



Trans-Atlantic Data Center Migration

case study

Overview

Datacenter migrations can be very complex with all the details of server migrations, storage migrations, network migrations, SAN migrations, as well as application migrations. Business decisions to migrate data centers can be as a result of IT cost reduction initiative, regulatory requirement, business service risk mitigation plan, a newer data center operations strategy, or other legacy data center environments incapable of hosting modern & dense IT infrastructure. Given the dynamic operational environment in which today's data centers operate, wherein applications and data in the production environment is changing consistently, the most important thing to acknowledge is the Data Center migration strategy as well as detailed plan.

Our Client, DSV Air & Sea Inc. is a leading, international, full-service provider of transport and logistics solutions in more than 70 countries all over the world. For over 35 years, DSV Air & Sea Inc. has been the recognized leader global transport industry. DSV Air & Sea offers alternative routings and flexible schedules to suit even the most demanding logistical requirements to and from all parts of the world. Their approx. 6,000 employees in more than 70 countries, handle more than 730,000 TEUs of sea freight and 260,000 tons of air freight every year. DSV Air & Sea Inc. business has been growing exponentially and thus needed to move their data center into their corporate Head Quarters located in Denmark. The issue they were facing is how to migrate their data center with a minimum impact to their users which included employees as well as customers.

Keys to Success

- Reducing the cost of the overall project by selecting the right technology through the collaboration efforts of the team
- Discovery included inventory of application software, inventory of hardware, developing a migration strategy, and presenting technology alternatives for migration as well as the costs for those alternatives
- Working as one team
- A well defined plan that had less than 4 hours downtime for Data Migration across the Atlantic

Challenges

Time Constraints

DSV Air & Sea Inc. was concerned that the amount of data needed to replicate from the US to Denmark was too much for the limited amount of downtime that was approved. Since they service customer around the world, their application is truly a 24 by 7 application. They needed a plan that would allow all of their data to replicate before the cutover to the Denmark site. DSV Air & Sea Inc. turned to Infinium Technologies, Inc for a turn key solution to Project Manage, Discover, Plan, and Execute their Data Center Relocation Project (DCRP). DSV Air & Sea Inc. trusted Infinium Technologies because of their vast experience in Enterprise Technology with Data Replication, Disaster Recovery, Cloning, Virtualization, and Data Migration.

Products

IBM AIX

IBM DB2

IBM HADR

IBM TSM

IBM Power6

Obstacles

Intelligence DSV Air & Sea Inc. needed to move all their customers from one data center to the new data center with just 1 hour of downtime for the entire application that supported all customers and employees around the world. A data center relocation has many complex elements such as server migration, storage migration, data migration, size of data, bandwidth of WAN as well as SAN, storage compatibility, software driver compatibility, firmware compatibility, power availability, network ports, fiber ports, network configurations, SAN configurations, server configurations, storage requirements.

Solution

Every environment has its own challenges and one migration strategy does not fit every client environment. The bottom line consideration for a good migration strategy is near-zero disruption of business services. This requirement drives a deeper and thorough understanding of the following major subsystems of a data center. In the case of DSV Air & Sea, Inc., the application 100% near up time requirement drove the type of replication that was used.

The team looked at several options for replication:

- **Application** – Since the main DSV Application did not support any replication, third party applications that specialize in replication were evaluated.
- **Database** – Most databases today have a feature to replicate data both sync and async. The main application for DSV had the bulk of its data within a single database type which made database replication an easy option.
- **Host** – Using the OS to mirror LUNs or even file systems is an easy way to replicate but the distance was too great for mirroring LUNs in DSV's case.
- **Storage** – Replicating the underlying disk is a great option for quick replication for large amounts of data but usually comes at a premium price.

Performance & Service levels requirements- By necessity, moving or migrating services from one data center to another needs to consider all of these components. The level & effort for such due diligence is based on the current Data Center's application and Infrastructure portfolio, tolerance to unavailability of applications & services as well as time & budget constraints.

Infinium designed a plan that was the most cost effective method for the limited amount of down time of the application. The plan provided a flexible schedule for testing as well as cutover. The plan was put together to test the theories that the team put together. The outcome of those tests were evaluated and the best method was chosen by the team.

Keys to Success

The key to designing a flexible plan is defining the details in the scope of the project, establishing a budget, forming a team, and planning the project. Another key element is paying attention to the smallest details during the discovery phase as well as the testing phase. The discovery included inventory of application software, inventory of hardware, developing a migration strategy, and presenting technology alternatives for migration as well as the costs for those alternatives. During the testing phase, the team discovered the anomalies of each replication type and what worked and what did not work. Each data center move project is unique and each application requires a custom approach. The DSV team found that using data base replication (IBM DB2 HADR) was the best method with the least amount of down time and offered a reasonable cost for the organization.

Migration Plan

The overall project plan was made up of a master schedule with resource allocations and deadlines to events. Testing plans were created and executed by the DSV migration team. Further decisions were made based on those testing results and a final set of migrations methods were chosen for execution. Again DSV Sea and Air, Inc. turned to Infinium to perform the required work and interface with the DSV engineers as a collaborative effort. Infinium and DSV Air & Sea Inc. created a team that defined the best set of solutions for the given environment. Without the team collaboration, the tasks could have never been completed under the time constraints. The team effort made a significant impact on reducing the cost of the overall project by selecting the right technology through the collaboration efforts of the team during the discovery phase.

Anders Rousing, Manager DSV Air & Sea Inc., said "I think all involved did a really good job working as one team; all the way between US -> DK and France."

The migration strategy details were documented for each server and each application on those servers was analyzed for migration risk. Unexpected problems could be addressed very easily and plans, tasks, and events could change without major disruption to the overall project.

Trusted Services

Infinium's engineers each have over 20 years of IT experience encompassing enterprise class technologies. Infinium's knowledge and experience prepared DSV Sea and Air, Inc. for the unexpected. No event popped up that Infinium did not already have an action plan because of their experience. Infinium's trusted engineers are not only good experienced leaders but are also very good listeners. Infinium prides itself on listening to their customers to find the real issues at hand and overcome those challenges and satisfy customer's needs and expectations.

Summary

The first few months of the project were consumed with the planning, preparation, and testing. The last four weeks before the migration were used to prepare for the migration that took less than 20 minutes. The plan consisted of

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Geography

Services Nationwide
Services International, Europe,
Africa, Central America

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Advanced Business Partner

less than 2 hours of documented downtime for the global application, but we beat those estimates by six fold. A total of 15 TB was migrated from one data center in New York to the other data center in Copenhagen, Denmark over a company WAN that provided T3 capabilities using DB and other Host based migration tools. DSV Air & Sea Inc. trusted Infinium Technologies because of their vision with Project Management, Discovery, Planning and Execution of the well laid out plan that was based on the collaboration efforts of Infinium and DSV Air & Sea Inc.

About Infinium Technologies, Inc.

Infinium Technologies, Inc. is a Georgia based corporation that provides IBM professional services centric to IBM Storage, IBM scalable e-Server products, as well as IBM High Availability, Virtualization and IT Management solutions. Infinium has set themselves apart in the marketplace by delivering professional consulting service focused on implementing and managing the top technical and business solutions available: AIX & Linux, IBM TotalStorage/SAN, SVC, TPC, HACMP/Highly Available Clusters, e-Business, pSeries, xSeries, OpenPower, Blade Servers, Tivoli Storage Manager, WebSphere, Apache, Oracle and SAP.