



Dell FluidFS and Carestream VUE Solution Brief

FluidFS Systems Engineering
Dell Enterprise Storage
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1. Introduction

With the ever expanding medical imaging digital data and the need to archive large amount of images for long period of time, the storage system coupled with PACS system is required to support demanding performance, reliability, disaster recovery features and flexibility in configuration to fit various scales of Studies per year and archiving requirements.

Carestream (www.carestream.com) and Dell partnered together to mutually test and certify Carestream PACS system with Dell FS8600 NAS system.

2. Carestream Vue

CARESTREAM Vue (®) is a next-generation healthcare information technology platform that simplifies RIS+PACS+ reporting in radiology, cardiology and mammography.

The Vue Archive consolidate islands of storage and present a single point of access to entire patient clinical records with a true vendor neutral archive.

Carestream Vue Archive:

- Collects images and data from a variety of systems such as imaging exams, lab and pathology data, video files, and JPEG images to create cohesive patient portfolio.
- Supports interoperability and integration standards and protocols such as HL7, DICOM, non-DICOM, IHE (including XDS, XDS-i) and WADO.
- Supports wide range of architectures and infrastructures from departmental and multi-site to regional and national medical archive projects.
- Provides the patient's clinical record via the Web or existing EHR/HIS virtually anytime, anywhere – no matter where images and data originate or are stored.
- Connects existing platforms to present a single patient worklist without migrating existing archives.
- Balances the clinical need for information over time and the desire to achieve the lowest storage costs possible with user-defined rules.
- Monitors access and security threats and meets rigorous patient privacy regulations with multi-tier encryption and security measures.

3. Dell FluidFS FS8600 Scale out NAS

FluidFS is an enterprise-class distributed file system that gives customers tools for easily and efficiently managing file data. FluidFS removes the scaling limitations of traditional file systems. It also supports scale-out performance and scale-up capacity expansion, all within a single namespace for easier administration.

The FluidFS FS8600 appliance along with Compellent Storage Center array provides a NAS and SAN capabilities with a unified management. The user can choose to utilize the system for NAS storage only or both NAS and Block access for various applications.

FluidFS high performance along with its flexibility and enterprise grade features that includes snapshots, replication, volume cloning and integrations with VMware makes it an ideal storage system to store PACS data.

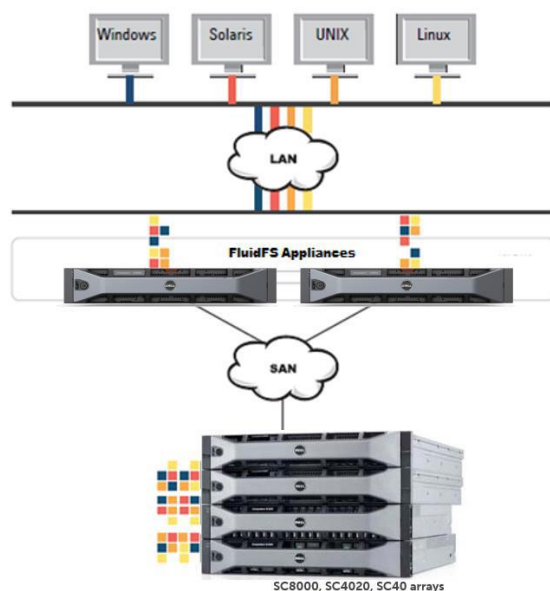
4. Dell FluidFS FS8600 and Carestream VUE

Carestream and Dell engineering certified the combined solution in an extensive lab testing.

The solution is consisted of a FS8600 NAS system that provided the file storage, in addition, the backend SC8000 SAN storage provided block device volume for a database used in the environment. Both NAS and SAN services were part of the same system and managed from a single management GUI, the Dell storage manager. Compellent tiering technology was employed allowing system flexibility and efficiency.

The system demonstrated high performance while providing both NAS and SAN services. NAS services were provided from fast 15K performance tier drives and the 7K disks are the cost efficient capacity tier. Files written to the system were serviced from the 15K performance tier, over time the data at rest is moved to the capacity tier. Block volume for the database was provided from a 10K drives class tier. Compellent tiering allows for a flexible configuration which on the one hand support performance while on the other hand provide capacity in a cost effective solution.

Dell FS8600 NAS with Compellent storage center series array has proven to be a perfect fit with Carestream VUE solution providing a performing cost efficient solution.



5. Additional information

For more information on FluidFS:

<http://www.dell.com/ie/business/p/dell-compellent-fs8600/pd>

Dell FluidFS technical content:

<http://en.community.dell.com/techcenter/storage/w/wiki/6935.dell-fluidfs-nas>

Carestream:

<http://www.carestream.com>