



SECURING THE FUTURE OF YOUR DATA™



QStar White Paper The **Greener** Data Center

In a world where energy costs are not only rising, but where growing concerns are mounting with regards to sustainability, power consumption related to data storage has become serious business. Not only do we have more data to store, but rising energy costs mean that storing that data is now more expensive; and the impact to the environment is perhaps the largest price tag of all. Industry analysts and storage professionals alike are taking note.

Because all modern enterprises depend on information technology, IT organizations must be able to align energy consumption with energy availability and simultaneously accommodate data growth as part of a viable IT strategy. Using today's technology, organizations can build sophisticated data centers in a cost effective way. However, even a generous budget cannot guarantee that they will have the necessary energy resources to power it in an economical manner. In fact, Gartner recently forecasted that half of the data centers in the world will not have sufficient power and cooling by the end of 2008.

It is estimated that over the past five years, the storage industry has shipped more than a hundred million disk drives that are today still running in enterprise storage systems worldwide. In 2006 alone, those drives will have consumed an estimated 60 billion kilowatt-hours of electricity at a cost of around US \$6 billion. Of this cost, up to \$4.3 billion could have been saved if every data center implemented greener removable archive technologies to manage static data.

Analysts estimate that over time, approximately 80% of all data stored is reference data. If that reference data were stored on an appropriate archive medium the electric power consumption cost savings including residual costs savings for cooling could be as much as 1-tenth the current power consumption of pure disk based solutions, based on the power consumption of removable storage solutions such as Tape, UDO or Blu-ray.

While it is true that many array vendors are implementing technology to reduce energy costs and environmental impact through larger, more efficient drives, mechanical improvements to storage arrays and hard disk devices, they can only improve power consumption to a point. The most common mistake IT managers make is buying expensive enterprise storage devices for their archives without considering the difference between their primary and secondary (backup, replication, DR) storage needs. They may be able to allocate resources more energy efficient by designing a solution that encompasses a content management system based on RAID and secondary storage.

Incorporating secondary storage into the storage pool can not only reduce initial acquisition cost, but can also lower long-term cost of ownership.

Because of the perception over the last 5 years that disk is low cost, many data centers have simply added disk as a way to deal with estimated data growth. The average “written data” disk utilization rate estimates, however, range from as little as 15 to 20%, meaning that half of the disks running in the world’s data centers are effectively wasted or empty. But they are not only empty—they are also responsible for wasting valuable resources: the resources required to hold, power and cool them. In addition, as much as 80% of the data stored on those disks will never be accessed again and can be moved to a secondary storage archive solution.

More energy efficient technologies are available to store data. IT organizations must first understand how, when and where to deploy them as part of a strategic data center. When implementing a greener data center solution, corporations must consider the following:

- How to reduce overall power consumption
- How to maximize power utilization
- How can they reduce the amount of hardware via consolidation
- What can they do to reduce the overall storage but still meet business requirements

For years QStar has been part of a greener initiative to move static reference data to secondary archive storage technologies, while preserving online access to data. QStar leverages high performance disk caching technology to give you the data access performance you expect from an on-line system and provides high energy cost saving archive alternatives for permanent storage such as Blu-ray, UDO and tape. In some cases the savings can be as great as 1/10th the current energy consumption in the data center, when properly implemented. With QStar, customers do not have to compromise between economic prudence and environmental friendliness. Because QStar utilizes a mix of storage technologies, power consumption and hardware provisioning can both be maximized and tailored to business needs. Frequently accessed data can remain on high availability hardware, while reference data can be moved to cost effective long-term archive solutions.

This allows managers to reduce the amount of storage arrays necessary to meet business needs, thus reducing the total cost of hardware, as well as the total amount of power necessary to maintain it.

¹ Gartner press release, November 2006

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