



Build an optimal OpenStack cloud platform with an OpenStack-ready QNAP NAS



LIVE

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openstack.



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QNAP OpenStack Ready NAS For a Robust and Reliable Cloud Platform



Agenda

- IT transformation and challenges
- OpenStack—A new star in the cloud world
- How does OpenStack satisfy IT demands?
- QNAP + OpenStack (Qcinder & Qmanila)
- QNAP OpenStack Ready NAS models



IT Transformation and Challenges



Various IT applications and services

Enterprise applications and services become more and more versatile, while IT response time becomes more and more limited...





IT World Blueprint

The real IT environment looks like this...

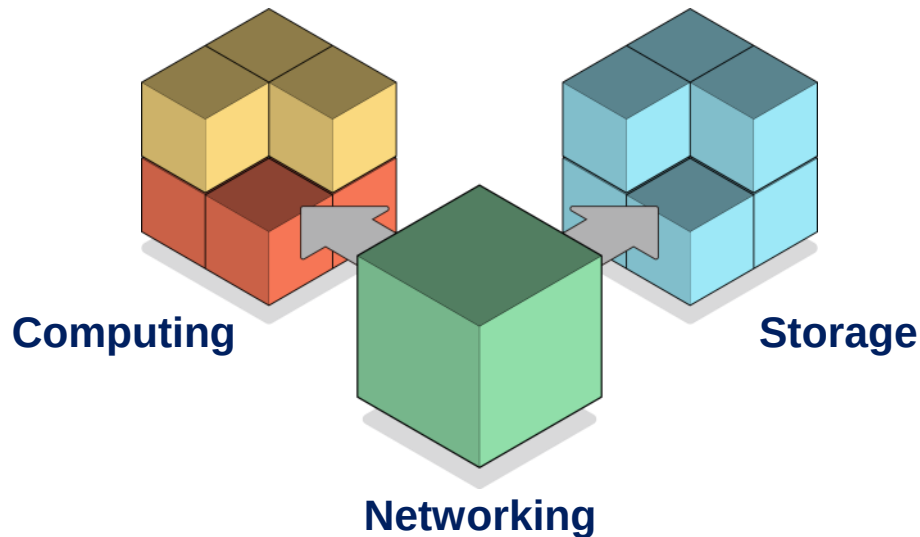


Looks complex at the first glance, however...



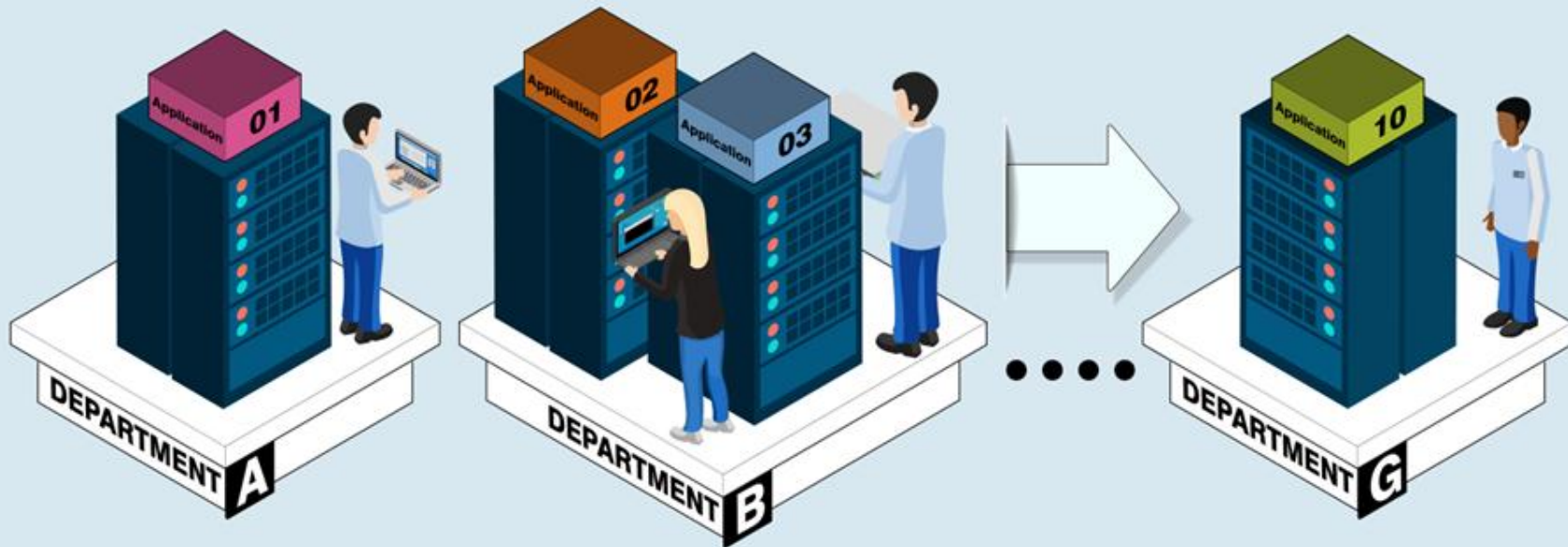
Key elements of IT systems

**Actually, it's all about these 3 elements:
Computing, Networking, and Storage**





Inside the server room...





