Building a Modern Data Center and Leading a Cloud Migration for a Manufacturer

MANUFACTURING
NETWORK AND DATA CENTER SERVICES

TEKsystems
Global Services

Executive Summary

TEKsystems helped transform a manufacturer's global disaster recovery and business continuity planning structure by building a next-generation data center, and developing and executing a cloud strategy and roadmap.

Quick Facts

Client

- **Industry:** Manufacturing
- **Revenue:** $47 billion
- **Employees:** Over 100,000
- **Geographic Presence:** Headquartered in the Midwest; serves more than 180 countries

Objectives

- Complete a multifaceted, multiphase transformation of global disaster recovery and business continuity planning structure
- Implement best-in-class technology that would enable automation and orchestration of infrastructure processes
- Position our client to move to a hybrid (i.e., public/private) cloud infrastructure with the ability to move applications back and forth

Challenges

- Assemble and onboard 20 resources within five weeks
- Provide thought leadership and resources across a wide range of skill sets
- Evaluate client's infrastructure for requirements and constraints to prepare for cloud migration
- Rationalize applications for migration to the cloud

Results

- Built a next-generation data center within an aggressive timeline
- Designed a cloud strategy and roadmap
- Mitigated future risk through building stronger business continuity and disaster recovery processes and infrastructure
- Positioned our client to leverage infrastructure automation (DevOps) and orchestration via the public and private cloud

Technologies Supported

- Amazon Web Services
- Chef
- Cisco Nexus
- Cisco Unified Computing System (UCS)
- EMC storage
- FlexPod
- Microsoft Azure
- Microsoft Windows Server
- Private cloud
- Puppet
- Unix/Linux servers
- Vblock
- VMware

Client Profile

Our client, the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines, and diesel-electric locomotives, has been helping customers develop infrastructure, energy and natural resource assets for more than 90 years. A global brand, more than half of our client's sales and revenue come from outside the U.S. and more than 3 million units of its product are at work around the world.

Industry Landscape

When organizations decide to incorporate cloud as part of their infrastructure, they first need to have a robust networking system in place—one that allows for virtualization and storage—to ensure they reap the benefits the cloud promises, such as decreased costs and increased scalability. It will also set them up for a DevOps framework. DevOps helps ensure streamlined end-to-end IT services are provided to demanding business users through automation and orchestration of core infrastructure processes.

DevOps tools (e.g., Puppet) move applications from a development environment to a production environment automatically after putting them through comprehensive testing. This saves IT organizations a significant amount of time that would be required to perform these processes manually. It also ensures each and every internal and external application that is added, upgraded or changed goes through the same rigorous checks and balances process to confirm compliance with that organization's standards (e.g., security protocols). Not only does a DevOps framework save time and resources, it enables organizations to respond quickly to change—a critical advantage in a time when technology, business and market demands move very fast.

Situation

Our client was embarking on a multifaceted, multiphase transformation of their global disaster recovery and business continuity planning structure. As part of that initiative, the client wanted to build a state-of-the-art data center that would help their business recover from any major or minor infrastructure outage. Specifically, the new data center would increase the client's recovery point objective (RPO) and recovery time objective (RTO) across core business applications. Moreover, the data center would be geographically dispersed and spatially separated—further protecting the company against a catastrophic event knocking out multiple data centers. It would also position their organization to successfully migrate to the cloud.

They wanted to implement best-of-breed technology, Vblock, that enables automation and orchestration of infrastructure processes to enhance performance and help decrease IT costs. It would also position the organization to move to a hybrid (i.e., private/public) cloud infrastructure, where they would have the ability to move applications and infrastructure back and forth between private and public capacity. A robust cloud environment would also allow the business to quickly scale capacity for new application development.

The client had an aggressive timeline of 12 months to build the data center. They needed a partner that could quickly provide a large, scalable team with expertise across a wide range of technology disciplines.

Solution

TEKsystems has a strong staffing relationship with the client; currently, we are their top staffing provider. Our successful partnership and past performance garnered us a tremendous amount of confidence and trust

from managers within the organization. At first, we were asked to support a major integrator with the data center build; however, we ended up displacing the integrator because we proved to be a more effective and faster partner. Plus, our scalable delivery model and expertise in a wide range of technologies made us more cost-effective and efficient as a single-source provider.

Data Center Build

TEKsystems helped the client build a greenfield disaster recovery data center with advanced capabilities. Our team supported disaster recovery plans for infrastructure components and critical applications, including detailed recovery steps, data dependencies, firewall rules, technical contacts, test plans and a sequence of individual components to be recovered. Once built, targeted application workloads were replicated or migrated to the new facility from legacy data centers.

We quickly assembled a team; within five weeks we sourced, screened and onboarded 20 resources. We provided a flexible, co-managed delivery model which enabled capacity planning and demand management (i.e., ability to scale the team up or down as necessary). During planning, we qualified what each work stream would need in terms of skill capacity as well as level of expertise; this enabled us to have resources on the ground and productive within just 15 days from when a need to supplement the team was identified. The team scaled to 30 resources at its largest.

