



Virtualization Station



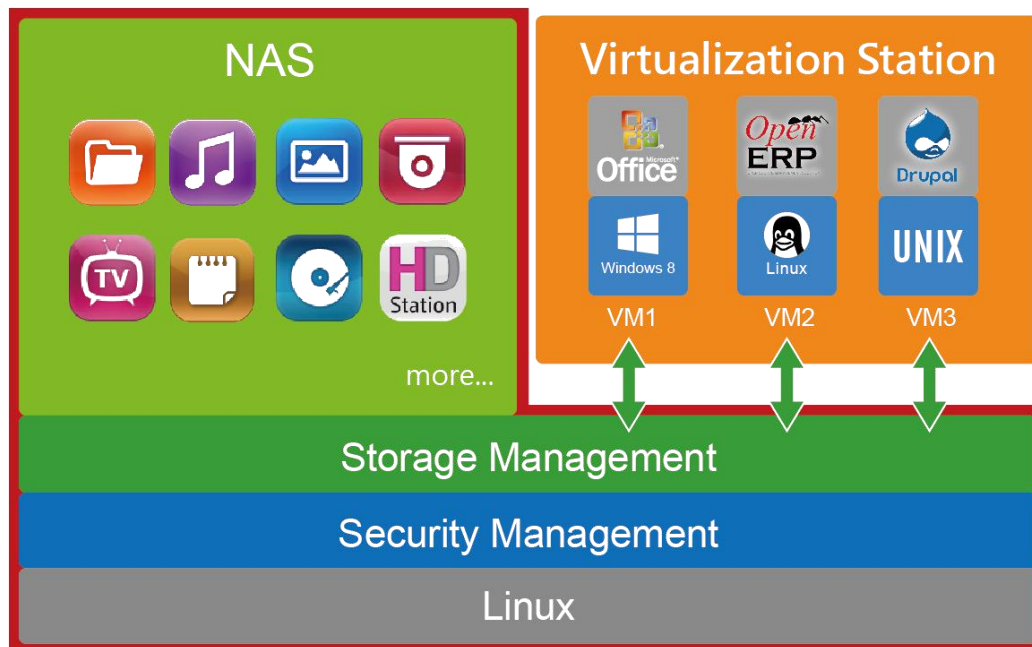
Outline

- Introduction
- Virtualization Platform - Hypervisor
- High-level NAS
- Functions
- Applications
- Supported NAS models

Introduction

• What is Virtualization Station?

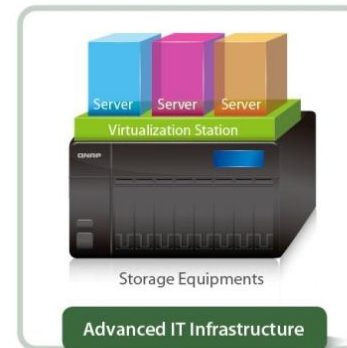
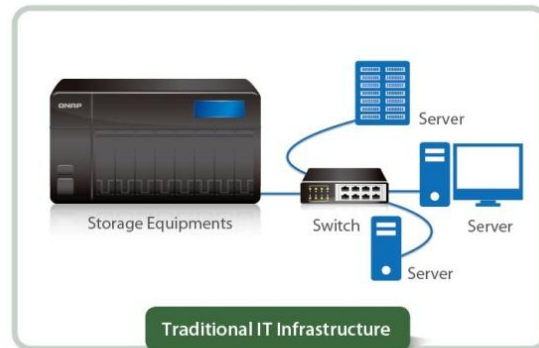
- Allows users to create and operate virtual machines (VMs) in the QNAP Turbo NAS



Introduction

• Benefits of using Virtualization Station

- Supports various Operating Systems to install on VMs
- Applications installed on VMs can expand the compatibility of the NAS
- Aggregates IT infrastructure (NAS + Servers > VMs in NAS)
- Reduced time and cost to build up VMs compared to physical machines
- More efficiency to deploy, operate and manage systems by using VMs

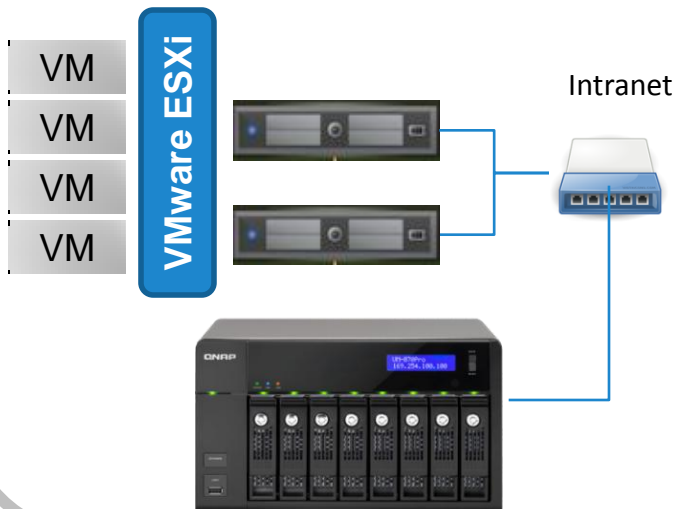


Introduction

Traditional NAS can only support virtualization solutions. With Virtualization Station, the NAS itself has a built-in hypervisor.

Traditional NAS

Virtualization support: VMware® ESXi™, Citrix® XenServer™, Microsoft® Hyper-V™



NAS built-in Virtualization Station

Can Install advanced applications and services in the NAS directly.



