IT Infrastructure Solutions in Higher Education

Creating solutions that help higher education IT professionals anticipate their information and data.
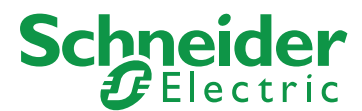
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Business Case for IT in Higher Education

The Mobile Revolution and Edge Computing

Forty-two percent of college students use two or more mobile devices during a typical school day. For those who use three or more devices — such as a smartphone, tablet and laptop — 61% say they want to use mobile technology even more. Universities that want to keep their halls of learning full must be sure their data centers are ready to meet these connectivity demands.

It's not just students who will be looking at your technology offerings before they make decisions, prospective faculty members don't want to be left behind and potential researchers seek cutting edge facilities to help reel in precious grant money. On top of this, many of the latest on campus systems, security cameras for example, run off of wireless connections.

Think about game day. In addition to the student body, thousands of fans descend and bring even more devices. The access points that need to be covered now are widespread and exponential.

Yet, in many cases data centers at higher education institutions are aged and the equipment in the many wiring closets in the dorms and libraries are not up to date either. The mobile revolution isn't even 10 years old yet and it took all industries by surprise. Private sector businesses are just beginning to catch up, but colleges and universities haven't had the same opportunities.

Schneider Electric's Higher Education solutions provide the resources you need to stay ahead of the changing times.

2017 Top 5 IT Issues

1. **Data-Informed Decision Making:**
   Ensuring that business intelligence, reporting, and analytics are relevant, convenient, and used by administrators, faculty, and students

2. **Data Management and Governance:**
   Improving the management of institutional data through data standards, integration, protection, and governance

3. **Higher Education Affordability:**
   Prioritizing IT investments and resources in the context of increasing demand and limited resources

4. **Next-Gen Enterprise IT:**
   Developing and implementing enterprise IT applications, Edge Computing, architectures, and sourcing strategies to achieve agility, scalability, cost-effectiveness, and effective analytics

5. **Digital Transformation of Learning:**
   Collaborating with faculty and academic leadership to apply technology to teaching and learning in ways that reflect innovations in pedagogy and the institutional mission

Lifecycle Services

Design

- Engineering Services
- Datacenter suite of Infrastructure Solutions
- Pre-fab Designs
- Site Assessment Services

Build

- Turn-key build services
- Integrated Racks
- Electrical/Mechanical Install
- Structured Cabling
- Server Installation

Operate

- Struxureware
- StructureOn
- Fleet Management

IT Infrastructure Solutions Across the University Campus

Centralized IT Network

Centralized IT: The largest data center on campus. This will support all university IT needs. Supporting IT aspects such as the university website, campus email and university communications. Schneider Electric has best of breed solutions to support a highly flexible and resilient data center to ensure high availability to data while being able to quickly expand and contract with the ever changing higher education environment. The broad and highly integrated Schneider Electric solution allows ultimate flexibility, simplicity, standardized and rapid speed of deployment.

College of Engineering

Centralized IT

Stadium

Stadium

The university stadium serves as a technology hub for the university on game day. Acting as small city during game hours, it should provide wireless for all media and paying customers, and have entrance and access hubs for everything from ticketing, to security, to concessions.

Administration

Administrative

The administrative data center houses all electronic records for the university including all documentation on who should be granted admission to the university, academic records, and proof of degree completion. This facility also supports the senior leadership of the university with their IT needs and connectivity.

Library

The library provides access to digital information, research data, online books and articles as well as a variety of digital communications, such as smart boards and video chat, allowing for global collaboration.

Classrooms

Data Centers within each college and classroom building provides access to high bandwidth, intensive content with limited latency. Providing IT infrastructure at the classroom level ensures students, faculty and researchers connected to all their preferred technology.

Security

Technologies to detect and deter threats and maintain essential lines of communication in the event of an emergency, including body cameras for police officers that store of the data, security cameras around the campus, and University police communications both within the university to the greater community.

College of Business

College of Arts & Sciences
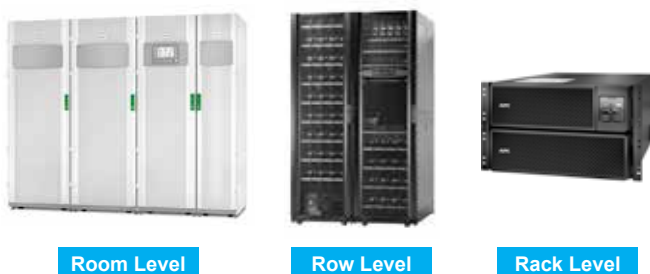
Residence Halls

Library

Residence Halls

Residence halls not only provide 24/7 uptime so students are connected anytime and to anywhere, but also include multiple interconnected devices, applying Internet of Things (IoT) technology to improve living experiences.

