The Hidden Costs of Data Migration

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When replacing or consolidating systems and meeting constantly increasing capacity needs, data must be migrated from one place to another; it's become a routine task in most IT departments. However, with business and operational needs dictating that critical systems be available 24/7/365 and the complexity that results from non-commoditized and heterogeneous environments, data migration has become a task that is both increasingly important and increasingly difficult.

This white paper will outline the factors that are driving data migration and examine the hidden costs that may be encountered when data is moved.

Introduction

In most businesses, data migration has become routine necessity and is something that IT managers must deal with on a regular basis. But, as operational and business needs often demand that mission critical systems, such as e-mail and web servers, be available 24/7/365, the windows during which data can be migrated are often small. To add to the problem, most business systems now hold far more data than in previous years and so there is far more data that must be moved. Furthermore, many databases and information stores are expanding exponentially resulting in businesses having to expand their storage capacity with increasing frequency, and therefore migrating their data with increasing frequency.

In short, businesses are finding that they have more data to move and must move that data more often and much more quickly.

To further add to the problems, the process of migrating data has become ever more complicated. Increasingly, data needs to be migrated among distributed, heterogeneous systems. Data might need to be moved from a physical source to a virtual target, or from a virtual source to a physical target, or migrated to a target that has dissimilar hardware to the source system. The process is certainly no longer straightforward and needs to be carefully planned if it is to progress smoothly and painlessly.

In order to ensure that data migration is cost effective and impacts minimally upon business continuity, it is essential that businesses develop a strategy that will enable data to be safely and securely moved in an efficient manner. In order to be able to develop such a strategy, a business must understand not only the technical challenges, but also have a thorough understanding of the costs involved and the factors that can cause those costs to increase rapidly.

Why move from here to there? What's driving migrations?

In many businesses, data migration is becoming an increasingly frequent necessity. While the replacement of old or out of lease equipment is still a common reason for data migration, other factors have combined to ramp-up the frequency with which data needs to be moved, including:

- Databases continue to expand exponentially requiring additional storage capacity
- Companies switching to servers running the x64 architecture and the release of x64-only operating systems and applications, such as Exchange Server 2007
- Initiatives that seek to reduce complexity and costs by moving to commoditized platforms
- The move into mainstream of virtualization and the resultant need for data to be transportable, making it possible to migrate to and from physical and virtual environments
- IT rationalization to facilitate compliance with the requirements of legislation such as the Sarbanes-Oxley Act (SOX)

Whether or not data migration is presently a commonly needed in your function in the IT department, the probability is that it's a task that shall need to be performed with increasing frequency in the future. Developing a data migration strategy today will enable you to ensure that tomorrow's purchasing decisions fully meet with both present and future business and business needs and provide the maximum return on investment. Additionally, as data migration and business continuity planning are so closely intertwined, in developing a data migration strategy your business will also be enhancing its disaster recovery options and improving the likelihood of a speedy recovery in the event that a disaster strikes.

Hidden costs

While some of the costs associated with data migration might be apparent, such as the purchase price of the necessary migration tools, others are not so obvious. To be able to plan a cost efficient migration, a business must understand and recognize these hidden costs.

Downtime

Scheduled downtime is expensive; unscheduled downtime is even more expensive. According to a recent study from Gartner Inc., a leading information technology research and advisory company, downtime costs U.S. businesses 3.6% of their annual revenue. In the case of small to mid-sized businesses (SMB's), downtime costs an average of $18,000 per hour and in

enterprise-class e-commerce institutions, these costs increase to a mind-blowing $7 million per hour. Such high costs make downtime not only undesirable, but also financially disastrous. The non-availability of data or applications will invariably hit profits. Hard.

To ensure that both data and applications remain available and to avoid unnecessary downtime costs, IT managers must ensure that migrations are non- or minimally disruptive to normal operations.

Staff time

Many businesses schedule their migrations to occur during evenings or weekends to avoid the need to bring systems offline during normal operating hours. While scheduling in this manner certainly eliminates the need for downtime during critical hours, it also has the effect of pushing up the overtime bill. Given that, in many businesses, data migration is a weekly or monthly necessity, overtime costs can amount to a significant sum during the course of a year.

To minimize the need for costly overtime, businesses should look to solutions that enable zero downtime migration. Not only will this eliminate reduce the necessity for overtime, but it will also better place the IT department to deal with certain problems without the need for disruptive and expensive unscheduled downtime.

Failure to validate

Surprisingly, a large number of businesses fail to validate the results of their migrations properly. Instead, they rely on user testing to establish whether or not the data was moved successfully. This practice can result in a delay in the identification of problems and result in either expensive unscheduled downtime during business hours or further evening or weekend overtime.