Different expansion methods

Scale-Up



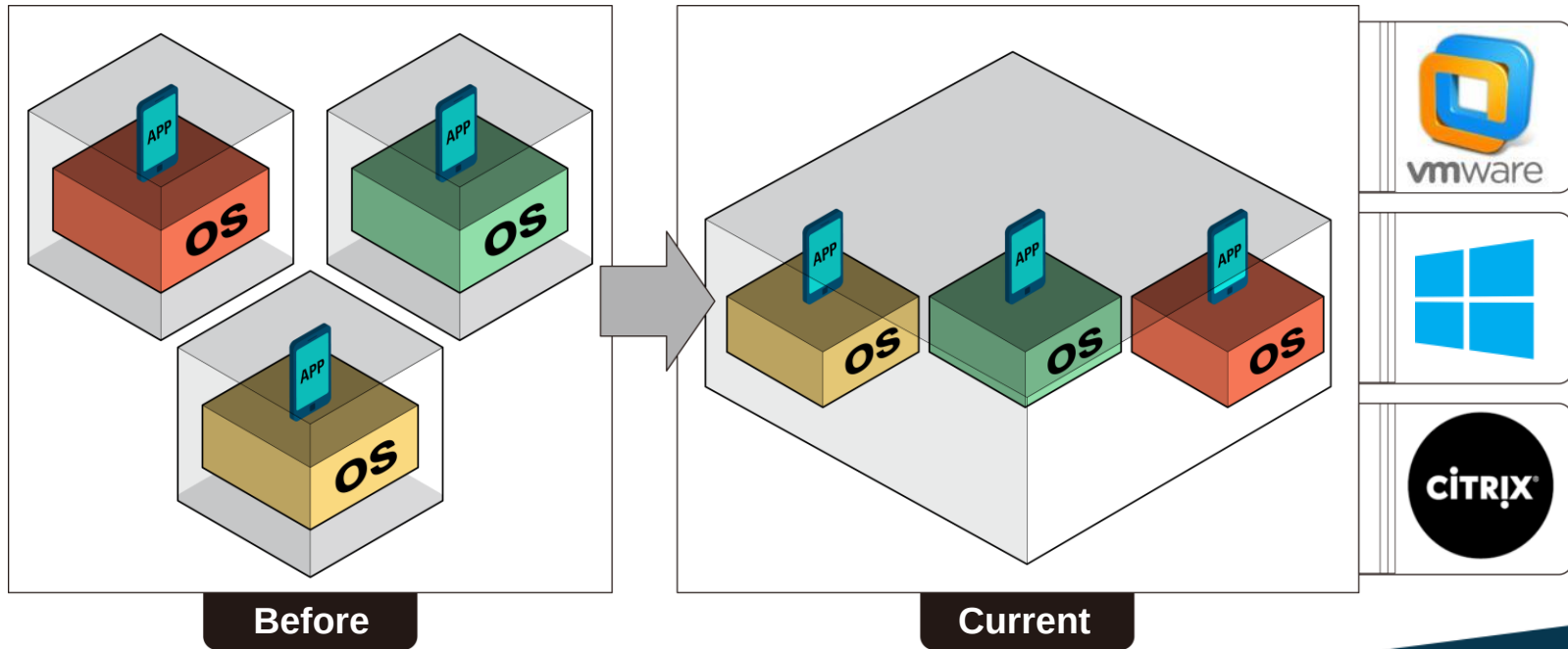
Scale-Out





Here comes virtualization

For better allocation of storage resource, here comes virtualization.



