Virtualization Station

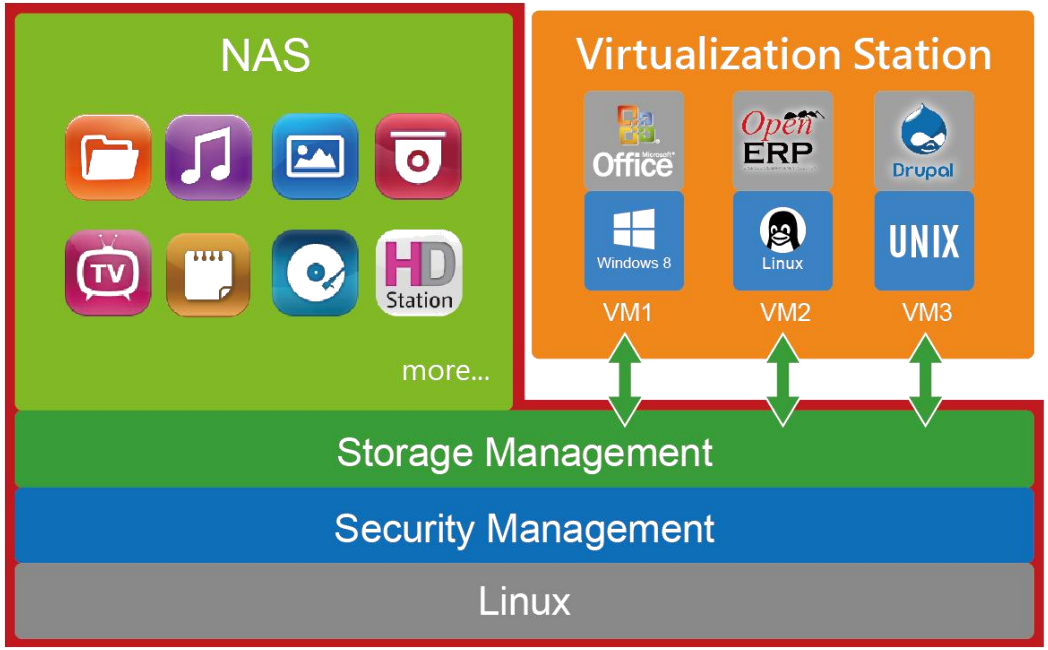
Outline

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

Introduction

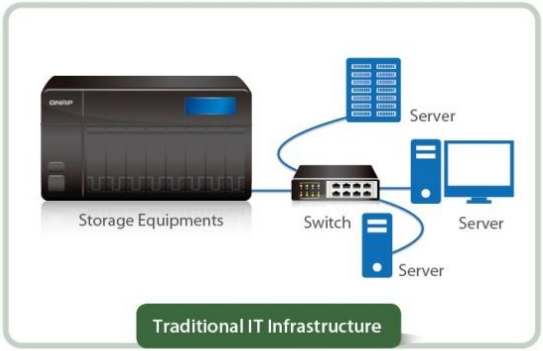
What is Virtualization Station?

- 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

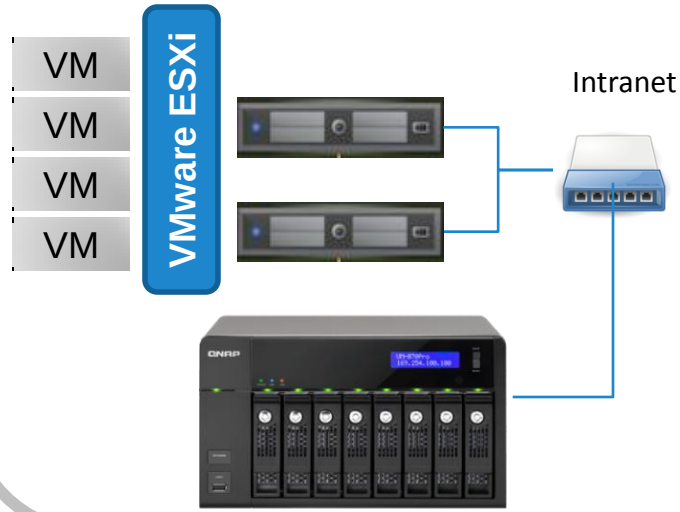


Introduction

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

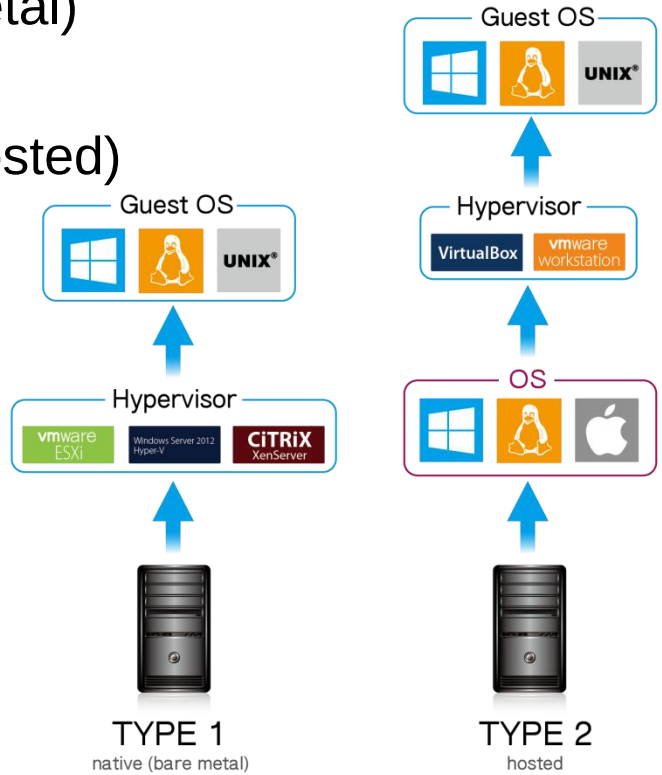
Can Install advanced applications and services in the NAS directly.

