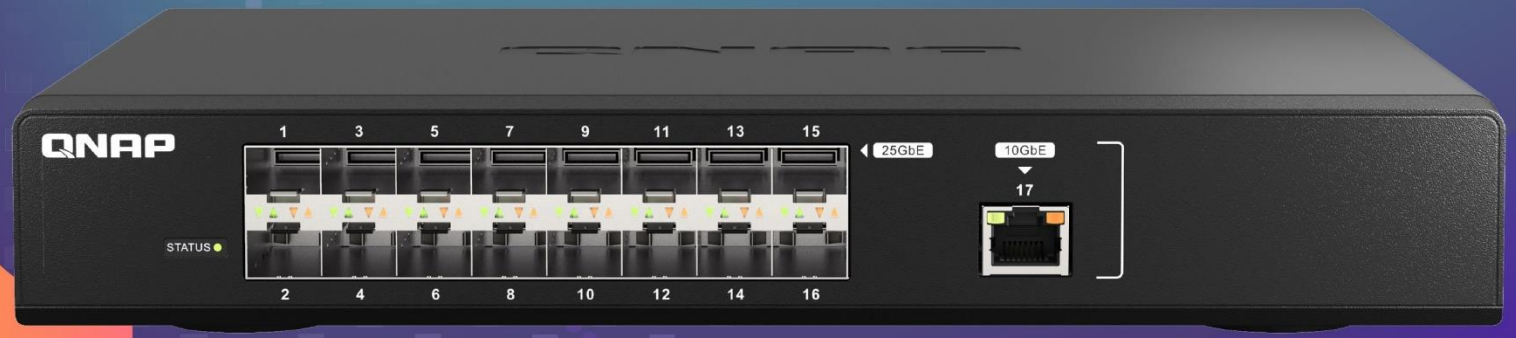
QNAP

QSW-M5216-1T

L2 25GbE/10GbE Managed Switch

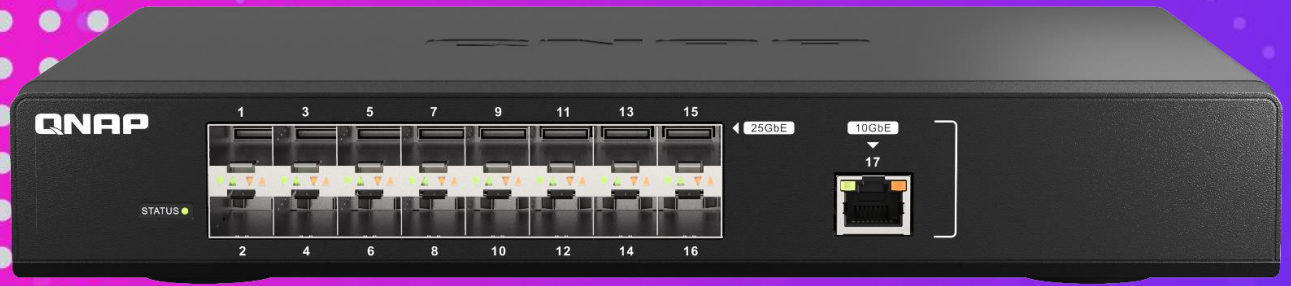
Affordable high-speed network for SMB



25GbE

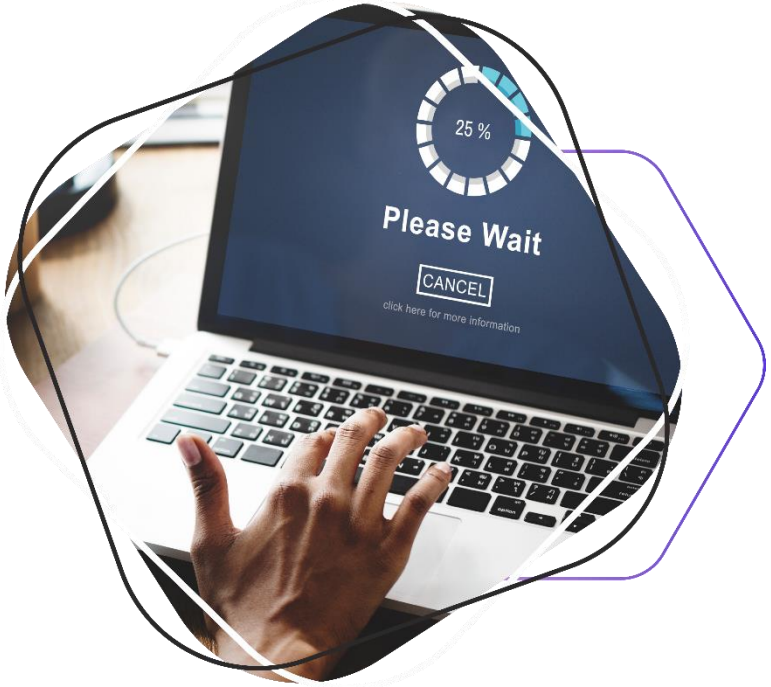
LAYER 2

MARVELL™



10GbE is still not enough?!

Already 10GbE but…..



Need to wait for a while after every click on the system button

Unsmooth file transferring

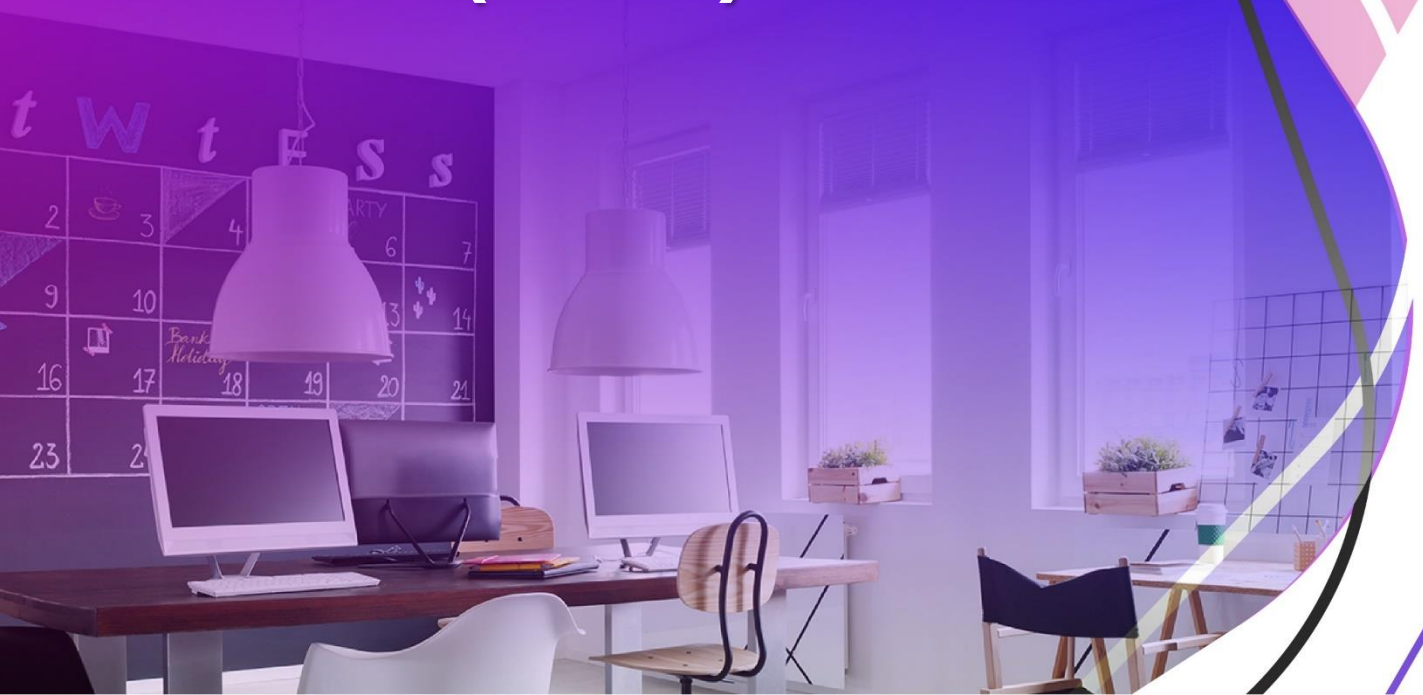
Data was lost in the middle of a project due to backup failure

10GbE is not Enough!

Here are the ways to solve it

- Link Aggregation (LACP)
- Offload traffic
- QoS (Quality of Service)
- Upgrade to 25GbE or 40GbE

Link Aggregation
(LACP)



