

Case Study Insights: RSFT Rebuilds Critical Robert Half International Data Center without Stopping Operations

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Phase 3 – Construction – The Vision Realized

Once the architectural plans were approved, it was time for construction to begin. With a projected budget of \$1 million and a very short time frame for completion, Rancho Santa Fe Technology, Inc. placed a full-time project superintendent, Bill Barker, on the project site. Barker continued to meet weekly with his subcontractors and RHI's core team to review construction progress and keep all parties continually aware of the scope of that week's work and changes necessitated by changing conditions.

To keep the Data Center live during construction, RSFT employed a visquine barrier and hepa-filtered cleaning system to ensure that particles would not effect the equipment.

Having kept the Data Center live throughout the project, the RSFT team then confronted the most challenging stage of the project, and the stage that most concerned White: "We had one night, from 5 PM to 10 AM, to pull every tile off the floor, relocate all the equipment and lay all new cabling, new electrical, and new air conditioning in the Center. There were 108 people on the scene, and eight key pieces of machinery worth \$450,000 each to contend with, but the team accomplished the move safely and got the center back up live, all while working with no lights. To my amazement, we even met the morning goal!"

Building a Partnership

Rancho Santa Fe Technology, Inc. believes that working with a company is a true partnership and that the most important goal is meeting its partner's need. Throughout the construction phase, the project team did quality checks to make sure the client's needs were being met. "We believe that mid-course corrections are a natural part of a project and essential to ensure customer satisfaction," noted Gilkerson. White observed that this is one of the many attitudes that separates RSFT

from its competition. "This is the most honest group I have ever had the opportunity to work with," said White. "If they see a better course of action than originally specified, they suggest it and, where feasible, execute the change at no cost to the customer."

According to White, with RSFT, what you see is what you get. "They come in a little higher than the competition in the beginning, but that's it." His experience with other contractors has been that the initial bid is low, but costs keep growing as the job reveals itself. "I've done this type of thing a lot, and I can't more highly recommend Rancho Santa Fe Technology for their team approach and commitment to my satisfaction as the customer."



The lab area was configured to accommodate hardware set up, testing and staging deployment.

Robert Half International Data Center



A pioneer in specialized staffing services, Robert Half International, Inc. (RHI) provides temporary and full-time personnel and professionals in a variety of fields including accounting and finance, office administration and support, information technology, and law. Serving more than 250 offices in North America, Europe, and Australia, the corporate Data Center in the Pleasanton, California headquarters is responsible for a variety of critical processes that must be available 24 hours a day, 7 days a week.

In March of 1998, Kevin White, the newly hired director of IT Operations, realized that the Data Center would need a major expansion in order to support several key RHI initiatives, including an extremely aggressive plan for new office openings and a plan for a new company-wide computer network that would replace the existing distributed environment with a centralized one.

In order to implement the needed expansion, however, White had to overcome two major hurdles. First, he had to convince upper management that the project was necessary. The company had moved into its new corporate headquarters only two years earlier, and no budget existed for a project of this scope.

Second, during the expansion, the Data Center could not be permitted to go down. In addition to the regular the mission-critical services that needed to remain available throughout the project, each weekend there were major conversions involving new PCs, new software, and new networks at offices throughout the United States and Canada. The company was also opening new offices every month. There was simply too much dependence on the network to endure any kind of mistake that would result in downtime.

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White realized he needed the assistance of a company that had experience far beyond mere construction.

He needed a company with very specific Data Center engineering expertise so he could accurately specify the required systems and capacities, and convince management of the necessity to move forward. He also needed a company with proven experience in designing and building around a live Data Center so both he and the management team could rest easy during construction.

Finding a Solution

Fortunately, White had already worked with a company that had all the experience and expertise he needed. Prior to joining RHI, White had worked at Chiron, where he had overseen the planning, relocation, and reconstruction of a live Data Center. For that project, he had worked very successfully with Cory Crommett, co-founder and Data Center Strategic Business Unit manager for San Diego-based Rancho Santa Fe Technology, Inc. (RSFT). Founded in 1991, RSFT focuses on ensuring mission-critical information systems always stay up and running.

The company's clients come from a variety of industries, including manufacturing, healthcare, high-technology, telecommunications, finance, and government, and include large organizations from all over the U.S.



White knew that RSFT was the perfect partner to validate the project requirements, help persuade his managers of the necessity of the expansion, and successfully complete the implementation while protecting mission-critical systems. During his prior project he had observed directly how the RSFT team devoted many initial hours to learning about his company's business, then developed plans and models that illuminated both the short and long-term impacts and showed management how the entire project would proceed.

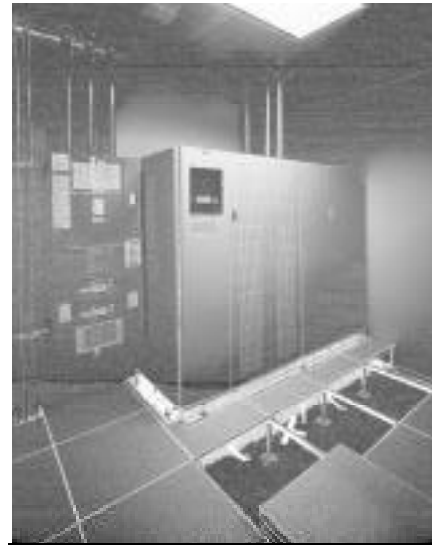
"General contractors don't fully understand computer technology," noted White. "Unlike Rancho Santa Fe Technology, general contractors don't consider or appreciate the speed at which technology changes and the implications of that for long-range Data Center planning." White also saw first-hand how RSFT's deep understanding of IT construction – and government agencies – was put into action as RSFT combined its knowledge with what it gleaned about the business needs to create a comprehensive analysis. White was sure that RSFT would deliver the same benefits to RHI.