To avoid such situations, businesses should seek to deploy a solution has in-built validation capabilities.

Lost data

Unfortunately, data loss is not particularly uncommon. The fact that many businesses do not wish to admit to losing data makes it difficult to establish the frequency with which data is lost. That said, the consensus of opinion among industry analysts is that about a third of businesses have lost data during a migration with about a half of those data losses directly translating into monetary losses.

While factors such as diminished customer confidence are intangible and make it impossible to quantify the real cost of data loss, each and every business will be able understand the potential financial consequences of the loss of critical data, such as purchase orders and other customer records.

Migration strategies must seek to mitigate the possibility of data loss. The most simple and commonly used mechanism by which this can be achieved is to create a full volume backup of the source system prior to its data being migrated.

Under budgeting

Despite the best efforts of IT managers to predict the amount of man hours and downtime that a migration will require, their predictions are often incorrect. And almost always it is a case of having under budgeted rather than over budgeted. According to industry analysts, in two thirds of businesses migrations, companies their budget in terms of both man hour and downtime requirements.

While businesses might not be able to speedup the actual process of migrating data, they can nonetheless make efforts to improve their planning processes, factor in potential complications, in order to more accurately estimate migration costs and avoid unpleasant budgetary surprises.

Deferred projects

Due to the complexity of the process, many businesses decide to avoid or defer projects that will require that data be migrated. While this might provide some short-term savings (no migration = no downtime), those savings can be far outweighed by additional costs in the longer term. Take server consolidation, for example. A business can achieve considerable savings by consolidating its physical servers: reductions in hardware costs, HVAC costs, licensing costs and rack space costs are all possible. A business that elects to delay a consolidation project simply because of the complexity of the migration stands to lose far more than it will gain. Furthermore, as older equipment tends to be less efficient and more prone to failure, a business that continues to rely on that hardware is like to incur unnecessary costs and expose itself to unnecessary risks.

By developing an effective migration strategy and investing in the necessary applications to enable to process to be both smooth and reliable, a business will remove many of the factors that act as inhibitors to a switch to more efficient, more reliable and less costly systems.

Summary

Ok, so the title of this paper was slightly misleading; it's not *only* the hidden costs of data migration that have been outlined, it's the costs of non-migration too. But the two are closely linked and businesses must realize that they need to spend in order to save. By investing some time in developing a data migration strategy and investing some money in purchasing the right tools, a business can not only make migration a safer process, it can also cut costs.

In order to develop a migration strategy, a business must evaluate not only the physical infrastructure, but also the criticality of the data. While all data is valuable, it's not all equal in value. By establishing criticality, a business can determine which of its data requires the highest levels of protection and plan and purchase accordingly.

Solutions such as array-based replication provide a high degree of security but, as such environments are often vendor-specific and require special hardware, they are also expensive. In many instances, they are unnecessarily expensive. While businesses might wish to protect their most valuable and frequently changing data with such a solution, disk imaging will, in the majority cases, be a better, equally secure and far more cost efficient option.

Regardless of the selection of migration mechanism, implementing a migration strategy will help a business ensure that migrations are less risky, more cost efficient, less likely to overrun on budget and less likely to result in expensive unscheduled downtime.

About Acronis

Acronis Inc. is a technological leader in storage management software, and provides a range of server and desktop protection and recovery solutions that minimize downtime and enable businesses to get back to business as quickly as possible.

Acronis True Image enables backups to be created and restored in a matter of minutes. Backups can restored to bare metal or dissimilar hardware and a wide range of 32- and 64-bit operating systems are supported. Additionally, both True Image and Full Circle support physical-to-virtual (P2V), virtual-to-virtual (V2V), virtual-to-physical (V2P) and physical-to-physical (P2P) migrations providing IT professionals with the widest possible range of backup and recovery options.

Acronis True Image supports a vast range of storage solutions, including SAN, NAS, DAS, RAID, USB, CD and DVD enabling existing storage devices to be fully leveraged. Additionally, backups are compressed that helps maximize the use of existing capacity.

Critical applications can be backed up online during business hours, providing 24/7/52 availability and helping ease the pain of the overtime bill.

To find about more about how Acronis products can help your business, either visit our website at www.acronis.com.

About the author

Brett Callow is a technical consultant providing services to a number of leading international technology companies and has been extensively involved in the planning of various industry standard IT certification examinations. Brett has been awarded Microsoft's Most Valuable Professionals (MVP) designation for the past 3 years. MVPs are exceptional technical community leaders from around the world who are awarded for voluntarily sharing their high quality, real-world expertise in offline and online technical communities by Microsoft.

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