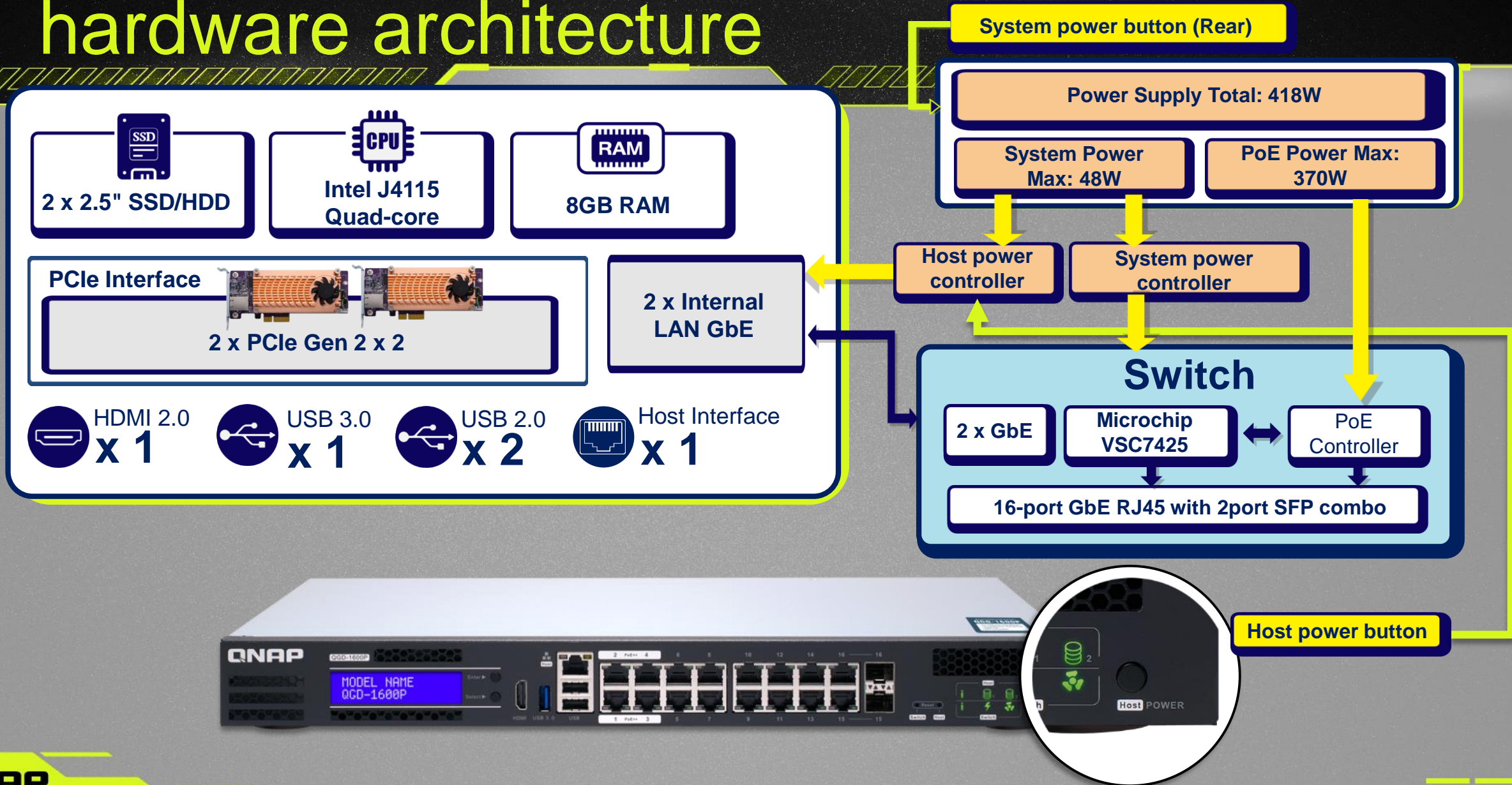
**QGD-1600P**





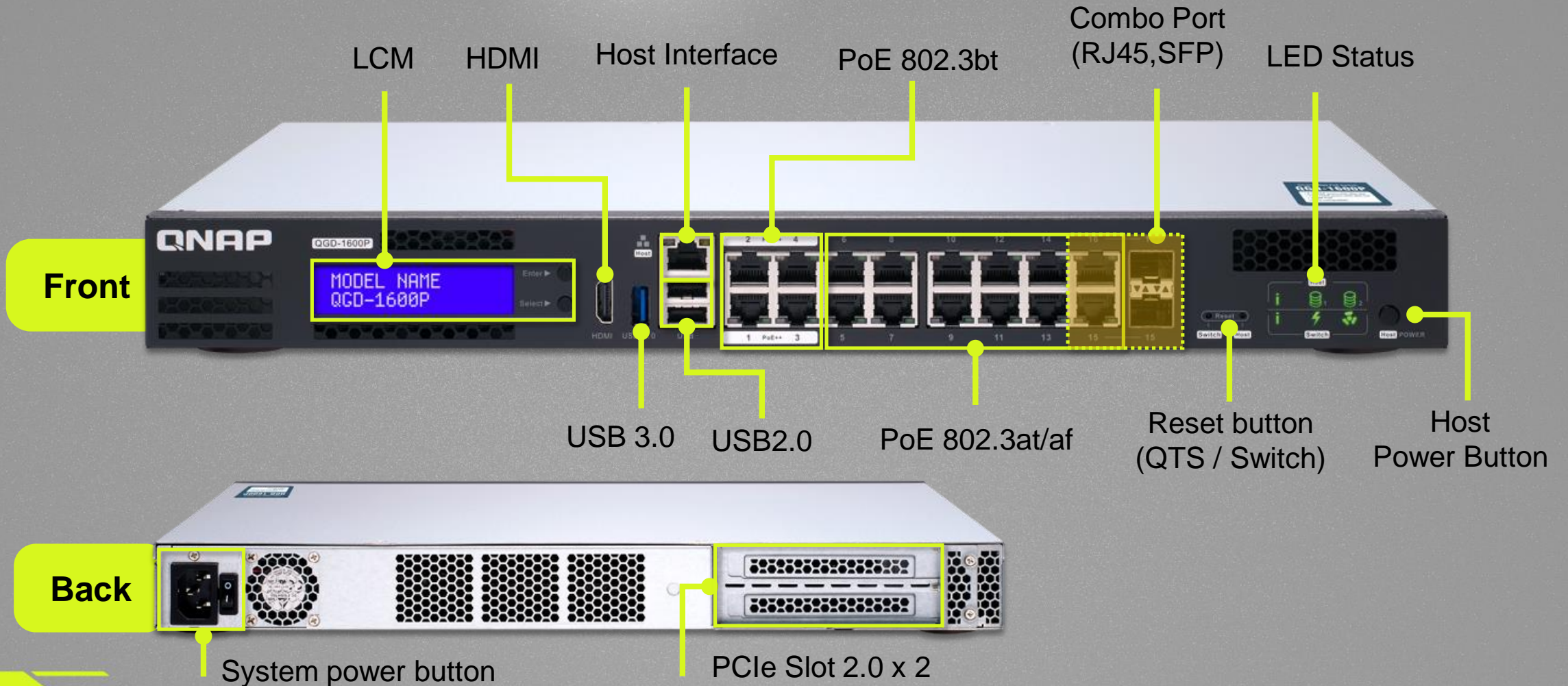
# QGD-1600P

## hardware architecture





# QGD-1600P hardware features





# QGD-1600P Internal View

## 2 X PCIe Gen2 Slot

Supports installation of 10GbE NICs, QM2 expansion cards or USB 3.1 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 2.5" SATA 6Gb/s SSD/HDD Slot

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

## Intel® Celeron® CPU

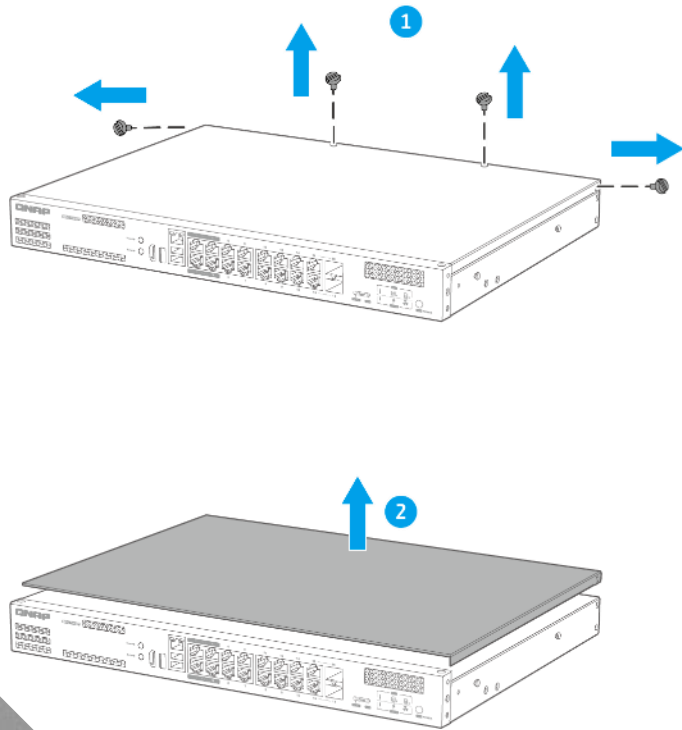


The Intel® Celeron® J4115 quad-core 1.8 GHz processor delivers efficient computing power to Guardian.

