NFS in the Microsoft World:

An Introduction to NFS Integration

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Introduction

- A standalone Windows application vs. an embedded component

- User Interaction vs. Programmatic Automation

- Requires a different development mind set

Overview

- Available on most back office servers
  - Various UNIX and Linux
  - DEC/VMS
  - Mainframe
  - AS/400
- Microsoft Windows is still the number one computing machine
- NFS solution for Windows platform is always needed

Integration

- ## The Protocol

  - File sharing

  - User name space

  - Security

- ## The UNIX Environment

  - Windows users in UNIX environments

N F S

I N D U S T R Y

C O N F E R E N C E

Guide

Guide for designing a PC NFS solution

- Interoperability

- Ease of Use

- Performance

- Security

- Stability

Interoperability

Traditional interpretation:

- Interoperable on different platforms

Extended interpretations:

- Linking users to machines

- Linking desktops to servers

File Locking

- Promotes seamless access to NFS resources

- NFSv4 adds file sharing and mandatory locking

- Improved the quality of NFS/Windows integration

ACL

- Windows security is based on ACL

- Enterprise user and group structure is multi-dimensional

- Support for ACL attribute ease the integration and maintain network security

User Name Space

- ## NFSv4 uses string identifier

  – Windows friendly

  – Interacts better with LDAP name services, such as Active Directory

  – Kerberos ready

Ease of Use

- Windows owns 90% of enterprise desktop market

- Wide spectrum of user with different levels of proficiency

- PC NFS solution has to be transparent to users

  – Windows shell integration

  – Support for Automount

Performance

- NFS client interface is hidden

- Is PC NFS client invisible?

  - NO!

  - PC NFS client has to Mount, Access and **Perform** like LM or Novell

- Performance comes from:

  - Protocol Design

  - Implementation

Security

- Secure Authentication is important
- PCNFSD sends password almost in clear format
- Kerberos is supported by NFSv4 protocol
- Secure authentication methods outside of NFS protocol
  - SASL for LDAP in Microsoft Active Directory domain

Stability

- Integrating NFS to Windows file system

- Service pack or new OS can change the Windows file system behavior

- Important to completely and correctly translate and process every request from the OS

- It is a challenge in keeping product in sync with the Windows OS development

Summary

- FACT: NFSv4 is less UNIX-centric

- FACT: NFSv4 provides better integration with Windows

- FACT: NFS has a bright future

Thank you