Higher Education IT Network & Control Room Solutions

Racks and Accessories

Wall Mount

Video

| Standard IT | 2/4 Post Open | Self Contained | PDUs | KVM | Ventilation | Shelving | Cabling |

UPS Systems

Room Level | Row Level | Rack Level

Cooling Systems

Room Level | Row/Rack Level

Management Software

StruxureWare

Complete Solutions

Infrastruxure System | Prefabricated/Modular

Higher Education Control Panels, PCs & Critical Process Solutions

UPS Systems

Din Rail Mounted UPS | Standalone Single Phase UPS | Large Scale 3-Phase UPS

Management Software

StruxureWare

Stay Connected To Your Higher Education Infrastructure

StruxureOn is a data-driven cloud based software for your critical equipment, increasing transparency through live sensor data, predictive analytics and smart alarming, delivered directly to your smartphone. Optional remote troubleshooting provided by experts monitoring your connected assets 24x7. StruxureOn offers the potential to completely outsource your IT or provide a second set of eyes for your critical infrastructure.

The 3 Pillars of StruxureOn

Mobility
Stay connected to your data center and network infrastructure.

The Value of Mobility:
- Visibility of asset health at all times and at your fingertips
- In app collaboration with your team & Schneider Electric experts

The StruxureOn app offers:
- Alarm notification
- Alarm dashboard and history view
- Auto ticket creation and status tracking
- Chat and team collaboration
- Device and sensor data
- Live and historic view

Monitoring
Increase your data center and network infrastructure with optional intelligent 24/7 monitoring and remote troubleshooting.

The Value of Monitoring:
- Digitally connected to your team and Schneider Electric
- Schneider Electric is watching your data centers or satellite sites for you
- Enables lights out sites, and no local skills
- Proactive fault management helps avoid downtime incidents and provides faster time to resolution

Features include:
- Alarm management
- Remote troubleshooting
- Online chat with your app
- Dispatch service engineer
- Incident tracking

Insights
Gain insights into the performance of your data center and network infrastructure

The Value of Insights:
- Recommended battery replacement reports
- Recommended system replacement reports
- General performance ratings and recommendations for improving your overall performance

Features Include:
- Score for the month, indicating how well your data center runs
- Recommendations on how to improve
- Alarm and incident statistics
- Asset KPIs
    — UPS age and efficiency
    — Battery age
    — Cooling performance

Integrated IT Solutions

Schneider Electric's Integrated IT solutions simplify infrastructure supply chain, reduce time and cost to deploy, and reduce the overall complexity of your IT solutions and operations.

5 Steps to Easy Integration

Choose your rack
Schneider Electric has the right rack system to fit your needs. Choose from traditional IT cabinets, CX furniture enclosures, wall-mount enclosures or multi-bay enclosures.

Select your components
Customize your racks and have them prebuilt and preconfigured with your power strips, UPS, data cabling panels, organizers, fans, and other IT gear.

All components preinstalled
Schneider Electric has a comprehensive selection of components, all installed at customer defined locations within the rack prior to shipment.

Delivered on Shock-proof pallets
Our Shock Packaging pallets are designed to safely load, transport, unload and deploy a cabinet with up to 2000 lbs of IT equipment installed.

Rack installed at your location
Schneider Electric professional services can help you with installing everything from electrical, mechanical, IT equipment to network cabling. We're here for you.

Customer Example: Site Assessment

With limited or no IT staff on site, the customer needed to reduce equipment installation time in each store. Also, each location was operating independently, creating confusion when trying to address IT issues.

The solution:
Schneider Electric preinstalled the required equipment in each rack at our factory, assigning specific rack locations to specific data center equipment.

Benefits to the customer:
1. Simplified deployment by bringing six vendors down to one
   • One quote, one PO, one order to track (vs 6)

2. Reduced shipping cost
   • One configured rack vs 6 separate components with separate shipping costs

3. Increased speed of install
   • Reduced complexity during store installation

Schneider Electric offers a wide variety of services to help to your critical equipment stay up and running with as little management as a client desires. Let us know how we can help with your challenges.

Keep Up with the Speed of Business with the Integrated Infrastructure Solutions from Schneider Electric.