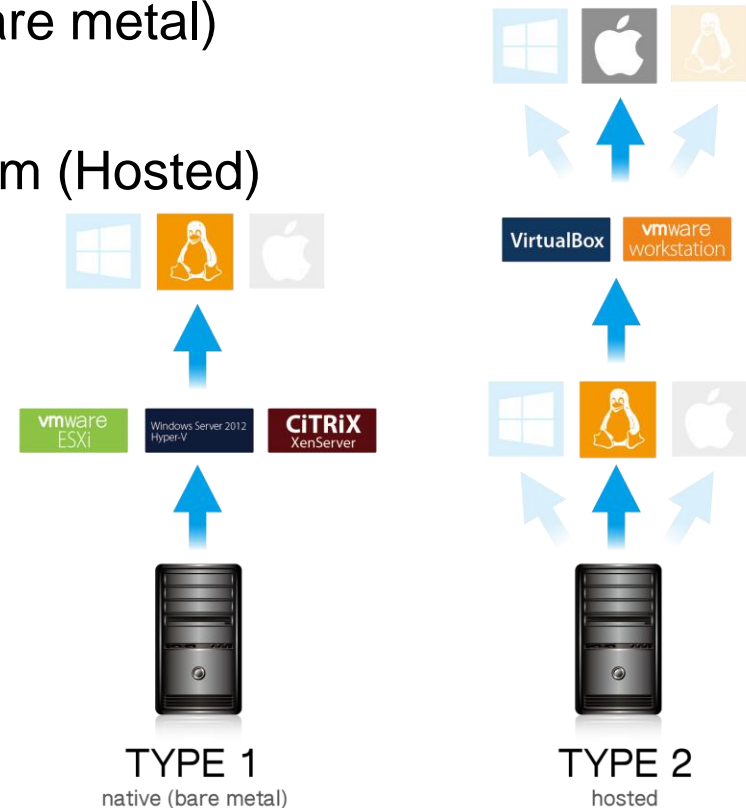


Virtualization Platform – Hypervisor

Hypervisor (1/2)

Two major types of virtualization platform

- Type1: Installed directly on the host (Bare metal)
VMware ESXi, Citrix XenServer, Microsoft Hyper-V
- Type2: Installed on the operating system (Hosted)
Oracle VM VirtualBox, QNAP Virtualization Station



Hypervisor (2/2)

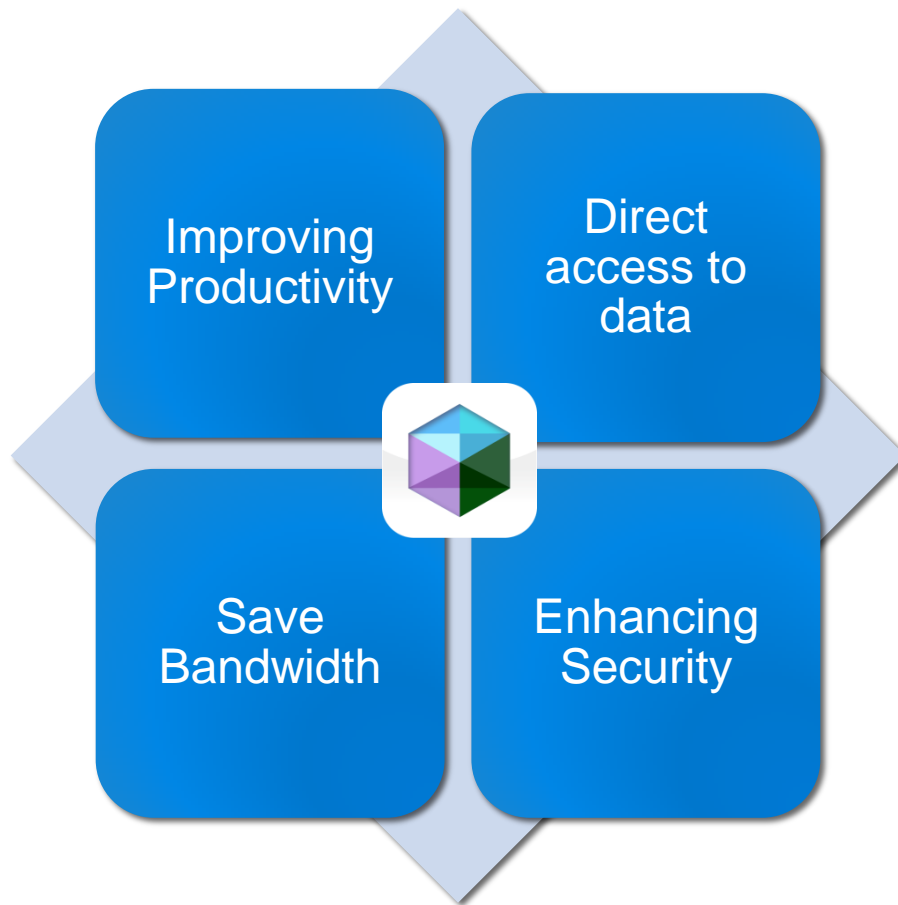
- QNAP Virtualization Station is a hosted hypervisor installed on the QTS 4.1 NAS operating system.

	Hypervisor (Bare-metal) -VMware ESXi -Citrix XenServer -Microsoft Hyper-V	Hypervisor (Hosted) -Oracle VirtualBox -QNAP Virtualization Station
Suitable hardware	Mostly server-class (Dual processor)	Personal workstations, PC (Single Processor)
Hardware compatibility support	Moderate	High
Performance for VM hardware	High	Moderate
Support for VM remote replication	Yes	No
Expansion of applications	Many	Few
Price	Expensive	Free



