

A SOLIX WHITEPAPER

GO GREEN TO SAVE GREEN EMBRACING GREEN ENERGY PRACTICES

- Reduce Carbon Footprint
- Save Energy
- Increase Profits

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“ It is a mistake to think of the climate crisis as one in a list of issues, it is the issue

”
Al Gore
Nobel Peace Prize winner

Going Green - An Enterprise Storage Savings Strategy Shifting Industry Dynamics towards “Green”



Growing data volumes have long been known to negatively impact application and reporting performance but organizations are now looking at the total cost of data, including maintenance, storage, and more recently, energy consumption.

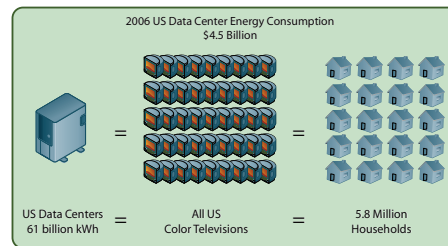
With energy prices exceeding historical levels and demand from emerging economies in China, India, and others continuing unabated, the days of cheap and unlimited energy for all may be over. Global warming activists are increasingly focusing their attention on corporate impact on the environment. Even the most profit motivated executives are sitting up and taking notice of the bottom line profits that can be attained with a focus on lowering power consumption as evidenced by Rupert Murdoch announcing earlier this year that News Corporation will be carbon neutral by 2010. During an interview with Fox News, Murdoch said, “When all of News Corp. becomes carbon neutral, it will have the same impact as turning off the electricity in the city of London for five full days.” The rhetoric may be on being carbon neutral but the underlying motivation is lower costs in increased profitability. Companies that take the lead in optimizing their organizations will not only get ahead of legislation and the consumer pressure but in a position to reap significant cost savings in storage, server and cooling infrastructure. Embracing Green IT requires its leadership to move beyond short term hardware fixes and embrace new thinking in application and data management that marry hardware, software and data strategy.

Environmental Change

Legislation related to energy performance standards and regulation of energy consumption are already on the books and include, Energy Star, the European Union Directive for Energy Using Products (EuP), the Japan Energy Law, the SPEC Power, the ECMA Energy Efficiency (ECMA TC-38 TG2), and EPEAT. Coupled with these legislative directives is increasing pressure from wellinformed consumers and shareholders who want environmentally responsible corporate citizens.

Power regulation, higher cost and restricted supply are part of the new power reality for all organizations and will have a tremendous impact on data and storage management methodologies and strategies. While consolidation efforts on the IT front have been undertaken for the past few years in terms of centralizing and streamlining data center infrastructures, notably through server virtualization, it is the new externalities and trends of “Green”, fast-morphing market conditions related to soaring energy and electricity costs that has brought environmentally friendly enterprise data management strategies to the forefront. Working against efficient disposal of useless data, and subsequent power savings is the near unending flow of information into corporate databases and the legislative need to save more and more data to comply with regulations such as HIPAA, S-Ox, Basel II and others.

Enterprise Data Management and a Green Energy Approach Managing Data for Access, Cost, and Energy Consumption



The energy used by companies to power data centers is significant. In 2006 the amount of energy consumed by U.S. data centers was estimated at 61 billion kilowatt-hours (kWh) (about 1.5 percent of total U.S. electricity consumption) for a total electricity cost of about \$4.5 billion. This level of electricity

consumption exceeds the amount of electricity consumed by all of the televisions in the U.S. and is equal to the amount of electricity consumed by approximately 5.8 million U.S. households.

The Challenges

Primarily, a set of inter-linked forces such as government-related initiatives, industry demands and initiatives and the larger issue of climate change are dictating the spread and awareness of environment impact and overall corporate social responsibility. Further concerns about the rising cost of energy, lighting, power-supply and cooling in data centers are driving greater demand and awareness of “Green” strategies. It is no longer a mere matter of streamlining the growing IT infrastructure of enterprises and businesses, efficient power and cooling systems and realizing long-term benefits. In effect, with “Green” being the way forward for data centers, the strategic intent is to turn data centers from inefficient and occasionally unwieldy structures to environmental friendly in the medium to long term.

Issues related to consumer-dictated demands, capital expenditure, operating expenditure, energy consumption and long term Total Cost of Ownership (TCO) will also be critical in shaping environmentally friendly strategies for the data center. The very premise of a Green or environmental friendly strategy (with latency for green grid metrics) has to be aligned with time-tested metrics like optimization, efficiency and ROI .

Understand the Use and Deployment of Data

With data at the forefront of all activities in an enterprise, ultimately it is data management and the mass of information stored in the corporate databases that will determine deployment of Green storage management solutions. Managing growing volumes of data related to transactional systems, consumer information, Web site traffic, core enterprise-centric applications and their availability and usage will continue well into the future. Understanding the use and deployment of data will hold the key to better management. Before organizations begin collecting new data, consideration needs to be given to the short and long term use and classification policies created where data can be moved out of power hungry Tier 1 storage into more efficient storage Tiers that take advantage of power down technology when data is not being accessed.