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**



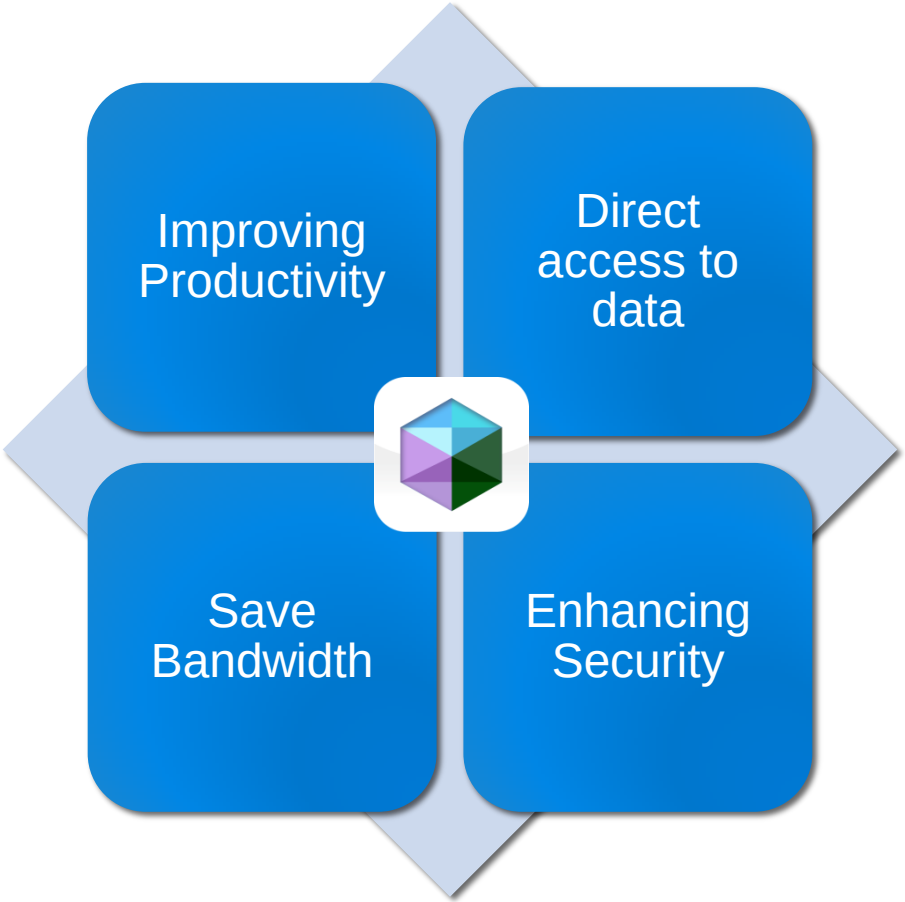
Hypervisor (2/2)

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

	Hypervisor (Bare-metal) -VMware ESXi -Critrix 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 or other solutions, e.g. HA, Fault-tolerance	Yes	No
Expansion of applications	Many	Few