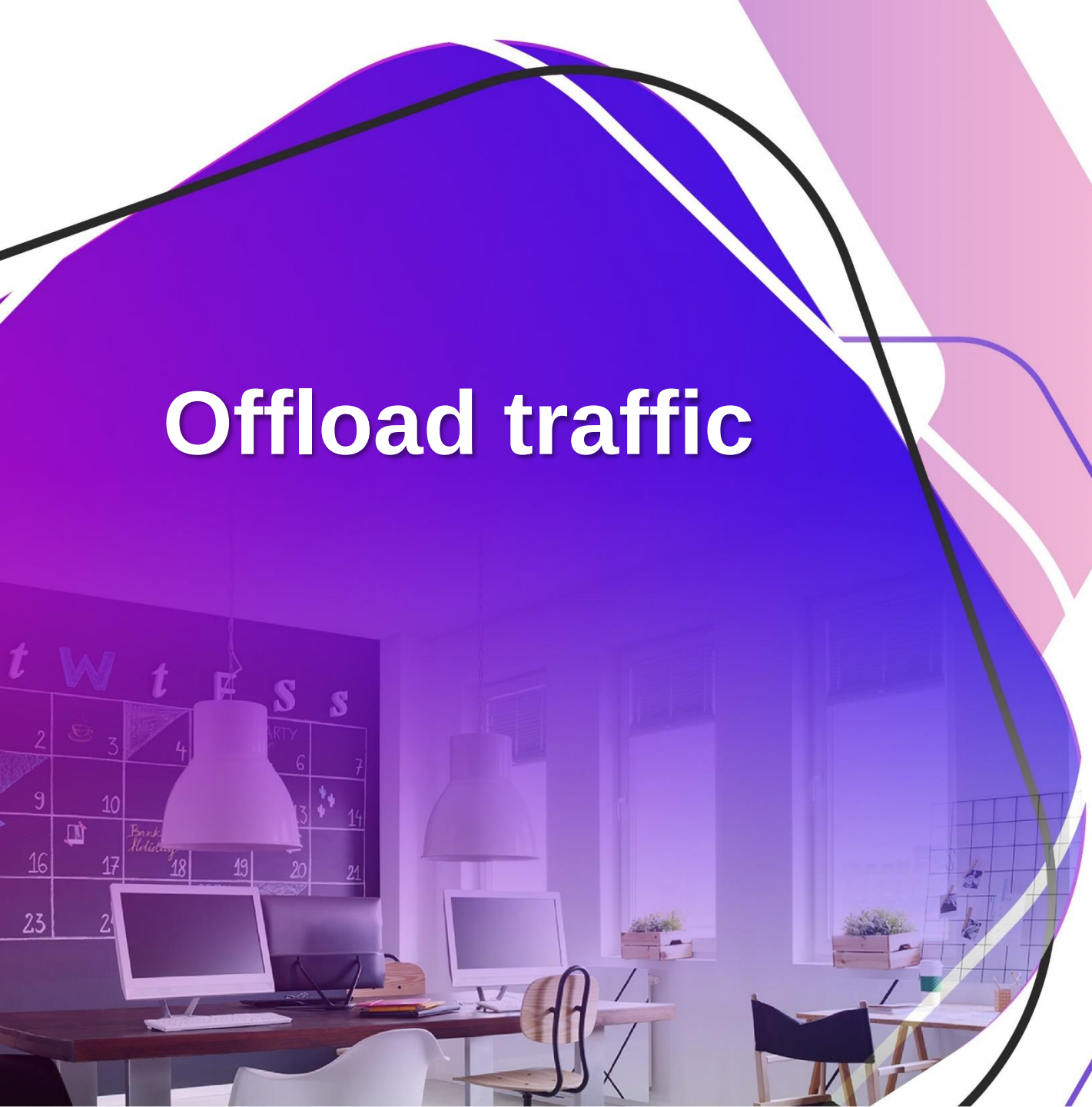
Pros

- Increase bandwidth but not to have big change on network infrastructure

Cons

- Need additional port
- 10GbE+10GbE is not equal to 20GbE

Offload traffic



Pros

- Offload the traffic to different server/NAS

Cons

- Need more equipment
- Increase the cost
- Would need to re-layout network infrastructure
- Setup network again and more complicated
- Max. bandwidth is still the same

QoS
(Quality of Service)

Pros

- Don’t need to change existing infrastructure
- Don’t need to buy additional equipment

Cons

- Bandwidth is still the same
- If overall traffic is over bandwidth, it depends on priority to server

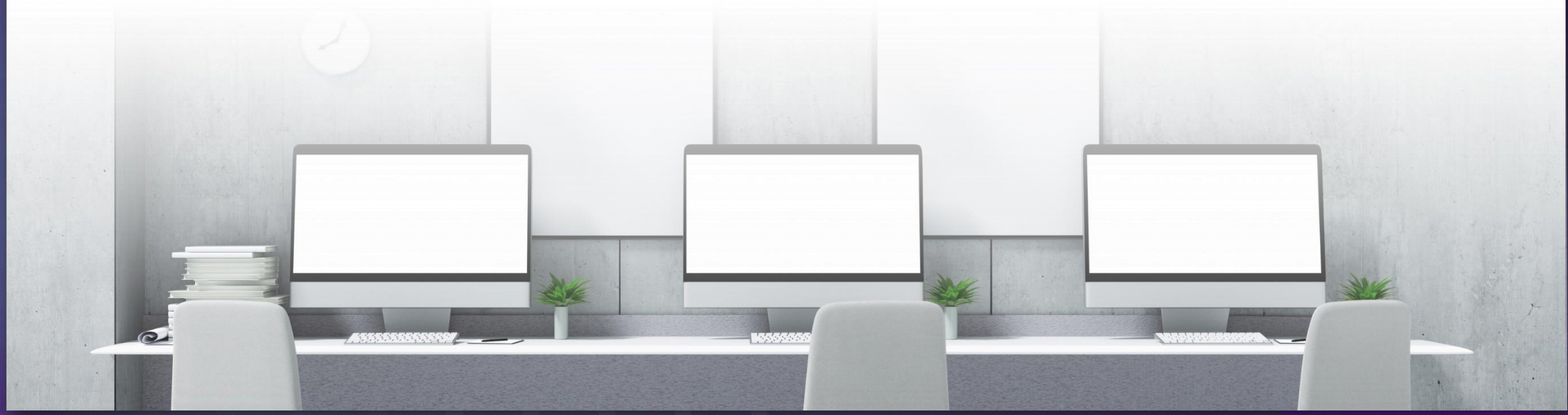
Upgrade to 25GbE or 40GbE

- Cost?
- Future upgrade?

No system engineers and lacked IT expertise

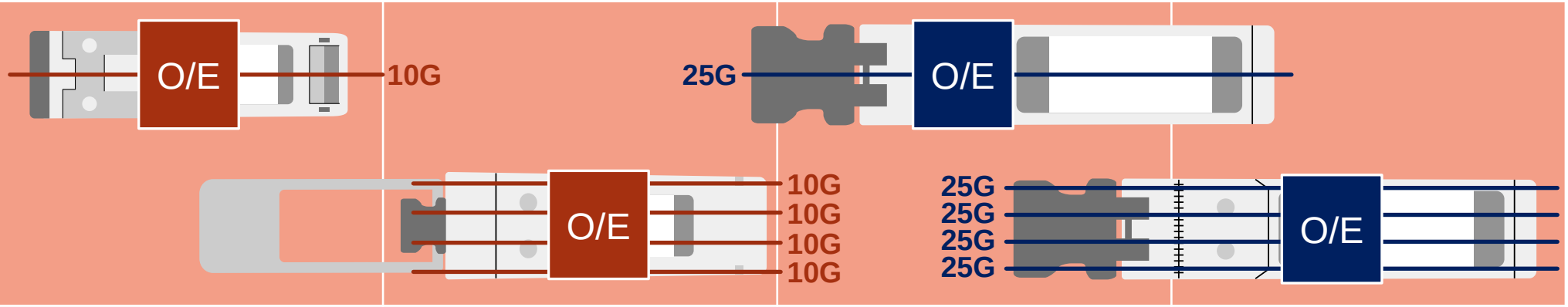
Compare 25GbE and 40GbE cable

Characteristics/Requirement	25GbE	40GbE
Clock Rate	25.78GHz	10.31GHz
Connector	SFP28	QSFP+
Cable Material Cost	**Low**	High
Simpler Transition to 100G	**Yes**	No

