# Virtualised Storage Systems

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# Overview of Unraid

Parity-based Data Protection

Flexible Storage Configuration

User-Friendly Web Interface

Docker Containers

Virtualization Support

File Sharing and Media Streaming

Community Support and Plugins

# Setup and Configuration

Hardware Requirement of Unraid OS

- A 64-bit capable processor, that runs 1 GHz or higher
- 4 GB RAM
- Linux hardware drive support for storage, ethernet and USB controllers
- Two hard disk drives to ensure data protection with a parity disk

Installation

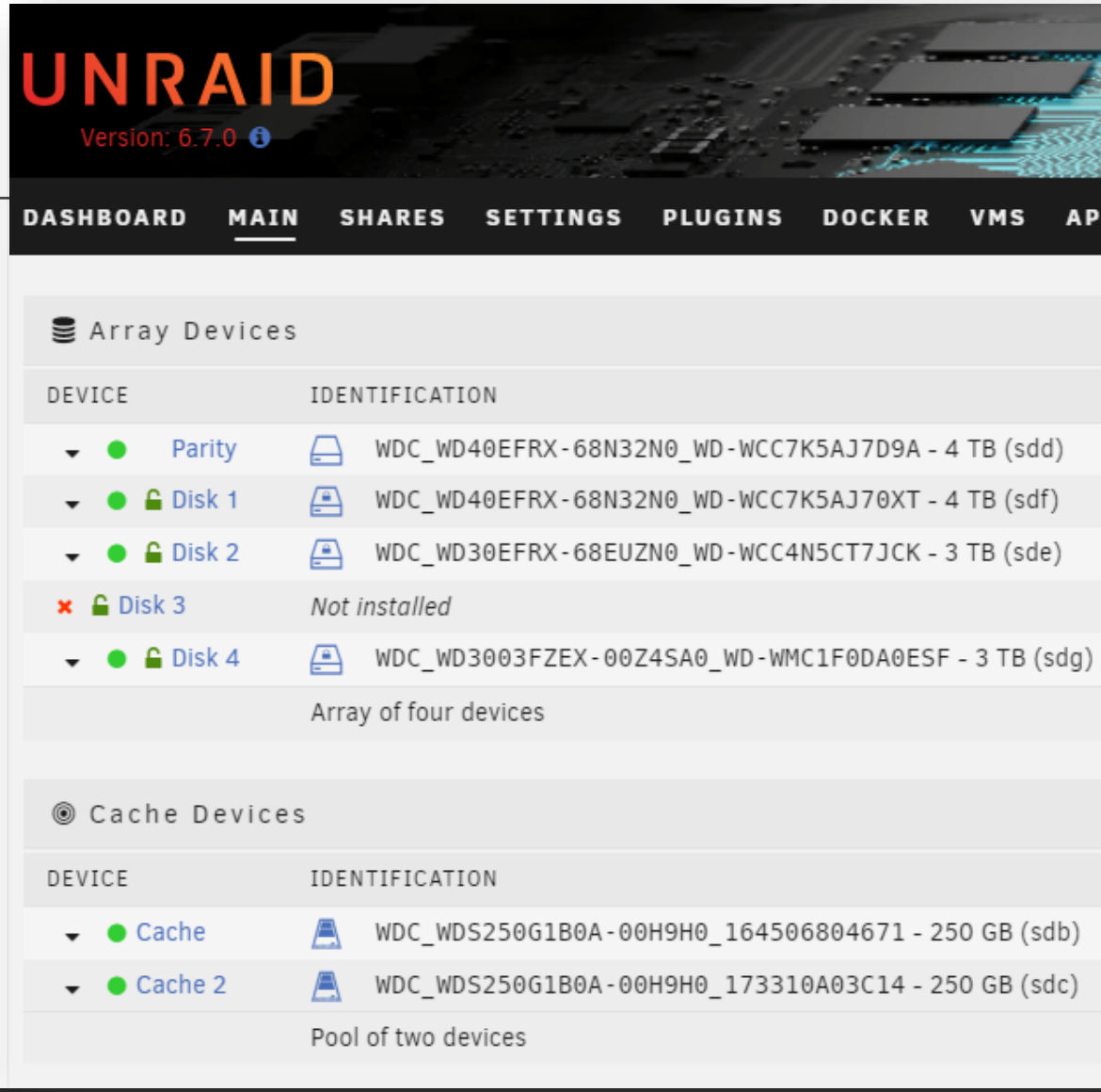
1. Downloading an Unraid's USB Flash Creator, using it to install the Unraid OS to an USB flash device (with GUID identifier).
2. Plug it into the PC and boot from the USB flash device.
3. We can choose from multiple boot options, either we launch without GUI or with GUI, and their safe modes.