Data center systems are straining under the large amount of data volume that it must manage. In the past few years, data center managers have experienced a dramatic increase in the amount of data collected. Online transaction systems have made it faster and easier to collect volumes of information about products, customers and suppliers and in recent years companies have been required legally to save more and more data.

Effective data management needs to incorporate the needs of not only the production environment but also of Test and Development. Reducing the need for full size development copies can significantly reduce the storage footprint required, saving storage, lowering power requirements and saving money.

Take Control of Your Data

In effect, this understanding of data, how and why it is used will determine how and when it is moved to lower-cost data storage options. The “Green” effect on storage decisions is expected to be immense. Solutions that boost energy efficiency will be a natural corollary to reducing the thirst for power as the volume of business related data grows. Accordingly, the mechanisms to control the storage footprint and the servers required to access the data will be in place leading to greater savings in power. To be sure, effective data management can help organizations to manage data growth, decrease costs in the data center and lower an organization’s impact on the environment.

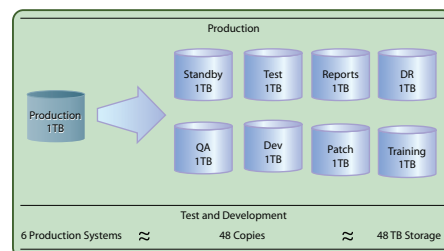
Due to duplication of data and multiple back-ups in these highly competitive times of de-risking business uncertainties and compliance requirements, more investments were made in storage technologies, leading to more power consumption and thereby greater load on cooling systems. However, with the externalities of “Green” coming to the forefront of enterprise data management, such storage technologies and components have to reduce their power consumption at all levels. Critically, keeping storage space in mind, users need to identify storage, usage and archival aspects of information in order to leverage opportunities for consolidation and lessen the load on power and cooling systems.

Strategies to manage the proliferation of data and systems include virtualization of servers, server consolidation and powering disks on an as-needed basis (focused on efficient power supplies through tighter integration between system workloads and storage drives). These strategies are all valid but the fact remains that 80 percent of data being retained in production systems is under utilized by the organization. Better data-management techniques such as data compression, data de-duplication, and tiered storage can create significant energy savings.

The data layer is where the real problems lie. Storage is consuming power, and the same principles that govern storage space saving should be applied to power management. Users need to identify what information is being stored, quantify where and for how long it is being kept, and detect redundancies and opportunities for information consolidation. Once this is known, IT managers can move forward with incremental backups, snapshots, and other advanced storage technologies to sever the inactive data and reduce the overall volume of information.

Data archiving and migration are potent strategies that can directly help optimize storage capacity needs. These strategies optimize storage capacity utilization and reduce the associated power demands. Policy-based archiving and purging eliminates redundant copies of stored data, enabling significant data reduction for backup and storage applications.

The large data footprint in production systems has led to a much larger downstream effect as companies struggle to manage not only the core transaction system but the proliferation of copies that are being made to support the production system. On average, for every production application, IT makes 8 copies for production support. As the production system grows, so do all the copies, consuming large quantities of storage and power. When an application or database needs to be upgraded, additional copies are required to reduce risk associated with the upgrade process.



IT data centers typically manage at least 6 mission critical applications. Multiply the number of applications by the number of copies (6 Apps x 8 copies = 48 total copies) needed to meet the Storage requirement, plus the servers required to support each copy, and the power to support the entire infrastructure, it is no surprise that more than 70% of IT budgets are allocated to the database applications even though only 20% of the production data is database data.

Retool Your Approach to Data Management

Thinking of data through from conception to retirement will help CIOs, IT managers and information architects to ensure incremental backups, snapshots and adoption of related advanced storage technologies to reduce the volume of information at all levels. This will also help IT managers to liaison with facilities managers to measure or model the power cooling load because of greater emphasis on storage consolidation. It's a given that operational differences, if any, have to be sorted out right at the planning stage of the re-oriented approach so as to galvanize around benefits for the enterprise as a whole instead of compartmentalizing storage and power benefits.

Letting data grow without regard to value is not a viable strategy going forward. The acceleration of data growth over time due to business and industry dictated demands will only decrease application and reporting performance even faster, putting more pressure on storage budgets and IT to respond to business users needs. Thus storage space saving which consumes tremendous amount of power will have to be addressed at the earliest in the data management process. This would ensure greater information consolidation in terms of availability, archiving and removal of data.

Align IT and Facilities Functions

All the inter-related forces of change and government dictated regulations and initiatives has brought about a near paradigm shift from addressing merely the overall needs of data center management to extend that to adoption of energy-efficiency operations and measures encompassing the entire spectrum of IT systems. It is a matter of introducing cost minimization measures to account for long-term profit maximization. Such a strategy focuses on the mechanics of data center design, the critical operational aspects, the power and cooling of servers and the size of power and cooling equipment. This should also have a long-term impact on the trade off between capital expenditure and operating expenditure. A cohesive plan worked out between the facilities and IT managers can go a long way in addressing the latent issues related to size, redesign or remodeling of the data center itself and power and cooling requirements.

