

Medical Imaging

INTRODUCTION

Medical imaging has undergone rapid change over the past several years. Photographs, x-rays and MRI scans are now all digitized and often managed by PACS application software. Now doctors can retrieve images on-line in real-time while treating the patient without waiting for the physical transportation of film. This technology has greatly improved the efficiency in the doctor-patient relationship and in some cases makes a difference in the outcome due to the instant availability of critical diagnostic information.

Like all new technologies, this one also comes with new challenges. A key issue is how long to keep the data online. New HIPAA and e-mail regulations are dramatically increasing the length of time required for on-line access to data and thus this is putting pressure on the storage capacity and ultimately the total cost of storing the data.

Until recently, it was prohibitively expensive to store years of image data on-line. All sorts of near-line storage alternatives including optical disk and tape device were used to reduce the cost of on-line data. These approaches came with inconvenience, mechanical complexity, lower reliability and slow access times. Today, data can be stored on the highest quality enterprise storage arrays for well under a nickel per megabyte. Using the latest low cost SATA data storage devices, the cost is easily under half a penny per megabyte. These SATA systems store up to 56 TB (56 million images of 1 MB each) in a single rack in just six square feet of floor space. Tape is now needed only to remove the data to an off-site location for disaster recovery.

WHY STORE IMAGES ON-LINE

- Very large volumes image data
- Long retention times required
- Quick access time is required
- May need any image at any time

REQUIREMENTS

- Very high capacity
- Very low cost
- Immediate data access
- High reliability

TYPICAL ENVIRONMENTS

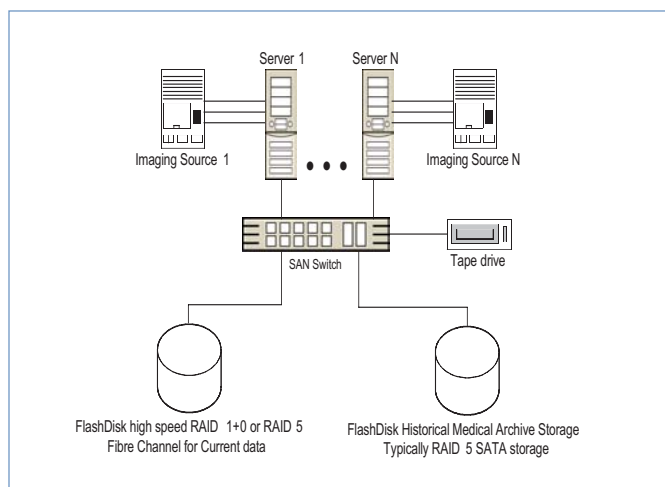
- Hospitals
- Radiology centers
- Medical research

BENEFITS

- On-line access to very large image libraries
- Replaces optical devices
- Replaces tape devices
- Very low cost

HOW IT WORKS

High capacity, low cost FlashDisk SATA disk arrays can be included into any environment using industry standard Fibre Channel or SCSI interfaces and support standard RAID protection. The storage can be directly attached or incorporated into a SAN or NAS environment. Typically, the volume of imaging data grows every day so the FlashDisk SATA storage systems were designed with expansion in mind. Storage capacity can be easily added on-line while everything including the application, servers and storage are still running.



The diagram depicts a group of servers sharing a medical imaging library. Thousands of authorized medical practitioners enjoy instant access to millions of medical images.