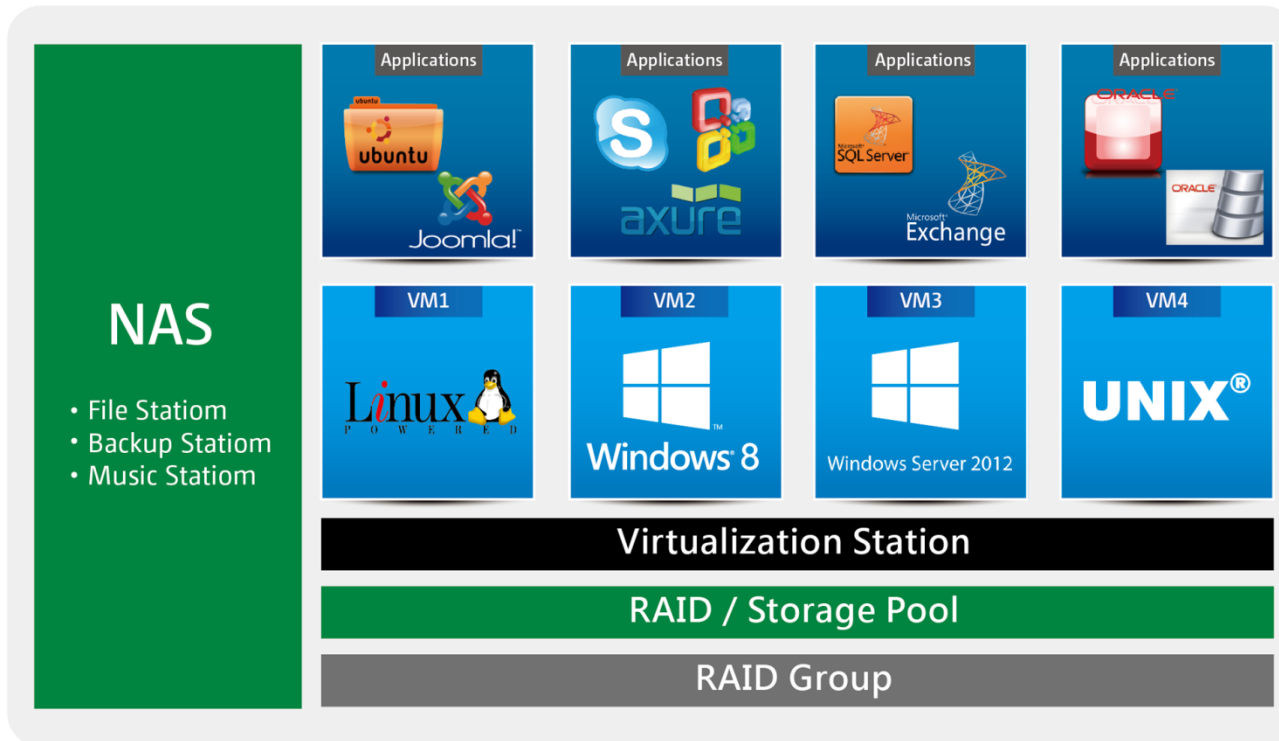
High-level NAS

Integrated Virtualization Station



Improving Productivity

- Run multiple applications on different operating systems (Windows, Linux, UNIX) at the same time.



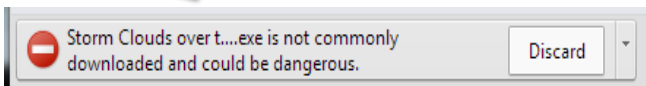
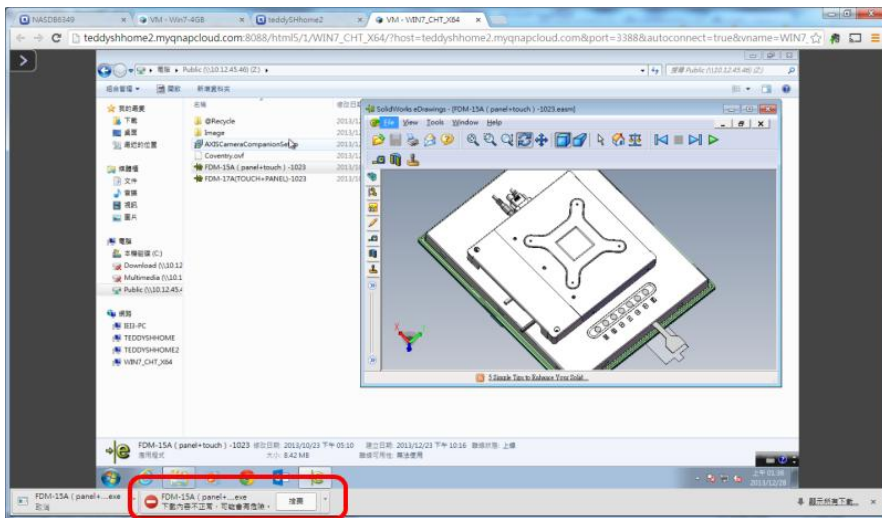
Direct access to data & execute applications via VMs

- Specific file formats cannot be opened on the Turbo NAS, but the Virtualization Station makes it possible.
- Administrators can install Windows, Linux, and UNIX on the VMs to run any application.



Direct access to data & execute applications via VMs

- In normal cloud storage circumstances, not every file can be downloaded and read



Save Bandwidth

Local



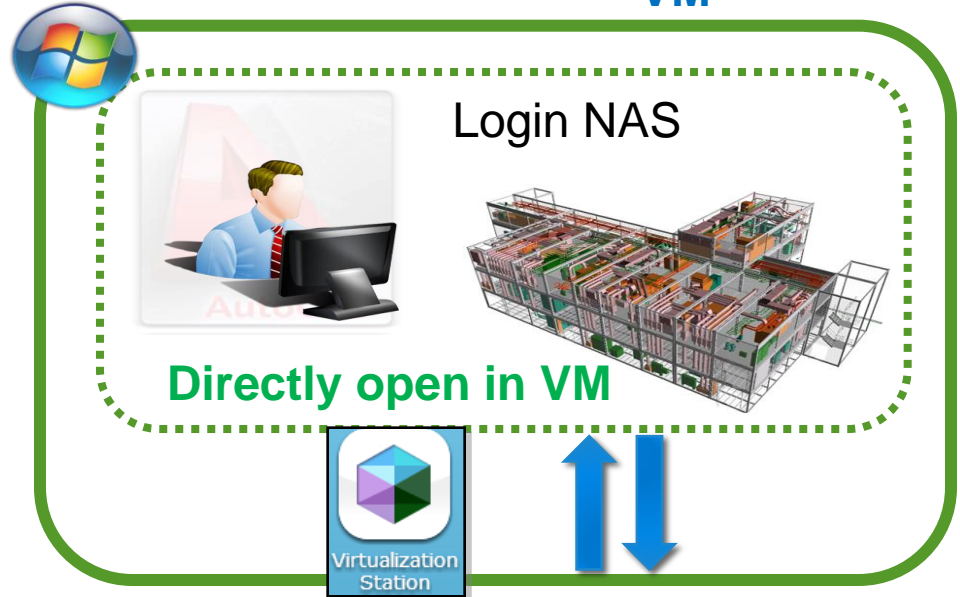
Access NAS to download file

Waiting for downloading

AutoCAD

The diagram shows a local user at a computer with a Windows icon. The user is accessing a Network Attached Storage (NAS) to download a file. The file is identified as an AutoCAD file. The user is shown waiting for the download to complete. A 3D architectural model is visible on the screen.

