

# RAID Advanced Power Management

## • Efficient, Intelligent Power Management

Servers and storage consume a massive amount of electricity and air conditioning, usually powered on for 24 hours a day, seven days a week. As a result, enterprises have growing utility bills and an increasing impact on the environment. In many applications, the storage is not required to be active full time. In these cases, Xyratex Advanced Power Management can be used to reduce the operational costs of the RAID storage system, while ensuring continuous availability to data. Xyratex Advanced Power Management is intelligent power management, maintaining data access and integrity while enabling lower power consumption. Xyratex Advanced Power Management can reduce energy consumption by up to 40%.

## • Reduce Power Consumption with Energy Management

As companies expand their data storage capacity and capability, those assets must be available at all times. However, keeping this storage continuously active increases both electricity and cooling costs. In fact, during just three years of operation, these costs can exceed the initial acquisition costs of those storage systems.

Xyratex RAID Advanced Power Management gives solutions integrators and IT departments the ability to keep storage systems online and available while dramatically reducing their requisite power needs. By intelligently identifying groups of physical drives that are accessed in parallel to spin down and spin up, Advanced Power Management satisfies requests from applications while using less energy. This approach to energy storage consumption also ensures that data integrity is protected and retrieval times are minimized.

Xyratex Advanced Power Management capabilities are implemented using standard SCSI commands, so RAID power savings is not dependent on any particular drive manufacturer or drive type. Advanced Power Management can be used to increase the energy efficiency of both SAS and SATA disk drives.

## • Policy-Based Drive Management for Power Savings

Xyratex RAID Advanced Power Management saves power by administering policy-based drive management that spins drives up and down at pre-determined usage intervals. For example, IT departments create policies to search out disk drives that have not been accessed within a particular time, so that any drive determined to be unneeded during the interval specified by the customer will be eligible for spin down. Meanwhile, a schedulable patrol function regularly inspects drives that have been spun down to ensure those drives will spin up on demand to quickly satisfy any command request without affecting application performance or availability.

At the same time, Advanced Power Management is intelligent enough not to apply a power savings policy to drives that will soon be accessed, drives that are members of a set where rebuilding a failed drive is occurring, being initialized, flagged as degraded, or drives used for Xyratex Snapshot functions.

By intelligently and efficiently managing power distribution and drive spin, companies have the ability to greatly reduce their utility spend. In fact, while typical power savings will depend on the specific application of the Advanced Power Management policy, RAID storage systems can reduce power consumption by up to 40 percent.

## Features

- Standards-based hard disk drive power savings settings
- Intelligent policy-based, parallel drive power management
- Manual command-based power management via StorView and Xyratex Command Line Reference
- User-configurable interval for screening inactive drives and schedulable patrol to ensure efficient access to data when needed
- Non-disruptive power management with fast spinning up of drives when data is accessed, and file systems remaining active during spin-down
- Available for any drive type or manufacturer
- StorView controller based or host based management software

