NETWORK-ATTACHED STORAGE

NAS SECURITY

1. A storage device which attached directly to a network is called network attached storage (NAS).
2. NAS provide file access services to computer system and act like a storage element-SNIA (Storage Network Industry Association).
3. NFS (Network File System) is one of the common Network Protocols implemented on NAS.
4. NAS is used to access and store different type of data over a network.
5. It contains one or more hard disk .often arranged into logical, redundant storage containers or RAID arrays.
6. Network-attached storage (NAS) is file-level computer data storage connected to a computer network providing data access to heterogeneous clients.
7. Network-attached storage removes the responsibility of file serving from other servers on the network.
8. Network-based file sharing provides the flexibility to share files over the long distance among a large number of users.
9. File serves use client-server technology to enable file sharing over a network.
10. NAS is a dedicated, high-performance file sharing and storage device.
11. NAS uses network and file-sharing protocols to provide access to the file data.
12. These protocols include TCP/IP for data transfer, and Common Internet File System (CIFS) and Network File System (NFS) for network file service.
13. NAS enable both UNIX and Microsoft Windows users to share the same data samelessly.
14. Network-attached storage removes the responsibility of file serving from other servers

on the network.

15. NAS not only operates as a file server, but is specialized for this task either by its hardware, software, or configuration of those elements.

16. NAS is often made as a computer appliance – a specialized computer built from the ground up for storing and serving files – rather than simply a general purpose computer being used for the role.

17. As of 2010 NAS devices are gaining popularity, as a convenient method of sharing files among multiple computers.

18. Originally NAS have the fixed disks, RAID arrays magnetic tape drives which are exactly connected to the network (EG.SAN and other networks).

19. NAS have its own LAN IP-address for RAID configuration which is attached to the administrator that provides application to network workplace clients.

20. NAS device is most efficient way to centralized, share and protect information. Compared with DAS .NAS Solutions are easier to manage and improved performance.

NAS Framework: NAS device has a printed circuit board that remove TCP/IP functions from a microprocessor .This high end version is able to serving the files in web browsing(e-mail) and huge file transfers between clients.

RAID Arrays: one or more redundantly aligned independent hard disk .It will defend you from losing when an entity hard disk fails in the NAS device.

Operating system: It is configured to present a computing background for network attached storage device.

NAS Components: There are the components for configuring the NAS system.

1. Data reception component.
2. Data interception component.
3. Intermediate component.
4. Data identification component.

A NAS device is made up of the following components:

1. NAS head (CPU and Memory).
2. One or more network interface cards (NICs), which provide connectivity to the network. Example of NICs includes gigabit Ethernet, Fast Ethernet, ATM, and Fiber Distributed Data Interface (FDDI).
3. An optimized operating system for managing NAS functionality.
4. NFS and CIFS protocols for stack file sharing.
5. Industry-standard storage protocols to connect and manage physical disk resources.
6. The NAS environments include clients accessing a NAS device over an IP network using standard protocols.

Benefits of NAS:

1. Comprehensive access to information: Enable efficient files sharing and supports many-to-one and one-to-many configuration.The many-to-one configuration enables a NAS device to serve many clients simultaneously. The one-to-many configuration enables one client to connect with many NAS devices simultaneously.
2. Improved efficiency: NAS delivers better performance compared to a general-purpose file server because NAS uses an operating system specialized for file serving.
3. Centralized storage: Centralizes data storage to minimize data duplication on client workstations, and ensure greater data protection.
4. Simplified management: Provides a centralized console that makes it possible to manage file systems efficiently.

5. Scalability: Scales well with different utilization profiles and types of business applications because of the high-performance and low-latency design.

6. High availability: Offers efficient replication and recovery option, enabling high data availability.

7. Security: Ensures security, user authentication, and file locking with industry-standard security schemas.

8. Low cost: NAS uses commonly available and inexpensive Ethernet components.

9. Ease to deployment: Configuration at the client is minimal, because the clients have required NAS connection software built in.

Limitations of NAS:

1. In larger networks with a high volume of simultaneous I/O requests, a typical affordable NAS box is not going to be able to provide adequate performance.

2. Their built-in CPUs will be too limited in performance and if over stretched will slow to a crawl.

3. The CPU and network hardware in a NAS is also rarely upgradable, because its single-purpose CPU is hard-wired into the unit and the software stored on a firmware ROM chip.

4. While it's possible to spend a lot of money on more powerful NAS boxes with the capacity to handle huge quantities of traffic, the lines between server and NAS begin to blur considerably, especially in terms of cost.

5. Even for the best NAS boxes, you will need to invest in your home network infrastructure to ensure that the transfer rate is not limited by the 100Mbps networks most of us use at home. This situation only becomes slower if you are limited to wireless.

6. A limitation that will be more important is one of actual transfer rate, as it's easy to fall into the trap of assuming a NAS box will be as fast as an internal hard drive.

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