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The control center in the situation and logistics center of the fire department in Essen, Germany uses Siemens command and control software

Safety and efficiency in the Ruhr metropolis

Some 120,000 ambulance, fire and emergency response operations are coordinated each year in the central situation center of the professional fire department in Essen, Germany using command and control software from Siemens. As one of many thousands of examples around the world, the situation center of the Ruhr region metropolis stands for Siemens' initiative to enable not only more energy efficient, but also safer buildings and infrastructure with a diversified building technology portfolio. At the Press Conference for Security 2010, Siemens Building Technologies Division presented what this means in practice.

With more than half a million inhabitants, Essen is one of the largest centers in Germany. Top priority is given to full-coverage emergency care of the urban area with effective use of all available human and technological resources. However, helping other cities in the heavily populated Ruhr region by deploying fire fighters in neighboring communities is also extremely important.

The Essen Fire Department thus actively promotes the ability to network multiple control centers in the so-called Ruhr network. Preparations for technical implementation based on a modern software solution from Siemens are in full swing. The aim of the partnership consists of mutual assistance across city borders when resources are strained as well as mutual performance of control center functions in case of accident. In order to optimize emergency response times, the respective neighboring resources are automatically assessed based on distance. By the same token, control center functions can be pooled or reassigned in cases of major incidents or crisis situations.

Over 700 women and men in the professional fire department as well as an additional 550 volunteer forces are responsible for meeting the protection objectives in the Ruhr region metropolis.

A newly erected situation and logistics center

Each year the situation and logistics center, which was fully modernized in 2008 in Essen's city center, coordinates approximately 120,000 rescue, fire and assistance responses. Emergency calls using the number 112, the nationwide number of ambulance transport 19222 as well as signals from around 830 fire detection systems converge here for processing and deployment coordination.

On its upper floors, the new four-story building houses technology rooms for the control center, the control center itself and the staff rooms for the management and the crisis teams. The control center room extends across the entire length of the building and two floors.

A total of 60 dispatchers provide work around the clock in three emergency departments in the control center. Depending on the time of day, between three and eight employees are on active duty in the control center. The planning work is carried out at twelve cockpit-shaped control desks with separately adjustable control and monitor levels. A block consisting of four workstations can be completely separated spatially for special emergency situations. The operating and display elements, five LCD monitors, touch screen and headsets have been arranged according to the latest ergonomic stipulations. At three master stations, media controls for image projections can also be operated. Large projection screens are mounted on the ceiling and the height can be adjusted electrically.

Eight emergency monitoring workstations are available beside the control center room for situations in which there are increased emergency calls due to major events or severe weather. Emergency calls are accepted and entered into the control system here using dual-screen workstations. Dispatching is carried out exclusively by operations control station staff. The emergency monitoring workstations can also be used as a Personal Alert Safety System (PASS). The computer and communications technology is particularly climate sensitive and is operated in a separate technology room due to the high noise level. The redundant systems, which are divided between two rooms, each have separate supply lines and connections to the control center.

Siemens control center technology

At the beginning of 2008, Siemens received the commission to upgrade the existing control center technology including the command and control system as well as the communication technology. An operator-model contract was signed. This model guarantees the customer the highest level of service and availability of technical systems with predictable stable expenses.

The heart of the control center is the operations control system software from Siemens. The system is coupled with extensive communication and reporting systems such as an emergency call and wireless monitoring system, a wireless detection system, a digital wireless alarm system, a public fire alarm system as well as a GPS navigation system for vehicles. Mobile control center computers (laptops) can be connected via UMTS/GPRS and communicate online with the master system. In addition to this, all billable rescue and assistance operations can be directly invoiced to health insurance funds, municipal funds or private institutions with the software using an integrated reporting and accounting module.

The software runs on a high-availability cluster system with two nodes as function servers under Linux, and a storage area network (SAN) is also provided. An Oracle database is run as a Real Application Cluster (RAC). Web technology is used to display all deployment data and other essential information (alarms, vehicle status, deployment suggestions for vehicle dispatch, geographical maps and aerial photographs) on three monitors. The dispatcher therefore has access to a clear overview of reliable information at all times.

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