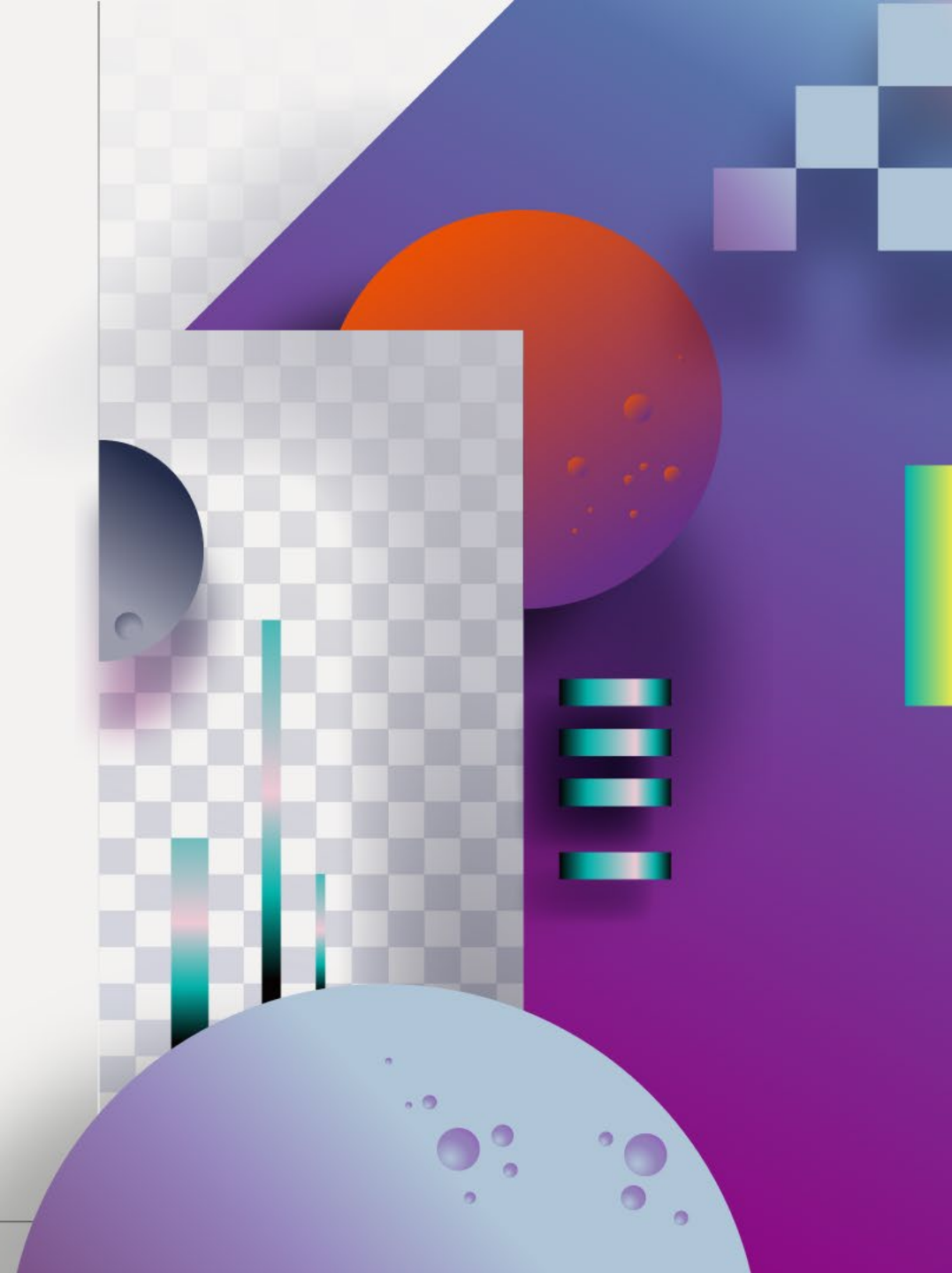




# Company Profile

2022

Stay  
one  
step  
ahead



- About QNAP
- Product Applications
- Full QNAP Product Lineup
- Operational Sustainability
- Global Businesses Deployment
- Manufacturing and Quality Control

The graphic design on the right side of the slide is a complex, abstract composition. It features a variety of geometric shapes and patterns. At the top left, there is a cluster of small, light blue squares. Below this, a semi-circle transitions from green to yellow. To the right, a vertical bar shows a gradient from orange to purple. Further down, there are several diagonal lines in purple and blue. A large, stylized letter 'S' is formed by a red-to-purple gradient. Below the 'S', there are horizontal blue lines and a semi-circle with a blue-to-white gradient. At the bottom right, there is a square with a green-to-yellow gradient. The overall aesthetic is modern and tech-oriented.

**Stay  
one  
step  
ahead**

# About QNAP

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The name of QNAP originates from “Quality Network Appliance Provider”. We are committed to developing software applications, dedicated to optimizing hardware design, and have established our own production lines to offer comprehensive and cutting-edge technological solutions.

- QNAP was established in 2004
- We have 12 subsidiaries / 5 offices in 28 countries around the world to serve our customers
- More than 1300 fantastic employees work at worldwide locations of QNAP
- Over 600 engineers dedicated to R&D and innovation



## Values

Smart innovation that integrates storage, networking, and video communication to redefine modern IT solutions

## Vision

Software-defined architectures to establish future-proof digital information flow

## Mission

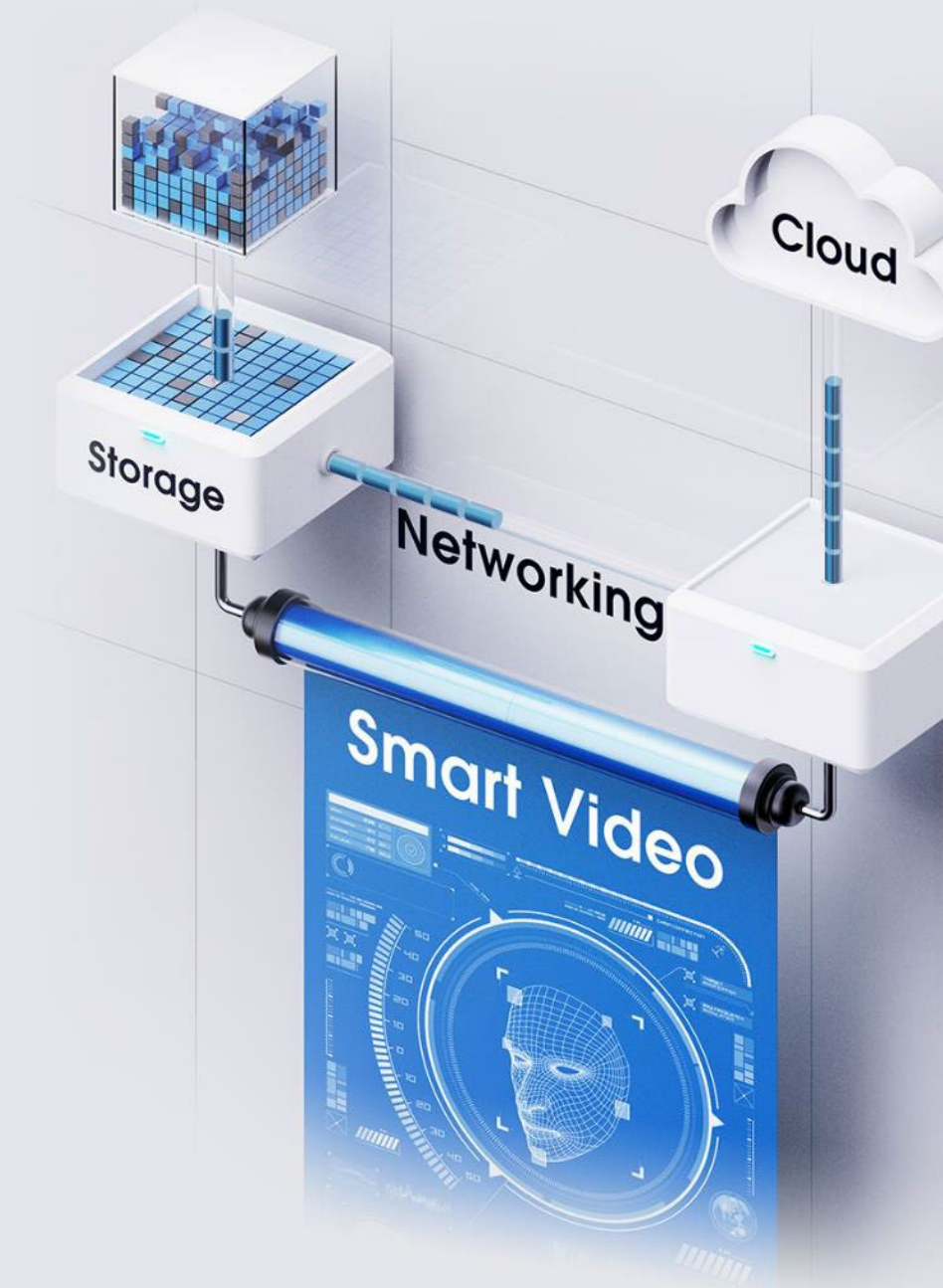
Drive enterprise digital transformation with innovative information technology



# Core Competency

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- Virtualized Storage and Network Communication
- Integrated Hybrid Cloud and AI Value-added Information Technology
- In-house Production foundation and Full-process Production Lines
- Vertical Market Deployment for High-Penetration Businesses
- Local Before-and-After Sales Services from Worldwide Subsidiaries



# Yearbook

**QNAP**



**QNAP Headquarters**  
Established in Taipei



**NL Warehouse**  
Established in Bleiswijk,  
responsible for deliveries to  
European countries



**JP office**  
Established in Tokyo,  
offering before-and-after  
sales services

**TH office:** Established in Bangkok, Thailand,  
offering before-and-after sales services  
**UK office:** Established in Swindon, UK office  
and warehouse offer services to customers in  
UK & Ireland  
**HK office:** Established in Kowloon Bay,  
offering before-and-after sales services to the  
customers in Hong Kong and Macau



**European Headquarters:**  
Based in Willich, Germany,  
the warehouse and service  
center covers European  
customers

2004



2009



2012



2015



2016



2017



2018



2021



2022



**US office/Warehouse**  
Established in Pomona,  
California, mainly offering  
services to customers in the  
Americas



**CA office:** Established in Markham,  
Canada, offering before and after sales  
services

**DE office:** Established in Willich,  
Germany, the office and warehouse  
offers high-end models to European  
customers

