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2008

Migrating Legacy Systems in the Global Merger & Acquisition Environment Teaching Case

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ABSTRACT

MetaFrame system migration project at Worldpharm, driven by the fiesta of merger and acquisition, had engendered both technical challenges and convoluted organizational issues in the climate of uncertainties. This project was aligned with IT strategy that aimed to streamlining IT resources and enhancing system efficiency of the post-merger organization. In spite of recognizing that it was treading in the treacherous water, Worldpharm still insisted on instigating this post-merger MetaFrame system migration project, which served to (1) consolidate all legacy MetaFrame systems from the three pre-merger pharmaceutical organizations into one globally managed system and (2) develop a global support team for the globally managed MetaFrame system.

Keywords

IT Project Management, Migration of Global IT Systems, IT Management, Teaching Case.

INTRODUCTION

After the fiesta of merger and acquisition (M&A) that involved Worldpharm[1] acquiring and merging with CB Medicine[1] and PharmaTech[1], a new department – the Computer and Information Technology department (CIT), was established to globally manage IT resources of the new organization. The CIT department firstly served the main task of delineating migration and integration plan in support of various IT systems, including MetaFrame system, in the post-M&A Worldpharm organization.

The main goals of this global MetaFrame system migration project were to (1) consolidate every legacy MetaFrame system from the three previously separated organizations into one unified, globally centralized system; and (2) develop a global team for supporting the new and centralized MetaFrame system. A new manager – Mr. Frank Collins[2] – was hired to manage this project and develop a global MetaFrame support team. Since this global MetaFrame system migration project was entangled with technical complexity and convoluted organizational issues, Mr. Collins would have many obstacles to overcome.

Definition of MetaFrame[3]

Metaframe, a software product developed by Citrix Corporation, allows users to access the applications hosted on MetaFrame servers (running on UNIX or Windows operating systems). All applications are processed on these MetaFrame servers, enabling users with less powerful hardware to use resource intensive applications.

Figure 1 shows a centralized configuration of a MetaFrame system that includes an Independent Management Architecture datastore (IMA datastore), a Zone Data Collector (ZDC), and several MetaFrame servers. MetaFrame servers run the applications and allow users to access and use these applications. IMA datastore is a database system (e.g., Microsoft SQL Server, Oracle) that keeps information about configuration of the MetaFrame system.

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[1] We disguise names of the three pharmaceutical companies in this case to protect their identities.

[2] We disguise names of the people mentioned in this case to protect their identities.

[3] More detailed information about Citrix MetaFrame can be found at www.citrix.com.

A MetaFrame system can increase its performance by setting up zones that allow geographic sites to operate on their local network and minimize network communication to the IMA datastore. The logical way of establishing zones is setting up one in every operation that has a high number of MetaFrame servers or has a low capacity network connection to the nearest IMA datastore. For each zone, ZDC maintains dynamic and non-system configuration information such as server loads, active sessions, and disconnected sessions. ZDC also manages the communication within the zone as individual MetaFrame server will not directly query any other MetaFrame servers.

