APPLICATION NOTE

Meeting application uptime requirements for data center relocation projects

JULY 2004

1 Executive summary

Many factors motivate companies to relocate their IT environments. A prime factor is the accelerated data growth in enterprises, which has given rise to expanding IT infrastructures that eventually exceed the physical confines of their data centers.

Major industry trends do their part to fuel growing numbers of relocations as well. Rising requirement expectations collide head on with flat IT budgets, forcing companies to adopt cost-saving storage consolidation strategies. These strategies find tactical implementation in the collapsing of discrete data centers into fewer locations.

Additionally, companies migrate their operations from older to newer facilities to capture technological benefits from state-of-the-art communications infrastructure.

Taken together, these factors are compelling enterprise IT departments to complete a growing number of wholesale moves. As with everything else in their environments, downtime windows for applications during moves must remain small — or nonexistent — for critical applications running 24 x 7.

Often, corporate IT teams lack the expertise and experience to complete such moves while meeting business continuity objectives. And even for those few departments lucky enough to field a seasoned team with the appropriate specialized skill set, headcounts are so tight that their IT staff is fully occupied just operating, maintaining and troubleshooting day-to-day operations.

In this application note we examine some of the issues facing a financial services client (FSC) prior to its data center relocation to a newly leased facility. We describe a professionally completed migration — assessed, designed, implemented and managed by StorageTek®.

Using this methodology, the customer achieved business continuity, budgetary and time-to-completion objectives. Moreover, with the newly located data center, the company now has a state-of-the-art facility optimized to meet current demands and future scalability requirements.

2 Problem definition

FSC operated three discrete data centers. The nearing completion of a new headquarters facility, plus the coinciding expiration of current office space leases, offered the opportunity to consolidate the company's IT infrastructure into one data center.

The relocation of the company's IT equipment required the efficient moving of a large number of servers, routers, storage devices, cabling and other materials. Business continuity was a serious consideration for this firm that managed over $100 billion in customer assets. Throughout the move, key applications would have narrow downtime windows. The company's customer-facing financial services transactional application was even less forgiving, having zero allowable downtime.

FSC managers evaluated the task at hand, identified expertise and skill set requirements to successfully complete the move and realized none of their employees had the background to meet the need. And even if they did have such people, adding data center move and consolidation responsibilities to their already busy schedules was not an option.

One final consideration was putting the extensive IT infrastructure back together again. FSC wanted an optimized, well mapped topology that not only suited the current environment, but would also support future scalability needs. The company felt it could achieve operational efficiencies available through consolidation tactics.

After a careful evaluation process, FSC selected StorageTek to complete the data center relocation/consolidation project. The company felt the StorageTek solution offered the best value. Moreover, FSC found the StorageTek methodology (assess, design, implement and manage) to be compelling, and favored the project team's flexibility and tailored-solution approach.

3 Solution approach

FSC contracted with StorageTek to provide data center relocation and business continuity planning services (see Table 1 below). The Data Center Services team filled the expertise/experience void in the company's available skill sets. IT executives could be assured that once dismantled, their IT environments would be reconstructed properly to achieve the operational efficiencies they targeted.

The business continuity planning services' main goal was to see that application downtime requirements were met — for critical applications with small downtime windows and for customer-facing applications with no allowable downtime windows.

Data center relocation services

- Hardware assessment, discovery and inventory
- Hardware dependency analysis
- Logistics planning, project management and partner/vendor coordination

Business continuity planning services

- Software application dependency analysis
- Company disaster recovery plan analysis and review
- Downtime requirement and backup methodology analysis
- Disaster recovery/business continuity risk analysis with corresponding contingency plans

Table 1. StorageTek data center relocation services.

4 Solution implementation

The StorageTek Data Center Services team follows a four-phase methodology — Assess, Design, Implement and Manage (ADIM) — as shown in Figure 1. This approach delivers consistent, high-quality results while minimizing the impact of migrations.

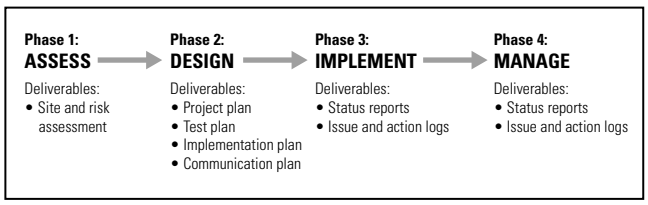

Figure 1. StorageTek project methodology.

4.1 The data center relocation process

4.1.1 Assess

The five-month process began with the issuance of a Request for Information (RFI) by FSC. From the ten respondents, the company's analysis whittled this field to six — three of whom were brought in for interviews. The company deemed StorageTek the best value for its vendor dollar, crediting its selection to the project team's demonstrated expertise, experience and ability to do the job.

Following the contract award, the StorageTek team immediately began significant up-front planning to complete the smooth moving and consolidation of the company's three data centers into one.

