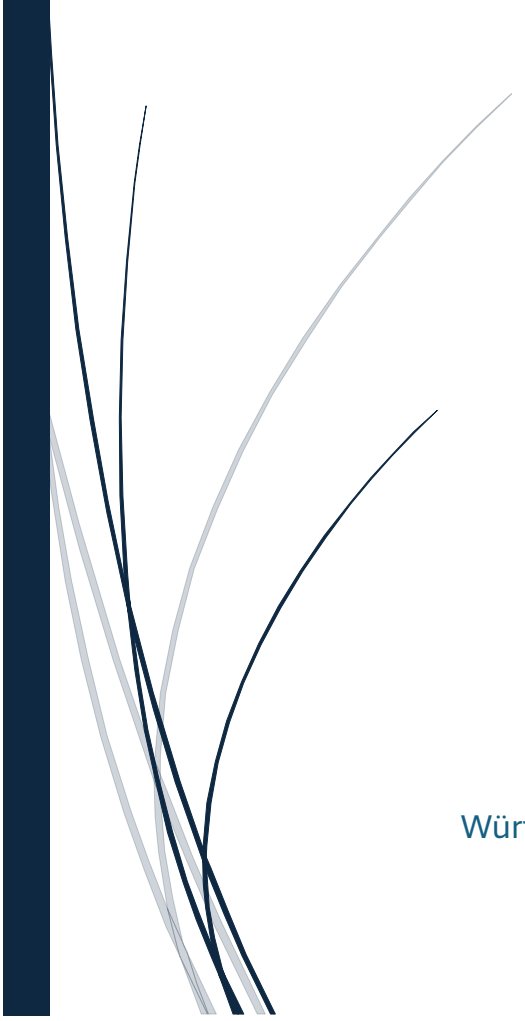
18/03/2026

TrueNAS Documentation

VIRCL



Würth Eric, Simon Max, Kugener Sven

Table of Contents

Table of Figures

NAS Server Documentation

TrueNAS Community Edition

1 Information

What is NAS

A NAS (Network Attached Storage) is essentially a small, specialized computer whose sole purpose is to store data and make it available over a network. It often uses RAID (Redundant Array of Independent Disks) to protect your data across multiple hard drives.

At home, it commonly serves as a central storage location for photos, videos, and music, so that all family members can access everything from any device. Many people also use it as a private cloud alternative to services like Google Drive or Dropbox.

Difference between DAS, NAS and SAN

DAS – Direct Attached Storage Storage connected directly to a single computer or server. It's simple and fast but not shareable — only the host machine can access it.

NAS – Network Attached Storage A dedicated file server connected to a network, allowing multiple users and devices to access shared files over standard protocols like SMB, NFS, or FTP. It operates at the **file level**.[1]

SAN – Storage Area Network A dedicated high-speed network that connects servers to storage devices. Unlike NAS, it operates at the **block level**[2], making the storage appear as locally attached to each server.

Benefits of Separating Compute and Storage

Scalability — You can scale CPU/RAM and storage independently. Add compute nodes without touching storage, and vice versa.

Availability & Redundancy — If a server fails, data remains intact on the separate storage system. Compute nodes can be replaced without data loss.

Resource Efficiency — Multiple servers share the same storage pool, avoiding duplication and making better use of capacity.

Maintenance — Servers can be taken offline for updates or repairs without affecting the storage or other connected systems.

[1] **File Level –** Data is provided as ready-to-use files/folders via a network protocol (simple, immediately usable)

[2] **Block Level –** Storage is provided as raw data blocks, without a file system. The OS manages the data itself (fast, flexible)

2 Hardware

Server Form Factor & Dimensions

The Intel SR2600URBRPR is a **2U Rack-mounted server**[3].