# Setup and Configuration

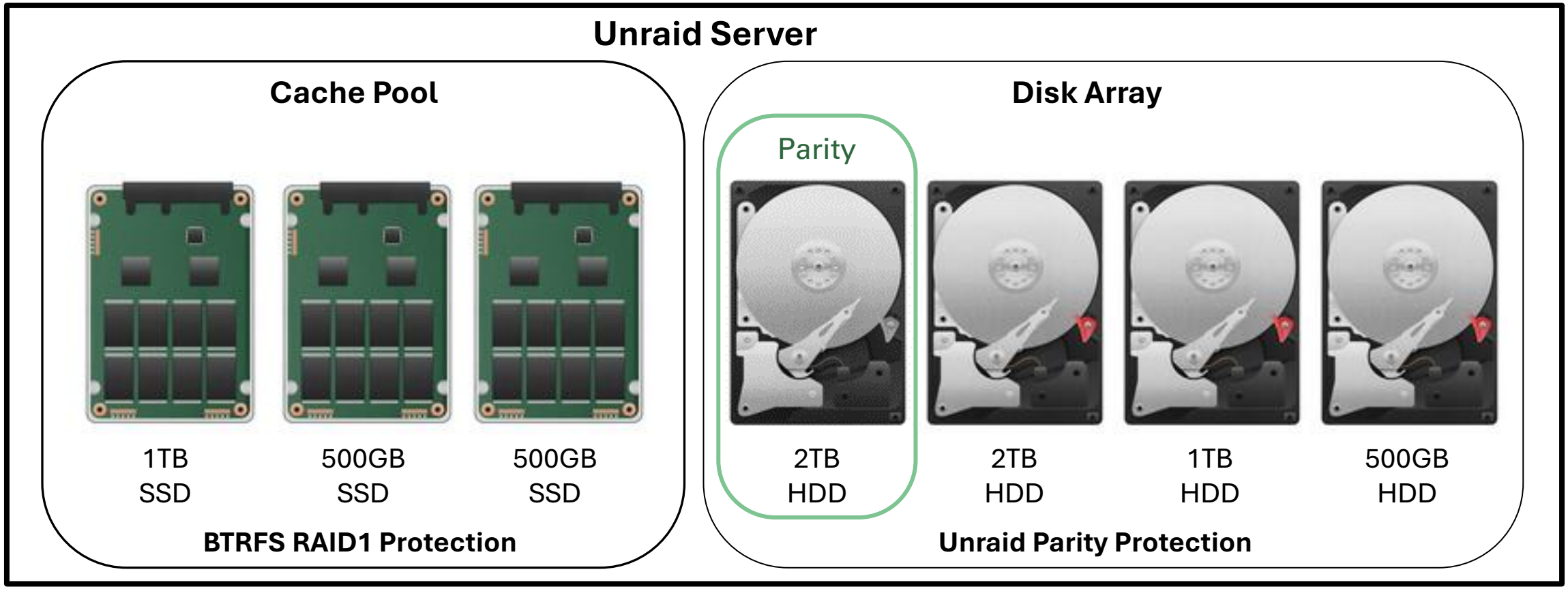
1. Start WebGUI
2. Set up password for the root user
3. Sign in/sign up and acquire license
4. Configure the storage devices
   - Data disks
   - Parity disks
   - Cache drives
5. Start the array
6. Set up Users and the Shares

