



SYSTEM-WIDE CONTROL

### **Santa Clara County Valley Transit Authority Transports Silicon Valley's Residence with Speed and Style**

There's a reason San Francisco Bay Area residents have so many opinions on transit, even more than Los Angeles car lovers or New Yorkers. For many who live in the Bay Area, commuting to work means passing up to 50 miles each way through a number of independent metro areas.

It's especially important to cheer for the public transit systems that serve these mega-commuters. One transit system is in Echelon's backyard: the Santa Clara County Valley Transit Authority (VTA), a system of light rail trains serving the more than 2 million people who live and work in Silicon Valley.

The VTA light rail system is a classic, old-school model of light rail trains, accord-

ing to Dallas Spadaro, an engineer at Rail Transit Consultants, the group that helped rig up the trains.

The keys for a system like VTA, Spadaro says, are flexibility and modularity. At some peak hours, such as commuter rush hour, VTA conductors have the ability to adjust their trains, making train cars longer; when there's a quiet patch during the day, they can remove the extra cars. This reconfiguration ability is one of the main reasons VTA requires a dynamic system.

And as with any dynamic train system, monitoring matters. For the VTA, a set of LonWorks® communications chips is crucial for keeping the whole system together—whether it's rush hour or a quiet period. There are the changing car configurations to monitor; hundreds of doors that open thousands of times a day; windows that a passenger might crack for some air; and all-important braking and propulsion

systems. Each of these components has to be carefully tracked for functionality and maintenance reasons.

It's also crucial to gather all the trickles of data each of these functions offers the VTA engineers and conductors: What's peak hour like? When is the most energy lost on the trains? The VTA trains are been part of a valley community committed to sustainability, making this kind of data gathering and monitoring important to keeping that mission alive.

Spadaro says the design of the VTA system, which launched over a decade ago, is purposefully simple. Wires would get in the way, and this kind of set-up has no need for large amounts of bandwidth. That's why they kept interconnection to a minimum, without being dependent on an external wireless network or on power lines.

This VTA story is not a new one, but it remain very relevant. In Silicon Valley, everyone's eager to tell the story of how they did it first, how they saw the iPhone or PayPal or Facebook coming long before they were a glint in their founders' eyes. But it's a funny truth when it comes to the Internet of Things: Industry has seen this day coming for a long time. The scaffolding has been put in place by companies like Echelon, waiting for applications like this one to usher in the reality of the Industrial Internet of Things (IIoT).