# Hard disk and SSD installation

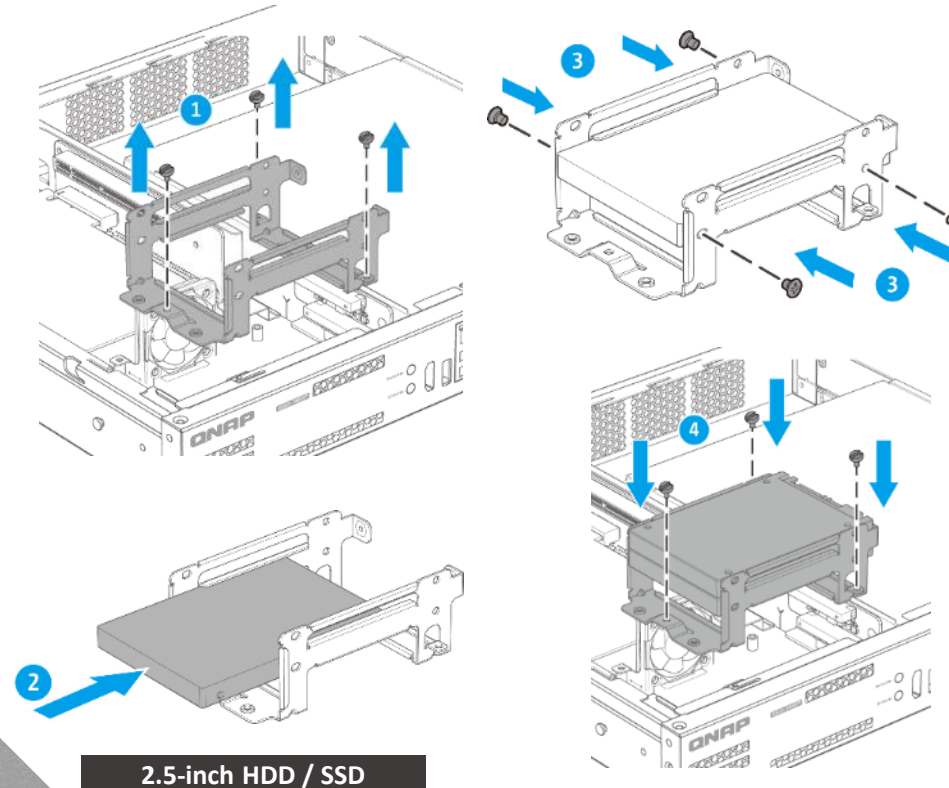
## Step 1

Open the cover of the switch



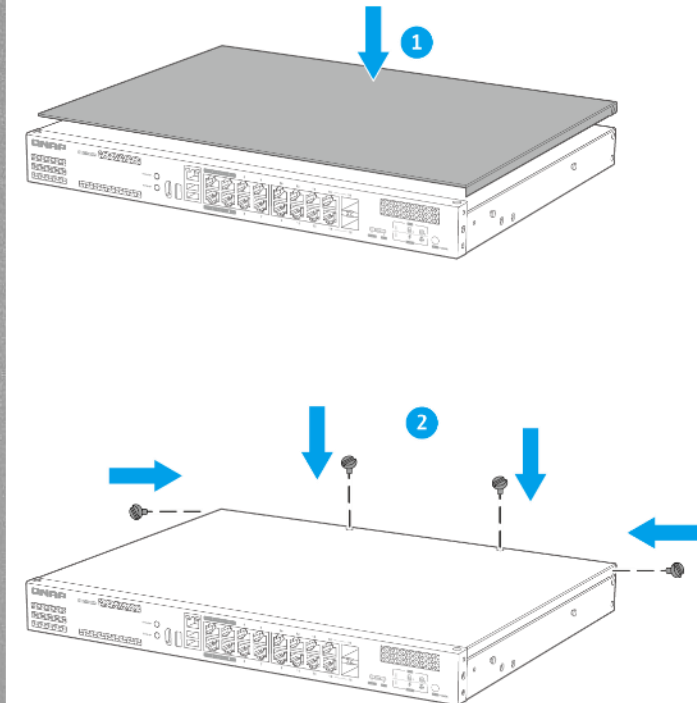
## Step 2

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

## Hard Disk (HDD)

For long-term continuous writing applications (e.g. surveillance), mass storage users



**Suitable for NAS**  
Maximum capacity up to 2TB



**High performance & capacity**  
Maximum capacity up to 2TB



**General PC storage use**  
Maximum capacity up to 2TB

## Solid State (SSD)

For users who are looking for efficient computing power



**Suitable for NAS**  
Maximum capacity up to 3.84TB



**High performance & capacity**  
Maximum capacity up to 1.92TB



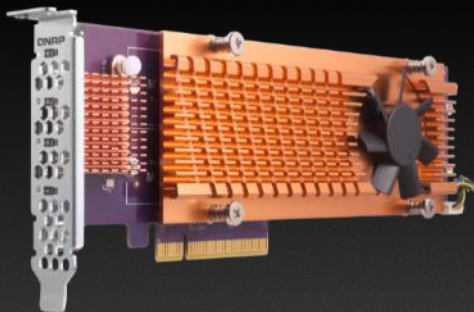
**General PC storage use**  
Maximum capacity up to 2TB

Visit QNAP website for more supported HDD

# Extend Guardian functionality with the PCIe slot

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

## QM2



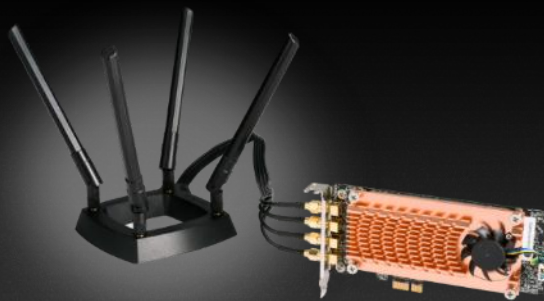
### SSD

- QM2-2S-220A
- QM2-2P-244A
- QM2-2P-344

### SSD+NIC

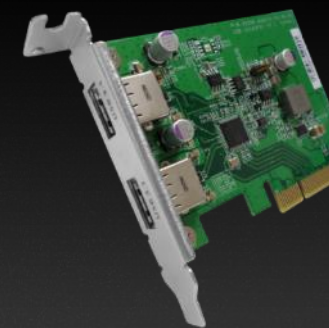
- QM2-2S10G1T
- QM2-2P10G1T

## QWA-AC2600



### QWA-AC2600

## USB 3.1 Gen 2 (10Gbps)

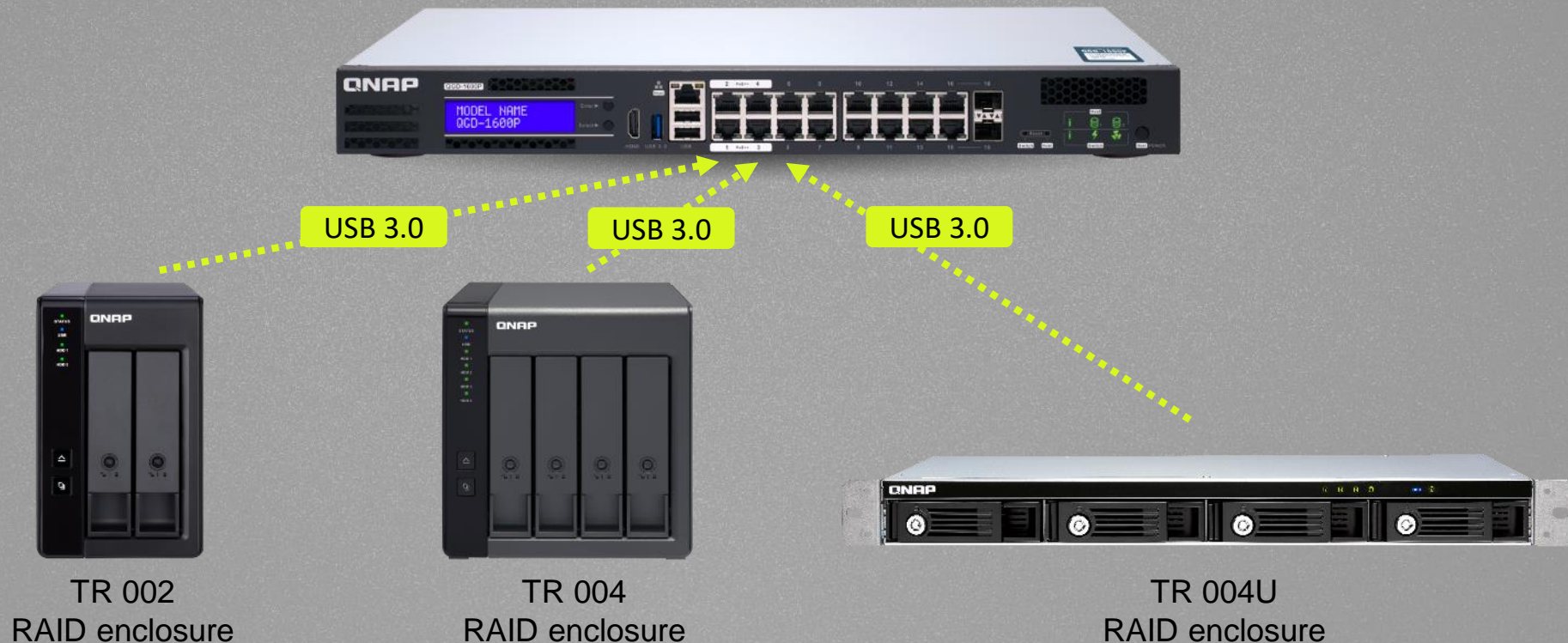


### USB-U31A2P01



# 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 3.0 Type C transmission interface makes storage and backup tasks smoother!





# High quality hardware components

## Smart fan heat sink

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



## All solid capacitor

Long life, high thermal stability and low impedance at high frequencies



## Power noise filter

Reduce electromagnetic interference conducted on the power line between the device and the power supply



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**QGD-1600P**





# Metal body, 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.





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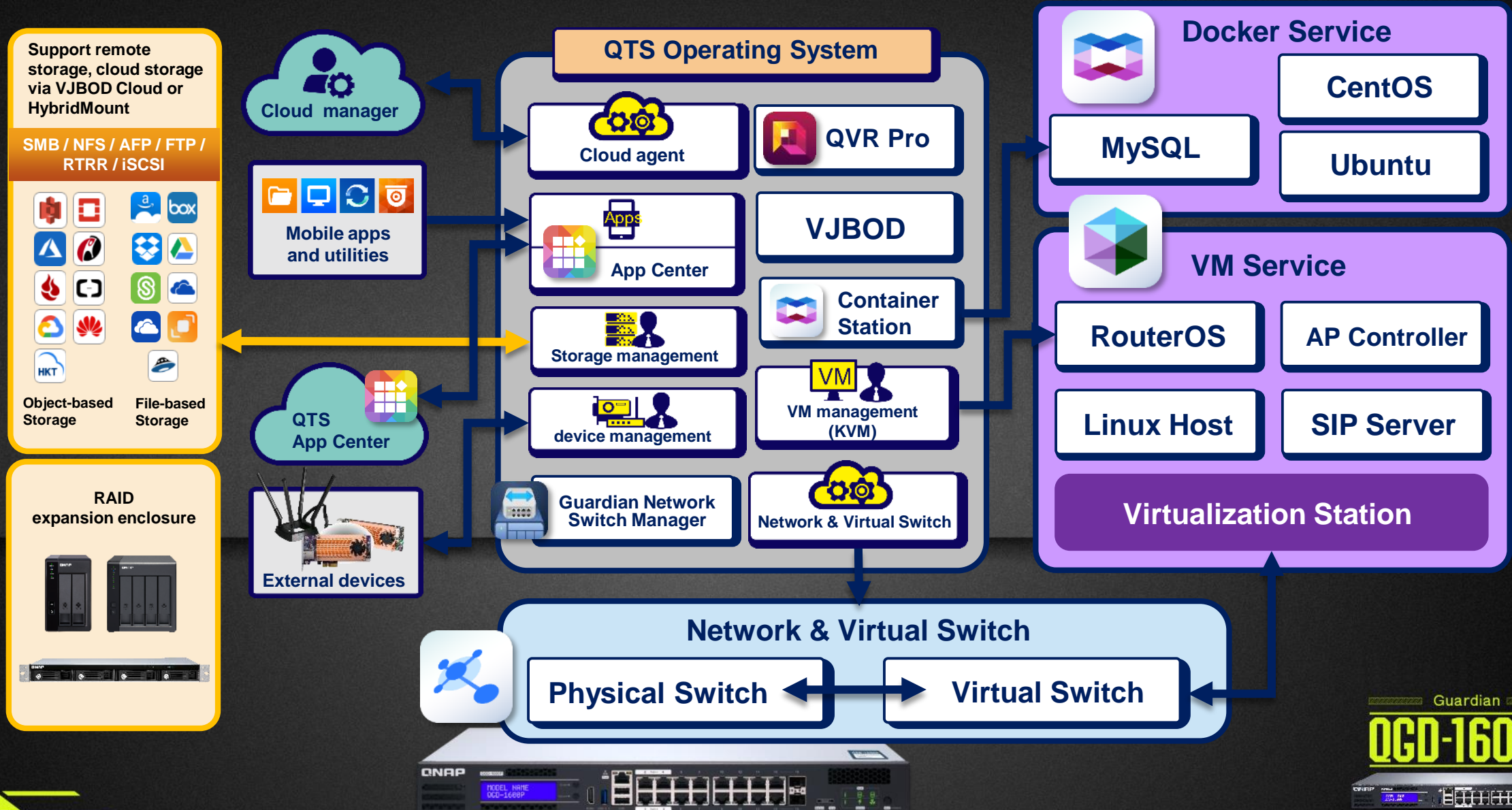
LIVE DEMO

QGD-1600P





# QGD-1600P software architecture





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Guardian's unique strengths and features

**L2 Network Management advantages**

**QGD-1600P**





# QuNetSwitch's friendly and intuitive graphical management 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.





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Guardian's unique strengths and features  
**PoE Features and advantages**

**QGD-1600P**





# Guardian Smart Edge PoE Switch- PoE Advantages

**Supports the new generation of IEEE 802.3 bt power supply standard**

**Camera device remote restart**

**PoE scheduling**

**Power supply priority configuration**

**High total power supply rate design 370 watts PoE power supply budget**

**Remote intelligent monitoring and management interface**

**Support 4 Port 60 watt (PoE++)  
12 Port 30 watt(PoE+)**





# QGD-1600P support the new generation of IEEE 802.3bt power supply standard

Supports the latest IEEE 802.3bt power protocol, **supporting 60 watts per port**, compatible with IEEE 802.3at / af power standard, with 4 ports 60 watts and 12 ports 30 watt PoE ports, capable of **outputting up to 370 watts of total power**, meeting various high-power PoE power supply devices.