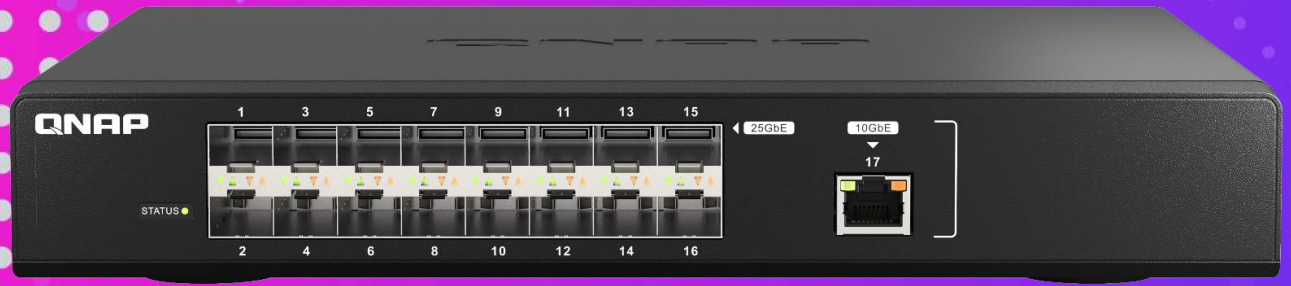


Why we say 25GbE is much easier transition to 100GbE in the future

Easy for upgrading from transceiver point of view

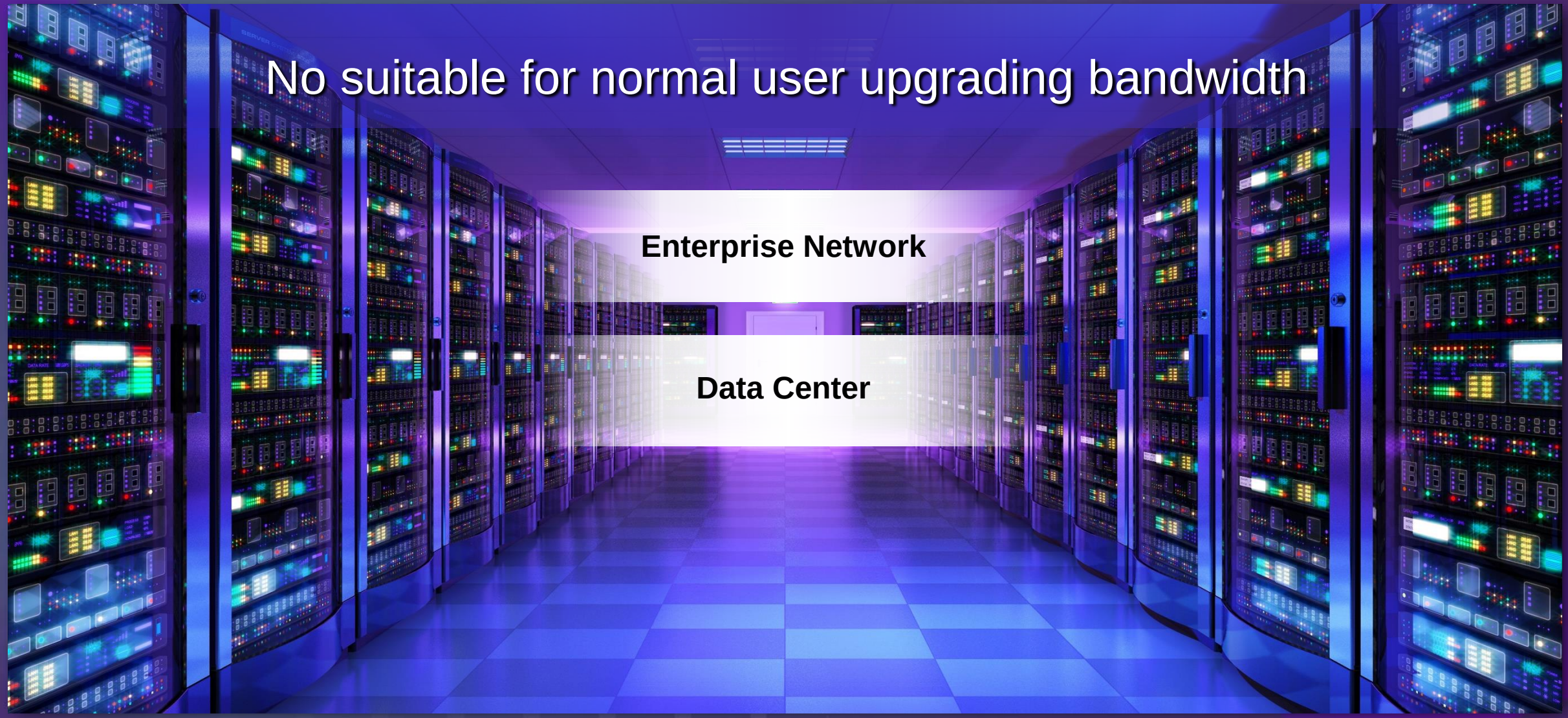


Ethernet Types	10G	40G	25G	100G
Lane Speed (Gbps)	10	10	25	25
Lanes Per Port	1	4	1	4



25GbE upgrades your network

Who are target audiences for current 25GbE switch market?



The spec in current 25GbE switch market?

- Lots of ports:24~48 even more ports
- Complicated configuration and not easy to set up
- The design concept of device from GUI to HW are all for high end usage like data center

Expensive!

- If 25GbE is not mandatory, users won't buy it

48X1/10/25GBPS SFP28 AC PSU FAN

New
$18,348.84

48 SFP28 Ports, 8 QSFP28 Ports Data Center Smart Ethernet Switch

New
$11,000.00

48P 10/25G 4P 100G

Brand: Visipax

New (4) from $7,467.00

Brand: Amazon Renewed

- 48 x 10/25-Gbps and 6 x 40/100-Gbps QSFP28 ports
- 1/10/25-Gbps speeds
- 650W AC 930W DC or 1200W HVAC/HVDC

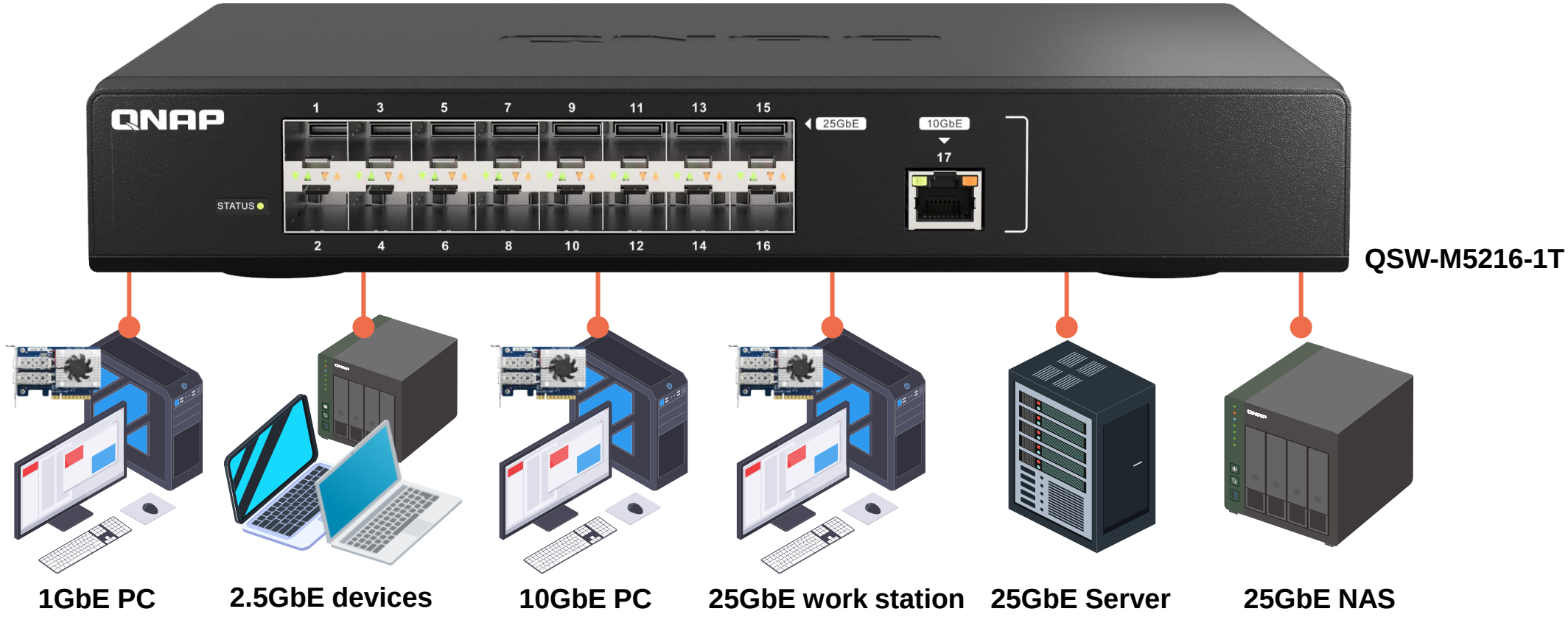
Renewed (2) from $10,387.00

Affordable 25GbE switch: QSW-M5216-1T

25GbE Layer 2 managed switch

Need all the clients to be upgraded 25GbE?

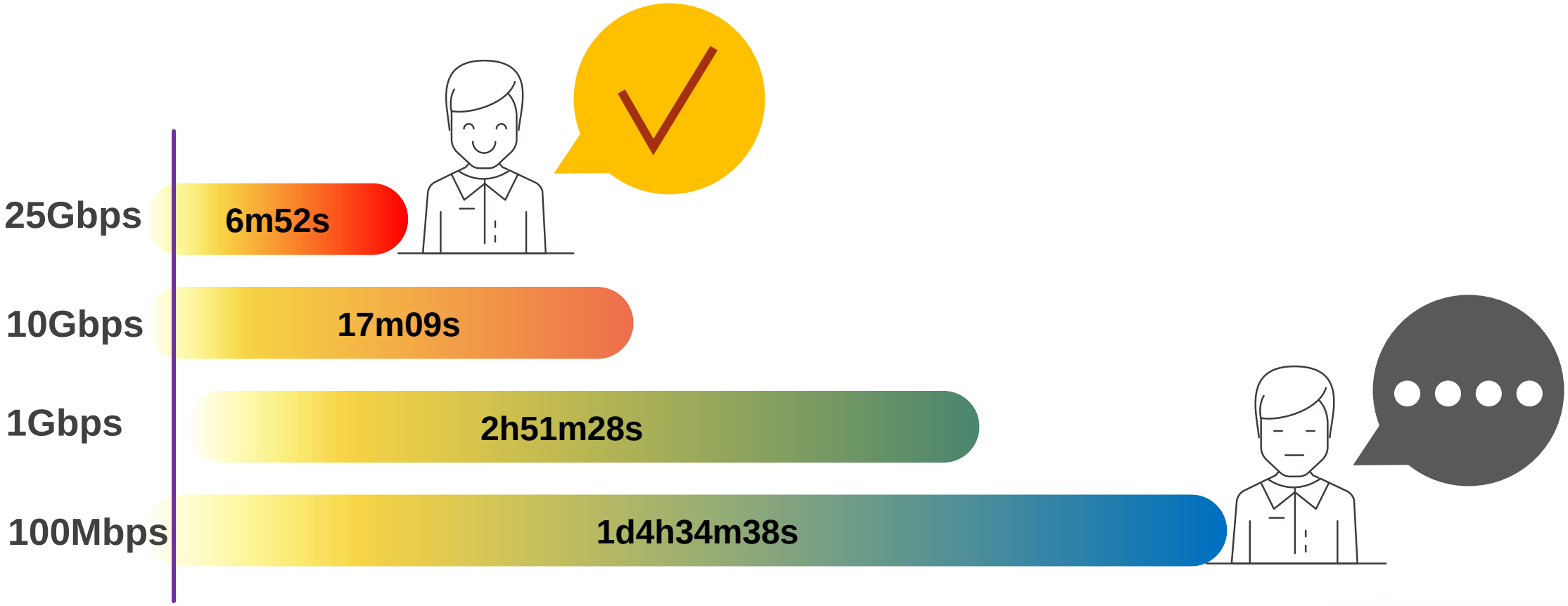
QSW-M5216-1T can fulfill the connectors of RJ45、SFP 、 SFP+、SFP28



How fast 25GbE is?