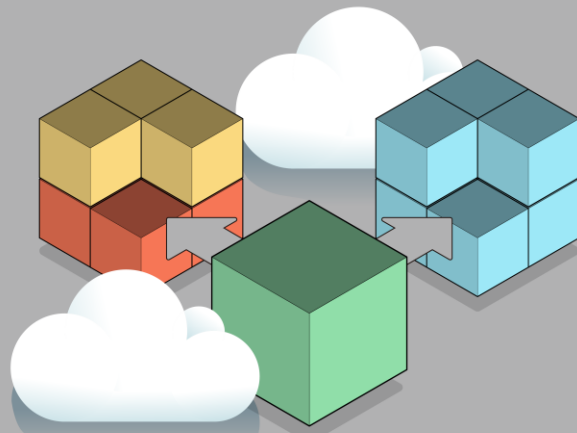
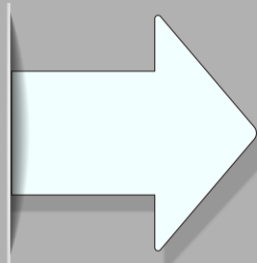
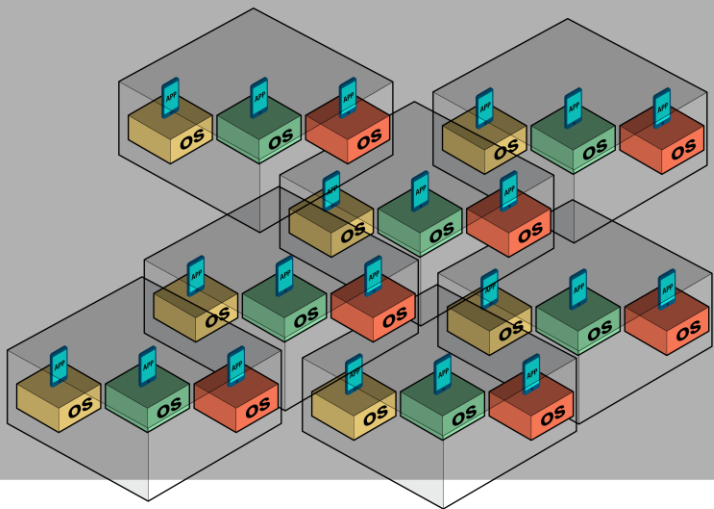


From virtualization to cloud

Data Center

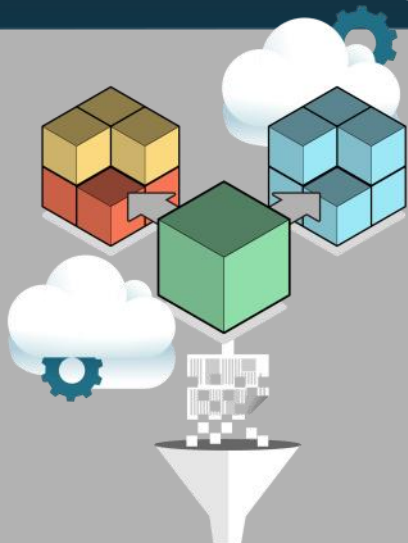
Alleviate the management difficulty and reduce costs.

Consistent and standardized management through the cloud platform





Build your own cloud platform



A single centralized management interface for managing the 3 key elements- Computing, Networking, Storage.





OpenStack—A new star in the cloud world



About OpenStack

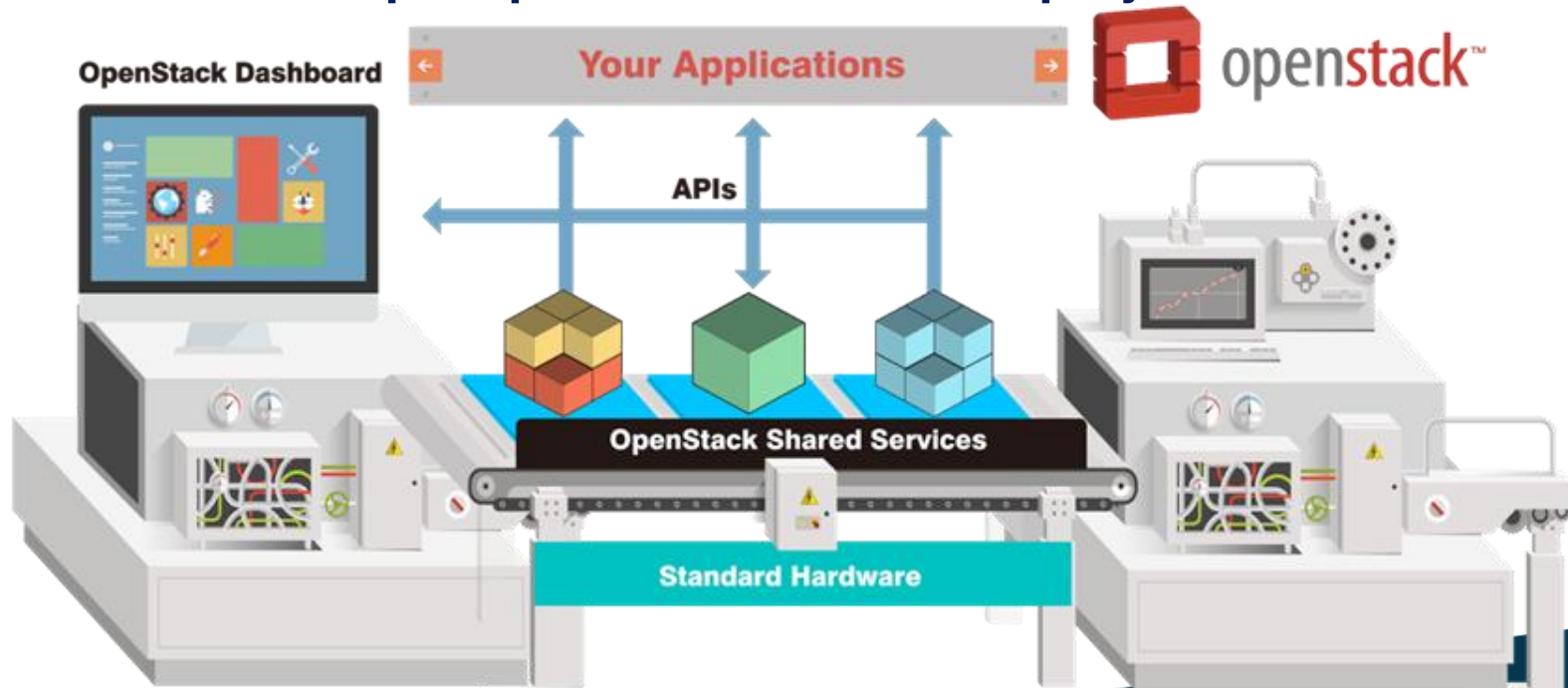
OpenStack is a cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface.





