A Place For Your Stuff

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Introduction

Who am I?

- Open Source Geek
- Network Geek
- Storage Geek
- Author (shameless plug)
- Incurable Idealist

Storage Geek
+ Network Geek

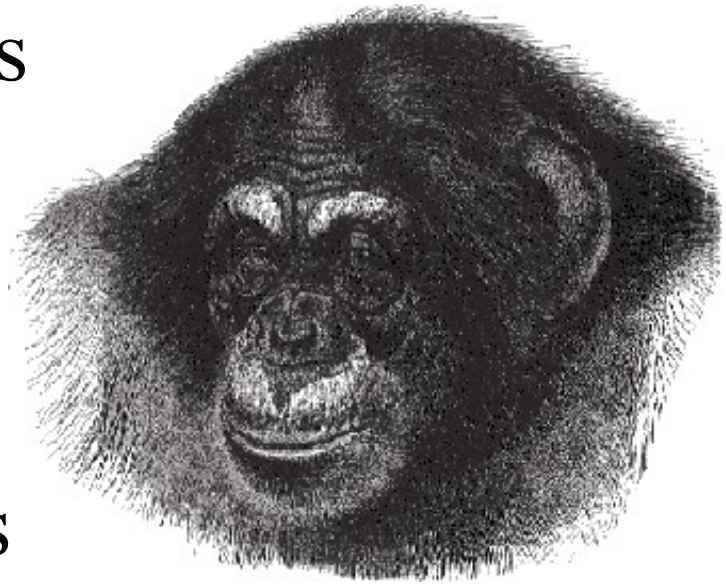
Storage Network Geek

A ruminant mammal (Geekus geekus) with long legs, humped shoulders, and broadly palmated antlers.

Introduction

Who are You?

- Students
- System Administrators
- Network Managers
- Security Geeks
- Coders
- Hackers (per RFC 1392)
- The Morbidly Curious



Introduction

What Will We Cover?

NAS == Network Attached Storage

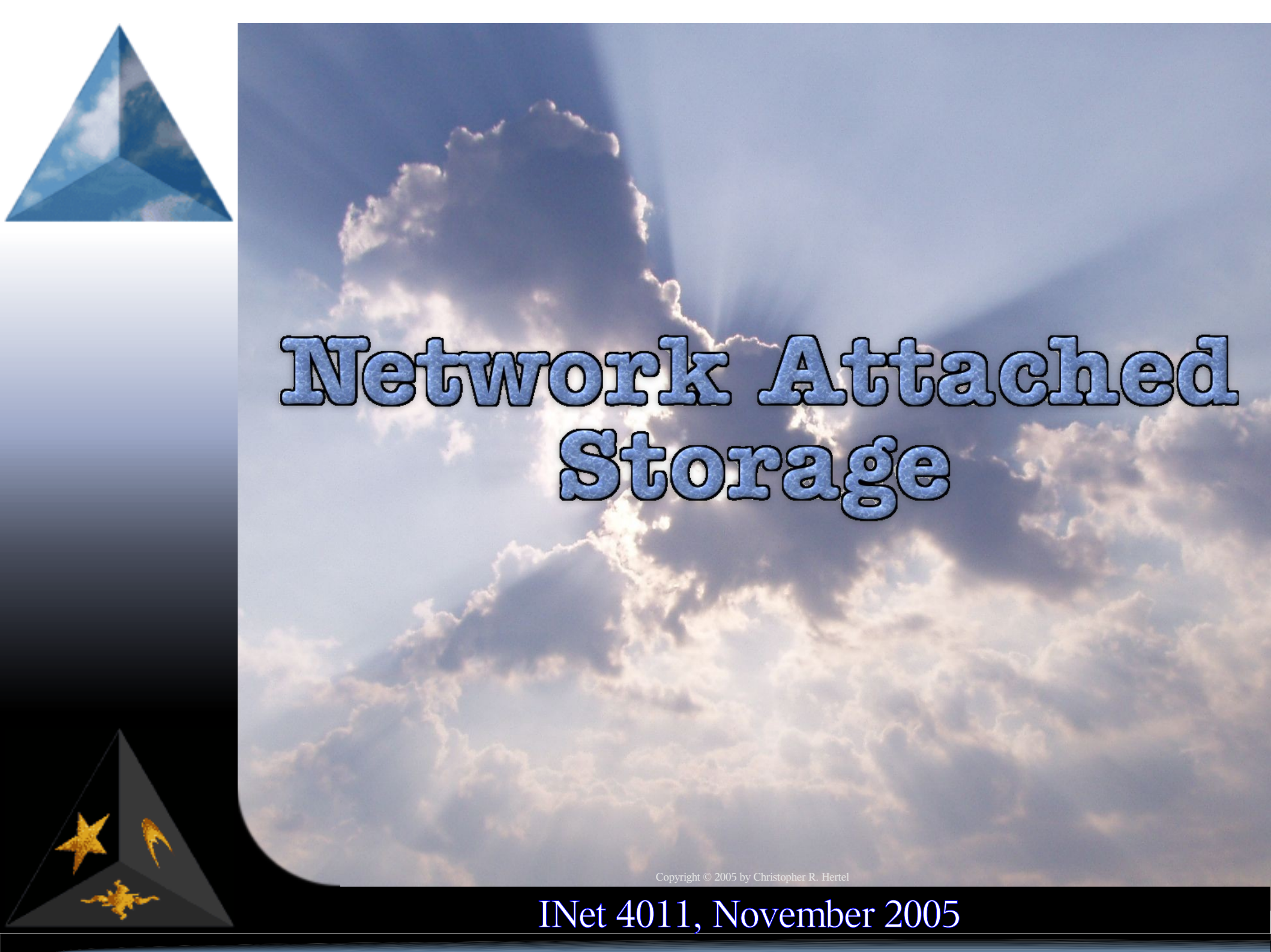
Which includes stuff like:

