

# Siemens EngineeringAdvantage<sup>™</sup> **Newsletter**

### Introduction

Data centers continue to be a high growth market for the construction industry. Recent market data estimates that the global data center construction market will reach \$45 billion in revenue by 2023 and is expanding at a compound annual growth rate of more than 6%. This growth is being driven by the use of big data, cloud services, the Internet of Things (IoT), edge data centers and more.

As a result, one of the strategies decision-makers should consider is reducing construction time.

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  VelociRack<sup>™</sup>



## Design Topic Streamlining Data Center Construction

#### How to Reduce the Construction Cycle

Typical construction processes fall short in meeting the needs of the rapid deployment of data center facilities. Time-tomarket demands require:

- Compressed schedules
- compressed schedules
- High quality and efficiency
- Visibility of multiple systems
- Shared data between systems
- Optimization of operation

#### > Rapid Deployment

Technological advancements in prefabricated and modular data center infrastructure are being driven by customers' needs for different levels of resiliency, as well as kilowatt capacity, in a just-in-time fashion. Customers are increasingly looking for a suite of scalable solutions that are energy-efficient, and range from a dedicated data center space and colocation services to interconnected facilities. In addition to these types of customer requirements, advancements in prefabricated data center infrastructure solutions and services are contributing to the growth of the data center colocation market, which is set to double in size by 2020.

#### > Greater Installation Speed and Accuracy

Nearly 70% of early equipment failures can be traced to design, installation or upstart deficiencies. To meet the unprecedented demand for data centers while preventing these deficiencies, the installation phase must be accurate and lightning-fast. A good understanding of data center infrastructure, and the densities that can be achieved, significantly impact cost and growth plans. By using

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\*Source: Copy excerpted from 7x24 Exchange International, 2016 "Colocation Customers Challenge the Pace for Rapid Data Center Deployment"

#### Enterprise, Colocation and Hyperscale: 3 Types of Data Centers

A data center is a facility housing computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communications connections, environmental controls (e.g., air conditioning and fire suppression) and security devices. Large data centers are industrial-scale operations that can use as much electricity as a small town and sometimes are a significant source of air pollution in the form of diesel exhaust.

> The market can be broadly segmented into three main groups:

#### Enterprise or Corporate

These are data centers that companies own and operate for their own use.

#### **Colocation or Service Providers**

These companies offer space, power, cooling, bandwidth and physical security to tenants/customers that provide their own servers and storage. Enterprises leverage these providers to lower operating expenses and improve uptime and reliability. Use of colocation by hyperscale data centers is increasing as a result of the need for flexibility, speed, capacity and expansion into new geographic markets.

#### **Hyperscale Data Centers**

These include companies whose business is built around cloud, search engines, e-mail, ecommerce and social media.

Each segment has unique characteristics, yet a hybrid approach that blends aspects of these data center types is becoming more common.

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### Product Focus VelociRack<sup>™</sup>

Siemens VelociRack<sup>™</sup> is a factory-assembled, high-density automation solution that is ready for any data center project. It lets owners identify and solve inefficiencies, reduce operational expenses and capital needs, and improve energy efficiency.

#### Solution highlights:

#### • Improved Quality and Shorter Build Cycle:

VelociRack is standardized and available off the shelf. It shortens engineering and commissioning time with upfront design reviews, and it validates the design earlier with factory witness testing. The product is preassembled and wired in a factory setting, helping ensure a highquality installation that is unaffected by on-site construction delays. This provides a significant reduction in the build cycle, minimizing potential time delays and capital outlays.

#### • Space-Saving Design:

The integrated rack solution contains high-density automation components, battery backup, networking, software and physical security. Equipment in the rack is suitable for data center white space environmental automation, AHU control, and central plant control, and is also designed to support an integrated test process suitable for factory acceptance and/or factory witness testing. Because the automation is integrated into the rack assembly, the integrated rack solution eliminates the need for valuable wall space. Siemens' integrated rack solution and its integrated test process (for Level I FWT) can compress installation and commissioning time and improve quality while reducing risk.

#### • Time-Saving Approach:

VelociRack takes integrated factory witness testing to the next level using storyboard, which is a proactive step to reduce risk. Once the project is complete, the storyboard hardware can be used as a training tool for the owner's team.

#### Integrated Security:

In keeping with the importance of minimizing data center security risks, VelociRack includes integrated card access and video surveillance to prevent unauthorized access as well as to capture images of activity in and around the rack.

#### For more information:

VelociRack™ Visit the VelociRack web page

#### **Building Technologies App**

<u>Download</u> this Siemens Building Technologies Division app, which includes a 3D tour of VelociRack.

- Watch the video: "How to ensure successful data center commissioning"
- View "4 Ways to simplify and accelerate data center construction"



prefabricated components, a company can reduce the construction cycle.

#### > Faster Building Systems Assembly

An example of a faster assembly is setting up electrical systems on-site during construction. This is a standard approach in modular data center design whereby electrical rooms can be fully assembled prior to delivery in a controlled factory environment. All electrical equipment is built on a standardized metal frame and pre-wired for efficient installation. Such innovative methods can cut production time of rapid deployment projects by 30% percent – from an average of 179 days down to about 80 days.

#### > Increased Integration of Infrastructure Elements

Rapid deployment design can be tailored to meet specific data center needs throughout the building's lifecycle. In addition to electrical systems, additional integration considerations can include building automation, fire safety, security, and life cycle and efficiency services.

In the digital age, little can be done without data. By considering innovation in rapid deployment data center models, customers can achieve resiliency and scalability just in time — while storing data safely and efficiently. Specifying prefabricated components early in the design phase safeguards a streamlined construction cycle. In addition, verifying design criteria and sequences early in the construction cycle mitigates risk.

#### **For More Information**

#### EngineeringAdvantage™

<u>Visit the EngineeringAdvantage web page</u>, which includes specs, product information and technical resources.

#### SpecWriter

Link to Siemens online specification writing tool

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If you have questions about the EngineeringAdvantage Program, would like to be added to the distribution list or have a story idea for an upcoming issue, please contact: william.coyle@siemens.com.