VM

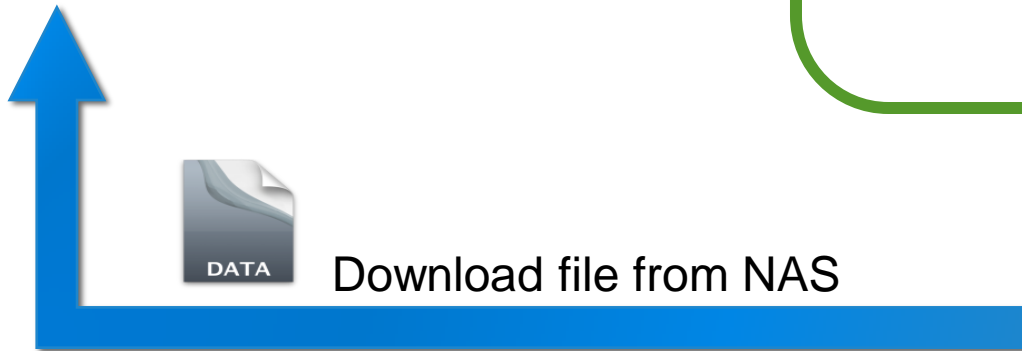


Login NAS

Directly open in VM

Virtualization Station

The diagram shows a user in a Virtual Machine (VM) environment logging into the NAS. The user is shown directly opening the file within the VM. The VM is connected to a host labeled 'Virtualization Station'. A double-headed blue arrow indicates bidirectional communication between the VM and the host.



Enhancing Security

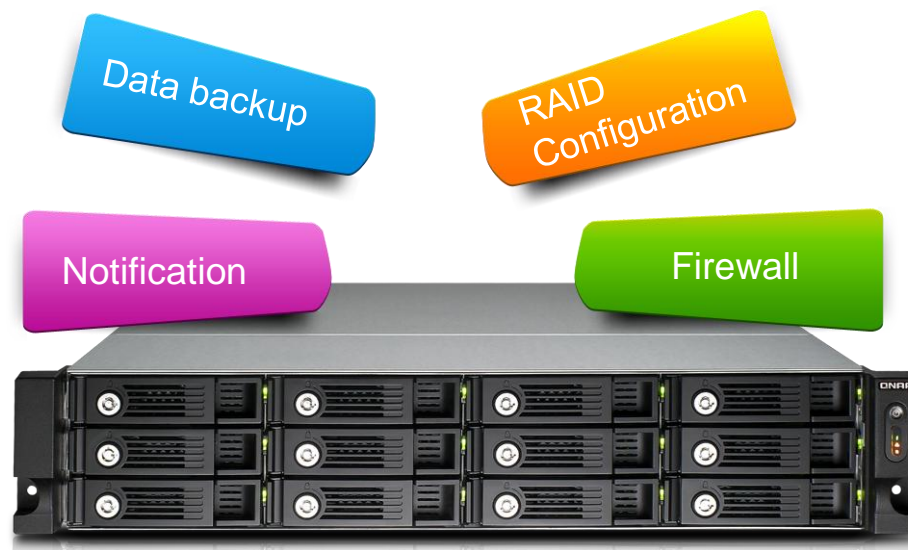
- Data is always kept on the Turbo NAS, and users do not have to download it to their PC.



If the data is downloaded,
it may have high risk!

Moreover...

- Turbo NAS provides data protection with QNAP RAID technology
- Turbo NAS provides anti-virus and a firewall to secure data
- Turbo NAS provides notifications for system alerts via Email or SMS.
- VMs can mount disk storage or file folders via iSCSI or Samba to connect with the Turbo NAS.





Functions

Overview & Dashboard

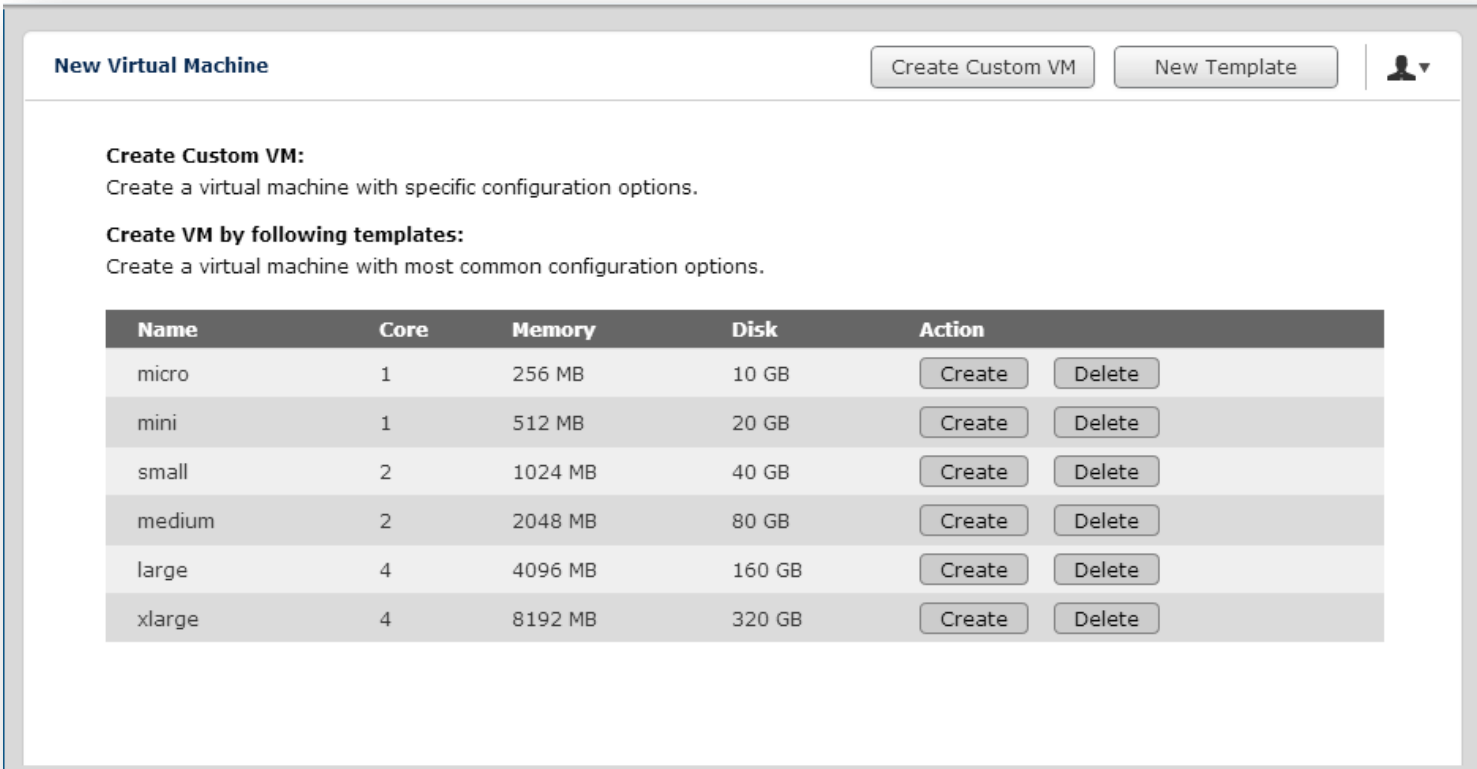
- A list of all VMs, CPU specification, CPU & Memory usage