Up to  
**15.4 Watts**

Up to  
**30 Watts**

Up to  
**60 Watts**

Up to  
**100 Watts**





# Support PoE device remote restart

When the administrator finds that the PoE device is not working properly, for example, PoE camera is down. Administrators can remotely reboot the device through the Guardian managed interface, saving time and effort.



# Support PoE power scheduling management

With PoE scheduling function, it can set the power supply only on the specified working day and time to save energy and save electricity, and save extra power cost for you!

The screenshot displays the QuNetSwitch web interface with the 'PoE' configuration menu selected. A 'PoE Schedule Configuration' dialog box is open, showing a table for selecting ports and a calendar for scheduling power supply. The background interface shows a list of ports with their power consumption and schedules.

**PoE Schedule Configuration**

Bottom:

Ports	1	3	5	7	9	11	13	15
Selected	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Schedule:

Time	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon.																								
Tue.																								
Wed.																								
Thu.																								
Fri.																								
Sat.																								
Sun.																								

☐ On ☐ Off

☐ Activate schedule now

Save Cancel



# Support remote login management interface

Guardian supports the PoE remote management interface, allowing you to remotely log in and manage your PoE devices wherever you are, allowing you to monitor your device's power usage immediately.



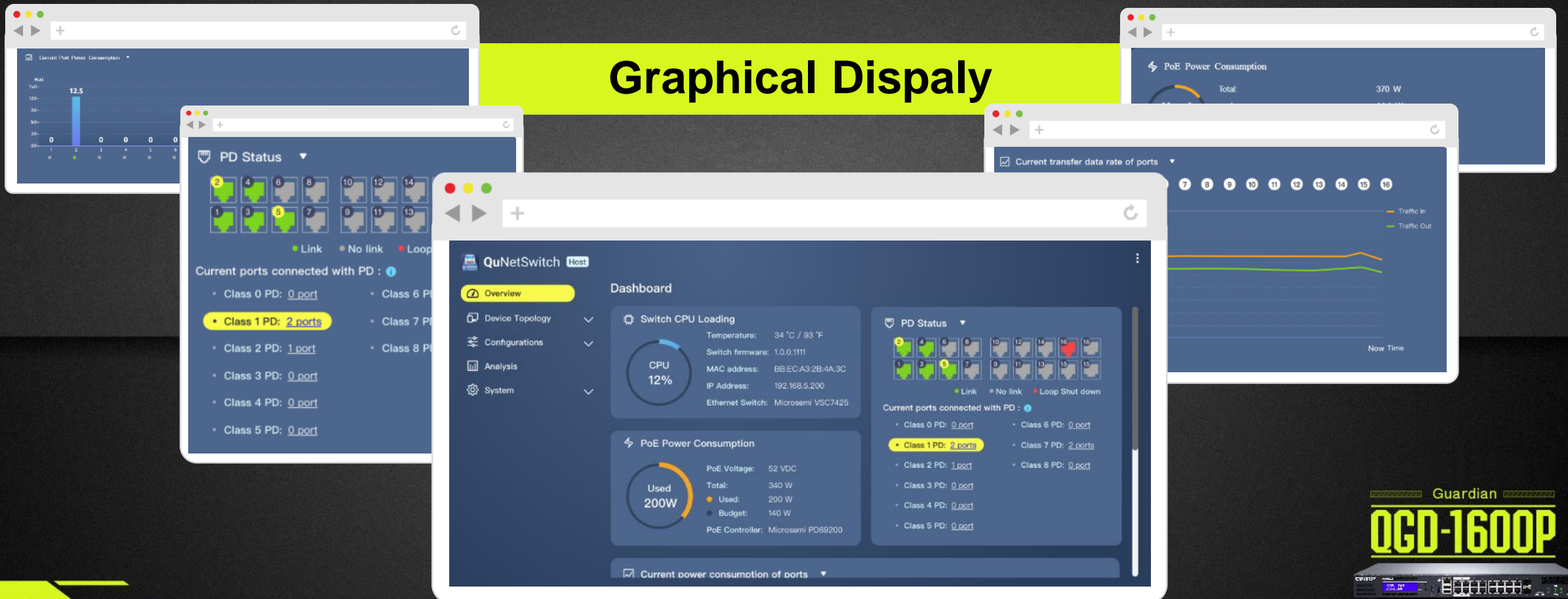
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**QGD-1600P**



# Rich graphical data display

Guardian provides rich graphical PoE data information, including timely power consumption status, available wattage information, and various PoE operation status, so that enterprises can effectively grasp the power usage status of the equipment.

## Graphical Display





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Guardian's unique strengths and features

QTS Applications

QGD-1600P

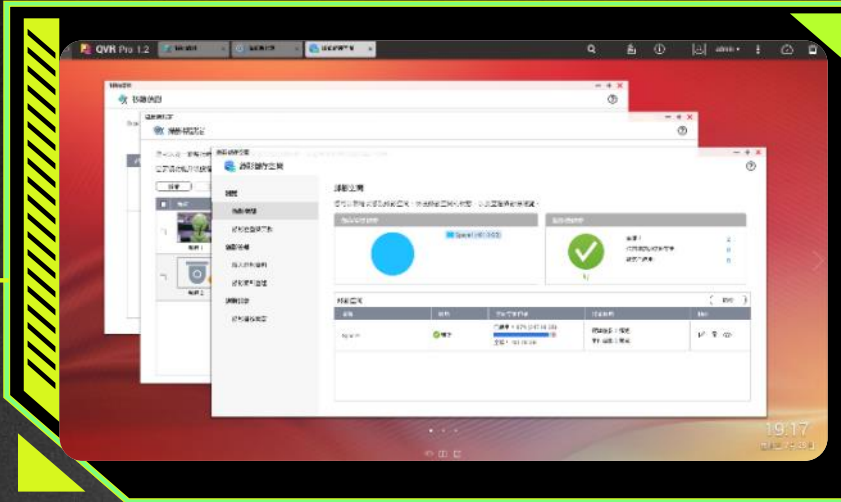




# Guardian X QVR Pro complete solution



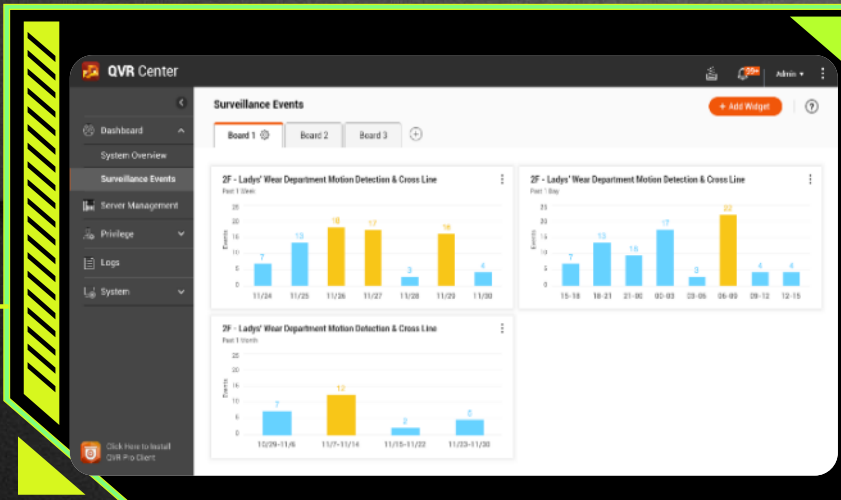
QVR Pro



QVR Pro Client



QVR Center



QVR Guard

**QVR Guard Management**

QVR Pro Server: Normal

QVR Guard: Standby

Connected

Model name: 191885  
QTS version: 4.5.0.006 20180305

Model name: 191885  
QTS version: 4.5.0.006 20180305

Logs

Index	Level	Date & Time	Server IP	Server Name	Mount name	Content
427	Info	2019/07/21 10:00:45	172.17.31.211	FW6062	FW6062	[Guard] Stopped taking over FW6062.
428	Info	2019/07/21 10:00:46	172.17.31.211	FW6062	FW6062	[Guard] FW6062 became normal. Guard prepared to stop taking over FW6062.
429	Info	2019/07/21 10:00:47	172.17.31.211	FW6062	FW6062	[Guard] FW6062 was taken over normally.
430	Info	2019/07/21 10:00:48	172.17.31.211	FW6062	FW6062	[Guard] FW6062 became normal. Guard prepared to stop taking over FW6062.
431	Info	2019/07/21 10:00:49	172.17.31.211	FW6062	FW6062	[Guard] Stopped taking over FW6062.
432	Info	2019/07/21 10:00:50	172.17.31.211	FW6062	FW6062	[Guard] FW6062 became normal. Guard prepared to stop taking over FW6062.
433	Info	2019/07/21 10:00:51	172.17.31.211	FW6062	FW6062	[Guard] Stopped taking over FW6062.
434	Info	2019/07/21 10:00:52	172.17.31.211	FW6062	FW6062	[Guard] FW6062 became normal. Guard prepared to stop taking over FW6062.

Display Item: 1/10, Total: 41 | Show: 10 | Page: 1/5

Guardian  
**QGD-1600P**

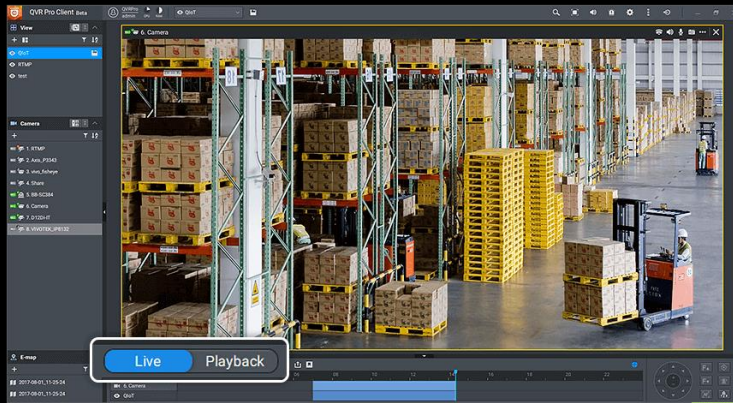




# Guardian X QVR Pro complete solution

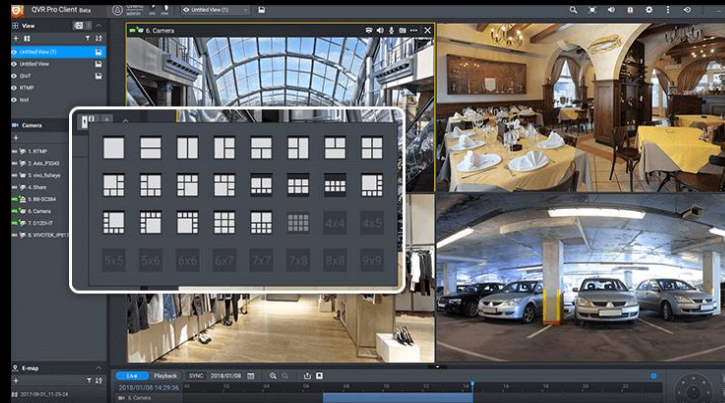
## Instant Playback

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.