Dimensions 2U Rack | 87 mm × 430 mm × 710 mm

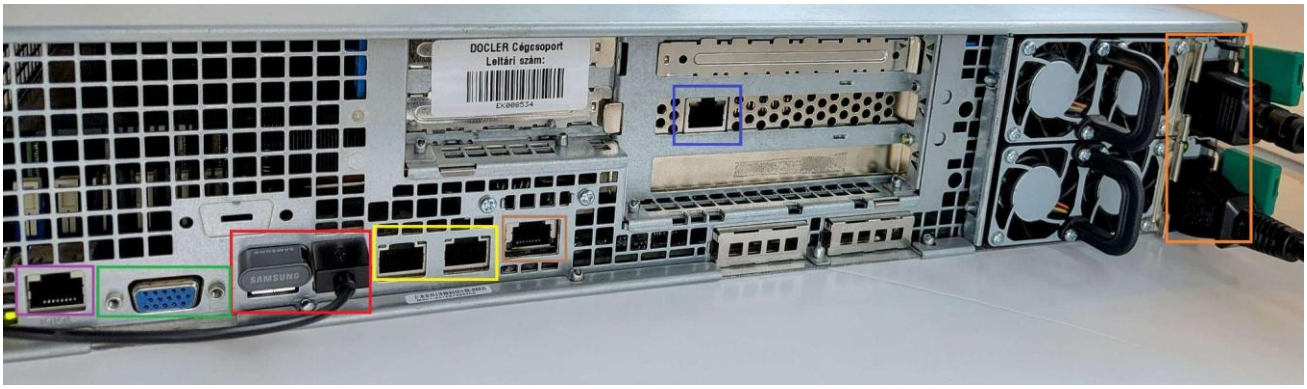
Hardware Specifications

Component	Specification
Server	Intel SR2600URBRPR
CPU	2× Intel Xeon X5650
RAM	8× 8 GB (64 GB total)
Native HDD (SATA)	2× 160 GB (320 GB total)
RAID HDD (SAS)	3× 146 GB (438 GB total)

External Ports & Connectors — Back Panel

Purple — RJ-45 Serial Port A — Serial management port for direct console access
Green — VGA Port — For local monitor connection
Red — 4× USB 2.0 Ports
Yellow — 2× RJ-45 Ethernet
Brown — RJ-45 Ethernet — Dedicated IPMI/BMC management port for remote server management
Blue — RAID Controller Port Connection
Orange — 2× Power Connectors

[3] "2U" refers to the server's height – 2 rack units (3,5 / 88,9m) – mounted in a standard 19" rack cabinet.



1 Back panel — port locations highlighted by color

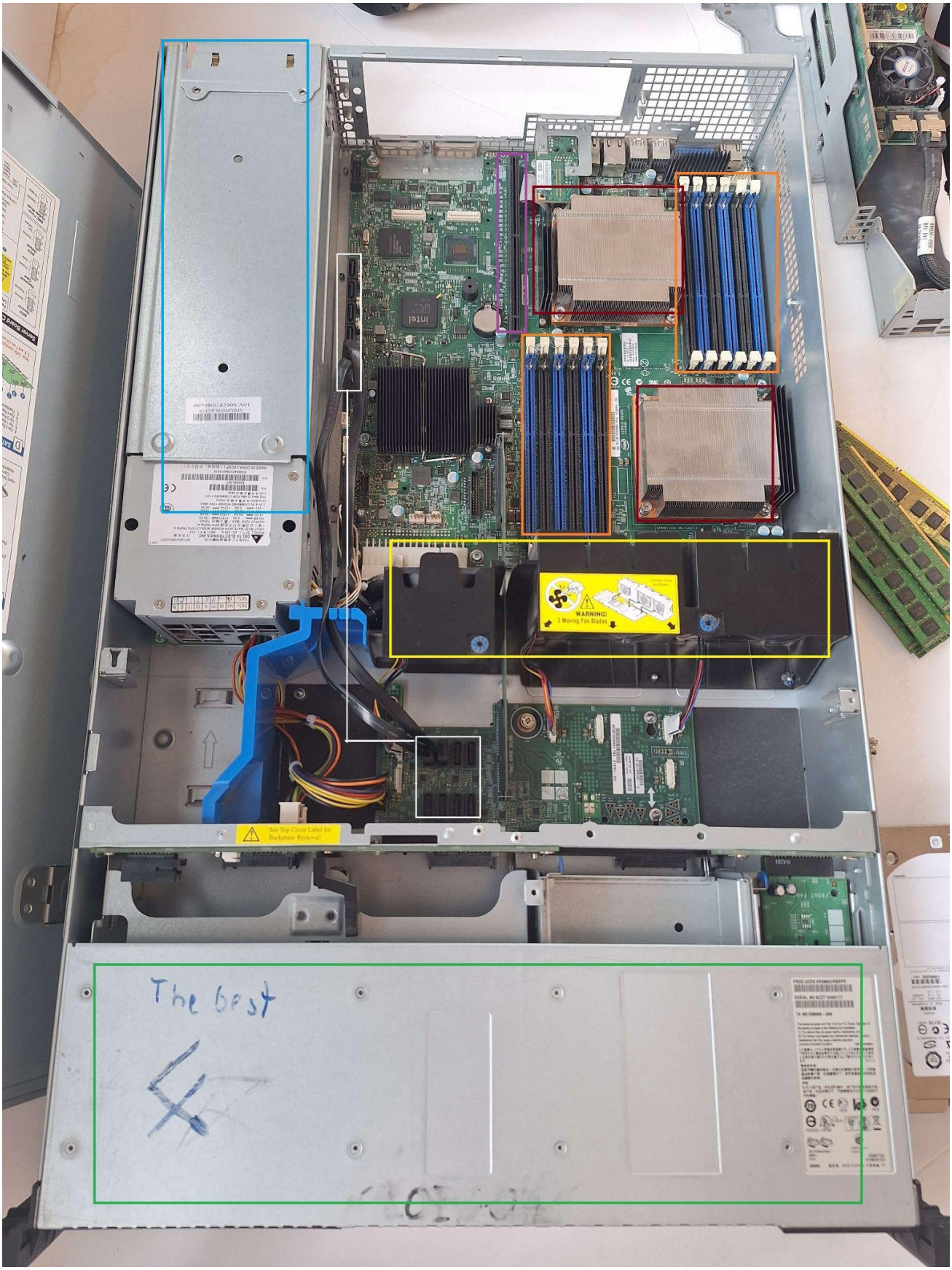
External Ports & Connectors — Front Panel