**IT office:** Established in Rome, Italy,  
offering before-and-after sales services

**QIN:** Established in Bengaluru,  
India, with an R&D and after-  
sales service center



**GeneVisio Co. Ltd.:** Dedicated  
to 5G networks and  
telecommunications, offers the  
core solutions of 5G networks

**GENEVSIO**

# Awards

## 2017 Red Dot Award: Product Design



reddot award 2017  
winner

TVS-873 10GbE  
Business NAS

## 2018 Red Dot Award: Product Design



reddot award 2018  
winner

TVS-951X 9-bay 10GbE  
Multimedia NAS

## CES 2019 Innovation Awards



HS-453DX  
Fanless NAS



reddot winner 2022



## 2017 EHA (European Hardware Awards)



NAS Excellence Awards  
TS-451+ Quad-Core NAS  
for homes and businesses

## 2018 Best Choice Award



TS-328 3-bay RAID  
5 NAS

## 2021 Red Dot Award: Innovative Product Design



reddot winner 2021  
innovative product

QGD-3014-16PT  
Desktop Smart Edge  
PoE Switch

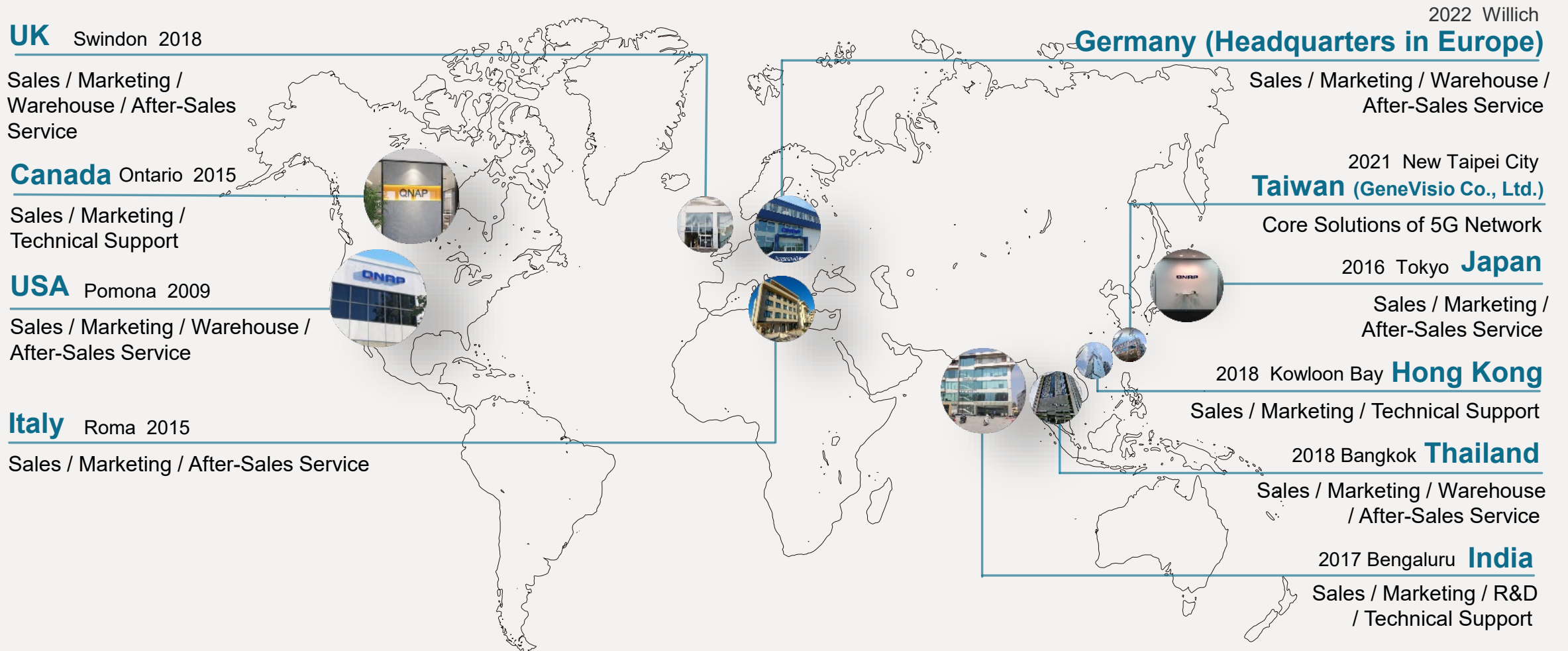


## 2022 Red Dot Award: Product Design

TS-h1290FX Desktop 12-bay All-Flash NAS

# Worldwide Deployment of Subsidiaries

The deployment of QNAP subsidiaries around the world is shown as follows





# Corporate Leadership

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**Chairman of QNAP**

Teddy Kuo



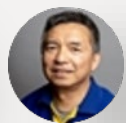
**General Manager of QNAP**

Meiji Chang



**QUS**

**James Wu**  
Regional VP  
of US



**QCA**

**Siimon Tsai**  
Regional VP  
of Canada



**QDE**

**Dale Chen**  
Regional VP  
in Europe



**QGV**

**Bryon Lin**  
General  
Manager of  
GeneVisio  
Co., Ltd.



**QHK**

**Banson Chang**  
Regional VP of  
Asia Pacific



**QIT**

**Tony Chou**  
Regional  
Manager of  
Southern  
Europe



**QJP**

**Jack Yang**  
Regional VP  
of Japan &  
Korea



**QTH**

**Banson Chang**  
Regional VP of  
Asia Pacific



**QUK**

**Posen Wang**  
Regional  
Manager of  
UK



**QIN**

**Prasanna Mumbai**  
Office Manager of  
India R&D Center

# Major Customers

---

## Agents

**INGRAM**  
MICRO

**DICKER**  
DATA

**TechData**

**ALSO**

**NCpt**

**BREVI**

**COMPUTER  
GROSS**

**TEKWIND**

**CMS**  
distribution

**FN**  
konzepte

**e** esprinet

# Major Customers

## eShop

PChome ONLINE 24h 購物

MOMO 購物網

amazon



amazon.de



cyberport



amazon.co.uk  
amazon.co.jp

ALTERNATE

notebooksbilliger.de

SPAN.COM

mwave<sup>®</sup>

# Major Customers

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## Retailer



# Major Customers

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## Reseller



# Xizhi Headquarters

## Number of Employees

456

## Scope of Business

- Administration
- General Affairs
- Finance
- Legal
- Information
- Sales and Marketing
- Product Development
- R&D
- Testing
- Technical Support
- Logistics



# Xinsheng Office

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## Number of Employees

118

## Scope of Business

Product Development / R&D



# Hsinchu Office

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## Number of Employees

98

## Scope of Business

Product Development / R&D





# Taichung Office

## Number of Employees

18

## Scope of Business

Product Development / R&D



# Kaohsiung Office

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## Number of Employees

57

## Scope of Business

Product Development / R&D



# Product Applications

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# Information Engineering

- IT Storage Architecture
- Data Backup and Recovery
- Infrastructure as a Service (IaaS)
- Workspace Collaboration
- Network Infrastructure



# Video Surveillance & Teleconferencing

- Live Stream and Surveillance
- AI-powered Surveillance Event Search
- High-availability Recording Takeover
- HD Wireless Projection
- Multipoint Video Conference System



# Content Creator & Video Editing

- 4K High Resolution Online Editing
- Thunderbolt High-speed Transmission
- Petabyte-scale File Storage
- Integrates Non-linear Editing Applications
- Direct-attached Storage



# Retail & Department Stores

- AI Smart Retail Data Analysis
- Facial Recognition Tracking with Non-overlapping Camera Views
- Heat maps of People Flow
- Computes Visit Duration and Conversion
- Centralized Cloud Management



# Healthcare

- Storage and Backup of Confidential Data
- Machine Learning Model for Medical Imaging
- Extraction of Medical Journals and Documents
- Telemedicine and Interaction
- DICOM Integration





# Education

- Multipoint Data Sharing and Synchronization
- FTP File Management System
- Small form factor Classroom Storage Device
- Remote Learning and Interaction
- Campus Safety Surveillance



# Industrial Manufacturing

- NAS with Wide-temperature and Wide-voltage Power Supply
- Network Switch with Industrial Network Management
- Objective Ransomware Information Defensive System
- PoE++ / PoE+ Power over Ethernet Switch
- IoT Private Cloud Platform



# Full QNAP Product Lineup

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# All-flash storage. Ultimate performance.

QNAP's All-Flash Storage Solutions feature ZFS data reduction and SSD optimization technologies to maximize SSD performance and lifespan. Perfect for keeping your business agile and efficient!



## Flash-optimized storage

Write amplification is an undesirable effect of SSDs, bringing challenges to flash memory performance and endurance. QNAP's exclusive Write Coalescing algorithm is engineered for flash optimization by transforming all random writes to sequential writes along with reduced I/O. It not only effectively increases random write performance for all-flash environments but can also improve SSD lifespans.



## Quality of service

Quality of Service helps optimize resource allocation based on I/O and bandwidth for LUNs/shared folders at different service levels. QoS prioritizes the performance of business-critical applications that run concurrently with non-critical applications as well as reducing "noisy neighbor" problems.



## Inline data compression and compaction

Inline data compression shrinks file sizes to lower storage I/O workloads for improved performance. It also helps optimize storage utilization of SSD over-provisioning.



## SSD TRIM

While almost all SSDs have shown consistent write performance degradation, TRIM helps overcome write performance drops. SSD TRIM allows the system to inform SSDs to delete unneeded data blocks. Deletion tasks are processed during system idle times, meaning it does not have to wait for when new data is written to the block.

# High-performance ZFS-based OS with greater reliability

QNAP's QuTS hero operating system combines the app-based QTS with a 128-bit ZFS file system to provide flexible storage management, comprehensive data protection and optimized performance to meet the needs of business-critical applications.



# QuTS hero

ZFS

## Efficient data reduction technology

Inline data deduplication is block-based and runs before data is written to storage. This greatly optimizes storage usage while significantly decreasing storage capacity requirements. Coupled with inline compression and inline compaction technologies, ZFS significantly reduces the overall storage footprint - especially helpful for increasing SSD storage efficiency when highly-repetitive data or massive small files are generated.



## Near-limitless, instant snapshots

ZFS supports up to 65,535 snapshots for iSCSI LUN and shared folders to accomplish well-rounded snapshot versioning. If 1 snapshot is created every hour, 24 snapshots per day, then up to 7 years of snapshots can be created without needing to delete any!



## Up to petabyte capacity per shared folder

The 128-bit ZFS filesystem has huge capacity potential and natively supports standard RAID levels and additional ZFS RAID layouts (RAID Z). ZFS-based QNAP storage solutions provide up to 5PB capacity for individual shared folders, enabling enterprises to tackle storage-demanding applications.



## Real-time SnapSync

The advanced block-based real-time SnapSync ensures that a primary and secondary NAS always keep the same data, providing the strongest support for nonstop business operations and helping users remove the risk of data loss!

# High-speed 25GbE networking

Enable lightning-fast throughput for bandwidth-demanding tasks such as virtualization, massive data transmission, and fast backup/restoration.



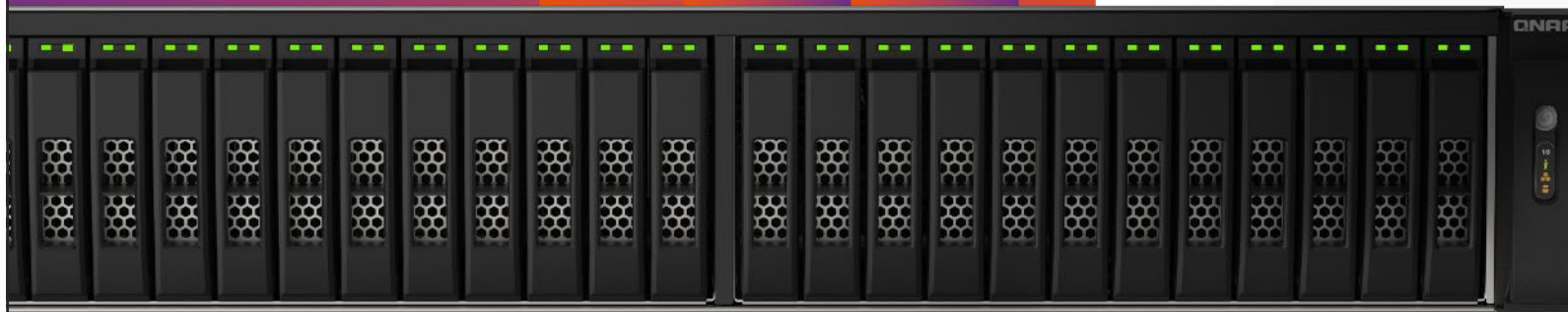
## 25GbE-ready All-flash NAS

The TS-h3088XU-RP provides a built-in dual-port 25GbE SFP28 SmartNIC with the NVIDIA® Mellanox ConnectX-4 Lx SmartNIC controller that supports iSCSI Extensions for RDMA (iSER) to increase performance of data transfer between NAS and ESXi server and offload CPU workloads.