OpenStack architecture

Deploy and manage cloud environment through OpenStack APIs of multiple open source software projects





Many available projects

The open source software project satisfies 3 key elements of IT :
Computing, Networking, and Storage.

QNAP Support





Massive ecosystem

The OpenStack community has accumulated 90,000 members in 187 countries, including large companies such as Intel, Cisco, Huawei, and China Mobile, as well as storage industry leaders such as NetApp and Dell EMC.



99Cloud Inc.



Canonical



China Mobile



China Telecom



China Unicom



Cisco



City Network



Dell EMC



Deutsche Telekom



EasyStack



FiberHome



Fujitsu



Inspur



inwinSTACK



Mirantis



NEC



NetApp



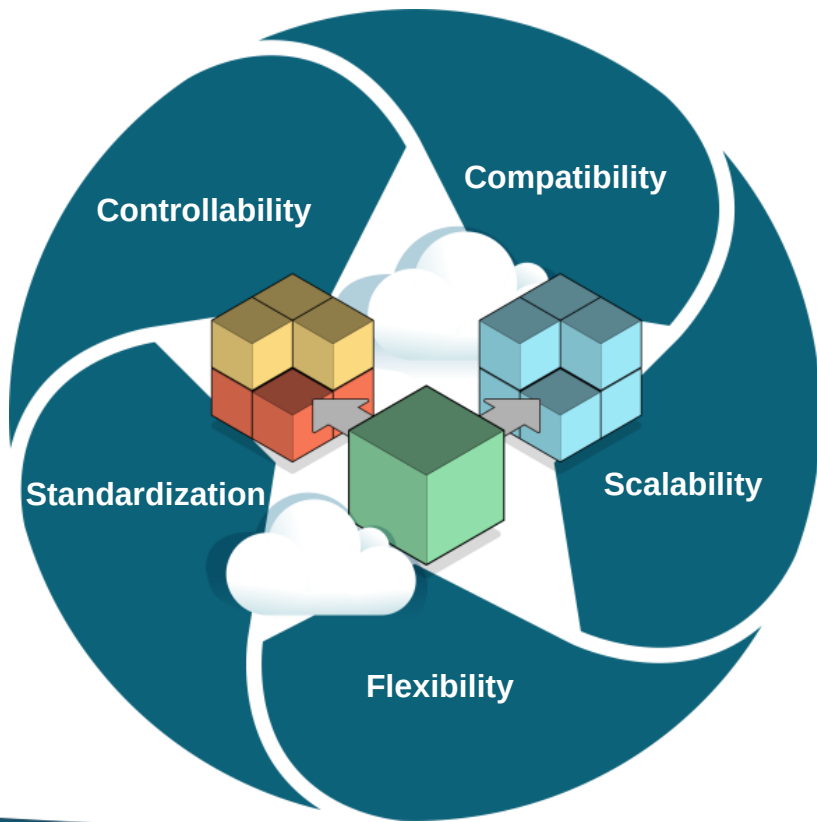
New H3C Technologies Co., Limited



How does OpenStack satisfy IT demands?



5 factors of a cloud environment

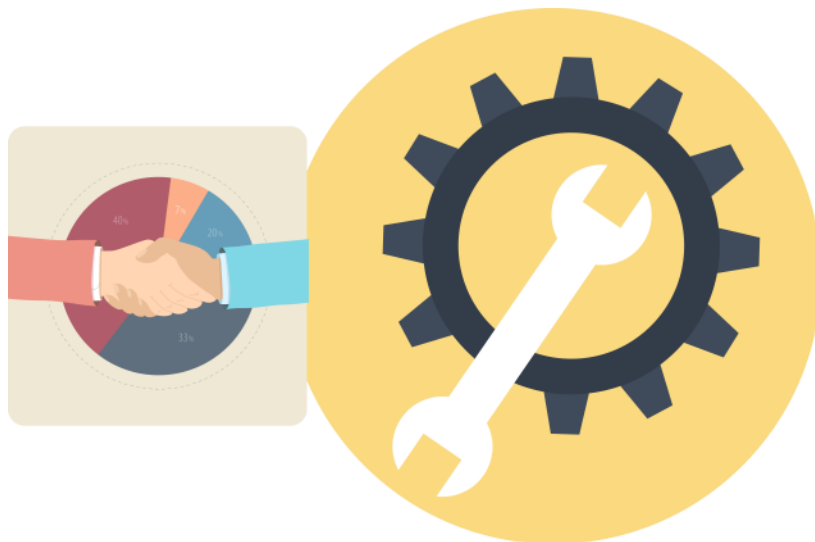


Based on the 3 key elements of IT systems, satisfy the 5 factors of a cloud environment.