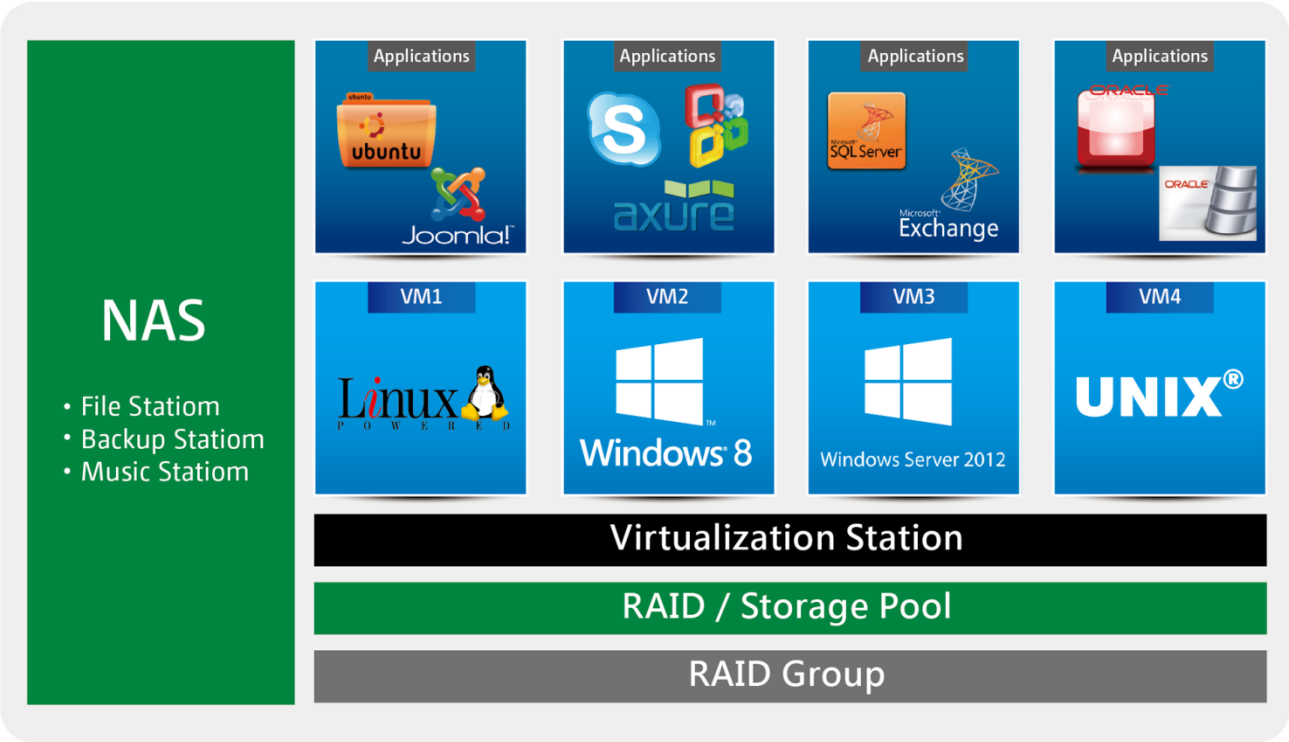
High-level NAS

Integrated Virtualization Station



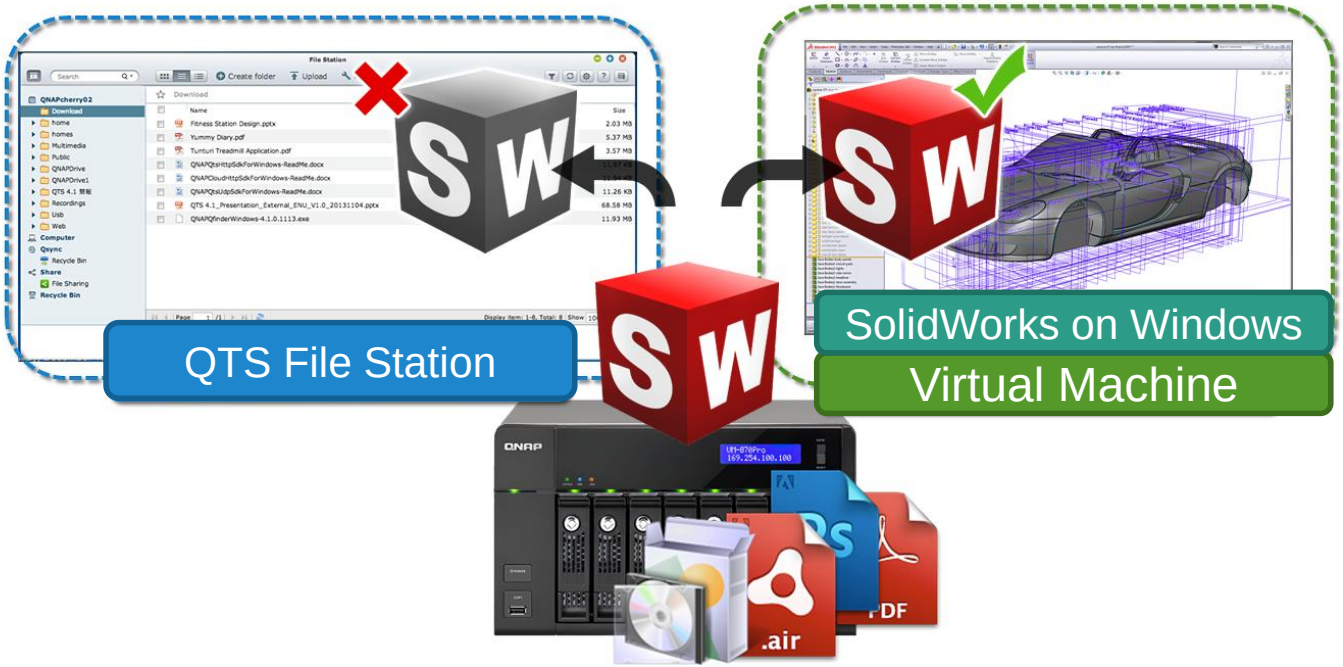
Improving Productivity

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



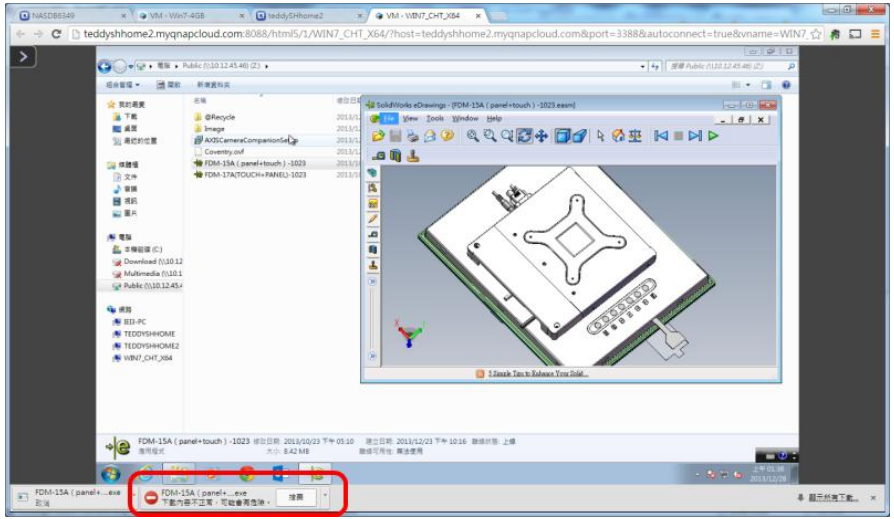
Direct access to data & execute applications via VMs

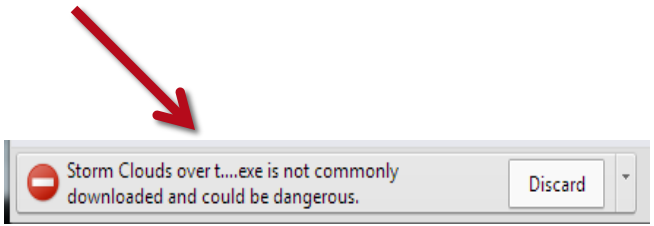
- Specific file formats cannot be opened on the Turbo NAS, but the Virtualization Station makes it possible.
- Administrators can install Windows, Linux, and UNIX on the VMs to run any application.