User Share

Disk Share



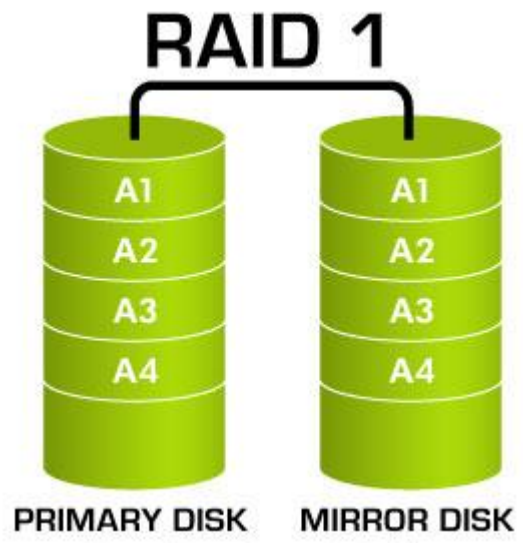
# Architecture of Unraid



# Architecture of Unraid

## Data Protection

### Cache Pool




**BTRFS RAID1 Protection**

### Disk Array


**Unraid Parity Protection**

# Features and Functionality

Docker containers

- Easy deployment and management of applications
- Wide range of pre-configured Docker images for software and services available
- Container configurations and settings are customizable

Virtualization support

- Built in support for virtualization
- Support for virtualization platforms like KVM and QEMU
- Allocate resources, configure networking and managing virtual machines

# Features and Functionality

File sharing and backup capabilities

- Seamless file sharing using protocols like SMB, NFS, FTP
- Easy setup of network shares to share files and media.
- Built-in data protection, scheduled backups, versioning and replicating to external storage or cloud services

User Management and Permissions

- Simple user management and permission settings to control access to shares and resources
- Support for user authentication methods like local accounts, Active Directory integration

Web-based management interface

- User-friendly web interface to manage, configure and monitor the Unraid server

Plugins and extensions

- Unraid server functionality and features can be extended using community-developed plugins and extensions

# Use Cases

Home media server

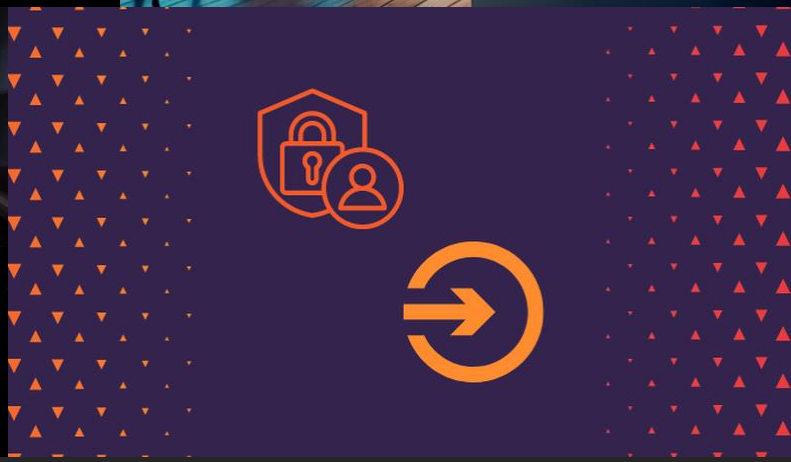
File sharing and backup

Virtualization host

Backup and disaster Recovery

Home Automation and IoT Hub

Game Server Hosting



# Conclusion

- ❑User-friendly storage solution for home users and small businesses
- ❑Comprehensive platform for managing data, applications and services
- ❑Flexible and scalable storage configuration
- ❑Reliable and customizable solution
- ❑Intuitive web interface, extensive feature set and active community support

# References


“Unraid OS | Unraid Docs.”

https://docs.unraid.net/category/unraid-os/

“Use Cases | Unraid ”

https://unraid.net/use-cases

S, Ganesh T. “Lime Technology’s unRAID 6 Brings Containers and Virtualization to NAS Units.”

https://www.anandtech.com/show/9463/lime-technologys-unraid-6-brings-containers-and-virtualization-to-nas-units

# Thank you for your attention!