COHESITY

Version 1.0

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Use Cohesity as HPE NonStop Systems Backup Repository

ABSTRACT

HPE NonStop family of systems are fault-tolerant, always-on, and always-adapting computing solutions for mission-critical solution deployment. This guide will walk you through the process of setting up Cohesity Data Cloud, which is simple, secure, scalable and AI/ML-ready, offering much-needed data protection, security, mobility, access, and insights to HPE NonStop workloads.

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Using Cohesity with ETI-NET VTC

ETI-NET is the worldwide leader in managing critical data for industries that never stop. BackBox is one of ETI-NET's software-defined architecture-based Virtual Tape Controllers (VTC), which runs on a Microsoft Windows server. It attaches to one or several NonStop servers via FC, HVD SCSI, or iSCSI and emulates up to dozens of tape devices.

HPE NonStop systems are designed from the ground up for mission-critical environments that demand continuous business and 100% fault tolerance. These ultra-robust systems ensure 24x7 availability, unrivaled data integrity, and virtually unlimited scalability—ideal for demanding, transaction-intensive applications.

The NonStop-resident software component, supplied with BackBox, integrates the emulated tape devices and BackBox-attached storage with unmodified HPE backup utilities and tape catalog systems.

BackBox is the superior solution for NonStop system users who require performance, availability, remote replication, deduplication, and encryption.

When ETI-NET customers use Cohesity as the storage repository for their backups, they benefit immediately from Cohesity's many features:

- **Web-scale.** Capacity grows with your business.

- **Performance.** Improved backup and restore times.

- **Storage efficiency.** Extremely high storage efficiency with global, variable-length deduplication and compression.

- **Security.** Data is always secure and encrypted both at rest and in flight.

- **Resilience.** Highly resilient, fault-tolerant architecture.

This guide focuses on HPE NonStop Systems, which hosts mission-critical services and whose backup target is tape, especially the BackBox Virtual Tape Controller from ETI-NET. Due to its high data change rate and throughput, it uses FC connections to backup to Virtual Tape Controllers. The BackBox VTC host (Windows Server) uses recommended FC HBAs from ATTO. The choice of card depends on the bandwidth requirements of both HPE NonStop and ETI-NET devices.

You can configure HPE NonStop system backups with ETI-NET BackBox using the following paradigms:

- Single HPE NonStop systems connected to Single ETI-NET BackBox Server

- Single HPE NonStop systems connected to Multiple ETI-NET BackBox Servers

- Multiple HPE NonStop systems connected to a Single ETI-NET BackBox Server

- Multiple HPE NonStop systems connected to Multiple ETI-NET BackBox Servers

Together, these features provide a complete, reliable web-scale data protection solution. Our solution uses Cohesity's SMB Views as a single or scale-out storage repository for ETI-NET VTC. Combining ETI-NET VTC with Cohesity provides a comprehensive, highly scalable, and flexible backup solution that fits the data protection needs of any size organization.