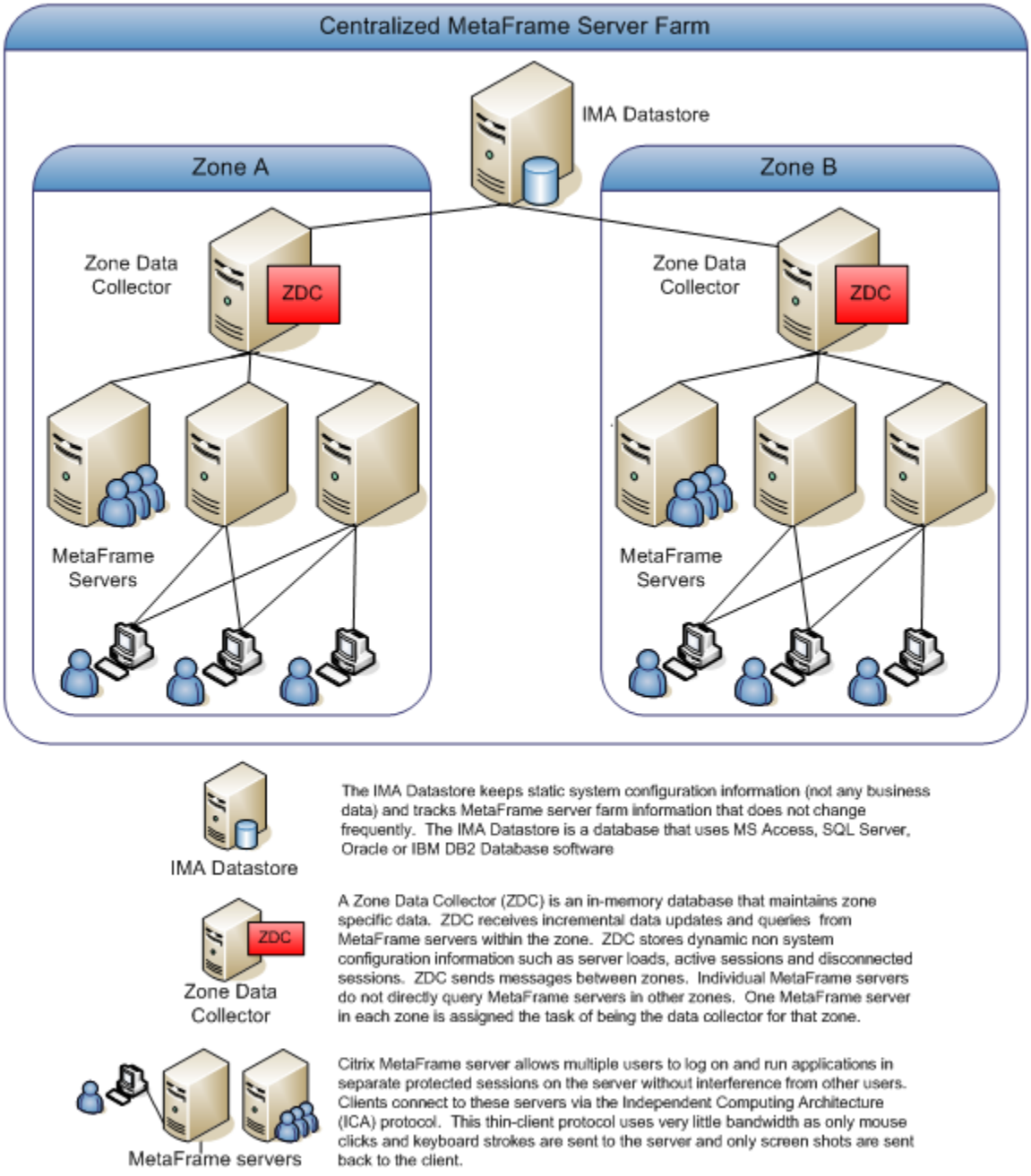

Figure 1. MetaFrame Environment

Existing MetaFrame Systems: Pre-M&A

Immediately after M&A, consolidation plan for various existing MetaFrame systems of the three legacy companies started to unfold. The first issue was related to the legacy systems of PharmaTech and CB Medicine that adopted a centralized MetaFrame structure (see Figure 1) and the Worldpharm's MetaFrame systems that employed a "siloed" structure (see Figure 2). In the centralized structure, all users would access one large MetaFrame system environment[4] controlled by the (logically) same IMA Datastore. For instance, a scientist in Sweden, an engineer in Japan, a manufacturing supervisor in the U.S., etc., would see and use the same MetaFrame system environment. On the other hand, each business unit (e.g., manufacturing unit in Midwest US, marketing unit in East Coast US) in the siloed structure would build and maintain its own MetaFrame system environment; thus Worldpharm found itself with a marketing MetaFrame system environment, a manufacturing MetaFrame system environment, etc. In this regard, the CIT department and Mr. Collins would need to make their decision about which MetaFrame structure would best support the main project goals.

WORLDPHARM GLOBAL METAFRAME SYSTEM MIGRATION PROJECT

Initiation and Planning

For the CIT department, its main responsibility was to streamline IT resource management and save a significant amount of IT expenses on both equipment and personnel. Worldpharm's IT resources would also include all existing MetaFrame systems from the three legacy organizations. After M&A, high expectations were poured onto the effort of consolidating all these existing MetaFrame systems into one globally managed system. Realizing the criticality and the benefits of the project, the executives at Worldpharm's Global Project Management Office (GPMO) promptly approved this project. The GPMO also made an official announcement apropos of this project to all of its employees worldwide. According to GPMO, the project scope was pertaining to "… *consolidate both local and regional MetaFrame systems into a globally managed system and to develop a global MetaFrame support team* …".

