

A group of five professionals (three women and two men) standing in a modern data center aisle. They are dressed in business attire. The aisle is lined with server racks on the right and glass-walled server cabinets on the left. The ceiling features yellow overhead crane tracks. The background is filled with digital data visualizations, including binary code and network diagrams.

**SIEMENS**

# Data center solutions from Siemens

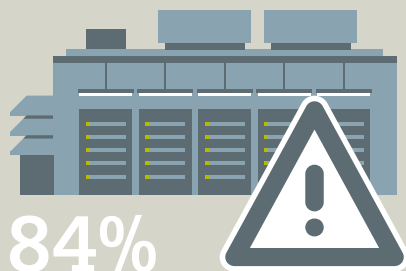
For the factories of the 21<sup>st</sup> century

[siemens.com/datacenters](https://www.siemens.com/datacenters)

# We face the challenges for the factories of the 21<sup>st</sup> century

Based on our vast experience, we offer a comprehensive portfolio, integrated data center solutions and foster a global service culture.

Data centers are the factories of the 21<sup>st</sup> century. They store the most valuable company possession: Data – but the challenges for data centers are manifold.



84%

of data centers report problems with:

 power  space  cooling

Average cost of  
downtime  
per minute in 2013:  
US\$7,900



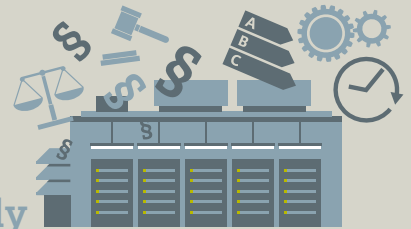
57%

of data center managers

consider their  
centers to be  
inefficient



Data  
centers  
need  
to comply  
with laws and regulations



To address these challenges, Siemens has pooled its vast expertise and experience across several disciplines into comprehensive solutions and services for data centers. Our experts have teamed up to help you manage the infrastructure of your data center for maximum uptime, reliability and efficiency, optimizing everything from data center management, automation and control, power distribution with Totally Integrated Power (TIP) to fire safety, security and services.

# Increase flexibility – with data center management, automation and control

## Your benefits:

- Complete data center management solution offering
- Use of latest technologies and open standards protects your investment
- Minimization of human errors by automating processes
- Integration of processes across disciplines
- Sustainable implementation of energy efficiency levers
- User-friendly supervision with the help of 4D visualizations
- BMS and EPMS applications for reliable facility infrastructure management
- Bridging the gap between facility and IT management with DCIM
- Computational fluid dynamics (CFD) functionality allows predictive analysis to identify possible hot/cold spots

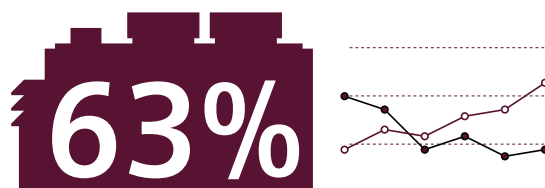


Continuous and comprehensive monitoring and management of constantly changing and expanding facility and IT infrastructure is key to ensure uptime and safeguard uninterrupted operation – 24/7. Keeping environmental conditions in a defined range and minimizing energy consumption at the same time is one of the major ongoing challenges in a data center. To meet these requirements, the design for such solutions requires a comprehensive consideration of all the operational processes in a structured approach.

Siemens' building automation and control system (BACS) portfolio offers a complete range of field devices, controllers and an integrated building management system (BMS) that set new standards for technology, efficiency and user-friendliness. Energy power monitoring software (EPMS) combined with power meters and low voltage protective devices provide a complete energy management solution. Siemens' data center infrastructure management (DCIM) system links building management with IT management and safeguards data center operation.

Our data center management solutions will help you anticipate the future – to guarantee uptime and stay one step ahead of the competition. This ensures safe, secure and reliable operation of your data center.

## The challenge



**63%**  
of data centers do not have a standard  
set of management tools

# Safe and reliable power distribution – with Totally Integrated Power

## Your benefits:

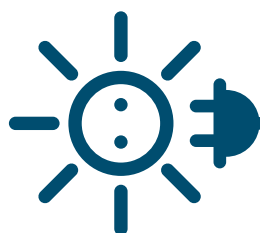
- Consistency – improved system planning and commissioning, easy integration of building automation
- One-stop shop – one contact partner for all products, systems, solutions and services results in considerable cost savings during installation and operation
- Safety – perfect protection of personnel and equipment through optimized protection and switching devices
- Reliability – our high-quality products, planning tools and consultant support assure that a sophisticated power distribution system helps minimize power failures
- Efficiency – higher system availability and maximum energy efficiency thanks to monitoring and protection against overload and short-circuits
- Flexibility – seamless integration of either a static or dynamic UPS into the overall electrical power distribution
- Advanced technology – metering the needs of tomorrow with fully integrated power distribution equipment which perfectly meshes with DCIM



Efficient, reliable and safe: These are the demands placed on electrification and especially power distribution. Greater rack density for more processing power in the same amount of space places new demands on the power supply. Cooling requirements are increasing at the same pace as processing power, which is why – apart from the power costs – the performance of the power supply is especially crucial when it comes to operation. Our answer is TIP. It's based on our comprehensive range of products, systems, and solutions for low, medium and high voltage, rounded off by our support throughout the entire life cycle – from planning with our own software tools to installation, operation and services.