Figure 1: Use Cohesity as a Backup Repository of ETI-NET VTC
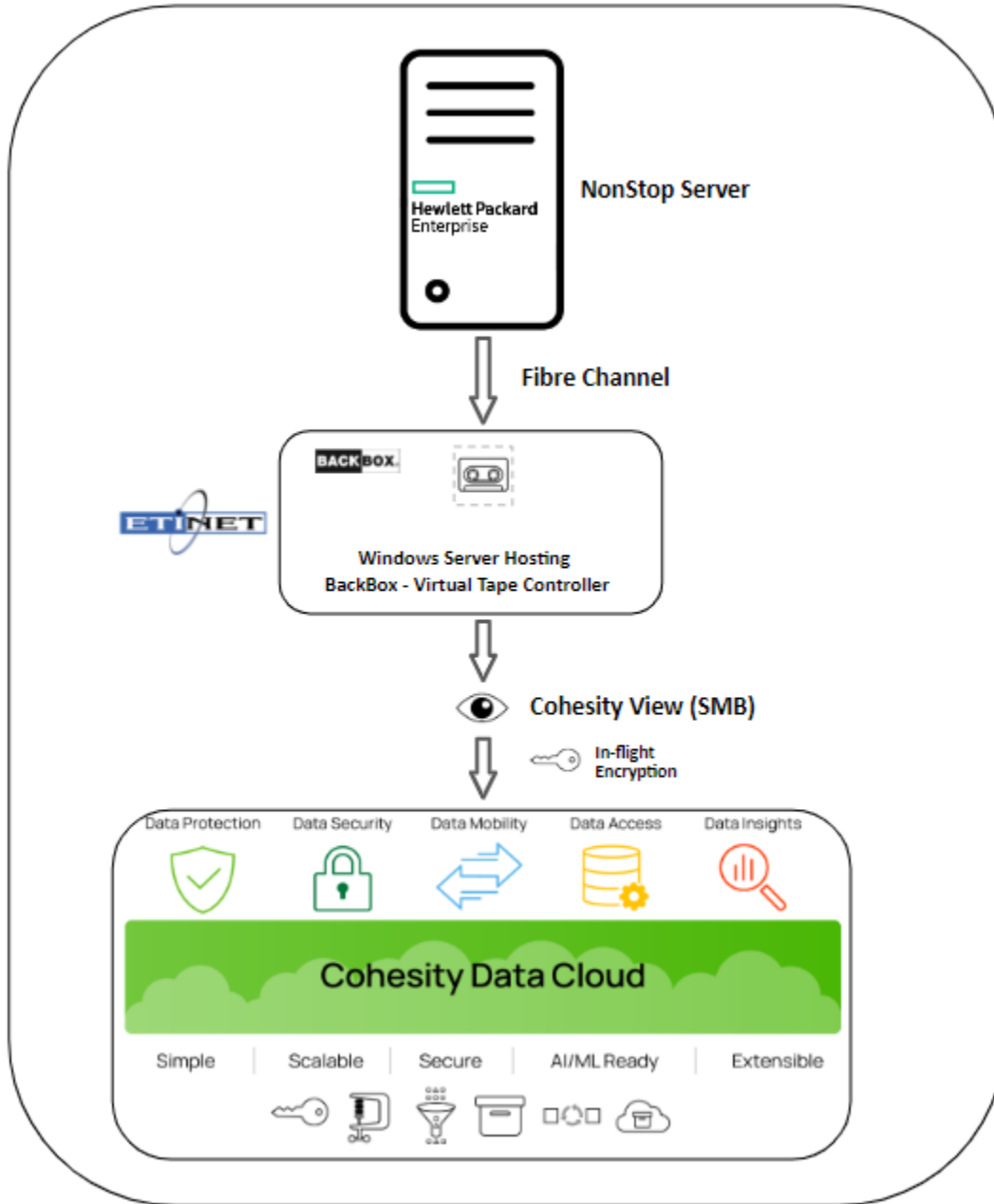
Benefits of Using Cohesity with ETI-NET VTC

Organizations that rely on HPE NonStop systems need a fast, powerful, and simple backup and recovery solution that scales well to grow with their ever-growing data. To meet these needs in a reliable and efficient ecosystem, Cohesity's Distributed architecture provides a solution that eliminates the complexities and operational inefficiencies of traditional NAS protection solutions. The solution unifies your data protection and recovery infrastructure—including target storage, backup, recovery, replication, archiving, and disaster recovery—on a single platform.

With Cohesity, you can protect your critical files and directories, ensuring data security, protection, and scalability.

Once you start using Cohesity as a backup repository, you can immediately take advantage of Cohesity's powerful features, including:

- **Live view** of data being written on the Cohesity storage from HPE NonStop systems

- **Restricted access** to the view by allowing only an authorized set of IP addresses.

- **Data Immutability** - Once Data is written on Cohesity, it will not be overwritten, also popularly known as WORM (Write Once, Read Many).

- **File auditing** to record and monitor events occurring on your SMB view.

- **Inflight Encryption** - Not all vendors offer SMB Encryption. Inflight Encryption enables you to use existing network infrastructure and not create isolated/dark/deadnet infrastructure to avoid man-in-the-middle attacks.

- **Inline deduplication and compression** - Deduplication occurs when the Cohesity cluster writes the data to the Cohesity View and Compression occurs when the Cohesity cluster saves the blocks to the Cluster.

- **Policy-based data replication** from one cluster to another cluster for disaster recovery.

- **CloudArchive** and **Cloud Retrieve** your data for long-term retention and disaster recovery in AWS, Azure, GCP, NAS, and S3-compatible storage platforms. Use Cloud Tier to reduce TCO.