## Affordable 25GbE managed switch

The QSW-M5216-1T is a 25GbE Layer 2 web managed switch that provides flexible network interfaces for high compatibility at an affordable price, enabling small businesses to quickly upgrade to an ultra-high-speed backbone network by integrating to existing network infrastructure.



# 10GbE connectivity: The future is now!

10GbE connectivity improves overall network performance and everyday tasks with ten times the bandwidth of 1GbE. By offering 10GbE-ready NAS, network adapters and switches, QNAP is a one-stop provider for everything you need to create your own 10GbE environment.



## 10GbE NAS solutions

QNAP provides a range of NAS with integrated hardware and software solutions that can make the most of the incredible bandwidth provided by 10GbE networks.



## 10GbE network adapters

QNAP provides 10GbE PCIe expansion card and Thunderbolt to 10GbE adapters to empower devices with 10GbE connectivity. The QM2 Expansion Card not only includes 10GbE connectivity, but also provides the ability to add M.2 SSDs to your workstation or NAS.



## 10GbE switches

QNAP's QSW Series 10GbE switches supports 10GBASE-T and NBASE-T standards, allowing you to take advantage of higher network speeds with existing Cat 5e and 6a cables. Both SFP+ (fiber) and RJ45 (copper) ports are available for servicing a range of network needs.

# Breakthrough performance and outstanding connectivity with Thunderbolt NAS

QNAP offers the very best in connectivity with Thunderbolt™ NAS. Providing speed and versatility that standard NAS cannot match, video production professionals using QNAP Thunderbolt™ NAS enjoy enhanced workflows, unprecedented speed, and incredible versatility.



## Ultra-high speed transfer

With transfer speeds of up to 40GbE, file sharing and high-resolution multimedia editing is greatly boosted.



## Facilitate 10GbE workflows with Thunderbolt-to-Ethernet

The innovative T2E Converter bridges Thunderbolt and Ethernet networks, allowing Thunderbolt-enabled computers to connect to these networks via their Thunderbolt connection to the Thunderbolt NAS. This saves a 10GbE port and eliminates the need for extra adapters or network cards.



## High availability with USB Type-C

Compatible with USB Type-C, Thunderbolt NAS can easily centralize file storage and sharing from any USB Type-C device without needing a different cable.



## Collaboration station for Mac and Windows

The increased bandwidth of Thunderbolt 3 enables smooth video editing and faster file sharing for photographers, video editors and graphic designers. Several Thunderbolt™ devices can be connected to the Thunderbolt NAS to process real-time photo and audio editing simultaneously without impacting system performance.



# Flexible and economical storage expansion

Direct-attached Storage (DAS) adds additional storage capacity to your PC by being directly connected via USB or another port. DAS is usually plug-and-use to a single device and is suitable for users who seek extra storage space and not the advanced features and network connectivity of NAS.



## RAID Support

QNAP DAS supports various RAID levels to improve performance and data protection.



## Simple Interface

The QNAP External RAID Manager helps monitor the DAS system, drives, and health status. It automatically sends system alerts to your PC if an error occurs.



## For NAS Expansion

QNAP DAS can be used with either USB Type-C, SATA, or SAS for faster data transfer and can be easily managed using QTS / QuTS hero Storage & Snapshots. The TL series is suited for NAS expansion.



## Effortless Setup

The DAS is completely plug-and-use and does not require any network configuration. An eject button is included to quickly remove the DAS from the connected computer.



## For PC Expansion

QNAP DAS are ideal choices for PC users looking to expand their storage space. They use USB Type-C, SATA, or SAS for faster data transfer and support software and hardware-controlled RAID configurations for flexible storage configuration.

# Next-generation intelligent IP surveillance and remote backup solution

With the subscription-based QVR Elite smart surveillance solution you only pay for the channel licenses you need, allowing you to affordably safeguard your property. You can arrange a dedicated, independent storage space for surveillance data on the QNAP NAS and enjoy simplified camera management, storage space allocation, camera live viewing and playback. Recordings are saved as MP4 files for playback on nearly every device.



## Direct monitoring on an HDMI display

Easily play recordings with a connected HDMI display using the QVR Smart Client. Search for event recordings within a time period and detection area specified in the user interface.



## Leverage AI-based applications for value-added services

QVR Elite's surveillance footage can be processed by multiple QNAP AI-based video analytics applications (such as QVR Face, QVR Human, QVR DoorAccess) to empower surveillance systems with smart door access, facial recognition, human counting capabilities and more.



## QVR Pro Client: Centralized monitoring and management

QVR Pro Client enables monitoring multiple channels simultaneously. Flexibly switch between live view and playback mode to easily fulfill centralized monitoring and management.



## Records using the MP4 video format

QVR Elite records video files in the universal MP4 format, allowing for smooth playback on any device. In addition, you can conveniently back up recordings to other QTS / QuTS hero NAS or cloud storage space using Hybrid Backup Sync or HybridMount.



## Easy capacity expansion

Create multiple recording spaces for QVR Elite recordings. If you run out of storage space, you can easily expand your NAS storage by connecting to QNAP expansion enclosures.



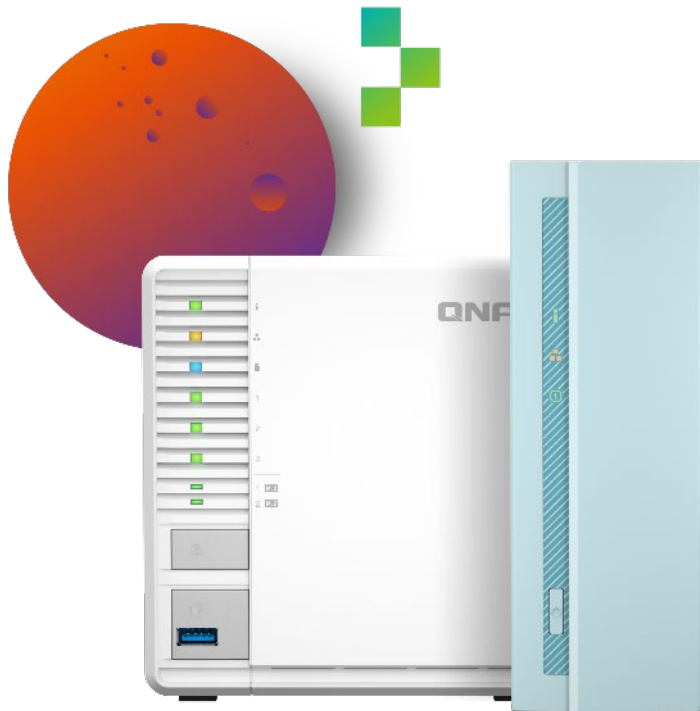
## Low cost: flexible subscription plan

QVR Elite is subscription-based, with monthly, yearly, and 3-year subscription plans. You can build a robust surveillance system with a low-cost monthly price of US \$1.99 per channel. You can alter the subscription based on your needs to reach higher cost efficiency.



# Easily build a personal cloud and access anywhere

In contrast to the limited storage space and potential security issues with public cloud services, the QNAP NAS is advantageous for establishing a secure and large-capacity personal cloud.



## An easy-to-use, all-in-one backup solution

The QNAP NAS can do many things, but at its heart is a complete backup solution to protect your files and data. By regularly backing up your files and device content, you can make data loss a thing of the past.



## Greater multimedia enjoyment

The QNAP NAS comes with a wide range of media applications, including Photo Station, Video Station and Music Station, allowing you to easily manage and view your media files.



## Easy and secure remote connection with myQNAPcloud

myQNAPcloud allows you to remain connected to your QNAP NAS using a unique domain name. No complex routing or configuration is required, and myQNAPcloud strengthens SSL Certificate keys to 2048-bits to enable secure remote access, management, and sharing files and check your system status from anywhere.



## A secure backup center with snapshot protection

Snapshots are essential for NAS data protection, and their block-level feature makes it a dependable data protection method in the face of growing ransomware threats.



## Connect to a TV or monitor with HDMI

With HDMI output, the QNAP NAS allows you to directly enjoy multimedia content, use web browsers, manage your NAS, or watch recorded surveillance footage or live feeds on your NAS.

# QuWAN SD-WAN solution for resilient IT infrastructure

QNAP's QuWAN SD-WAN solution features Auto Mesh VPN, IPsec encryption and cloud-centric management. Compatible with a wide range of QNAP solutions, QuWAN enables SMBs to efficiently build a dependable network at a cost-effective price, and to facilitate digital transformation, multi-site expansion and remote working.



## Auto mesh VPN

Automatically establishes a mesh VPN and removes the need for manual static VPN settings.



## Cloud management

The QuWAN Orchestrator provides powerful and convenient central network management.



## Network security

Adopts Deep Packet Inspection to analyze L7-Payloads for content information from websites and devices.



## WAN optimization

QuWAN adopts load balancing technologies to combine the bandwidth of different ISPs and to prioritize bandwidth utilization.



## Cost optimization

Optimizes fiber/network transmission to lower the cost of VPN equipment and bandwidth expenses.



## Web GUI

Provides user-friendly functionality, including a dashboard, eMap, traffic analysis, and more.



# Enjoy a high-coverage Mesh Wi-Fi experience

The QMiro-201W and QMiroPlus-201W support tri-band Wi-Fi 5 wireless transmission and Mesh Wi-Fi handover, ensuring stable Wi-Fi connections and greater signal quality via a Mesh Wi-Fi network.



## Connect your Home with High-Coverage Tri-Band Mesh Wi-Fi

QMiro-201W / QMiroPlus-201W adopts Wi-Fi Handover technology, allowing multiple users to be automatically connected to the router with the strongest Wi-Fi signal with a single SSID. With dual-band 2.4GHz/5GHz, QMiro-201W / QMiroPlus-201W also provides a dedicated Mesh 5GHz frequency for high-bandwidth connections between Mesh Wi-Fi routers, guaranteeing smooth and stable Wi-Fi connections.



## Dedicated Tri-band Mesh Wi-Fi for smooth connections

Supports tri-band Wi-Fi of 2.4GHz, 5GHz and a dedicated Mesh Wi-Fi 5GHz band for high-bandwidth connections between Mesh Wi-Fi routers. Unlike conventional dual-band routers whose 5GHz band must be shared between Wi-Fi clients and Mesh Wi-Fi routers, the QMiro-201W /QMiroPlus-201W guarantees smooth and stable Wi-Fi connections.

