

QNAP

20²⁰ | T E C H
D A Y

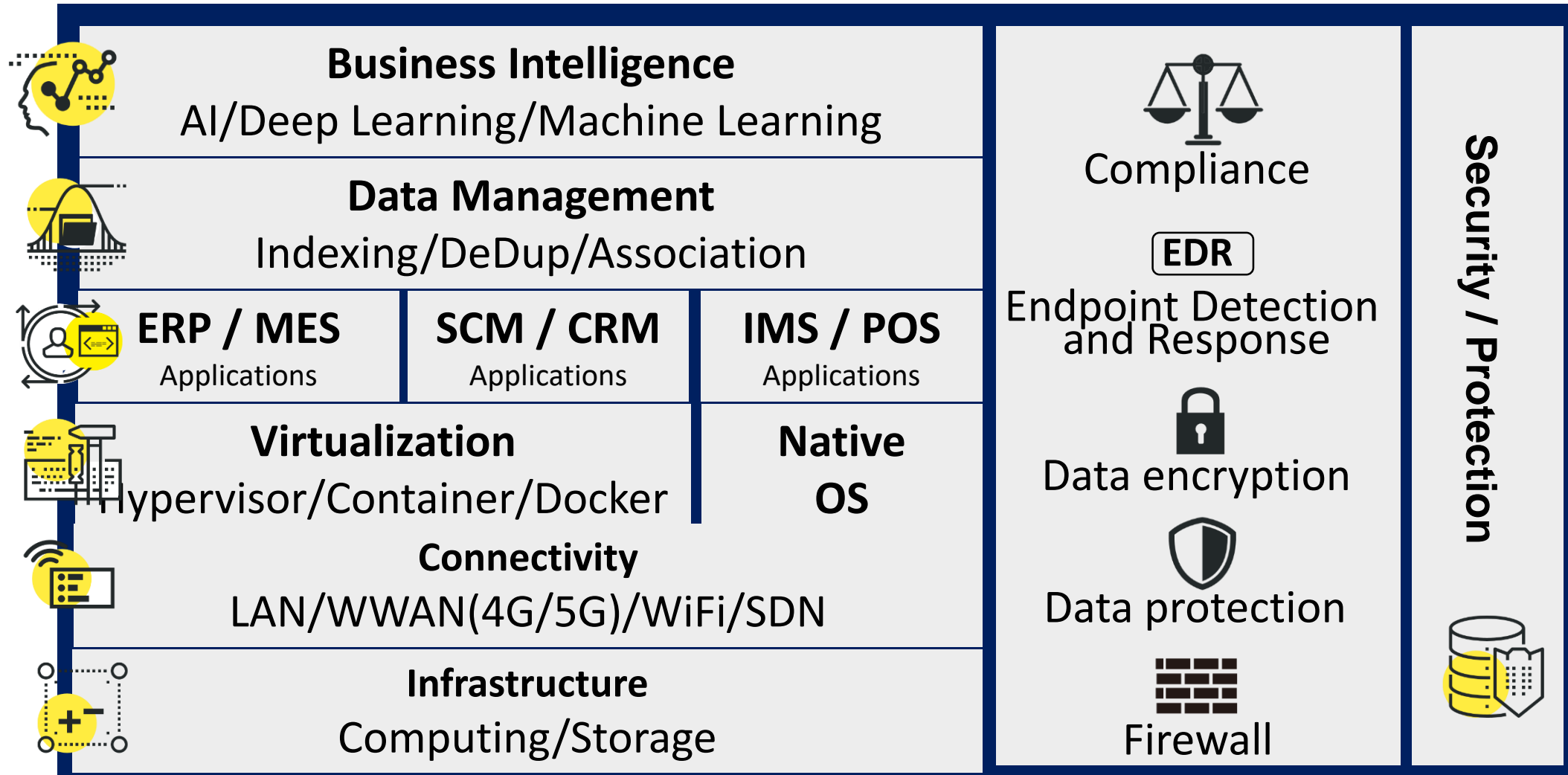
Transform the Network Applications in the Edge

