

## Digital Signage



# Screens for the SkyTrain

Photo courtesy Omnivex

Digital signs play a major role in informing passengers.

By Peter Saunders

One of the focal points for communications during the 2010 Olympic and Paralympic Winter Games in Vancouver and Whistler B.C., was the province's public transportation system. Overseen by TransLink, a government agency whose mandate stretches across the south coast region, this system includes a growing variety of bus, ferry and rail services.

In particular, digital signage was seen as key for displaying updated messages to passengers throughout the SkyTrain elevated dual-track light-rail transit (LRT) network, which was likely the most important form of transportation during the games. Running on 49.5 km (30.8 mi) of track,

the world's longest automated LRT system is operated by British Columbia Rapid Transit Company (BCRTC) under contract with TransLink.

While SkyTrain was already carrying more than 200,000 passengers every day before 2010, the Olympics would bring a huge influx of new users, particularly along the 16-station Canada Line branch, which was recently built to link downtown Vancouver with the city's international airport and with nearby Richmond, B.C. Pre-games expansion of the LRT system also included 48 new SkyTrain cars.

Digital signage was part of the overall system improvement plan, as it could accomplish the following goals.



The new Station Entrance Emergency Information Panels (SEEIPs) are installed in locations where they can alert passengers before they buy tickets.

- Aid in the efficient movement of large numbers of people from point to point.
- Entertain passengers to help reduce perceived waiting times.
- Deliver sports reports, weather forecasts, general news and other informative content.
- Provide real-time transit information, including schedules and 'next vehicle' arrival times.
- Display security and service announcements regarding emergency situations or other issues that could interrupt or delay travel.
- Generate advertising revenue to help offset network costs.

### From sandwich boards to SEEIPs

The SkyTrain began service in late 1985. In those days before digital signage, BCRTC used sandwich boards and paper notices to inform passengers at station entrances about service disruptions. In most cases, these signs went unnoticed.

So, in anticipation of the games, Best Buy Commercial Canada and Vancouver-based iMediaT Digital were contracted to implement new Station Entrance Emergency Information Panels (SEEIPs) as a pilot project. These liquid crystal displays (LCDs) would alert passengers, before they bought tickets, to any problems that could delay their travel time.

The first SEEIPs were installed at five stations along SkyTrain's Expo and Millennium Lines, featuring a messaging system designed by iMediaT and based on Public Area Display System (PADS) software from Net Display Systems. This software was chosen because it could integrate with Microsoft's Structured Query Language (SQL) server and BCRTC's existing data sources.



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Under regular operating conditions, the SEEIPs display passenger rules, etiquette, tips and trivia.

**A custom interface lets staff send messages to any combination of screens.**

Best Buy and its subsidiary, Geek Squad International, managed the installation of 1- and 1.27-m (40- and 50-in.) Samsung LCD panels, enclosures and power and data cabling. They designed the network infrastructure using send/receive balun hardware that could carry high-definition (HD) video, audio and Recommended Standard 232 (RS-232) data signals over long distances, with fibre optic cables connecting digital signage player personal computers (PCs) and the LCDs. The PCs were networked back to an SQL server at BCRTC's main operations centre.

A browser-based interface was custom-designed to help BCRTC's Held operations staff create and edit time-sensitive information, alerts and emergency messages, then send them to any combination of screens throughout the SkyTrain system. Under regular operating conditions, the signs simply display passenger rules, etiquette, tips and interesting trivia, but this content can be overridden immediately if necessary.

"Not only can the system target screens instantly, but it can also target individual screens based on specific dates and times," says Dean Hajum, president of iMediaT.

The software works the other way, too, querying all screens periodically to check their temperature, aspect ratio and current input. Staff can also turn a screen off or on remotely.

As the pilot project wrapped up, BCRTC measured the effectiveness of the SEEIP system and announced plans to extend it with updates to mobile phones, screen time for non-profit organizations' promotional campaigns, 'next vehicle' information and passenger management for the Olympics. Also, iMediaT won a 2009 Digi award for best deployment in the transportation industry.

### **A wide-area network**

Lamar Transit Advertising Canada is currently contracted to handle all transit ads for SkyTrain—as well as TransLink's buses, ferries and suburban commuter trains—until 2015, with the option for an additional five-year extension. In terms of digital signage deployments, this has involved new LCD installations in the Canada Line stations and retrofits for the Expo and Millennium Line stations.

The 1.17-m (46-in.) LCDs are mounted in enclosures both indoors and outdoors, on platforms and in terminals, throughout the SkyTrain network. They provide a mix of information and entertainment content in addition to three- to 10-second ads.

Lamar turned to audiovisual (AV) system integrator Conti to begin implementing the digital signage network in 2007.

"We were contacted by Lamar early on to provide turnkey digital signage, including hardware, software, system

design, installation and services,” says Colby Harder, president of Conti, which has an office in Victoria.

The company chose to use display software developed by Omnivex, based in Concord, Ont., which allows a large number of screens in remote locations to be centrally managed. Every screen in every station receives the same content from a unified management system in Burnaby, B.C.

“The transit authority uses it for wide-area broadcasts of information,” says Harder.

As such, this particular management system is not used for station-specific content. Next-vehicle arrival times, for example, are instead fed separately to light-emitting diode (LED) screens.

Nevertheless, Omnivex’s software provides tools to generate specific proof-of-play logs. These are important for advertising agencies and other third parties, as they prove when, where and how frequently their ads are shown.

It is also possible to allocate space on the screens for pertinent travel-related information. Certain user groups—such as local police and fire departments—have been granted special permission to access the system and post messages on specific parts of certain screens.

Indeed, in addition to news, weather forecasts, sports reports, transit information and ads, the network displays emergency notifications as needed, including amber and red alerts for abductions and security-related situations. Different levels of notification can fill either part or all of a screen.

“That was a big motivator for the transit authority to install the system,” says Harder, “and also in terms of getting federal funding for the project.”

Such access is carefully restricted, with message deployment depending on the user’s status. Intermediate staff members ultimately determine what appears on the screens.

The software also connects to the hardware's built-in diagnostics to provide status feedback. Routines can be automated, including reactions to information received from the screens. For example, if a screen is mistakenly turned off, the software can automatically attempt to turn it on again. If it fails, it notifies a network operator.

In addition, the software can turn the hardware off at certain times of day, then power it back on when appropriate. This helps prolong the life of the equipment.

The final phase of the project was completed in August 2009, three months ahead of schedule and leaving more than enough time for test runs and troubleshooting before the Olympics.

The digital signage network proved invaluable in communicating with thousands of visitors as they travelled during the games. It was used to help guide passengers, ensuring efficient traffic flow and reducing the need for additional staff to be posted throughout the transit system to provide directions.

Photo courtesy Omnivex



LCDs on the platforms and in the terminals feature news, weather forecasts, sports reports, transit information and ads.

“This project was a huge success,” says Byron Montgomery, vice-president (VP) and general manager of Lamar. “We now have Canada's only full-system commuter rail—transit digital network. We look forward to using more applications in the future.”

*With files from iMediaT Digital, Net Display Systems and Omnivex. For more information, visit [www.imediatdigital.com](http://www.imediatdigital.com), [www.nds.eu](http://www.nds.eu) and [www.omnivex.com](http://www.omnivex.com).*



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