After the official announcement, Mr. Collins, knowing that he faced an avalanche of challenges, wasted no time to refine the project scope, which encompassed the following project objectives:

- To consolidate all MetaFrame systems from the three previously separated organizations into one globally managed system.
- To build fault tolerance for Worldpharm's global MetaFrame system.
- To retire those redundant MetaFrame servers and/or applications.
- To employ standards (e.g., hardware components, operating systems) for every MetaFrame server.
- To develop a global MetaFrame support team.
- December 31, 2005 would be the project deadline (approximately 18 months after the official announcement).

The project was planned for the existing MetaFrame systems at eight data centers of the post-M&A Worldpharm organization (two in Michigan, one in New Jersey, one in New York, two in Connecticut, one in Sweden, and one in U.K.). In this project, there would be three major activities: information gathering, planning of the new MetaFrame system environment, and decommissioning and migrating MetaFrame servers at each data center. Mr. Collins would need to collect, as much as possible, the information about existing MetaFrame systems at each data center. Based on the collected information, a plan of the new global MetaFrame system and its system environment would be developed.

Then, Mr. Collins, the existing IT and/or MetaFrame personnel, and the business units at each data center would discuss and develop a plan for the new MetaFrame system of the data center. This plan would include the decisions regarding:

- The applications that needed to be maintained on each MetaFrame server located at the data center
- The applications that needed to be shut down as users could be redirected to use the same or similar applications hosted on the servers located at other data centers
- The number of MetaFrame servers needed at the data center
- The number of existing servers that did not meet the specified standards, needed to be decommissioned, and then evaluated for potential re-build

[4] MetaFrame system environment could be explained as 'a list of servers and the applications hosted on each server'.