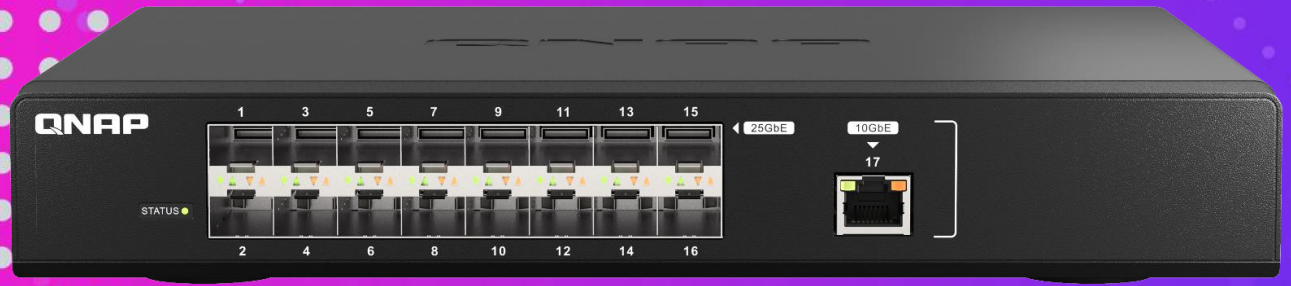
The estimated time to backup 1TB file

condition: Effective Data Rate 95%, Payload Data Rate (w/ Overhead) 90%



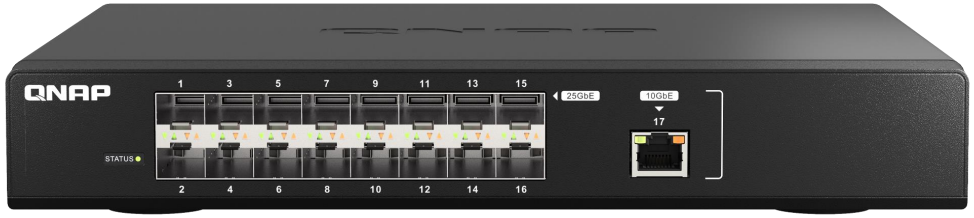
QSW-M5216-1T closer to the needs of SMBs

- Affordable
  - You can buy a 25GbE switch at a reasonable price
- Painless upgrade
  - 1GbE SFP and 10GbE SFP+ can be upgraded to 25GbE SFP28, and 25GbE SFP28 can be upgraded to 100GbE QSFP28 in the future



QSW-M5216-1T Hardware highlights

QSW-M5216 Hardware Spec



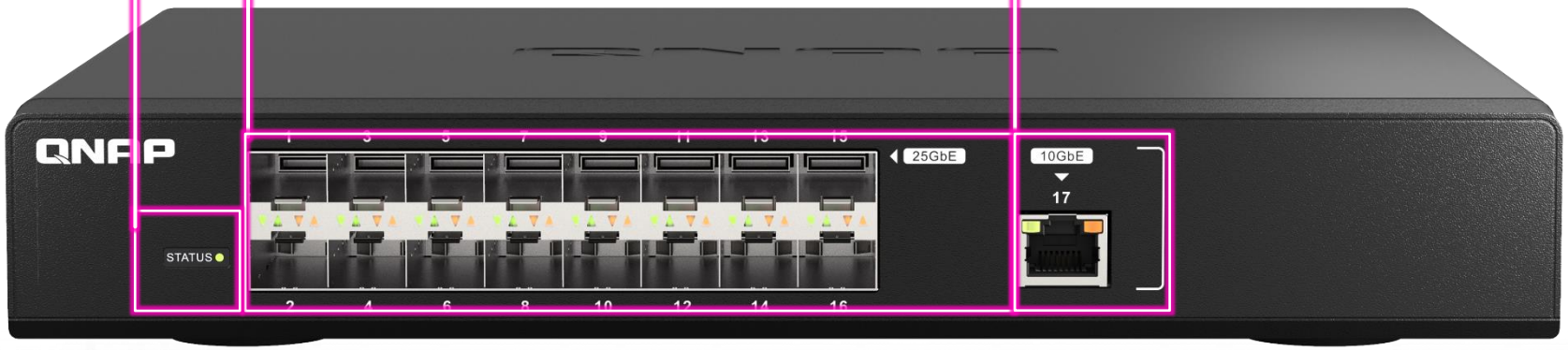
QSW-M5216-1T	
25GbE SFP28 (backward compatible with 10GbE SFP+/1GbE SFP)	16
10GbE NBASE-T (support five speeds 10GbE/5GbE/2.5GbE/1GbE/100M)	1
Switching Bandwidth	820Gbps
Packet buffer size	48Mbit
Jumbo Frame	9Kbytes
MAC table	32K
Fan	Yes