Blue — Hot-Swap Drive Bays — 5 drive bays for HDDs/SSDs
Green — VGA Port — For local monitor connection
Purple — Power Button — To power the server on/off
Red — Reset Button — To hard reset the server
Orange — ID Button — Activates the blue ID LED to visually locate the server in a rack

2 Front panel — drive bays and control buttons

Internal Hardware & Connectors

Blue — 2× Power Supply Units
Purple — PCIe Interface for the RAID Controller
Red — 2× CPU — 2× Intel Xeon X5650
Orange — 12× RAM Slots — 8× 8 GB installed (64 GB)
Yellow — 3× Cooling Fans
Green — HDD
White — SATA Ports



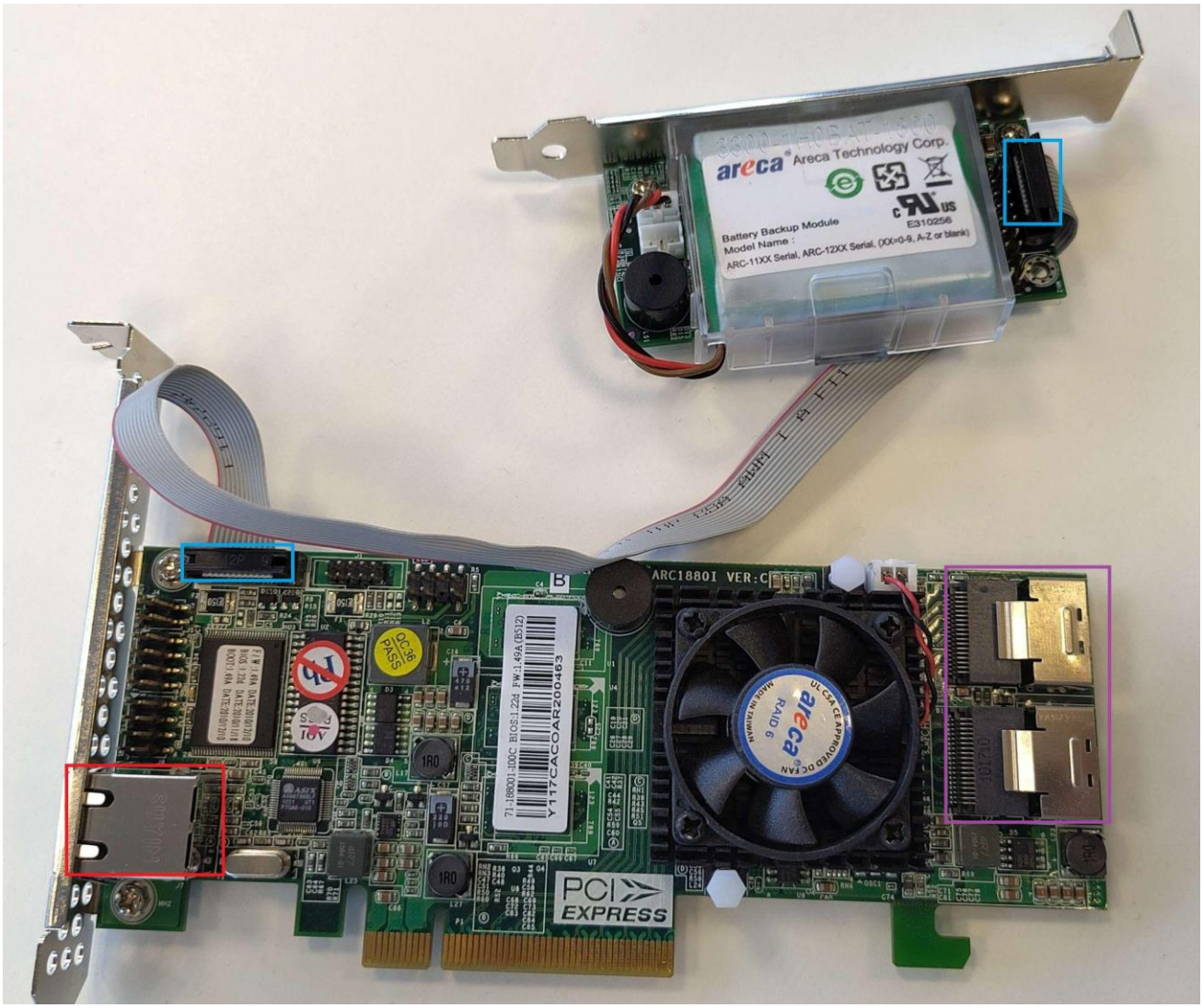
3 Internal layout — motherboard, CPUs, RAM, and storage