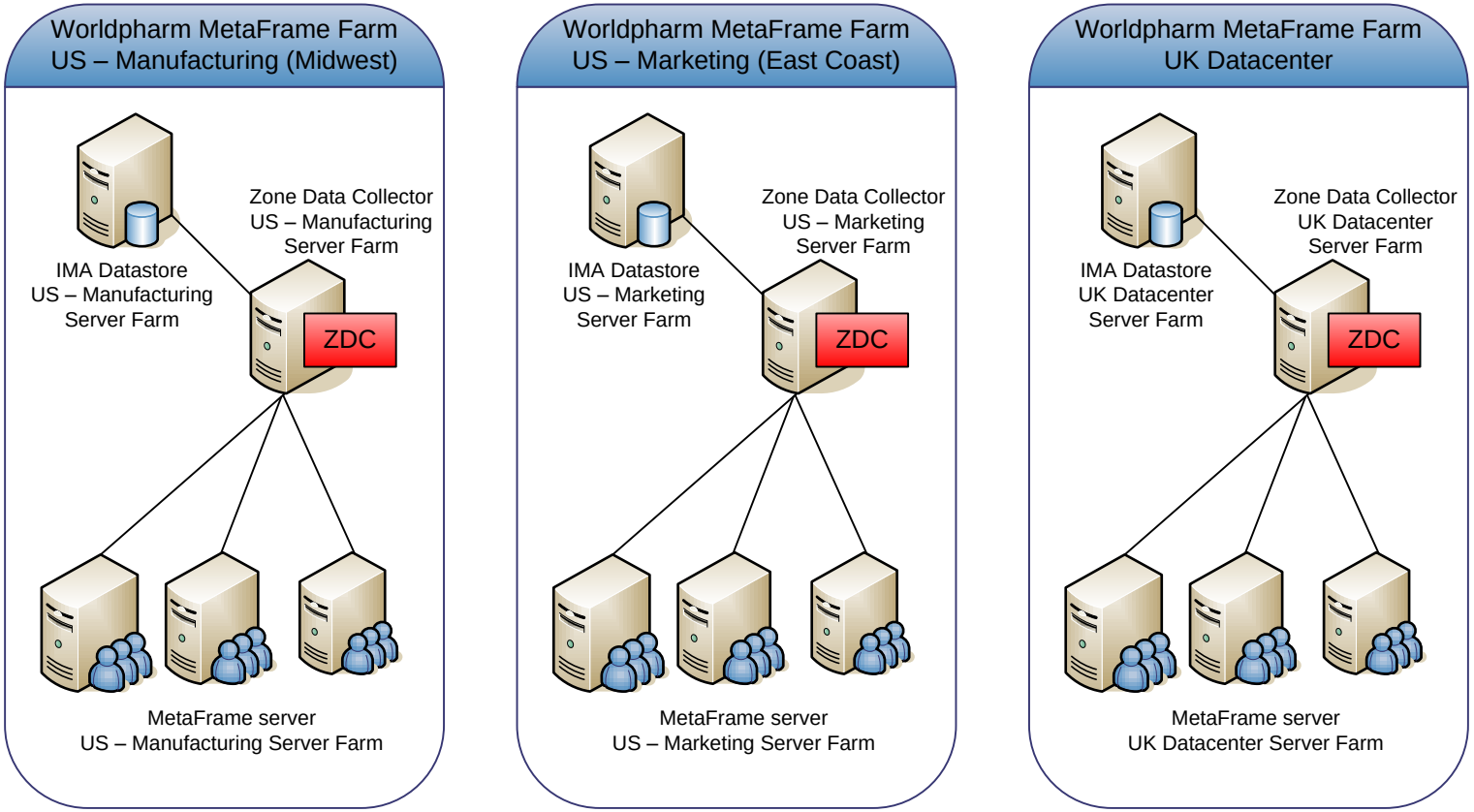

Figure 2. Existing Worldpharm's pre-M&A "siloed" MetaFrame Structure

Note: This figure shows the pre-M&A siloed MetaFrame structure at three Worldpharm's data centers (i.e., Midwest, East Coast, and UK). Other Worldpharm's data centers also employed the same siloed MetaFrame structure.

On deciding which applications and/or servers to be decommissioned, the first task required would be organizing all existing CB Medicine and PharmaTech business units to fit into the current Worldpharm governance structure. For example, when the legacy research and development division in PharmaTech was assimilated with the Worldpharm's global research and development team, it became relatively easy to decide which applications and/or servers needed to be decommissioned while dissolving the business units in PharmaTech (i.e., the research and development division).

Another criterion was the redundant applications. For example, Worldpharm, CB Medicine, and PharmaTech all had a document management application running on their legacy MetaFrame servers; under this circumstance, the redundant application of CB Medicine and PharmaTech was usually decommissioned. Finally, any business units that would like to retain any remaining application had to develop a business case presented to a steering committee and explaining why that application should be retained.

After developing a plan of the new MetaFrame system for each data center, Mr. Collins and the existing IT and/or MetaFrame personnel at each data center would (1) define their responsibilities, (2) set up the project team, and (3) begin the migration process. In this process, new MetaFrame servers would be brought into the data center, retired servers and applications would be shut down, remaining applications would be migrated to other servers, and retired servers would be evaluated for potential re-build. A timeline was set up for the migration at each data center, including (a) the time frame when the new servers would be ready for application installation and testing, (b) the date when the old servers would be disconnected and the applications would be move over to other servers, and (c) the anticipated date to decommission the old servers.

Potential Risks

At Worldpharm, there were a large number of servers running on Citrix MetaFrame 1.8 and hosting Windows NT 4.0 Server. Thus, two main driving reasons for specifying that the project deadline was on December 31, 2005 were the announced end of support for Windows NT 4.0 Server on December 31, 2004 and the announced end of support for Citrix MetaFrame 1.8 on December 31, 2005. As vendor supports for both software packages were coming to an end, there would be no additional hot fixes or security patches developed by the vendors for these two software packages. With these announcements, Worldpharm was fully aware that it was necessary to migrate its existing servers to new software versions (i.e., Windows 2003 Server and MetaFrame XP Enterprise) as it would be risky to run its business applications on the unsupported software packages.

