NFSv4 Replication and Migration

Robert Thurlow

Staff Engineer

Sun Microsystems, Inc.

robert.thurlow@sun.com

Overview

A Definitions

A Current Technology

A Goal

A Motivations

A Requirements

A Details

A IETF Status

A What you can do

Definitions

What are we talking about here?

A Replication: ability to create and maintain a copy of an entire filesystem on one or more servers

A Migration: ability to move a filesystem from one server to another

A ... both with client able to track and adapt to new sources of data

Current Technology

What are people using now?

A   Sun - Instant Image and SNDR

A   Network Appliance - SnapMirror

A   EMC - SRDF

A   Microsoft - DFS/FRS

A   IBM - AFS, DCE/DFS

Goal

What are we hoping to do about it?

A Create a standards-based, well-defined protocol

A ... to permit servers to negotiate and execute transfers of filesystems for use with replication and migration

A ... within existing IETF NFSv4 WG
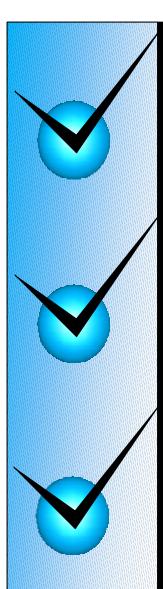
Motivations

Why does anyone want this?

- A Customers do this now, and want solution not tied to specific vendor

- A NFSv4 client support available

- A Availability

- A Disaster recovery/multi-site

- A Scalability/load balancing

- A Flexibility for administration

Requirements

- A Works in a multivendor network

- A Transparency - apps don't notice

- A Performance

  - Minimal lock-out time on master

  - Efficient incremental transfers

- A Security - as good as NFSv4

- A Works over the Internet

Details

A Replicas + single writable master?

    A Hard, may not be practical

A Should work with info available

    A Change log & snapshots, or rsync?

A Capability differences an issue

    A Negotiate and warn, or use QOS rules?

IETF Status

A WG chairs proposing revisions to charter for NFSv4 WG to include replication and migration protocol

A Discussing requirements and issues for server-to-server protocol on WG alias

A December IETF

A Stay tuned ...

What you can do

A Vendors - ask customers if they'd prefer an interoperable solution to your block-level solutions

A Customers - ask vendors for an interoperable solution

A All - participate!

A http://www.nfsv4.org