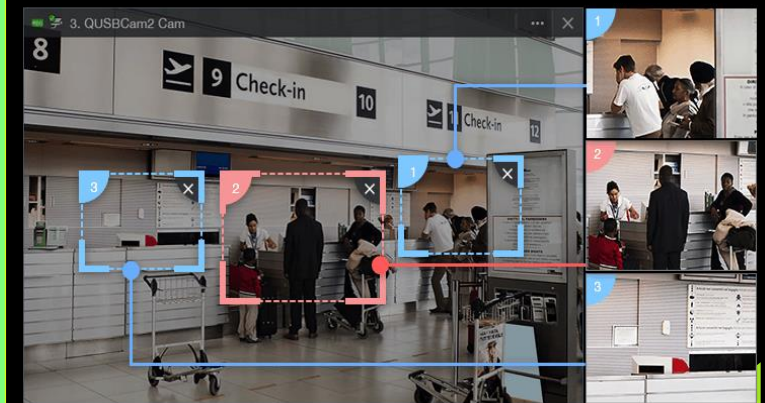
## Dynamic Layout

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

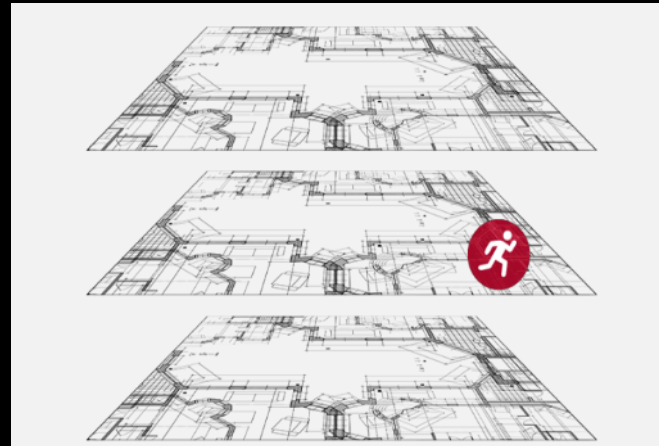
## Qdewarp Technology

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.



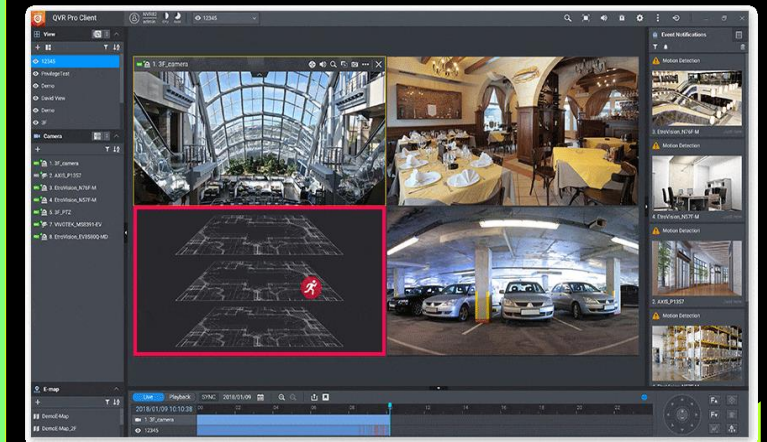
## E-map

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 machine and container, one machine and multiple systems

Virtualization Station and Container 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

**OpenWrt**  
Wireless Freedom

*MikroTik*  
RouterOS

**pfSense**

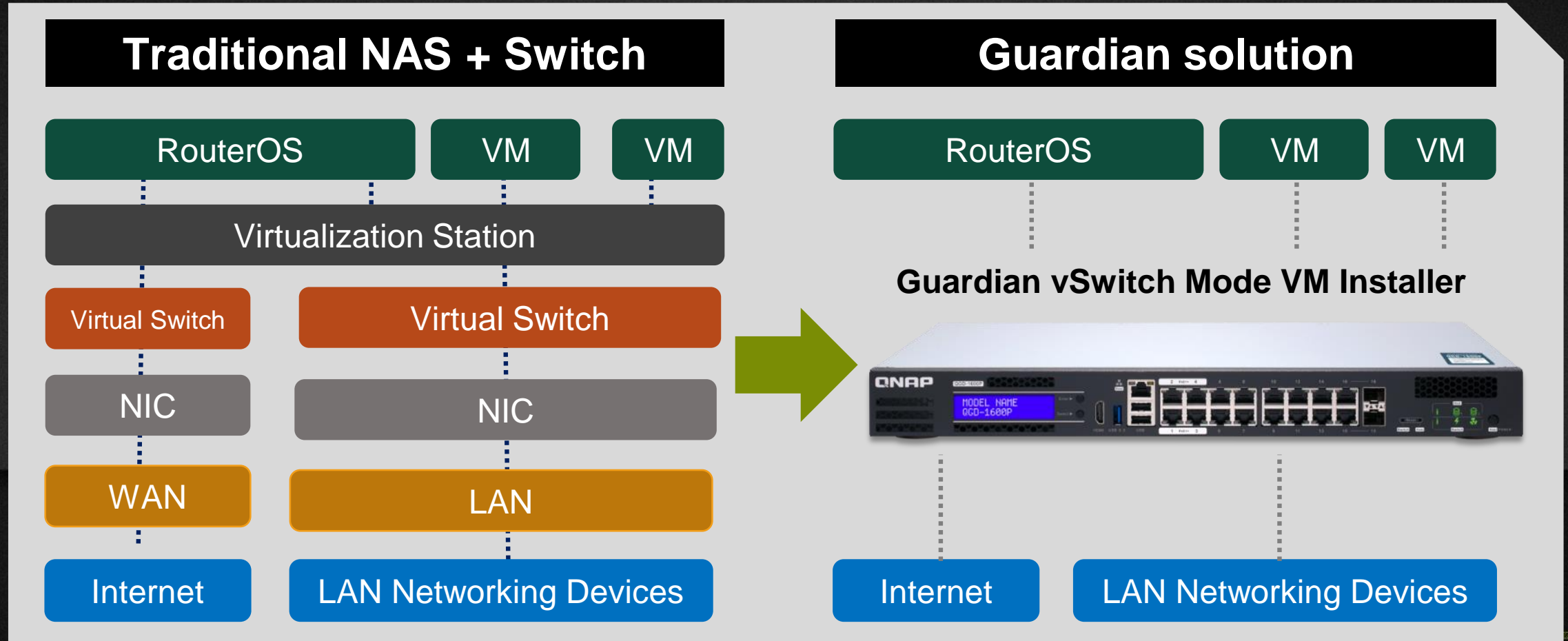


Container Station





# Guardian provides fast and convenient VM build services



**QGD-1600P**



# Support VM Installer for quick and easy VM software setup

Simple installation three steps, saving a lot of construction 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 'Configure a virtual machine' section is active. 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'. The next section says 'Here you can select a location where you want to create the virtual machine and naming.' It includes a 'VM image location:' field with a 'Browse' button and a 'VM Name:' field 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 'Network for WAN' section is active. It says 'Build a WAN or more with setting a virtual switch and assigned physical port on (mode)'. There is a list of virtual switches with checkboxes. Below this, a 'Description:' field contains 'RouterOS WAN-1'. A 'Port:' section shows a grid of radio buttons for Port 1 through Port 12. Port 1 is 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 'Virtual Machine for your \$RouterOSName' section is active. It shows 'RouterOS VM image location: /Public' and 'RouterOS VM Name: RouterOS test'. The 'Network Setup:' section shows a table of virtual switches and their assigned ports.

