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Zetron Update Adds Capacity, Functionality and P25 to Brazilian Rail System

An update recently applied to the Zetron Series 4000 dispatch system used by the CPTM commuter rail system in the state of Sao Paulo, Brazil, has added new capacity and functionality to the system. It has also enabled CPTM to utilize a new P25 network, and helped them meet the country's new narrowbanding requirements.

The state of São Paulo, Brazil, is the major industrial and economic powerhouse of the Brazilian economy and the richest state in Brazil. Its capital, also named São Paulo, has a population of over 11 million and ranks as the eighth most-populous city in the world. By comparison, even New York City seems small.

Like most heavily populated urban areas, São Paulo's public transportation system is a critical component of its infrastructure. Not only must it run effectively and efficiently for those who use it each day, but it must be kept current and able to respond to São Paulo's highly dynamic environment.

That's why the Companhia Paulista de Trens Metropolitanos (English: São Paulo Metropolitan Train Company) recently updated and expanded the Zetron Series 4000 system with which they had equipped their newly consolidated communication center in 2007. (See Zetron *Advantage*, January 2007). With the help of São Paulo-based Zetron reseller, SGM Telecom, CPTM installed updates that have improved their dispatching capacity, quality and functionality, and have also enabled them to utilize a new Project 25 (P25) digital network and meet the state's narrowbanding mandate.

Companhia Paulista de Trens Metropolitanos

Companhia Paulista de Trens Metropolitanos (CPTM) is a commuter rail company that serves the state of São Paulo. Part of the Greater São Paulo rail system, CPTM is one of the busiest rail networks in the world, carrying over two million passengers daily. It works with the São Paulo Metro system to form São Paulo's suburban rail network.

The Series 4000 in São Paulo

The Zetron Series 4000 Communication Control dispatch system installed for the CPTM in 2007 was the third major communications project SGM Telecom had deployed for São Paulo. In 2000, SGM installed the Series 4000 to control all of São Paulo Metro's subway lines; and in 2002, SGM installed a three-site, 12-channel MPT 1327 trunking system for CPTM that is now being operated by São Paulo Metro Line 5. As a result, all of the suburban train and subway lines in the state of São Paulo utilize Series 4000 systems.

In 2010, it became clear that the CPTM's communication needs had evolved and expanded beyond the capacity of their existing system. Rubens Boucault, a senior engineer for SGM Telecom, explains: "Not only was CPTM's increase in passenger and train traffic putting more demands on the system," he says "but they also needed to make adjustments that would help them address ANATEL's narrowbanding requirement to operate within the 12.5 kHz channel space." ANATEL is Brazil's national telecommunications agency. "To meet these new requirements, the CPTM decided to change their analog VHF platform to a P25 digital network," Boucault continues, "but they wanted to keep their Series 4000 console system because they liked its reliability and toughness."

Through a bidding process, SGM Telecom was chosen to head the project to update CPTM's equipment. "We were selected because of our well-known expertise with this type of integration, and also because the project involved an update of equipment we had originally installed," says Boucault.

The solution for CPTM

The solution for CPTM involved installing an additional Zetron Model 4048 Common Controller (one had been installed in 2007) and 28 Zetron Integrator RD console positions. The consoles would connect the CPTM to the P25 network SGM would also install.

Late-night update

The installation for CPTM took place between midnight and 4 a.m., the period of time during which the train service is routinely stopped for the night. "We performed the installation by pairs of train lines," says Boucault. "It involved setting up the Series 4000 consoles to control both the CPTM's analog and digital P25 networks. The consoles had to be set up to handle both analog and digital technologies because CPTM allows cargo trains that have not migrated to digital to use their train tracks, and these cargo trains must be included in the overall communications system." Boucault adds that a Tait internal gateway was used to connect and control the Tait P25 base stations remotely. "The gateway converts P25 signaling to the MDC-1200 signaling the Series 4000 system already supports," he says.

Easy to learn

To help ease the transition from button-based to PC-based equipment, the center's 120 dispatchers underwent a week of training on the new consoles. Thanks to the Integrator RD's intuitive design, the dispatchers learned the new equipment quickly. In addition, although most of the system configurations had already been defined, input provided by the dispatchers during their training was taken into account as the configurations were finalized.

Another success in São Paulo

The update has proven to be yet another winning project for SGM Telecom and the Series 4000 in São Paulo.

"The installation and migration to the new equipment went very smoothly," says Boucault. "The updates are providing the CPTM with the improved functionality and expanded capacity they need. And the dispatchers really appreciate the new equipment's improved audio quality and enhanced features like PTT [Push-to-Talk] ID and selective calling. The Series 4000's inherent reliability and flexibility, combined with SGM Telecom's deep knowledge of the system, made this a very successful upgrade and migration."■

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