# Smart Video Conferencing Solution

All-in-one: video calling, wireless presentation and meeting recordings.

QNAP Smart Video Conferencing Solution is a high-quality video conferencing system, providing an ideal solution for small meeting rooms with support for wireless presentations, cross-platform communication and local storage.



## Running KoiMeeter video conferencing operating system

KoiMeeter provides an dedicated solution for small meeting rooms with support for wireless presentations, cross-platform communication and local storage.



## Free yourself from cables with 4K wireless projection

4K wireless projection provides a seamless wireless projection experience free from complex cabling and without needing additional projection devices.



## Up to four-way video conferencing and collaboration

Multi-point video conferencing with the QNAP KoiBox-100W, KoiMeeter, the KoiMeeter mobile app, and compatible SIP systems.



## Local storage for record and store meetings

Install a 2.5-inch SATA drive and locally store all your meeting videos, audio and shared files while also enabling further usage as training materials.

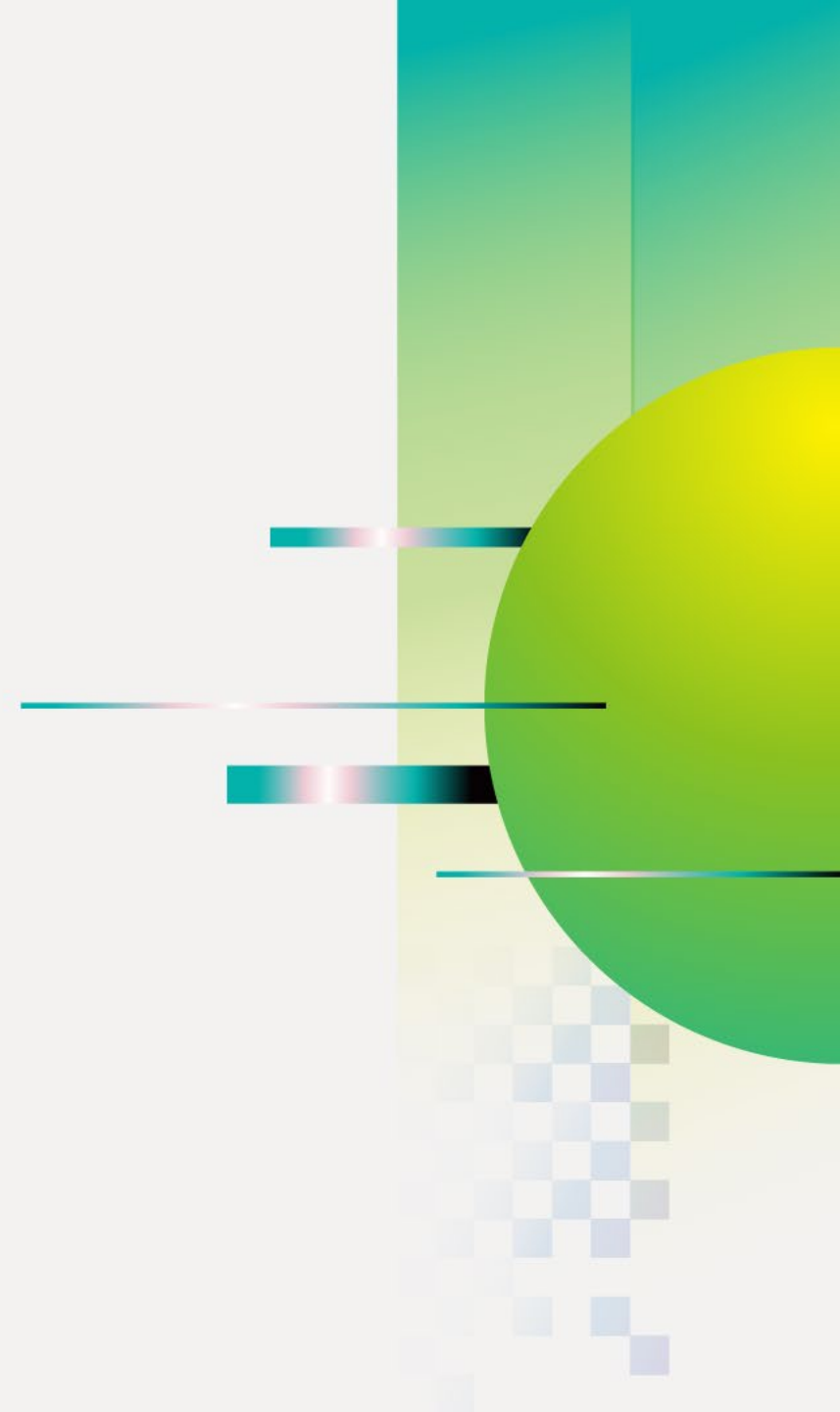


## Optimized cloud meeting experience

The QNAP Smart Video Conferencing Solution supports popular cloud meeting services, such as Zoom®, Skype™, Microsoft Teams®, Cisco Webex®, and Google Meet™ for streamlining communication between different platforms.

# Operational Sustainability

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# Worldwide Quality Control Processes Certified by ISO

The quality of QNAP products and services is accredited by international certifications, demonstrating the conformity to high-quality standards



**ISO 9001**  
Quality Management System



**ISO 27001**  
Information Security Management System



**ISO 14001**  
Environmental Management System



**ISO 45001**  
Occupational Health and Safety Management System  
CSR Certification



**ISO 27017**  
Cloud Information Security



**ISO 27018**  
Cloud PII Protection Management



# QNAP ESG Guideline

Environmental protection, employee health and safety, and social participation fulfill corporate social responsibility and the pursuit of business continuity

## Environmental Sustainability

- Environmental Policy
- Carbon reduction management
- Green procurement
- Environmental sustainability education
- Supply chain management
- Energy and waste management

## Customer Engagement

- Product and service liability
- Ensuring confidentiality of customer information
- Customer relationship maintenance
- Green products

## Employee Care

- Employee compensation and benefits
- Labor rights
- Employment environment
- Competency management
- Labor relation
- Education & training

## Social Involvement

- Social care
- Community involvement
- Charitable activities
- Corporate image

## Corporate Governance

- Integrity management
- Organization strategy
- Regulations compliance
- Information transparency
- Internal control
- Stakeholder compuncions



# Green Product Design Management

QNAP takes Sustainable Development Goals (SDG 12) as its corporate philosophy, and also regards the sustainability of the Earth as its corporate vision. Starting from product design, elimination of hazardous elements and packaging design, with innovative thinking, we are dedicated to developing Green products with low consumption and low correlation elements.

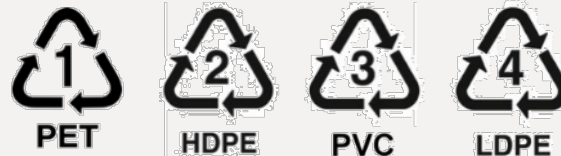
## Green Materials

- RoHS II
- RoHS China
- REACH
- United States “TSCA” regulation
- Taiwan EPA
- Conflict Free Minerals Policy
- EU Deca-BDE, PFOS and DMF



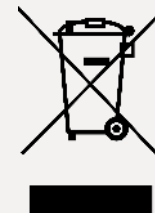
## Green Packaging

- EU Packaging and Packaging Waste Directive 94/62/EC
- The total amount of Pb, Cd, Hg and Hexavalent Cr doesn't exceed 100mg/kg (ppm)

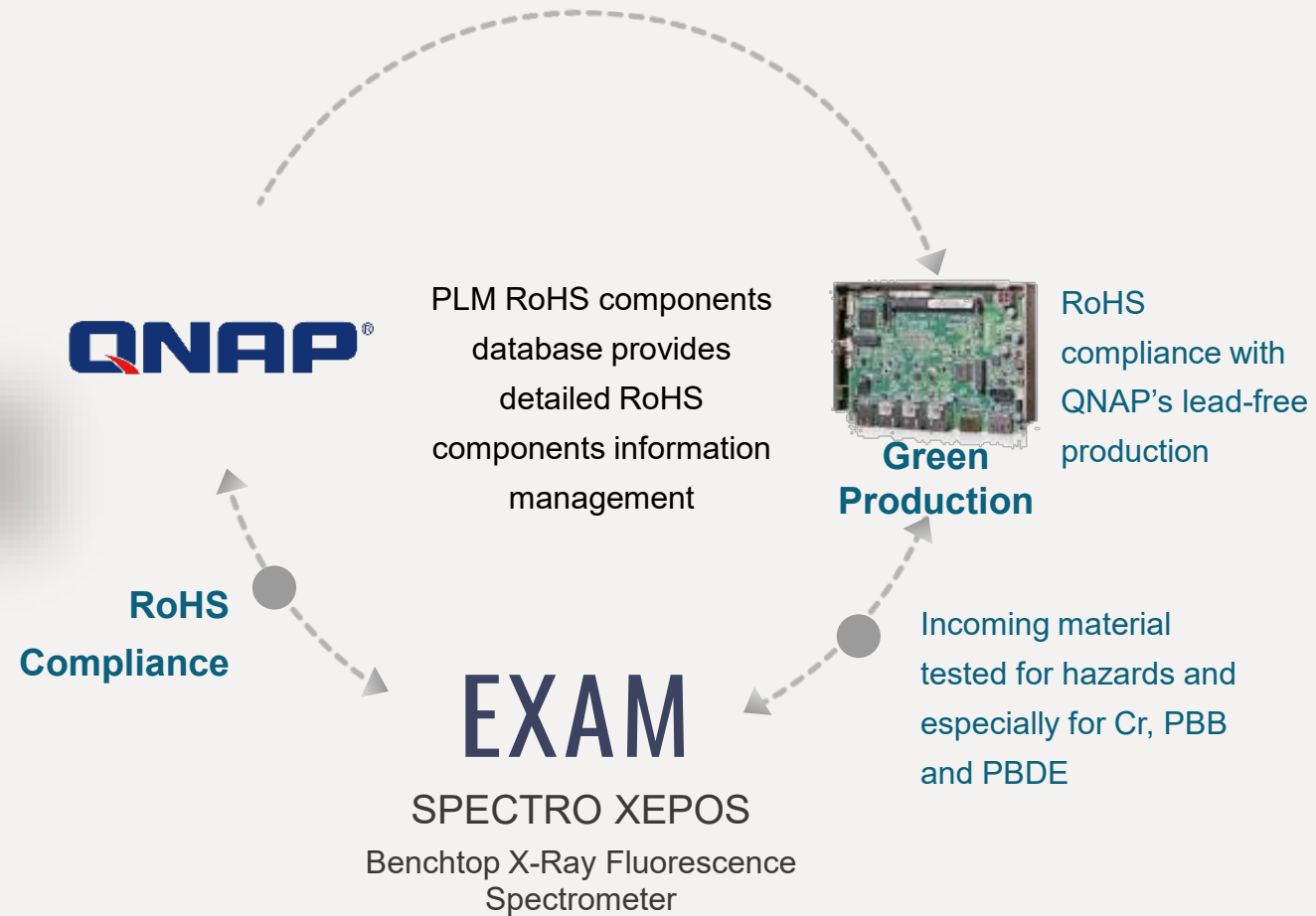
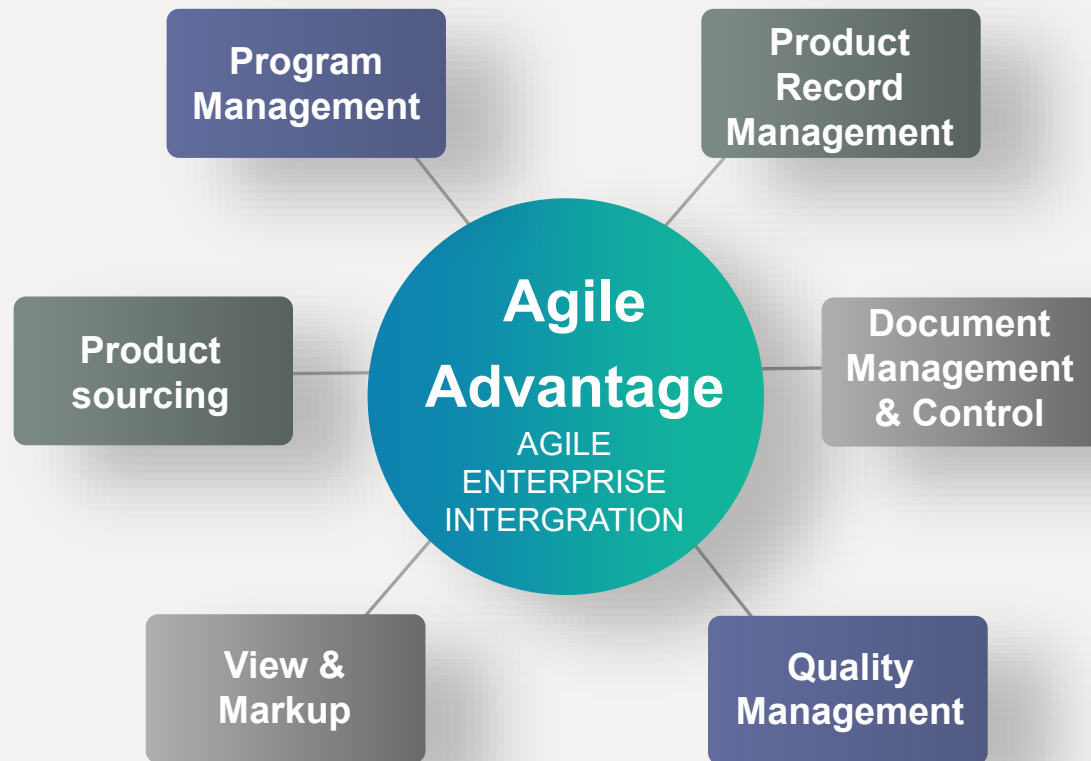


