

A Success Story from the Energy Sector

Electric Cooperative Solves System Performance Challenges and Provides Enterprise Class Disaster Recovery with Open-E and Digiliant

Lee County Electric Cooperative (LCEC) is one of the largest cooperatives in the United States with 204,000 customers and more than 8,000 miles of energized line. Headquartered in North Fort Myers, Florida, LCEC is responsible for distributing (not generating) reliable, cost-competitive electricity to customers throughout a five-county service territory in Southwest Florida. As members of a not-for-profit cooperative, LCEC customers provide a portion of the capital necessary to operate the business through the payments they make each month. Of the 800 cooperatives in the United States, LCEC's efficient cost management practices have resulted in returning more than \$220 million in the form of equity and credits to customers over the years.

The Situation

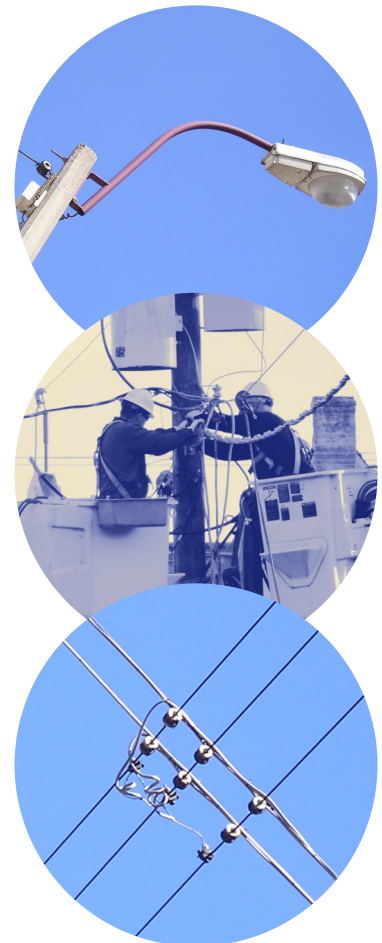
Expanding, maintaining and improving electric facilities is vital to sustaining essential services to meet customers' growing energy needs. LCEC has a long-term infrastructure plan to ensure the system is able to operate around-the-clock. Behind the scenes, personnel tirelessly work to improve and maintain the complex keeps technology architecture that safely and cost-effectively keep the lights on. LCEC's priority is to balance the need for reliable power while working to keep rates low. At the same time, the focus is keenly on operating procedures, streamlining processes and utilizing resources properly in order to reduce or maintain costs.

The IT department is required to keep pace with the LCEC objectives and implement cost effective systems designed specifically for utilities. This is not an easy proposition given the need to maintain an 'Enterprise Class' operating environment that is fully redundant, capable of withstanding the loss of multiple disks, and meeting all the defined Disaster Recovery (DR) requirements. In a region of the country fraught with yearly hurricanes and tropical storms, DR is taken as seriously at LCEC as any large financial institution with much greater resources.

The Challenge

LCEC's IT department's goal was to find and implement a cost-effective and scalable storage system to help achieve economic and operational benefits while delivering enterprise class disaster recovery. While upgrades to the Utilities Customer Care & Billing system's storage and server resources improved performance, there were batch jobs that had to run during the day that took 4 ½ hours and another monthly batch job that ran for 18 hours over night. The issue presented itself as an extremely high process load on the operating system side, which seemed to demand more processors. But upon investigation, the team consistently found extremely high I/O wait times for database processes.

Zachary D. Deems, LCEC Sr. System Engineer, along with the Head of Infrastructure, Ed Nagy, decided they needed to "think big" in order to brainstorm possible steps that could be taken to alleviate the constant performance issues. They felt an array comprised exclusively of Solid State disks (SSD) in a RAID 10 configuration with at least one hot spare and either 10GB iSCSI or 8GB FC would solve their performance challenges.



The team was skeptical that such a configuration was within their budgetary limits, based on their past experience implementing systems from several traditional enterprise class storage vendors. Deem's first step was to contact Digiliant, a trusted system provider that specializes in Network Attached Storage (NAS) and iSCSI solutions. Digiliant is a Michigan-based company that was founded on more than 18 years of experience in computer hardware support and custom server designs. He also reached out to Open-E who provides data storage software (DSS) used for building and managing centralized data storage servers - NAS and SAN - for expert advice on DR and whether 10GB Ethernet or 8GB FC would best suit their needs and budget.

The Solution

Digiliant examined the prospective configuration and connectivity options the LCEC team put together and was able to satisfy all the requirements of the proposed new infrastructure with their solution. Open-E's system experts were able to show the LCEC team that FC targets at that time could not fail over from one device to the next; but this was a feature of iSCSI targets. They also showed how Open-E DSS V7 storage software provides the option of using Active-Active clustering for High Availability and Disaster Recovery. This proved critical because the storage solution would be critical to providing disk storage to the most important database.

The result of taking this step to "think big" and get expert advice resulted in LCEC testing and implementing a Digiliant/Open-E Active-Active SSD cluster over 10GB Ethernet. The new server is a dual quad (2x4) core ProLiant (eight (8) cores total) with 48GB RAM. It has two dual port 10GB Ethernet adapters with one (1) each of their ports connected to separate 10GB Ethernet switches. Both NAS systems are on both subnets, providing a total of two (2) paths to each LUN on each NAS.

Said Deems:

"The most amazing aspect of the solution was having all that performance with enterprise operations and DR features for a very affordable price. Digiliant and Open-E made us reconsider our default storage platform for databases with excellent results. The difference in performance has resulted in end-users requesting the use of the Digiliant/Open-E system to the exclusion of the others, stating that the other systems are much slower."

"We saw an almost 45X improvement on sequential block reads. The batch jobs that had to run during the day and took 4 ½ hours now runs in less than 20 minutes with no user impact, and the monthly batch job that ran for 18 hours over night now completes in 27 minutes."

"Open-E support has been excellent," continued Deems. "They jumped in right away to work with us before there was ever a purchase order. Other companies we've worked with will have required us to have an open ticket before allowing us to ask a question, much less get an answer. Digiliant has also been a tremendous help. They reviewed and made recommendations based on our specifications and requirements to ensure the implemented system performed as expected and that it matched our application and business needs. Other vendors will give you just what you asked for. Digiliant and Open-E made sure we got what we needed with room to grow. We are extremely satisfied with both companies and their performance."

For more detailed information about the LCEC system configuration and test results, and how you can implement a cost-effective, enterprise class storage system, call the Open-E sales hotline at **678-666-2880** or Digiliant at **(800)306-7006**. You can also visit the company websites at **www.open-e.com** and **www.digiliant.com**.

About Open-E

Open-E is a pioneering leader and developer of IP-based storage management software. The Open-E DSS product line is a robust, award-winning enterprise storage application which offers excellent compatibility with industry standards and is the easiest to use and manage. Additionally, it is one of the most stable solutions on the market and an undisputed price performance leader. Open-E counts for over 27,000 installations worldwide and has received numerous industry awards and recognition. Thanks to its reputation, experience and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies. For further information about Open-E, its products and partners, visit **www.open-e.com**