Controllability

Won't be restricted and locked-in to some specific vendors.

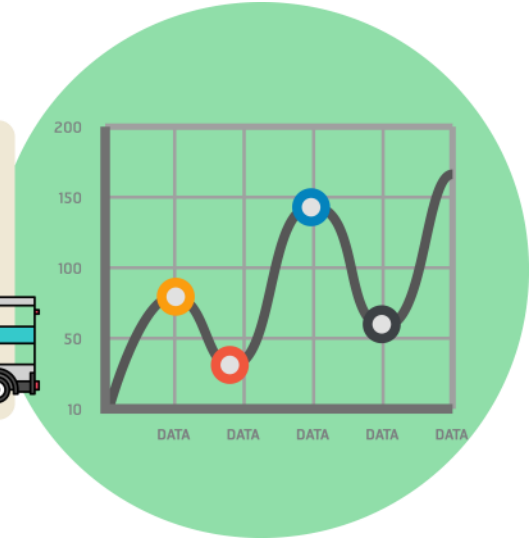
Able to integrate 3rd parties' technology with your own's, to satisfy your demand.





Compatibility

You will be able to migrate data between the public cloud and private cloud.





Scalability

OpenStack support mainstream Linux OS such as Ubuntu, CentOS, Red Hat, Fedora, and SUSE.

It helps a lot when deploying and scaling the cloud environment.





Flexibility

OpenStack project is provided under the Apache 2.0 license. Any 3rd party vendors can develop their own applications based on it.





Standardization

More and more major enterprises join the ecosystem, meaning that OpenStack is recognized for its open source standard.



99Cloud Inc.



Canonical



China Mobile



China Telecom



China Unicom



Cisco



City Network



Dell EMC



Deutsche Telekom



EasyStack



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Inspur



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Mirantis



NEC



NetApp



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QNAP + OpenStack (Qcinder & Qmanila)



What do enterprises need?

