HyperNAS

Major Features

- File Sharing
- Web Interface
- Data Protection
- Snapshots
- Replication
- Encryption

What is HyperNAS?

- HyperNAS is a type of dedicated files storage device that provides local-area network local area network (LAN) nodes with file-based shared storage through a standard Ethernet connection. HyperNAS is great for sharing files across users and servers.
- HyperNAS is specialized for serving files either by its hardware, software or by its configuration
- HyperNAS systems are network appliances which contain one or more storage drives, often arranged into logical, redundant storage containers or RAID

How HyperNAS Works

- Enables the client share file over IP Networks and it uses specialized Operating system that is optimized for file I/O
- Enables both Windows and UNIX users to share data.

Benefits Of HyperNAS

- Improved Efficiency, Flexibility and Scalability
- Centralized storage and high availability
- Simplified Management and ease of deployment
- Security (Authentication , Authorization and file locking of Industry standards
- Over come the disk failure issues.
- It uses FreeNas open source which provides both filel evel and block level access on a single platform.

Managing HyperNAS

- **NAS Installation** : Firstly we need to prepare our network then install the proper operating system.
- **Configuration** : We can use different type of interfaces for NAS configuration.
- **Interfaces** : Console, Remote cell(rsh), command line interface(CLI), HTTP(hypertext transfer protocol) and secure shell(ssh).
- **Applications** : NAS server need some applications for accessing data. These applications gives easy way to access their files from everywhere in the network environment.

Features of HyperNAS

- File Sharing

Every major operating system is supported with SMB/CIFS (Windows file shares), NFS (Unix file shares) and AFP (Apple File Shares) as well as FTP, iSCSI (block sharing), WebDAV and other methods of sharing data over the network are available. iSCSI also supports VMware VAAI, Microsoft ODX and Microsoft Windows Server 2008 and 2012 R2 Clustering.

Most operating systems, including Windows, Mac OS X, many Linux distributions, and PC-BSD® can connect using SMB shares with little or no additional configuration needed on the client side.

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A detailed product information is available at:

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- **Features of HyperNAS**

○ Web Interface

Every aspect of a HyperNAS based system can be managed from a Web User Interface. A setup Wizard further simplifies configuration at installation time or later in the setup process. Volume creation, or the setting of permissions on individual shares or performing software updates, can be done without missing a critical step or encountering a silent failure.

○ Data Protection

ZFS is designed for data integrity from top to bottom. RAID-Z, the software RAID that is part of ZFS, offers single parity protection like RAID 5, but without the "write hole" vulnerability thanks to the copy-on-write architecture of ZFS. The additional levels RAID- Z2 and RAID-Z3 offer double and triple parity protection, respectively. A software mirror option is also available.

Every ZFS filesystem is also verified with checksums from top to bottom to ensure data integrity. If inconsistencies are found, parity blocks can be used to repair corrupt data.

○ Snapshots

Snapshots of the entire filesystem can be made and saved at any time. As long as a snapshot exists, administrators can access files as they were when the snapshot was made.

Snapshots can be made on a one-off basis or scheduled as a cron job from the web interface. At any time, the entire filesystem can be rolled back to the most recent snapshot. Older snapshots can be cloned and accessed to recover data from that version of the filesystem.

○ Replication

ZFS Snapshots are more than just local backups - they can be used to create remote backups as well. Replicating snapshots of the filesystem to a remote ZFS filesystem creates a complete duplicate there. Furthermore, additional snapshots of the same filesystem can be sent incrementally, reducing the size of each backup to the changes that were made between snapshots. In case of catastrophic damage to a local ZFS filesystem (such as disk failure in excess of parity protection or irrecoverable log device failure), any backed-up snapshot can be sent to a new ZFS filesystem, recovering all data up to that backup.

○ Encryption

HyperNAS is based on FreeNAS which is the leading open source project to offer encryption on ZFS volumes. A full-volume encryption option is available during volume creation, providing industry standard AES-XTS encryption which can be hardware-accelerated (when the processor has AES-NI capability).

Encrypted volumes can only be read by HyperNAS systems in possession of the master key for that volume. The user can optionally create a passphrase to add extra protection for their system against loss or theft.

Encryption allows for confidence when retiring and recycling hard drives because the drives no longer need to be wiped provided the master keys are obliterated.

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