Dean Shih

Head of QNAP Smart Networking BU



Architecture to support Enterprise Network Transformation



QNAP Enterprise Network Products



Video Surveillance



Manufacturing



Health Care



Wireless Network



Retail



Transportation



Energy



PCs



Smart City



Customer Premise Equipment

Requirements In Edge

Latency, Bandwidth
Security, Connectivity



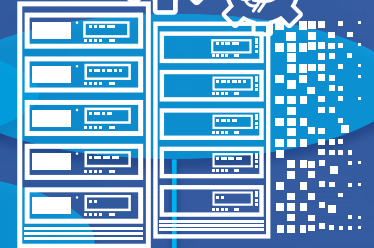
4G/5G
WWAN



Edge Computing
Nodes



Regional
Data Centers



DEVICES/
THINGS

ON-PREMISE
EDGE

NETWORK
EDGE

NGCO

DATACENTER
CLOUD

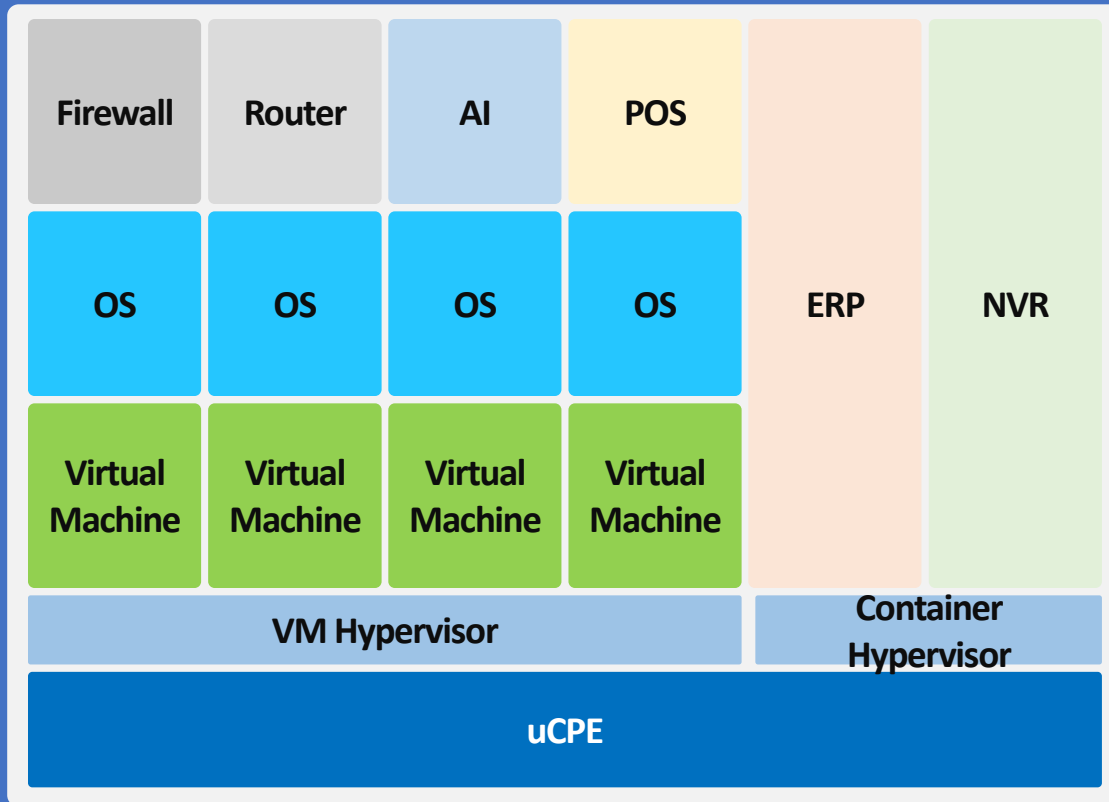


Guardian series QNAP



QuCPE series

The requirement of edge compute & network transformation



Operating System

Device provisioning

VM Hypervisor

App deployment

Backup & Restore

Central management

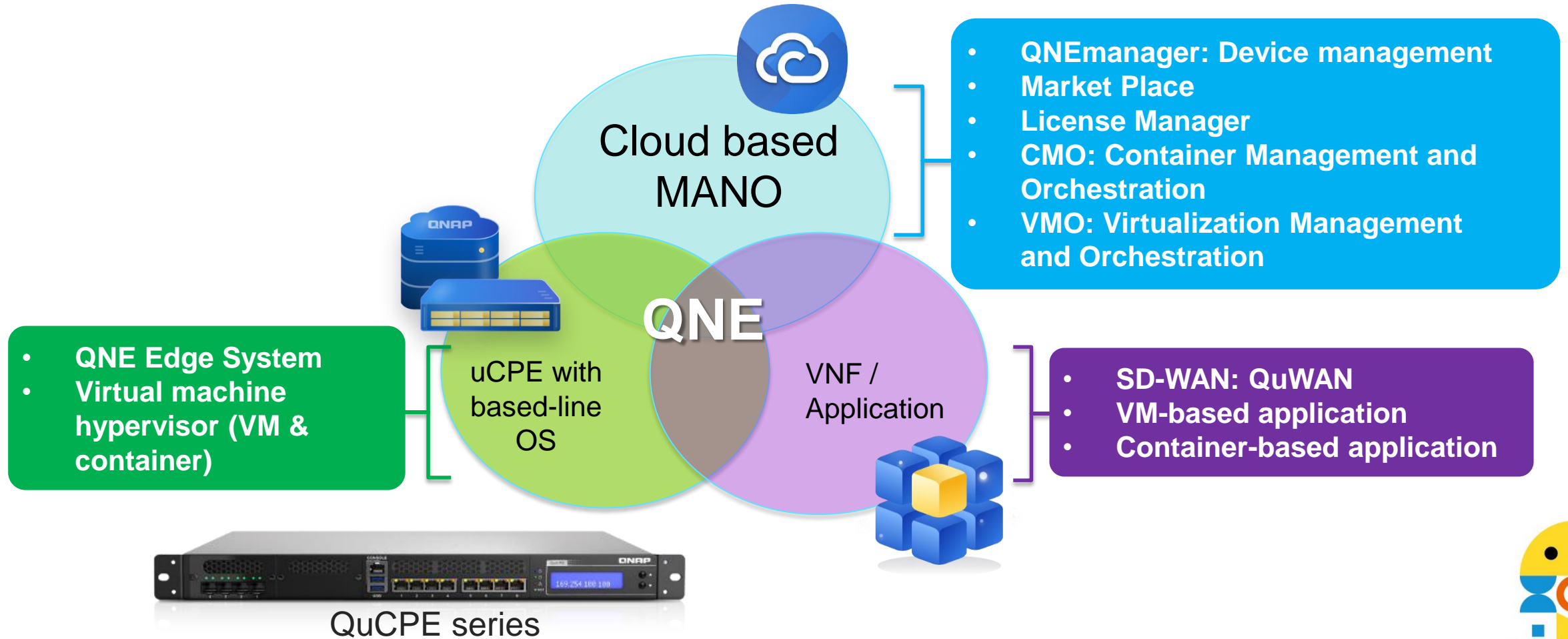
Remote control

Various hardware

Service chaining

& more ...

QNAP uCPE solution



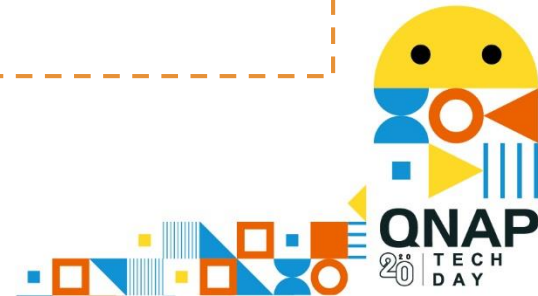
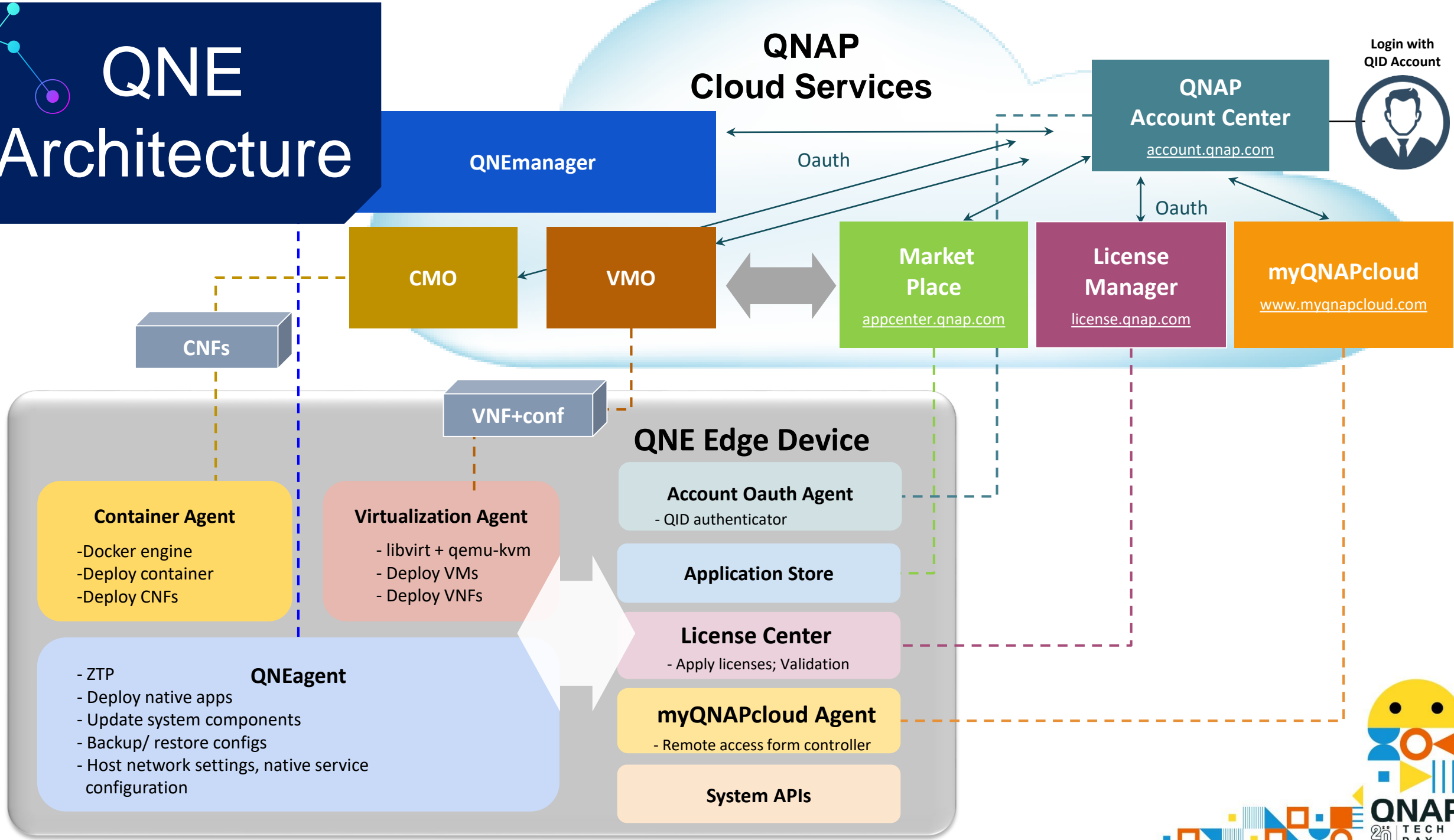
QuCPE Solution Highlights



CFO/CIO friendly, Reduce TCO, Increase resource visibility, Center management



QNE Architecture



QNEmanager

Zero Touch Provisioning for all edge device in all branch offices



IT Admin
In Head Office

QNEmanager

1. Send registration code



On-site staff can easily bind edge device into cloud without any IT domain knowledge!