QSW-M5216-1T Interface

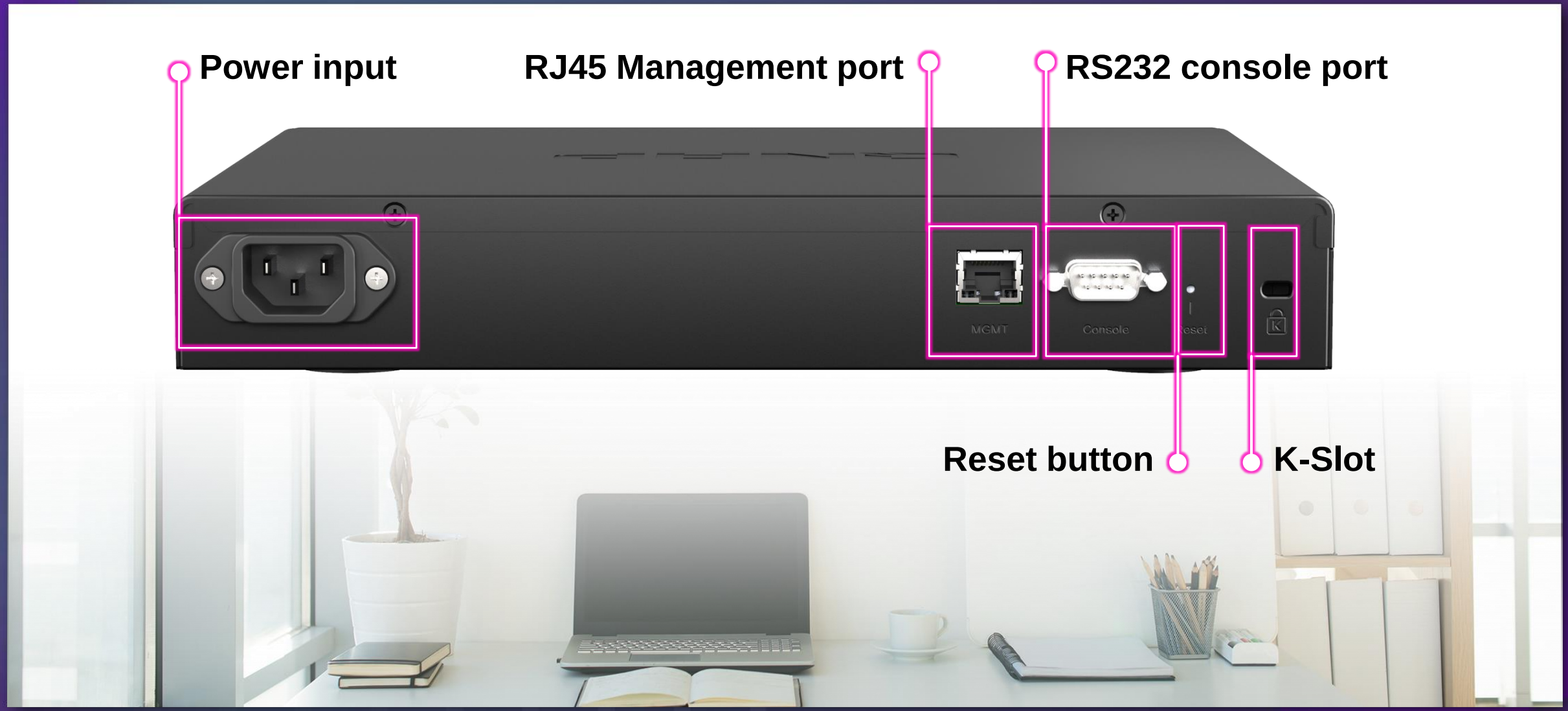
Status LED

25GbE SFP28
backward compatible with 10GbE SFP+/1GbE SFP

10GbE RJ45
support five speeds 10GbE/5GbE/2.5GbE/1GbE/100M

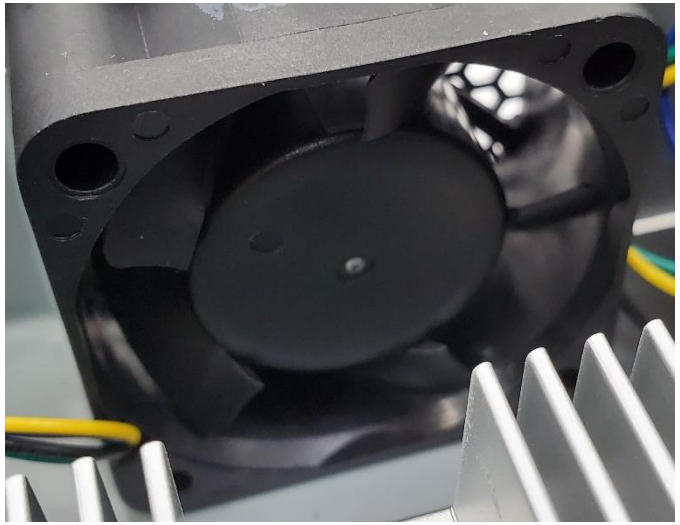


QSW-M5216-1T Interface

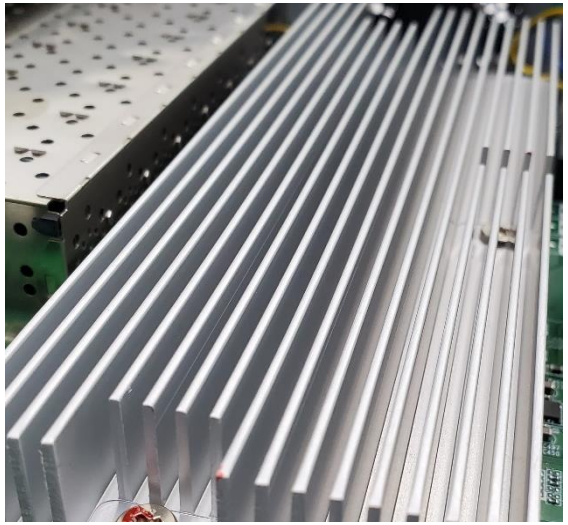


Optimized design & quality components

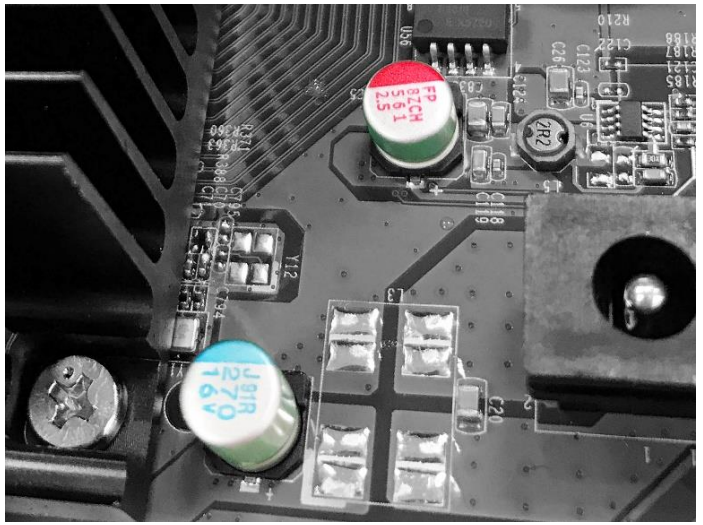
PWM double ball bearing fan

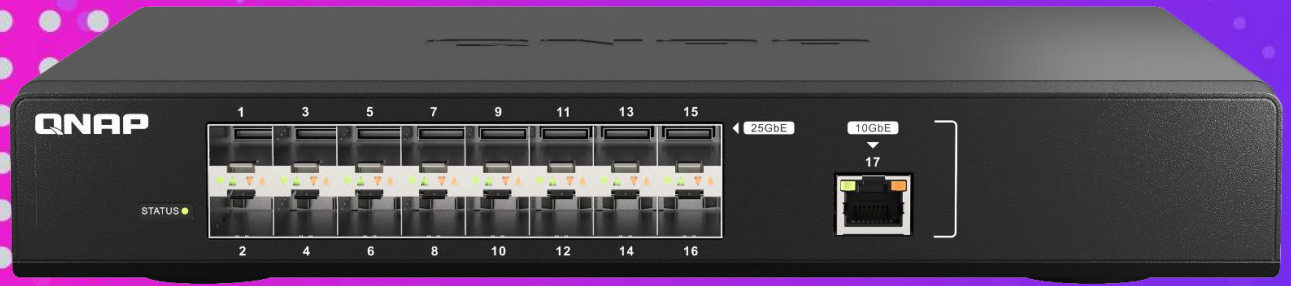


Large conductive and directive heatsink



All solid capacitors

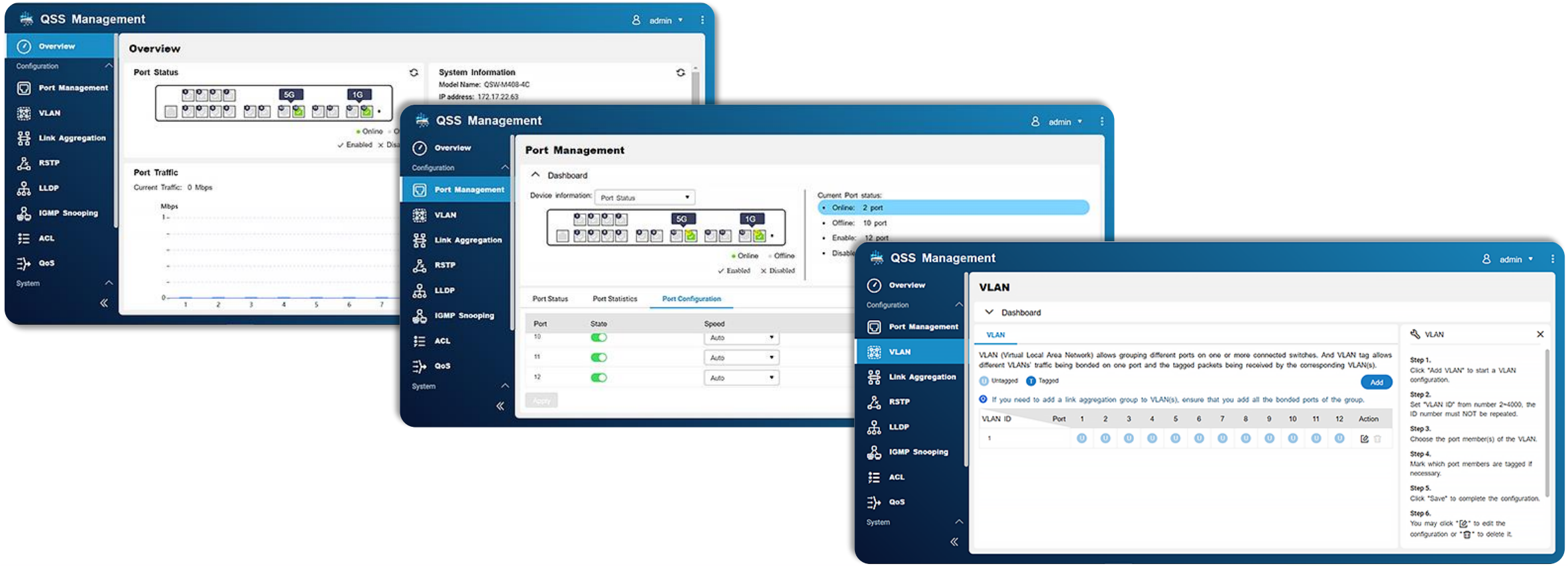




QSW-M5216-1T Software highlights

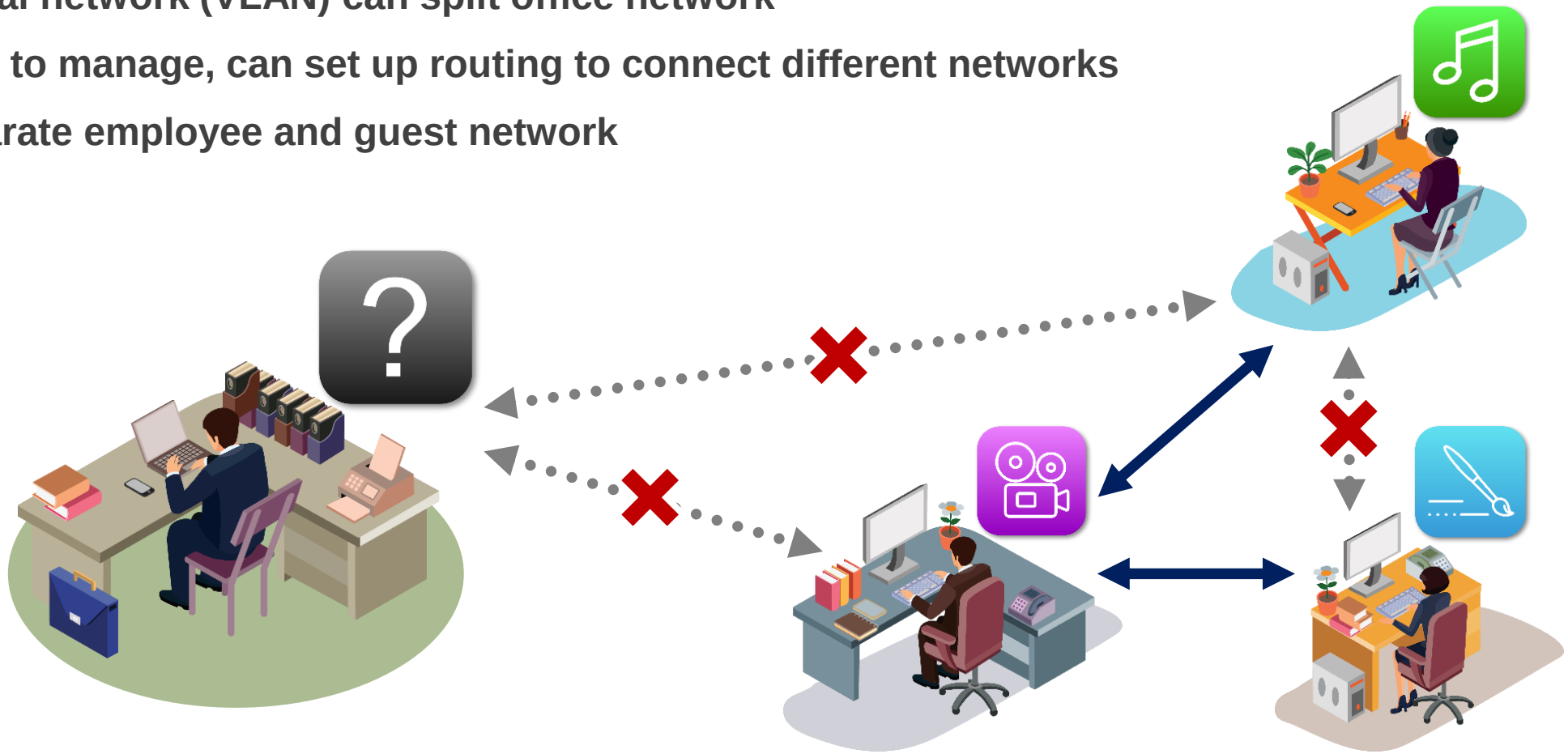
Easy to use GUI design

- Rich functions and easy to use
- Straightforward web design lets user realize the setup logic quickly



