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The Storage Efficiency Balancing Act

By Jack Norris

On a daily basis, storage administrators face a seemingly impossible balancing act: providing end-users with uninterrupted access to data, while reducing costs. They are also expected to handle the proliferation of storage, while simultaneously increasing efficiencies and decreasing end-user downtime. The reality is that neither of these scenarios is working. Instead, IT departments are being forced to make difficult trade-offs that are not helping their organizations achieve what they really want: maximum return on investment (ROI) from their storage solutions.

A major constraint to maximizing storage efficiency is the requirement for end-user data availability.

Improving storage efficiency through proactive storage management, such as capacity management, load balancing, data consolidation, and data migration, results in downtime. This is not acceptable in today's 24x7 world, which demands non-stop data availability. Plus, any downtime is a significant cost factor.

THE KEY TO INCREASING ROI

What is the link between storage efficiency and end-user availability? Based on the experience of many storage administrators, storage efficiency and end-user availability are diametrically opposed. For instance, storage deployments that are highly optimized often have long back-up windows, and feature many periods of restricted access for storage migrations, load balancing, space

management, etc. Similarly, high availability requirements typically result in performance degradation and inefficient storage environments as storage administrators avoid or delay storage management tasks that impose downtime.

Because of this relationship, organizations have been forced to choose either high efficiency or high availability. The result is lower end-user productivity because of repeated downtime *or* increased storage inefficiencies due to over provisioning and underutilization. Gartner has estimated that only 35 to 50 percent of storage resources are actually being leveraged at any given time.

IT productivity has also been impacted, as administrators spend valuable

time trying to balance availability with storage management. Now, organizations can eliminate the tradeoff between efficiency and end-user access and, ultimately, deliver a much higher ROI. The key is data mobility. Capacity management, load balancing, server consolidation, and hierarchical storage management all increase data mobility to varying degrees. And all of these functions can contribute to improved efficiency of a storage environment.

HOW MUCH MONEY CAN YOUR ORGANIZATION SAVE?

The ability to achieve complete data mobility—with uninterrupted end-user access—results in significant returns. Imagine how an IT department would benefit if administrators did not have to spend time working around end-user downtime. No more time spent coordinating with end-users to determine the best migration window. No more late night or weekend data migrations. Administrators would be free to focus on more strategic storage management projects.

By eliminating any end-user data access disruptions, intrusive storage management tasks could be conducted at any time of the day, and would be totally transparent to end-users. With no end-user impact, capacity management tasks could be conducted in real time, on an as-needed basis

during normal business hours. In addition, hot spots could be addressed, load balancing accomplished and project content consolidated—all without impacting access.

But what is the real ROI of providing non-stop access during data movement? There are several areas to leverage, including end-user productivity, IT productivity and storage environment optimization.

Consider the following scenario—a high technology company based in San Jose, Calif., with 3TB of network-attached storage (NAS) deployed. In this example, there is a group of 20 end-user engineers developing critical designs. Any disruption in the workflow of these engineers has associated costs. For instance, based on a per-engineer salary of \$100,000, and factoring in overhead and employee-related expenses, a monthly four-hour interruption translates into a potential productivity impact of over \$70,000 per year.

And let's not forget the business impact. While the lost productivity dollars are important, typically the type of work being interrupted has an even greater impact on the business. For the same Silicon Valley-based company, the impacted engineering work is tied directly to design wins with hard deadlines and

has a top line impact of \$1,125,000.

By eliminating end-user disruptions, the company can expect to save \$70,000 in end-user productivity and avert a \$1,125,000 business impact loss. These ROI numbers are enough to get the attention of any IT manager.

But what if end-user productivity isn't directly tied to revenue? In this case, the biggest benefit would arise from optimizing the storage environment by continually managing and moving data transparently.

