

Safety, security and energy-efficiency in Zurich data center

In the fall of 2012, the City of Zurich's Center of Competence (CoC) for IT moved into its new main location in Zurich Albisrieden. The centerpiece of the new facility is Europe's most advanced, safe, secure and energy-efficient data center. A complete single-source solution from Siemens provides security for people and assets through fully integrated, easy-to-operate fire safety, security and building automation systems.

Data centers are critical facilities in most industries and therefore face special challenges – from managing complex infrastructures to optimizing energy efficiency and meeting security and operating requirements. Integrated, custom-tailored solutions and services play an important role in identifying and handling a wide range of incidents that could impact the availability, process continuity and profitability of a data center.

Total building solution from a single source

The OIZ, as the City of Zurich's CoC for IT is known, provides essential IT services for Zurich's municipal administration and supports cross-department IT projects. To improve the efficiency of operations and reduce costs, more than one hundred server rooms around the city, as well as the old data center, were closed and consolidated in two new data centers in Albisrieden and Hagenholz, which are several kilometers apart in different parts of the city. The two-location strategy minimizes any potential effects from natural hazards and provides reliability and availability in the event of a natural disaster. If one data center fails, the other ensures that important applications continue to run and prevents the loss of data.

Operational reliability is a major requirement for the OIZ: Certified as "trusted site infrastructure" in accordance with TÜVIt Level 3, the two data centers are monitored

24/7 and are equipped with numerous safety and security measures against unauthorized access, fire, lightning as well as the effects of earthquakes and flooding. Building access is provided on a role-based model. The server rooms utilize single-entry access control systems and biometric authentication. Because of the high security standards, several renowned Swiss banks decided to move their own data centers into the City of Zurich's data centers.

The new data centers meet the highest standards for operational reliability, availability and energy efficiency, and are among Europe's most state-of-the-art facilities. Both data centers use the most advanced technologies. For the Albisrieden site, the new OIZ main location with 500 employees, Siemens Building Technologies Division designed and delivered a Total Building Solution with fully integrated fire safety, security and building automation systems. The single-source approach not only allowed for consistent design, planning and implementation of the data center, taking into account the increased security-related requirements, the OIZ as an operator also benefits from having one contact for all issues, for example, in the event of malfunctions.

Intelligent monitoring and control using Siseco CC

To ensure that highly sensitive data is protected in an organized and secure environment, the data center uses a number of technical systems such as heating, ventilation, air conditioning, fire detection and sanitary systems. At the heart of the building's security concept is the security and building management system Siseco CC (Siemens Security and Comfort Control Center). This top-level system allows for optimal monitoring and ensures reliable operation of all disciplines. Whether intrusion and fire detection, video monitoring or access control, thanks to its open system architecture, the management station combines the control of a range of technical systems from different manufacturers, regardless of whether they use standard or proprietary interfaces. The station's uniform, intelligent and intuitively designed user interface for all subsystems facilitates incident handling, increases security and is indispensable in standardizing and optimizing processes.

The critical disciplines are connected to two different power grids in order to ensure that if one grid fails operations can continue without interruption. The failure of the cooling system would also have a major impact on the facility. Increased temperatures can damage the components installed in a room. For this reason, the

infrastructure for cooling production, distribution and output also has a redundant design.

The integrated Sinteso system provides quick detection, alarming and control in the event of a fire. As the heart of the system, the fire detection control unit processes all messages from the system, triggering alarms and complex control procedures. Thanks to networking via the system bus, every fire detector and manual switch in the building can be monitored individually; alarms are displayed in an easy-to-read format on the user-friendly graphical user interface. With intuitive operation, plain-text messages and clear instructions, the station minimizes the risk of operator error in the event of an emergency. In the event of an incident, the extinguishing control panels from the Siemens Sinorix line provide fast and reliable control over oxygen reduction in the area affected. They quickly and reliably extinguish fires without causing damage to the equipment or the environment.

The Guarto 3000 intrusion detection control unit is integrated in the higher-level Siseco control system. A highly flexible and virtually unlimited system topology, as well as an open software structure, allows the individual security concept to be mapped on a 1-to-1 basis. In the OIZ data center, this technology is used to monitor doors as well as the entire exterior.

Committed to sustainability

The City of Zurich is also committed to the highest standards in terms of sustainability. As a result, the Albisrieden data center, which is housed in an existing structure, was designed to be especially energy efficient. Part of the heat generated from continuously cooling the servers is used by the OIZ offices and supplied to an adjacent housing complex with some 400 apartments on an 80% CO₂-free basis. This saves about 4,000 MWh annually in fossil energy.

In addition, the building technology from the Siemens Desigo line plays an important role in the sustainability of the data center by ensuring energy-efficient operation. To keep energy costs as low as possible, the City of Zurich already focuses on energy efficiency when purchasing components. The flexible, scalable building automation system Desigo PX integrates more than 3,000 physical data points, controls and manages processes, and allows for demand-based, reliable automation in the entire area of building engineering systems. The efficient interaction between all the

installed components, combined with ongoing monitoring and control, results in considerable energy savings while optimizing room climate and operation. The clear, intuitive user interface and a user-friendly, graphical display also provide users with a high level of comfort in their daily work.

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