

## File System Migration - Simplified

### Key Benefits

- > *Transparent to users and applications*
- > *Minimal down-time, no discovery*
- > *Multi-protocol (CIFS, NFS, Mixed)*
- > *Filters – inclusive or exclusive*
- > *In-band or out-of-band operation*
- > *No re-synchronizations with In-band*
- > *Cross Vendor Retention passing*
- > *Every file verified with crypto hashes*
- > *Chain-of-Custody Reports*

### Pain of Data Growth

Managing rapidly growing fixed content data is a never ending and escalating pain for IT organizations. The source of this pain includes:

- Most data out lives the storage system that hosts it
- Tight coupling of the file and the storage system
- Limited size and scalability of storage systems
- High cost of transitioning data across storage systems

The storage industry, through scale out clustering, is trying to address the capacity issue of storage systems. However, when moving content from one storage system to another there is more involved than just the data bits. Meta-data, time stamps, permissions, ACLs, and retention info needs to be transferred too.

### Old School Problems – Stubs and Agents

Unfortunately, the pain and cost of moving legacy data into these next generation storage devices has been left largely unaddressed. Some companies have attempted to solve the data transition problem by using second generation HSMs, Unfortunately, they require the use of stubs and agents in order to move the data. This creates a lot of complexity when they are integrated into the environment due to their required discovery processes. Additionally, removing them after the migration is over can be quite challenging due to the use of stubs, which is why the vendors often suggest they be left in place after the migration - so the next migration will be easier.

### A Better Way – File System Virtualization

Data subject to Compliance or Governance is now being stored on NAS systems. Adhering to retention and reporting requirements as data transitions from one NAS to another NAS is now a challenge for many organizations.

Shadow FS is a new technology designed specifically for customers with Compliance requirements. Shadow FS transfers file system content, file meta-data and attributes – to a new target exactly as they were on the source, and proves it.

For optimal benefits Shadow FS operates in-band and virtualizes sources and targets, with multi-protocol support. A primary benefit is that all new writes and updates are written to the target as they occur. This eliminates the need for numerous re-synchronizations or long cut-overs at the end.



## Transparent to Users and Apps

Users and applications need access to their data for business to run smoothly. The tight coupling of a file system to a storage device, is a proven model and has worked for decades. These silos are great until the day comes when they are full or reach the end of service dates. Then the complexity of transitioning the data from the legacy storage system to the new one is fully understood. There are two primary migration processes used and both are supported by Shadow FS.

### OUT-OF-BAND

Data is copied as a background process thus there is no outage to start a project. However the content needs to be discovered before it can be migrated. Without Shadow FS, synchronizing file updates during the transition is major IT headache, especially for user shares or active archives which leads to outages and complex cut-over processes at the end. Shadow FS natively performs refreshes and all new or modified files are migrated.

### IN-BAND

The migration engine sits between users and the storage systems housing their content. The migration engine takes over the presentation of the shares and file systems of the legacy and new storage. Shadow FS does not need to crawl the legacy file system(s) to work, as it has the ability to maintain a file request while simultaneously searching for the file across all physical storage systems. The integration process takes minutes and then Shadow FS is operational. Policies direct all file Writes or updates to the new storage, while Reads are first processed by new storage and if not there - then by legacy storage. This procedure eliminates resynchronizing of migrated data and allows simple cut-overs.

## The Right Data - Filters

Shadow FS offers Policy based Filters for including or excluding data in a migration job. Filtering helps reduce capacity requirements and legal risk from keeping unneeded data. Filters also allow a migration project to be broken down into a number of jobs, where priority data can be migrated first.

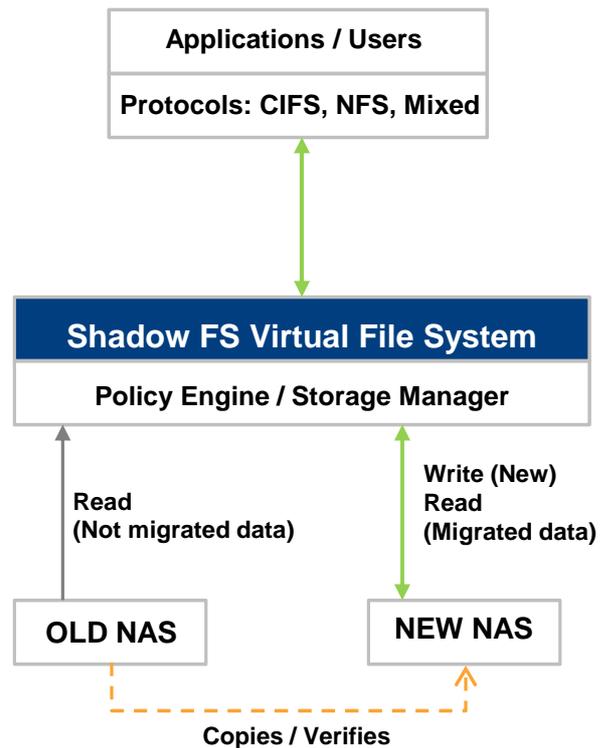
## Status Emails

In addition to extensive logging and reporting capabilities Shadow FS lets users subscribe to a single migration job or all jobs and get a periodic status email. The status update contains the current job status, incremental progress, percentage complete and other metrics. Shadow FS reduces the labor required to run the migration project.

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## Retention

Compliant data often outlives the system it is stored on and eventually must be transferred to a new system while adhering to Compliance requirements for retention or immutability. Shadow FS was designed to automatically transfer data, retention and WORM or RO parameters from the legacy storage system to the new storage system – even across vendors. In advance mode Retention may also be adjusted during the migration process.

## Chain-of-Custody Documentation

Every task performed by Shadow FS is logged and auditable. Shadow FS uses cryptographic hashes on the source and target files to verify that the copied file is identical to the source file. A detailed Chain-of-custody Report containing successfully migrated files is created. In addition, a Not Migrated Report of failed or excluded files is generated too.

## Requirements

Shadow FS is delivered as software. It runs on Microsoft Windows Server 2008 or 2012, which is independently licensed. Shadow FS can be deployed as a VM or on physical hardware. The minimum configuration is: 2 core CPU, 8 GB of RAM and 100GB of storage. Access to Shadow FS administration is via a browser from a desktop or tablet.