Additionally, it was such a relief for Mr. Collins to learn that this MetaFrame system migration project received unwavering support from the executives at Worldpharm. The policy distributed to every Worldpharm business unit worldwide stipulated that the unified, globally managed MetaFrame system was one of the major objectives of the Worldpharm's IT strategy and that each business unit had to accomplish its MetaFrame system migration by December 31, 2005. Under this policy, potential risks related to project resistance and funding were mitigated.

Nevertheless, Mr. Collins realized that the main potential risks of this project were technical-related risks. As the existing MetaFrame servers hosted critical applications for business units' daily operations (for instance, financial management, supply chain management, sales force automation, sales data collection), a thorough testing would be required to ensure compatibility and minimize any potential problems. Mr. Collins was also fully aware that a contingency plan would be needed in case of any migration failure.

One of the problems that Mr. Collins anticipated was that the project could run into a lack of information regarding some applications hosted on existing MetaFrame servers. Because of the M&A, some employees from virtually every business unit had already left Worldpharm. Some of these former employees were those individuals who were responsible for the applications or who were major business users of the applications.

Mr. Collins also seriously concerned himself with the possibility of insufficient IT and/or MetaFrame personnel to complete this MetaFrame system migration project on time. As one of the expected benefits from this project was saving significant amount of IT expenses on equipment and personnel, the number of IT and/or MetaFrame personnel in the company would be reduced eventually. Thus, some IT and/or MetaFrame personnel had left Worldpharm to pursue other opportunities elsewhere and many others were looking for their new employment opportunities as well. Unfortunately, some of these former IT and/or MetaFrame personnel had built and maintained the legacy systems in the three previously separated organizations. Mr. Collins must devise a plan to ensure that there would be sufficient personnel to finish the project on time.

Global MetaFrame Support Team

At the beginning of this MetaFrame system migration project, all existing MetaFrame personnel continued to support the applications and servers that they had supported before the M&A. However, as the migration continued and some servers

and applications were relocated, the support and responsibilities were delegated to MetaFrame personnel based on geographic location. For example, if a server in Michigan was relocated to Connecticut, then the MetaFrame personnel in Connecticut would become the primary support for this server even though majority of the server's users were still in Michigan and would move to Connecticut in six months or a year later.

Interestingly, Mr. Collins noticed that cohesiveness among the existing MetaFrame personnel emerged as a result of this assignment. As the servers and responsibilities were relocated, the existing MetaFrame personnel had to start exchanging more information in order to keep up with the increasing demands being placed upon them. They got to know each other better and had a chance to learn about the various systems being supported or built around the world. Mr. Collins was excited as he realized that this was the first step for the MetaFrame support team to become truly global.

Mr. Collins knew that member selection of the global MetaFrame support team was based on several criteria including personality, documentation skills, technical and business knowledge, etc. However, there were still many decisions he had to make about this MetaFrame global support team. In global settings, users from different locations and time zones could access the same applications at virtually the same time. Thus, for the support team to become truly global, Mr. Collins had to decide how many members of this global support team would be needed, where each team member should be located, and how this global support team should be managed etc. in order to effectively provide supports for Worldpharm's MetaFrame system regardless of its users' geographical locations or time zones.

RESULTS AND THE NEXT STEP

In June 2006, approximately two years after its official announcement, Worldpharm's MetaFrame system migration project was completed. It was about six months later than its expected completion date (i.e., December 31, 2005). Additionally, total project cost was approximately 10% higher than its original budget of $3.0M (including hardware and software, but not human resource compensation). The CIT department and Mr. Collins have consolidated all existing MetaFrame systems (from the three previously separated companies) with multiple servers running the same or similar applications into one globally managed MetaFrame system. The benefits of this MetaFrame system migration project were apparent. It was estimated that the costs of system hardware were reduced to approximately half of those previously spent by the three legacy companies altogether. In addition, Worldpharm saved approximately 30 man days per year that were previously required to maintain all legacy MetaFrame systems in the three previously separated companies. Finally, the number of MetaFrame support personnel was also reduced from approximately 30 people to 13 people who are current members of the MetaFrame global support team.

