

# Straining Under Success

## NACR Consolidates Servers and Storage to Cope with Rapid Growth



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Daric Trnka, Network Engineer, NACR

### The Challenge

“We were outgrowing our data center,” said Daric Trnka, Network Engineer at NACR, a communications solutions provider based in Eagan, Minnesota. “So we had two choices. One was to make our data center larger – or to consolidate our current systems.”

NACR had grown from 70 to 450 employees in four years, and its data center was bursting at the seams. Floor space and power were constrained. Cables ran everywhere. “We couldn’t get around to work,” said Trnka. There were no more available power outlets in the room. The racks of IT equipment generated enough heat to raise the room’s temperature 10 to 12 degrees higher than the thermostat setting, in spite of three air conditioning units working overtime.

Numerous x86 servers with internal storage populated the data center racks. Each server hosted an individual application, such as payroll, file and print services, web sites, help desk as well as Microsoft *SharePoint* and *Live Communications*. In this fragmented environment, server and storage

utilization was low, which meant costly hardware resources remained idle. The server sprawl had also become difficult and time-consuming to manage.

In short, the rapid growth and success of the business had created a strain on the data center that NACR needed to resolve.

### The Solution

NACR initially wanted a storage area network (SAN) to consolidate storage and lay the groundwork for replicating data to an offsite data center. However, they realized that SAN connections for their many servers would be too expensive, so they decided to consolidate servers as well to reduce the number of connections required.

Two value-added resellers presented bids. One proposed an iSCSI SAN based on an IP network. S1 IT Solutions proposed a high-performance Fibre Channel SAN with server consolidation using *VMware* virtualization. NACR chose the S1 solution because it was a better fit for their performance requirements and addressed the whole IT infrastructure.

**NACR** is a nationwide provider of end-to-end communications solutions that offers systems and support for every need, from Unified Communications, Mobility, Voice over IP (VoIP) and converged network integration, to consultative services, ongoing maintenance and repairs. NACR is Avaya’s largest business partner worldwide and a six-time *BusinessPartner* of the Year. It has over 400 employees and locations across the U.S.

The S1 solution included:

- Two Fibre Channel switches (IBM *2005-B16*), each with 16 x 4Gbps ports for SAN connectivity
- A SAN-attached disk storage system (IBM *DS4700*) with 3 TB of shared, centralized storage
- Two x86 servers (IBM *System x3650*) running *VMware* for server consolidation

The installation went smoothly. It took less than two weeks and required only two visits from an S1 technical consultant. Trnka used

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VMware Converter to convert physical server environments to virtual machines running on the new servers. He learned to operate the new infrastructure quickly. The migration did not affect production operations and was transparent to users.

The servers are now clustered for high availability. “If one of the physical servers fail, all of the virtual servers will fail over to the remaining one,” he said. Production data is stored on Fibre Channel drives in the system to maximize performance, while test and development data and the file and print server are on SATA drives in the same system to minimize costs. This tiered storage approach achieves a finer balance between performance and cost.

### **The Results**

The S1 solution has dramatically streamlined the data center. It consolidated from 26 physical servers to only two physical servers running 26 virtual machines. Instead of internal storage, the servers connect to a single shared storage system over a SAN. The number of equipment racks dropped from three to two – with plenty of room to spare. There are only eight network cables connected to the two physical servers, instead of the dozens of cables they had before. Power outlets are available again. The air conditioning units do not have to work as hard, and the room

temperature is now the same as the thermostat setting!

IT costs have fallen as a result. Higher utilization of server and storage hardware means less equipment needs to be purchased. Savings on power and cooling are substantial – an increasingly important factor as energy costs rise. Most significantly, NACR avoided the expense of a data center expansion since consolidation was enough to solve the problem.

“It’s easier to support. We need less IT personnel to support the servers,” said Trnka. Maintenance, upgrades, cabling, test, development and provisioning are all greatly simplified. For instance, when someone requested a server, they used to buy a physical server and then install the operating system. “Now we just have to right-click our template virtual server and it’s done in about 25 minutes,” he said. This means the business itself can more quickly and dynamically respond to the challenges of growth and change.

“I feel relieved. It’s a lot easier to manage. I mean it’s just crazy to have everything you need on one



screen... It’s the first time it has ever worked the way the brochure said. Normally when you buy a product, you have a brochure version of it and a real-world version of it. This thing has met every promise so far.”

### **Looking Forward**

NACR plans to put all remaining application data on the SAN. Five Citrix servers, two SQL servers and an Exchange server will be migrated to the SAN as their hardware warranties expire. NACR also plans to establish a secondary SAN at an offsite data center for remote replication and disaster recovery.



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### **About S1 IT Solutions**

S1 IT Solutions is a strategic technology partner to progressive companies and organizations, providing enterprise solutions that help you navigate the world of convergence. We offer one source for seamless, high-value voice and data products that enhance information management. We help you use technology to communicate – your way.

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