Figure 2: Benefits of Using Cohesity as Backup Repository of ETI-NET

Use Cohesity as HPE NonStop Systems Backup Repository
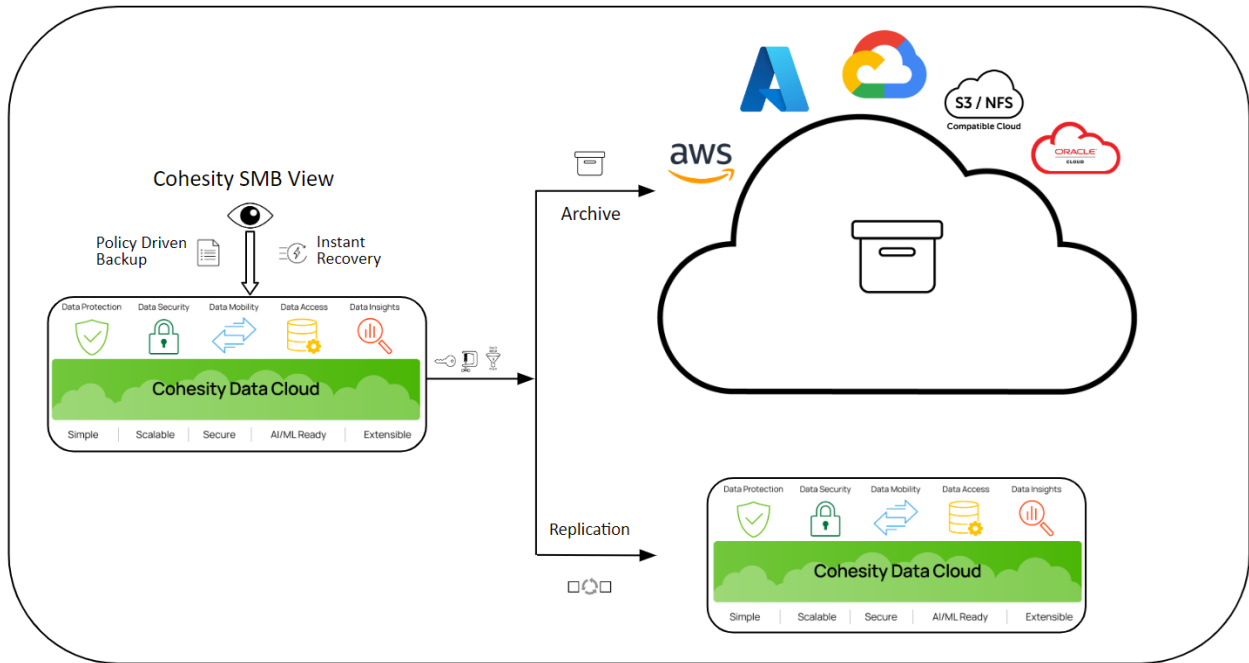
Create and Configure Cohesity SMB View for ETI-NET VTC

To protect HPE NonStop systems, you need to associate a backup policy. The backup policy includes the backup configuration, a list of File Systems to Volume Group mappings, backup schedules, and retention rules. This helps invoke HPE NonStop systems backups that land in the ETI-NET VTC storage pool. Storage Pool is carved out of Volume Group consisting of Datastore, both of which are defined on VTC. The Storage pool (defined on VTC) is the endpoint that maps to the Cohesity SMB share path (which supports both FQDN and VIP). Cohesity provides this SMB share, which is actually the Cohesity View— web-scale, globally deduplicated, compressed storage.

To use a Cohesity View as a storage repository for the HPE NonStop system via ETI-NET Virtual Tape Controller, complete the recommended steps below.

Optimize SMB Performance with GFlags

Before creating a View in Cohesity, Cohesity recommends tuning your Cohesity system settings to optimize SMB performance as follows:

1. See Recommended settings when using Cohesity as a filer in the Cohesity Support portal for more details.

2. Contact Cohesity Support to help you change the settings.

> **NOTE**: If your network equipment supports LACP, Cohesity recommends configuring your Cohesity network data ports to use it. LACP can provide additional network throughput to and from the Cohesity cluster and among its nodes. To take advantage of this, both the network switches and the Cohesity cluster need to be configured for LACP. For instructions, see the Cohesity Networking Quick Start Guide.