## Product Recycling

- Waste Electrical and Electronic Equipment (WEEE) Directive



# RoHS Compliance



# Environmental Responsibility

## QNAP plans to reduce CO<sub>2</sub> emissions by 4% in 5 years

- Operation guidelines related to environmental protection management, environmental management systems (ISO 14001)
- Energy saving appliance replacement, and tracking CO<sub>2</sub> emissions
- Reduce electric consumption by using LED lights and inverter air conditioners throughout the company



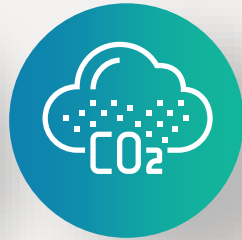
Waste  
gas



Waste  
water



Waste



Carbon  
emissions



# Supply Chain Management

---

QNAP has a skilled supply chain management team that proactively uses advanced ERP tools to help customers gain a competitive edge

QNAP ensure that our customers can reduce their TCO (Total cost of ownership) with the following criteria



**Reduced  
Inventory**



**Stable  
Quality**



**Time to  
Market**



**Reliable  
Source**



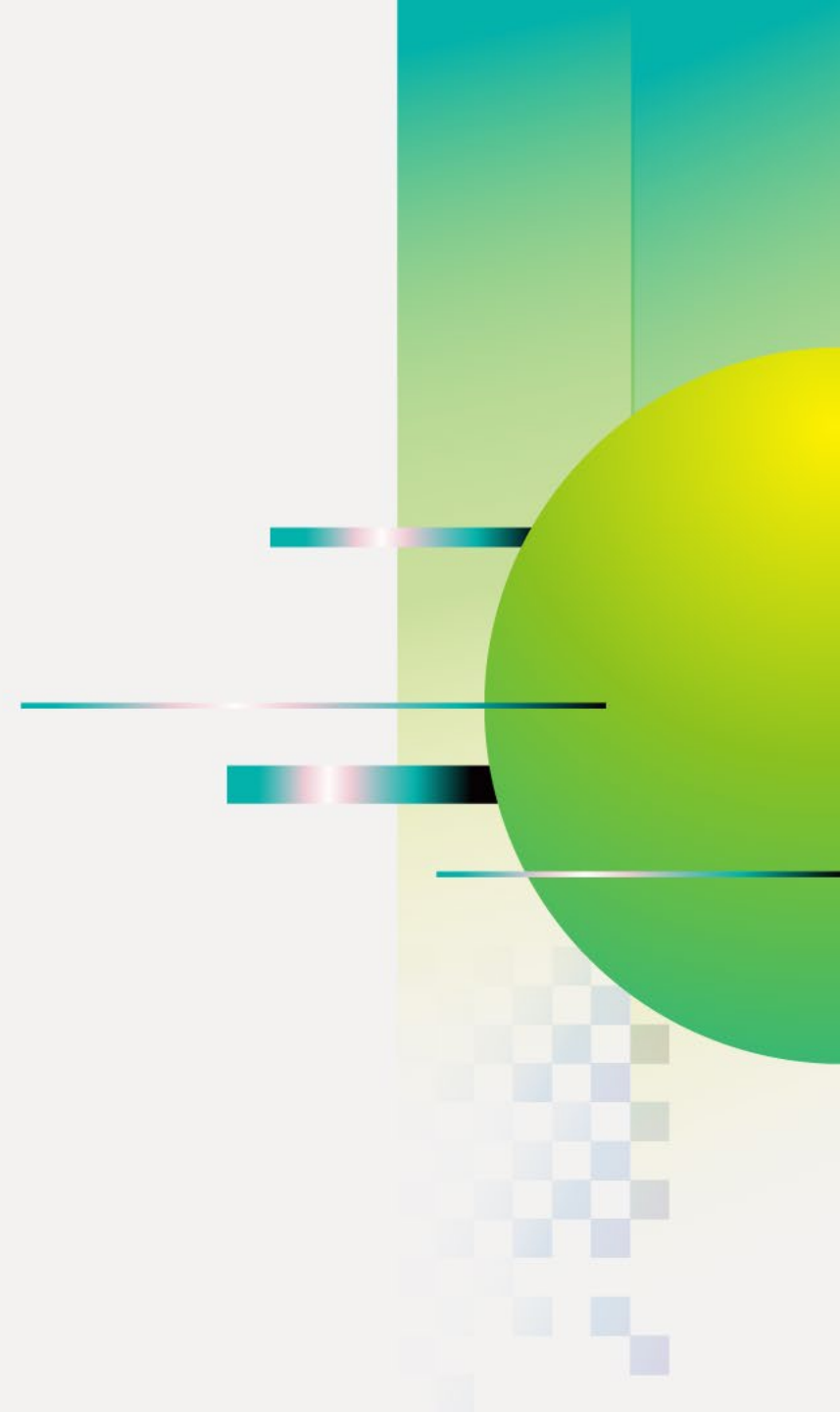
**Competitive  
Costs**



**Conflict Mineral  
Procurement  
Strategy**

# Global Deployment of QNAP

---



# Qidu Factory

---

Gross Building Area

**19,180**

square meters

PCBA Capacity in 2021

**30K** per month

SMD x5 & DIP x2

System Capacity in 2021

**28K** per month

Assembly Line x 13



# USA

---

Office / Warehouse Center

Time of Establishment

2009

Location

Pomona CA





# USA

Office / Warehouse Center

Number of Employees

47

Scope of Business

Before & After Sales Services  
Warehouse Center



# Germany

European Headquarters

Time of Establishment

2022

Location

Willich



# Germany

European Headquarters

Number of Employees

50

Scope of Business

Before & After Sales Services

Warehouse Center



# Canada

## Office

### Time of Establishment

2015

### Location

Markham, Ontario



# Canada

## Office

### Number of Employees

11

### Scope of Business

Before & After Sales Services



# Italy

---

## Office

### Time of Establishment

2015

### Location

Roma



# Italy

## Office

### Number of Employees

8

### Scope of Business

Before & After Sales Services



# Japan

---

## Office

### Time of Establishment

2016

### Location

Tokyo





# Japan

## Office

### Number of Employees

15

### Scope of Business

Before & After Sales Services



# India

## Office

### Time of Establishment

2017

### Location

Bengaluru (Bangalore)