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

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



# Double your productivity

## 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 TS-328.

## 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.

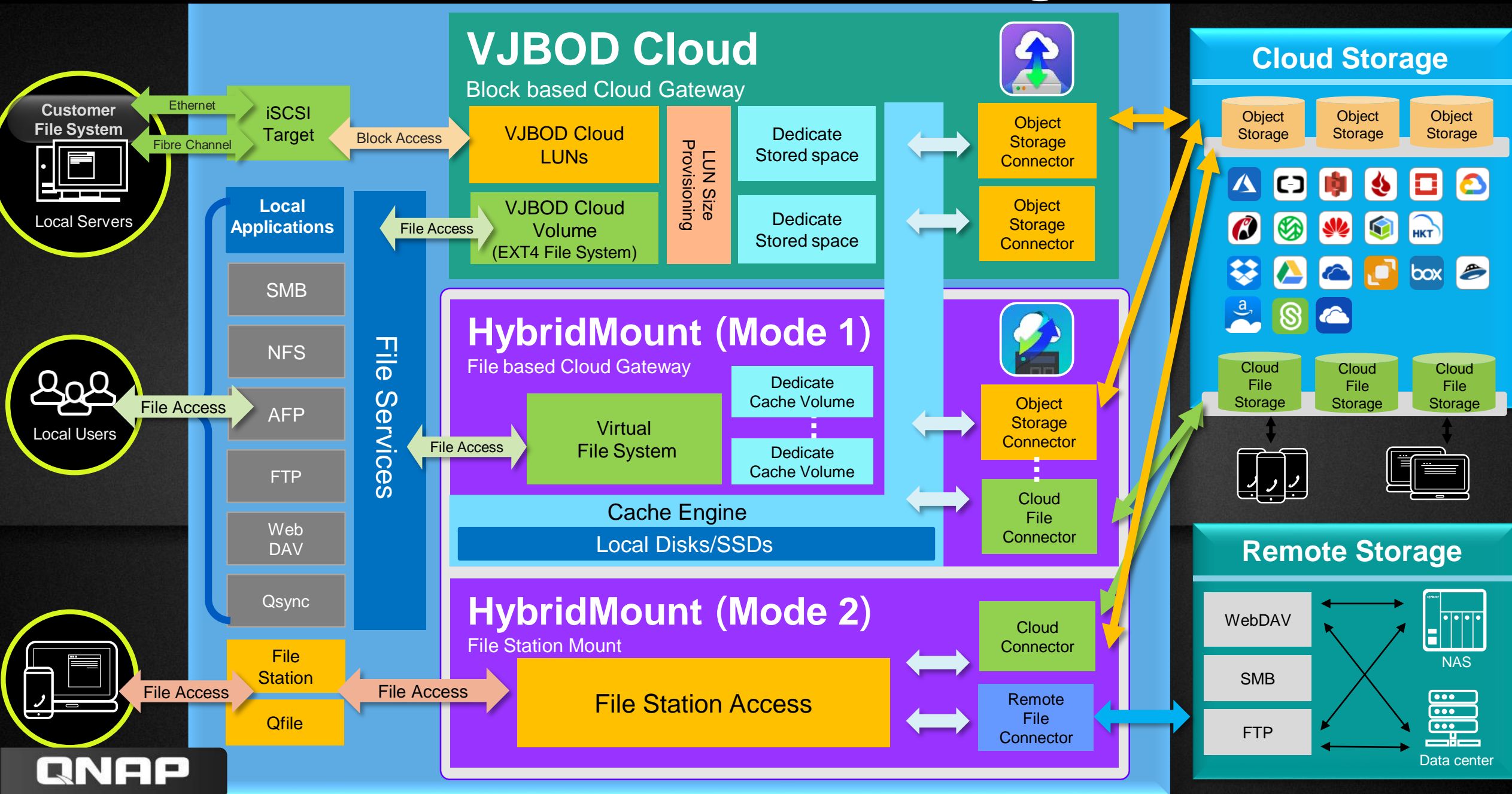
## Smart Filing



### Qfiling

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

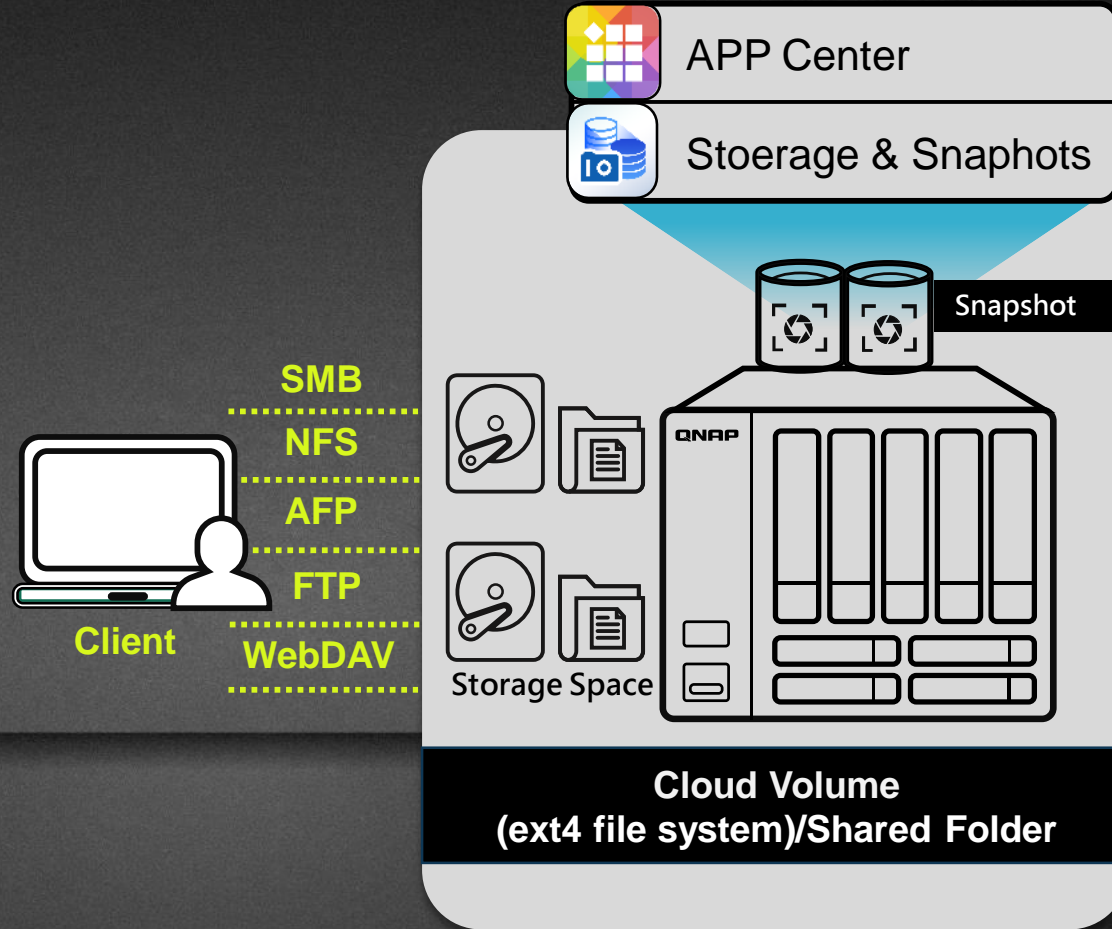
# QTS / Guardian Storage





# 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.







## Cloud object storage space





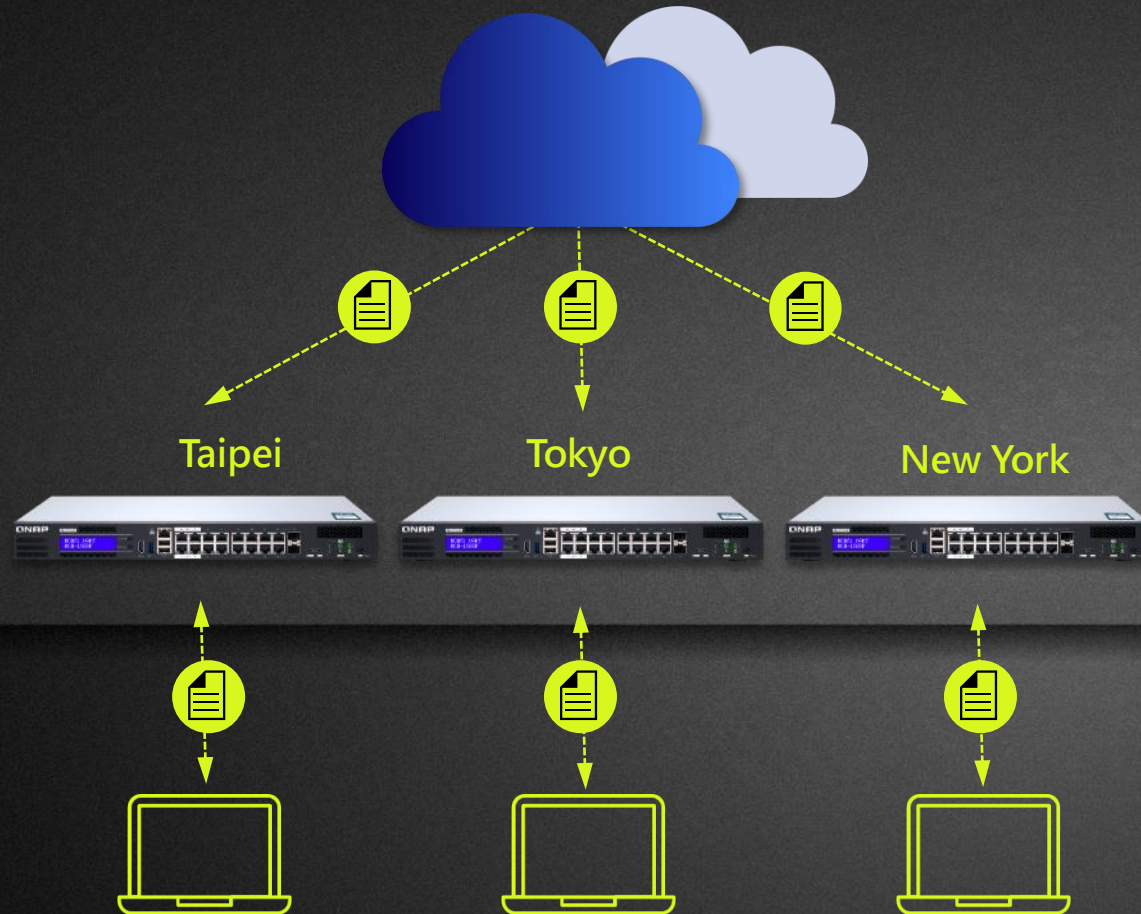
# HybridMount 2 Modes On Your Demand

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

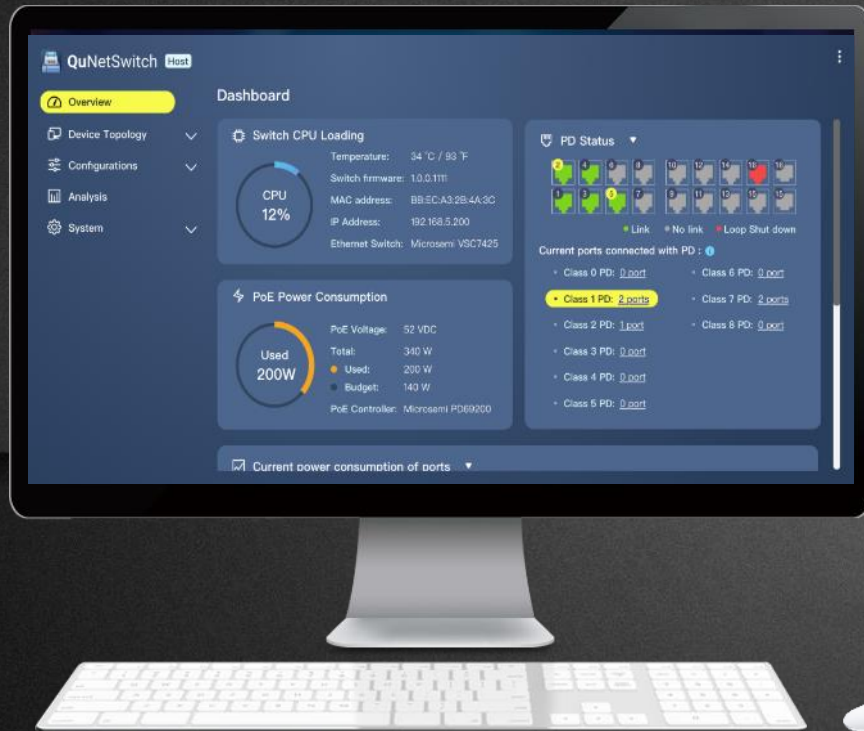
**Eliminate the traditional VPN time-consuming and laborious access method**





# 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**





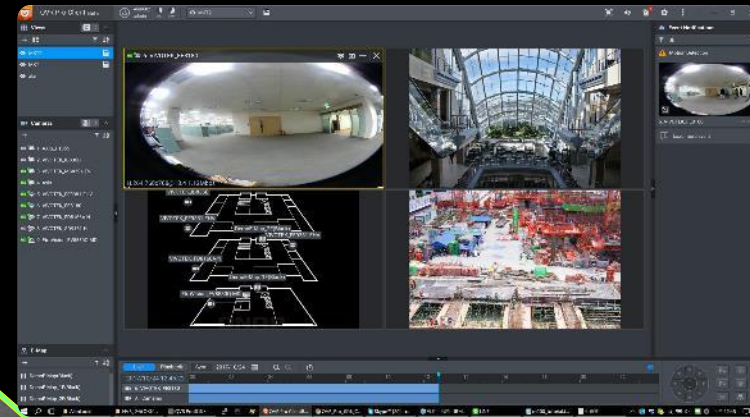
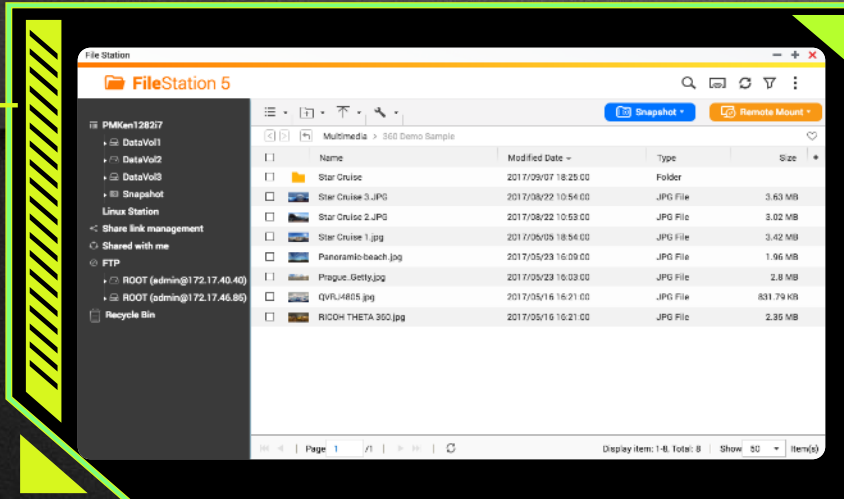
# HD Station rich application

A variety of web apps let you get started quickly.