Smart interfaces allow linking to industrial or building automation, making it possible to fully exploit all the optimization potential of an integrated solution. Power metering and monitoring devices plus energy power monitoring software help detect malfunctions and lower energy consumption. All findings are included in customer-specific reports. The high quality of our products and systems pave the way for smooth data center operation while significantly extending the maintenance and service intervals, which in turn reduce life cycle costs. TIP power distribution concepts for data centers are as individual as the tasks they perform. Tailored to the process requirements of our customers, we develop a system or overall solution that focuses on reliability and availability.

## The challenge



**A 10-millisecond interruption of the power supply**

can disrupt the entire IT operation of a data center

# Ensure maximum uptime – with fire safety

## Your benefits:

- Complete integration of fire detection, extinguishing and evacuation solutions
- Siemens fire safety products and solutions comply with the highest safety standards and regulations
- Fast and highly reliable fire detection thanks to unique aspirating smoke detectors
- Reliable alarming and fast evacuation when needed
- Efficient and effective fire extinguishing, safe for hard disk operation
- With more than 160 years of experience we understand your specific requirements



The risk of fire in a data center is particularly high due to heavy power loads, a constant ignition source, combustible materials, extensive cabling and high air velocity for cooling. Siemens' fire safety solutions are precisely tailored to your data center's requirements and comply with the highest safety standards and regulations. The solutions offer you maximum safety against all risks of fire and ensure uptime and availability of service. They reduce the risk of wide-spread fire, combining highly accurate smoke detectors with aspirating smoke detection which guarantees the highest detection speed and accuracy, coupled with preventive maintenance, improving the response effectiveness. The silent discharge nozzle technology ensures quiet and effective extinguishing, minimizing the risk of data loss due to hard disk drive failure. As in any fire situation, ensuring that people are alerted immediately and know what to do is the top priority. Reliable alarming devices and the voice evacuation system ensure that people are able to evacuate the danger area quickly and safely.

With more than 160 years of experience in fire safety, we understand your specific requirements in terms of prevention, detection and extinguishing, from system design to installation and after-sales service.

## The challenge

**6%**  
**of infrastructure failures**  
are related to a data center fire



# Ensure business continuity – with security

## Your benefits:

- Data, people and assets remain secure 24/7
- Risk mitigation prevents loss of reputation and business disruption
- Tailor-made integrated security solution following security policies and procedures
- Early detection of unauthorized people on the data center premises
- Protection of operational processes and data ensures business continuity
- User-friendly security management system supporting security guards and operators
- Global supplier backed by decades of expertise in security solutions and services



Threats to data centers in this modern day and age come in many forms, from the intruder trying to gain physical access to the facility and ultimately the servers, or safety incidents and natural disasters to cyber attacks and hackers trying to gain access to the network and the data stored on the servers.

Siemens provides a layered approach on data center security after identifying all the possible threats and their impact on a data center's infrastructure and assets: From perimeter protection, gate control, intrusion detection to access control and visitor management, incoming and outgoing goods, access to specific security zones, such as power distribution and UPS rooms, and to the computer room itself. Intelligent video surveillance solutions help with event investigation and – in combination with all other security measures – ensure highest protection. The management system that integrates all security disciplines allows increased visibility, response agility and control and ensures your facility remains secure 24/7. By adopting an integrated approach aimed at protecting all the operational processes of a data center, our solution ensures business continuity in compliance with customer security policies and procedures.

## The challenge



of data, people and assets to safeguard business continuity

# Optimize your infrastructure – with services

## Your benefits:

- Ensured business continuity and investment protection
- Gain transparency
- Reduction of energy costs and carbon emissions
- One global partner offering a complete service portfolio
- Support through whole system life cycle by data center specialists with industry- and application-specific know-how



Data security and growth, increasing infrastructure complexity, high energy consumption and energy costs are some of the main concerns for data center operators. Siemens offers tailor-made solutions for your specific facility infrastructure requirements consisting of planning, consulting, engineering, life cycle management, energy optimization and operational services as well as preventive and corrective system maintenance up to 24/7 support. This ensures business continuity and, at the same time, protects your investment.

Siemens energy services help not only to continually optimize your building's performance but also to monitor and analyze energy data over the building's entire life cycle. This can help save energy, minimize costs and reduce carbon emissions. The building performance approach enables the implementation of these concepts independently of the installed systems in your data center. The patented and proven demand flow solution optimizes all energy consuming components of the chilled water system, holistically, and does not sacrifice reliable and safe operation for energy savings.

Our global footprint with dedicated branch offices and centers of competence offers a fast response and comprehensive services, helping our customers maintain a competitive edge in their market.

## The challenge



**77% of data centers**

have experienced an outage in  
the past 24 months



# Data center solutions from Siemens

This is how you benefit:

**Improve your data center through a comprehensive portfolio.**

Merging data center management, automation and control, power distribution (TIP), fire safety, security and services.

**Maximize your flexibility through integrated solutions.**

Modular, compatible, customizable, easily extendable – for maximum uptime.

**Enhance your efficiency through transparent operations.**

Continual optimization with monitoring and reporting tools.

**Increase your system's availability through reliable and secure operations.**

Global presence and local expertise paired with strong service culture for business continuity.

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The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract. The document contains a general product overview. Availability can vary by country. For detailed product information, please contact the company office or authorized partners.

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