Choose a QoS policy and configure the View for SMB to create a Cohesity View, to create an SMB share to store HPE NonStop system backups:

1. Ensure that Cohesity is connected to the Active Directory.

2. Create a Cohesity View, select the Optimal QoS policy, and set SMB access type and permissions. For ETI-NET VTC, Cohesity recommends using the **Backup Target SSD** QoS policy in the Cohesity SMB View.

3. Add a Share Allowlist. If you add more ETI-NET VTCs in the future, ensure they are added to the SMB Share Whitelist/Allowlist in this View.

4. Tune Cohesity Cluster to Optimize SMB View for Performance.

5. Configure your ETI-NET VTC to use Cohesity View as HPE NonStop Backup Target

Now that you have created the Cohesity SMB View verify that the SMB share (which has the same name as the View) is accessible by using the **\\<vip>\<View_Name>** format on the ETI-NET VTC hosting Windows Server.

> **NOTE**: Should you encounter access issues, which appear most commonly as 'Access Denied' and 'Can't open for writing' error messages in ETI-NET VTC, the most likely cause is an issue with the IP allowlist or Active Directory permissions. To troubleshoot these issues, use Cohesity filer audit logging on the Cohesity View, which will indicate the cause. For instructions, see Enable File Services Audit Logs in the online Help.

For this solution, Cohesity recommends that you enable Inflight Encryption, Inline Deduplication, and Inline Compression on the Storage Domain where you create the View.

# Configure BackBox VTC to Use Cohesity View

On the Windows Server you plan to use as VTC, ensure the FC Card and ports are configured and enabled and HPE NonStop system is able to communicate.

1. Install ATTO Config Tool GUI utility to monitor the health of the FC card and its ports.
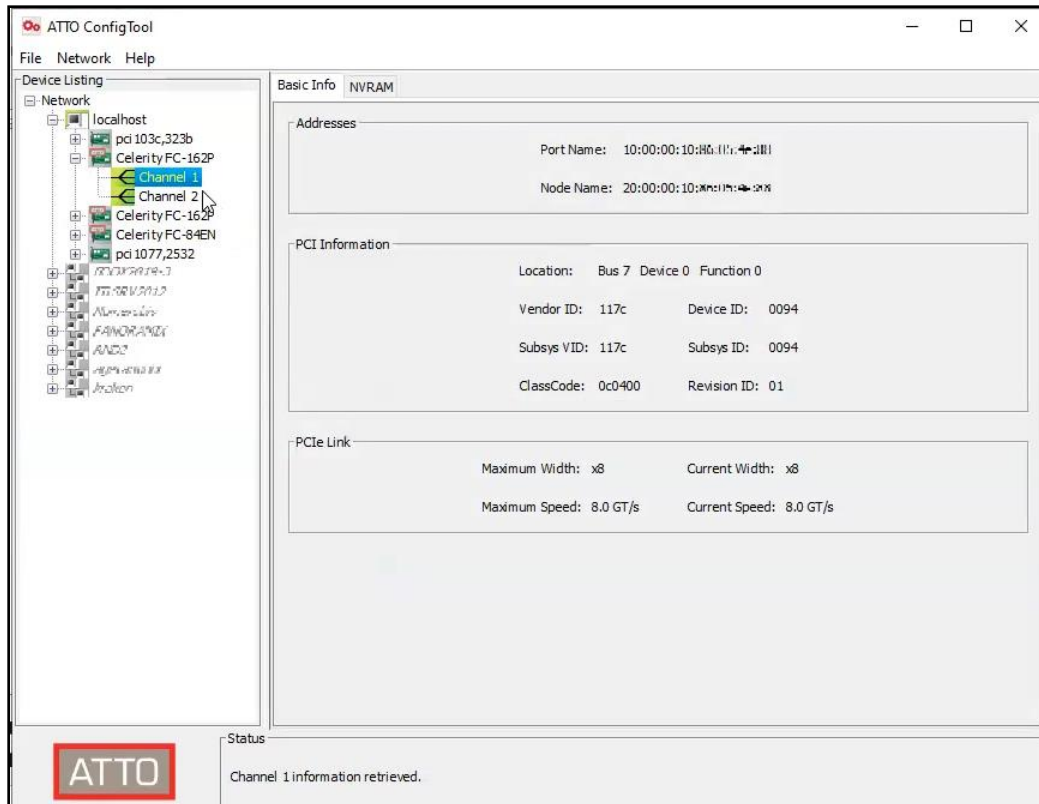

Install BackBox software components on the Windows Server where you mapped the Cohesity view as SMB Share. Following are the component installations that are required. For detailed network ports that need to be opened for communication between various entities like HPE NonStop System and ETI-NET hosting Windows Server, refer to ETI-NET BackBox Technical Manuals.