Branch Offices

2. All things will be done after verifying registration code



US Branch



GE Branch



NL Branch



QNE Manager

Grasp all device status with graphical reports

The screenshot shows the QNEcloud management interface. At the top, there's a navigation menu with 'Overview', 'Server', 'Report', 'Log', 'Rule', and 'Notification'. The main content area is titled 'Overview' and features a 'Warning' icon with the text 'Your system has warning'. Below this, there are several summary cards: 'Device total: 4 server(s)' with a bar chart showing 2 Normal, 1 Abnormal, and 1 Undeployed; 'Disks total: 17 disk(s)' with a bar chart showing 17 Normal; 'WAN: 4 port(s)' with a bar chart showing 2 Connected and 2 Disconnected; and 'LAN total: 4 port(s)' with a bar chart showing 2 Connected and 2 Disconnected. A 'Logs' section shows 2 warning(s) and 0 error(s) heaspend in previous hour. At the bottom, there is a table with columns: myQNAPcloud Device Name, Model Name, Version, Status, Used Capacity, CPU Usage, Memory Usage, Update Time, Geolocation, WAN upload, and WAN download.

myQNAPcloud Device Name	Model Name	Version	Status	Used Capacity	CPU Usage	Memory Usage	Update Time	Geolocation	WAN upload	WAN download
USA QNE	QNE xxx	1.01	🟢	850.55 GB	7%	8%	9 Day(s) 20 hour(s) 46 Minute(s)	USA	300MB/s	772MB/s
Taiwan QNE	QNE xxx	1.01	🟡	850.55 GB	7%	8%	9 Day(s) 20 hour(s) 46 Minute(s)	Taiwan	562MB/s	644MB/s
EU QNE	QNE xxx	1.01	🟢	850.55 GB	7%	8%	9 Day(s) 20 hour(s) 46 Minute(s)	Germany	772MB/s	352MB/s
JP QNE	QNE xxx	1.01	🟡							

1. Visualized system status of all edge devices in branch office
2. Efficiently manage device by batch operating

FW : latest

Branch Office in US

FW : latest

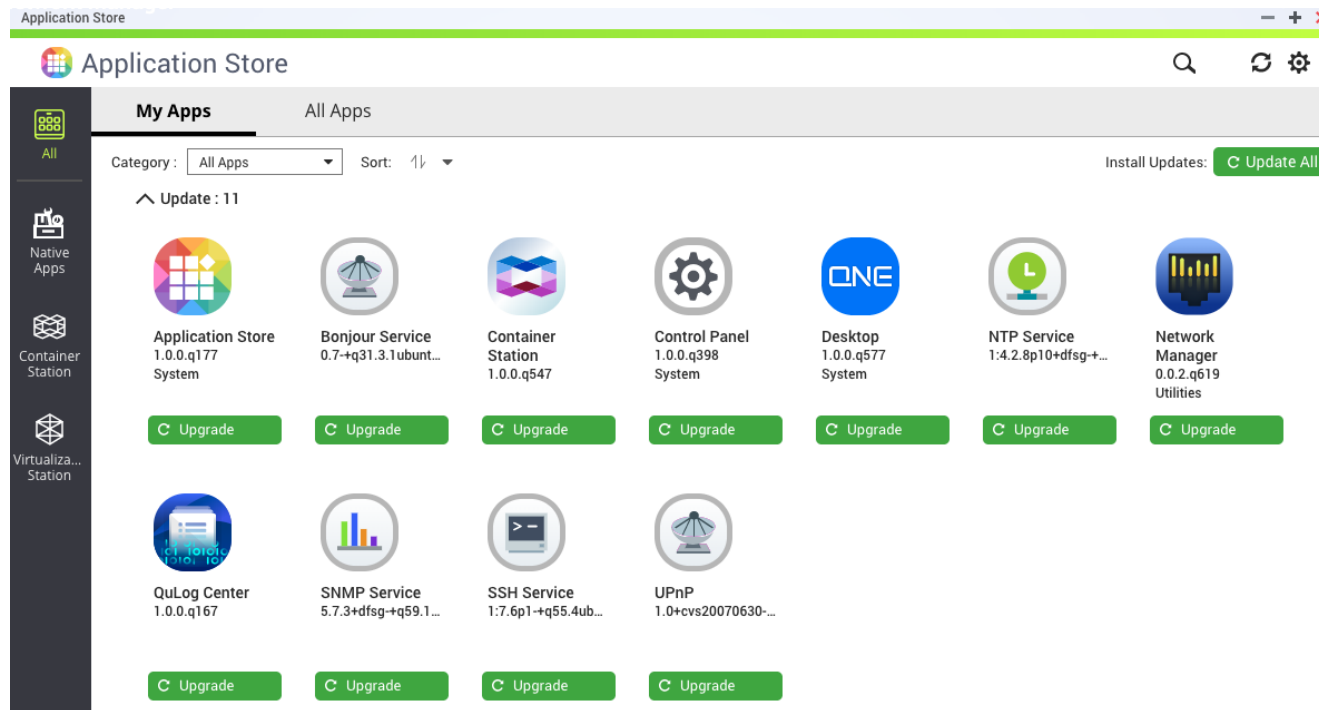
Branch Office in GE

FW : to be updated !

Branch Office in NE

Application Store / Marketplace

- Various applications allow to install easily
- Support container-based application
- Support VM-based application
- Just a click to install, update or remove



License Manager

Activate your advanced network management needs by purchasing licenses

The screenshot shows the QNAP Store interface with a navigation bar at the top containing 'QNAP STORE', 'Sign in', 'Sign up', a shopping cart icon with '(0)', 'USD', a globe icon, an information icon, and a menu icon. Below the navigation bar is a 'License Store' header. The main content area displays six license products in a grid:

- Surveillance Station**: Turn your NAS into a professional Network Video Recorder (NVR) system with Surveillance Station. Price: USD \$59.99.
- QVR Pro**: Keep tabs on your property with QVR Pro's comprehensive Network Video Recorder (NVR) feature in Turbo NAS. Price: USD \$399.00.
- Netgate pfSense Support**: Securing your business network? Let Netgate Global Support help you get the most out of your pfSense open source firewall and Security Gateway. Price: USD \$660.00.
- McAfee Antivirus**: Scan your NAS for malware either manually or on a schedule with the McAfee antivirus engine. Price: USD \$25.00.
- exFAT Driver**: The driver allows the NAS to backup exFAT device content and make them usable for QNAP NAS applications. Price: USD \$3.99.

