

Control center and simulation rooms at Frankfurt Airport deploy **Draco tera compact** matrix switches



The Customer

Fraport AG operates the largest German airport at Frankfurt am Main with more than 58 Million passengers annually. The airport, including runways, technical flight infrastructure, two terminals and CargoCity South, Gateway Gardens and the Mönchhof area, covers 23 square kilometers.

Fraport, the airport owner, provides facilities to airline companies and other users including the German Air Navigation Services, public authorities and airport terminal concessionaires: In total about 500 companies and institutions.

To enable safe and smooth flight operations, Fraport offers a range of services including passenger and cargo transportation, ground services for aircraft and apron management baggage conveyor systems and the overhead "Skyline" railway, running between the two terminals.

All these services contribute to the international competitive advantages of Frankfurt Airport, offering a passenger-friendly connection time of only 45 minutes. Frankfurt is a consolidated airport with everything under the same roof; providing enjoyable flight and transfer experiences to passengers. Approximately 78,000 employees of whom nearly 21,000 work for Fraport and their subsidiaries – make Frankfurt Airport the largest employer in Germany.

The Challenge

The airport's management and control operations takes place in control centers, which are manned 24/7 throughout the year. One of these essential operations is the Airside Coordination and Data Center (ACDC). This control center comprises analysis, processing and coordination of central flight information for ground and airport surface traffic control. The recent relocation of the control center into another operations building provided an opportunity to revise and upgrade existing operational methods.

A fundamental motivation was to reduce and manage the environmental conditions within the control center's operating rooms, optimizing the center's working conditions. This was achieved by relocating the necessary IT devices into a remotely located equipment room. It was essential that instant access to all computers and IT devices should be maintained at all times. This would allow users to switch any required application or data to their dedicated workstations via keyboard and mouse without delay.

In another project, Fraport installed a simulator for the practical training of apron controllers; instructing them in the management of airport surface traffic, including aircraft and vehicles on the apron. The simulator comprises two simulation rooms which display virtual, complex apron images on monitors and a curved projection

screen to simulate both apron control centers. A further room is manned with so-called “pseudo pilots”, steering the virtual aircraft and vehicles for the simulation. The trainee apron controllers learn how to respond to the simulated scenarios in competent manner. To limit computer noise and heat in the simulation rooms, the computers are also located in the remote equipment room.

To physically separate the IT devices, whilst maintaining the high bandwidth and availability requirements of the applications, both projects utilize high-quality, resilient digital KVM technology. For Fraport it was of major concern that the future supplier also manufactures the technology.

The Solution

The decision was made to install four Draco tera compact matrix switches to distribute data to the control center, as well as three further Draco tera compact switches for the simulation rooms. The signals are transferred by Draco vario and Draco compact KVM extenders using the existing Cat 7 infrastructure. Due to IHSE's Mix & Match technology KVM signals can also be transmitted via fiber optic cable, which is used in some cases for additional distance transmission. IHSE's KVM technology enables the ultimate performance in terms of display resolution and fast, complication-free data transmission.

Single Link DVI high definition video signals (1920 x 1200) are transferred at optimum image quality with no perceivable delay. Multi-Screen control allows switching between different monitors simply by moving the mouse cursor. Each workstation provides the configuration of up to four virtual clients. The control center's operators can access HD video data and all necessary information at any time, while the trainee apron controllers are able to concentrate on controlling the simulated airport surface without any external distraction.



ACDC operating room with workstations



Simulation room with projection wall



Simulation room with display wall

“What we appreciate most about IHSE besides the perfect technology are the personal contact and constant availability. In a collegial atmosphere, we were able to develop an excellent KVM concept together. Specific needs and requirements, e.g. the visual marking of backup computers, were swiftly and efficiently implemented.”

*Jörg Schulewski,
Control Center Expert at Fraport*

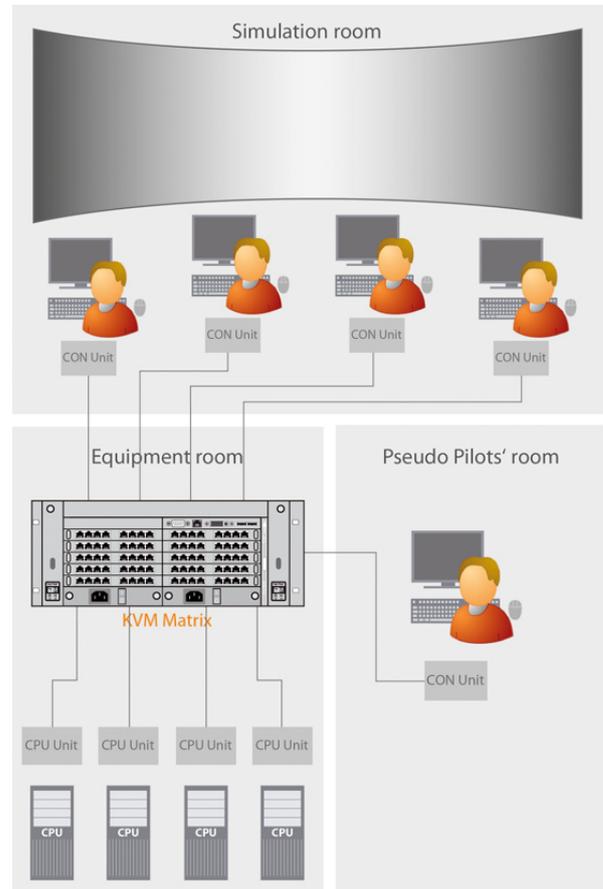
IHSE develops, manufactures and supports all products internally. This ensures rapid and efficient handling of customer orders. Changes and customized adaptations can easily be accommodated within the organization leading to solutions that better meet and support customer requirements.

The Benefit

The ACDC control center performs the function of a central control point for initiation, control and monitoring of airport processes and is thus a highly sensitive application. Any failure or malfunction may significantly affect the airport operations in Frankfurt. To avoid such scenarios at Frankfurt airport, highly reliable KVM technology is required. IHSE KVM products comply with resilience and availability requirement, supporting a smooth workflow and trouble-free operation of the control center. IHSE products also exhibit very high operational life cycles, offering Frankfurt airport high investment security.

The new simulation rooms contribute to the airport operations workflow. Thanks to the new KVM infrastructure the trainee apron controllers learn how to manage the airport surface traffic through realistic, simulated scenarios without being exposed to noise and heat pollution of the powerful computers.

Since inauguration, both KVM installations have operated reliably. – The ideal prerequisite for a long partnership.



Functional diagram: Apron Simulator

KVM products in use:

- **Draco tera compact** matrix switches
- **Draco vario** extenders
- **Draco compact** extenders

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