



IT Infrastructure Solutions in Healthcare

Creating solutions that help Healthcare IT professionals anticipate their information and data.

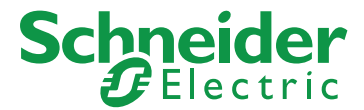
schneider-electric.com

Life Is On

Schneider
Electric



Life Is On



Contents

Business Case for IT in Healthcare	4
Healthcare Industry Trends	5
Critical Environments Across the Hospital	6
Infrastructure Solutions	8
Connecting Customers to Expertise	9
Integrated IT Solutions	10
Take Control of your Remote IT Environments	11
Simplify your Healthcare Data Center Complexity	12
Solving Customer Challenges	14

Business Case for IT in Healthcare

The Healthcare Revolution

For the healthcare industry, ensuring a quality environment of patient care is paramount. New technologies—from digital imaging to security-enhancing baby finders—are helping to reduce errors, improve care, and decrease costs simultaneously.

But to enable these technologies, healthcare facilities need a rock-solid physical infrastructure to back up their assets. The challenge, then, is to find a scalable, modular solution with the lowest total cost of ownership over time.

With energy costs soaring, the system has to be efficient. Availability has to be constant, from patient check-in to checkout. And, at the end of the day, the solution has to comply with increasingly strict standards and legislation.

Schneider Electric has just what the doctor ordered. The easily installed InfraStruxure solution enables the benefits of a high-density environment at a lower relative cost than other solutions, and will offer you greater operational and energy efficiency:

- An ideal solution for a wide range of environments, from wiring closets to data centers and modalities throughout a hospital.
- Immediately eliminates hot spots by putting all the high density in one place.
- Enhanced overall efficiency, reduced power consumption, and optimal availability.
- The best level of building operation traceability possible.

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



Trends in Healthcare

Our aging population is straining our healthcare system as more patients seek care. Adjusting to healthcare reform is putting a burden on an already aging healthcare infrastructure. Building, operating, and maintaining a healthcare facility is a challenging and complex task. In addition:

- The number of people 60 years and older will double by 2050.
- It will cost the average hospital an additional \$1M per year if our energy costs increase 25%, as expected, in the next 5 years.
- It costs the average hospital \$1M per day for an unplanned power outage.
- “The number of Americans receiving virtual medical care is forecast to double, from 15 million in 2016 to 30 million in 2017.” - American Telemedicine Association
- According to a Healthcare IT News survey healthcare organizations will be working on projects in 2017 that include connecting to external databases, such as health information exchanges (65 %); connecting applications within the organization (58 %); and adding connections from medical devices to existing systems (37 %).

Schneider Electric Healthcare solutions supports a life cycle approach from planning and design to operating and maintaining your IT infrastructure.

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

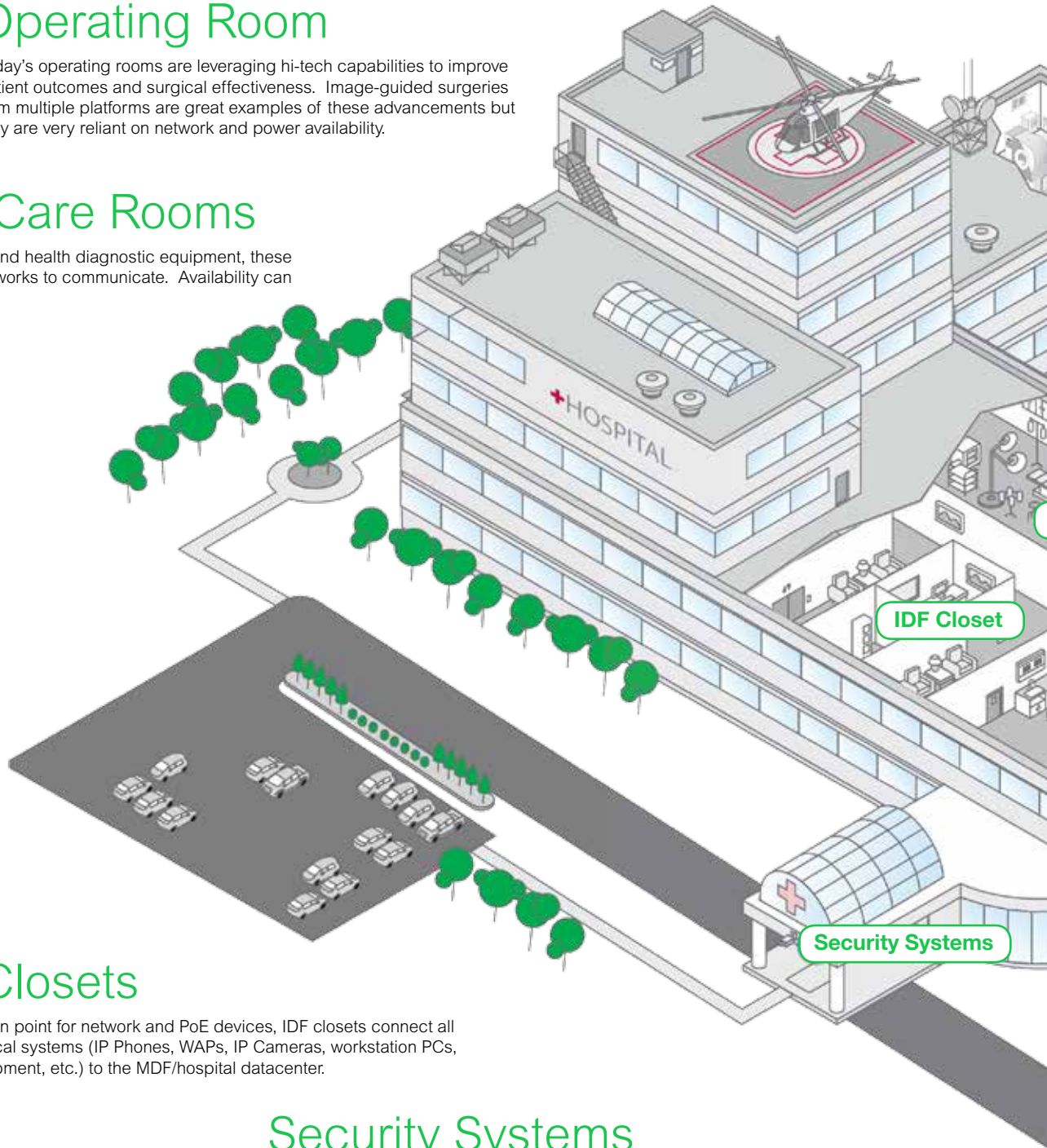
Critical Environments Across the Hospital

