



THE END-TO-END RELIABILITY FORUM™

# DATA CENTERS, AI, AND THE GRID: WHY FLEXIBILITY MUST COME FIRST

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CONFERENCE  
KEYNOTE



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*Accelerating Data Center Speed to Market:*  
**ENABLING RAPID AND  
 SCALABLE DEPLOYMENT  
 THROUGH MODULARITY,  
 AUTOMATION, AND  
 DIGITALIZATION**

*by Pete Tecos*

In today's rapidly evolving digital landscape, the demand for data centers is soaring—driven by the explosive growth of cloud computing, artificial intelligence, IoT, and edge technologies. As businesses race to expand their digital infrastructure, speed to market has become a decisive competitive advantage. However, the process of designing, building, and deploying data centers remains extraordinarily complex, requiring seamless integration across electrical, mechanical, and digital systems.

Hyperscalers, colocation providers, and enterprise operators must align with strategic partners with deep expertise in industrial connectivity, automation, and digitalization, to accelerate deployment timelines. Enabling smarter modular design, improving system interoperability, and reducing time-to-commissioning, are just a few examples of how strategic alliances are redefining how fast and efficiently modern data centers come online.

### The Urgency of Speed in the Data Center Industry

Data centers are the critical infrastructure powering today's digital economy—and in this space, every second counts. Accelerating deployment is no longer

a luxury; it's a necessity. The pressure to move faster is driven by several key factors:

- **Surging Demand:** Global data traffic is doubling at an unprecedented pace. AI workloads, 5G networks, and real-time analytics require enormous and ever-expanding computing capacity.
- **Intensifying Competition:** Cloud providers and colocation operators are in a race for land, power, and market share. Delays in deployment can lead to missed opportunities and lost revenue.
- **Capital Pressure:** Building a single hyperscale data center can cost over \$1 billion. Faster commissioning directly translates to earlier returns on investment.

Traditional construction cycles of 18 to 36 months are no longer sustainable. Industry leaders are embracing modular, standardized, and scalable architectures to bring facilities online in less than a year. In today's environment, speed to market is not just a strategic advantage—it is mission-critical.

### Accelerating Data Center Deployment

As the demand for fast, scalable data center deployment intensifies, a powerful combination of products, services, and digital capabilities tailored to

today's challenges enables data center developers to build faster, smarter, and more reliably across every phase of the project lifecycle.

### 1. Pre-Engineered Modular Systems

Modular, ready-to-install solutions simplify field installation and reduce on-site labor by up to 50%. Key considerations include:

- **Pre-Assembled Junction Boxes** for power generation and electrical rooms.
- **Control and I/O Systems** for infrastructure automation.
- **HDC Plug-and-Play Solutions** for HVAC, lighting, and power monitoring systems.



Modular, ready-to-install solutions like Bulkhead Heavy-Duty Connector Solutions with SNAP IN technology to help build faster and simplify wiring setups.

By shifting labor off-site, these modular-based systems minimize field errors, accelerate commissioning, reduce installation time by 30–50%, and enable consistent scalability.

#### Case in Point: Modular Switchgear Assemblies

Power Connectors, DIN-rail Terminal Blocks, and Heavy-Duty Connectors—featuring the fastest connection technology on the market, SNAP IN technology—eliminate manual screw fastenings, enabling fast, tool-free assembly of switchgear. This speeds up deployment and simplifies maintenance and expansion.

### 2. Automated Panel Building Solutions

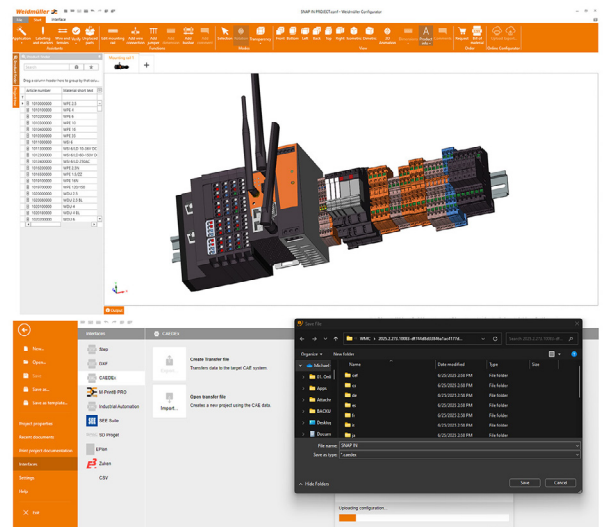
Control panel wiring is often a bottleneck in construction. Automated panel building tools drastically reduce build time and error. Key examples include:

- **Automated DIN-Rail Assemblers and Wire Processing Centers** drastically reduce manual build time and expense for terminal rail assembly and wire preparation.



Automated DIN-Rail assemblers can drastically reduce manual build time and expense for terminal rail assembly and wire preparation.