# India

## Office

### Number of Employees

48

### Scope of Business

R&D and After Sales Service



# Thailand

## Office

### Time of Establishment

2018

### Location

Bangkok



# Thailand

## Office

### Number of Employees

7

### Scope of Business

Before & After Sales Services



# UK

Office / Warehouse Center

Time of Establishment

2018

Location

Swindon



# UK

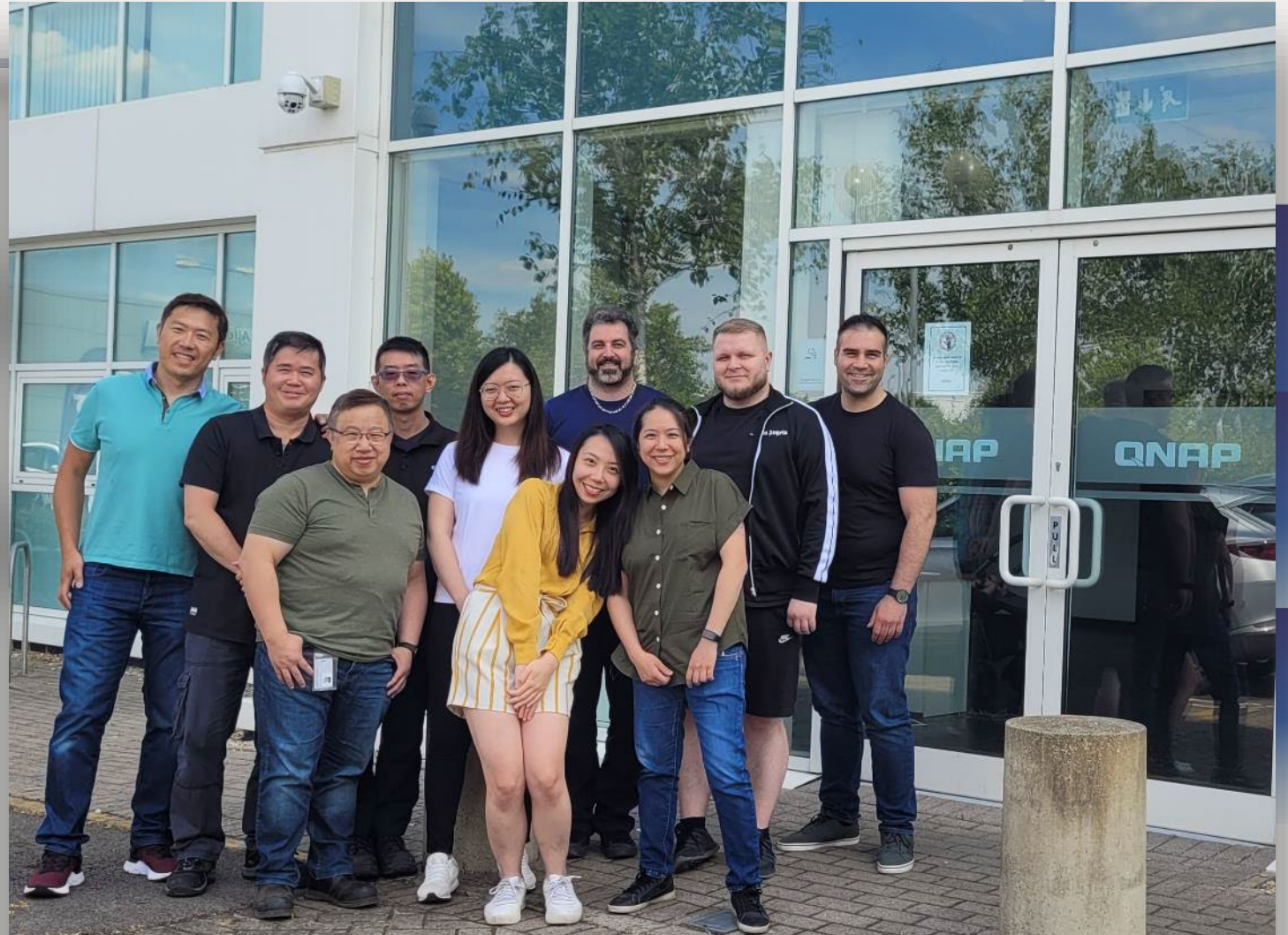
Office / Warehouse Center

Number of Employees

13

Scope of Business

Before & After Sales Services  
Warehouse Center



# HK

---

Office

Time of Establishment

2018

Location

Kowloon Bay





# HK

## Office

Number of Employees

7

Scope of Business

Before & After Sales Services



# GeneVisio

GeneVisio Co. Ltd.

**Time of Establishment**

2021

**Location**

New Taipei City



# GeneVisio

GeneVisio Co. Ltd.

**Number of Employees**

17

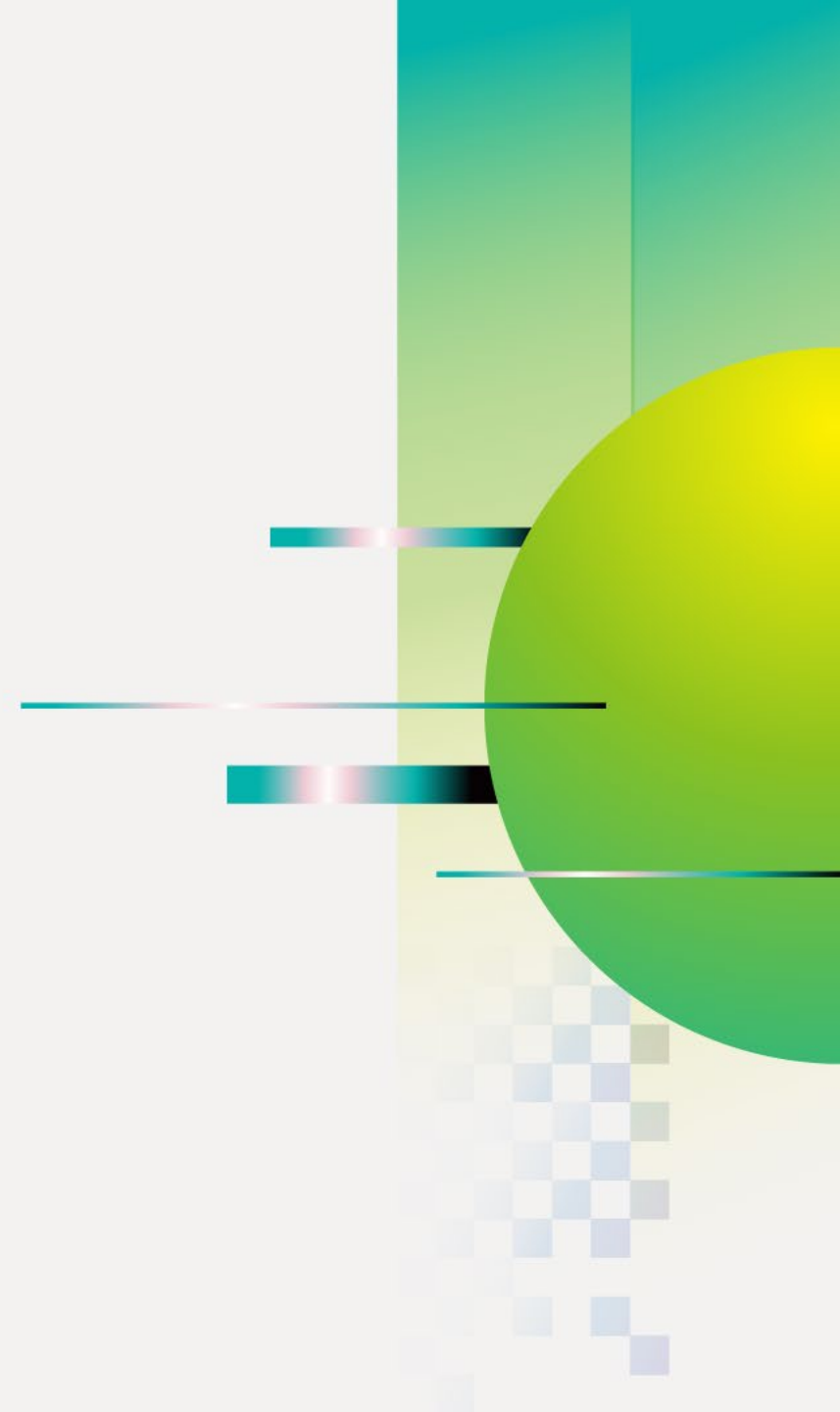
**Scope of Business**

Core Solutions of 5G Network



# Quality Management and Production Process of QNAP

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# QNAP Quality Control Management

**Design**  
Quality Assurance

**R&D**

- NPI
- ECR/ECN
- P/N approval

**QA Lab**

- Mechanical/signal/environmental reliability capability
- Networking products reliability capability
- Certifications (EMC/Safety)

**Manufacturing**  
Quality Assurance

**IQC**

- Component yield rate

**LQC**

- First article inspection
- On line audit

**OQC**

- Finish goods yield rate

**QE**

- Analysis defect symptom
- Feedback issues
- Track improvement

**Customer**  
Quality Assurance

**Customer**

- Annual customer satisfaction survey & feedback

**FAE & RMA**

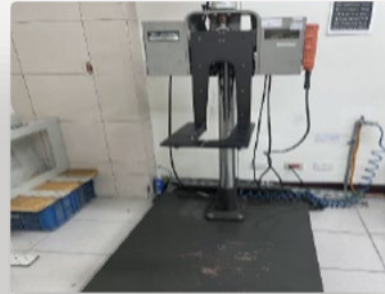
- Customer application service
- Return product analysis
- Technical support
- DOA & RMA
- Product lifecycle management
- Production traceability
- Quality traceability

# Mechanical Reliability Capability

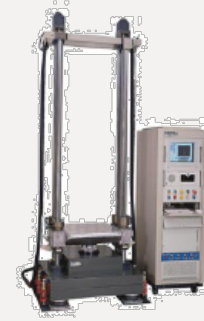
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Vibration Test



Drop Test



Shock Test



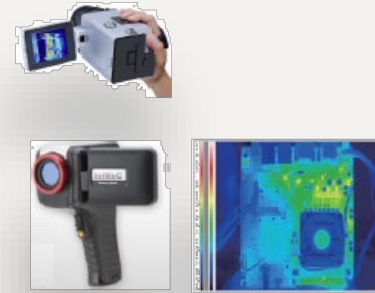
3D Printing RP sample



Thermal Analysis  
Lab



Natural Convection  
Chamber



IR Camera



Temperature Data  
Acquisition

# Experienced Heat Flow Engineering

## Data Collection

- Power consumption
- Mechanical drawing
- Material property
- Component spec.
- Customer request

## Model Building

- Geometry simplifying
- Material property setting
- Condition setting

## Running and debug

- Grid generation
- Grid quality improvement
- Model check

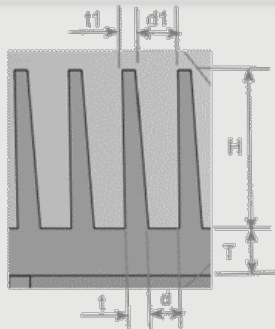
## Post Processing

- Temperature profile
- Air flow profile

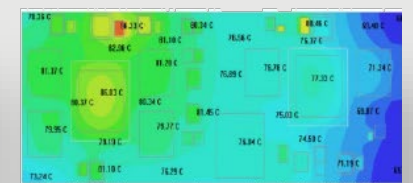
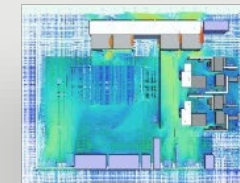
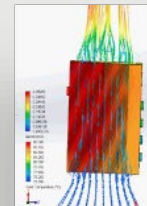
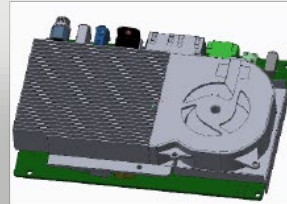
## Thermal Simulation Report

- Temperature results
- Temperature profile
- Flow profile

## Optimal Heat Sink Simulation



## System Thermal Simulation



# Environmental Reliability Capability



Thermal Shock  
With Humidity



Hosedown IPX6



Air Leak Tester  
IPX7 / IP69K



Dust Test



LCD Display and  
Compatibility Test



Acoustic Noise  
Testing



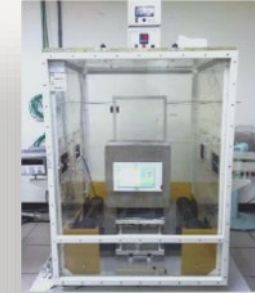
Salt Spray Tester



Natural Convection  
Chamber



Represents real interior environment  
for in-wall mounting system





# Signal Validation Test

## Radio Frequency Testing



Impedance Test

Agilent Network Analyzer



Bluetooth

Anritsu MT8852



WLAN

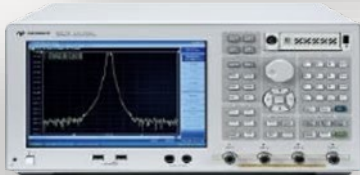
Anritsu MT8860C



Throughput Test

IxChariot / LitePoint IQxel

## Signal / Power / Spectrum



Agilent Signal Gen.