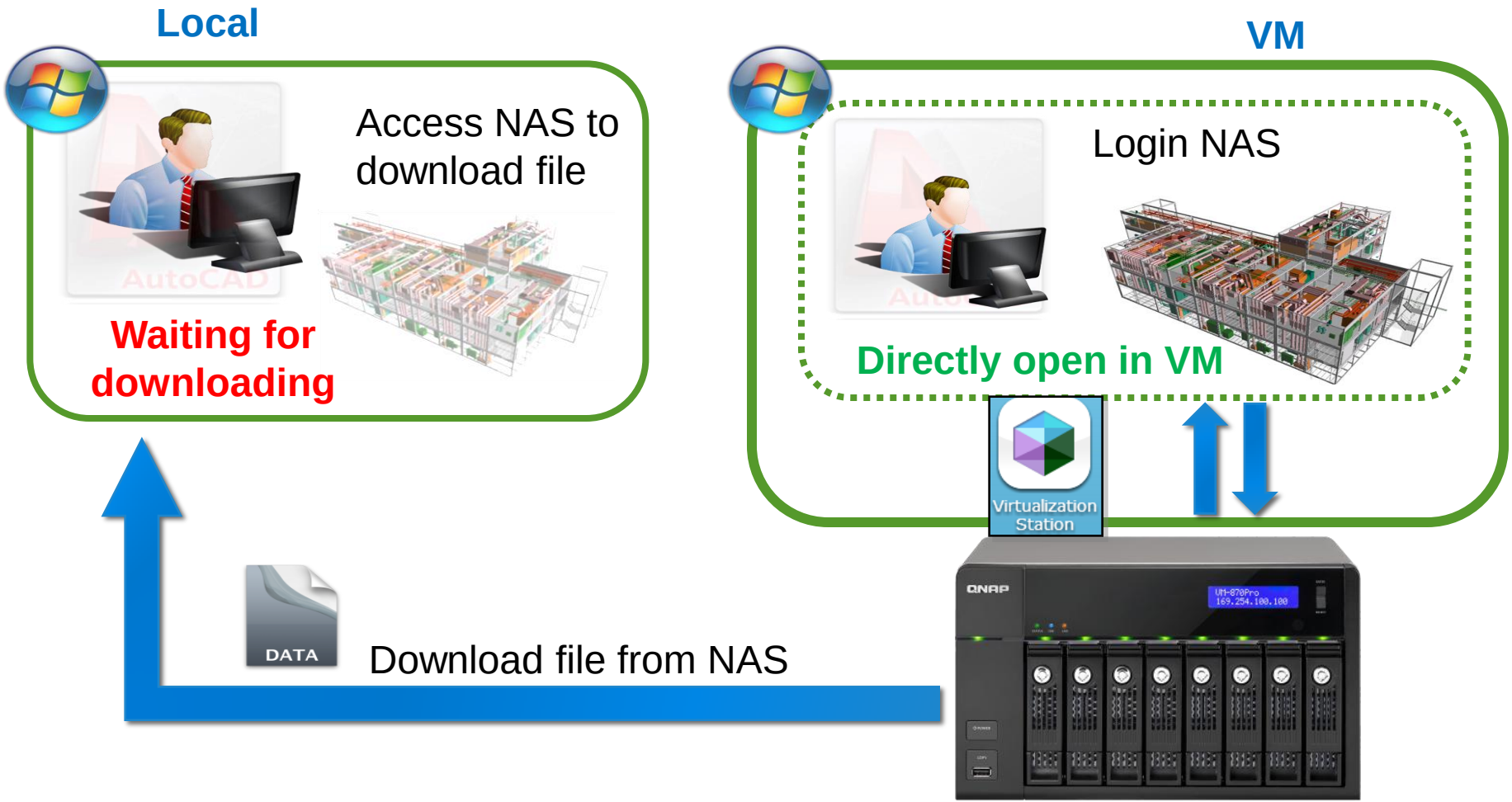
Direct access to data & execute applications via VMs

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





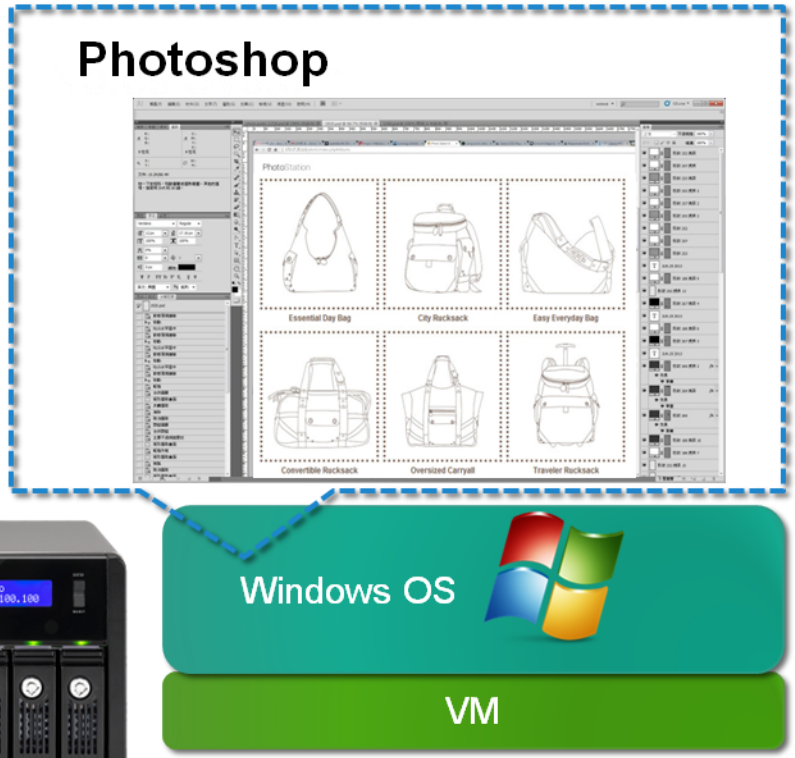
Save Bandwidth



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!