Data Store



**Data
Integrity**



**Access
Efficiency**

Protection

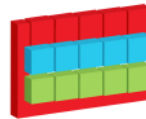


**Snapshots
Protection**



**High
Availability**

Migration



**Disaster
Recovery**



**Remote
Replication**



QES - designed for enterprises

Data storage

- Self-Healing for Data Availability
- Compression & Deduplication

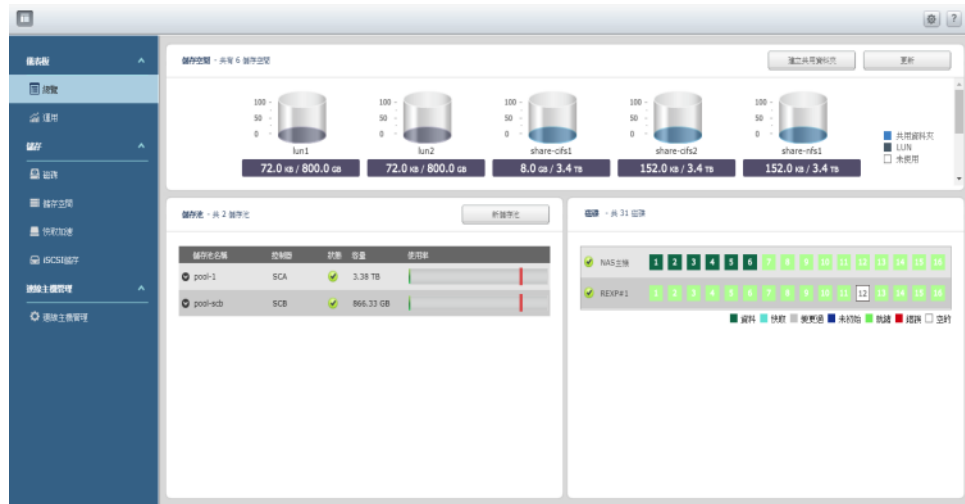
Data protection

- Snapshot Local Protection

Data migration

- SnapSync Remote Protection

QNAP ZFS Based Storage System



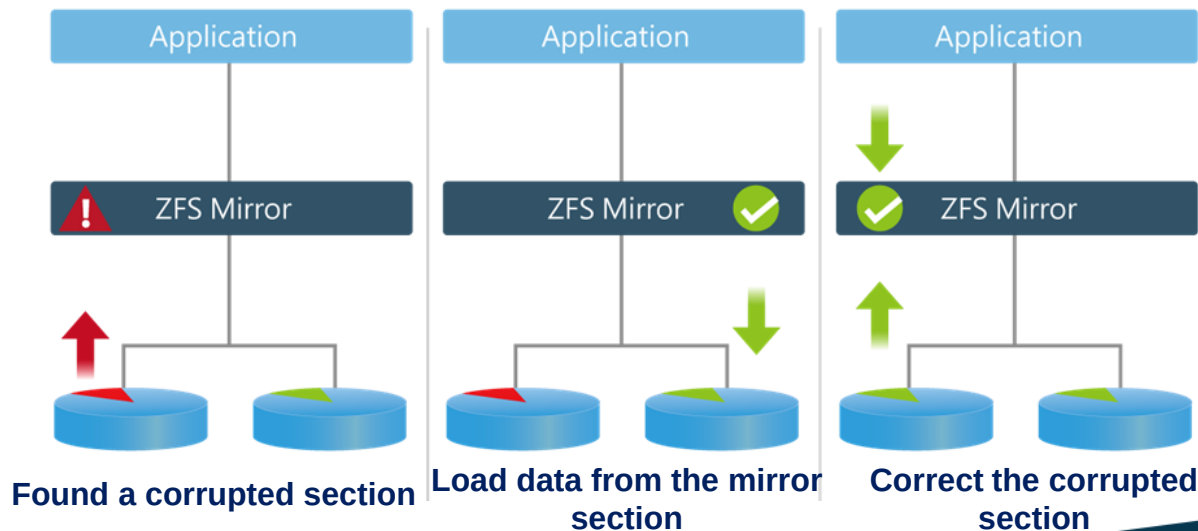


Keep data away from corruption

Data Integrity

ZFS uses its end-to-end checksums to **detect and correct** silent data corruption.

Worry-free data storage (Silent data corruption)





