Safeguarding tracks of the future

Klang Valley Mass Rapid Transit (KVMRT) | *Malaysia*

Klang Valley Mass Rapid Transit (KVMRT) is a three-line rail-based mass rapid transit system currently under construction in the Greater Kuala Lumpur region in Malaysia. This project is expected to radically improve and transform Kuala Lumpur's public transportation coverage and propel the Malaysian capital into one of the most livable cities in the world.

The challenge

As part of the facilities for the envisioned suburban train line, the ambitious project plan put forth by the KVMRT planning company also includes the installation of a comprehensive video surveillance system that will cover various facilities such as stations, tunnels and train depots as well as the trains themselves.

Safeguarding operations and protecting passengers – these are the main tasks for which the video management system Qognify VMS has already been successfully deployed by many public transportation providers all over the world. However, the KVMRT project posed some additional challenges, since the tender required the system to monitor not only the train line periphery, but also more than 50 trains that service the line. This was especially important since the trains for this next-generation infrastructure project are running autonomously without drivers or other personnel on board. And finally, the system had to be fully integrated into a single system framework to monitor all operations and facilities.

The solution

KVMRT chose Qognify VMS to implement one of the first installations worldwide. Surveillance of train stations, other operational facilities and onboard the trains themselves is handled by the same video management software platform.

To achieve the relevant level of security and accommodate the number of camera channels necessary, KVMRT licensed the Qognify VMS Infinity X product package. The installation – as it has been realized now – uses more than 6,000 cameras.

A central operation control center staffed 24/7 handles all operational tasks. It is here where it all comes together: all camera feeds as well as other relevant information from the line. Qognify VMS is deeply integrated with many other systems: it communicates with the train management system (TMS) to initiate automatic camera alerts and pop-ups on various events captured by the TMS system within different parts of the train. For example, the cameras associated with the passenger emergency communication device in the train or the intercom or telephone system in the station automatically deliver video of associated cameras upon activation to help assess situations. A dedicated security control center monitors all stations and parking lots across the whole line. And finally, each station also has its own security and operations center to access relevant information for the specific location.

Almost half of the camera channels are used for monitoring trains. The others channels are used to safeguard the two train depots, 31 stations and surrounding facilities that make up the train line. Some cameras feeds run through Qognify VMS video analytics to automatically detect unwanted access. This includes, for example, protection of portal areas and night entrances at every station.

System installation on trains posed particular challenges because real-time, on-demand, online remote surveillance is required. The system also had to be configured to transfer incident data automatically to the control room. For this, all trains are connected via shared Wi-Fi (8 Mbit/s) to facilitate video transmission and remotely controlled tasks for the autonomous operations of the trains themselves.

Fast facts

Vertical market
Municipal transportation

Products
Qognify VMS

The result

The open design, fast and easy administration and intuitive monitoring interface, paired with a high level of flexibility and reliability, ultimately tipped the scale and presented Qognify VMS as an ideal fit for video-safeguarding the train infrastructure in Kuala Lumpur.

In a city where a modern public transportation system is a fairly new concept, using video technology from Hexagon has shown to be pivotal. Especially in the public space, video surveillance effectively works as a deterrent, preventing damage and vandalism, optimizing operations, safeguarding passengers and ultimately increasing customer satisfaction.

The comprehensive video solution from Hexagon puts KVMRT in a unique position: an operator can follow a suspicious person with cameras — from the station entrance to the platform into the train and out again — in one single application. The video stream from trains its transmitted over Wi-Fi in low resolution, while the stream is stored in high resolution within trains to ease cooperation with authorities and preserve evidence.

The customer

To decrease traffic congestion and increase public transportation modal share from 18% in 2009 to a planned 40% in 2020, the Malaysian government approved the implementation of the KVMRT project in December 2010. Construction for a first line to be built, stretching roughly 60 km and comprising 35 stations, commenced in July 2011 and was already fully operational by mid-2017. The line passes through the city center and serves densely populated suburban areas with a total catchment population of 1.2 million people.

Kaj Svenningson, VP Business Development Physical Security for Switzerland, Eastern Europe and Middle East at Hexagon, summed up the challenges, saying, "The schedule has been very tight and the prerequisites were also rather steep. But when the project came to a close and we could see the line in operation, I couldn't help feeling proud for what we were able to accomplish for KVMRT. The successful learning curve we went through when implementing Qognify VMS for the first train line will hopefully also influence any future decision on how to safeguard the planned two additional lines that should be operational by 2025."