2. Install the BackBox UI Client on the Windows Server.
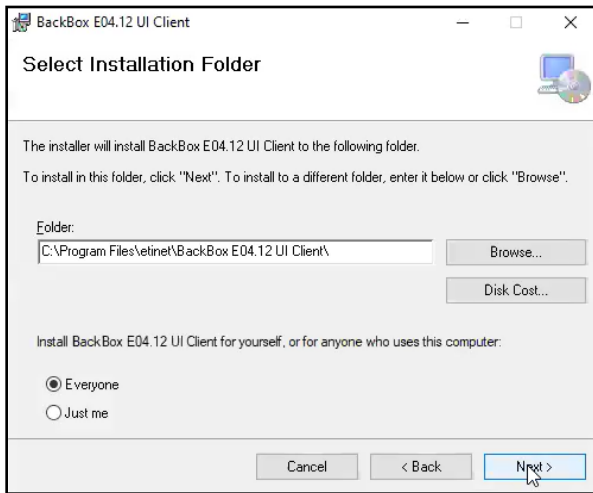
3. Install the VTC Management Console on the Windows Server. This manages the FC communication between the NonStop system and VTC. VTC communicates to NonStop through the VTC **FC Emulator**. In this guide, we have taken the example of VTC communicating via Celerity FC ATTO cards.
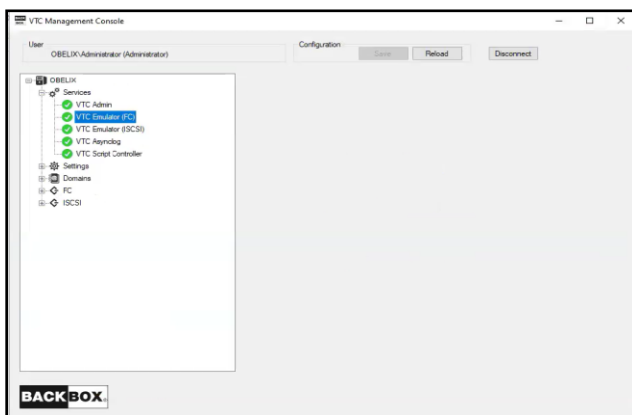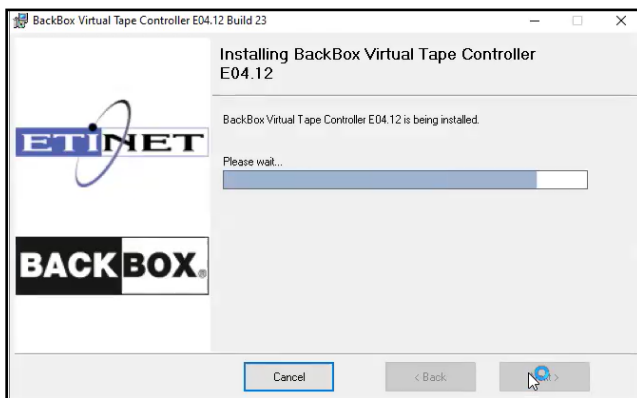
4. BackBox Guardian Software - installed on the HPE NonStop system