QTS



File Station



QVR Pro Client

QVR Pro Client  
can also view  
monitoring  
screens directly

QuNetSwitch





QNAP

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

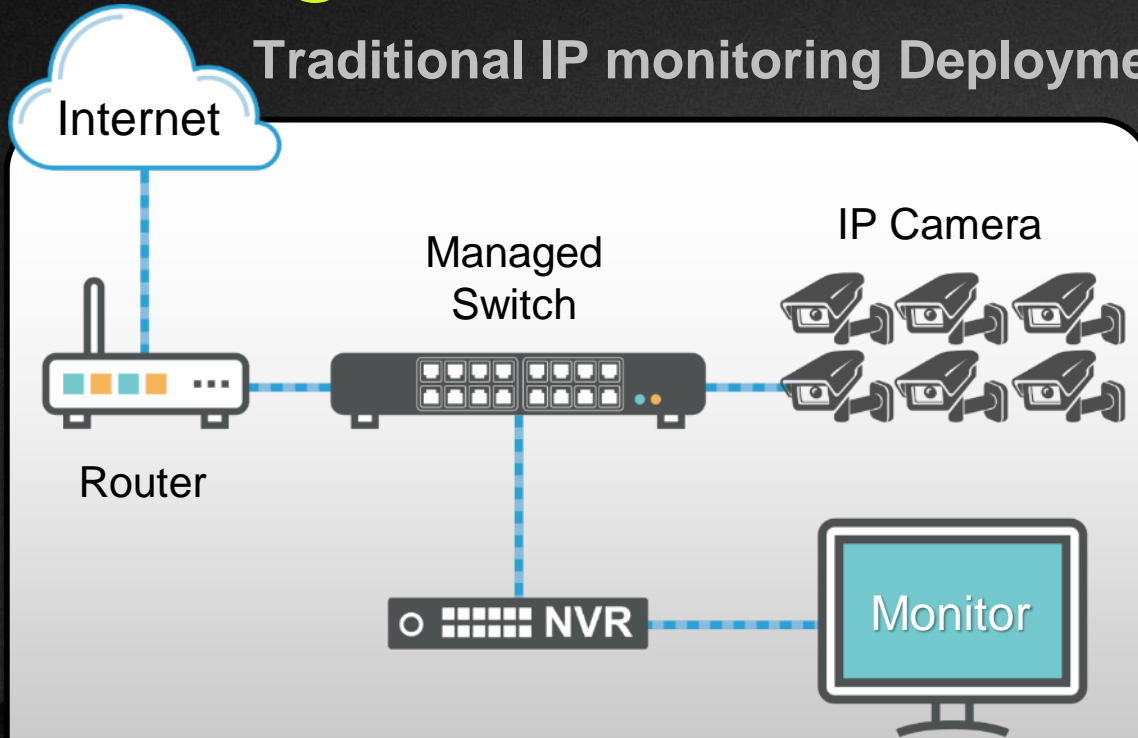
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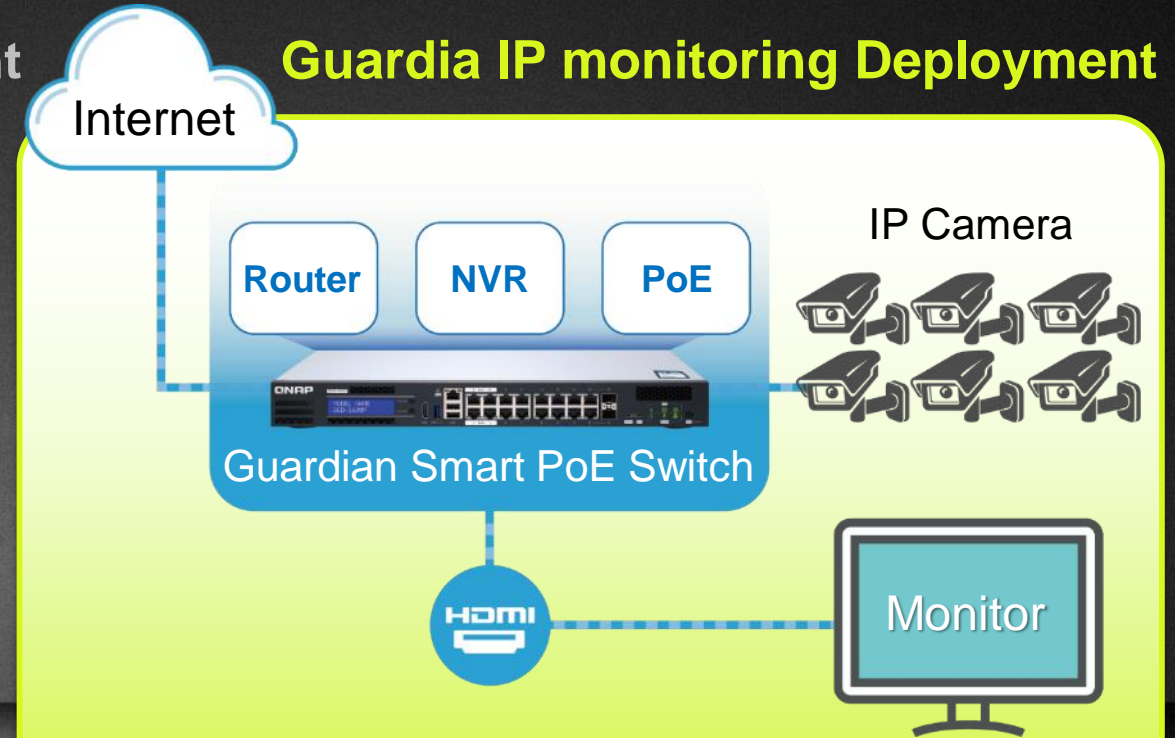
# Guardian brings a new IP surveillance integrated solution

## Traditional IP monitoring Deployment



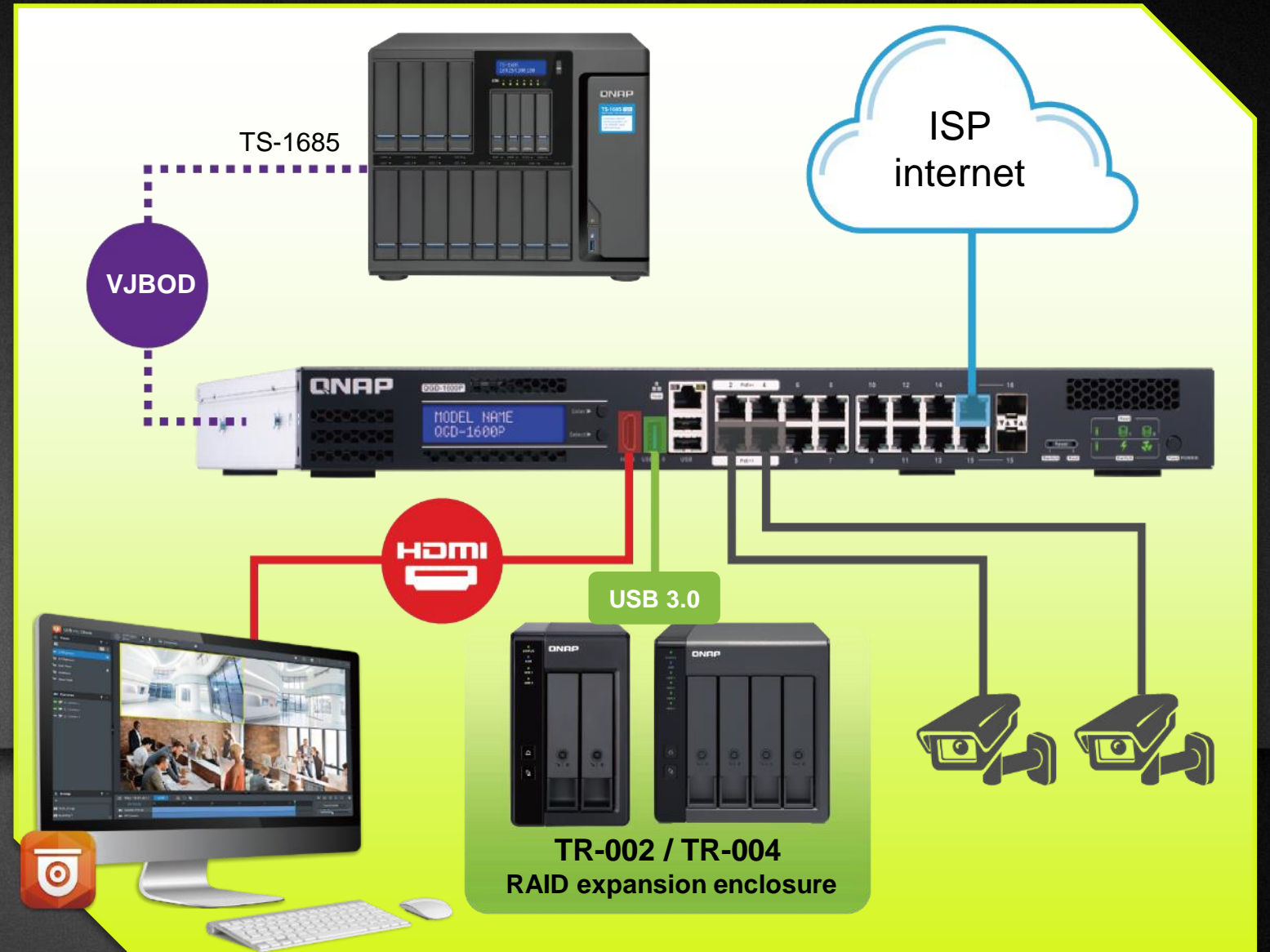
- Need to buy a variety of equipment, cost increases
- Complex wiring, difficult to build and maintain
- Low scalability, difficult to cope with future changes

## Guardia IP monitoring Deployment



- One machine can meet storage, NVR, router, PoE power supply
- A new generation of IEEE 802.3bt PoE power supply for all kinds of high-profile cameras
- Highly flexible function deployment, high scalability

