



Mexico Monitors Millions of Toll Transactions

Efficiencies Generate Benefits for Employees and Travelers

The acquisition of close to 100 March Networks DVRs by the decentralized Mexican government agency responsible for federal toll roads and bridges has given supervisors and audit staff in 10 regional offices the ability to carry out real-time monitoring of some 31 million transactions per month at toll plazas under the agency's management.

CAMINOS y Puentes Federales de Ingresos y Servicios Conexos, or CAPUFE as it's more commonly known, oversees 165 toll plazas on federal highways and bridges from the Rio Bravo on the border with Texas to the Guatemalan border approximately 1,600 miles (2,575 km) south.

CAPUFE, part of the government's Department of Communications and Transportation, selected a product from another manufacturer for its initial purchase of 40 DVRs, but was not satisfied with their performance. Agency staff resumed their search for a system that would meet their needs and finally chose March Networks™ DVRs over six competing brands.

So far, 97 March Networks 4000 Series DVRs have been installed by systems integrator and March Networks Certified Solution Provider Controles Electromecánicos S.A. de C.V.

“We are also planning to replace our previous DVR installation with these new systems,” says CAPUFE director of operations Carlos Roca Gómez.

The March Networks DVRs are being operated in parallel with the agency’s time-lapse VCR system at present, he adds, but the older, analog technology will eventually be retired.

Return on investment

Roca Gómez says that the efficiencies CAPUFE has gained with the installation of the March Networks digital video systems are considerable. According to an internal survey CAPUFE recently conducted, staff report that the easy-to-use DVR systems are saving them time and effort each day, and have even made their jobs less stressful.

That improved productivity also translates into operational cost savings for CAPUFE, which the agency is then able to pass on to the Mexican public through better services and further enhancements to its road and bridge infrastructure, explains Roca Gómez,

“CAPUFE was recently nominated to receive an Innova award, issued by the office of the Mexican president, in recognition of its efforts to use technology to develop innovative services that benefit the country and its citizens,” he says. “This March Networks DVR installation is a prime example of CAPUFE’s leadership in this area.

CAPUFE

Caminos y Puentes Federales de Ingresos y Servicios Conexos (www.capufe.gob.mx) is a decentralized agency of the Mexican federal government’s Department of Communications and Transportation. The ISO-certified agency is responsible for federal government toll highways and bridges and oversees the operation of 165 toll collection locations across the country. One of the largest toll operators in the world, CAPUFE has approximately 5,000 employees responsible for road maintenance, emergency medical services, toll collection and administration. Its head office is in Cuernavaca City, 37 miles (60 km) from Mexico City.

“Video recording has always been used by our audit staff to examine cash transactions in each toll lane, for example, and by supervisors to review operations at each toll location,” continues Roca Gómez. “Now, with the March Networks system, supervisors are able to perform their reviews in real time by accessing video remotely from their regional offices.”

Another key CAPUFE requirement that March Networks was able to satisfy was the integra-

tion of synchronized video from the DVR systems with toll systems transaction data from each tollbooth.

Toll system integration

The integration provides CAPUFE staff with a wealth of information, including the date and time that a vehicle moved through a toll plaza, the vehicle type, the amount collected at the tollbooth and payment method.

Auditors are also able to use the integrated data to ensure consis-

tency when comparing collected tolls with estimates produced by embedded pressure sensors that automatically calculate toll costs based on the number of wheels and axles a vehicle has.

To maximize familiarity for staff using the system’s software, CAPUFE and Controles Electromecánicos worked with the March Networks Software Development Kit to integrate the DVR system functionality into an existing graphical user interface (GUI). The integrated GUI brings multiple business system capabilities together and enables users to conveniently search, view and export video and associated system transaction data without having to switch from one application to another.

“The March Networks Software Development Kit was very easy to use,” says Roca Gómez, “and having everything together on one computer screen is simply more efficient for us.”

Storage

Other CAPUFE requirements were video storage capacity for 100 days, easy video search and retrieval, and product reliability. The March Networks DVR system consistently impressed agency staff in the evaluation process. In terms of storage, for example, the 4000 Series DVRs offer up to 1.2 TB of internal hard-drive space and accommodate external RAID-5 archiving.

The DVR system’s docking station architecture, which allows technicians to leave the cabling in place while servicing a unit, was also well received, as were the reliability of the Linux operating system and the ability to quickly and easily replace hard-drives without having to reconfigure all the equipment.





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Of CAPUFE's 165 toll collection areas, 42 are located at bridges, including 15 international bridges that cross the Rio Bravo to the United States. The areas range in size from two to 16 lanes.

"Generally, one DVR is enough for each toll location, but we have some locations with two or three DVRs," says Roca Gómez. "Each location has at least one camera per lane, but some have additional cameras facing the interior of the tollbooth."

Remote access

Supervisors in the regional offices have March Networks DVR Viewer software installed on their PCs, while staff at

CAPUFE's department of operations use the March Networks DVR Configuration Tool to manage all DVR programming and user access privileges. Both applications are available with Spanish user interfaces.

Authorized users at the regional offices access the live and recorded digital video data via a satellite-based wide area network (WAN). At the agency's head office in Cuernavaca City, 37 miles (60 km) from Mexico City, staff connect to the DVRs over a wireless WAN. Several users can access the same information simultaneously without impacting the performance of the DVR.

Agency management are also taking advantage of March Networks' DVR Mobile Viewer, which allows personnel equipped with PDAs to view live or recorded video using wireless technology. Authorized security and enforcement personnel who are away from their workstations can use their PDAs to call up video from any camera and any DVR on the network to which they have been granted access.

"We are very pleased with the performance of the DVRs," says Roca Gómez. "The distribution of our operations over such a vast area created a number of challenges for us, but we were able to address all of them with the March Networks system."

As for the future, CAPUFE is also considering the acquisition of March Networks Mobile DVRs to track its fleet of service vehicles.



Controles Electromecánicos

Controles Electromecánicos S.A. de C.V.

(www.controleselectromecanicos.com) has offered security, transit control equipment and technical support services to organizations throughout Mexico, Central America and South America for more than 13 years. Headquartered in Mexico City, the 150-employee company serves organizations in private, government and transportation sectors. Key customers include CAPUFE, Panavial, Pycsa Panama and Inbursa. To contact a sales representative, please call +52 (55) 55 73 78 19 or email jvillagran@controleselectromecanicos.com.