5. Once installations are complete, you can launch the BackBox UI, and administer the storage topology. One of the first steps is to create a Storage Pool by providing the SMB share path under the Data Store tab. Follow this sequence to complete this operation: **Data Store > Storage Pool > Add path to Primary Storage Pool.**
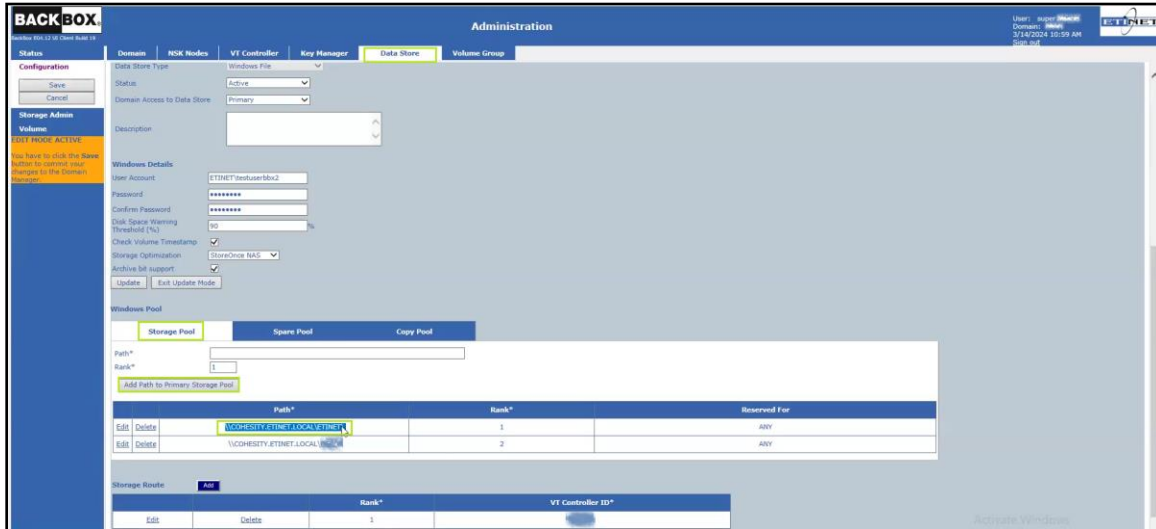
6. The Cohesity View/SMB Share is showing up as a **Storage Pool,** as shown in the below BackBox UI snippet. There is a **Spare Spool** that will be used if the Storage Pool quota is over. These pools are sub-entities of the **Data Store,** as highlighted in the UI snippet below. There can be multiple Storage and Spare pools per Data Store.
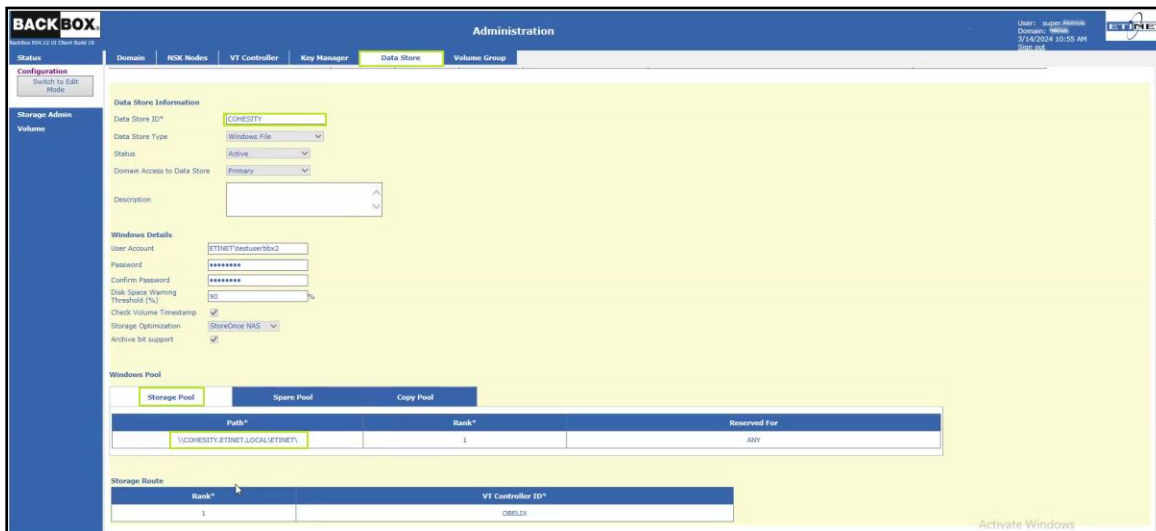
7. **The Volume Group** is the entity that binds HPE NonStop system storage entities with VTC. If you observe closely, the **Volume Group** consists of both the **VTC data Store and** the HPE NonStop system catalog information.
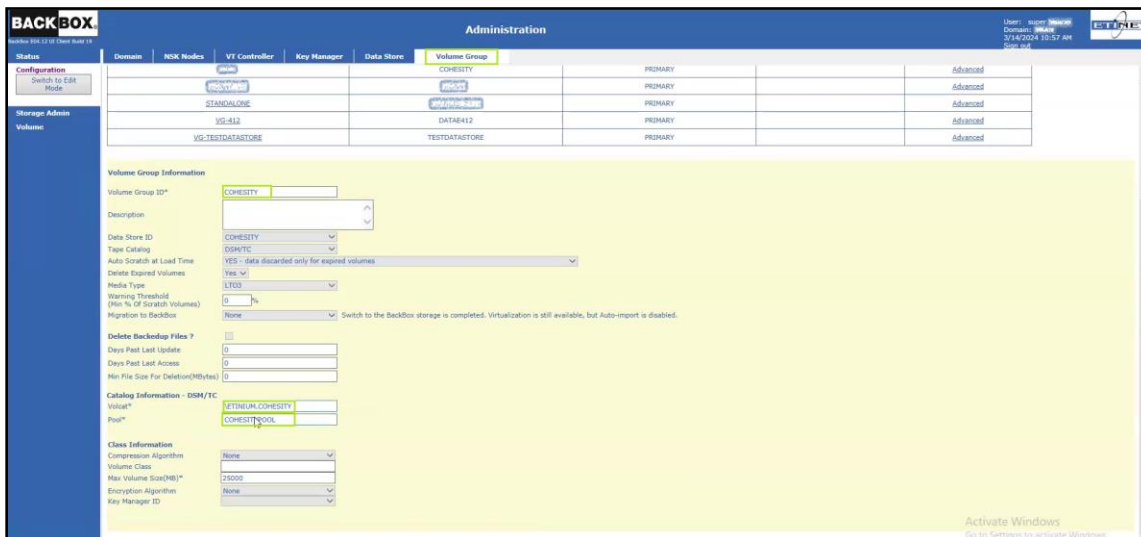
8. The below snippets show the mapping between the tape, the Catalog, and the volume group.