Operating Room

Today's operating rooms are leveraging hi-tech capabilities to improve patient outcomes and surgical effectiveness. Image-guided surgeries from multiple platforms are great examples of these advancements but they are very reliant on network and power availability.

Critical Care Rooms

Packed with sensors and health diagnostic equipment, these rooms leverage IT networks to communicate. Availability can impact life and death.



IDF Closets

An aggregation point for network and PoE devices, IDF closets connect all the diverse local systems (IP Phones, WAPs, IP Cameras, workstation PCs, Imaging Equipment, etc.) to the MDF/hospital datacenter.

Security Systems

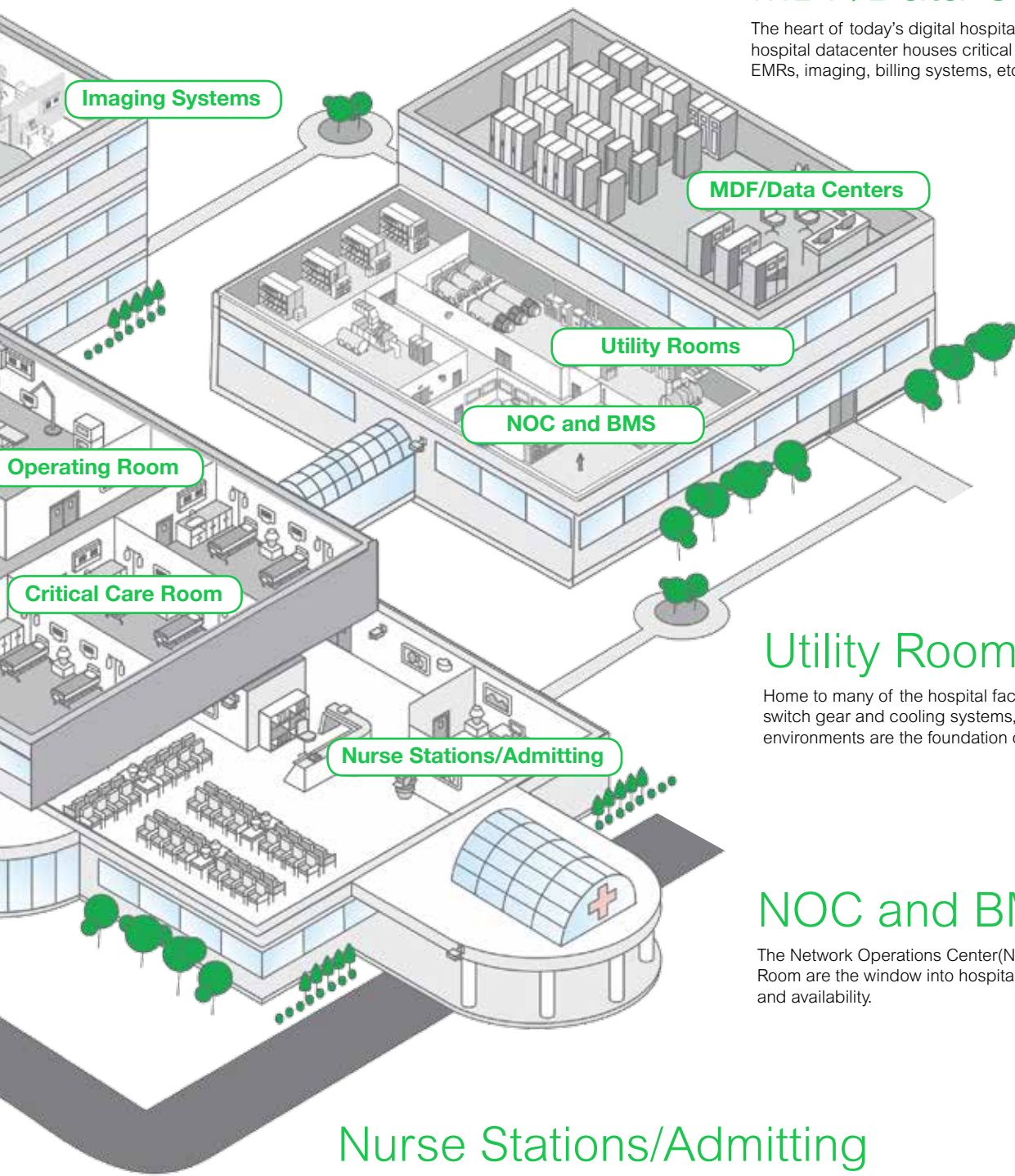
From IP cameras to access control systems, hospital security is a mandated part of HIPAA and cannot be compromised by network or power outages.