RAID Controller with Backup Battery

Blue — Battery Connector

Red — RAID Controller Port Connection

Purple — SAS Connector (Serial Attached SCSI)



4 RAID controller card with backup battery module

3 Staging

RAID Controller Access

The RAID controller web interface is reachable at the following address:

```
URL      :  192.168.0.141
Login    :  admin
Password :  0000
```

4 OS Installation — TrueNAS Community Edition

What is TrueNAS Community Edition?

TrueNAS Community Edition (formerly TrueNAS SCALE) is an open-source, Linux-based NAS operating system that turns a regular server into a powerful, enterprise-grade storage system. It is built on Debian Linux and uses the ZFS file system.

As of the 25.04 release, TrueNAS SCALE was officially renamed **TrueNAS Community Edition (CE)**, merging with TrueNAS CORE into a single unified platform for non-enterprise users.

Created by

TrueNAS was created by **iXsystems**, an American company based in San Jose, California, specializing in open-source storage and server solutions. iXsystems has been developing TrueNAS (formerly FreeNAS) since the early 2000s.

Latest Releases

Edition	Version	Release Date
TrueNAS CORE	13.0-U6.7	14 July 2025
TrueNAS SCALE	24.10	April 2025
TrueNAS Community Edition	25.10.2.1	25 February 2026

Cost

TrueNAS Community Edition is completely free. There is no license fee to download, install, or use it. Community Edition ships from the same unified codebase as TrueNAS Enterprise — a license key simply unlocks the enterprise features.

Key Features

- Storage & Data Integrity — ZFS file system with built-in checksums, snapshots, replication, and automatic error correction. RAID support (mirrors, RAIDZ1/Z2/Z3) ensures data protection.
- File Sharing Protocols — Supports SMB (Windows), NFS (Linux/Mac), iSCSI, AFP, and WebDAV — compatible with virtually any client device on your network.
- Application Support — Built-in app store powered by Docker lets you run Plex, Nextcloud, Home Assistant, Jellyfin, and hundreds more directly on the NAS.
- Virtualization — Supports full KVM virtual machines and (from 25.10) lightweight Linux Containers (LXC), enabling complete OS instances alongside storage.
- Web-Based Management — A clean, modern browser-based UI makes managing storage, users, shares, and apps straightforward without command-line knowledge.
- Cloud Sync & Backup — Built-in integration with Backblaze B2, Amazon S3, Google Drive, and more for off-site backups.
- Encryption & Security — Dataset-level encryption, two-factor authentication, and ACL-based access control.
- Scalability — Supports up to 1,255 disks or more than 25 PB of storage on a single system.