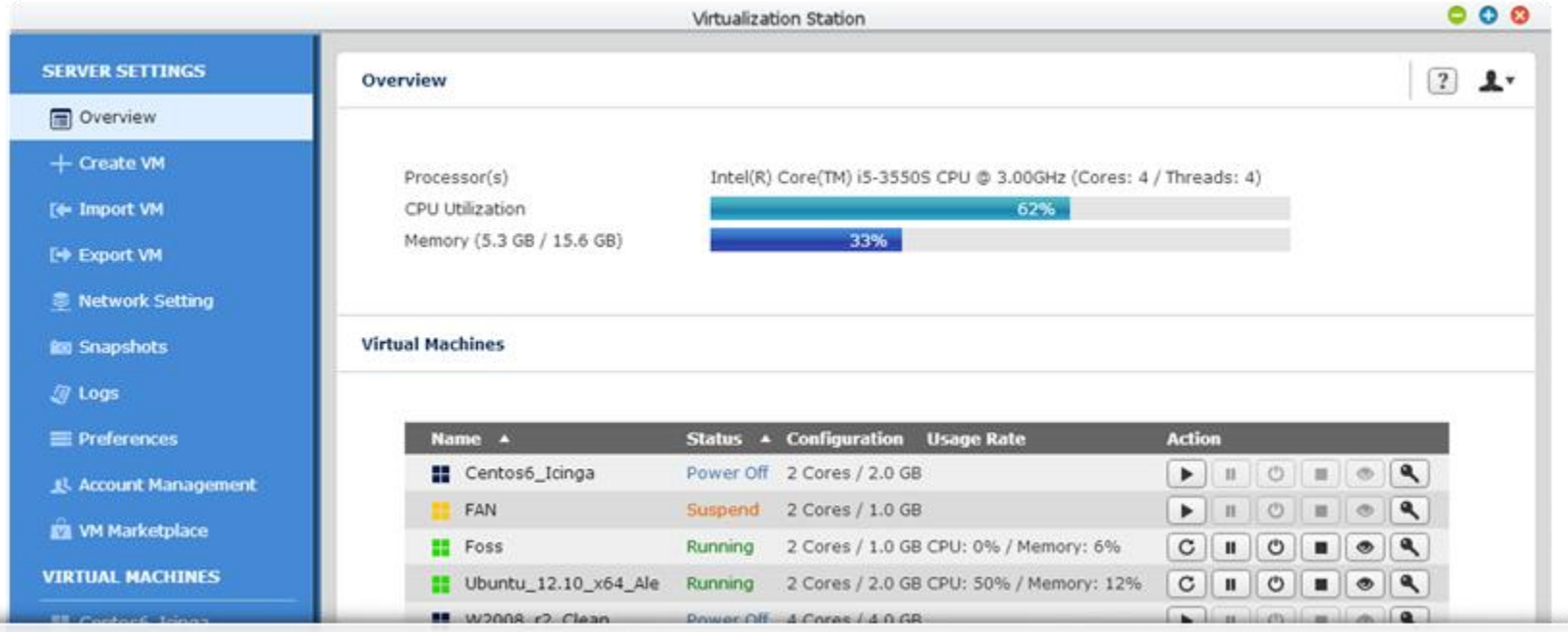
Moreover...