During 2006-2007, Worldpharm maximized the value of its global MetaFrame system by expanding the number of enterprise applications that were delivered using this global MetaFrame system. Similarly, in an ongoing effort of streamlining costs within Worldpharm's IT organization and addressing the issues about IT infrastructure flexibility, the CIT department planned to deploy this global MetaFrame system for Worldpharm's operation in several other countries. For example, Worldpharm previously implemented multiple servers running client/server applications across China. In an attempt of reducing the cost of updating and maintaining hardware for Worldpharm's operation in China, the CIT department was planning to consolidate the distributed servers in China into one MetaFrame system located in Beijing. The new MetaFrame system in Beijing would connect to, be an additional part of, employ the same copy of IMA datastore, and share the same system environment with the global MetaFrame system.

SUGGESTED ASSIGNMENT QUESTIONS

1. What are the advantages and the disadvantages of implementing MetaFrame software system in company's IT environment?
2. What are the advantages and the disadvantages of the centralized MetaFrame structure vs. the "siloed" MetaFrame structure? Which one of these two structures would best support the objectives of this project?
3. Identify potential risks related to human resource in this project. What were the effects these risks could have on the project? Provide your suggestion about what Worldpharm may do to manage these human resource risks.
4. As MetaFrame servers hosted critical applications for business units, to shut down any old MetaFrame servers and put them into the decommission process, it was necessary to have a consistent and comprehensive controlling procedure. Additionally, a contingency plan was required in case of any migration failure. Provide your suggestion regarding the procedure to shut down any old servers and the necessary contingency plan.
5. Do you consider this MetaFrame system migration project a successful project? Provide reasons to justify your evaluation of the success or failure of this project.

Migrating Legacy Systems in the Global Merger & Acquisition Environment Teaching Note

SYNOPSIS

This teaching case exemplifies the technical problems and the organizational issues encountered in managing a system migration project, including:

- Different IT infrastructures: advantages vs. disadvantages
- Human resource planning
- Project risks and needs for contingency plan
- Project success criteria
- Global IT support team

The case is written to enhance the understanding of managing IT projects and managing IT resources for both undergraduate level (junior and senior) and graduate level (first-year). This is a discussion case that demonstrates a real system migration project after M&A. The case allows students to portray themselves as the project manager, analyze various technical and organizational problems encountered in the project, and provide their suggested solutions.

TEACHING STRATEGY

This case can be covered within a single 60-90 minute session. It is suitable for students who are taking an IT Project Management class. The case can be used with topics such as IT infrastructure, project management process groups, identifying project risks and defining risk strategies, human resource planning, and project success criteria.

The case should be distributed at least one week ahead of class time. Instructors can open the discussion by having students describe the activities conducted to manage this project and link these activities to some of the five project management process groups. This first section of the class should take approximately 10 minutes and would serve to introduce the MetaFrame system migration project in this case.

Then, the instructor may continue with a question related to the MetaFrame software system. That is, the instructor can bring up the first question – "What are the advantages and the disadvantages of employing MetaFrame software system in the company's IT environment?" In discussing this question, the instructor may also provide additional discussion on the "fat client vs. thin client" computing (e.g., Connolly and Gabel, 2004; McKenna, 2002). This section should take 5- 10 minutes and would nicely lead to the next follow up question.

The next follow up question would be "What are the advantages and the disadvantages of the centralized MetaFrame structure vs. the "siloed" MetaFrame structure?" After the discussion of this question, the instructor should spend another 5-10 minutes to relate the advantages and the disadvantages of the centralized MetaFrame structure vs. the "siloed" MetaFrame structure to how the final decision to employ a centralized MetaFrame structure in this project would better match the project objectives (e.g., building fault tolerance, employing standardized installation, developing a global support team).

Based on the discussion about the main concerns of Worldpharm's existing IT and/or MetaFrame personnel, students would realize the potential human resource risks in this project. Thus, the instructor should spend the next 10-15 minutes for the discussion about the effects that these human resource risks could have on the project and what Worldpharm may do to manage and prepare for the human resource risks in this project.

Then, the instructor may spend the next 10 minutes to discuss the technical-related risks in this project and some tactics prepared and used to manage these technical-related risks, including procedure to shut down any old servers and contingency plan in case of any migration failure.