Pros & Cons

Free and open source

Community Edition remains free forever and ships from the same unified codebase as TrueNAS Enterprise.

Steep learning curve

TrueNAS puts pools, datasets, and permissions directly in your hands — it doesn't simplify things for beginners the way Synology's DSM would.

5 User & Network Configuration

Set the Console Password

1. On the TrueNAS Console, select Option 4 — Reset Root Password
2. Choose the user you want to set the password for
3. Enter your new password

```
Username :  truenas_admin
Password :  admin
```

Enable DHCP on the Console

1. Go to the TrueNAS Console
2. Select Option 1 — Configure Network Interfaces
3. Select your Network Interface
4. When asked, enable DHCP — Yes
5. The system will now automatically receive an IP address

Access the TrueNAS Web Panel

1. Open a browser
2. Type the IP address from the console into the address bar
3. Log in with your credentials

Change to a Static IP

1. Go to **Network → Interfaces**
2. Click the three dots next to your interface → **Edit**
3. Uncheck **DHCP**
4. Under **Aliases**, click **Add** and enter:

```
IP Address   :  10.0.13.3
Subnet Mask  :  /16
```

5. Go to **Network → Global Configuration** and set:

```
Default Gateway :  10.0.0.1
DNS Server      :  10.0.0.1
```

6. Click **Save** → confirm with **Test Changes**

Change the Hostname

1. Go to **Network → Global Configuration**
2. Find the field **Hostname** and enter your desired name
3. Scroll down and click Save
4. A banner will appear at the top — click Test Changes
5. Confirm with Save Changes within 60 seconds

6 NAS Configuration & Testing

Storage — Create Pool for Software RAID

1. Click **Create Pool**
2. Give the pool a name
3. Under **Layout** select **Mirror**
4. Set **Width** to **2**
5. Set **Number of VDEVs** to **1**
6. Skip the remaining options
7. Click **Create Pool** to finish

Storage — Create Pool for Hardware RAID

1. Click **Create Pool**
2. Give the pool a name
3. Under **Layout** select **Stripe**
4. Set **Width** to **1**
5. Set **Number of VDEVs** to **1**
6. Skip the remaining options
7. Click **Create Pool** to finish

Create Users

1. Click **Credentials**
2. Click **Users**
3. Click **Add** at the top right
4. Enter a Username
5. Enable **SMB Access**
6. Set a Password
7. Click **Save**
8. If prompted to start the SMB service, click Yes

Create Dataset

1. Click **Dataset**
2. Choose the pool where you want to add the dataset
3. Click **Add Dataset** at the top right
4. Give the dataset a name
5. Click **Save**

Set User Permissions

1. Click **Dataset**
2. In the permissions section, click **Edit**
3. Click **Add Item**
4. Add the user whose permissions you want to change
5. Set permissions as required
6. Click **Save Access Control List**

Connect to a Windows Share

1. Open File Explorer
2. Click **Network**
3. In the address bar enter **`\\IP-Address`**
4. Log in with the user credentials
5. You now have access to the shared folder

Connect from Linux

1. Open Nautilus / File Explorer
2. Click **Other Locations**
3. Under **Enter server address** type **`smb://IP-Address`**
4. Log in with the user credentials
5. You now have access to the shared folder

iSCSI vs NFS/SMB

iSCSI is a block-level protocol — the client sees the remote storage like a local disk. SCSI commands are encapsulated over TCP/IP (Initiator = client, Target = server). This gives better IOPS but only supports one client per volume — no concurrent access like NFS.

NFS / SMB share files and folders at the file level, allowing multiple concurrent clients. Simpler to configure but lower raw I/O performance compared to iSCSI.

TrueNAS Community Edition supports iSCSI natively. To test it: create a ZVOL → configure iSCSI Target/Extent → connect on Linux client with iscsiadm → format and mount.

Sources

TrueNas - https://www.truenas.com
TrueNas - https://www.truenas.com/blog/truenas-community-edition-release-2504/
Claude - https://claude.ai
Youtube - https://www.youtube.com/watch/?v=59NGNZ0kO04
StarWind - https://www.starwindsoftware.com/blog/what-is-iscsi/