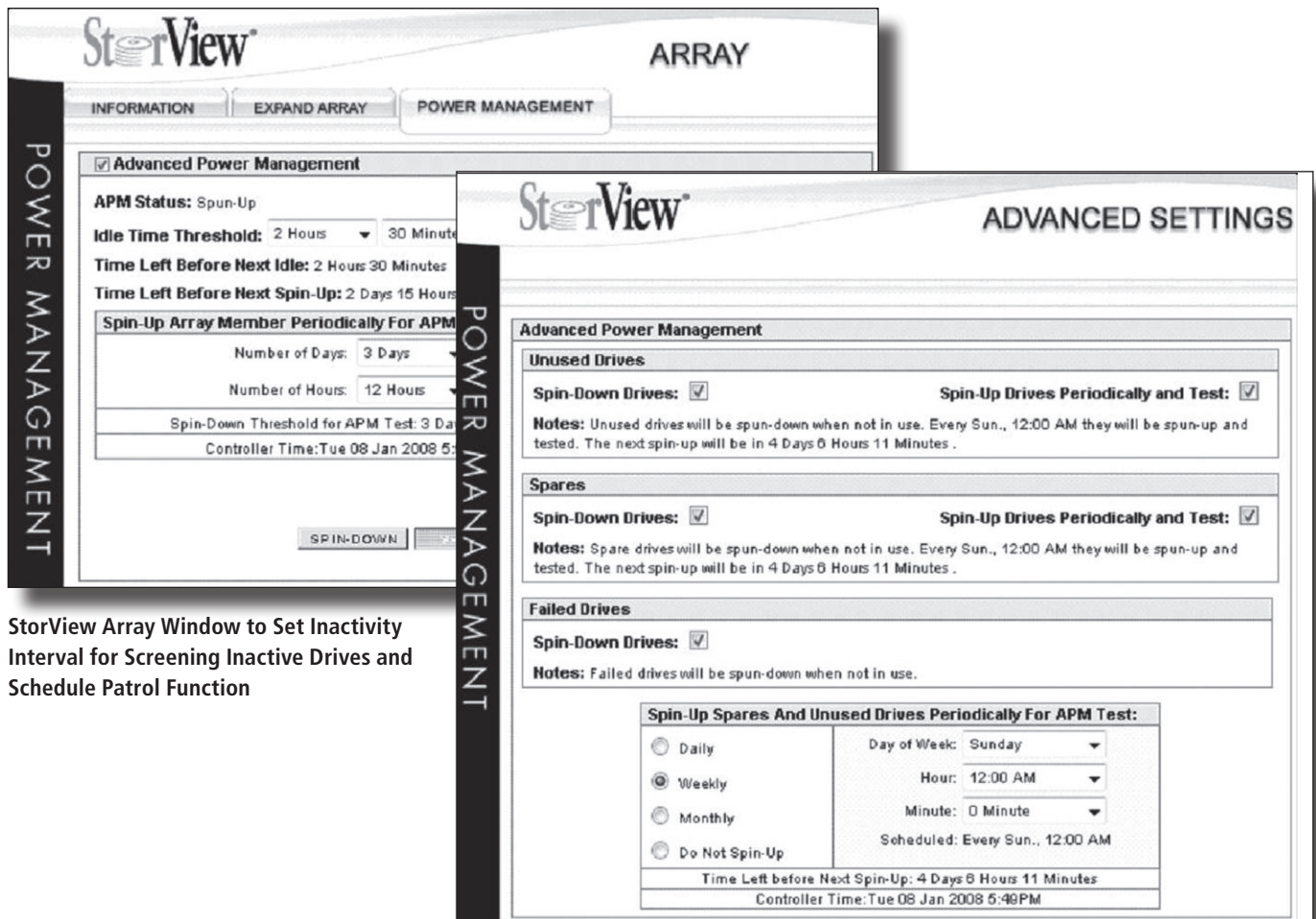
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## Advanced Management Software Operation

Xyratex StorView software configures and administers Xyratex RAID storage systems. Automated control of individual controller's cache, arrays and devices via a web-based interface simplifies storage administration, while StorView's full-function Command Line Interface (CLI) allows integration of array management into existing operational procedures. Xyratex's entire family of RAID systems comes standard with StorView management software, allowing for intuitive administration and performance monitoring. An optional upgrade to StorView Global Manager enables configuration, monitoring and management of RAID controllers from any location, anywhere on the network.

Using the StorView graphical interface and Xyratex CLI, users can also manually spin drives up and down as needed. This enables partners and solutions integrators to intelligently manage Xyratex storage and interface their applications with Xyratex RAID offerings, reducing the power used to enable higher-level applications.

All Xyratex RAID storage models are also equipped with Snapshot, providing a point-in-time record of critical data stores. Four snapshots are available to start implementing immediate recovery capabilities, while an optional Snapshot upgrade allows for up to 24 snapshots per Logical Drive and up to eight Logical Drives in snapshot mode.



StorView Array Window to Set Inactivity Interval for Screening Inactive Drives and Schedule Patrol Function

StorView Advanced Settings Window to Set Inactivity Interval for Screening Cold Spares and Scheduling Patrol Function



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