CORAID CASE STUDY

National Aeronautics and Space Administration
GODDARD SPACE FLIGHT CENTER

CHALLENGE
Affordable Linux based Data Backup and Disaster Recovery for Mission Critical Operation.

SOLUTION
Coraid EtherDrive SR Series used as unique removable disk backup target.

BENEFITS
Simple, Scalable Network Storage Solution at greater than 50% cost savings over iSCSI or Fibre Channel.

INTRODUCTION

With a rich history of innovation and expertise, NASA is the world's renowned leader in flight technology, space research and exploration. Founded in 1958, partially in response to the Soviet Union's launch of the first artificial satellite, NASA was the first to put men on the moon just a decade later. NASA launched its first space shuttle in 1981. Throughout its history, NASA has conducted and funded research that has led to numerous improvements to life here on Earth.

AFFORDABLE DATA BACKUP FOR MISSION CRITICAL OPERATIONS

NASA's 'Living With A Star' program has a new mission critical operation called the Solar Dynamics Observatory which includes both space flight and ground station data analysis. The project aims to gain an understanding of the nature and source of the solar variability that affects life and society. The NASA's SDO Mission Operations Center needed a way to backup this critical spacecraft and instrument data onto disks that could be easily removed and stored off site if necessary. The solution not only needed to be flexible, but also had to be low cost and work seamlessly with Linux.

SOLUTION

NASA's SDO Ground System Development Team selected Coraid's SR Ethernet SAN storage array as the disk storage component to host their Mission Operation data. The Coraid EtherDrive SR was coupled with a Linux server, running RHEL4 and Arkeia's Network Backup software.

The EtherDrive SR storage array was configured as a combination of RAID volumes and JBOD disks. Data backup first goes to a RAID volume. The most critical data is then backed up again to a single disk and removed from the EtherDrive SR for offsite storage. This is a very simple operation due to the SR's hot swap disk carriers that can be ejected by hand in seconds without additional tools and Coraid's innovative disk-portability technology, which allows users to swap drives between arrays for upgrades, service reconfiguration, data transfers or disaster recovery on the fly.

"We really appreciate the Coraid AoE storage solution for its simplicity and flexibility," said Jim Wiedman, SDO IT Security Officer at NASA's Goddard Space Flight Center. Data stored on the disks taken off site can be accessed by any Linux host simply by installing the SATA disk onto any Linux computer as a direct attached disk. This gives NASA's SDO Ground System Team great comfort that their data will always be accessible from any location. "Prior to our 2008 launch, our storage needs will increase tremendously, so selecting a backup solution that is low cost and easily expands was important," said Wiedman.

ALTERNATIVES CONSIDERED

During the initial planning NASA explored various NAS and iSCSI storage solutions, but these did not provide the advantages of EtherDrive storage. Coraid's storage strategy provided the best value with all the functionality required for NASA's Mission Operations data. Because Coraid utilized native Linux, the standards-based approach was also critical in the decision to ensure future system compatibility. "We needed low cost, removable disk storage that worked seamlessly with Linux machines, and could scale to meet our data storage needs", said Weidman. "With EtherDrive storage we saved over 50% versus alternative solutions, resulting in thousands of dollars of savings over other systems."

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