• Reduce total cost per site by consolidating vendors and shipping costs

• Decrease installation & technician costs with majority of components preinstalled

• Speed installation by lowering number of components installed on site

• Lower complexity with uniform parts and locations within rack

• Reduce tracking of multiple orders and vendors for the site

• Ensure availability of all components to eliminate delays in installation

Schneider Electric offers a wide variety of services to help to your critical equipment stay up and running with as little management as a client desires. Let us know how we can help with your challenges.

Take Control of Your Remote IT

All too frequently, businesses lack visibility to their remote IT installations, leading to a chaotic and unmanaged environment. Unlike datacenters which may have qualified staff on hand 24/7, these remote environments may only be accessible to unqualified local staff whose primary role has nothing to do with IT. During normal operation, these sites frequently go unchecked and unsupervised. There is often no clear record of what is installed, what capacity's may or may not be available, and what may be in some state of malfunction. This is where Schneider Electric can help.

4 Steps to Controlling Your Remote IT Installations

Evaluate Your Current Assets

Our first step is to review your current list of assets, often with data you supply. However, we can also conduct an onsite asset collection or assessment. The first provides a simplistic site inventory including asset age, status, part number, and serial number. The latter is a more comprehensive review of the IT environment including power and cooling performance, inventories, layouts, pictures, and recommendations.

Determine Your Needs

Once inventories are taken and sites assessed, recommendations are made to bring sites up to standards. Any upgrades to IT Infrastructure systems can be managed turn-key by Schneider Electric.

Connect Sites to Our Experts

One option to maintaining the integrity of remote IT infrastructure is to digitally connect all related devices to the Schneider Electric StruxureOn service. This connects your infrastructure systems to the experts who can be a primary or secondary set of eyes for proactively monitoring any system faults 24x7. Connecting your assets makes them accessible via the StruxureOn mobile app and links you directly to Schneider customer service for quick issue resolution.

Manage Infrastructure Systems

It is a common scenario: You are responsible for a "fleet" of IT Infrastructure systems, you have limited staff on location, and there are constant issues happening or about to happen. Managing incidents will keep local staff focused on their primary roles, keep systems up, and the business functioning. Again, this is where Schneider Electric can help with Infrastructure Fleet Management. An enhancement to the StruxureOn service, Fleet Management adds onsite resolution to system faults, helping to spot a problem before it has a chance to escalate, fixing it quickly, and greatly reducing the overall MTTR (Mean Time To Repair).

Customer Example: Site Assessment

Customer Challenge:

The customer was spending too much time managing the different systems and equipment across all field offices. When any IT equipment failed or needed to be updated, the facilities department had to coordinate both a Schneider Electric tech and an electrician to resolve the issue. Scheduling issues often resulted in multiple visits to the site for additional maintenance creating frustration and a loss of time and money. The customer needed help optimizing the process, removing risk, and improving speed of service.

The Solution:

Schneider Electric implemented turnkey operations for each of the facility sites. All end user products are managed by Schneider Electric as a single point of coordination, including planning, preparation and execution of all IT facility operations.

Benefits to the Customer:

The customer has greatly reduced their risk and is able to focus on the full portfolio of their sites per region. Countless man hours have been saved and risk has been removed.

Customer Example: Infrastructure Asset Management

Customer Challenge:

The customer had no IT staff onsite and needed help increasing the speed of recovery and equipment installation.

The solution:

Asset Management Service from Schneider Electric is an all-inclusive package that provides proactive monitoring, remote troubleshooting, and repair or replacement of equipment in the event of failure, regardless of UPS age or location.
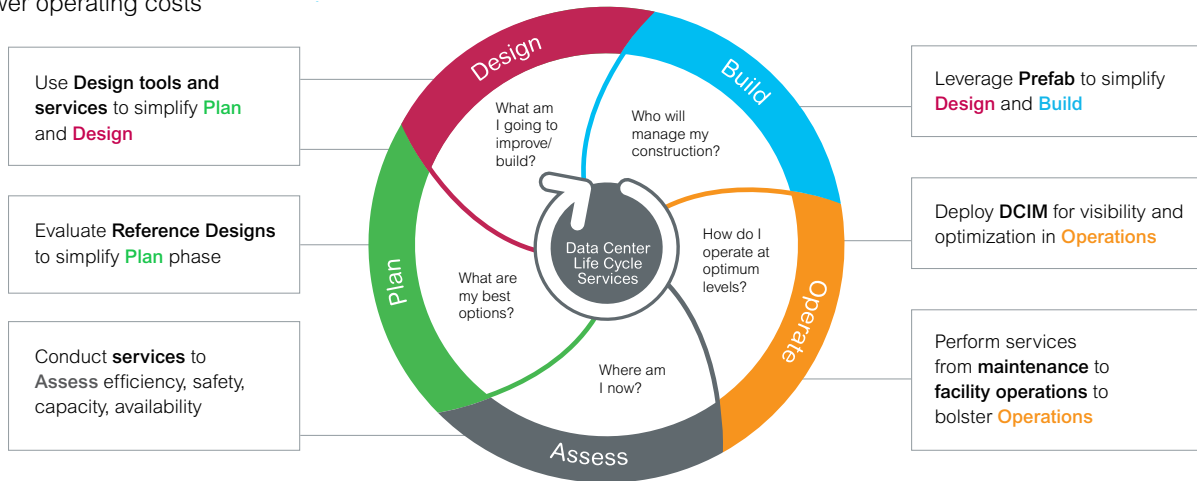
Benefits to the customer:

Utilizing Schneider Electric's Asset Management Services and Struxureware software solutions, the customer saw a 99% drop in site outages and greatly increased their availability and site up-time.

Simplify your Higher Education Data Center Complexity

The most effective data centers, including new builds, upgrades, and retrofits, use a life cycle services approach because it helps:

- Standardize and modularize to avoid or quickly resolve issues, and reduce and preserve capital
- Optimize power, cooling, and space both in bank-owned and co-located sites to maximize computing effectiveness and create new opportunities for IT expansion
- Lower operating costs

- Mitigate risk
- Contribute to corporate energy efficiency and sustainability goals
- Make operational excellence a core competency, which ultimately improves customer satisfaction

Use **Design tools and services** to simplify **Plan** and **Design**

Evaluate **Reference Designs** to simplify **Plan** phase

Conduct **services** to **Assess** efficiency, safety, capacity, availability

Design — What am I going to improve/build?

Build — Who will manage my construction?

Plan — What are my best options?

Data Center Life Cycle Services

How do I operate at optimum levels?

Operate — Where am I now?

Assess

Leverage **Prefab** to simplify **Design** and **Build**

Deploy **DCIM** for visibility and optimization in **Operations**

Perform services from **maintenance** to **facility operations** to bolster **Operations**

A life cycle services approach helps higher education reduce, eliminate, improve, and create:

REDUCE
- Data center complexity
- equipment & service providers
- Operating costs
- One-time engineering
- On-site fabrication
- Maintenance
- Human error

ELIMINATE
- Oversizing
- Component-level specification process
- Unusable capacity
- Rework
- Surprises

IMPROVE
- Efficiency, power density
- Deployment speed
- Predictability, including availability, capacity, & density
- Aesthetics

CREATE
- Standardized reference designs
- Solution-level performance specifications
- Simple specification methods
- Automated selection and design tools

Simplify your IT Infrastructure Solution

- Improve speed and simplicity of deployment
- Reduce costs and time associated with managing multiple solutions providers
- Boost uptime of IT system with standardized solution