Hitherto, the aligning of IT and business strategy and the matching of imperatives of business and IT managers dictated the very organizational growth objectives. Increasingly, with the emphasis on “Green” in the future, partnerships between IT and facilities managers and business managers will go a long way in deciding the evolution of the enterprise data center itself and its very association with data storage and enterprise storage management techniques.

So business, IT and facilities managers –outsourced or otherwise – have to work together to delineate conservation efforts aimed at better resources management translating into substantial power savings and reduced energy consumption .Whether that means moving the data center to a location with cheaper power alternatives or less expensive power stations or co-locating at vendor-managed locations, a storage-specific power and cooling strategy has to be the order of the day.

Tailoring a “Green-Fit” Strategy for Your Company with Solix Data Management

Going “Green” in the data center is about reducing power, reducing carbon emission and driving energy cost out of the IT infrastructure. By interweaving many relevant technology strategies, organizations can aim to achieve the smooth operation of a cost-effective, power efficient data center with the concomitant “Green” storage savings. Such a consolidated approach can encompass a comprehensive data management framework, virtualization technologies –server consolidation virtualization as well as applications virtualization- and deployment of energy saving hardware. Enterprise data management offers many approaches, techniques and technologies that can be combined in various forms to address the power and space issues.

Solix Enterprise Data Management Suite (Solix EDMS) is uniquely tailored to match the needs of a cost-efficient “Green” organization and to effectively manage data leading to a more operationally efficient and fiscally prudent data center. Such a strategy also works on the premise that data management allows your company to separate data based on its use in the business. This smart and strategic data management policy is critical to reducing the cost in power and cooling while fulfilling the needs of data retention. By managing data through its entire lifecycle and reducing online data volumes, organizations can optimize infrastructure and manage their environmental impact to:

- Reduce power and cooling costs in the data center.
- Reduce high cost storage options in support of database applications.
- Implement a storage policy consistent with data use and green footprint.

Enterprise Data Archiving

With Solix Enterprise Data Archiving, organizations can classify data, configure and execute archiving and data migration routines and ensure data remains secure at every step of the process giving you back complete and streamlined control over your enterprise data. Moreover, organizations can create and deploy consistent policies for managing, securing and storing data from a single platform and single tool. The result is improved performance, improved availability through shorter backup & recovery times, lowers labor costs to maintain the production system, and lower storage costs. Solix Enterprise Data Archiving solution offers organizations the ability to:

- Lower Total Cost of Ownership: Data classification allows enterprises to implement tiered storage, removing data from production and all copies on disk and tape.
- Leverage IT Investments: Using Solix’s unique metadata approach, application table, row and column relationships are stored in a central metadata repository which can be used at a later date to implement data auditing, secure test and development or enterprise search solutions.

- **Ease Administration and Improve Operations:** Smaller databases backup faster, restore faster and refresh faster. In addition, IT spends less time managing static data and tuning the database to improve performance. Query times are reduced and response times improve accelerating productivity for end users.
- **Ensure Compliance:** All data is stored online in a secure active archive that is available in its native format.

Secure Test and Development

With Solix, companies have a comprehensive solution to increase productivity in the data center by making faster clones while securing sensitive data protecting customers, employees, and key stake holders. Solix Test and Development solution offers organizations the ability to:

- Create clones and instance subsets by selecting sets of transaction reducing test database sizes while increasing productivity by creating clones with only the necessary data to complete the task.
- Secure data before it is copied over to a non-production environment eliminating the risk of data exposure and unauthorized access.
- Lower storage footprint and server requirements for test and development processes.

Conclusion

Once the aligned data management strategies that are critical to saving energy are in place, energy efficiency opportunities can be identified and earmarked as milestones. Such a well-defined approach would sustain the “Green” initiatives which would be enterprise encompassing rather than achieve compartmentalized benefits and cost savings. Thereby, greater consolidation would help in better server utilization; make hardware more power-efficient, reduce carbon footprints and streamline power supplies and overall usage. These measures would make the company energy efficient and environmentally friendly in the long run which should translate into the requisite storage savings and the overall TCO of the implemented energy efficiency strategies.

To learn how Solix can help you develop a Green IT Strategy and achieve a cost-effective, power efficient data center, contact Solix at 1.888.GO.SOLIX (1.888.867.6549). Let us show you how to make data management strategies like data archiving, subsetting and automated cloning reduce the burden of under-utilized data on enterprise applications and reduce your storage footprint, saving time, money, power and reduce your carbon footprint.

Working with Leading Organizations Across the Globe

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- Finisar
- Forbes Marshall
- Helen of Troy
- Hindalco
- Korea Telecom
- LG Electronics,
- Lakshmi Machine Works
- Ministry of Defense
- Steris
- Helen of Troy
- Rediff
- TIBCO
- Traco
- Robertson Ceco
- Western Gas
- Reader's Digest

Supported Applications:

- Oracle E-Business Suite
- Oracle PeopleSoft
- Oracle JD Edwards
- SAP
- Custom & 3rd party Applications

Supported Databases:

- Oracle
- IBM DB2
- MS SQL Server
- RDBMS with JDBC driver support

Hardware Platforms:

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- IBM AIX
- Sun Solaris
- Linux



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