Agilent Power Meter



Agilent Spectrum Analyzer



Tektronix Signal Measurement Labe  
(4 channel 200GS/s)



Sifos POE Tester  
PSE & PD  
(802.3/at/af/bt compliance)

# Networking Specific Design and Validation Facilities

## Testing Center



### Spirent Testing Center

- 100/1G/10G/25G/40G/100G Ethernet (12-Port Dual Media QSFP+)
- Test 16 port RJ45 or fiber (SFP+)\*3
- Test 16 Port RJ45 10G/5G/1G/100M/10M
- Test Standard RFC2544 or RFC 2889
- WiFi-modules

## LAN Performance Test



### Spirent CHS-9000A

- 10/100/1G Ethernet (12-Port Dual Media QSFP+)
- Test 36 port RJ45 or fiber (SFP+)
- Test Standard RFC2544 or RFC 2889

## LAN Performance Test



### Spirent N11U

- 100/1G/10G/25G/40G/100G Ethernet (12-Port Dual Media QSFP+)
- Test 16 port RJ45 or fiber (SFP+)
- Test Standard RFC2544 or RFC 2889

## Spirent 400G Test



### Spirent dX3 G400G Seven-Speed Appliance

- PAM4:  
8 x 400GbE, 16 x 200GbE, 32 x 100GAUI-2, 64 x 50GAUI-1
- NRZ(25G)  
16 x 100GAUI-4, 32 x 50GAUI-2, 32 x 25GAUI
- NRX(Others): 16 x 40GbE, 32 x 10GbE

# Networking Specific Design and Validation Facilities

## 100G Load Tester



### NOVUS 100GE

- Enable high-density multi-rate native 100/50/40/25/10 GE testing
- Leverage affordable lower-density 4-port full feature configuration with field-upgradable option to 8-ports

## 100G Load Tester



### XENA 10/40/100-GigE

- 12 slots in a 4U form factor
- High port density e.g. 144x10GE ports
- Support copper and optical Gigabit Ethernet and 0/40/100/200/400-Gigabit Ethernet modules

## 100G Load Tester



### Spirent CF20 L4-L7

- 1G/10G/40G and 100G interfaces
- Web-based test controller

## 400G Real Time Signal



### Tektronix DPS77004SX

- 70 GHz ATI Performance Oscilloscope Systems: 2 x 70 GHz, 200 GS/s or 4 x 33 GHz, 100GS/s
- 2 x DPS77004SX required for 400GbE PAM4 real-time signals

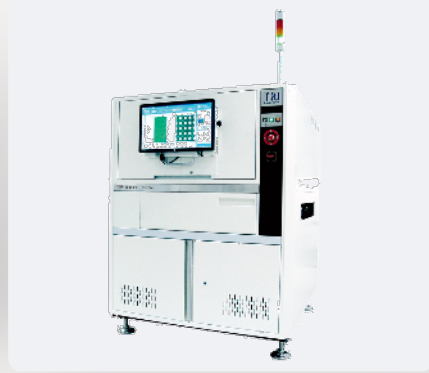
# High Reliability PCBA Production & Quality Management



Omron VT-X750  
High-speed automated X-ray  
CT inspection system



ERKA SERIO 8000



3D Solder Paste  
Inspection (SPI)



Panasonic NPM-W2 /  
NPM-W2S



Pyramax 150A z12



TR7700 SIII Plus



TR7006L



YG100



TR7500



YG88

# Production History Management

## Manufacturing

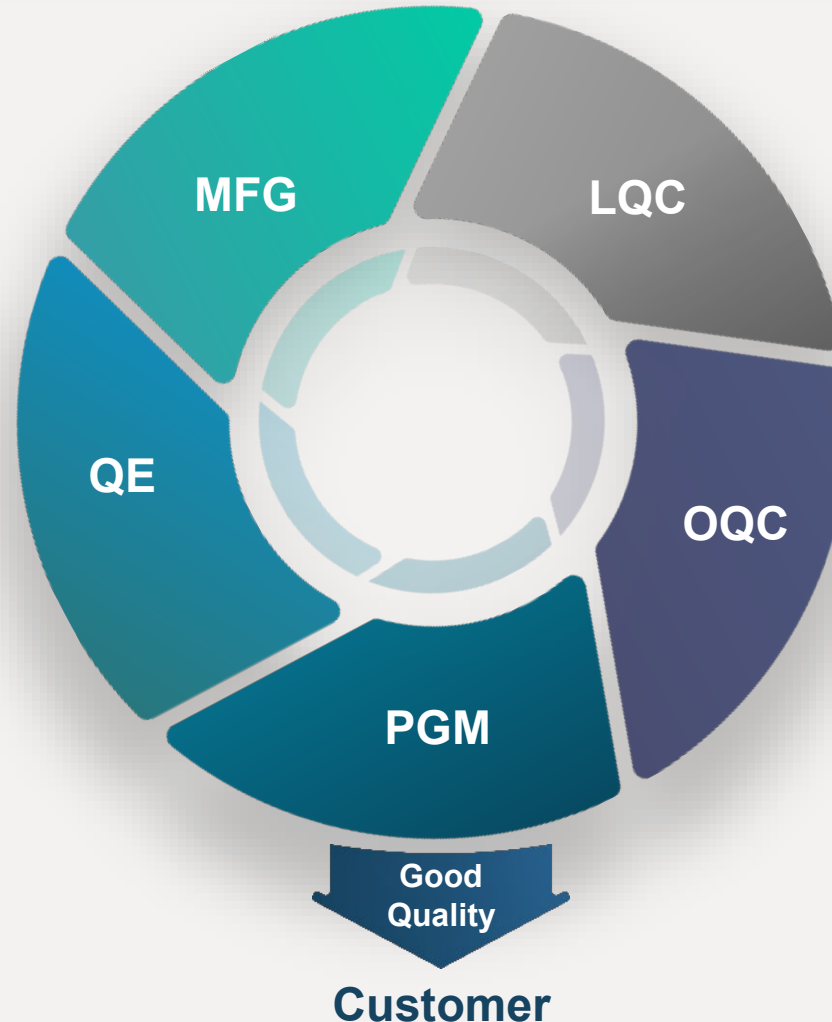
- Visual inspection (cosmetic)
- Functional test (simulation test)

## Quality Engineering

- Analyze defects and take action
- Feedback to related department for future improvements
- Track improvement efficiency

## Project Quality Management

- Lead team members push quality improvement for quality yield rate
  - 4M management
- Follow up customer requirements



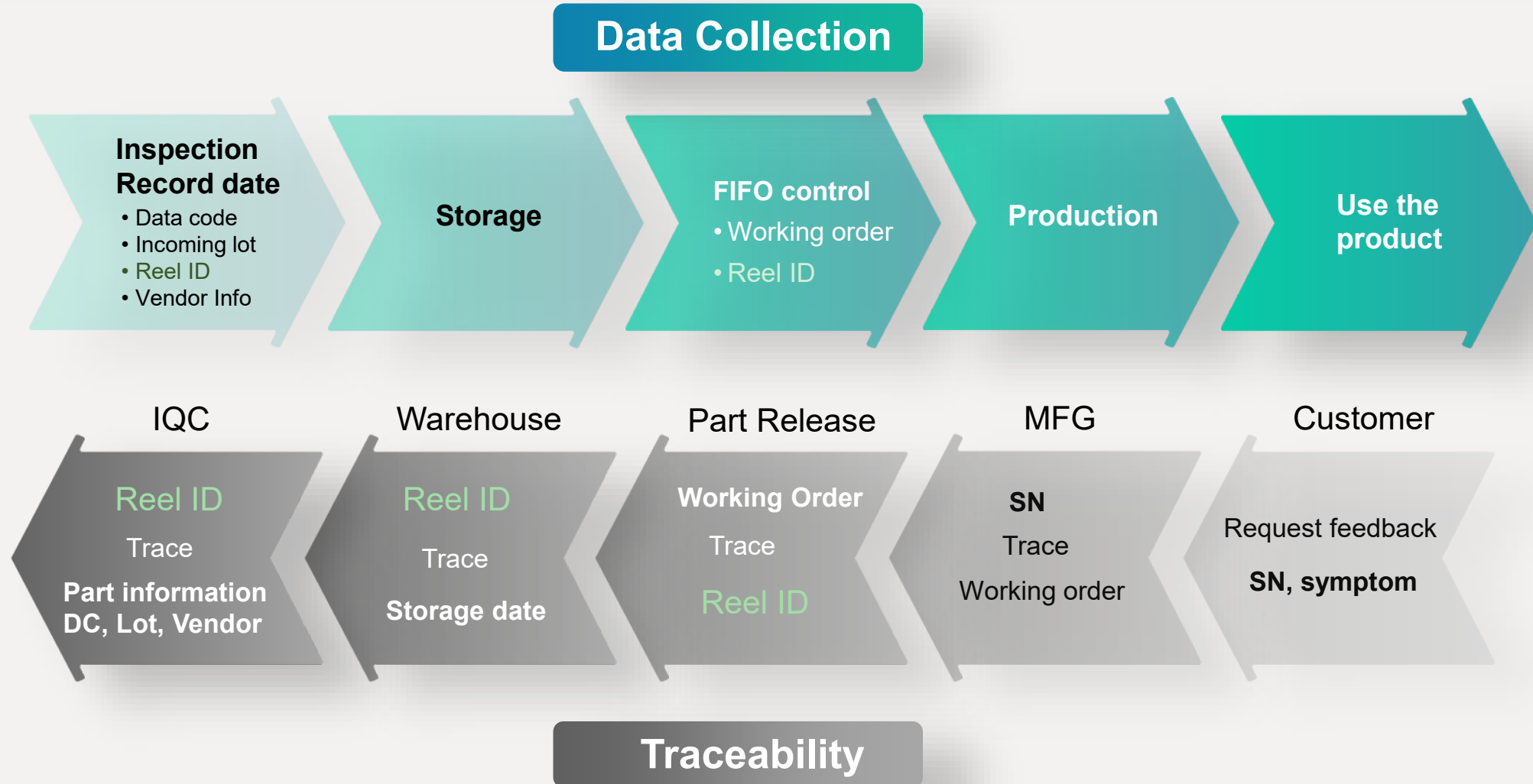
## Line Quality Control

- First article inspection
- On line audit according to checklist
- LQC-SMT 100% inspection
- LQC-DIP 100% inspection
- LQC-ASSY 100% inspection