The screenshot shows the 'Virtualization Station' interface. On the left is a blue sidebar with 'SERVER SETTINGS' and 'VIRTUAL MACHINES' sections. The main area is titled 'Overview' and displays system information: Processor(s) as Intel(R) Core(TM) i5-3550S CPU @ 3.00GHz (Cores: 4 / Threads: 4), CPU Utilization at 62% (indicated by a blue progress bar), and Memory usage at 33% (indicated by a blue progress bar). Below this is a 'Virtual Machines' section with a table listing VMs.

Name ▲	Status ▲	Configuration	Usage Rate	Action
Centos6_Icinga	Power Off	2 Cores / 2.0 GB		[Play] [Pause] [Power Off] [Stop] [Refresh] [Search]
FAN	Suspend	2 Cores / 1.0 GB		[Play] [Pause] [Power Off] [Stop] [Refresh] [Search]
Foss	Running	2 Cores / 1.0 GB	CPU: 0% / Memory: 6%	[Refresh] [Pause] [Power Off] [Stop] [Refresh] [Search]
Ubuntu_12.10_x64_Ale	Running	2 Cores / 2.0 GB	CPU: 50% / Memory: 12%	[Refresh] [Pause] [Power Off] [Stop] [Refresh] [Search]
W2008_r2_Clean	Power Off	4 Cores / 4.0 GB		[Play] [Pause] [Power Off] [Stop] [Refresh] [Search]

Fast virtual machine creation

- Provides several default templates for quickly creating a virtual machine (e.g. number of Cores, size of Memory)



The screenshot displays the 'New Virtual Machine' interface. At the top, there are two buttons: 'Create Custom VM' and 'New Template'. Below these, there are two sections: 'Create Custom VM:' and 'Create VM by following templates:'. The latter section contains a table with columns for Name, Core, Memory, Disk, and Action. The table lists six templates: micro, mini, small, medium, large, and xlarge, each with its respective core count, memory size, and disk size. Each row has 'Create' and 'Delete' buttons.

Name	Core	Memory	Disk	Action
micro	1	256 MB	10 GB	Create Delete
mini	1	512 MB	20 GB	Create Delete
small	2	1024 MB	40 GB	Create Delete
medium	2	2048 MB	80 GB	Create Delete
large	4	4096 MB	160 GB	Create Delete
xlarge	4	8192 MB	320 GB	Create Delete

Virtual Machine Import / Export

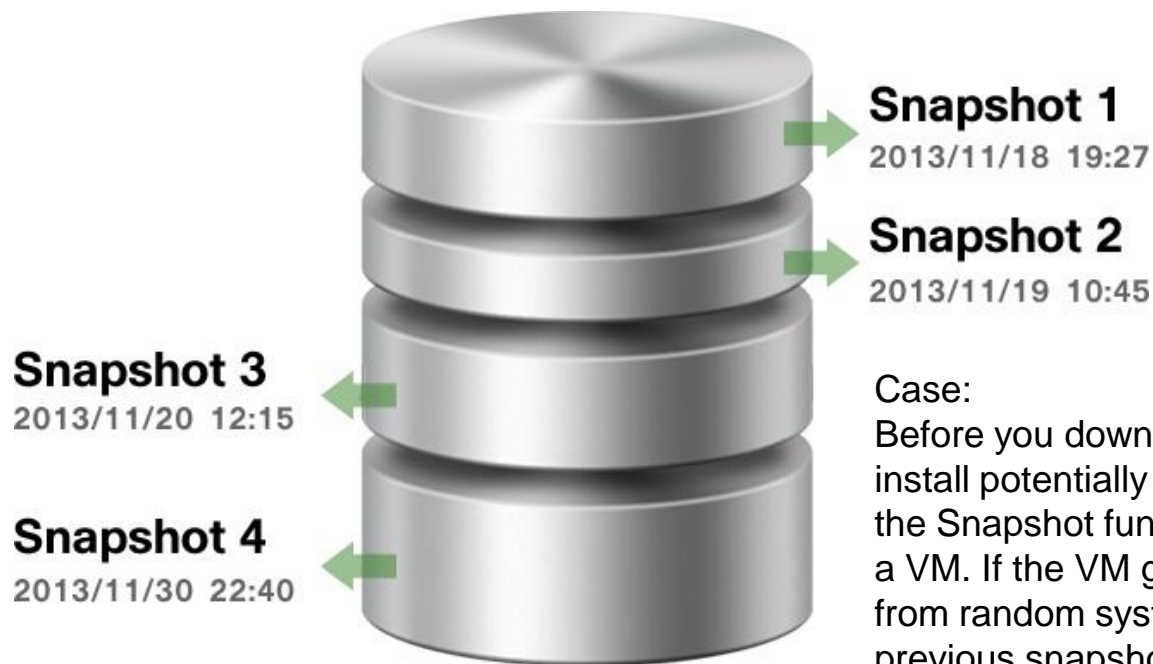
- Supports various VM formats, e.g. .ovf, .ova
- Supports VM importing & exporting to/from NAS or computers