"... RSFT was the perfect partner to validate the project requirements ..."

Phase 1 – Discovery – The Critical "First Step"

Based on Director White's recommendation, RHI engaged Rancho Santa Fe Technology Inc., which proposed a proven modular approach to the expansion that involved three independent phases. After each phase, RHI was free to continue to work with RSFT or choose another company. During the first phase, Discovery, RSFT used an interactive approach of interviews and analysis to develop a complete report on RHI's current and future needs. The Discovery phase is a critical component of RSFT's approach to all large Data Center projects because it is very low cost and very low risk, yet ensures the success of a very expensive reconstruction. It lays the

The cable management was designed to ensure proper air flow was maintained, and to provide easy access for adds, moves and changes.



All critical systems were seismically braced to the sub floor to Zone 4 design standards by our structural engineers.

groundwork for the entire implementation while giving the client the confidence that RSFT fully understands its needs and is the right company to complete the project.

White felt that RSFT would be particularly important during this stage of the project because the Discovery Document, which would discuss alternative layouts, costs, and operational issues, would be understandable by all levels of management. During this period, RSFT conducted interviews with a core team at RHI to determine growth plans, current IT challenges, and the strategic importance of staying operational at all times. The team included director White, along with Matt Raymond and Rob Compton of IT Network Services, Glenn Noga, the IT Director in charge of budget and scope changes, Linda Fink of Office Services, and an interiors consultant, Deborah Stone of Weske Associates.

According to RSFT Project Manager Mike Gilkerson, his team facilitated development of growth patterns for RHI's future and designed a Data Center "shell" to accommodate the growth. They created the most efficient space utilization that the area allowed for and developed two-dimensional models for client review. Based on those models, it became clear there was not

enough room for all the IT elements the client desired for the growth projections. Out of four schemes presented by the team, the client chose two. RSFT took this decision and blended the two for what Gilkerson and RHI ultimately viewed as the correct solution to the design challenge. As White's management team were able to see the full IT impact of their corporate growth, they readily accepted expanding the Data Center from a 600 to 4,000 square foot facility. To accommodate this, the final plan required pushing out three of the Data Center's four walls.

Our in-depth hardware space planning ensured technology growth would transition easily within the Data Center space.



According to RSFT's Cory Crommett, keeping the center live led to the decision to expand in three directions while keeping one existing wall. "The client made it clear that they could not afford to go down under any circumstances," said Crommett, "so we accommodated that criteria every step of the way."

To create an environment in which the Data Center would continue to function regardless of outside conditions, RSFT included the following recommendations:

- The new Data Center should be specified to sustain both predictable and unforeseen circumstances.

The Network Operations Center was designed to accommodate staff and control without undue entry in the "Data Center."

- All equipment including UPS, air conditioning and generators, should be checked for Y2K compliance and replaced if necessary.
- A standby generator working in sequence with an Automatic Transfer Switch should provide redundancy for power, environment controls, and support systems.
- The Center must be able to operate for 24 hours without any outside power source, with continuing self-reliance achievable simply by the addition of fuel to the generator.
- The Center must achieve earthquake readiness at a rating of California seismic zone four, allowing it to withstand the severest quake in the area's recorded history.

By presenting RSFT's report complete with research, planning, and models, White was able to convince management of the importance of proceeding with the re-configuration and construction.

Phase 2 – Architectural Engineering – The Construction Documents

Rancho Santa Fe Technology, Inc.'s Gilkerson then led a team of specialized mission-critical engineers and capacity planners through the meticulous creation of the construction documents. These custom implementation blueprints showed all the structural elements: computer equipment, mechanical and electrical systems, raised flooring, ceiling clearances, and

safety systems that are unique to a mission-critical Data Center.

Gilkerson also initiated design reviews at the 25%, 60%, and 90% milestones to ensure that the RSFT team met all of RHI's needs while controlling costs. These ongoing interviews with the facilities management director, MIS staff, and RSFT team of specialty subcontractors were also designed to expose all hidden conditions and eliminate any single points of failure.

Along with the development of architectural designs for the physical plant, RSFT also created interior design plans that considered employee ergonomics. RSFT developed a modular console unit to house all monitors and CPUs. This would eventually become the hub from which the Data Center itself would be monitored. All cabinets and internal architecture were designed for future re-purposing. As with all RSFT projects, the Center's internal layout was custom designed to maximize space and be as fluid as possible to accommodate technological shifts and growth considerations.

When RSFT had incorporated all the data, reviewed and confirmed the plan, and made the necessary changes, a final construction budget was established with the confidence that the RSFT team had protected RHI from significant project design changes and cost impacts, which often cause construction projects to spiral out of control.

