

Israel Railways

Future proof control center for nationwide growth programme

The Customer

Israel Railways (ISR) is a public organisation under the auspices of the Ministry of Transport (MOT). It provides and manages the railway operations throughout the state.

Railway construction in Israel began at the end of the 19th century, with the laying of the first railway track between Jaffa and Jerusalem. Today, Israel Railways manages 70 stations throughout the country and operates over 700 trains per day, connecting the major metropolitan areas as well as cities, towns and rural villages.

By 2040, passengers are expected to take about 300 million trips a year - a forecast that requires a major expansion of the railway network and the construction of several new stations. Around 450 km of track are being electrified to enable the upgrade to environmentally friendly, modern, electric locomotives and carriages.

As part of the growth programme, a new state-of-the-art control center has been constructed in Lod, 20 km from Tel Aviv, to provide operators with advanced and highly modern facilities that will ensure the efficient and safe operation of train services throughout the country.



The Challenge

It is crucial that data is presented to operators without any delay and with no corruption or interruption. All sources must be available simultaneously to operators in all control rooms, so they are provided with identical data. Operators must also be able to communicate with each other, share specific situation details and respond instantly to crises and incidents; changing their level of focus and attention without complication or interruption.

With a requirement to provide clear, concise and accurate information to railway network operators responsible for the safe operation of the national railway network, Israel Railways contracted the leading systems integrator, DM Engineering, to design and integrate a complete command and control solution spread over multiple separate control rooms.



Essential operational data is available at individual operator workstations and on large videowalls

The Solution

DM Engineering worked closely with Israel Railways engineers to develop a series of individual control rooms suited to each specific area of responsibility; including security, safety, passenger management and situation response.

All systems are interconnected, so that information can be instantly accessed by permitted teams in other sections as and when necessary.

Similar installations were made in each of the seven dedicated control areas. Each one contains a system based around an IHSE 576-port Draco tera enterprise matrix switch and 4 sub-matrices: two 160-port Draco tera enterprise matrices, one 288-port Draco tera enterprise matrix and one 80-port Draco tera enterprise matrix. Several hundred computers were installed in a separate secure area to supply crucial information and services. These computers connect through the room's KVM switch to individual operator desk displays and to the large videowall at the front of the control room. Videowalls vary in size from 10 panels in the passenger management room to a massive 40-unit wall in the signaling control room.

Adjustments to the fundamental system design for each control room were made to accommodate the necessary computer systems and ancillary equipment, such as audio processing and switching and local PC and camera inputs.

All individual KVM switches are interconnected by means of Matrix Grid, enabling information to be transferred easily to operators and supervisors in companion rooms, and to feed incident-specific data to the crisis room to match the specific incident needing to be addressed.

“ We have implemented several large AV systems based around IHSE Draco KVM switches in the past and in all cases have benefited from the flexibility, ease of configuration and range of available devices. It allows us to create a far more effective solution and makes it simpler to install than alternative designs. In addition, the ability to integrate simply with peripheral devices, such as Crestron controllers, LG videowall management units and Clear One audio systems results in a highly comprehensive future-proof and adaptable infrastructure.

Eran Mariem, DM Engineering
Presale Manager

The Benefit

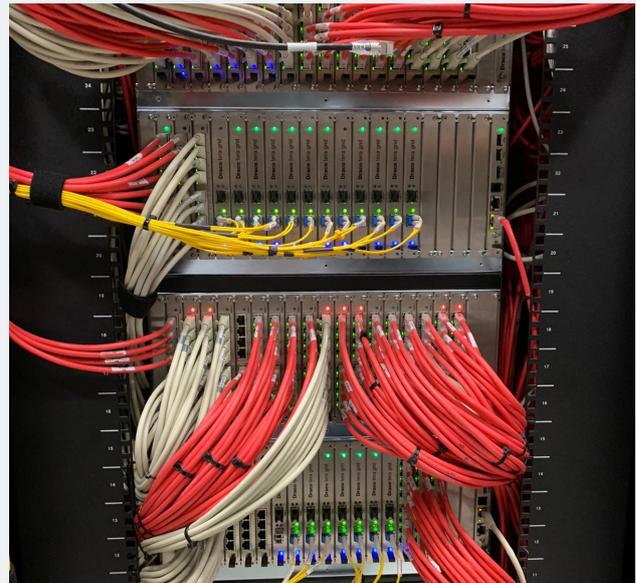
Each room has an independent control and signal management solution that delivers uncorrupted data to operator positions. A touch-screen control unit allows easy selection of information for display on the central videowall that everyone present in the room can observe.

The IHSE KVM system provides extensive format conversion, so that almost any type of legacy and future signal can be amalgamated into the infrastructure; making it easy to switch between data sources of any type and preventing blank and corrupt screen display.

Interconnection of all KVM switches between all control rooms ensures that any data can be accessed from any location in all rooms, guarding against the situation in which data failure may limit the safe and efficient operation of the railway network throughout Israel.



The Israel Railways control center ensures safe and smooth running of the whole rail network



KVM equipment housed in 19" racks in a secure, environmentally-controlled area



The solution provided by DM Engineering is of the highest quality and gives our operators utmost confidence that the data they are presented with is true and up-to-date. The highest level of system reliability is essential and that has been built into the system through the inherent product quality and redundancy options offered by the products used.

**Osher Wahnich, Israel Railways
Infostructure and Technology Manager**

KVM products in use

- > Draco tera enterprise (Matrix Switch)
- > Draco U-Switch (USB switch)
- > Draco vario (Extender)
- > Draco SIRA CON (IP Gateway)
- > Draco SIRA CPU (Virtual Machine Integration)

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