- 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

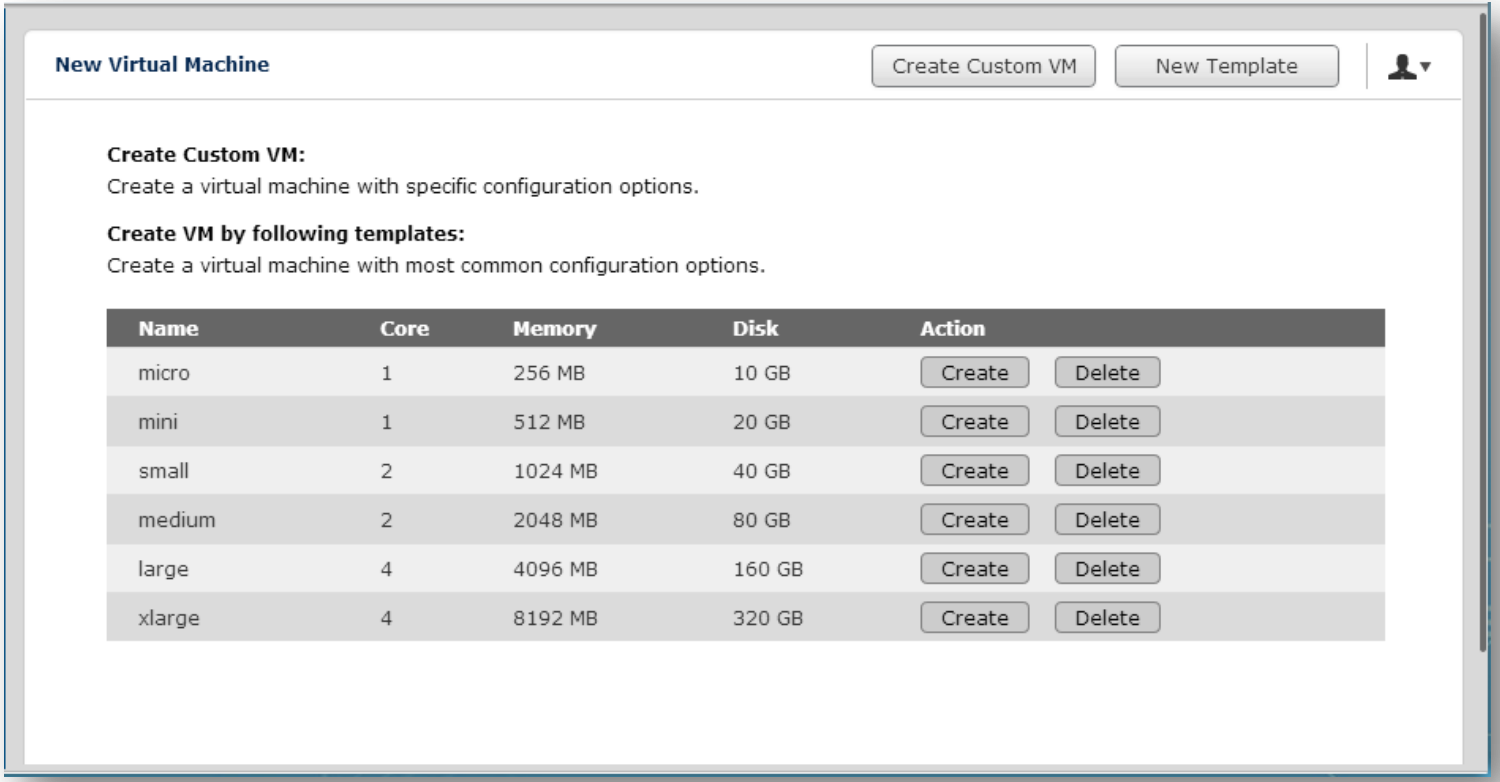
Overview & Dashboard

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



Fast virtual machine creation

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



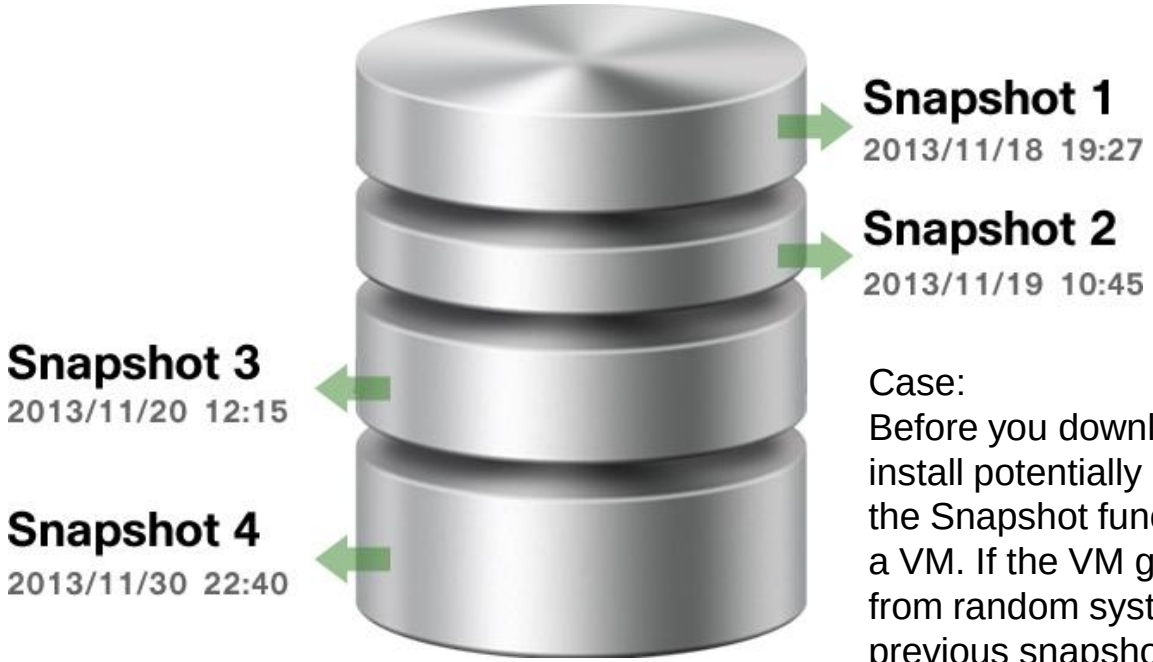
Virtual Machine Import / Export

- 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

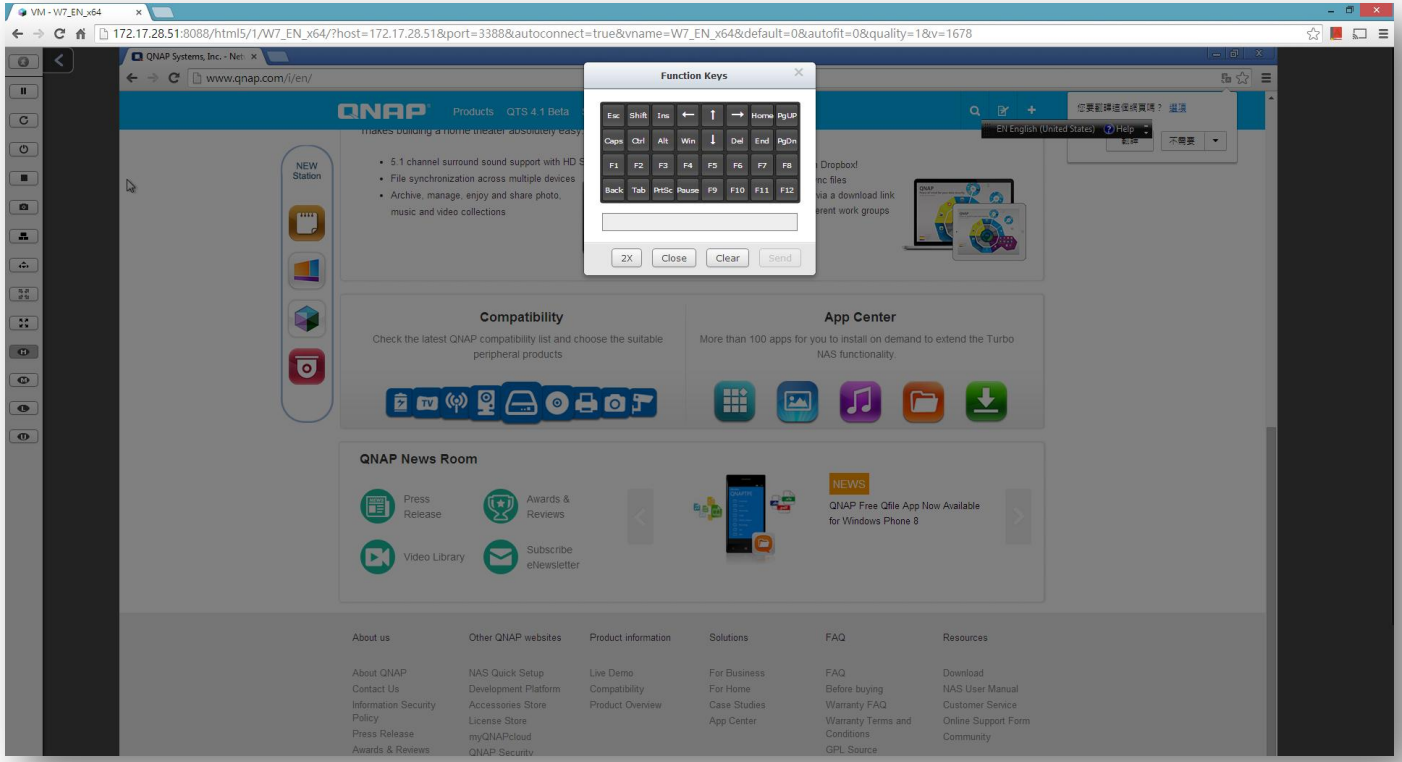
- Configure specific VMs with dedicated Ethernet resources
- Monitor bandwidth usage for each Ethernet resource

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



HDMI output - QVM

- Output the Virtual Machine (VM) console using an HDMI monitor

Please note: you have to enable the HD Station in the “Application” of QTS before using QVM.