- CIFS
- NFS
- Etc.

SAN == Storage Area Networks

Which includes stuff like:

- FibreChannel
- iSCSI



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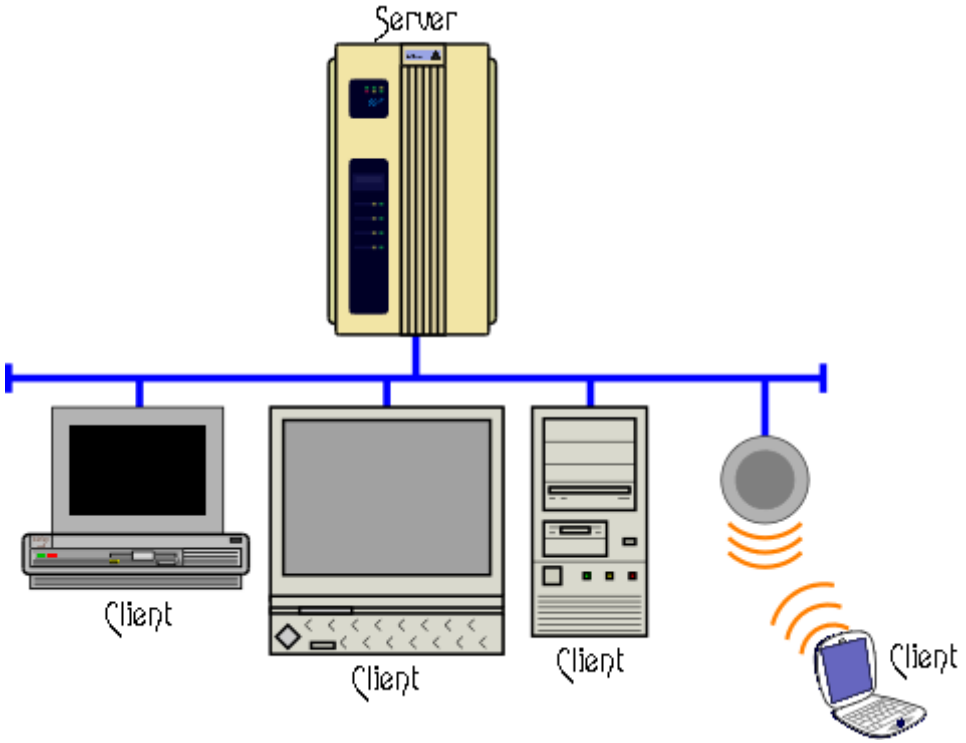
Familiar NAS Systems:

