



Sanborn Maps Course for Customer Satisfaction Revenue Growth With BlueArc

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Summary

Sanborn provides geospatial solutions ranging from aerial surveying to topographical mapping services, serving government and commercial customers. To stabilize and unify storage infrastructure for data-intensive image files collected through aerial digital photography, the company selected a BlueArc Titan solution, and the dramatic expansion in its capacity to store massive image files significantly improved Sanborn’s ability to complete projects on time. Nevertheless, project managers found there remained room for faster infrastructure performance. By deploying a second BlueArc Titan server and more than 50 terabytes of Fibre Channel storage, Sanborn has streamlined the path to project completion and accelerated production—and happy customers are renewing contracts without hesitation.

The Customer

Since earning a reputation for highly detailed fire insurance maps more than a century ago, Sanborn has provided mapping services that today include the collection and compilation of geographic- and location-based data, or geospatial information. The advent of Web-based tools for applying this data and images has accelerated demand for this information from municipal agencies and commercial interests alike.

At technology centers in the United States and abroad, Sanborn collects imagery using aircraft outfitted with state-of-the-art digital aerial cameras, and also provides high-resolution digital scans of images made with photographic film.

The Challenge

Its initial implementation of a BlueArc Titan gave Sanborn’s Colorado Springs, Colorado tech center the foundation for consolidating 25 storage volumes on 10 Microsoft Windows servers into two high-performance storage volumes. Despite the solution’s virtually unlimited capacity and performance, Heisler says project teams found performance didn’t map to the system’s potential.

“We weren’t taking full advantage of BlueArc Titan server’s functional capability and capacity,” explains Doyle Heisler, IT director, Sanborn. “To take on more work, we had to find a way to process more work—and that meant looking at our storage infrastructure.”

The Solution

A very important project for a leading search engine brought real urgency to the issue of performance. Heisler brought in a second BlueArc Titan server, configured with Fibre Channel storage disks instead of serial advanced technology attachment (SATA) storage, for a proof of concept.

The difference in performance was astonishing. Nathan Wysocki, project coordinator at Sanborn, says that technicians were able to rectify 15,000 images in a 24-hour period using the combination of BlueArc and Fibre Channel storage, compared to 1,000 images in the same period, when image data was maintained on SATA disks. His team determined that while BlueArc could easily manage the requests for data from more than 200 processors operating simultaneously, the requests were overwhelming Sanborn's existing infrastructure composed of SATA storage disks.

The Results

By deploying a BlueArc Titan solution, Sanborn eliminated chokepoints and instability resulting from the limited input/output operations per second (IOPs) of each of its legacy Microsoft Windows storage servers. Heisler explains that with significantly greater storage capacity and world-record speed in processing simultaneous requests for data, project teams no longer had to wait as much as several days to complete the upload of massive gigabyte-plus files of raw data collected over the course of a flight run. Project teams also no longer had to contend with the possibility that one server outage might halt work with related data on another server.

Nevertheless, the limitations of SATA technology constrained the Colorado Springs-based technicians' ability to complete production tasks during the day. Wysocki is responsible for developing software scripts that automate server workfarm tasks such as image rectification. Once rectification is completed, Sanborn technicians open and individually inspect each image for errors, and correct them.

While the transfer from digital flight cameras to SATA storage moves data in sequence, the correction process peppers the storage infrastructure with many small, non-sequential, requests for data. As SATA technology is not well-suited to simultaneous read-write activity, Wysocki says a single tier of SATA storage allowed only two technicians to work at a time. "The system couldn't keep up with our technicians. Files might take five to 10 minutes to open, so simple correction tasks would be followed by periods of waiting."

With the opportunity to tackle a high-profile project for a search engine customer, Heisler took a chance on the pilot implementation of BlueArc Titan with Fibre Channel storage. The project required delivery of maps with image resolution accurate to as close as six inches, based on source images with multiple resolutions in multiple formats, acquired through a range of mechanisms—from digital to analog. "The turnaround time was 90 days. Nathan simply told me, 'I can't meet that deadline without BlueArc Titan and Fibre Channel storage,'" says Heisler.

Now one BlueArc Titan server manages the initial transfer of data captured by Sanborn's aerial surveyors to SATA disk archives. The second BlueArc Titan server provides failover capacity and manages Fibre Channel storage of images in use by technicians who are correcting images simultaneously and out of sequence, in order to produce richly detailed and highly accurate maps. Heisler reports that project teams are far more productive, running approximately 200 processes concurrently and around the clock with twice as many technicians performing error correction. Tight deadlines are no longer daunting, as his team now finishes work in a fraction of the time.

Based on dramatically improved productivity, Sanborn is easily earning repeat business from clients such as Arizona's Maricopa County. That customer satisfaction is crucial to growth. "Just the fact that we can meet deadlines was enough to justify the investment in the additional BlueArc Titan server and Fibre Channel storage," says Heisler. "If we can't meet deadlines, we certainly can't expand our business."

The Conclusion

Projects like the one undertaken for the search engine company are becoming familiar territory, as Sanborn customers' projects continue to grow in complexity. Wysocki describes an upcoming federal project to capture imagery of agricultural land use. In addition to a very aggressive 90-day deadline, the project will entail aerial digital photography by five airplanes traveling at a higher-than-typical altitude in order to capture as much data as possible.

"Three years ago, we couldn't have taken on a project like this," says Heisler. "Now we can handle this one, and more." Even with the dramatic 15-fold increase in image processing, Heisler estimates BlueArc Titan utilization at about 20 percent. With unsurpassed performance and storage capacity, Sanborn has tremendous room for growth, and Heisler plans to add processors in order to capitalize on the BlueArc Titan system for customer satisfaction—and competitive advantage.



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