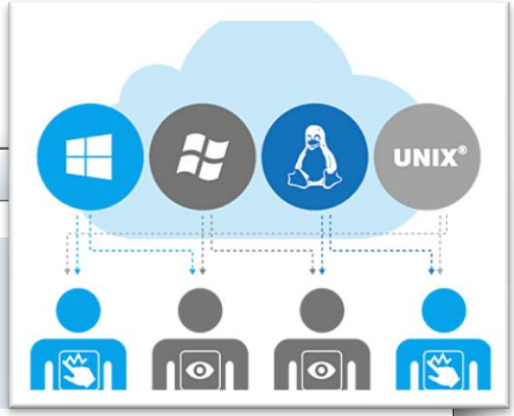
Account Management (1/2)

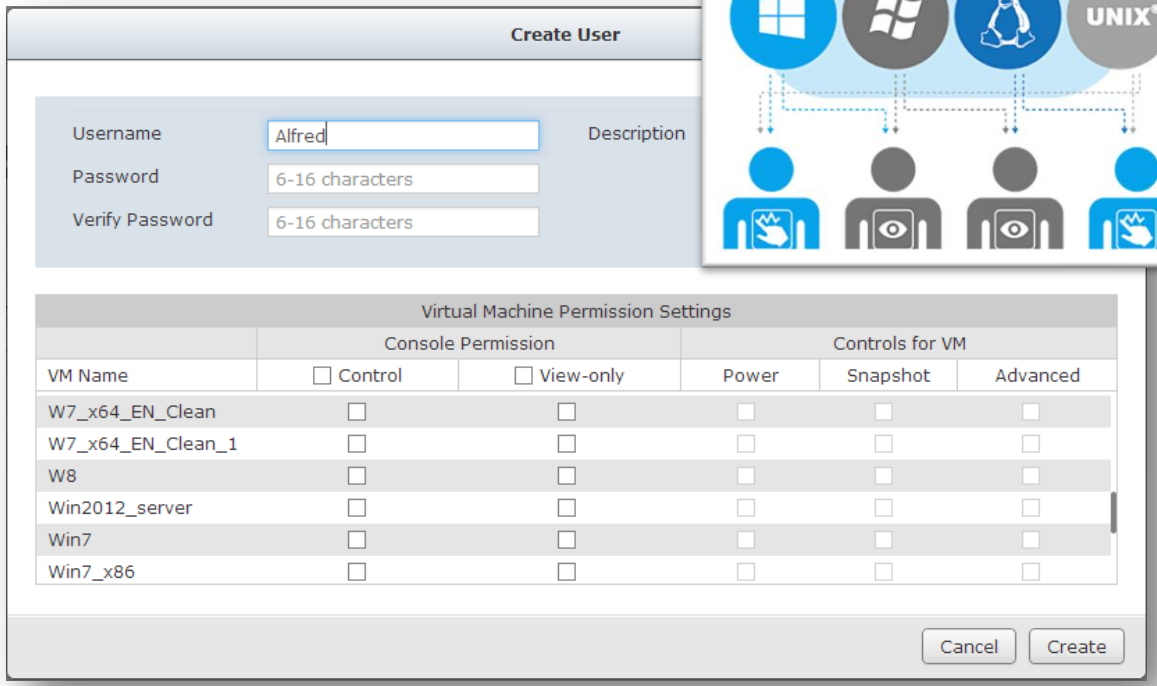
- Administrator can assign VMs to users and set different permissions for them.
- Prevents other users from accidently powering-off VMs and resulting in interrupting application services
- Only assigned users can operate allocated VMs, securing personal data and working application services.

Account Management (2/2)

User-based permissions:

- Console permission
  - Control
  - View-only
- Controls for VM
  - Power
  - Snapshot
  - Advanced



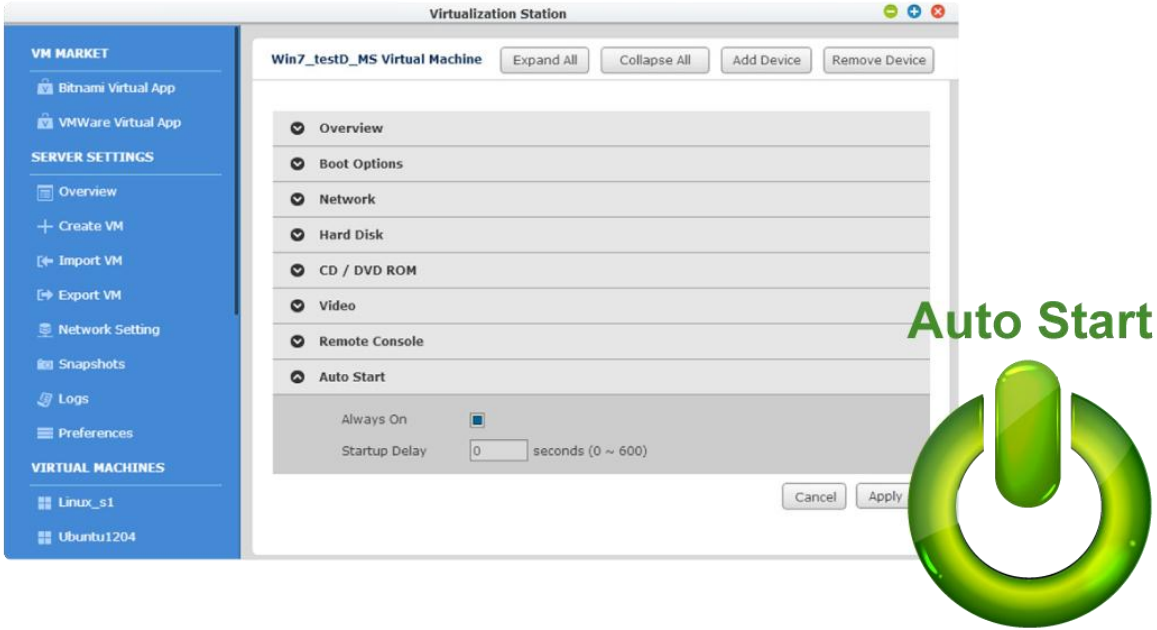


USB Pass Through

- QNAP Virtualization Station supports connecting USB devices to VMs.

