



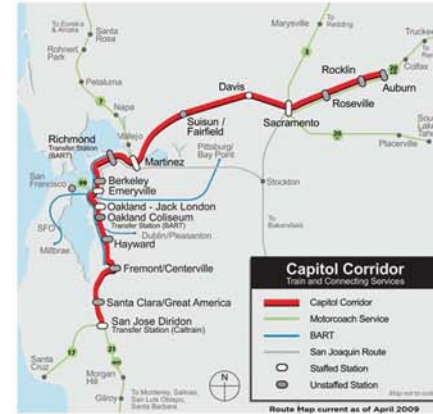
Nomad Digital

# HIGH-SPEED DATA CONNECTIVITY IN CALIFORNIA





# CALTRAIN / CCJPA ROUTE



## THE CHALLENGE

Running through the heart of Silicon Valley, Caltrain's Millbrae to Palo Alto line serves thousands of passengers each day. With increasing competition and few viable opportunities for substantial revenue growth, Caltrain needed to find a competitive advantage that would allow them to retain their existing ridership and attract new customers. They also needed a solution that would improve the efficiency of their existing business practices and enhance the overall level of communication across a multi-disciplinary organization.

For the Proof of Concept (PoC), Caltrain required a reliable, robust wireless broadband link that would connect its trains as they travelled between the Millbrae and Palo Alto rail stations. In addition CCJPA, who runs a second line along Santa Clara to San Jose Diridon, were interested in trialling real-time CCTV and Passenger WiFi to see if the concept was viable.





## THE SOLUTION

The solution involved two trials involving Caltrain and CCJPA. For both PoC's, Nomad teamed up with Redline, Intel, and Sensoria to build a broadband system that seamlessly connects multiple wireless access points into an advanced WiMAX network.

Using both Nomad's switching technology and Redline's wireless broadband infrastructure products, seamless high-speed internet access is possible through successful handoff connections from one access point to another.

### Trial #1 Caltrain

The first PoC for Caltrain involved a Passenger WiFi service running along the main route. The seamless wireless network was based on a combination of standards based broadband wireless products using OFDM technology and WiFi systems that allows passengers to read email, browse the web and download digital data, such as music and games at broadband speed, throughout their journey.

### Trial #2 Caltrain & CCJPA

For the second PoC, Nomad trialed a Passenger WiFi and real-time CCTV service. The real-time CCTV service involved cameras positioned at stations along the route connected to an LCD screen in the driver's cabin. This enabled the driver to see passengers at stations, or any potential problems ahead.



## THE RESULT

The result from both the Caltrain and CCJPA PoC is proof that a high-speed broadband rail service is possible. The service significantly improved the overall customer experience by allowing Caltrain customers to work from their laptops and turn their commute time into productive office time.

The PoC has also given CCJPA the ability to remote download high-quality CCTV video of the train's next stop. This has given CCJPA drivers the benefit of seeing upcoming stations before arriving, in order to advise passengers if there are a large number of passengers boarding.

**“Both Nomad’s technology and Redline’s broadband wireless products were the best solution for enabling real-time monitoring of our trains while delivering reliable broadband to our existing commuters.**

**Now we have the competitive advantage through improved operations and the ability to attract new commuters and grow our business.”**

**Michael J. Scanlon,  
Executive Director,  
Caltrain**



# Nomad Digital

## About Nomad Digital

Nomad Digital is the world's premier provider of high-speed data communication solutions to the transportation sector.

Nomad specialises in the provision of "always on" mobile data solutions to operators, delivering an enhanced customer experience, additional revenues and reduced operational costs. Applications include;

- Passenger WiFi
- Real-time CCTV
- Operational data download
- Integrated media systems

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## BUSINESS CASE

### Passenger safety anytime, anywhere

Security is a big issue in the modern world, yet like train management information CCTV footage is still almost impossible to extract without time and expense to send out an engineer.

Nomad's aggregated network allows CCTV data to be downloaded quickly and securely archived for easy retrieval at the transit operators convenience.

If required immediately due to an incident, Nomad's R3200 is able to suspend all present activity over the IP tunnel and concentrate solely on downloading footage as quickly as possible.

## WHAT'S NEXT...?

The highly anticipated Caltrain and CCJPA PoC has met with such success that subsequently CCJPA has put forward an official RFP process for an on-train Passenger WiFi service, where a decision is expected in early 2010.