**Compatible
with VMware &
VirtualBox**

VM Snapshot

- Snapshot for RAM of VM and ISO of volumes
- Records the VM system status at a point of time
- Quickly roll back to snapshots to ensure constant system operation



Case:

Before you download from unknown sources or install potentially risky applications, you can utilize the Snapshot function to record the system status of a VM. If the VM gets infected by a virus or suffers from random system crashes, it can be reverted to a previous snapshot.

Individual network bandwidth for each VM

- Configure specific VMs with dedicated Ethernet resources
- Monitor bandwidth usage for each Ethernet resource



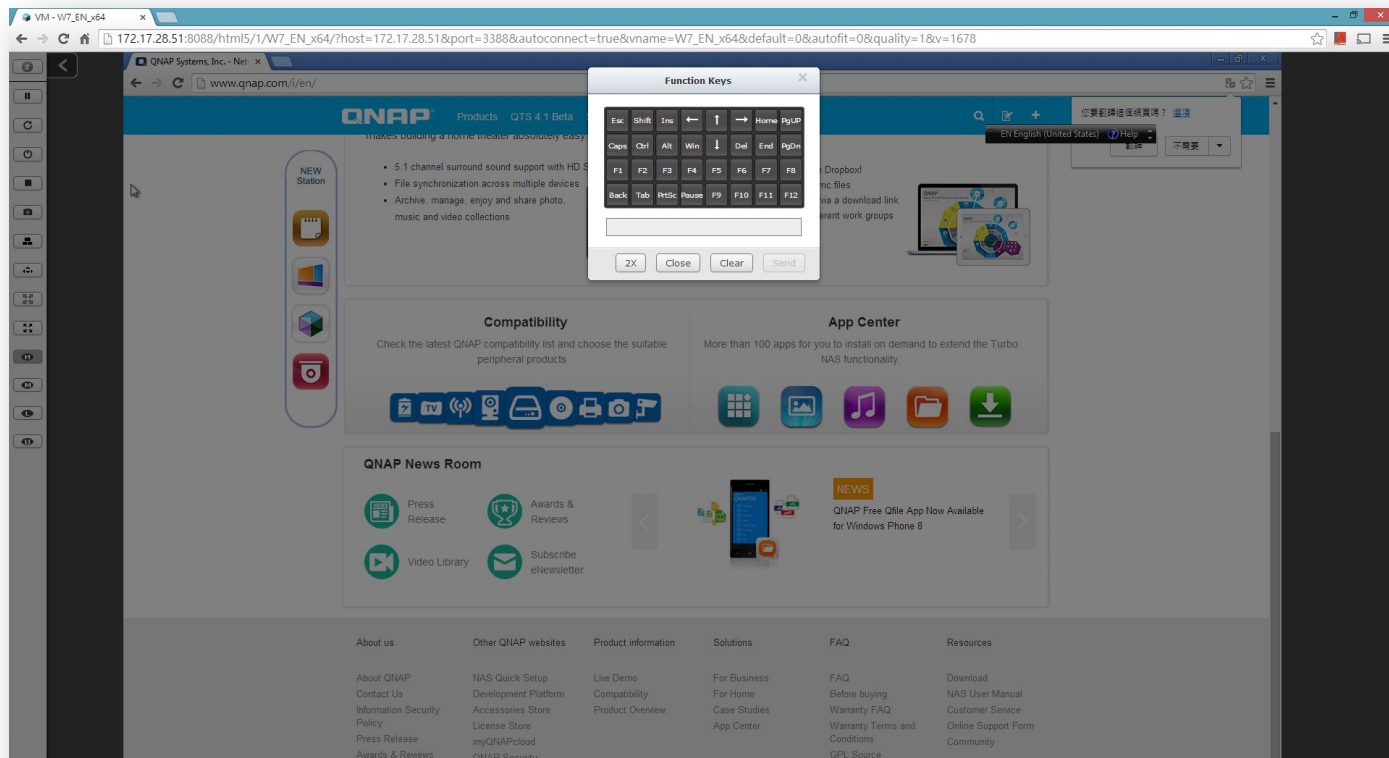
Remote desktop operations (1/2)

- Shared remote administration user interface
- Use HTML5-compatible web browsers on mobile devices to remotely manage VMs on the NAS
- Web-based Thin Client does not consume hardware resources



Remote desktop operations (2/2)

- Supports Function Key Combinations
- Supports HTML5 auto-fit



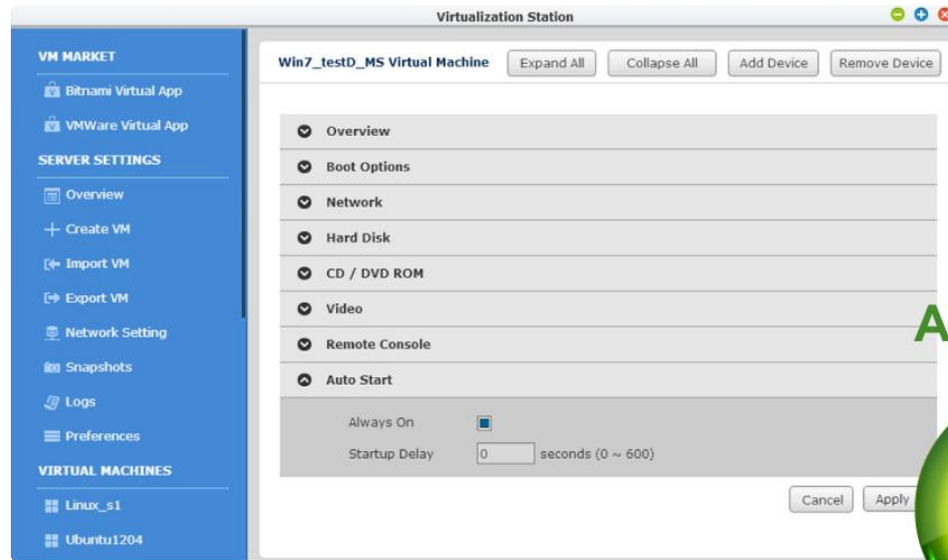
Account Management (1/2)

- Administrator can assign VMs to users and set different permissions for them.
- Prevents other users from accidentally powering-off VMs and resulting in interrupting application services
- Only assigned users can operate allocated VMs, securing personal data and working application services.