Split office network into different area

- Virtual network (VLAN) can split office network
- Easy to manage, can set up routing to connect different networks
- Separate employee and guest network

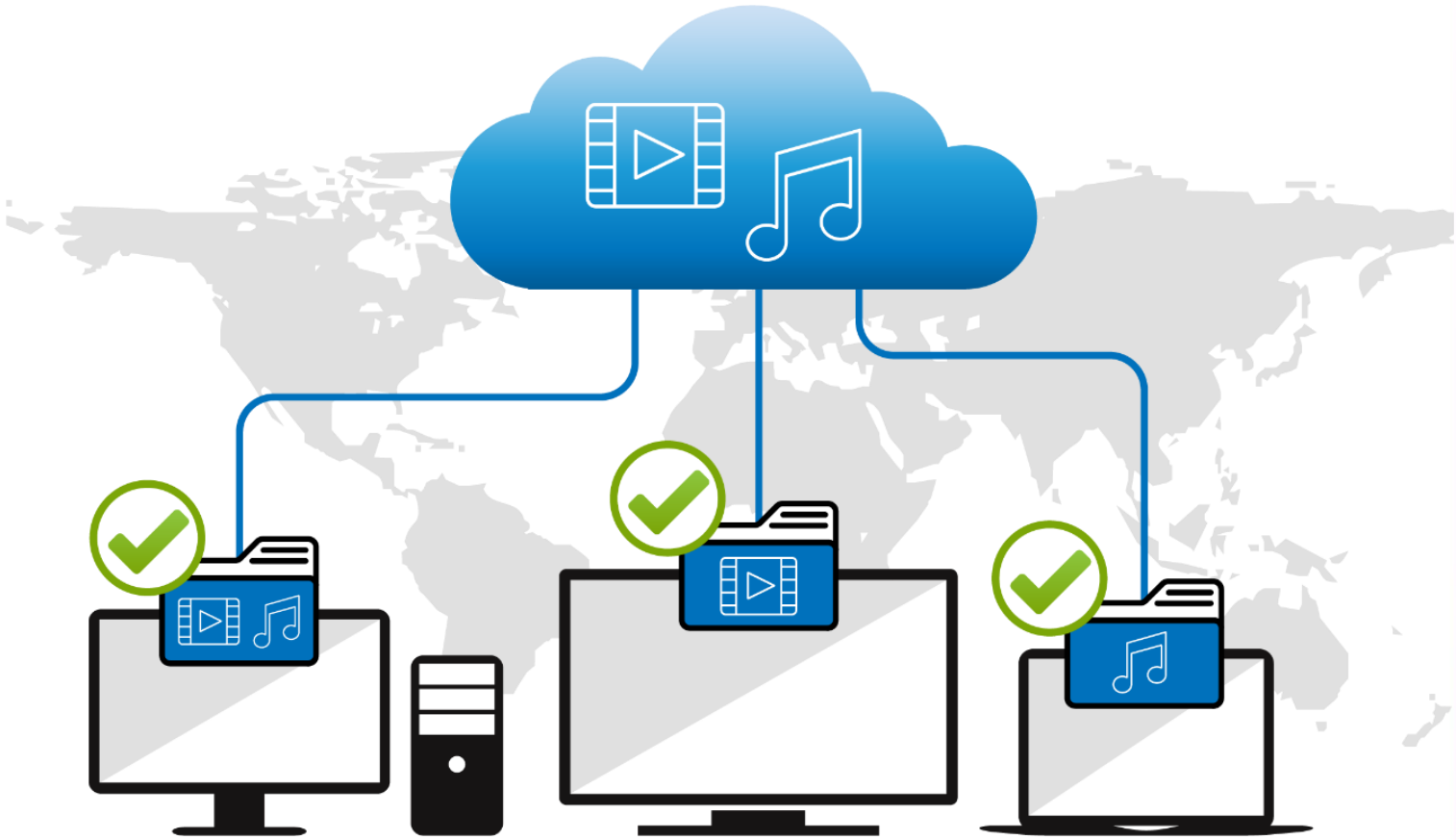


Raise network speed with multiple network cable

- Link Aggregation (LACP) can aggregate multiple network cable into a single logical network
- Quick and direct to have a network more than 25GbE
- With 100GbE break out to 4 25GbE cable, 4 25GbE ports can be connected and set LACP, and the other end can be connected to 100GbE port

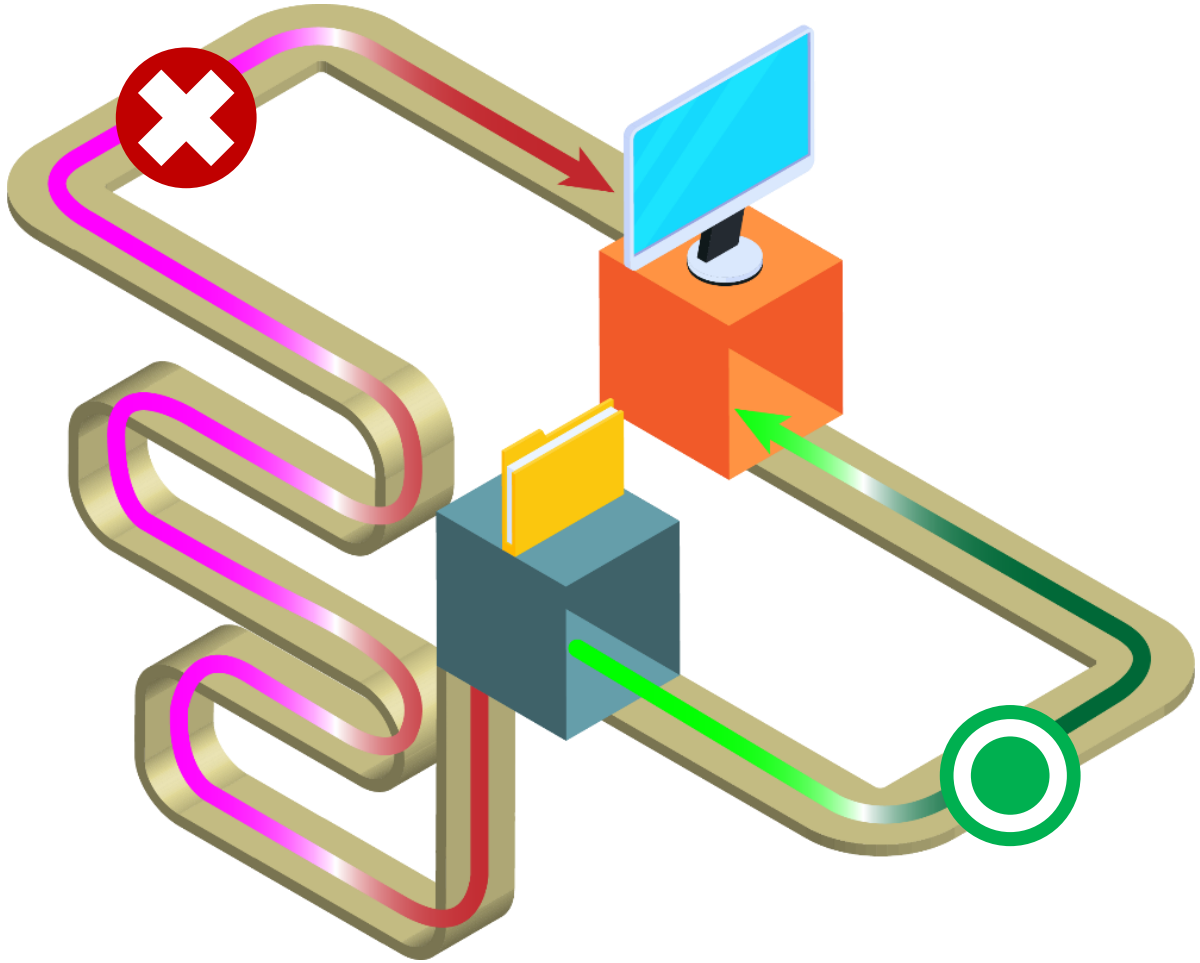
Deliver streaming to dedicate device specifically

- IGMP snooping can record streaming request for each end point device
- Avoid packet lost or wrong stream broadcast



Always looking for best routing

- Rapid Spanning Tree Protocol (RSTP) live check best networking route
- Always using most effective route for data transfer



Firmware version live check

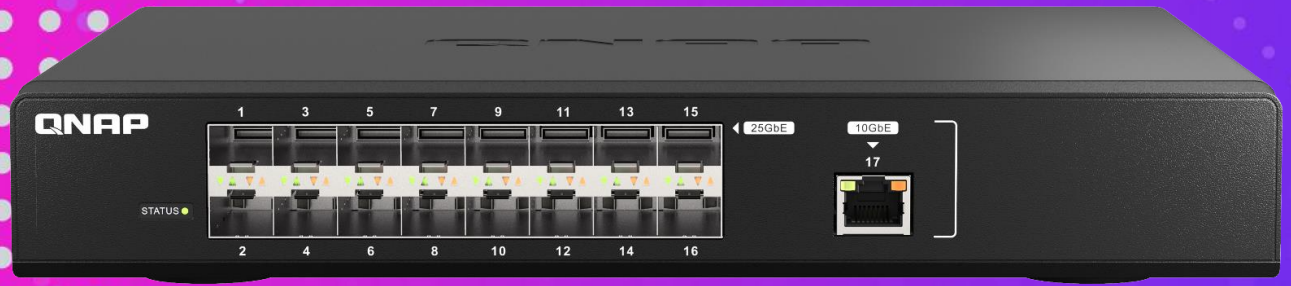
- One-click update
- Firmware version auto detect
- Manual update