- IBM & Microsoft's SMB/CIFS Popular!
- Novell's Netware Fading...
- Apple's Appleshare Fading...
- Sun's NFS Improved!
- IETF WebDAV New!

Local file systems on the server are shared with multiple hosts across a LAN or inter-network.

NAS



Typical client/server NAS

- Large server with local disk
- Multiple clients
- Shared access to files & directories

NAS Concerns:

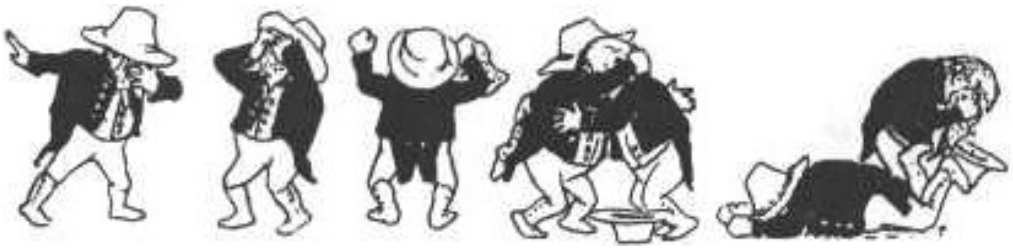
- Authentication, Authorization, & Access Management
- File Locking & Sharing
- Meta-data Semantics

DOS FAT	MacOS	Windows NTFS	Linux/Unix
• System, Hidden, and Archive bits • No UID/GID • 8.3 Format • EOLN: <CR><LF>	• Data and Resource Forks • EOLN: <CR>	• Extended Attributes • File Streams • NT ACLs • EOLN: <CR><LF>	• User, Group, World permission bits • UID/GID • POSIX ACLs • EOLN: <LF>

NAS file systems are "vendor biased".

Case In Point: CIFS vs. NFS

- For a geek, NFS is easy:
  - Traditionally server-to-server
  - Traditionally geek-to-geek
  - Simple authentication model
- For a user, CIFS is easy:
  - Traditionally user-to-server or peer-to-peer
  - Non-technical user community
  - Specifications and protocol details are hidden



WebDAV

- An extension of HTTP
- Makes the web “read/write”
- Adds only seven new commands
- Messages passed in XML format

The use of XML allows great flexibility ... and complexity.

“...as simple as possible, but no simpler.”

Storage Area Networks

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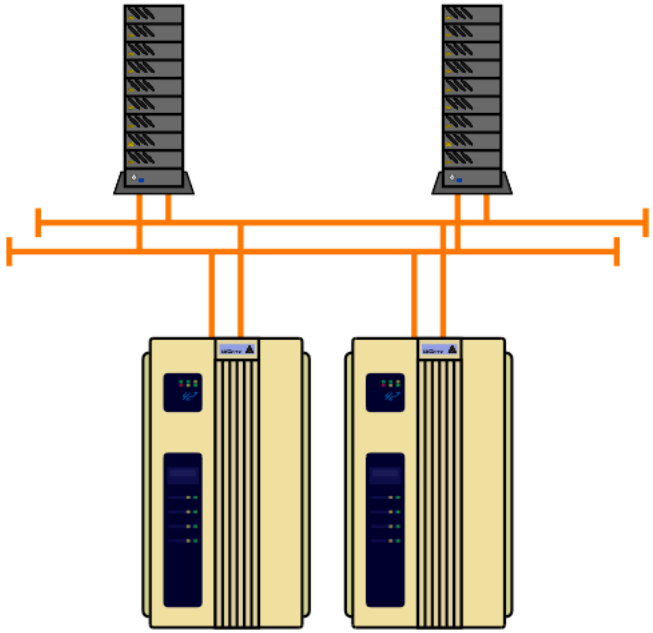
SAN Overview

Precursor: Direct Attached Disk Arrays

- Redundant Array of Inexpensive Disk
- Expandable
- "Virtualizable" (is that a word?)