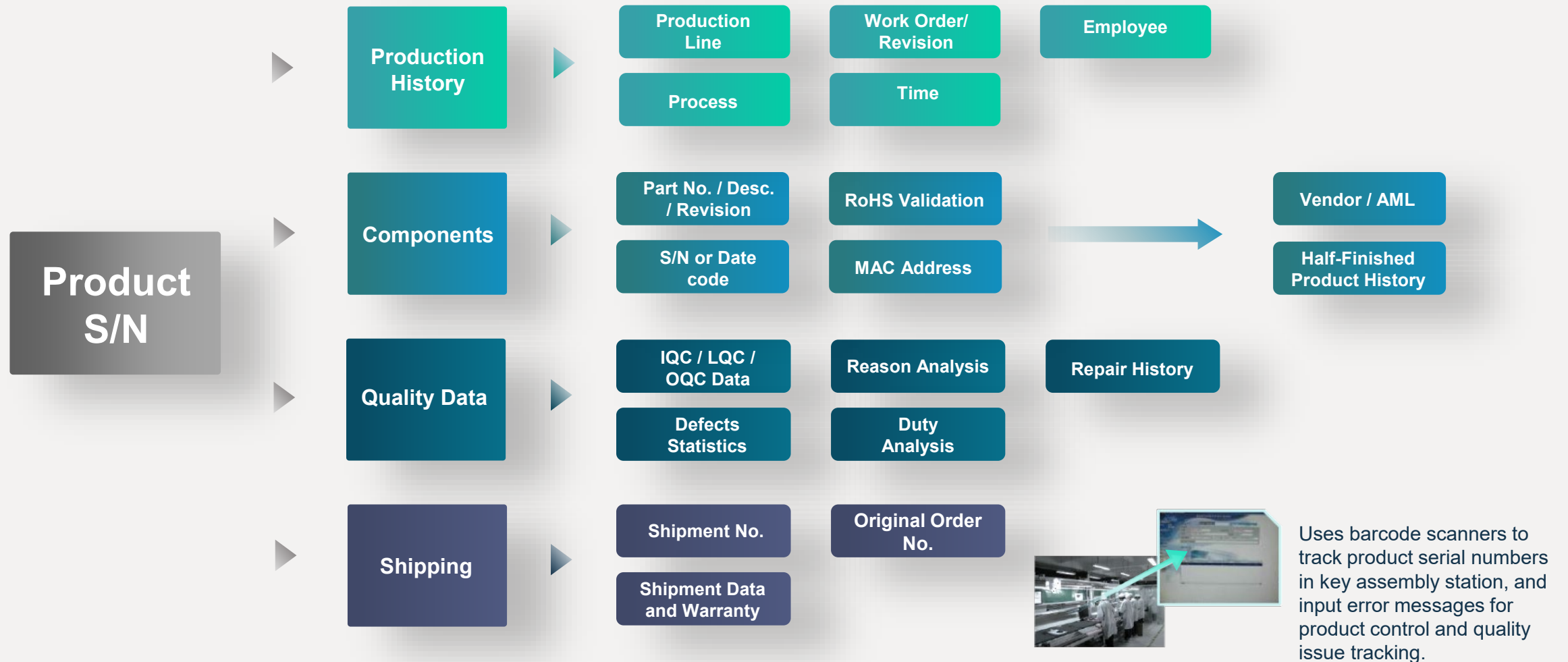
## Outgoing Quality Control

- Visual inspection (AOI)
- ECN change review
- ORT test
- FCT test

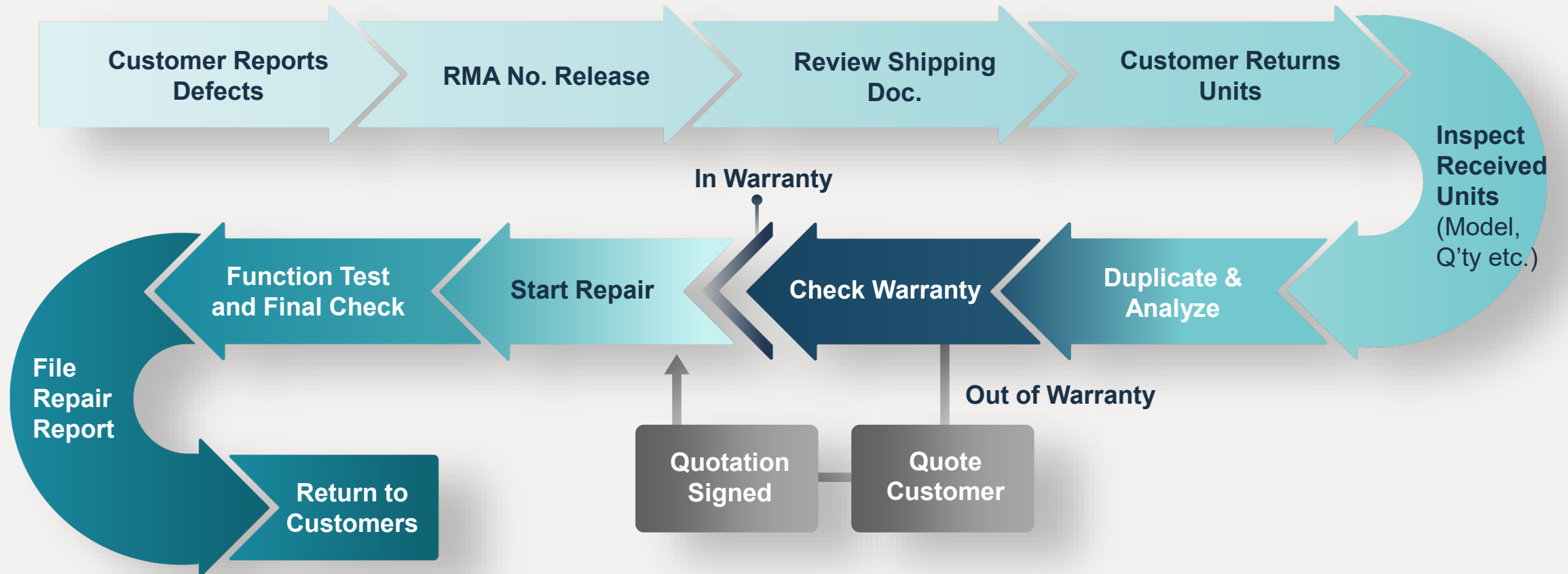
# Product Traceability



# Production History Management

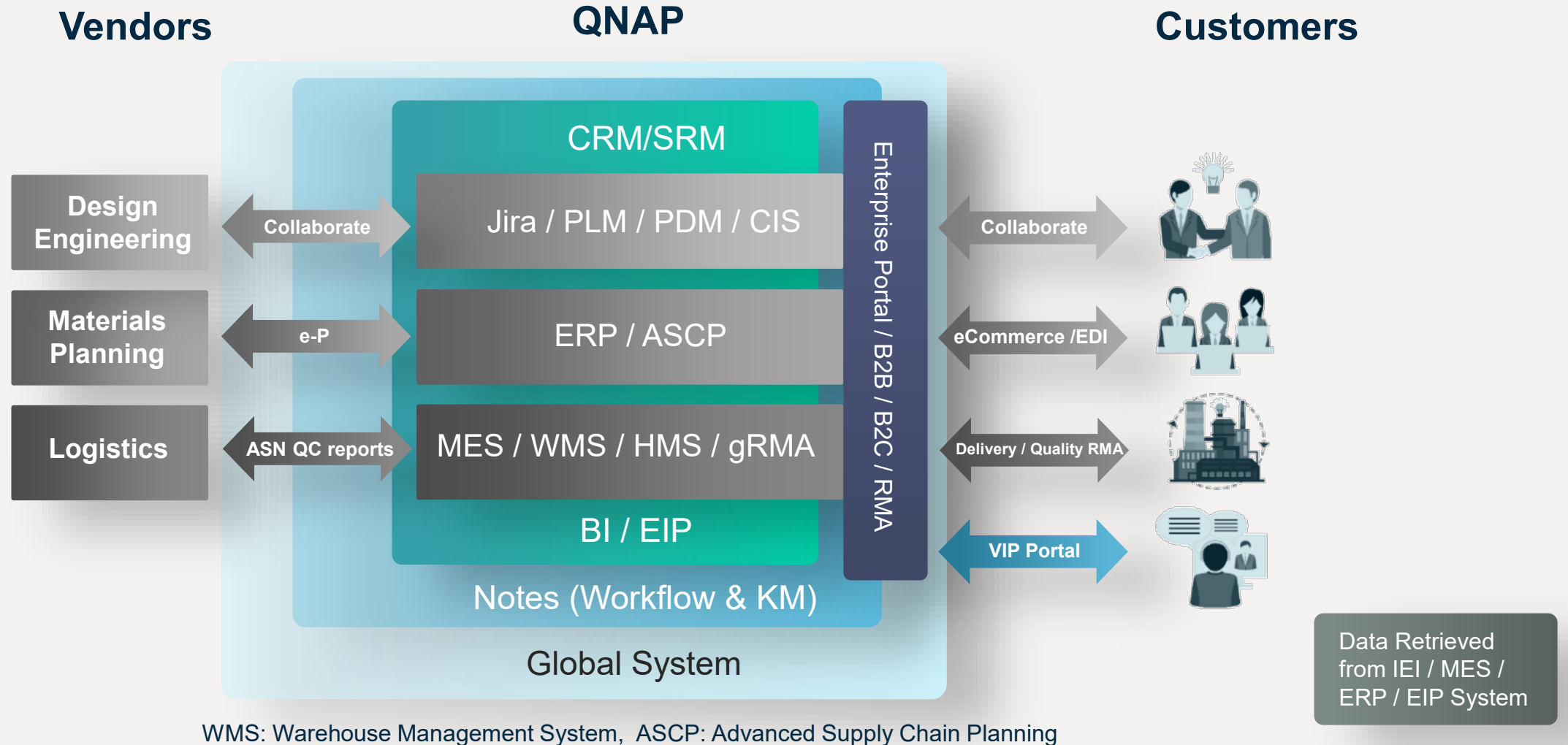


# RMA Service Process





# IT Infrastructure at QNAP



# Get in Touch

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[www.qnap.com](http://www.qnap.com)



Facebook



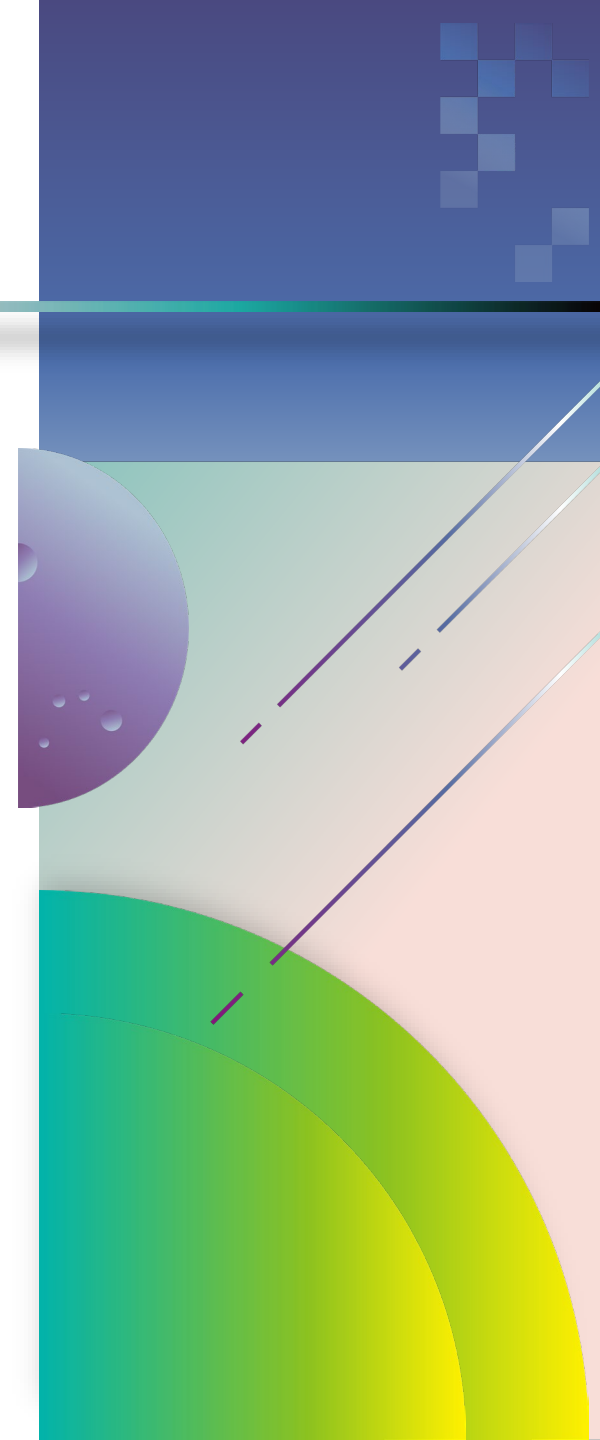
YouTube



Instagram



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**QNAP**

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one  
step  
ahead**