QSW-M5216-1T have more

Ethernet flow control (IEEE 802.3x) managing packet transfer, avoid packet lost

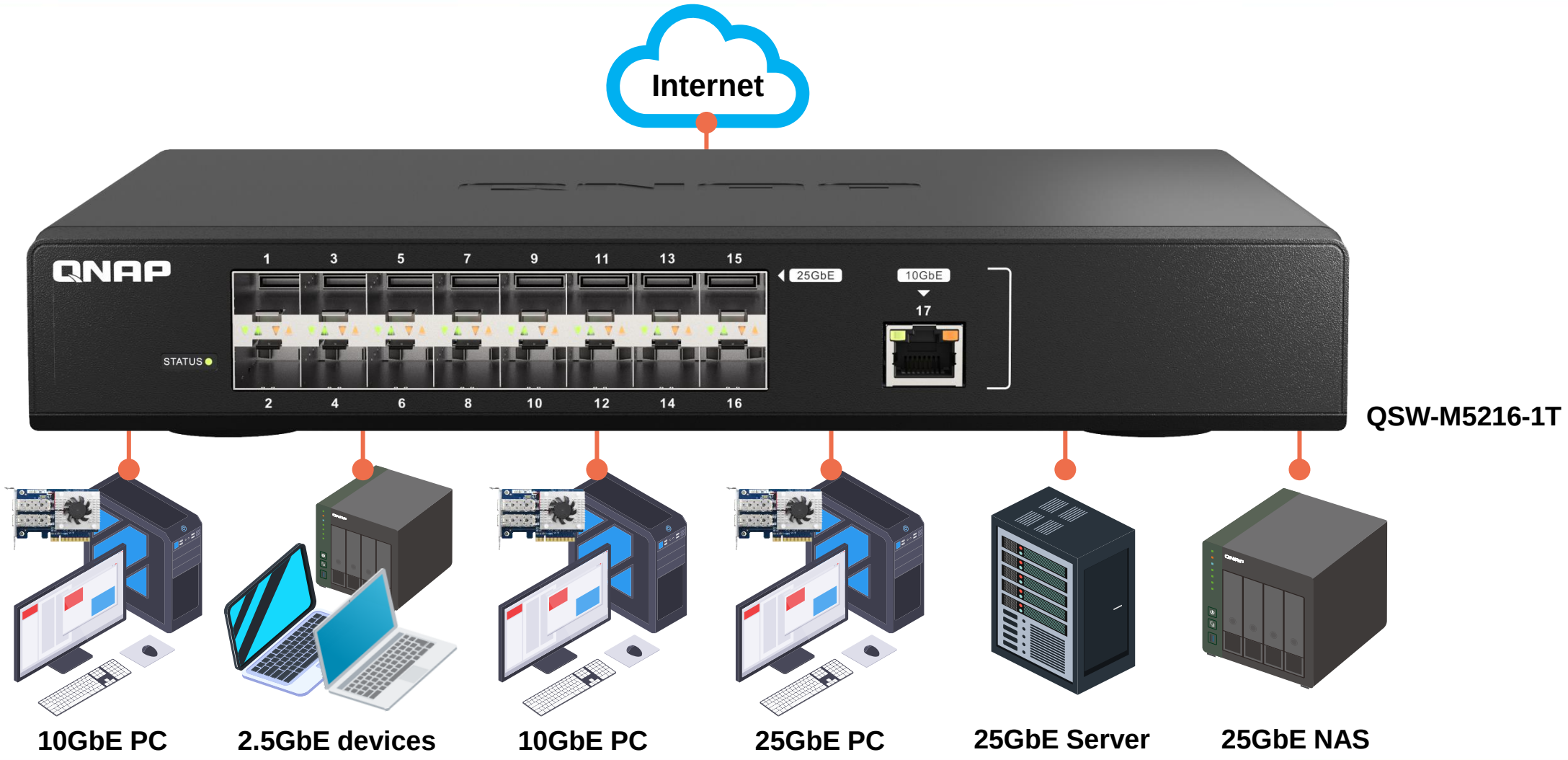
Link Layer Discovery Protocol (LLDP), easy to know which devices are conneted

Energy-Efficient Ethernet (IEEE 802.3az) and fan speed control, managing power consumption