Snapshots to the rescue

Fast recovery from
ransomware attacks



Backup versioning



Recovery from
human errors





QES snapshot protects you

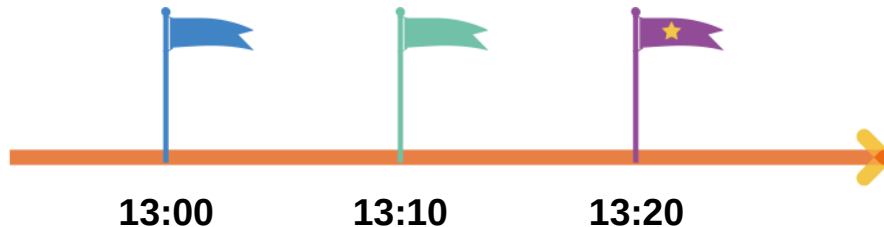


QES near-unlimited snapshots



Near real-time

- Data Protection



Fast recovery

- Review & Access

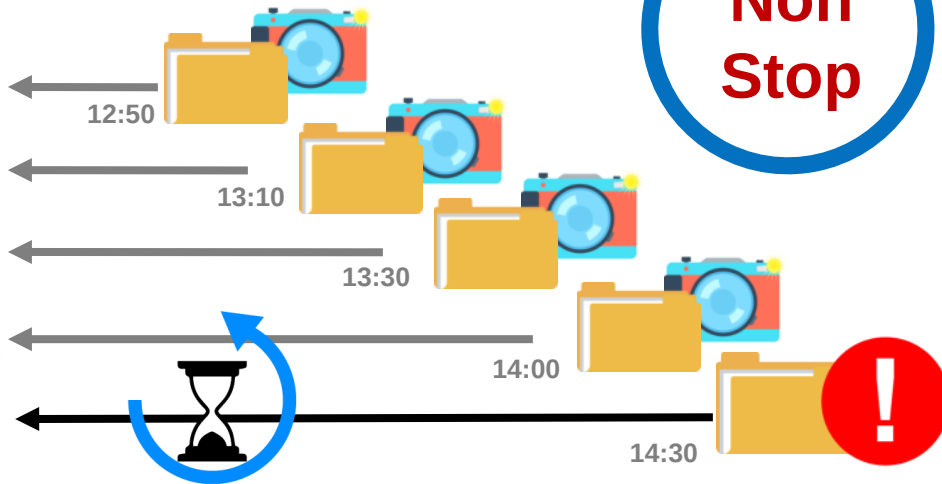


Insert timestamp, and then keep writing



Of course, services non-stop

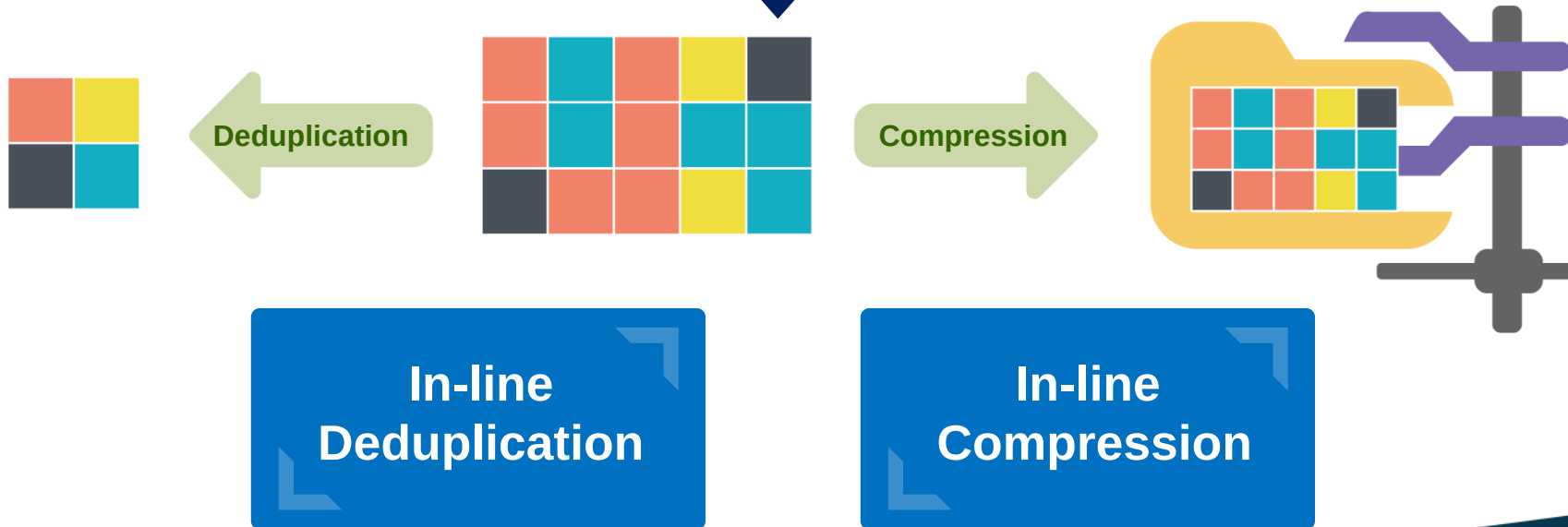
Flexible way to revert / clone





Not only safe, but more efficient

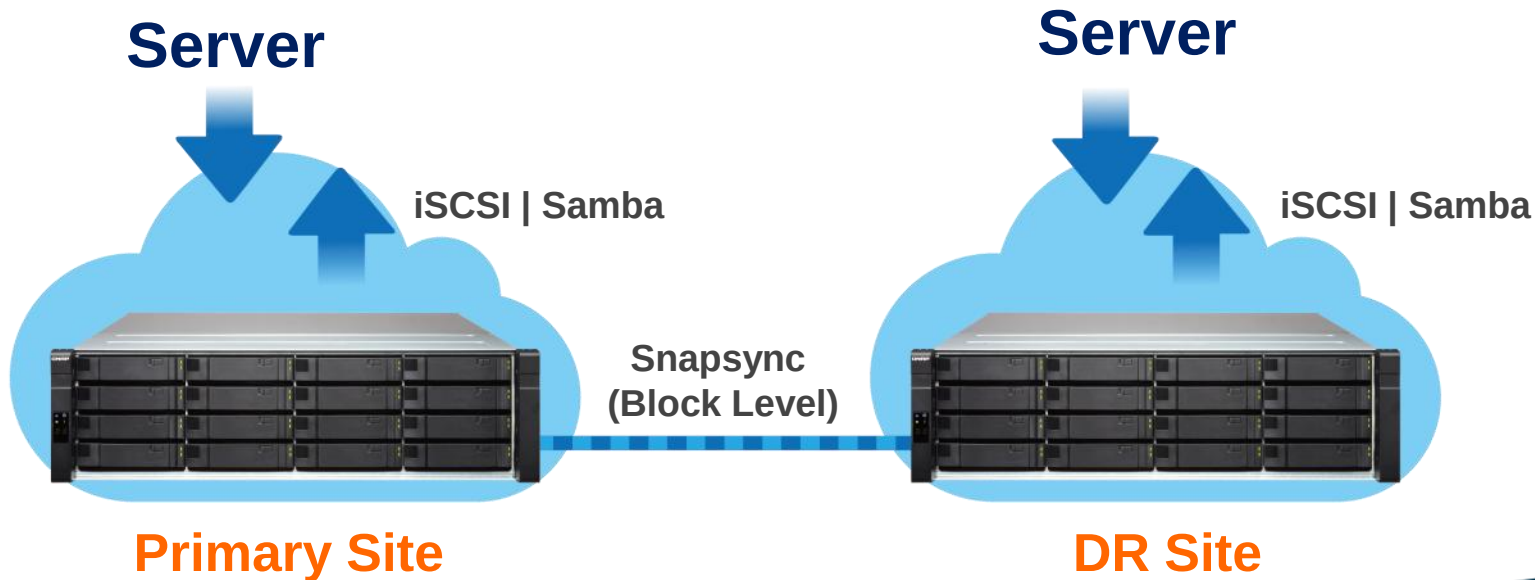
QES makes the storage space more efficient





