



# PC NFS in Windows-Powered NAS

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# The Market

- \$1.4B strong market
- 21% growth rate in 2004
- 21.1% grow in 2Q 2005
- Windows-based NAS represent 20% market share
- 16% growth in revenue

(Source: Market Share: network-Attached and Unified Storage, Worldwide, 2004, Gartner)

(Source: All Major Storage Vendors Except Sun Experienced Double-Digit Revenue Growth in 2Q05, Gartner)

# Microsoft WSS2003

- Hundreds of vendors support Microsoft-developed storage software
- Vendors including
  - Dell
  - HP
  - EMC
  - Iomega
- Major provider of NAS management software for SMB



# WSS Key Features

- Active Directory Integration
  - Native support for Active Directory
  - Easy to join an existing domain
  - Group policy support
    - Delegate Administration
  - Kerberos authentication

# WSS Key Features

- Volume Shadow Copy Service
  - Part of Windows Server 2003 release
  - Creates Point-in-Time copies or Snapshots
  - Online backup and restore
  - Empowers regular users
  - Reduces IT and support cost

# WSS Key Features

- Microsoft Cluster Service
  - Built-in Cluster Service
  - Maximum Cluster size: 8 nodes
  - Offers high-availability, fail-over and fail-back
  - OS + Hardware = Complete redundancy



# NFS in Win-based NAS

- WSS features have no impact on NFS
  - i.e. Requires no changes to NFS protocol
- Point of Integration: Application Level

# NFS in Win-based NAS

- **Task:** Grant access right to NFS client
- Access NFS Name Space
- Associate Windows and UNIX user and group
- Active Directory Integration
  - Stores Name Mapping table
  - Retrieves names from NFS domain
  - Support for SASL
  - One Enterprise Directory Services fits all



# NFS in Win-based NAS

- Extends VSS capability to non-windows users
- Exports the shadow volume to NFS clients
  - As hidden folders in mounted directory
- No special client application is required on UNIX
  - PC NFS Server handles all tasks

# NFS in Win-based NAS

- Microsoft Cluster Aware
  - **NFS Server**
    - Registers NFS Share as Cluster resource
    - Benefits from High Availability, Fail-over and Fail-back
  - **Name Mapping Server**
    - Data redundancy – Active Directory
    - Server availability – Microsoft Cluster Service

# Hummingbird

- A leading Enterprise software solution company that provide:
  - Connectivity, and
  - Enterprise Content Management Solutions
- A leading PC NFS vendor (amongst many other things)
- Supplies NFS Client, Server and Gateway to 32-bit and x64 Windows platforms