- **Flexible, Easy to Use Software** for rail assembly design with import/export to CAD based design and planning.



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- **Integrated Printing and Labeling Systems** for rapid terminal and cable marking.

These machines and all-in-one tools allow OEMs and contractors to produce high-quality panels in days instead of weeks, ensuring rapid, repeatable deployment across sites – a key requirement for hyperscalers and colocation providers.

### 3. Digital Twin and Design Automation

The full adoption of digital engineering and BIM workflows will enable faster, error-free design and better trade coordination.

Using software design tools for electrical panels and rails, engineers can:

- Create detailed, error-free schematics and 3D models.
- Export data directly to CAD platforms like EPLAN and AutoCAD.
- Simulate electrical performance and spatial layout.

Look for a free tool that allows you to integrate your CAD platform of choice, and then incorporate digital models to reduce rework, optimize procurement, and align stakeholders early – cutting weeks or even months off project schedules.

#### Key Benefit: Enhanced Collaboration

Shared digital platforms foster real-time coordination across electrical, mechanical, and IT teams for collaboration in real-time, breaking down silos that typically delay large-scale builds.

#### 4. Industrial Connectivity and IoT Integration

Modern data centers are increasingly intelligent, integrating IoT-based monitoring systems for power, cooling, fire suppression, and security. Industrial connectivity portfolios—including Industrial Ethernet, Signal Converters, Remote I/O, and Edge Devices—enables seamless integration of:

- Power Usage Effectiveness (PUE) Monitoring
- Environmental Controls (Temperature, Humidity, Airflow)
- Predictive Maintenance

The selection of solutions with multi-protocol support (Modbus, PROFINET, OPC UA, and MQTT), ensures interoperability across diverse systems, reducing the time needed for custom integration.

#### Edge Intelligence: A Competitive Advantage

Controller and I/O platforms that deliver intelligence to the edge, enabling decentralized decision-making and enhancing resilience – are especially important for edge data centers.

#### 5. Supply Chain Agility and Global Reach

Fast deployment requires more than good products—it demands supply chain reliability and resiliency coupled with a global manufacturing footprint.

This enables:

- Faster delivery of components and systems.
- Local engineering support for regional standards.
- Reduced lead times with regional stocking of critical components.

In a volatile supply chain environment, this agility becomes a strategic asset for project delivery.

#### 6. Compliance and Standards Alignment

Data centers are bound by strict standards for safety, reliability, and performance. The utilized components must comply with international certifications including:

- **UL, IEC, and CSA** for electrical safety
- **ATEX/IECEX** for explosion-proof environments
- **RoHS/REACH** for environmental compliance

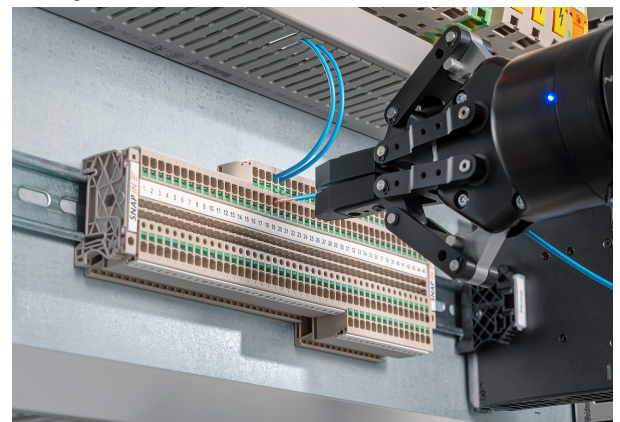
Using certified, field-proven components from partners who have a wide array of certifications accelerates inspections and regulatory approvals, keeping commissioning timelines on track.

## Looking Ahead: AI, Edge, and the Role of Automation

As AI and edge computing reshape the digital infrastructure landscape, the demand for micro data centers and AI-optimized zones is accelerating. These next-generation implementations require:

- **Faster Deployment**
- **Greater Standardization**
- **Remote Management**

Companies must be well-positioned to meet these evolving demands with modular, scalable solutions and advanced remote connectivity capabilities. From AI-powered diagnostics to seamless remote firmware updates, the growing portfolio of digital automation tools enables faster rollouts, smarter operations, and reduced on-site intervention. As infrastructure continues to decentralize, it's never been more important to identify a trusted partner for building the agile, intelligent data centers of the future.



Ready-to-Robot connection technology like SNAP IN is designed to meet specifications for automated wiring and assembly.

## Conclusion

The race to deploy data centers faster and more efficiently is intensifying – and companies that can support this transformation will define the future of the industry.

For data center developers seeking to win the race to deploy new capacity, reduce complexity, compress timelines, and deliver resilient, scalable infrastructure, look for partners that offer modular hardware, automated panel solutions, IoT ready platforms, digital engineering, and a resilient global supply chain – a winning combination for those who seek speed without sacrificing quality.

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