

## Vermont Health Care Provider Solves Backup, Replication, and Tape Problems with Mosaic and Avamar.



### Introduction

Rutland Regional Medical Center (RRMC) was established as Rutland Hospital on September 6, 1896. Today it is the center of a regional health community that includes the Vermont Orthopaedic Clinic, Killington Medical Clinic, and Vermont Sports Medicine Center among others.

RRMC has 188 beds and over 1500 employees and volunteers. In 2005 RRMC had over 200,000 patient visits.

### Storage Growth, Complexity and a Stretched IT

RRMC IT was under considerable pressure to solve a variety of inter-related issues. They needed to establish a secondary disaster recovery site where the mission-critical SAN would be replicated.

Backups were taking too long and the resultant tape management process was consuming more and more of IT people bandwidth. The IT team needed to conclusively demonstrate the ability to recover data and systems from their backups.

They needed to meet these objectives within a tight timeframe and budget guidelines.

### Challenges

- Backups taking 8 hrs. per day
- Need to replicate SAN
- Tape management swamping IT staff
- IT needs to prove disaster recovery capability with a one day RPO and RTO

RRMC IT services 1500 end users. Mission critical data is stored on a Fibre Channel SAN backed up to a tape library. There are also 70 Windows and UNIX distributed servers each with direct attached storage (DAS) and backed up locally to tape. Backups were consuming more time and bandwidth. And the IT department was tasked with demonstrating that it could actually restore all data and systems in an emergency.

Initial planning called for replicating the SAN in a new DR site and addressing the backup and tape problems in the future.

Company	<b>Rutland Regional Medical Center</b>
Located	<b>Rutland Vermont</b>
Industry	<b>Health Care</b>
No. Users	<b>1500</b>
Storage	<b>1 TB FC SAN 70 Distributed Server's DAS</b>
Concerns	<b>Replication of SAN Backup time Tape management</b>

*"If I could have designed a solution from the ground up that would meet all of our backup requirements, it would look 99% like Avamar's Axion."*  
Rick Twigg, IT Analyst and EE

*"The web interface is fantastic. Now when someone needs a file restored I can do it in minutes from anywhere – even at home. Prior to Axion, an IT staff person would need to come in and search through tapes – a process that could take hours."*  
John Furneaux, Technical Analyst

## Solution

RRMC required a solution that could address their need for:

1. SAN Replication at secondary DR site
2. Multiple distributed DAS backup and recovery

On the surface these two objectives appeared unrelated. And initially – due to budget considerations a two-phase approach was planned. First, invest in the SAN replication and then when budget became available address the backup problem.

**Mosaic Technology** brought an independent perspective to RRMC. Based on multiple technical and business input sessions it became evident that a solution existed that would solve both issues.

Because the DR site was not going to be a “hot site,” RRMC re-evaluated the necessity and the cost of replicating the SAN. RRMC and Mosaic developed an alternative that achieved RRMC objectives and saved over \$350,000.

## Mosaic Addresses Rutland’s Challenges

Based on Mosaic’s knowledge of RRMC environment and needs Avamar’s Axion solution was introduced. It uses innovative technology to address backup, recovery, and replication problems in growing distributed systems such as RRMC.

Avamar’s underlying technology is *commonality factoring*. It dramatically shrinks the amount of data by eliminating duplicate pieces of data at the application server level – which makes backups highly efficient and reduces network traffic significantly. RRMC deployed two distinct components from Avamar:

**Axion**, a disk backup and recovery solution, efficiently moves and stores data of a server utilizing disk storage. It creates a consolidated archive of enterprise data available for recovery or access on demand.

**Replicator**, a bandwidth efficient solution, cost effectively replicates heterogeneous systems across a WAN for DR and business Continuity.

## Backup – Then Replicate

Because Axion reduces the amount of data that needs to be backed up by up 95%, it is ideal for distributed backups. At RRMC, this means that the 70 standalone servers are now automatically backed up to a central location and stored on disk.

This approach ensures that backups are executed consistently and accurately. It eliminates the time and resources required to backup and track the tapes from those backups.

Because Axion is disk based, it simplifies the restore process. Instead of wading through multiple tapes to find a specific file, IT personnel now restore on-line using a browser—which means they can do so from anywhere via internet connectivity.

Axion also backs up the SAN over the WAN. This eliminated the multiple tape backup versions and let RRMC repurpose their tape library for archiving. It also presented an alternative to replicating the expensive FC SAN.

## SAN Replication

The strength of Avamar’s solution is its data reduction design. Data is reduced by up to 95% **before** it is backed up. Once you execute your initial backup only changes are then backed up. Changes are applied directly to the original backup – giving you a complete functional backup based on the latest changes.

RRMC determined that replicating the Axion backup was an appropriate disaster recovery solution. They reasoned that in the absence of a hot site, replicating a current backup to a remote site would ensure that data would be recovered within the RPO/RTO objectives.

## Results

Today RRMC has a completely backed up restorable system. The backup is centrally managed which ensures backups get executed consistently and accurately at the SAN and at all remote sites.

Backups – which used to challenge the backup window of 12 hours -- are now done in less than one hour.

Restoration of RRMC files and data is now a simple point and click task. This replaces the previous time consuming error prone find it, load it, search it, restore it tape based system.

Replication of all data to a second site over the internet solves the short term DR requirement as RRMC moves to a fully functional DR site.