A full-time, on-site delivery manager led resource planning, candidate identification, hiring, onboarding, daily team management and performance reporting. Our Network and Data Center Services practice provided subject matter expertise and technical oversight to ensure adherence to methodologies and process quality throughout the duration of

> TEKsystems helped the client build a greenfield disaster recovery data center with advanced capabilities.

the build. Our team consisted of enterprise architects, application specialists, project coordinators and managers, Microsoft engineers, Linux and storage engineers, VMware engineers and automation (e.g., Puppet, Chef) engineers.

Cloud Strategy and Migration

After testing and replication on the data center project, the client wanted to begin work on developing a best-in-class cloud infrastructure program, but did not have the cloud expertise in-house to initiate and lead the project. They partnered with TEKsystems Network and Data Center Services to provide a cloud strategy and execution roadmap for all facets of the build and application rationalization, including migration of targeted workloads to Microsoft Azure and Amazon Web Services (AWS).

First, we evaluated the client's infrastructure for requirements and constraints to prepare it for cloud migration. The evaluation focused on installation and configuration of prerequisites for a successful migration to the cloud (e.g., Microsoft license requirements, required network equipment, VPN connections, Active Directory). We assessed security measures to ensure compliance with security policies and best practices for private and public cloud environments. We also assessed the client's operational readiness for cloud migration, including organizational change management,

business impact analysis and gaining buy-in. These steps ensured we had a completely cloud-ready framework in place prior to workload migration.

Cloud and enterprise architects from our Network and Data Center Services practice provided thought leadership to design and refine the strategy, build cloud capacity and prepare for the application migration. Automation resources, Azure technicians and engineers rounded out our team.

We completed the strategy and roadmap and are currently in the process of building the cloud infrastructure. We have designed a phased application migration approach. They did not have an application portfolio, which made it difficult for them to determine the best infrastructure delivery methods and understand what applications were dependent on other services or requirements (e.g., information security, latency).

We developed the structure and strategy for application rationalization, which will help the client decide which cloud-ready applications can seamlessly transition, which applications would be best served by a private or public cloud, and which applications may need to remain in a legacy environment.

Our target is to identify at least 20 applications for migration by the end of the calendar year. During application rationalization, we will align applications into one of the following phases for migration to the cloud:

- **Phase 1:** Applications identified as lower risk, quick-win workloads that provide early traction in the migration process

- **Phase 2:** Applications identified as having higher risk and complexity than Phase 1; these workloads will have higher visibility into the business, higher RPO and RTO, and may require automation and custom scripting to maintain

- **Phase 3:** Applications identified as business-critical with the highest amount of risk or complexity; these must be carefully designed and may also require complete rewrite or redesign

Next, TEKsystems will execute the migration efforts, with Azure and application enterprise architects rationalizing their application portfolio. Our team will build scalable capacity in the Azure environment to meet the demand of both the migration activities and new build requests from internal teams.

> Cloud and enterprise architects from our Network and Data Center Services practice provided thought leadership to design and refine the strategy, build cloud capacity and prepare for the application migration.

Results

TEKsystems helped our client build a new data center—including application replication, migration and testing—within their aggressive timeline and budget.

Our flexible co-managed program allowed for the fast onboarding of a large team of technology experts to lead the program and backfill core internal resources that were brought on to execute the program. Service level agreements (SLAs) were tied to our

ability to meet the capacity needs and demand for high-quality IT talent, and 98 percent of our placements met SLA. Throughout this engagement, our team has fluctuated in size based on workload—ranging from no less than 18 to as many as 31 resources.

By helping our client implement best-in-class infrastructure and a next-generation data center, we have helped mitigate risk through enhanced business continuity and disaster recovery. We also have helped implement key infrastructure automation and orchestration (i.e., DevOps) via the public and private cloud—a key outcome to set them up for future scalability and efficiency.

Key Success Factors

Breadth of expertise

A key reason our client chose to partner with us was because of our ability to be a single-source provider across a breadth of skill sets. Our access to 81 percent of the domestic IT workforce—and practice leadership spanning multiple applications and infrastructure specialties—enabled TEKsystems to provide and manage a large number of diversely skilled resources across several work streams and disciplines.

Thought leadership

We had the ability to tap into the vast knowledge that our practice team has in data center and cloud technologies. We knew what type of resources to bring in and when. Our solid execution of the disaster recovery program led to us being asked to build out the client's cloud objectives, strategy and architectural design. Our domain expertise also enabled us to more easily transfer knowledge of cloud technologies.

Flexibility and scalability

Our flexible delivery model enabled us to develop a high-performing workforce with the ability to scale up or down based on the projects' needs. We were able to onboard highly qualified technical resources quickly as demand dictated—and efficiently offboard them when their portion of the project was completed.

About TEKsystems

People are at the heart of every successful business initiative. At TEKsystems, we understand people. Every year we deploy over 80,000 IT professionals at 6,000 client sites across North America, Europe and Asia.

Our deep insights into IT human capital management enable us to help our clients achieve their business goals—while optimizing their IT workforce strategies. We provide IT staffing solutions, IT talent management expertise and IT services to help our clients plan, build and run their critical business initiatives. Through our range of quality-focused delivery models, we meet our clients where they are, and take them where they want to go, the way they want to get there.

Visit us online at TEKsystems.com