# Guardian X QVR Pro Individual User Deployment Diagram



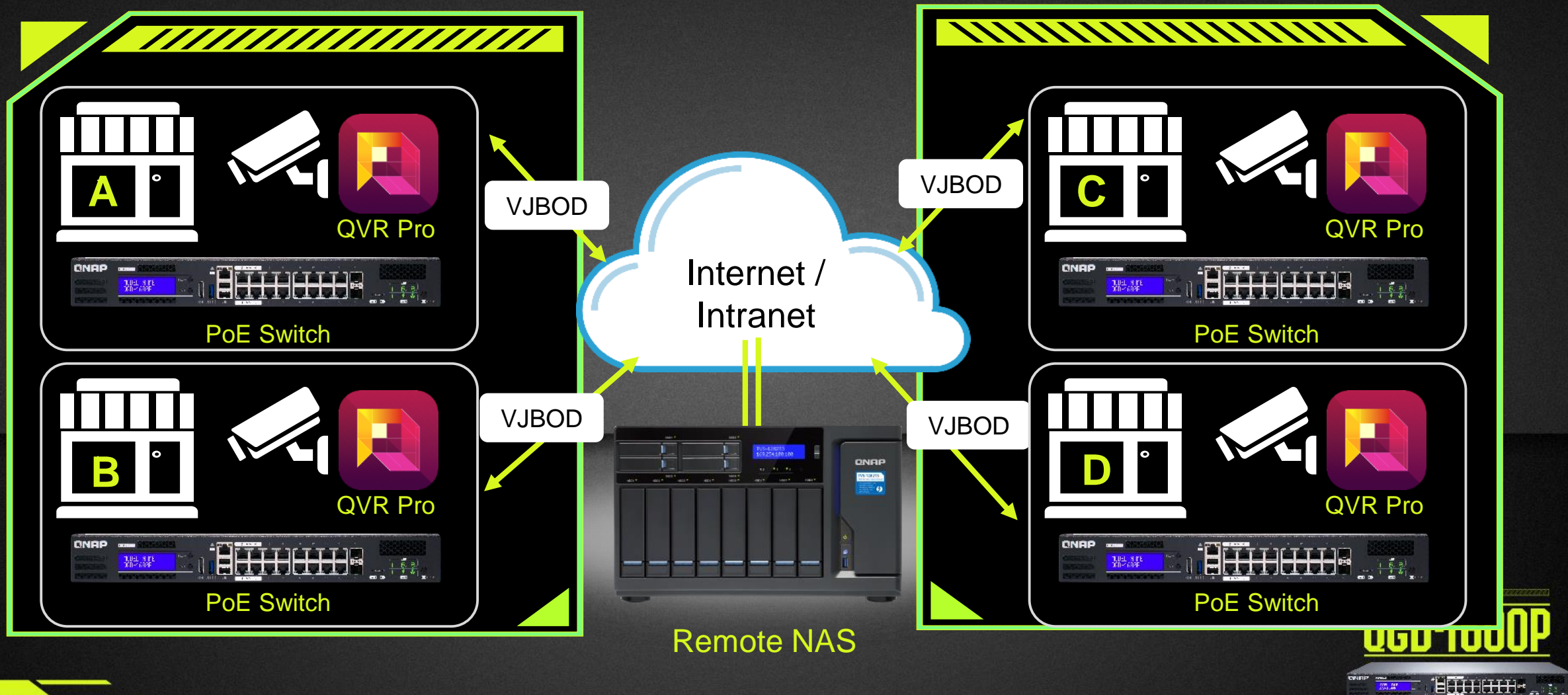
**QGD-1600P**





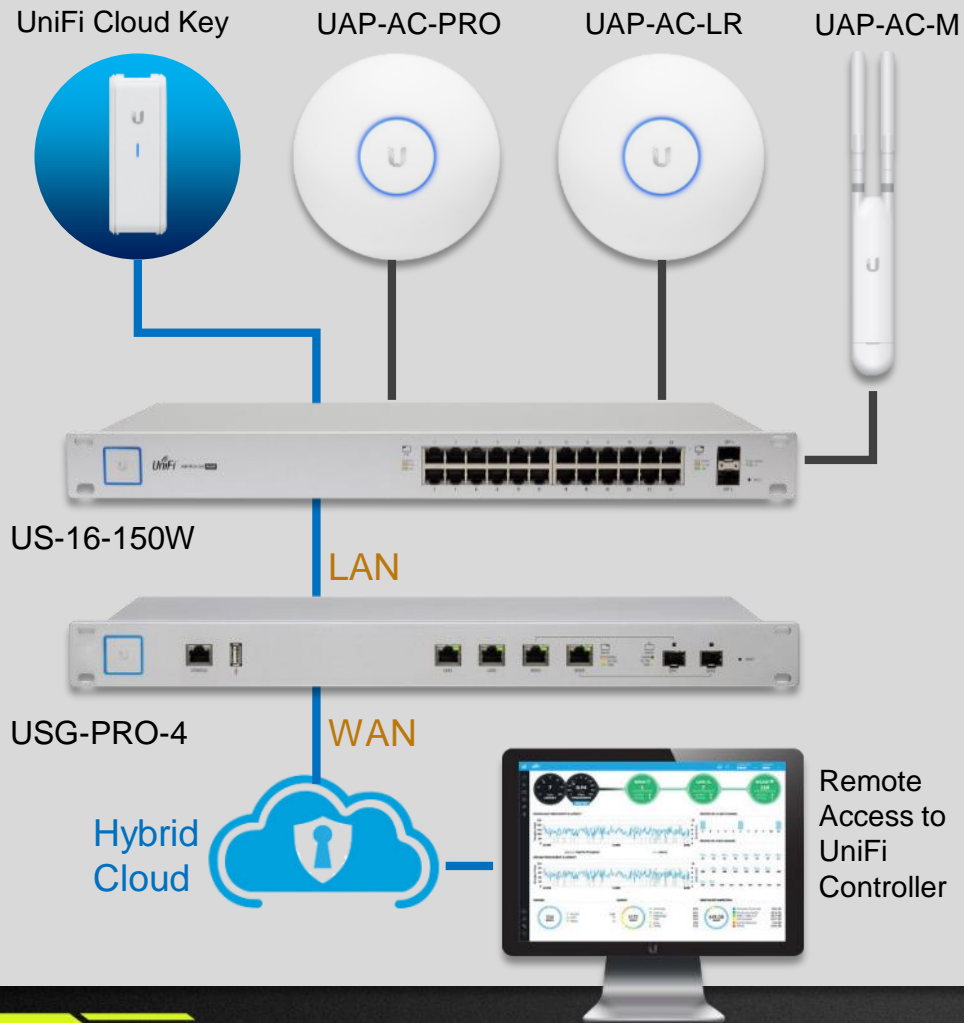
# Guardian X QVR Pro

## Enterprise User / Multipoint Management



# Guardian Commercial Wireless AP Integrated Solution

## Traditional Deployment



## Guardian solution



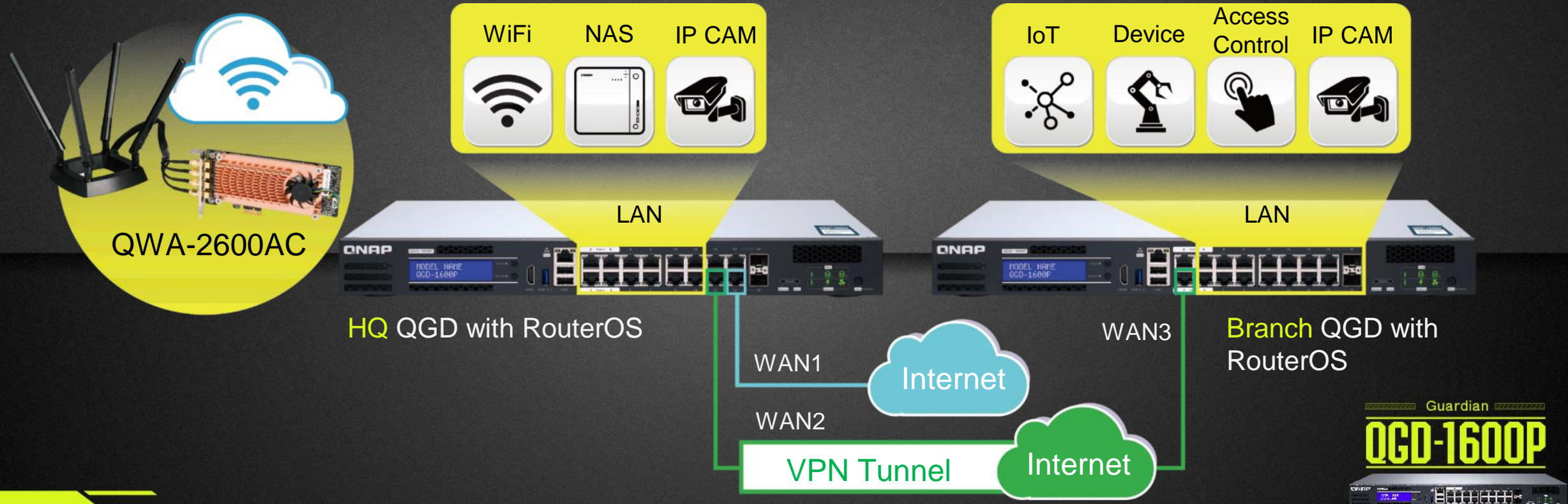
## Advantages

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

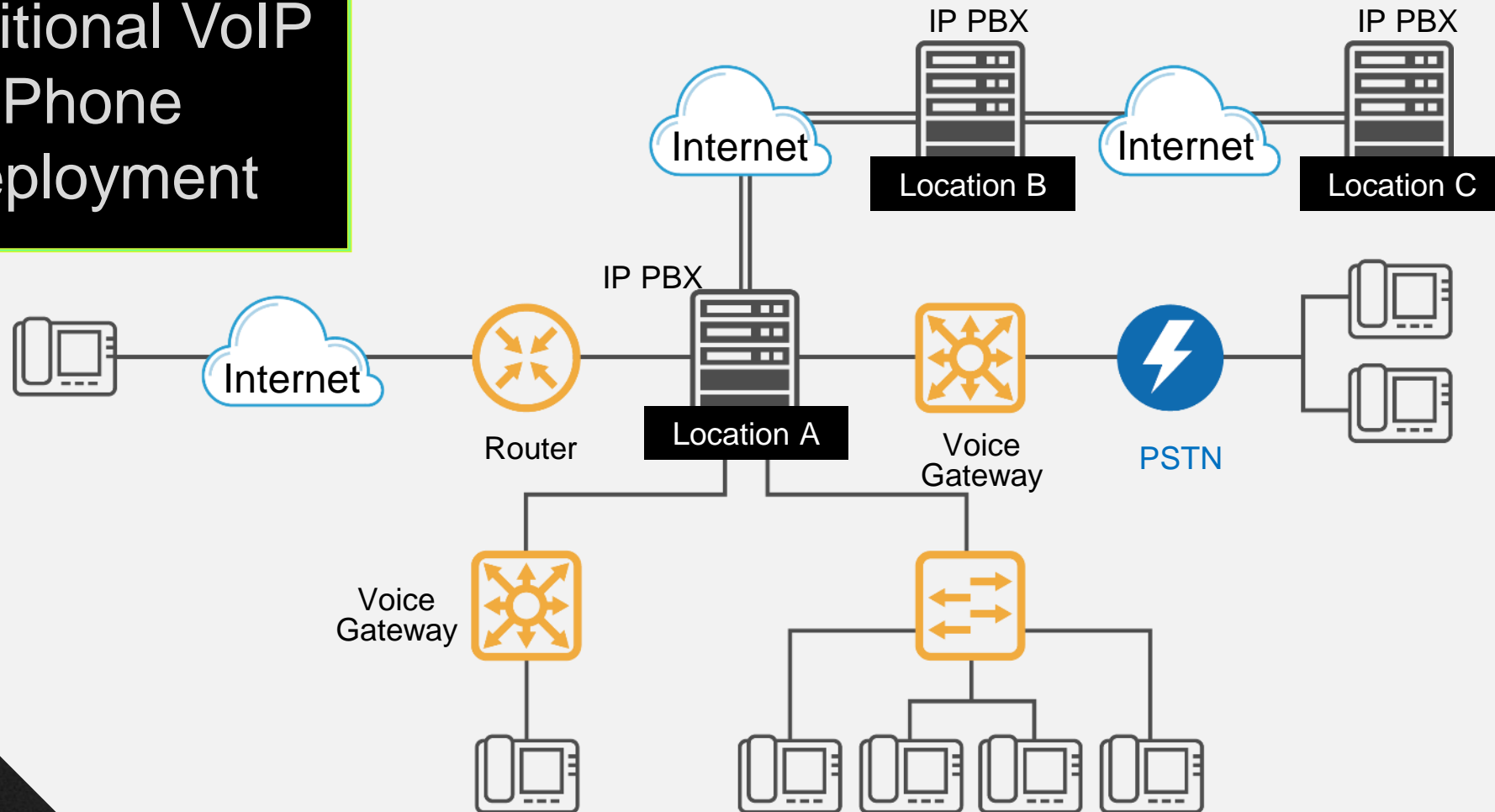
QGD-1600P supports the installation of pfSense firewall software on virtual machines to effectively block external network intrusion threats. In addition, for enterprise intranets, protection and blocking can be implemented according to requirements, which can effectively improve the information security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





