

## Case Study



Video, Voice and Data Services

Korea High Speed Rail Construction Authority



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Suhwan Kim, Assistant Manager,  
Transmission Engineering Team, Sungmi Telecom

## ***High Speed Rail Stays on Track with RAD Data Communications***

If you blink, you might miss it. But you would certainly hear the roar of the 300 km/h (186 mph) TGV high speed train as it thunders by.

TGV is a system that includes special train, track and signaling technologies that make such high speeds possible. The Korea High Speed Rail Construction Authority (KHRC) is in the process of building a TGV system from Seoul to Pusan, to alleviate the congestion on Korean roads.

The new railway requires a brand new infrastructure, both in terms of track and communications. Therefore, KHRC is at liberty to tailor the voice and data network precisely to its needs. KHRC has selected RAD Data Communications as its preferred vendor. “We tested equipment of several vendors, including Lucent and our own products, but only the RAD equipment met all of the customer’s requirements,” says Suhwan Kim of Sungmi Telecom, the system integrator. Surcomm, a local RAD representative, is working together with Sungmi to customize the solution.

TGV trains have very specific – and demanding – communications needs. Since conventional lineside signals are too difficult to read at the train’s high velocity, all signaling information must be reported on the instrument panel inside the cab. An engineer still drives the train, which is in some ways more like flying a plane because TGV trains are heavily computerized and many important functions are controlled digitally. The computers can also force the train to stop if commands go unheeded. All the in-cab signaling must be highly reliable, as it is critical to safety. The system therefore makes extensive use of redundancy to ensure that all communications arrive at their destinations.

### Environment

- High speed railroad lines
- STM-1, STM-4 and STM-16 SDH network

### Goals

- Efficient transmission of voice, video, LAN, data and timing signals between trains and railroad stations
- Central management of the entire network

### Total System Solution

The Megaplex-2100 provides voice, video, LAN and data access and timing clock at each station. RADview-HPOV provides central network management for the complete system.

### Benefits

- Reduced maintenance and equipment costs and overhead resulting from a single vendor source
- Multiple services from an integrated system
- Maximum system uptime and reliability resulting from built-in redundancy and specialized timing features





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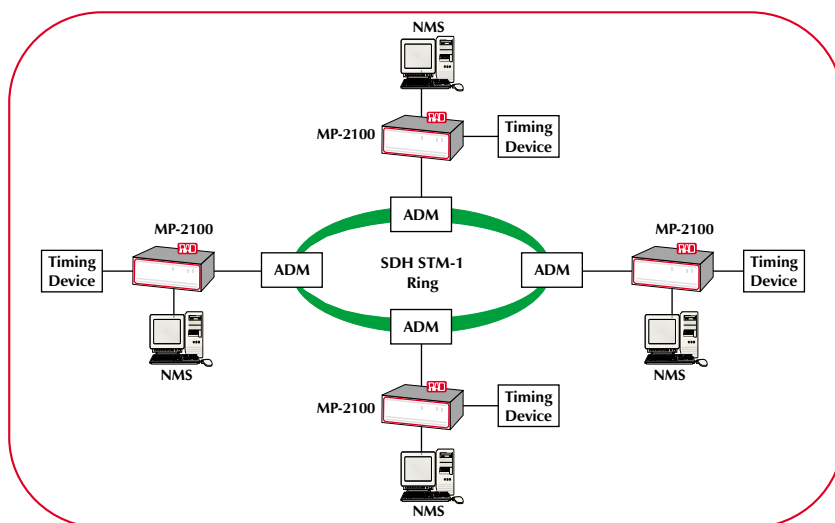
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All six stations of the new KHRC railway will communicate over STM-1, STM-4 and STM-16 SDH rings to pass voice, data and clock signals. RAD’s Megaplex-2100™ provides access to the SDH network. “RAD has the flexibility to provide a total solution, including all of the standards and interfaces KHRC requires,” says Kim. The Megaplex-2100 provides two common logic modules and two TDM buses that are necessary for backup. It also provides E&M, FXS and FXO voice, low speed data, 64 kbps high speed data and timing signals, not to mention real-time CCTV video streaming for network security. RAD products provide contradirectional timing over eight wires, required by KHRC to control the gates at railroad crossings. “Not all vendors support this interface,” states Kim.

The RADview™ network management system, based on the HP OpenView platform, allows remote configuration and fault, performance and security management for the entire network from a central site, eliminating the need for field technicians and significantly increasing system uptime.



data communications  
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