To the HPE NonStop system, a BackBox virtual tape drive appears as a physical drive connected by SCSI or Fiber Channel. The drive appears as LTO3 (i.e., using LTO3 or LTO2 media type) by default unless otherwise specified in the VT internal configuration files. Catalog information is stored in HPE NonStop, which has a mapping of storage pools. Catalog status on both HPE NonStop and BackBox has to be in SYNC. If it goes out of SYNC, Catalog on NonStop takes precedence over BackBox, and the conflict is resolved.

a. On the BackBox VTC:
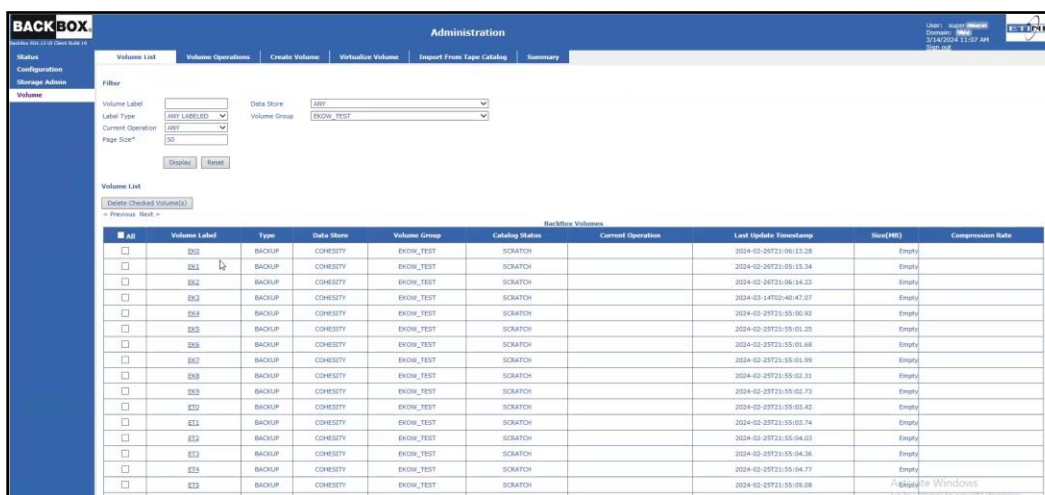
b. On the HPE NonStop system:

```
$DATA15 ████████ 4> mediacom
MEDIACOM - T6028H01 (22MAY2019)
(C) Copyright 2015 Hewlett Packard Enterprise Development LP
MC>info tapevolume , pool ████████, volcat \etinium.████████

Volume Catalog        \ETINIUM.████████
Pool Name             ████████

Tape Name    Labels    Type    TapeFormat    Status
----------   -------   ------  -----------   ---------
EK0          BACKUP    LTO3                  SCRATCH
EK1          BACKUP    LTO3                  SCRATCH
EK2          BACKUP    LTO3                  SCRATCH
EK3          BACKUP    LTO3                  SELECTED
EK4          BACKUP    LTO3                  SCRATCH
EK5          BACKUP    LTO3                  SCRATCH
EK6          BACKUP    LTO3                  SCRATCH
EK7          BACKUP    LTO3                  SCRATCH
EK8          BACKUP    LTO3                  SCRATCH
EK9          BACKUP    LTO3                  SCRATCH
ET0          BACKUP    LTO3                  SCRATCH
ET1          BACKUP    LTO3                  SCRATCH
ET2          BACKUP    LTO3                  SCRATCH
```

