Managed high-performance network for Fraport, at Frankfurt Airport.

T · · Systems

Seamlessly secure, high-performance communications infrastructure on the airport premises.

The requirements applying to Fraport AG's communications network in Frankfurt are extremely demanding, as a result of the great variety of applications the airport's various areas work with and the large number of companies that operate at the airport. Transmission of data, voice and video has to function perfectly, and highly securely, throughout an interconnected spectrum of operations and areas, including such areas as aviation safety, baggage logistics, airline ticket counters and security cameras.

In the framework of complete outsourcing, operational services (OS), now a T-Systems' subsidiary, assumed full responsibility for Fraport AG's existing network and then, working in parallel with ongoing operations, installed a state-of-the-art, secure, IP-based high-performance network. Now, Fraport AG profits from operations fully managed by T-Systems, favorable pricing models and enhanced flexibility that will appropriately support the company's changes and the airport's growth throughout the long term.

At a glance.

- Modernization of the entire communications infrastructure throughout the airport premises
- Installation of a fully separate Ethernet VPN LAN, with logically separated transmission pathways for data, voice and video
- Maximum-level access security, and seamless protection, via a complex firewall infrastructure
- Secure collaboration, via two- and three-factor authentication
- Active, on-site systems monitoring of ports and data transmission
- Scalable solution
- Cost reductions via pay-per-use arrangements for ports

The reference in detail.

The customer. Fraport AG is a leading international corporation in the airport-business sector, with some 20,000 employees. It operates Frankfurt Airport, Germany's largest airport.
Handling some 500,000 air traffic movements, 56.4 million passengers and 2.2 million tons of cargo per year (2011), Frankfurt Airport is one of the world's most important air traffic hubs.
Fraport AG, a full-service provider in airport management, operates on a total of four continents, through affiliates and subsidiaries. In 2005, T-Systems International and Fraport AG established operational services GmbH & Co. KG, a joint venture oriented to Fraport AG's IT outsourcing.

The task. Flight operations, security controls, cargo logistics, retail facilities and much more create highly diverse, complex requirements for the network, spanning Fraport's 19 square-kilometer airport facility. A key reason for the complexity is that the IT systems of the many different areas, services providers and airlines involved interact in a virtually endless number of ways. Smooth, secure data transmissions are of absolutely vital importance for Fraport AG's applications, of which 450 are classified as business-critical. In light of the airport's nearly 90 air traffic movements per hour, a network failure can cascade with unpredictable consequences. Consequently, maximum availability is an absolute must.

What is more, the network and security requirements are further complicated by locking and single-access-entry-control systems, camera systems, remote links for service personnel and protections for personal data. And all facilities have to provide the greatest possible measure of flexibility, to allow for the continual network expansions and adjustments that result from the airport's never-ending growth. On the basis of the existing network, in connection with the outsourcing of the network to T-Systems – and alongside ongoing operations – a new IP network had to be installed for transmission of data, voice and video. The relevant requirements called for a highly available, highly secure, expandable network with transparent operational costs.

The solution. For the airport facilities, T-Systems installed a high-availability, fully separate Ethernet VPN LAN, with logically separated transmission pathways for data, voice and video. The heart of the solution consists of an MPLS backbone that links all of the airport's buildings via fiber optics. Via redundant routing, the system interconnects six main distribution frames, numerous building distributor cabinets, 22,000 LAN sockets and 466 WLAN access points.

As a result, all IT components of productive systems are interconnected, including the arrival/departure information system, passenger-guidance systems, operations control systems, business-related systems and the many thousands of desktops of the staff of Fraport, its subsidiaries and its services providers. On the airport premises, employees log into the system via two-factor authentication. For external access, additional tokens are added to the secure-collaboration solution, to produce a three-factor authentication system. For access into Fraport's national and international wide area network (WAN), T-Systems installed gateways equipped with attack protection consisting of a firewall infrastructure with intrusion detection/prevention, as well as proxy servers that encrypt outgoing and incoming transmissions, within the WLAN, using state-of-the-art encryption routines. In addition, T-Systems carries out active monitoring around the clock, and always has staff present for this purpose.

Generated monitoring data are provided to Fraport for evaluation. Annual overall availability is measured via a network of probes that is distributed throughout the premises and that regularly checks the availability of important network segments.

Customer benefits. Today, Fraport AG uses a highly secure, highly available communications infrastructure, for data, voice and video transmissions, throughout its entire Frankfurt Airport premises. In the most sensitive network area, availability has been 100 % from the outset, while it has been 99.998 % in the remaining areas. Translating into fewer than 11 minutes of downtime per year, that figure represents an all-time high for business-critical applications. In T-Systems, Fraport AG has a competent partner on location who is able to respond flexibly to necessary changes. Some 600 changes are carried out each month, quickly and reliably, via an order-management tool.
From the outset, infrastructure components were designed with scalability in mind – for example, installed ports have reserve connection capacities for switches. In addition, up to 1000 GB of bandwidth can be added to meet growing bandwidth requirements.

A steering committee meets every two weeks. That body, carrying out overarching control and coordinating with service management, has central responsibility for overall network operation and thus ensures that the network always functions smoothly and properly.

Fraport

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