SnapSync is easy and fast

Easy backup through SnapSync





Qcinder

About Cinder

- Block storage service for OpenStack
- Virtualizes the management of block storage devices
- Provides end users with a self service API

About Qcinder

- Provide block storage service of QNAP storage for OpenStack
- Perform snapshot protection on the QNAP storage
- Support extra specs of QNAP Storage, such like compression, deduplication and thin provisioning..etc





Live Demo - Qcinder



Qmanila

About Manila

- Shared file system service for OpenStack
- Support CIFS and NFS protocol

About Qmanila

- Provide shared file system service of QNAP storage for OpenStack
- Perform snapshot protection on the QNAP storage
- Support extra specs of QNAP Storage, such like compression, deduplication and thin provisioning..etc



MANILA

an OpenStack Community Project



OpenStack supportability comparison

Supported Feature	QNAP	S Brand	E Brand	N Brand
Block storage Volume operations(Create/Delete/Attach/Detach/Extend/)	O	O	O	O
Block Storage Snapshots(Create/Delete/List/)	O	O	O	O
Create Block Storage Volume from Snapshot/Image/Clone/Volume	O	O	O	O
Block Storage Volume Migration	O	X	O	O
Create/Delete Shares	O	X	O	O
Manage Shares	O	X	X	O
Create/Delete Share Snapshots	O	X	O	O
Manage Share Snapshots	O	X	X	O
Create Share from Snapshots	O	X	O	O



QNAP OpenStack Ready NAS models



Best choice for enterprises

ES1640dc v2

Enterprise
High-Availability NAS

(QES Ready)



- Intel® Xeon® E5
- dual active-active controllers
- Up to 96 GB Memory

TES-x85U Series

TES-1885U
TES-3085U

(QTS / QES Ready)



- Intel® Xeon® D processor
- Up to 128GB DDR4 Memory
- Dual QNAP OS ready to use

TDS-16489U

A multifunction
computing/storage server

(QTS Ready)



- Dual Intel® Xeon® E5 processor
- Up to 1TB Memory
- Optional 40GbE



ES1640dc v2

ES1640dc v2

Best Choice for Non-stop Service



Specification

- 3U rack mount
- 16 x 3.5" SAS 12Gb/s disk/SSD
- Dual Controller



TES-3085U

TES-3085U

Best Choice for All Flash Storage



Specification

- 2U rack mount
- 24 x 2.5" SAS 12Gb/s, 6Gb/s
SATA 6Gb/s disk and SSD
- 6 x 2.5" SATA 6Gb/s SSD



TES-1885U

TES-1885U

Best Choice for Data Backup



Specification

- 2U rack mount
- 12 x 3.5"/2.5"
SAS 12Gb/s, 6Gb/s,
SATA 6Gb/s disk and SSD
- 6 x 2.5" SATA 6Gb/s SSD



TDS-16489U

**Business-ready multifunction
server – fulfilling computing and
storage in one box**



Specification

- 3U rack mount
- Front : 16 x 3.5"/2.5"
SAS 12Gb/s, 6Gb/s,
SATA 6Gb/s HDD and SSD
- Rear : 4 x 2.5"
SAS 12Gb/s SSD
SAS/SATA 6Gb/s, 3Gb/s SSD



Conclusion

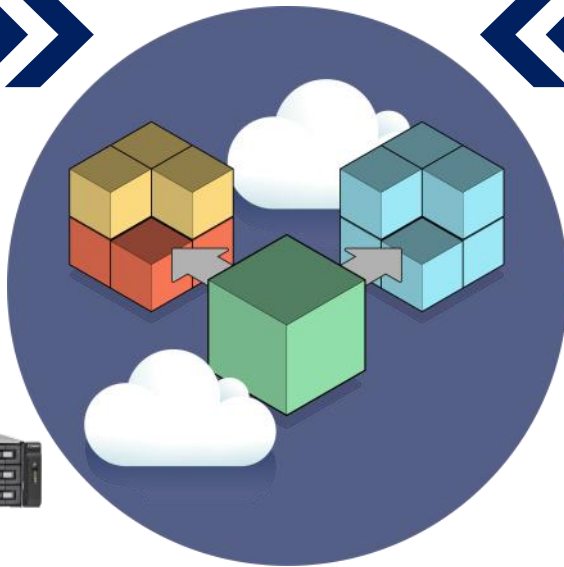
QNAP OpenStack Ready products help you build a robust and reliable cloud platform which thoroughly satisfies enterprise IT demand.

Enterprise Storage

Data Store, Protection
and Migration



QNAP®



IaaS Cloud Platform

Infrastructure for data
management



openstack®



openstack.

**QNAP OpenStack Ready
is your best choice!**