Firewall Licesnce

SD-WAN License

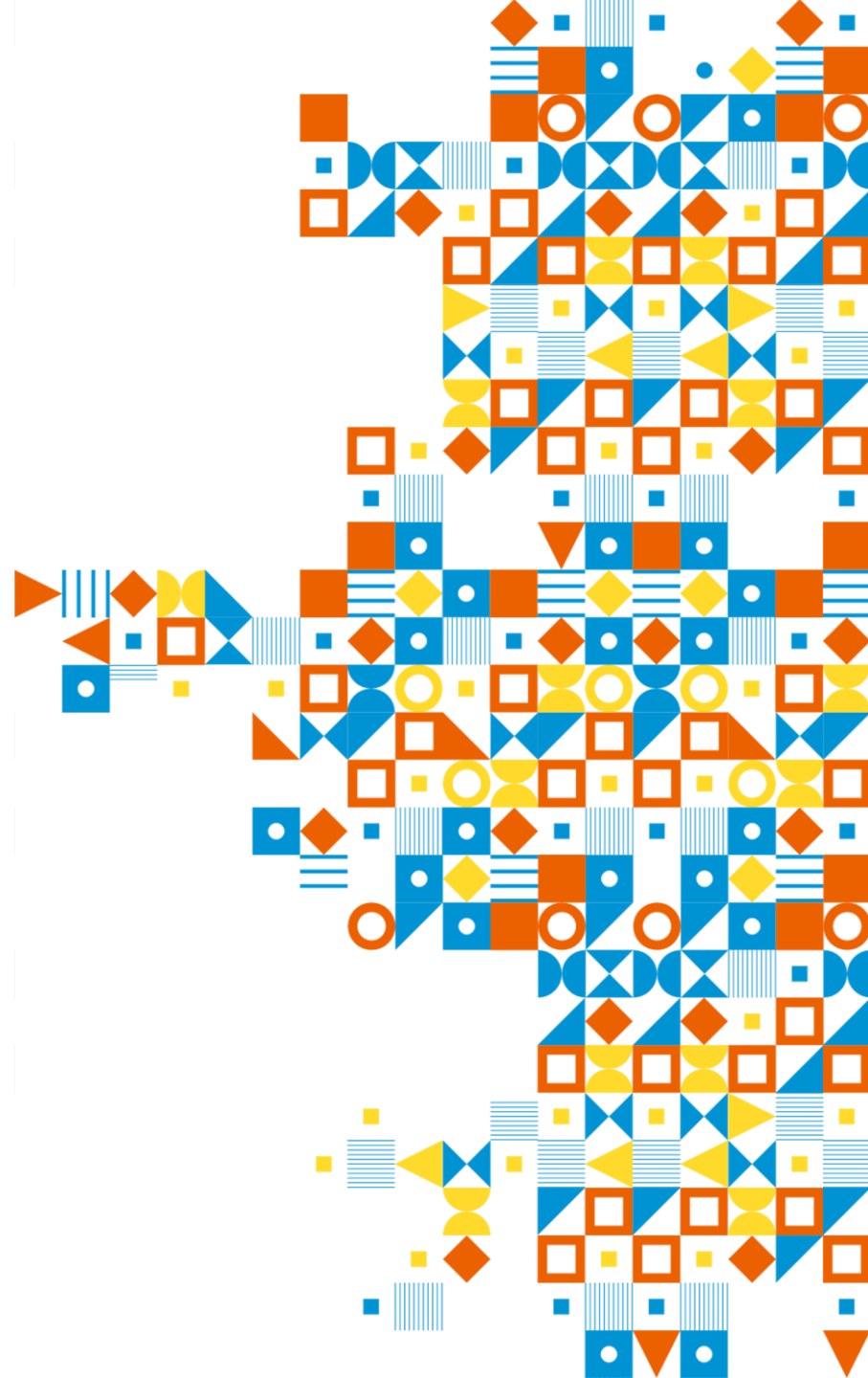
AI License



Chapter

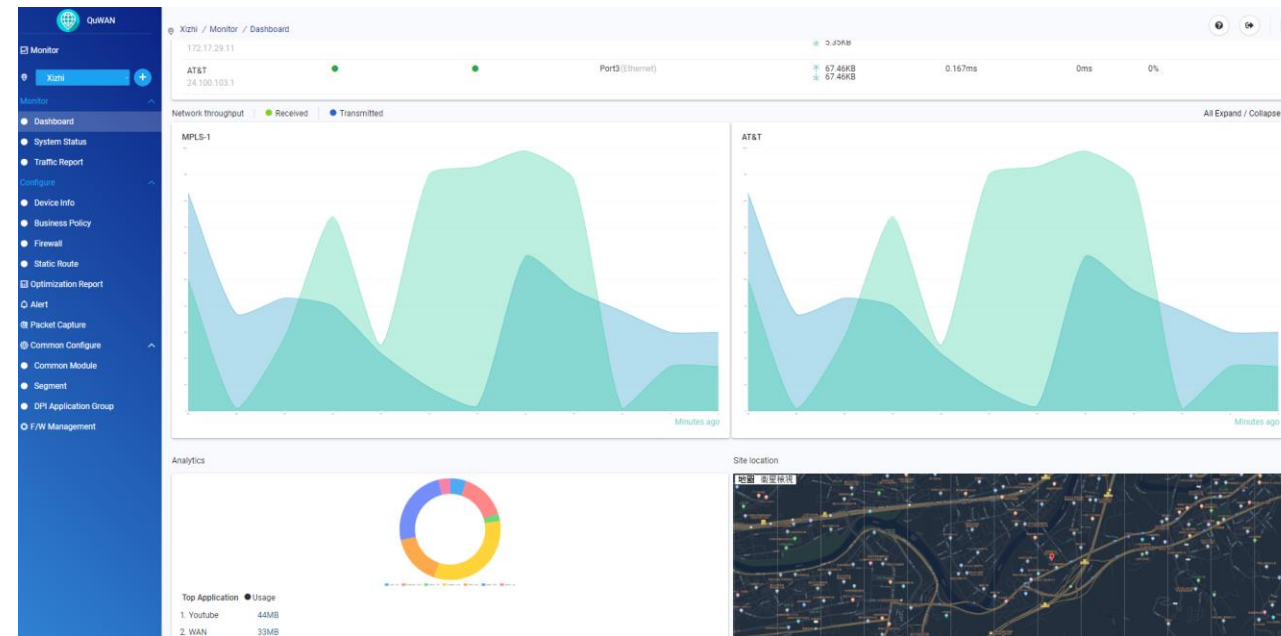
2

QuWAN SD-WAN Solution



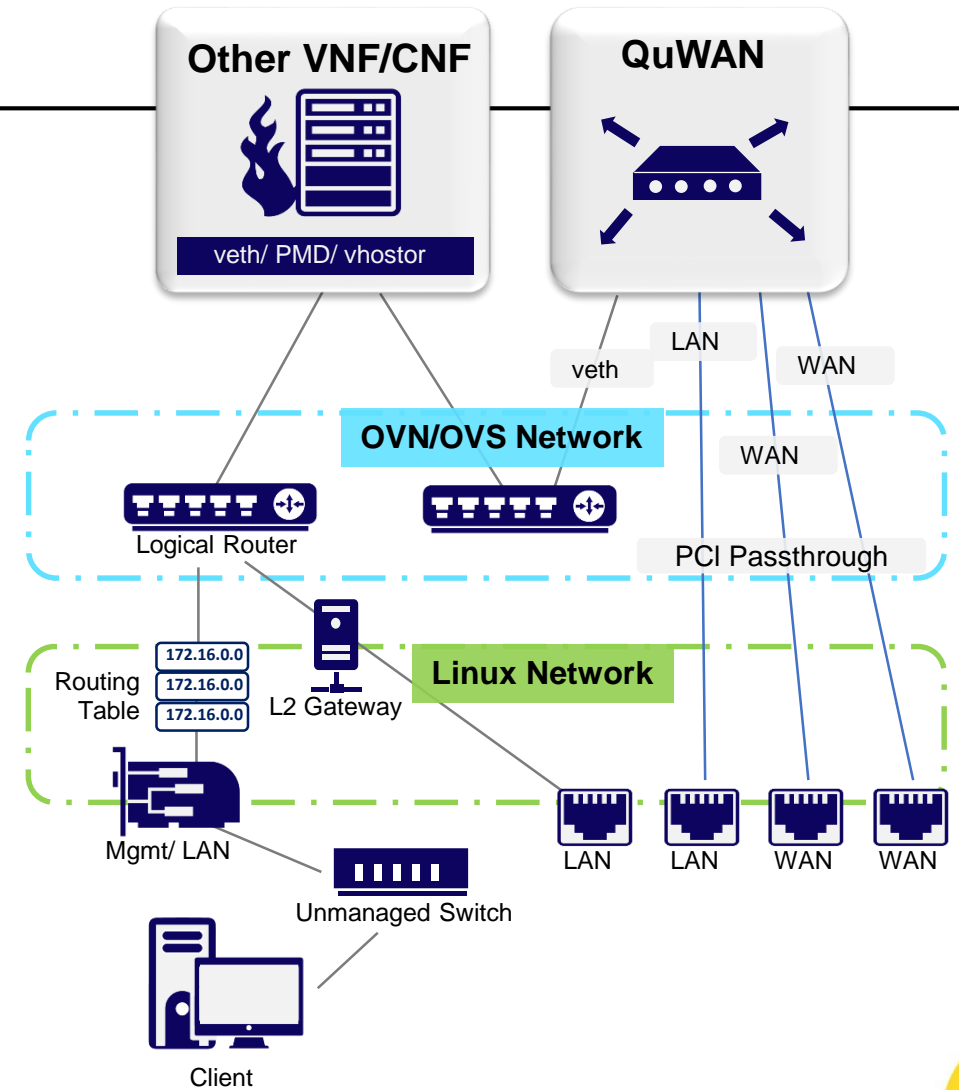
QuWAN

- QuWAN is QNAP's SD-WAN product.
- It has a modular design.
 - It can run as a virtual machine, or be a VNF of QNE.
 - It can be a standalone embedded system.
- It has a cloud-based orchestrator
 - Zero Touch Provision
 - Auto Mesh VPN
 - Batch Configuration
 - Statistics Collection



QuWAN - Architecture

- As a VM or an embedded system running in
 - QNE (VNF), QTS
- Supports multiple WAN and LAN ports (software configure)
 - TCP Acceleration
 - WAN aggregation
