



SIEMENS SMART INFRASTRUCTURE

Take the next step in effectively managing data centers

Bolstering the backbone of our industry and society

Today, data centers play a crucial role in modern business and in our everyday life, meaning that most activities rely on them. They help manage, interpret and share data, and – as a result – provide information that keeps services running and makes life easier. Data centers are central to the operation of organizations, businesses and industry, from banking to health, entertainment to transport, or lighting to telecommunications. They have become far more than external facilities for the storage of information. They are now critical to the very function of organizations. Data centers are the backbone – and often the heart – of many businesses. And as such, they must operate reliably 24/7,

with the highest degree of stability and security.

Obviously, managing a data center is not a trivial task and this can be both time-consuming and critical since a number of challenges must be faced. For example, security and compliance must be ensured at all times, which makes system monitoring and transparency indispensable. Also, operating costs are high and must be controlled, making it crucial to ensure staff are supported to work efficiently. At the same time, the emerging need to constantly reduce the CAPEX and to limit the physical presence at a data center is becoming more and more important.

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The demanding requirements in terms of operation and maintenance are also reflected by a number of regulations and KPIs that must be considered to ensure full and continued productivity:

- Thermal guidelines for data processing environments: This ASHRAE driven guideline provides specifications for air cooling ranges during operation or during power off, and includes recommendations for room temperature, humidity, dew point, maximum air exchange rates, etc.
- Thermal optimization: Optimizing a data center's cooling system with static control algorithms can be extremely cumbersome. Instead, using a dynamic control algorithm, the distribution of the airflow can be aligned to a time-varied IT load
- Efficient energy and power management: Powering up a data center is a task of huge complexity and requires a large amount of supply energy. Knowing how effectively the IT equipment is utilizing the total energy of the facility can be very useful information. This important metric is called Power Usage Effectiveness (PUE)
- KPIs such as the Cooling Capacity Factor (CCF): This is the ratio of total installed nameplate cooling capacity to the critical load, and it helps to understand the utilization of the existing cooling capacity

A technically sound data center installation is not only complying with the design specifications, but also assists the operators to unleash the data center's full productivity potential.

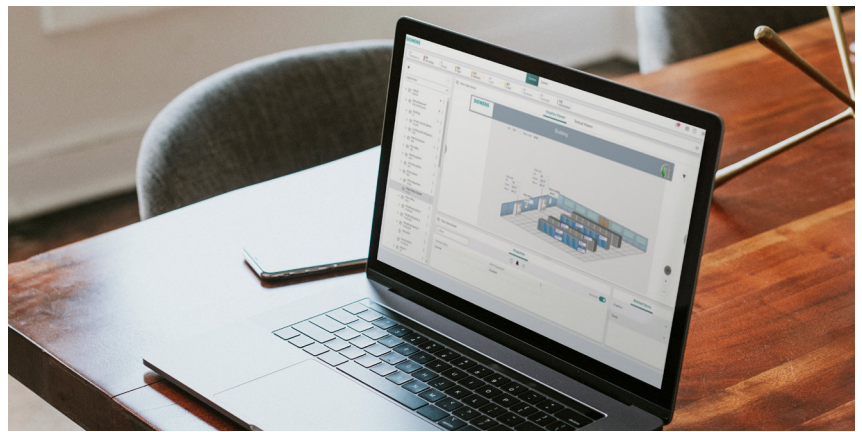
Siemens Smart Infrastructure has the answer to manage data center facilities most effectively

With the Desigo CC building management platform and its specifically designed data center library, managing a data center

becomes easier and more user-friendly than ever before. It starts with engineering: Using the built-in drag & drop function, the software makes graphic engineering easier and faster.

Operators will enjoy the visualization provided by the platform:

Scalable vector graphics allow zooming down to the smallest details. This way, Desigo CC offers full transparency of the thermal conditions of the various compartments. Moreover, with CCF's visualizations, thermal and influence maps, Desigo CC is continually helping operators to immediately identify the hot spots and to react on time.