VM Auto-start

- Once the Turbo NAS restarts, VMs can be automatically started by setting up a schedule.

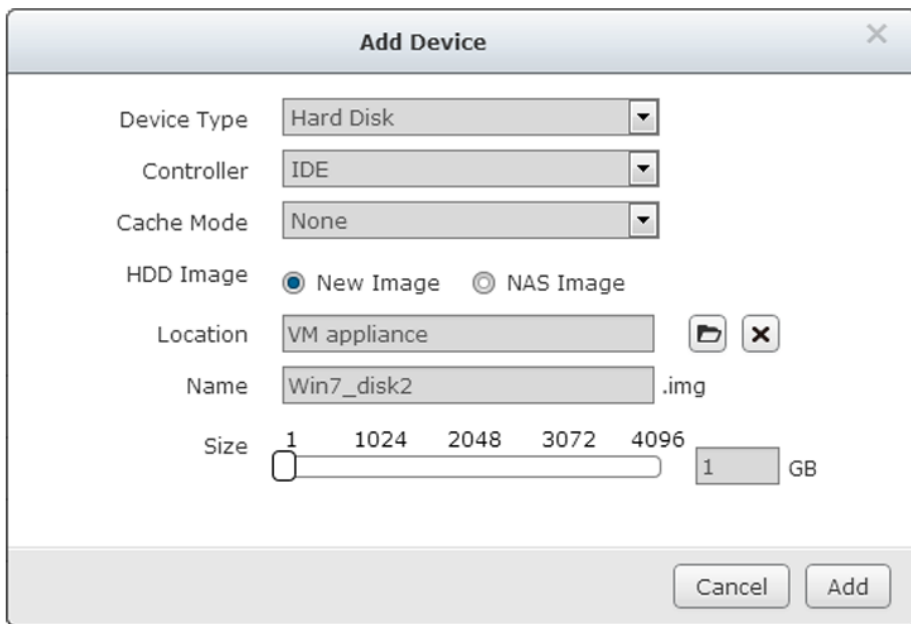


Auto Start



Adjust VM HDD space

- It is flexible to allocate more HDD space for VMs
- Thin provisioning: uses the NAS storage pool more efficiently



Add Device

Device Type: Hard Disk

Controller: IDE

Cache Mode: None

HDD Image: New Image NAS Image

Location: VM appliance

Name: Win7_disk2 .img

Size: 1 GB

Buttons: Cancel, Add





Applications

Case 1

- IIS Web server
 - Provides a high-speed connection & large storage capacity for web servers
 - Operate existing ASP/ASPX web pages & databases on a Virtual Machine with a supported operating system



Virtual Machine 1



Virtual Machine 2



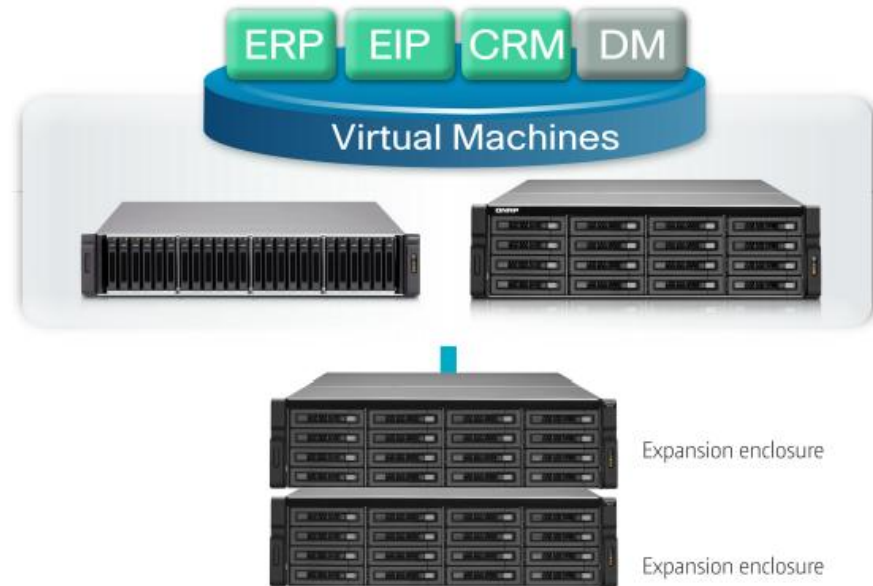
Virtual Machine 3



Case 2

- ERP/EIP/CRM system

- High performance computing with Intel® Quad-Core Xeon™ E3-1245 v2 3.4 GHz Processor and 10 GbE network interface
- SSD Cache acceleration
- Highly reliable data protection with QNAP RAID technology
- Backup data directly to the QNAP Turbo NAS



Case 3

- Microsoft Exchange server
 - Large storage capacity for storing a vast amount of emails
 - Data backup & storage capacity expansion
 - Enter archived emails and browse instantly without downloading



Case 4

- Windows Active Directory Server
 - Manage servers on the virtual machine easily and efficiently