The process continued with the completion of an IT hardware discovery and inventory stage to take stock of what needed to be moved. This work included the identification of software application dependencies, too. The project required significant coordination, encompassing substantial hardware devices, including over 480 NT and UNIX servers, rack-mounted disk arrays, EMC disk devices, network equipment and tape units.

4.1.2 Design

StorageTek project managers used the inventory and dependencies information to create viable service implementation strategies to meet the company's availability, deadline and budgetary requirements. After arriving at a consensus on the strategies, detailed implementation plans were developed to carry out the infrastructure moves and data center consolidation.

4.1.3 Implement

The Implementation Phase was divided into four parts, beginning with the relocation of FSC's development and staging environments over two weekends. These two fabrics were moved first because they were the least critical and any unforeseen mistakes would not affect business operations. Moreover, the interdisciplinary team of project participants would gain experience working with each other and better know the move process (see Figure 2).

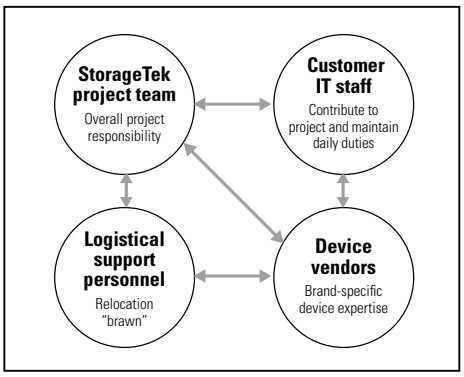

Figure 2. Roles, responsibilities and communications flow

4.1.4 Manage

In its role as general contractor, the StorageTek team coordinated and managed the efforts of many others, including five brand-name device vendors, outside contractors, labor and transportation resources.

4.2 Business continuity considerations

The StorageTek Business Continuity Group reviewed the company's disaster recovery plans and completed the lion's share of its application dependency analysis. Applications were mapped by server location as were relationships between applications. Downtime requirements were carefully evaluated along with backup methodologies.

The Group created a contingency plan for a move weekend. Specifically, a risk analysis was completed to identify what might go wrong and how any problems would be addressed in order to negate any prolonged downtime and/or recovery from any disaster. Meticulous notes were collected and documented to support this work.

5 Solution benefits

The StorageTek team completed the consolidation and relocation project one full month early while staying under budget.

5.1 Meeting business continuity objectives

Business continuity objectives were met throughout the entire relocation. Production environment applications with 24 x 7 availability requirements were failed-over to a disaster recovery hot site located in another state prior to the weekend move. The remaining applications had sufficient downtime windows to be completed during weekend moves.

5.2 Leveraging expertise to optimize staff resources

While most data center IT departments field highly trained personnel to maintain daily operations and plan for the future, few have experience moving a complete data center. Gaining that expertise for infrequent moves is simply not cost-effective, plus it would add significantly to employee workloads.

FSC overcame these challenges by leveraging StorageTek's expertise gained through moving hundreds of data centers. Moreover, by having the StorageTek project team do the majority of the work, company personnel were free to focus on daily operations, meet service level agreements and provide application availability to customers. As a result, FSC saved time and money that its less-experienced, in-house staff would have incurred reacting to problems.

5.3 Gaining storage asset consolidation benefits

By consolidating its IT devices and operations at a single location, FSC improved its IT staff productivity and lowered operating costs. For example, the company's servers were physically consolidated and reconfigured prior to the move to gain an economical fresh start at the new data center. This helped deliver a data center tailored to the company's scalability, flexibility and manageability needs.

6 Project performance metrics

According to a customer survey submitted after the completion of the project, for 53 percent of the areas FSC rated StorageTek's performance as greatly exceeding company's expectations.

Most notably, the company felt that it received an excellent value for its vendor dollar. FSC liked that StorageTek deliverables (for example, the implementation plan) closely matched the stated business requirements. The FSC project team also acknowledged the project plan for its clarity and usefulness as a planning and management tool.

As with any project, changes occur to the scope of work. The company gave high marks for StorageTek's management of these situations, as well as the project team's problem resolution capabilities.

For the remaining survey items, FSC rated StorageTek's implementation as exceeding expectations. The customer felt that the project management process, for example, included sufficient quality assurance steps. Moreover, the technical expertise of the StorageTek project team supported the required technology.

7 Conclusion

The solution presented above was designed and implemented for a specific customer. However, StorageTek uses this same highly developed process for each of its clients, a process which also provides sufficient flexibility to tailor strategies and tactics to meet each customer's particular requirements.

Completing a data center relocation and consolidation can be a significant undertaking — putting application availability at risk, testing the limits of your staff's expertise and taxing their available labor hours. Contact your StorageTek representative to find out how we can help you customize a solution that will meet your application uptime, budgetary and time-to-completion requirements.

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