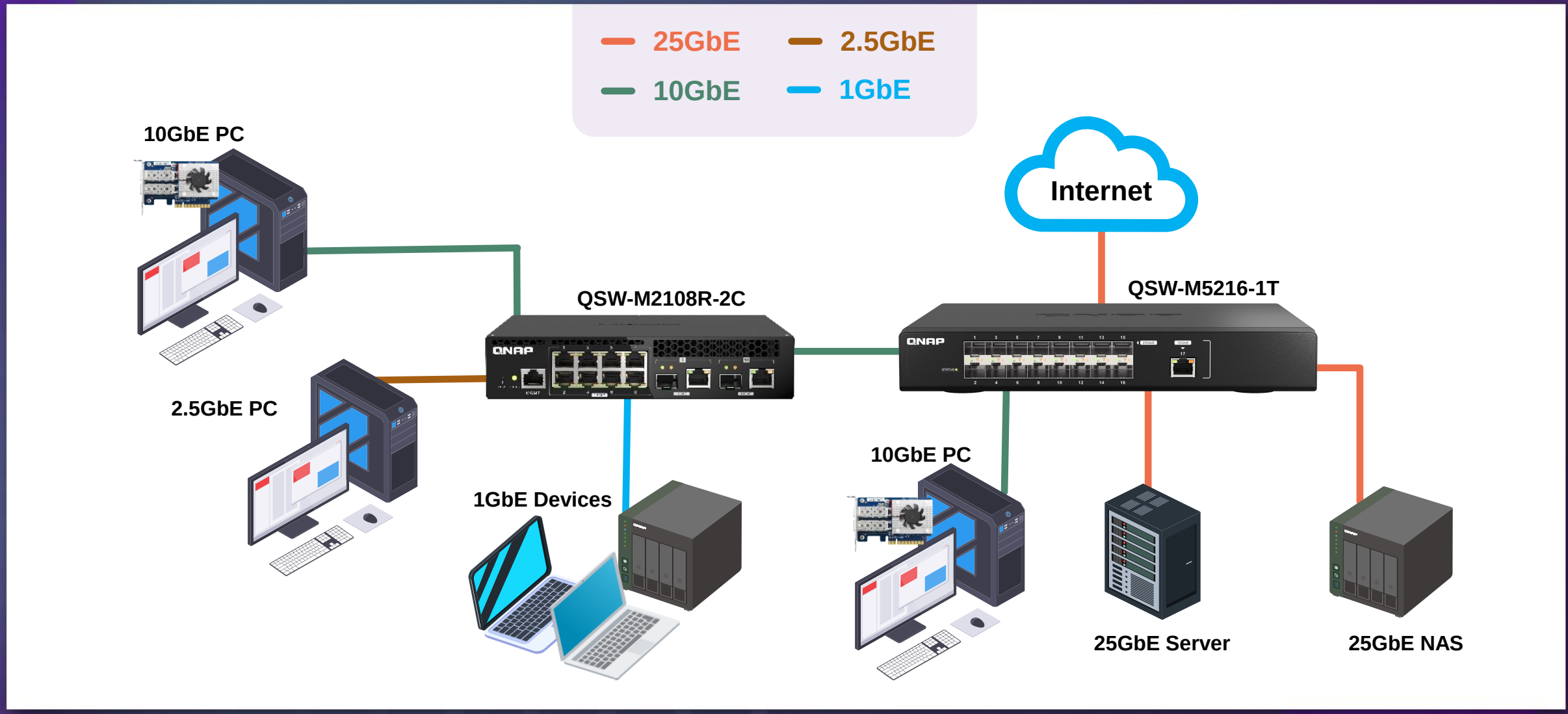


You can delpoy QSW-M5216 like these ways

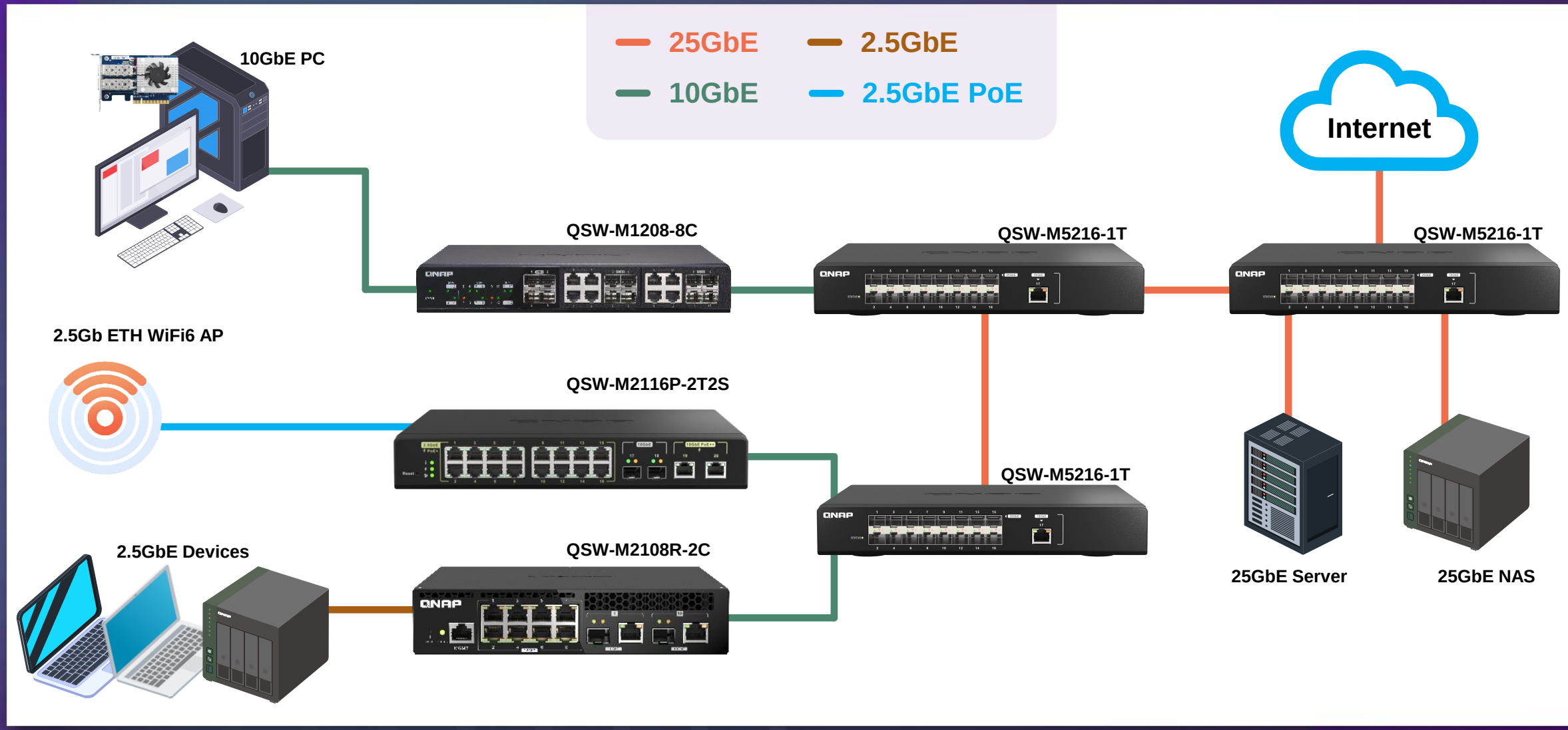
Upgrade from 10GbE to 25GbE

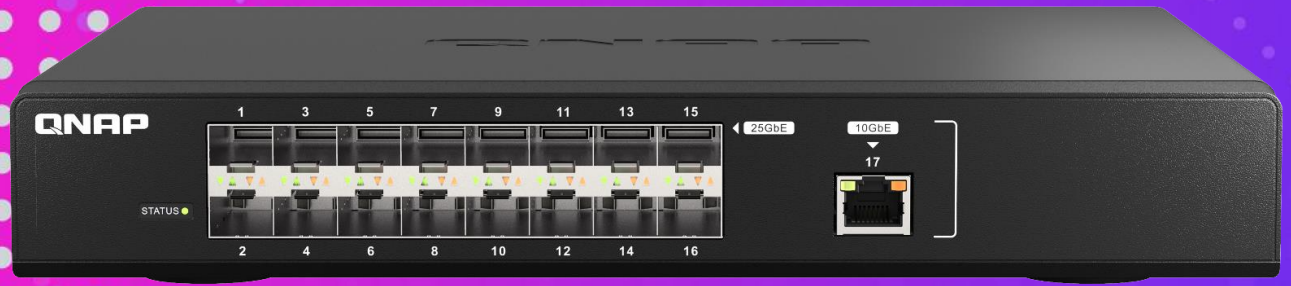


Studio office upgrade to 25GbE NAS



The backbone of medium office needs more bandwidth (100~150 employees)





Perfect with QNAP 25GbE solution

24-bay U.2 NVMe All-Flash 25GbE NAS

QuTS hero edition

AMD EPYC

TS-h2490FU-7302P-128G

- AMD EPYC 7302P **16-core/32-thread**, **3.0 GHz** (Max. 3.3GHz)
- **128GB** DDR4 RDIMM ECC RAM (8 x 16GB)
- **4** x SFP28 25GbE ports (25GbE/10GbE/1GbE)

TS-h2490FU-7232P-64G

- AMD EPYC 7232P **8-core/16-thread**, **3.1 GHz** (Max. 3.2GHz)
- **64GB** DDR4 RDIMM ECC RAM (8 x 8GB)
- **2** x SFP28 25GbE ports (25GbE/10GbE/1GbE)

More 25GbE-ready QNAP SMB NAS

TS-h3088XU-RP

- Intel Xeon W **1250 /1270**
- **2** x SFP28 25GbE ports (25GbE/10GbE/1GbE)

Slot 1: PCIe Gen3 x8 or x4
Slot 2: PCIe Gen3 x4
Slot 3: PCIe Gen3 x4

TS-hx83XU

- Intel Xeon E series
- **2** x SFP+ 10GbE ports (10GbE/1GbE)

1U: Gen3 x16 (CPU)
2U & 3U : Slot 2 with Gen3 x8 (CPU)
4U: slot 4 with Gen3 x8 (CPU)

TVS-h1288X

TVS-h1688X

- Intel Xeon W **1250 /1270**
- **2** x RJ45 10GbE ports (10GbE/5GbE/2.5GbE/1GbE/100M)

Slot 1: PCIe Gen3 x8
Slot 2: PCIe Gen3 x4
Slot 3: PCIe Gen3 x4

***For some models, 25GbE port is option. You need to buy QXG-25G2SF-CX6 25GbE network card.**
You can see Compatibility List to find more 25Gbe network cards.

10GbE / 25GbE / 100GbE accessory

QXG-25G2SF-CX6

QXG-25G2SF-CX4

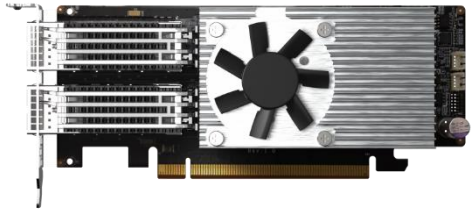
25GbE SFP28 DAC

CAB-DAC30M-SFP28
CAB-DAC15M-SFP28

10GbE SR Transceiver

TRX-10GSFP-SR-MLX

QXG-100G2SF-E810



100GbE QSFP28 DAC

CAB-DAC15M-Q28
CAB-DAC15M-Q28B4

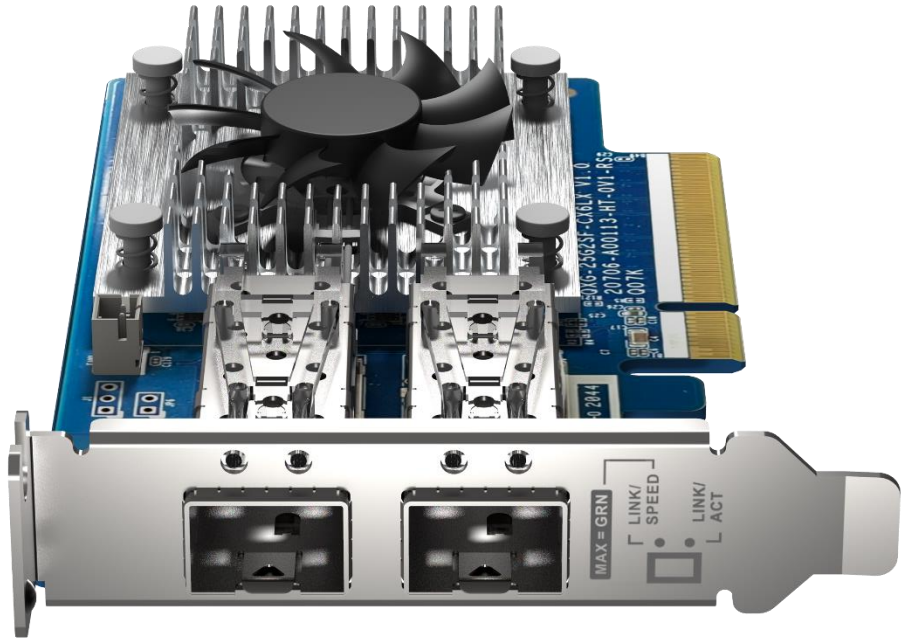
25GbE SR Transceiver

TRX-25GSFP28-SR

QNAP 25GbE network expansion card support NAS and PC/server

QXG-25G2SF-CX6
25GbE dual-port network expansion card

- **2 x SFP28 ports**
- **Support 25GbE / 10GbE**

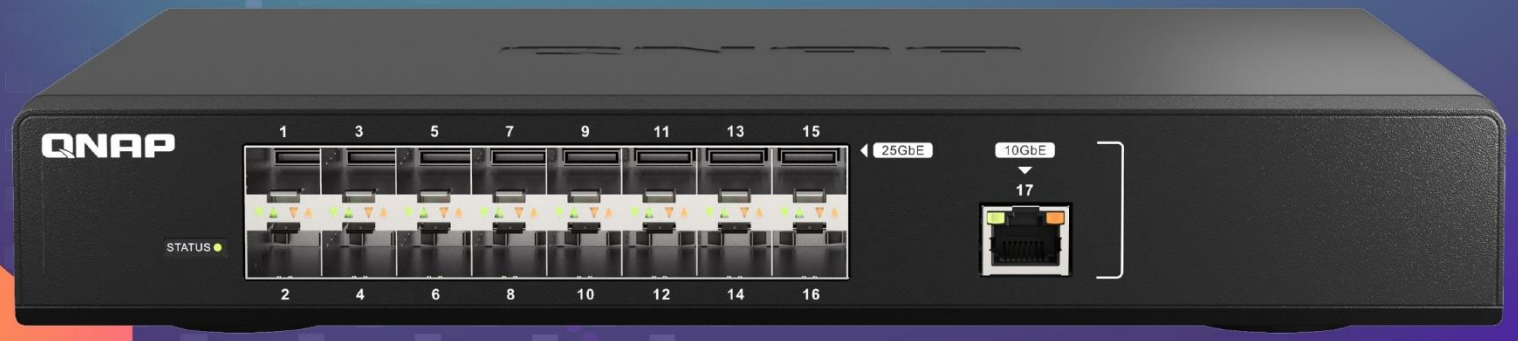


	QXG-25G2SF-CX4	QXG-25G2SF-CX6
PCIe express	Gen3 x8	**Gen4** x8
Message Rate	70Mpps	**75Mpps**
PTP (1588)	N/A	**Supported**
Secure boot	N/A	**Supported**
VirtIO acceleration	N/A	**Yes**
RoCE v1/v2	Supported	Supported
RDMA	Supported	Supported
SR-IOV	Supported	Supported

QNAP

QSW-M5216-1T

is your best choice !



25GbE

LAYER 2

MARVELL™