Shelves

Data cabling Patch panels

LCD and IP KVM

Cable Organizers

Power Strips

UPS

Environmental Monitoring

Choose from our broad selection of rack components

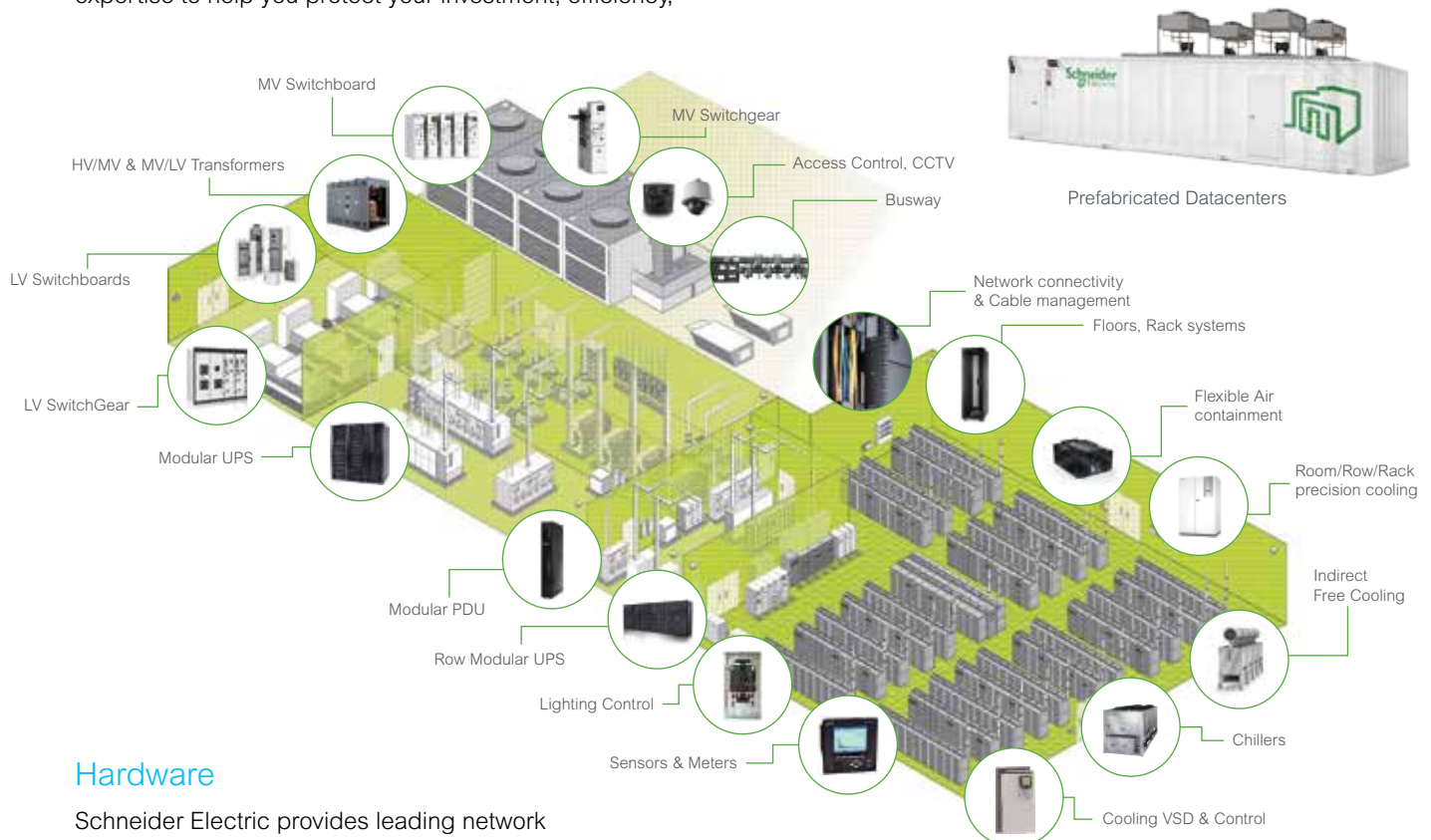Rack with all components factory installed

Completed rack on Shock pallet ready for install

Our Integrated IT Rack system helps lower deployment costs and time by providing a full rack with all rack components and UPS installed, delivered to you on a shock pallet and installed at your designated location.

A comprehensive suite of IT and data center solutions and services by Schneider Electric simplifies growing IT complexity. This is done by helping manufacturing store, manage, administer, and protect this ever-growing volume of data so they can leverage big data to optimize sales.

Schneider Electric has the solutions, experience, and expertise to help you protect your investment, efficiency, and availability. Our comprehensive software, solutions, and services portfolio supports third-party integrations. This open architecture ensures your applications receive the care you need to operate at optimal levels – at all times – from installation to ongoing operations.

Prefabricated Datacenters

- MV Switchboard
- MV Switchgear
- HV/MV & MV/LV Transformers
- Access Control, CCTV
- Busway
- LV Switchboards
- Network connectivity & Cable management
- Floors, Rack systems
- LV SwitchGear
- Flexible Air containment
- Modular UPS
- Room/Row/Rack precision cooling
- Modular PDU
- Indirect Free Cooling
- Row Modular UPS
- Lighting Control
- Chillers
- Sensors & Meters
- Cooling VSD & Control

Hardware

Schneider Electric provides leading network backup and protection for small IT environments, as well as medium and large data centers.

Software

StruxureWare™ software solutions by Schneider Electric allows you to: manage capacity, prevent faults and incidents, monitor energy usage, reduce costs, and improve availability through monitoring and automation of networked equipment from any manufacturer.

Services

Schneider Electric has the solution to meet your IT infrastructure needs. Supported by a world class services organization, we have the expertise to deliver the highest level of business continuity required to ensure a strong customer experience both online and in-store.