9. The below snippet shows how the HPE NonStop systems backup looks once they are written onto the Cohesity View. Under Windows Files Data Store, the virtual volume is implemented as a package of two Windows disk files:

a. .IND file - a small index file containing metadata (filename.IND).
b. .DAT file - a variable length data file the size of which is based on the current content of the volume (filename.DAT).
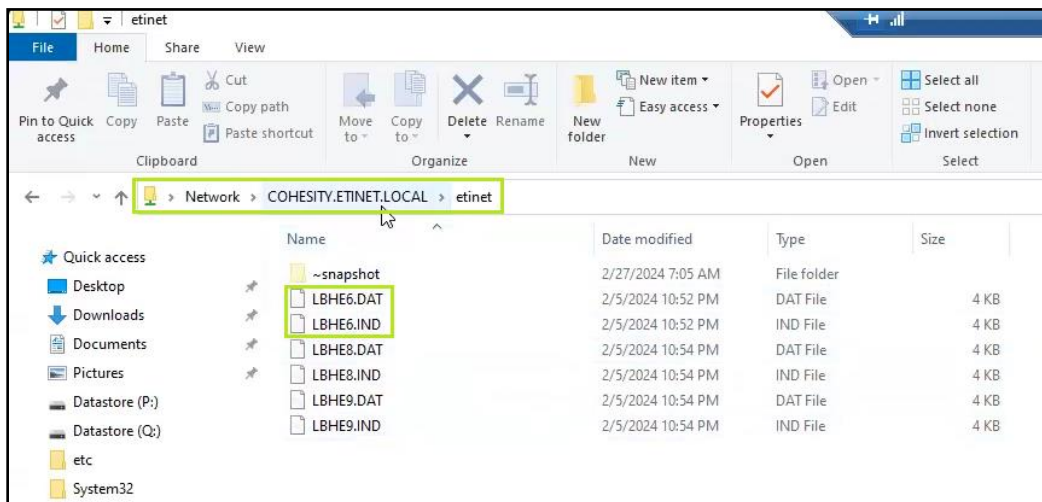
Summary

Cohesity's NAS delivers the best performance using web-scale architecture. Using SMB NAS as a target for ETI-NET VTC Disks delivers a comprehensive data protection solution to any organization. Cohesity delivers a proven backup solution that is infinitely scalable, highly available, and provides unparalleled performance.

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About the Authors

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VERSION	DATE	DOCUMENT HISTORY
1.0	June 2024	First release

COHESITY

ABOUT COHESITY

Cohesity is a leader in AI-powered data security and management. Aided by an extensive ecosystem of partners, Cohesity makes it easier to protect, manage, and get value from data – across the data center, edge, and cloud. Cohesity helps organizations defend against cybersecurity threats with comprehensive data security and management capabilities, including immutable backup snapshots, AI-based threat detection, monitoring for malicious behavior, and rapid recovery at scale. Cohesity solutions are delivered as a service, self-managed, or provided by a Cohesity-powered partner. Cohesity is headquartered in San Jose, CA, and is trusted by the world's largest enterprises, including six of the Fortune 10 and 44 of the Fortune 100.

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