 - WAN High Availability
 - Dynamic Path Selection
 - Service Chaining with other VNFs (QNE available)
 - Hardware accelerator, e.g. DPDK or SR-IOV (platform dependent)



QuWAN - What else SD-WAN could do?

Hybrid Multi-WAN
(ADSL/Fiber/LTE)

Dynamic
Load Balance

Network Quality
Detection

Bandwidth
Fusion

Application identify (DPI,
Deep Packet Inspection)

Business Transmission
Guarantee

Cloud Central Management
- Orchestrator

Real-time Monitor &
Report

Transmission
Optimization

Security & Encryption
- Mesh VPN

SaaS supported
(Office365/Salesforce..)

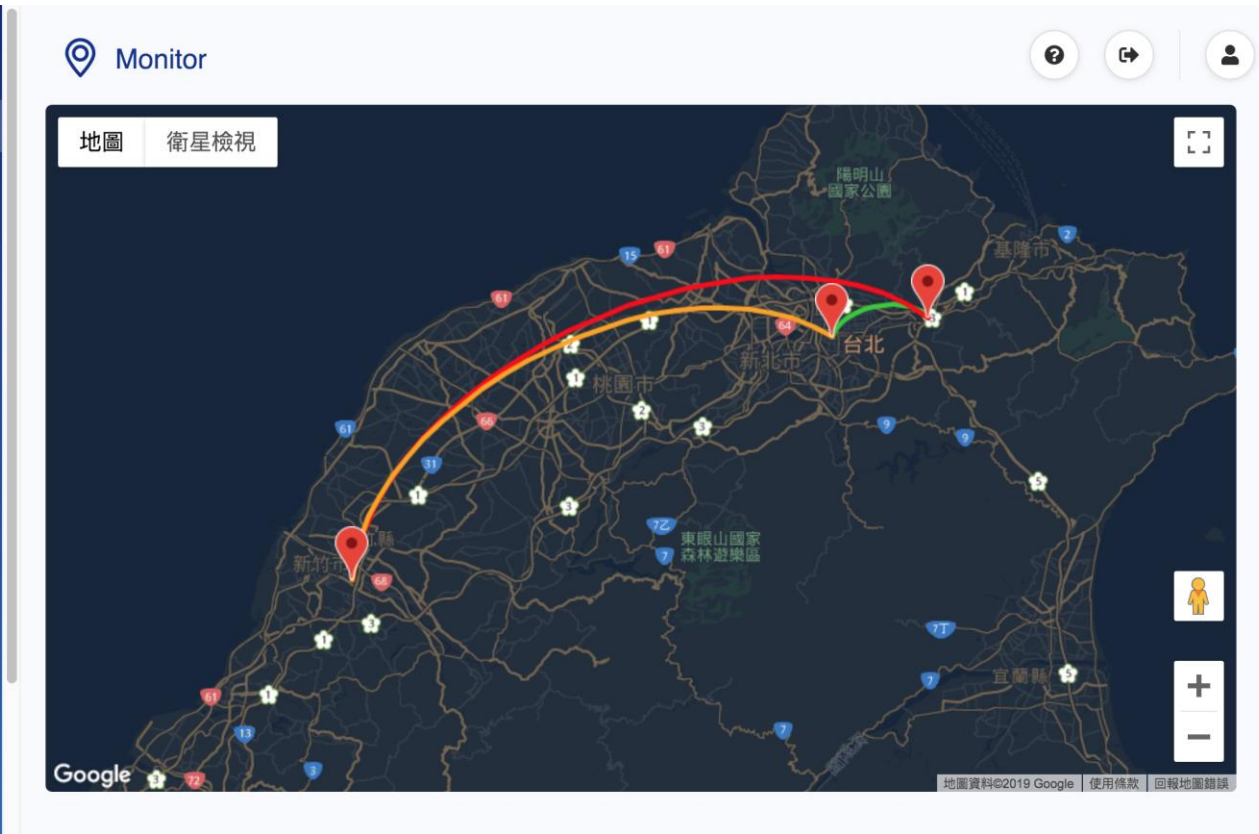
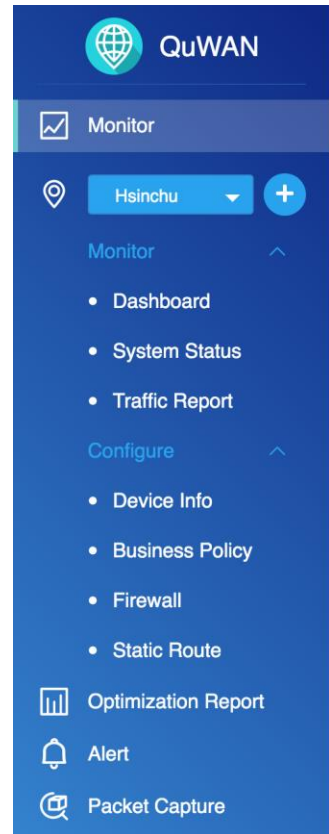
Zero Touch
Provisioning