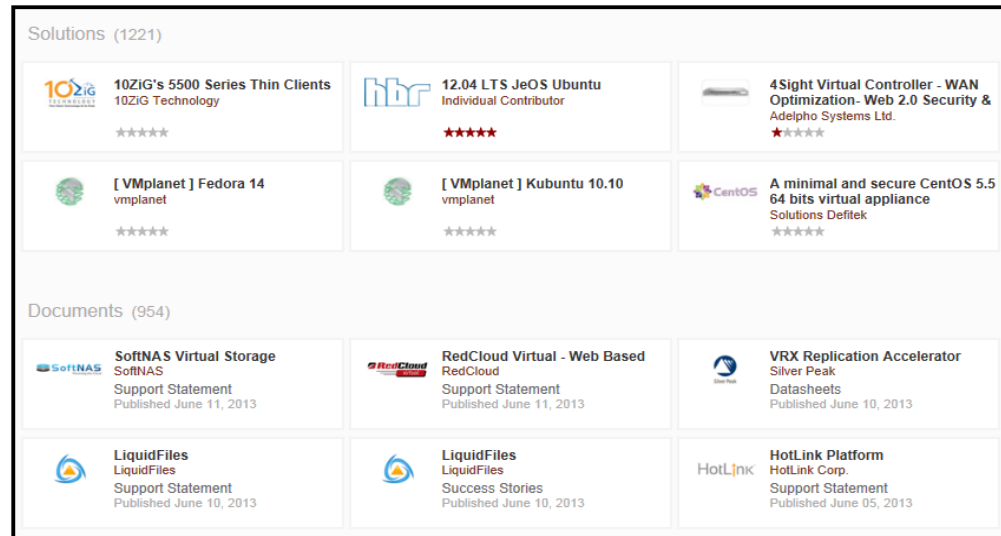


Download more VMs from online Store

- Build your enterprise-package of information systems easily & quickly
 - Import to Virtualization Station and instantly use applications on VMs
 - Compatible with **VMware & VirtualBox** virtual machines
 - Online store:
 - Bitnami App store: <https://bitnami.com/stacks>
 - VMware Marketplace: https://solutionexchange.vmware.com/store/category_groups/19



Bitnami App store



VMware Marketplace



Available NAS models

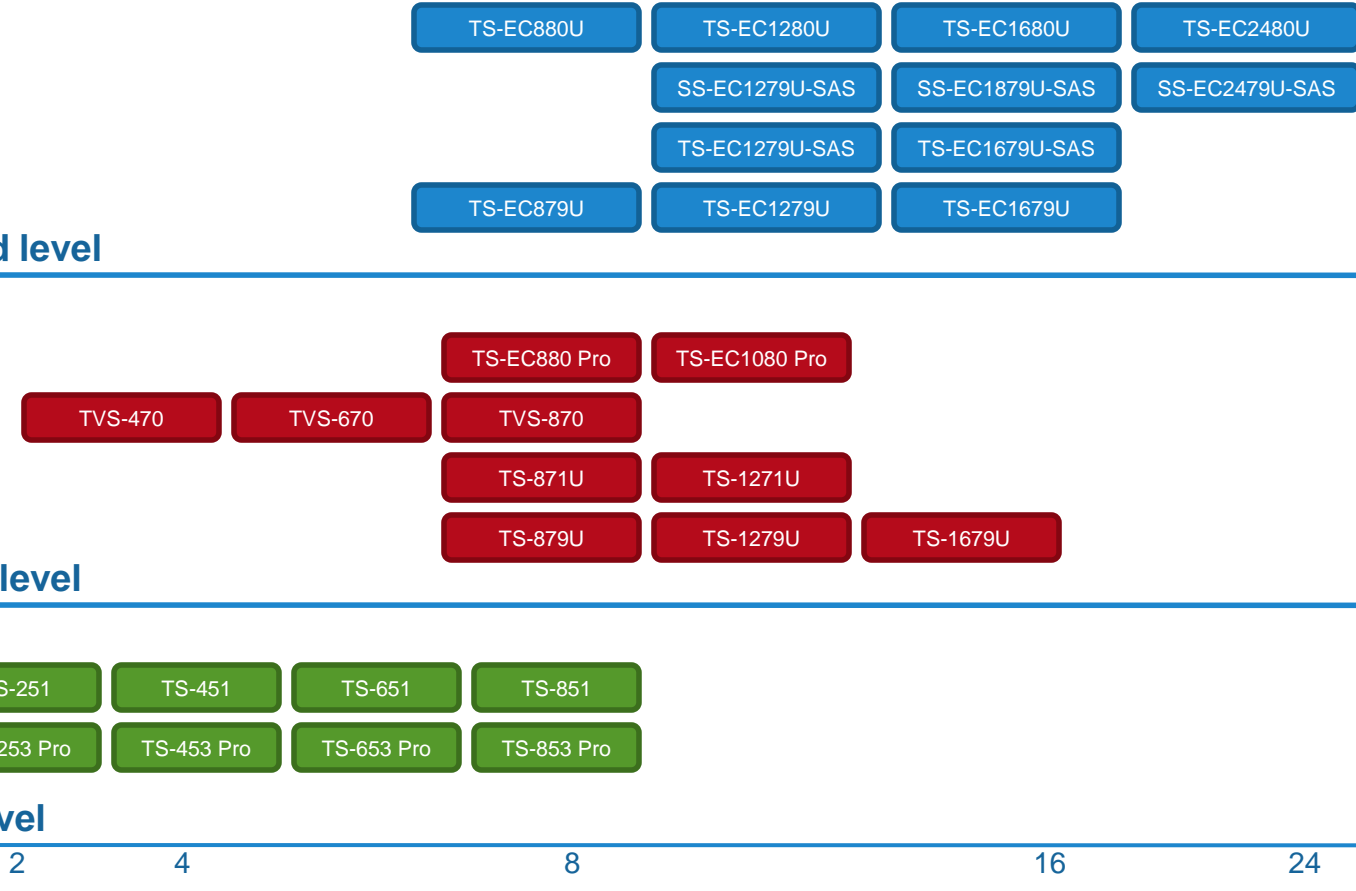
Available NAS models for Virtualization Station

Level

High-end level

Medium level

Entry level



Microsoft Office

Appendix

- System requirements :
 - QNAP QTS 4.1 or newer
 - At least 4GB RAM
- Where to download:
 - App Center: “Utilities” section
 - [Download link](#)
- [QNAP Virtualization Station website](#)
- [FAQ](#)
- [Application Tutorials](#)

THANK YOU