After discussing both human resource and technical-related risks of this project, the instructor may conclude that projects are unique undertakings which involve a degree of uncertainty and are inherently risky; that is, project risks are inevitable (Baccarini, Salm, and Love, 2004; Czuchry and Yasin, 2003). Additionally, the instructor may emphasize that, for IT projects, risk factors are mainly caused by the structure and the rate of changes in both organization complexity and IT complexity (Murray, 2000; Xia and Lee, 2004).

Finally, for the next 10-15 minutes, the discussion should focus on "How do we define the success or failure of this project?" In this section, the instructor may outline a few common criteria for measuring project success, including scope vs. time vs. cost, customer or sponsor satisfaction, and meeting other project objectives (Schwalbe, 2007).

If there is time remaining, the instructor can discuss the effect of M&A on corporate IT. For example, the instructor can briefly mention IT expenses, managing diverse IT infrastructures, controlling IT activities, IT investment, etc., of the company after its M&A.

ANALYSIS OF THE SUGGESTED ASSIGNMENT QUESTIONS

What are the advantages and the disadvantages of employing MetaFrame software system in the company's IT environment?

Through application centralization, a MetaFrame environment provides several advantages. First, in general, servers are much more secure than desktops. Servers have physical security by residing in the access controlled server rooms. In addition, servers have greater user file restrictions; that is, only users with administrator privileges can log on to the servers and make changes. Second, some applications require validation by outside agencies such as the Food and Drug Administration (FDA). By installing these applications on a controlled server environment, company does not have to worry about users installing other software that may invalidate the applications.

However, these additional functionalities are not without their costs. Integrating MetaFrame into an IT infrastructure adds another layer of complexity, which requires well-trained system administrators to maintain. These administrators need to have a firm understanding of both the MetaFrame and the operating systems (e.g., UNIX or Windows server) on which the MetaFrame is installed.

What are the advantages and the disadvantages of the centralized MetaFrame structure vs. the "siloed" MetaFrame structure? Which one of these two structures would best support the objectives of this project?

The main benefit of the centralized MetaFrame structure is its consistency. All users are using the same MetaFrame system environment and accessing the applications in the same ways. This makes supporting users much easier. However, the downside of the centralized structure is that it can get very large and very complex.

On the other hand, the main advantage of the siloed MetaFrame structure is that business units get the environments configured in exactly the way they want. This usually means a number of smaller MetaFrame system environments configured for various business units. However, it makes large scale support very difficult because, often in the siloed structure, only those people who built the environments know all the miniscule details of why things were configured the way they are. The siloed structure may also lead to duplication of effort. Different business units often need similar applications (e.g., document management software). For example, there were many underutilized servers running the same applications for different business units in the legacy Worldpharm MetaFrame environments.

Additionally, the siloed structure may present redundant support personnel for its various MetaFrame system environments as it was the case for the legacy Worldpharm. That is, each MetaFrame system environment of the legacy Worldpharm (e.g., Manufacturing environment, R&D environment) had it own MetaFrame support personnel. In contrast, the legacy PharmaTech that adopted the centralized structure employed only one team of MetaFrame support personnel for its environment.

Identify potential risks related to human resource in this project. What were the effects these risks could have on the project? Provide your suggestion about what Worldpharm may do to manage these human resource risks.

Similar to many other system migration projects after M&A, the major expected benefit of this global MetaFrame system migration project was lower IT cost. By consolidating various separated legacy MetaFrame systems into one globally managed system, Worldpharm would require much less resources (both system hardware and support staff) and would significantly save its IT expenses. That is, eventually, Worldpharm would eliminate many existing IT and/or MetaFrame support personnel. Thus, all existing IT and/or MetaFrame support personnel from the three legacy companies were not sure about their future with Worldpharm. Some of these IT and/or MetaFrame support personnel had decided to take their new opportunities in other organizations and many others were looking for their employment opportunities elsewhere.

These existing IT and/or MetaFrame support personnel were those people who built and maintained each legacy MetaFrame system. Many of these existing IT and/or MetaFrame support personnel held important knowledge and information about the

legacy MetaFrame systems. Similarly, a few business users who knew detailed information about or were responsible for the applications hosted on MetaFrame servers had already left Worldpharm as well.