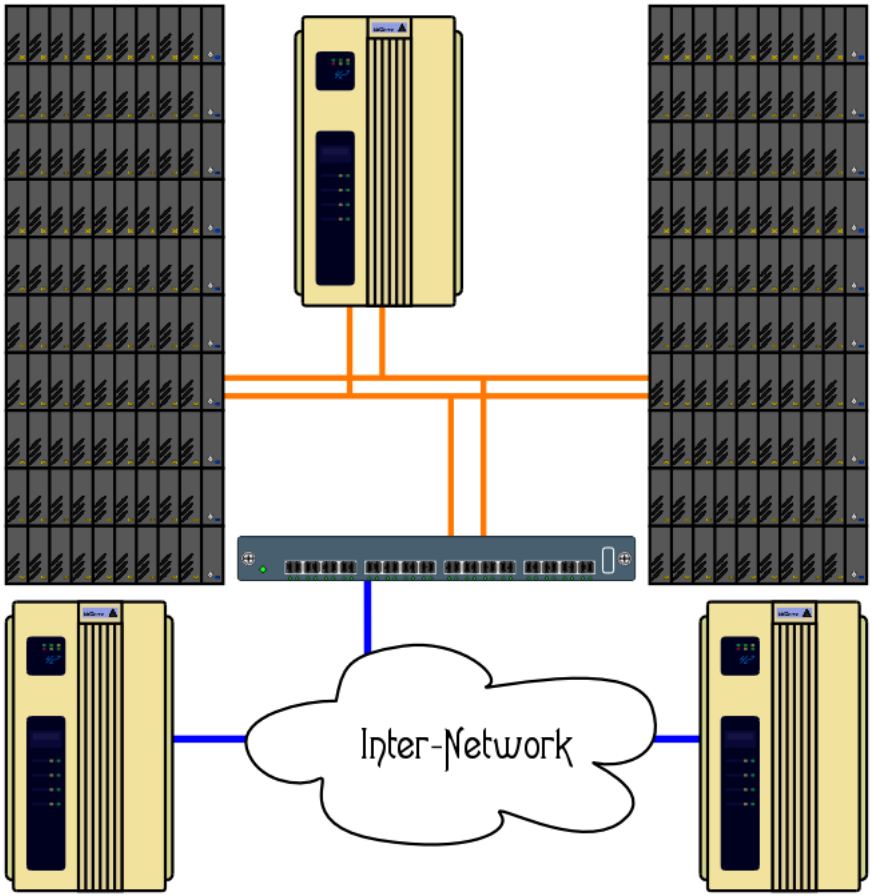
SAN



FibreChannel SANs

- SCSI over Shared/Switched Fiber
- Longer Distances
- 1, 2, 4, and soon 10 Mbps Speeds
- Redundancy

SAN



- iSCSI SANs
  - Leverage the IP Network
  - Coexist with FibreChannel
  - Run on Commodity Network Hardware

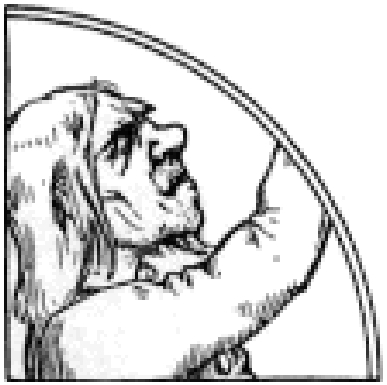
SAN vs. NAS

SAN

- Block Storage
- One-to-One Relationship
- Data-center Oriented
- Space is Not Shared

NAS

- File System Storage
- One-to-Many Relationship
- End-User Oriented
- Space Can Be Shared



The End

Slides available at: `http://ubiqx.org/presentations/`