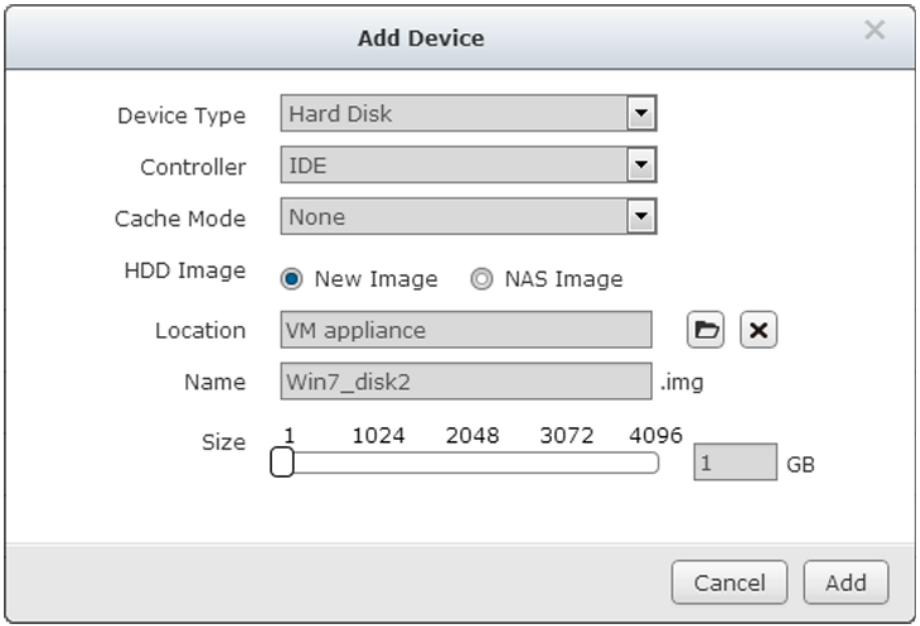
VM Auto-start

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



Adjust VM HDD space

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



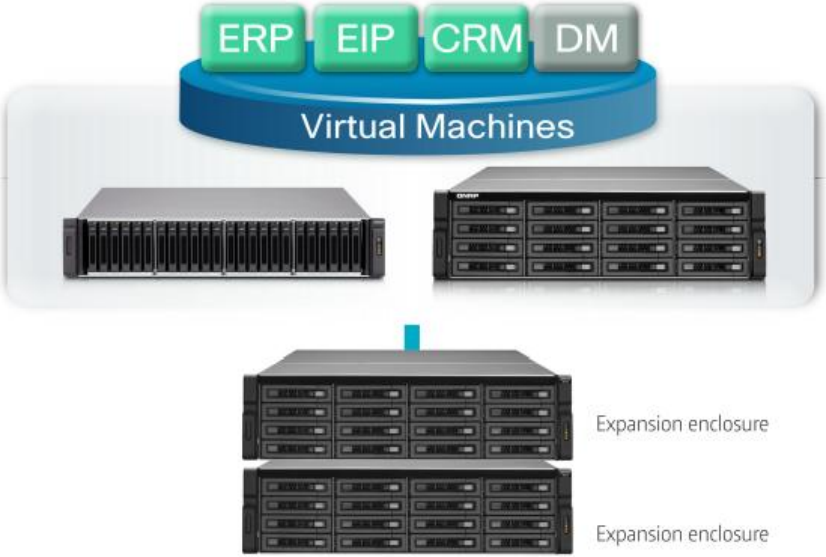
Applications

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

Case 2

- ERP/EIP/CRM system
  - High performance computing with Intel® Quad-Core Xeon™ E3-1246 v3 3.5 GHz Processor
  - 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

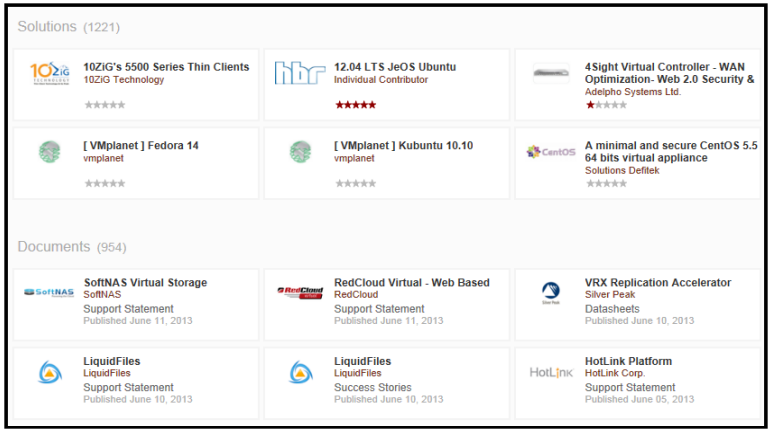
Case 4

- 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
    - TurnKey Apps: http://www.turnkeylinux.org/all

Bitnami App store



VMware Marketplace

TurnKey Apps

Available NAS models

Available NAS models for Virtualization Station

Level

High-end level

TS-EC880U
TS-EC1280U
TS-EC1680U
TS-EC2480U
SS-EC1279U-SAS
SS-EC1879U-SAS
SS-EC2479U-SAS
TS-EC1279U-SAS
TS-EC1679U-SAS
TS-EC879U
TS-EC1279U
TS-EC1679U

Medium level

TVS-EC880
TS-EC1080/ TVS-EC1080+
TS-EC880 Pro
TS-EC1080 Pro
TS-470-16G
TS-670-16G
TS-870-16G
TVS-471
TVS-671
TVS-871
TVS-463
TVS-663
TVS-863 / TVS-863+
TS-871U
TS-1271U
TS-879U
TS-1279U
TS-1679U

Entry level

TS-453S Pro
TS-853S Pro
TS-253 Pro
TS-453 Pro
TS-653 Pro
TS-853 Pro
TS-251
TS-451
TS-651
TS-851

2 4 8 16 24 Bay

Microsoft Office

Appendix

- System requirements：
  - QNAP QTS 4.1 or newer
  - At least 4GB Memory
    (Minimum requirement for TS-x51/TS-x53/TS-x53S Pro/HS-251-2G/IS-400 Pro is 2 GB memory)
- Where to download:
  - App Center: “QTS Essentials” category

THANK YOU