# Guardian brings IP Phone integrated solution

## Traditional VoIP Phone Deployment

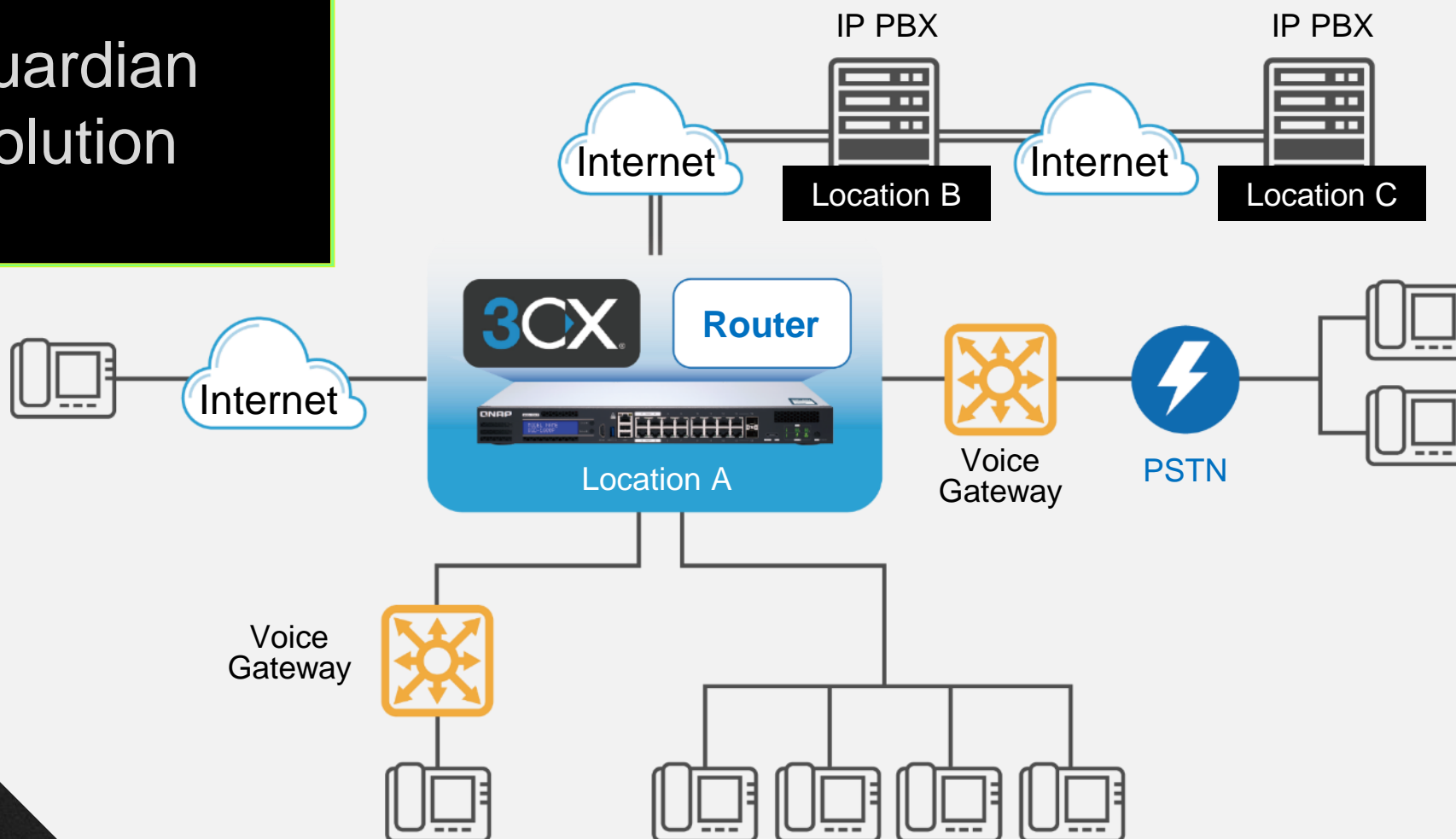


Guardian  
**QGD-1600P**



# Guardian brings IP Phone integrated solution

Guardian  
solution



Guardian  
**QGD-1600P**





QNAP

Guardian's  
diverse use scenes

QGD-1600P



# Guardian solution for Restaurant and Retail Store

## PoE

### Surveillance

Powering multiple cameras and integrating QVR Pro solution



### Electronic menu

Provide power and networking capabilities



### Point of Sales

Consumption behavior analysis and data storage



### Wireless Access

Provides AP device power and supports installation of AP Controller software



### Digital Signage

Provide power and content management



### Data storage/backup

Save customer data, work documents, letter materials



Guardian  
**QGD-1600P**



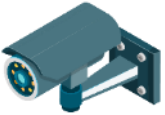


# Guardian solution for SMB and workstation

## PoE

### Surveillance

Powering multiple cameras and integrating QVR Pro solution



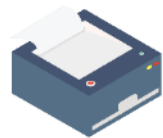
### Wireless Access

Provides AP device power and supports installation of AP Controller software



### Network device

Provide Network management and Internet access requirements for devices



### Firewall

Protect corporate internal network from external intrusions and internal network attacks



### Wake on Lan

allows a computer/ NAS to be turned on or awakened by a network message



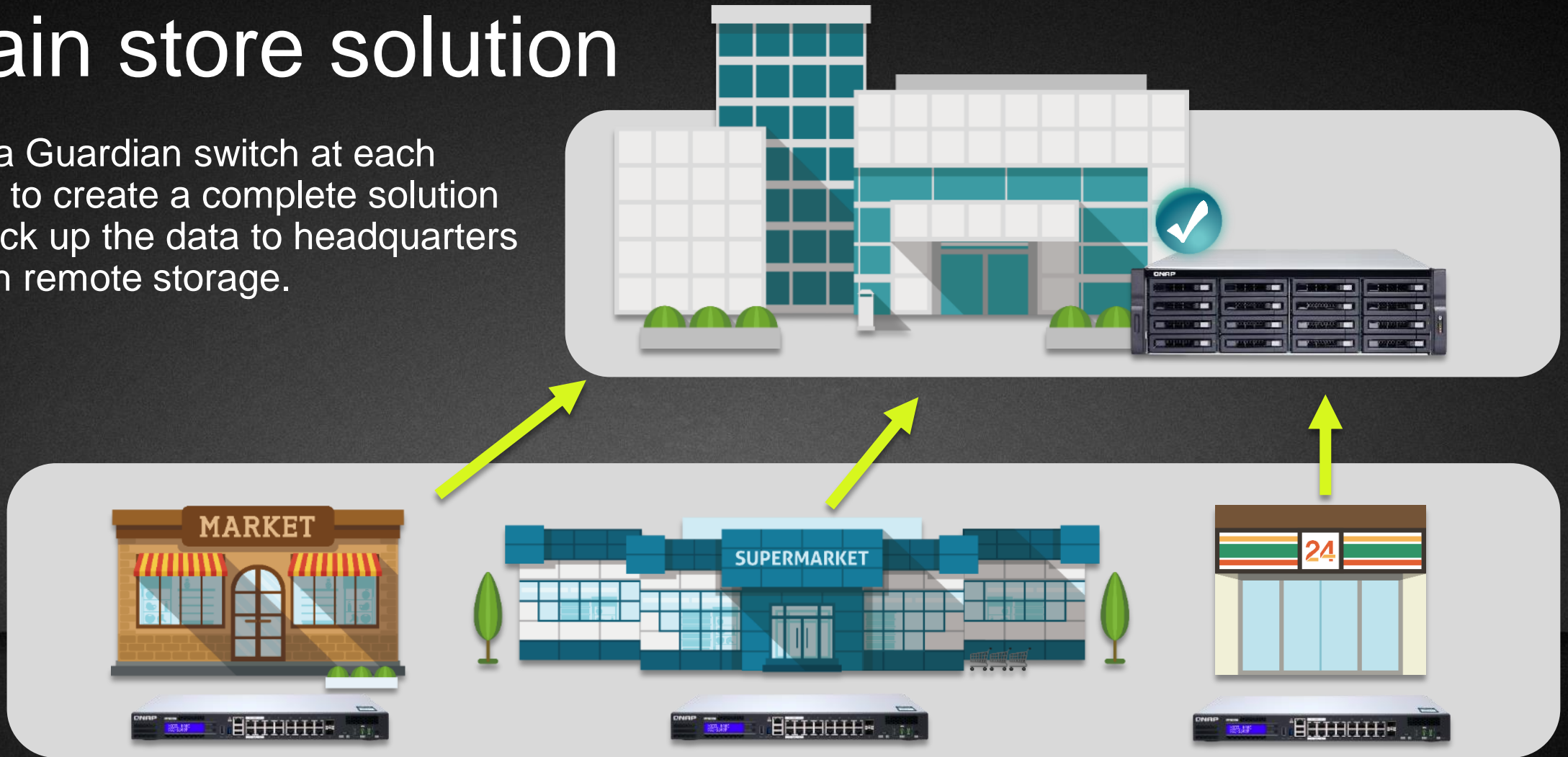
Guardian  
**QGD-1600P**





# 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.



Guardian  
**QGD-1600P**

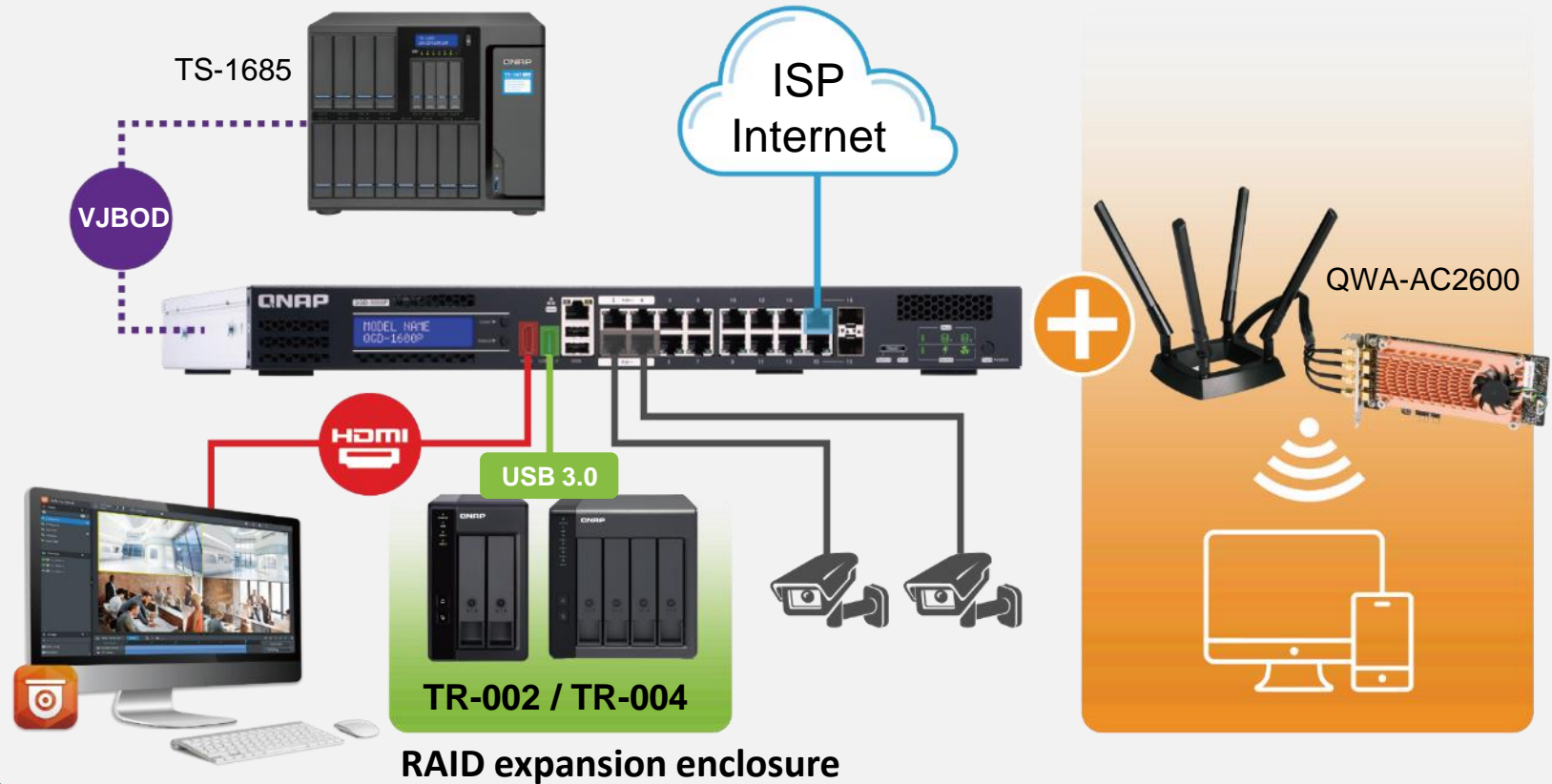


Live Demo

# Create a one-machine surveillance solution

## 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 PoE exchangers on the market, you have a better choice!

# Guardian Smart Edge PoE Switch





# Guardian Smart Edge PoE 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.



Guardian QGD-1600P



QNAP

Your Best Choice

QGD-1600P