Decrease the
MPLS cost

QuWAN - Cloud Orchestrator

A cloud-based orchestrator for

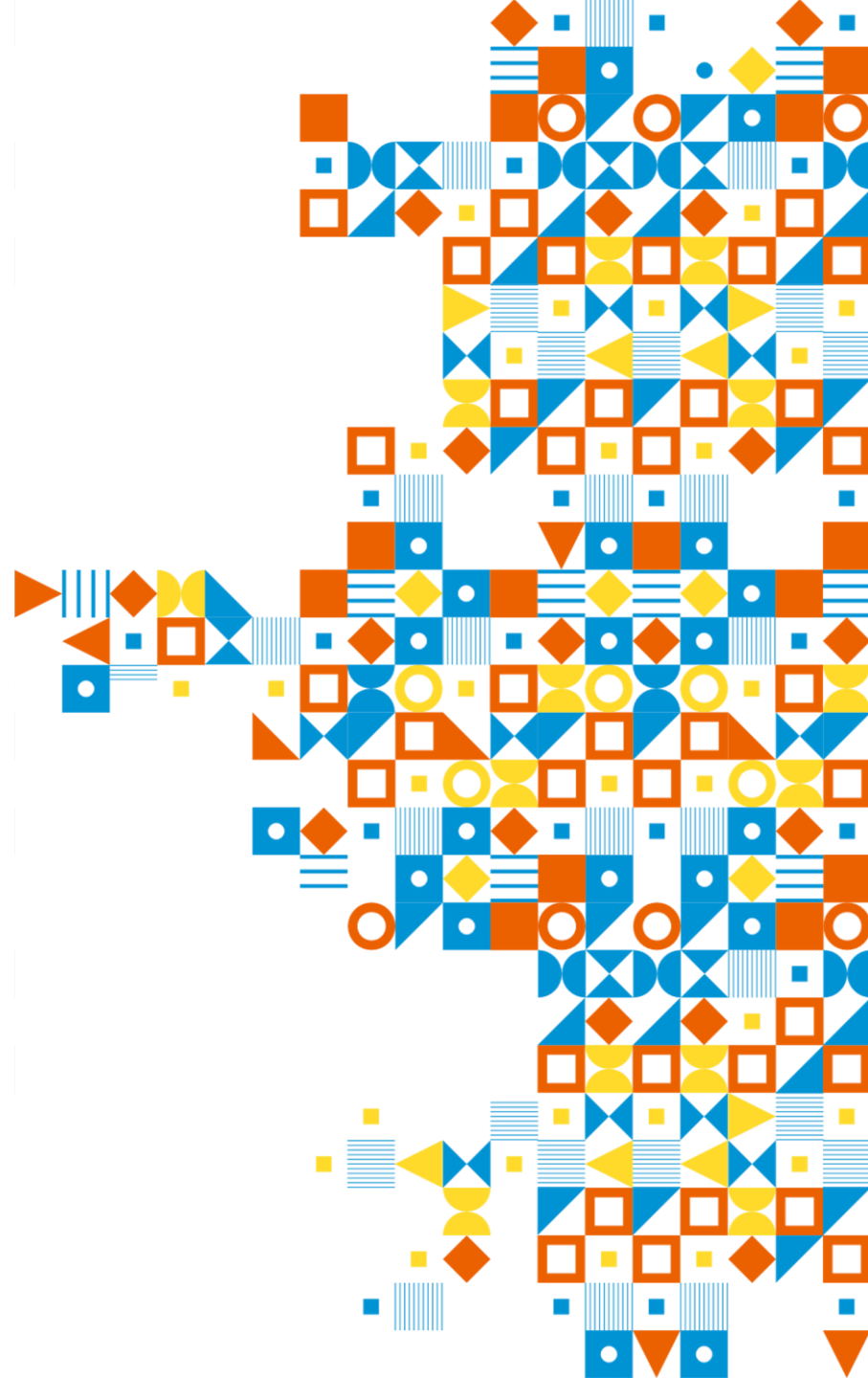
- Zero Touch Provision
- Auto Mesh VPN
- Common Configurations
- Statistics Collection
- Application Patrol
- Regional Hub
- Firewall Policy (Layer 7)
- DPI Application Group



Chapter

3

Hardware & Retail Solution



QuCPE Network Appliances

Premium Level



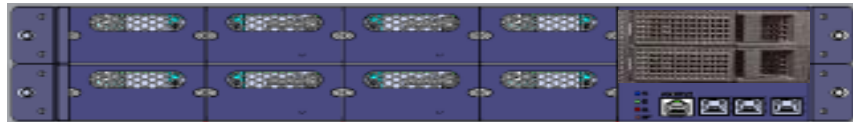
QuCPE-7010-IXE

Intel® Xeon® D-2146 Processor



QuCPE-7011-IXE

Intel® Xeon® D-2166 Processor
with Mellanox 10Gbe
SFP+ network module



QuCPE-9010-IXS

Intel® Xeon® Processor
Scalable Family

Performance Level



QuCPE-5010-IXE

Intel® Xeon® E-2136 Processor



QuCPE-5011-IXE

Intel® Xeon® E-2136 Processor
Intel® Ethernet CAN XL710 Series with SFP+ 10Gbe and
Aquantia 10Gbe RJ45 network module

Entry level



QuCPE-3010-IPT Pentium® Gold G5400T Processor

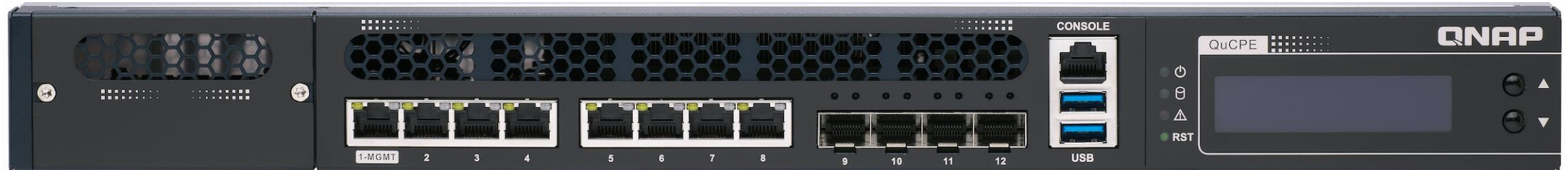


QuCPE-3010-II3 Intel® Core™ i3-8100T Processor

QuCPE (QNAP uCPE with QNE Operating System)

Front panel design

QuCPE-7011-IXD



Extensible
network
module



8 x GbE , RJ-45
ports



4 x GbE ,
SFP+ ports



Console port
2 x USB 3.0



LCM
display
panel



Server-grade hardware: Sturdy and expandable

Outstanding hardware and expandable architecture, enabling optimum performance and flexibility to fulfill business needs in performance and application diversification.