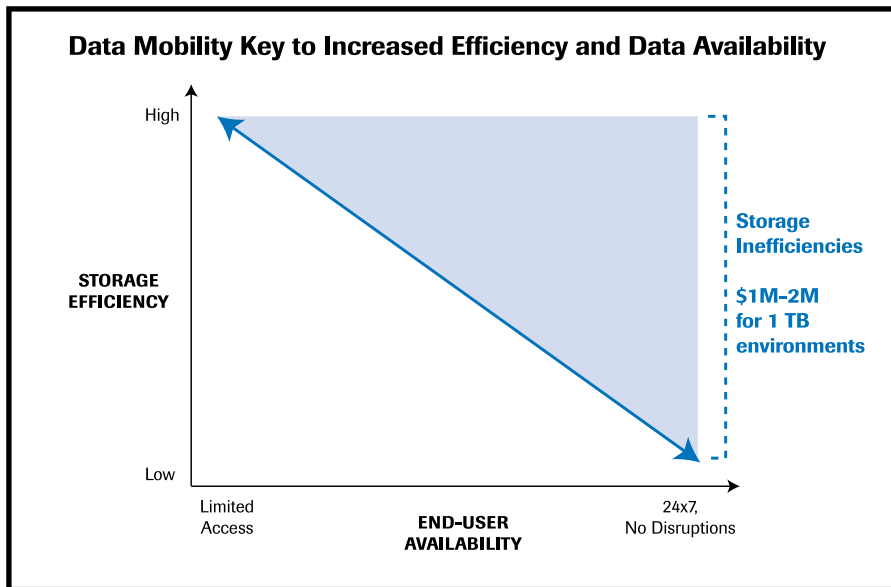
The Table looks at the potential impact of utilization improvement across different storage environments. Savings figures are based on an INPUT study that determined the Total Cost of Ownership of NAS. The results assume that the most efficient storage was deployed (in the INPUT study this was a Network Appliance environment). The results also assume an exponential cost efficiency curve to conservatively estimate utilization improvements in large-scale deployments.

IDEAL DATA MOBILITY SOLUTION FOR MAXIMUM ROI

Moving beyond traditional storage space management solutions and embracing a data mobility solution that provides non-stop NAS file

POTENTIAL IMPACT OF UTILIZATION IMPROVEMENT			
TOTAL AMOUNT OF STORAGE	5% UTILIZATION IMPROVEMENT	10% IMPROVEMENT	20% IMPROVEMENT
500GB	\$70,000	\$140,000	\$280,000
1 TB	140,000	280,000	560,000
5 TB	420,000	840,000	1,680,000
10 TB	525,000	1,050,000	2,100,000
15 TB	590,000	1,180,000	2,360,000

Source: INPUT Study



access is imperative to achieving ROI. But what else should an IT manager look for when selecting a data mobility solution?

Any data movement across NAS devices should be completely transparent to end-users. This requires a real-time data management capability that can copy data with open files and automatically synchronize any changes. The ability to move granular data should also be available to do much more than a volume or device-level move. Storage administrators need the ability to move and consoli-

date project files across multiple NAS devices.

This transparency and 100 percent uptime would mean that IT departments would never be required to schedule tasks in advance or consult with end-users about the best times to perform migrations or maintenance. This would not only free up IT employees to schedule their own time, it would also eliminate the heavy cost and burden of downtime that was outlined in the above high technology company scenario.

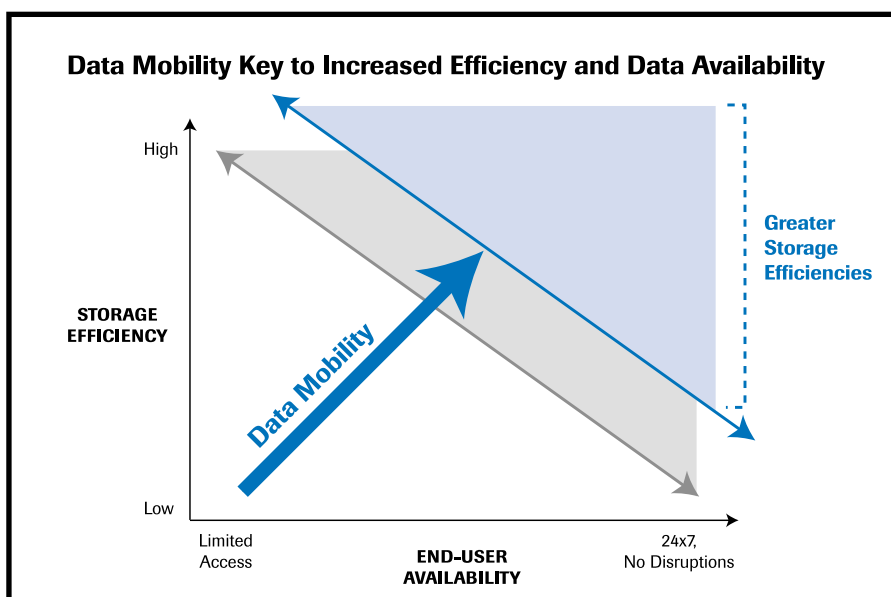
A data mobility solution that supports a heterogeneous environment would also be needed to allow IT departments to move beyond a single-vendor NAS, as well as accommodate mixed operating systems and multiple protocols.

In addition, a plug-and-play data mobility solution is the best choice, because it would reduce countless implementation hours by easily integrating into existing environments with complete compatibility. Plus, no infrastructure changes should be required to install a data mobility solution, and management functionality should include rules, logging and command line interface scripting.

Finally, high performance is another must for an effective data mobility solution. What good is 100 percent availability if it is bogged down by slow response times? ■

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