

## Project showcase – Dalian light rail

Dalian is the second largest city in Liaoning province with a population of more than 6 million people. Situated at the tip of China's Liaodong Peninsula, it is a trading and financial center in northeastern Asia and has gained the name the 'Hong Kong of Northern China'. It is accessible by rail, road, air, or sea. As the most important harbor city in the northeast China, Dalian has developed a modern and well established transportation system.

The northern development area of the city, where the Economic and Technology Development Zone is situated, is not densely covered by public buses. The city government has built a 50kms (31 miles) long light rail line starting from the downtown commercial center near Dalian Railway Station. The line goes through five administrative districts of the city and serves as an express transport between the northern developing region and the downtown area. The line extends further northward to Golden Pebble Beach (Jinshitan Scenic Area), a national scenic park, 50km (31 miles) away from the city center.



Leading to the 2008 Beijing Olympics, the Public Security Ministry of China had attached great importance to physical security. A coordination agency was set up under the central government, Beijing and co-host cities to have their own command agencies. This in addition to creating China's own model of Olympic security, featuring public security, transport, firefighting, anti-terrorism and VIP protection. Transportation was a particularly high priority area as highlighted by previous incidents in London and Madrid. Under this national concerted effort, the Dalian light rail system was identified as in need of improved security.

### Improve Security by Integrating Existing Systems with IP Video

Impath provides the most comprehensive, accurate and advanced video surveillance solution. Impath and national Chinese integrator Wuhan Melit Optical Communication have partnered to deliver a powerful IP video surveillance solution that offers the situational awareness necessary to protect Dalian's light rail system in the most comprehensive, yet cost-effective manner possible.

Powerful CCTV integration provides security personnel with a centralized solution for managing surveillance and incident response. This solution enables security staff to respond to real threats more effectively, avoiding false alarms and wasted resources. The end result is an integrated, cost-effective solution that offers actionable 24/7 surveillance without requiring wholesale changes to existing infrastructure.

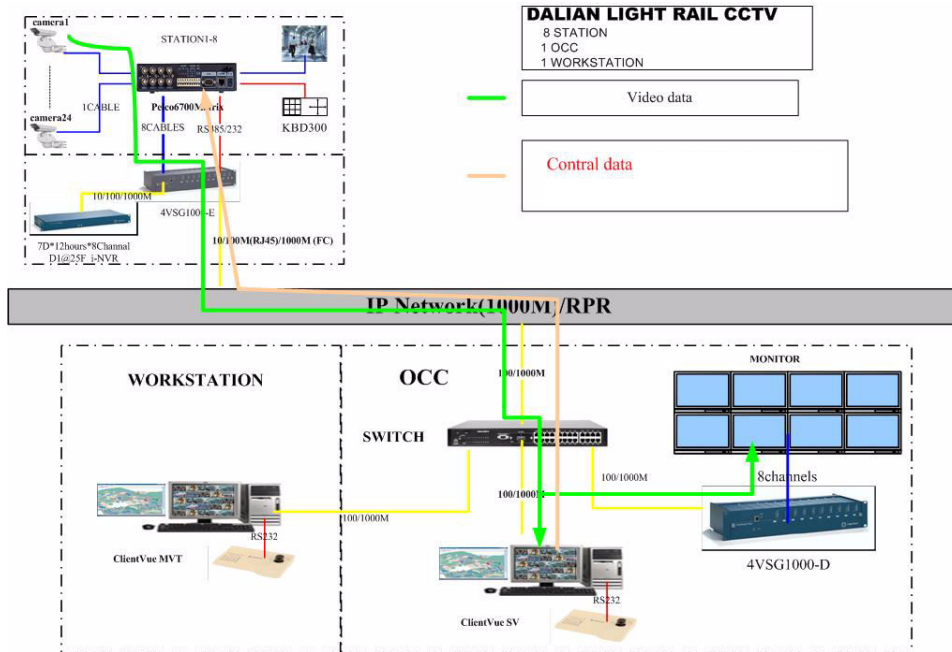
### A Scalable Surveillance Architecture

An Impath high density blade encoder VSG chassis is installed at each of the eight Dalian light rail train stations. Each train station has an existing analog video matrix that is connected to the VSG encoder. Video outputs of the matrix are fed to encoder blades with a total of 8 IP video channels. An ethernet network infrastructure connects the IP video streams locally to a Network Video Recorder (NVR) and remotely to the Operation Control Center (OCC). Eight such rail stations provide video streams back to the OCC for a system wide total of 64 IP video streams. The solution can easily scale up as more blades can be added to the VSG as more video streams are added, possibly eliminating the analog video matrix in the future. Reusing the current camera installed base allows for faster deployment cost saving both for equipment purchase and integration costs. The VSG encoder offer MPEG-2 video with very low latency for real time performance. MPEG-2 was selected for its DVD-quality video and its wide use in China for transportation applications. The equipment is extremely

robust and reliable offering hot swappable blades and dual redundant power supplies. Recoding locally at each station to distributed NVR further add to system reliability and minimize traffic over the wide area IP network.

At the OCC an Impath VSG equipped with decoder blades allows to display video right on the video wall. Four blades were installed for a total of 8 video channels. The video wall is composed of 8 plasma monitors, each of these monitor is connected to its dedicated decoder channel. A software virtual matrix controller was developed to switch video streams on the monitors. In addition to the video wall, IP video can be accessed from user workstations using Impath's ClientVue software allowing for system wide and remote distribution of video streams.

The solution goes beyond video and includes transparent telemetry data thus allowing the remote operation of PTZ cameras from the OCC. This greatly enhances system's usability by offering full interaction and situational awareness from anywhere in the system.



### Benefits of the Impath solution

- Use existing analogue infrastructure
- Readily available
- Multi-user access
- Low cost remote transmission
- Remote management and configuration
- Move from analogue to digital recording
- Future proofing
- Reliability

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