Unfortunately, the migration team who would build the new MetaFrame environment would be the existing IT and/or MetaFrame support personnel at each datacenter. This migration team would need to work closely with business users to develop a plan for the new MetaFrame system of the datacenter. This MetaFrame project could face a serious human resource risk. That is, there might be insufficient human resource for the project; some project team members might resign at the middle of the project; it might take longer time than expected to find the information about legacy MetaFrame systems and the applications hosted on existing MetaFrame servers. Thus, Worldpharm might not be able to finish this project on time.

The approach that Worldpharm applied to minimize this potential human resource risk was to offer a very attractive benefit package to motivate existing IT and/or MetaFrame support personnel to stay with the company until the end of the project. That is, the CIT department assessed human resource requirements of each planned IT project and evaluated each existing IT and/or MetaFrame support personnel based on several criteria (e.g., skill set, experience, education). From these results, the CIT department identified those IT and/or MetaFrame support personnel who would retain with Worldpharm and those who would be eventually let go. Then, the proposals were prepared for each IT and/or MetaFrame support personnel. For those who would retain with the company, the proposal included job duty, compensation, and benefit, etc. For others who would be let go, the proposal included schedule and the attractive benefit package that the employee would receive if the employee stayed with the company and effectively performed the assigned responsibility until his or her schedule arrived. With this approach, the CIT department was able to put together the required personnel for each IT project, including this MetaFrame system migration project.

As MetaFrame servers hosted critical applications for business units, shutting down any old MetaFrame servers and putting them into the decommission process demands consistent and comprehensive controlling procedure. Additionally, a contingency plan was required in case of any migration failure. Provide your suggestion regarding the procedure to shut down any old servers and the necessary contingency plan.

In this project, for each legacy server to be shutdown, it would require a shutdown date specified and signed off by the system owner (i.e., the business unit); then, this sign-off document would be submitted as a service request to the helpdesk (who would forward it to the corresponding migration team). This procedure would require that the system owner be identified. Additionally, before signing off the service request, the system owner would have to confirm that all applications and users had already been migrated to other servers or that the applications were simply eliminated.

To provide the contingency plan in case of any migration failure, the project team decided to set up a parallel system called "swing servers". The applications would be installed on these swing servers (i.e., the new MetaFrame servers). Once the applications on each swing server were fully tested, users would be given access to their applications on the newly tested swing server and the decommission process of the legacy server could start.

In the decommission process, after the system owner had signed off and submitted the service request to shut down the legacy server, firstly the legacy server would be merely disconnected from the network. The legacy server disconnected from the network would be left intact, sit in a one-week "quiet period". This legacy server would serve as a contingency plan for the new server as the legacy server could be easily brought back by reinserting its network connection. Additionally, on several occasions, this "quiet period" alerted the migration team that there were some users of the applications who were unaware of the migration as these users complained that the applications on the legacy server became inaccessible.

Setting up the parallel system is one of the smoothest ways to migrate applications, while at the same time, minimizing user downtime. In the event of unforeseen problems, users can be immediately redirected back to the original systems. However, the downside of this approach is the increased cost of hardware since running parallel systems typically requires an organization to double their hardware requirements.

Do you consider this MetaFrame system migration project a successful project? Provide reasons to justify your evaluation of the success or failure of this project.

Three common criteria measuring project success include (Schwalbe, 2007):

- Meeting scope, time, and cost goals of the project
- Satisfying other needs of customer or project sponsor
- Delivering certain project objectives

Although the project was late, when Worldpharm finished this MetaFrame system migration project in June 2006, the company fulfilled several objectives including:

- Consolidating all MetaFrame systems into one globally managed system
- Employing standards (e.g., hardware components, operating systems) for every MetaFrame server
- Building fault tolerance
- Developing a global MetaFrame support team.

Additionally, although the project was approximately 10% over budget, the executives at Worldpharm were quite pleased with the result as, in long term, this project would help the company save costs of its system hardware and system maintenance.

Finally, this MetaFrame system migration project served as a pilot project to streamline costs within Worldpharm's IT organization and to address the issues about IT infrastructure flexibility. The consolidated MetaFrame system delivered by this project also served as the foundation for other systems supporting Worldpharm's global operation in many other countries.

Therefore, we would consider that this MetaFrame system migration project was a successful project.

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