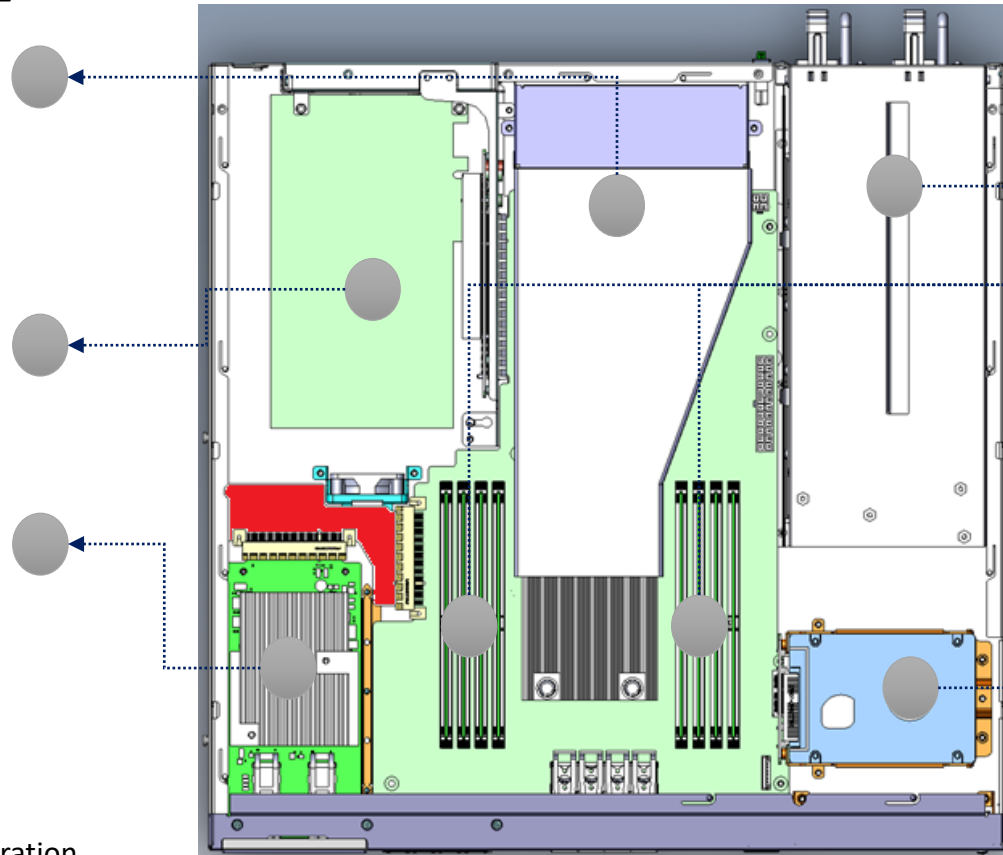
Intel® Xeon® D-2166NT

processor, 12 cores /24 threads, 2.0GHz up to 3.0 GHz

2 x PCIe Gen3 x8 slot FH/HL

Network module

1 x network module (QuCPE-7011-IXD pre-configured with 4 x 10 GbE SFP+ ports Mellanox ConnectX-4)



300W redundant power

Redundant power supply to ensure maximum system uptime

DDR4 ECC memory

Supports eight DDR4 dual-channel Long-DIMM memory modules for a maximum of 128 GB (UDIMM), 256GB (RDIMM) or 512GB LDIMM

2 x 2.5" SATA HDD/SSD bays

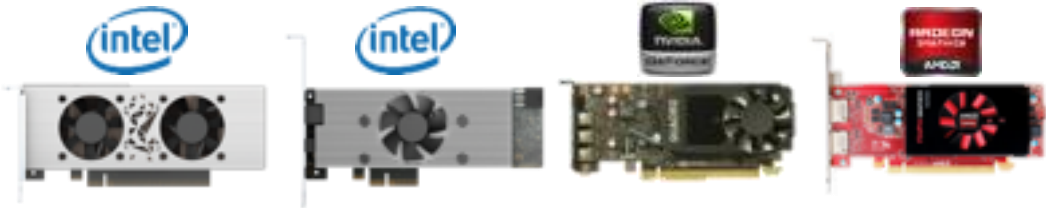
QuCPE-7011-IXD / QuCPE-7010-IXD

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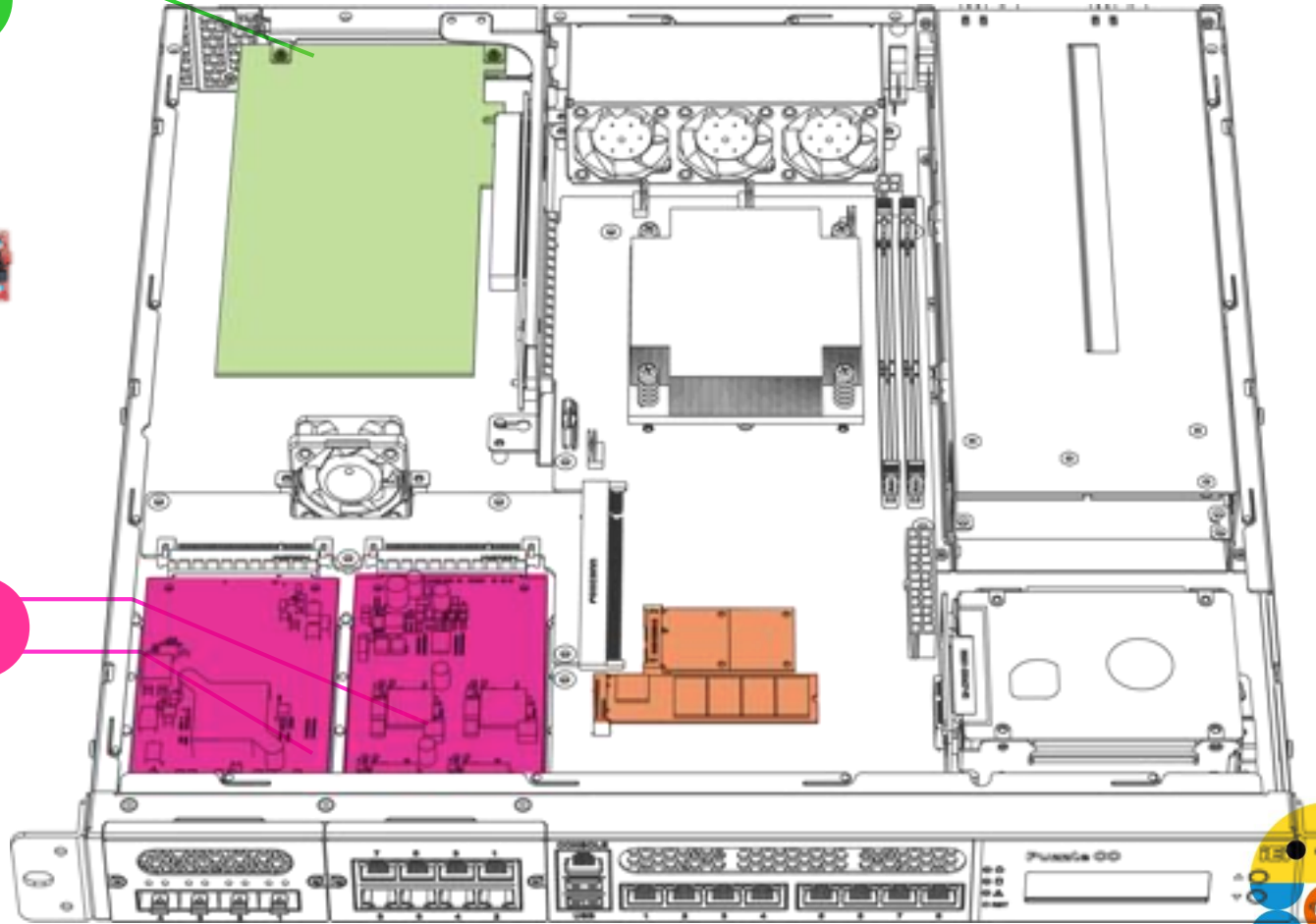