Visualization for comprehensive overview

When it comes to thermal optimization, Desigo CC combines building management with white space optimization, which can bring significant benefits such as seamless operations, data mapping, persona-based dashboards, KPI visualization, influence and heat maps. Desigo CC is merging all this information and brings it to life by providing intuitive dashboards that meet the needs of every stakeholder, combining visually the relevant parameters CCF, PUE, cooling efficiency, cooling load and other variables, while ensuring compliance with ASHRAE recommendations.

To manage and optimize power and energy consumption, Desigo CC features a comprehensive data management and reporting engine, with

which the energy and power variables are reported, monitored, compared, and customized if necessary. Desigo CC integrates Modbus TCP and IEC 61850, making key data understandable and easy to analyze. With its specifically designed power management extension, it opens an even broader range of capabilities, such as monitoring and optimizing the power consumption of the racks in the data center. This way, Desigo CC helps create sustainable and energy-efficient data centers.

Optimized operating costs

Furthermore, Desigo CC helps optimize operating costs by allowing operation from remote locations. When travelling to the site shall be reduced or avoided, Desigo CC's Flex Client is the right application to securely connect and manage your data center remotely.

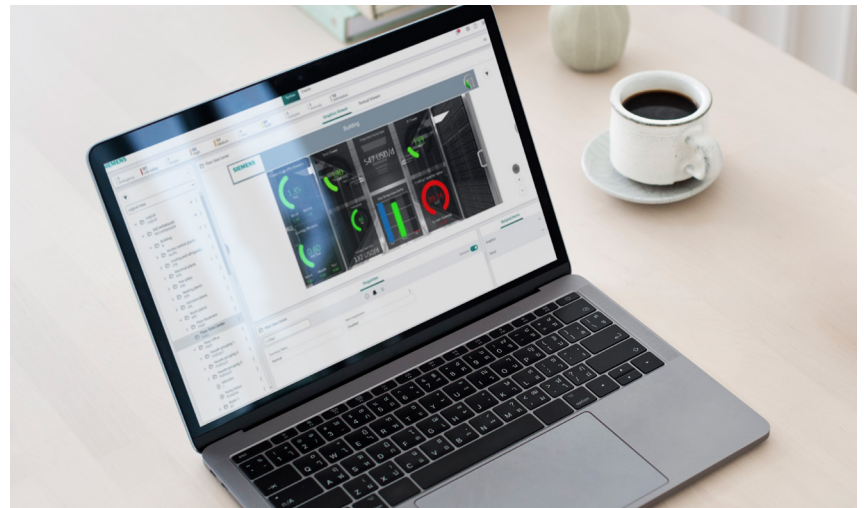
By combining the standard building management functions and power management in one platform, Desigo CC provides a unique user experience and one tool for all tasks a data center operator has to perform. This fact, along with the numerous visualization and optimization choices, increases productivity and cuts operating costs.

In addition, Desigo CC provides and supports highest levels of cybersecurity and physical security: The platform is IEC62443-3-3 SL2

About the author

Stamatios Stamatopoulos

Stamatios has always been passionate in learning new skills and in exploring agile workarounds when tackling a problem. He studied electrical and computer engineering at the National Technical University of Athens, and joined Siemens in 2006 as a project engineer. There he gained experience in building technology, product and solution sales as well as consulting business. Since



compliant to protect vulnerable building data even better. Extensions and subsystem integrations have been extensively evaluated and tested to be listed as SL2 compliant, allowing Desigo CC to be used in deployments with higher cybersecurity demands, such as data centers. The platform also integrates physical security, like access control or video surveillance.

Data integrity, transparency of your building data and sophisticated reporting capabilities add up to the perfect solution to manage your data center and to make its operation secure, reliable and sustainable, strengthening the heart and backbone of your business.

For more information, visit:

<http://www.siemens.com/desigocc>

<http://www.siemens.com/datacenters>

2018, he is managing the global portfolio developments for management station software at Siemens Smart Infrastructure, Global Headquarters in Zug, Switzerland. Stamatios is driven by the challenge of providing solid solutions that create state-of-the-art environments. He is a fan of holistic development plans for every aspect of human life.



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