StruxureWare

- Resource Advisor
- Data Center Expert Data Center Operation
- Building Operation
- Power Expert Power SCADA Expert

Solving customer challenges

Customer Example:
University of Massachusetts Medical Center: StruxureWare™ for Data Centers

Customer Challenge:

Technology. It's ever changing. Fast-paced. Complex. How can any company or organization keep up? The answer lies in flexible, adaptable, and agile data center physical infrastructure and real-time management software. David Plamondon, data center operations architect agrees. "Data centers are purpose-built to a specific standard and capacity, which is, for the most part, fixed at a moment in time. The biggest challenges are daily technology changes and having to support the latest and greatest equipment while staying within the original data center design specifications." "You can't properly run a data center unless you have a complete picture of what is going on at any one time in either the facilities or IT side of the equation. Having one solution that can combine infrastructure and IT management, as opposed to having multiple individual solution, was a no- brainer. We needed a centralized solution that provided a 'big picture" view."

The Solution:

"Using StruxureWare Data Center Expert, were able to bring all of our power/cooling monitoring needs under one central dashboard. Using StruxureWare Data Center Operation, were able to have real-time view of our current data center operating environment so we can better prepare for future needs. Both seamlessly integrated with our existing hardware." "In the past it was spreadsheets and manual logs! Now, everyday I look at my console…to gauge overall operating conditions and answer questions quickly."

Benefit to the Customer:

"So far, as a part of our data center optimization project, we have been able to reduce our IT energy load by 5%. That is a real number that we can show on paper." By closing the gaps between IT and facilities, gaps in documentation related to physical floor space and the location of the IT equipment such as servers, storage, and network devices, and gaps in information availability and response time, StruxureWare™ for Data Centers has helped University of Massachusetts Medical Center keep up - and even anticipate - ever changing technology requirements.

Customer Example: University of Texas Health Science Center: Best Practices for Building a New Data Center

Customer Challenge:

With the ever-changing landscape of data center needs, the goal is to achieve data center infrastructure standardization and efficient power and cooling through a rack based data center design. Richard L. Miller, CIO at UTHSC, felt it was time to upgrade the existing data center. He was concerned that persistent power and cooling problems were negatively impacting overall data center operations. It was difficult to integrate equipment with differing power and cooling requirements. Attempting to manage never-ending shifts in heat loads and power loads became a major challenge. Another concern involved the ownership of the building that housed the data center. The building owner was pushing UTHSC to move out so that the existing building could be razed for the purpose of building two new towers.

The Solution:

The operations team chose to build the data center on the roof of the facility's parking garage. The parking garage roof space provided an opportunity to build the data center without any existing preconditions. "A rooftop in Houston, Texas, is extremely hot," explains Kevin Granhold, UTHSC Director of Data Center Operations and Support Services. "Placing the super-cooled data center on the north side of a 26-story tower was good idea because the particular location is primarily in the shade. The size of our proposed data center fit quite well in the pace and we had multiple ways to get in and out of the facility." A strategic decision was made to not move the mainframe but to decommission it. Rack placement decisions were based on power density calculation, growth paths, and cooling related issues. Prior to construction, the design was developed to design a floor plan for in-row integrated rack, power, and cooling with hot aisle containment.

Benefits to the Customer:

"As a result of standardization, acquisition costs, maintenance costs, training costs, implementation costs, learning curves and turnover of employees were dramatically reduced." The physical environment of the data center greatly impacts the productivity of employees who work within its four walls. A poorly managed data center, where noting seems to work right and where wires are distributed in a chaotic fashion has a negative impact on the morale, work ethic, and efficiency of the staff. The data center facility is also a visual representation of the organization's work ethic. Professionalism and pride are huge cornerstones. If a registered visitor walks into our data center and the facility is clean and organized, and the servers are properly labeled, that individual will walk away saying "this is done right." The physical infrastructure technology and architecture deployed has a major impact on the ability to properly organize the data center. If the data center is properly designed, the executives within the organization are more likely to thrust the IT team and to fund key IT projects.

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A college campus is a dynamic setting that serves the needs of many diverse stakeholders. From administrative matters of program offerings and competition, fluctuating enrollment, and safety issues, to operational concerns of lower budgets, higher energy costs, and aging equipment – colleges are consistently under pressure to do more with less while trying to create the optimal learning environment and attract students and high quality faculty

Schneider Electric is committed to supporting the Higher Education sector

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