Extensible & Modular Design

Standard PCIe slot

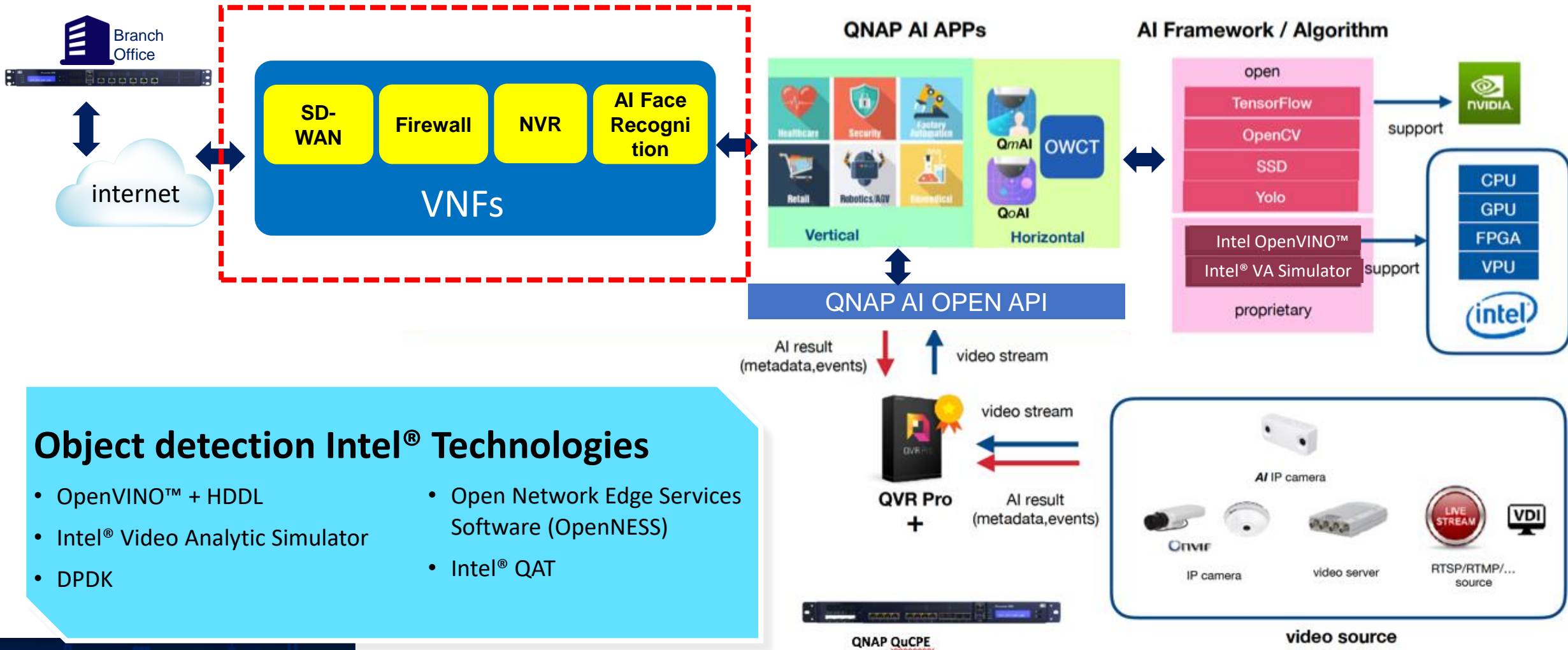


Network modules support 8 PCIe lanes*



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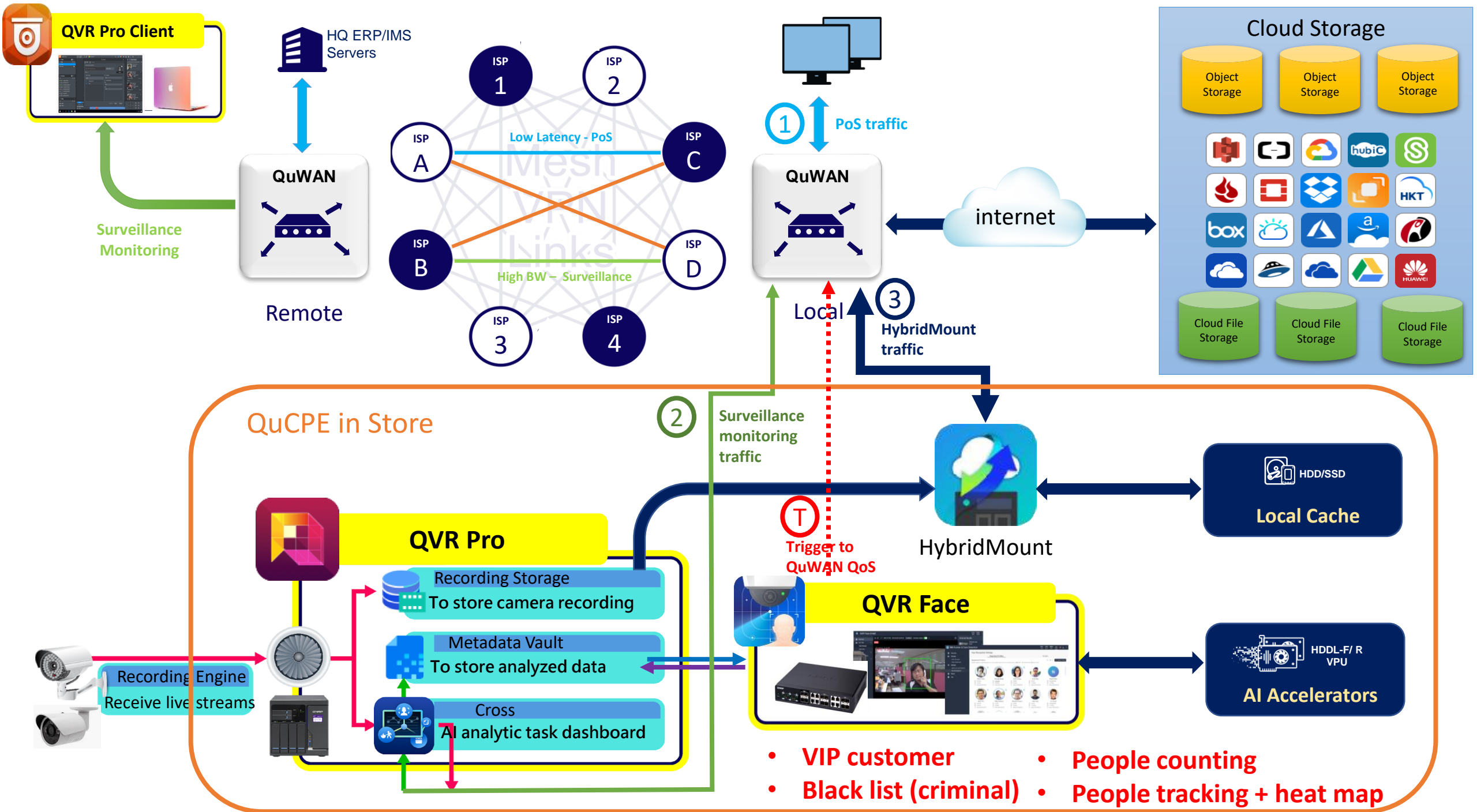
uCPE Retail Deploy Scenario

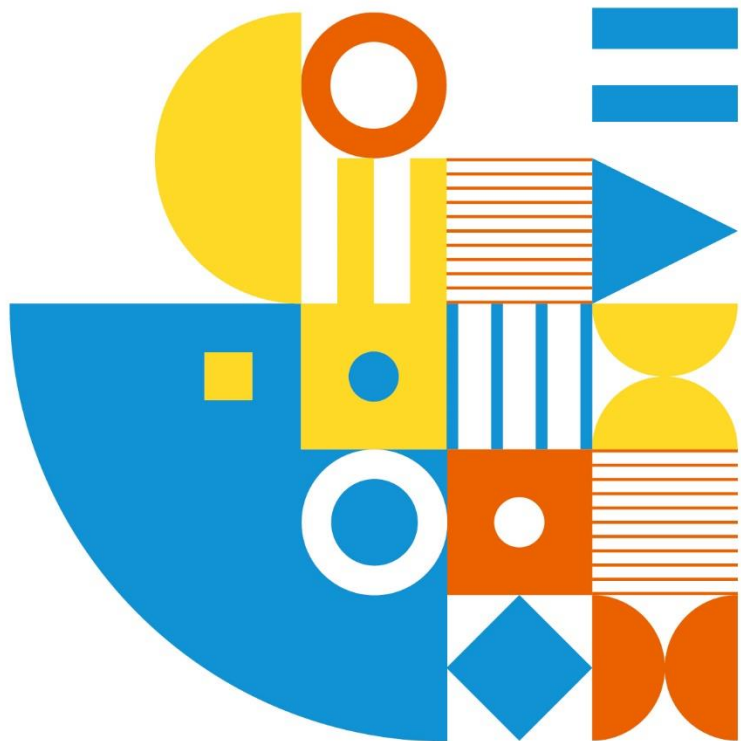


Object detection Intel® Technologies

- OpenVINO™ + HDDL
- Intel® Video Analytic Simulator
- DPDK
- Open Network Edge Services Software (OpenNESS)
- Intel® QAT

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Thank You !!

QNAP

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