Case Study

Empowered by Innovation NEC

Mifflin County (PA) – Office of Public Safety

Customer
Mifflin County (PA) – Office of Public Safety

Industry
Government

Challenges
- 911 communications center
- Aging computer-aided dispatch system
- Application-intense environment
- Single point of failure
- Facility expansion

Solution
- Computer-aided dispatch software: First Call CAD, Logistics Systems, Inc.
- Fault-tolerant server solution: NEC Express5800 FT series

Results
- Single, consolidated solution
- No system downtime, to date
- Improved scalability
- Improved application speed by 75%
- Long-term cost savings

Speed, reliability and accuracy are critical during 911 emergencies, which is why state and local law enforcement agencies seek the most effective, reliable and efficient IT solutions for 911 operations centers to best serve their communities.

Mifflin County, Pennsylvania's Office of Public Safety administers emergency-management and safety programs to more than 46,000 residents. The office uses a 911 communications center to connect a host of county agencies, including 17 volunteer fire departments, five EMS systems and two law-enforcement agencies. Mifflin County installed NEC's Express5800 FT series fault tolerant server solution to support an updated dispatch system, eliminating downtime and improving overall performance.

Challenges

The Office of Public Safety for Mifflin County uses a computer-aided dispatch (CAD) system for emergency communications. When the 911 center receives an emergency call, the CAD system pulls data from several databases in order for dispatchers to route it to the appropriate agency.

"Computer-aided dispatch systems are software-intense applications," says Phil Lucas, director, Mifflin County Office of Public Safety. "They collect data from several county offices, process information about the caller and the dispatch unit all while running a full-blown geographic information system—all on one server."

Mifflin County's existing server solution was aging and becoming inefficient. "We update GIS mapping information on a daily basis," says Lucas. "It was taking up to an hour to upload new data or map files."

Challenges (cont.)

Single-point-of-failure was also an issue. The power supply for the CAD, radio and e-911 telephone systems were all located underneath each dispatcher's station. "We had things daisy-chained together," says Lucas. "People would stretch their legs and unplug the machines, bringing down the network—we knew it was time for a change." Mifflin County sought a server solution that provided better redundancy and faster processing capabilities to improve the overall performance of its CAD system.

The solution would also need to support the county's plan for expanding its 911-communications center. "The county is home to a state college, which brings in higher call volumes during the school year," continues Lucas. "Based on load activity, special events or extreme weather conditions, the 911 center can see call volumes increase 25-fold." Mifflin County's server solution would need to efficiently handle larger call volumes, accommodate a larger facility and support additional staff.

Solution

Lucas worked with Logistic Systems (LogiSYS) to design and implement the county's new 911-communicaitons center. Having worked with LogiSYS on the county's previous CAD solution, Lucas also discussed his vision to create a fully redundant, fault-tolerant solution.

Lucas and LogiSYS vice-president Charlie Stortz researched different options, including virtual and off-the-shelf server solutions. Storz provided input on what systems were available in the marketplace, researched reliability issues, and determined the level of redundancy in each system.

Mifflin County eventually chose to upgrade to an NEC-based infrastructure driven by the NEC Express5800/320Ma fault-tolerant server. "Mifflin needed a robust solution, requiring hardware with processing power to excel in a very intensive software environment, says Storz. "NEC's fault-tolerant servers are cost-effective, mission critical and add more value to the county's CAD application, on line and keeping the application running."

NEC's Express5800 FT servers allows parallel processing to support heavy workloads with greater overall performance. "On the back side, administratively and system maintenance-wise, there's been a significant increase in speed, building the data files, maintaining the data files, and doing any sort of testing," continued Lucas. "Applications are running in 25 percent of the time they used to."

The Express5800 achieves up to 99.9999% ("six nines") continuous uptime and which is approaching less than one minute per year of downtime. Since failover is virtually instantaneous, and there is no single point of failure, downtime is nearly eliminated. "With the NEC server, we simply don't experience any downtime when we do our updates," says Lucas. "It used to take a long time to update new data and map files, and those types of problems have gone away with the platform we are now using."

NEC worked with LogiSYS to pre-configure the entire system at their site in Missoula, Montana prior to shipping, and run basic test procedures to make sure the infrastructure was solid. When the system arrived on-site for the final install, NEC technicians tuned the solution and released it to the LogiSYS staff.

"NEC completely understood the mission-critical nature of our solution and made sure – from beginning to final checks – that our system would be bulletproof," continued Lucas. "The thing I appreciate overall, and I find very complimentary, is that NEC technicians were there on-site to provide assistance in meeting our timeline."

Lucas has plans for the system evolving to match the challenges involved with next generation 911, including location of cellular and VOIP calls, dealing with text messaging, video messaging, any other data sources.

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Results

After launching the 911 dispatch center, there have been no hardware failures to date. “We are now 24/7, 365 days of the year, and we’ve been very, very pleased with the uptime of the NEC server and the rest of our solution, with no maintenance issues whatsoever,” continued Lucas. “Considering the load that’s on the system, what it’s doing, and how important it is, the NEC-based solution is fantastic.”

NEC’s fault tolerant servers have better prepared the Mifflin County for expansion of its 911 communications center. “One of the impetuses for expanding our system—and going with the system we have—is being prepared for the increased call volume and capacity that we hadn’t had previously,” said Lucas. “We doubled the number of seats that we have available and the systems are more than capable of dealing with the crisis loading that we’ve experienced in the past.”

Mifflin County has experienced significant cost savings for maintenance, operating and testing with the NEC solution. “The NEC servers are competitive in price right up front and in terms of their overall long-term maintenance costs” says Lucas. “NEC is our ace in the hole.”

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