Imaging Systems

An integral part of patient diagnosis, imaging machines like CT Scanners and MRIs generate large, high definition images that are stored in the hospital MDF and are accessed over the IT network.

MDF/Data Centers

The heart of today's digital hospital environment, the MDF/ hospital datacenter houses critical information from patient EMRs, imaging, billing systems, etc. Availability is paramount.



Utility Rooms

Home to many of the hospital facility systems like electrical switch gear and cooling systems, these digitally monitored environments are the foundation of hospital operations.

NOC and BMS

The Network Operations Center(NOC) and BMS Control Room are the window into hospital systems performance and availability.

Nurse Stations/Admitting

An important patient entry point and operational/working area for staff, these environments rely heavily on network availability to perform their duties.

Infrastructure Solutions

Healthcare MDF and IDF Solutions

Racks and Accessories



UPS Systems



Cooling Systems



Management Software



Complete Solutions



UPS Solutions by Applications

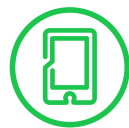




Stay Connected To Your Healthcare Infrastructure

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 remotely 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. This proactive service plan helps addresses issues before they become business impacting events, dramatically reduces Help Desk calls, and greatly reduces the 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.

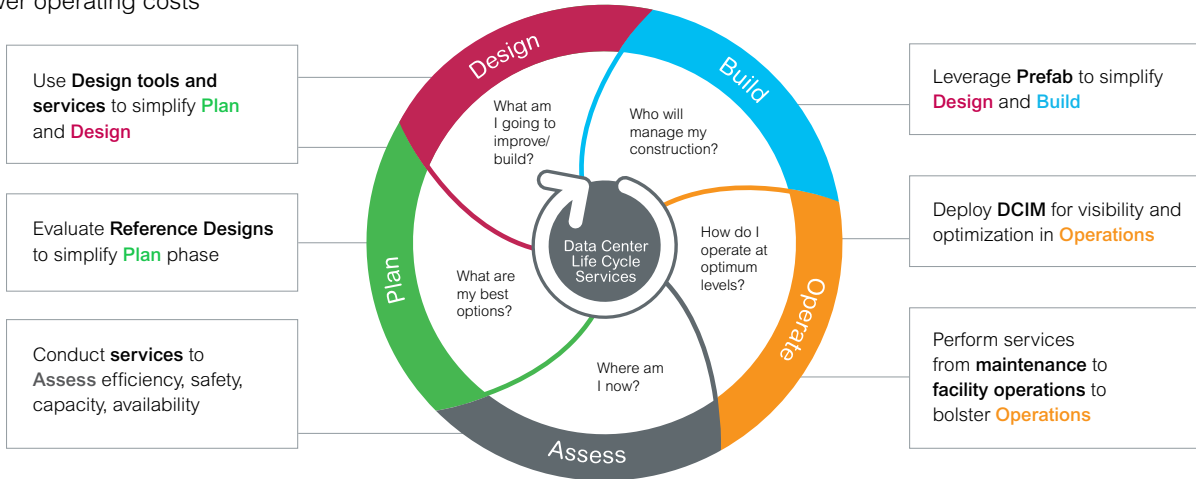
Benefits to the customer:

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 Healthcare 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



A life cycle services approach helps healthcare data centers 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



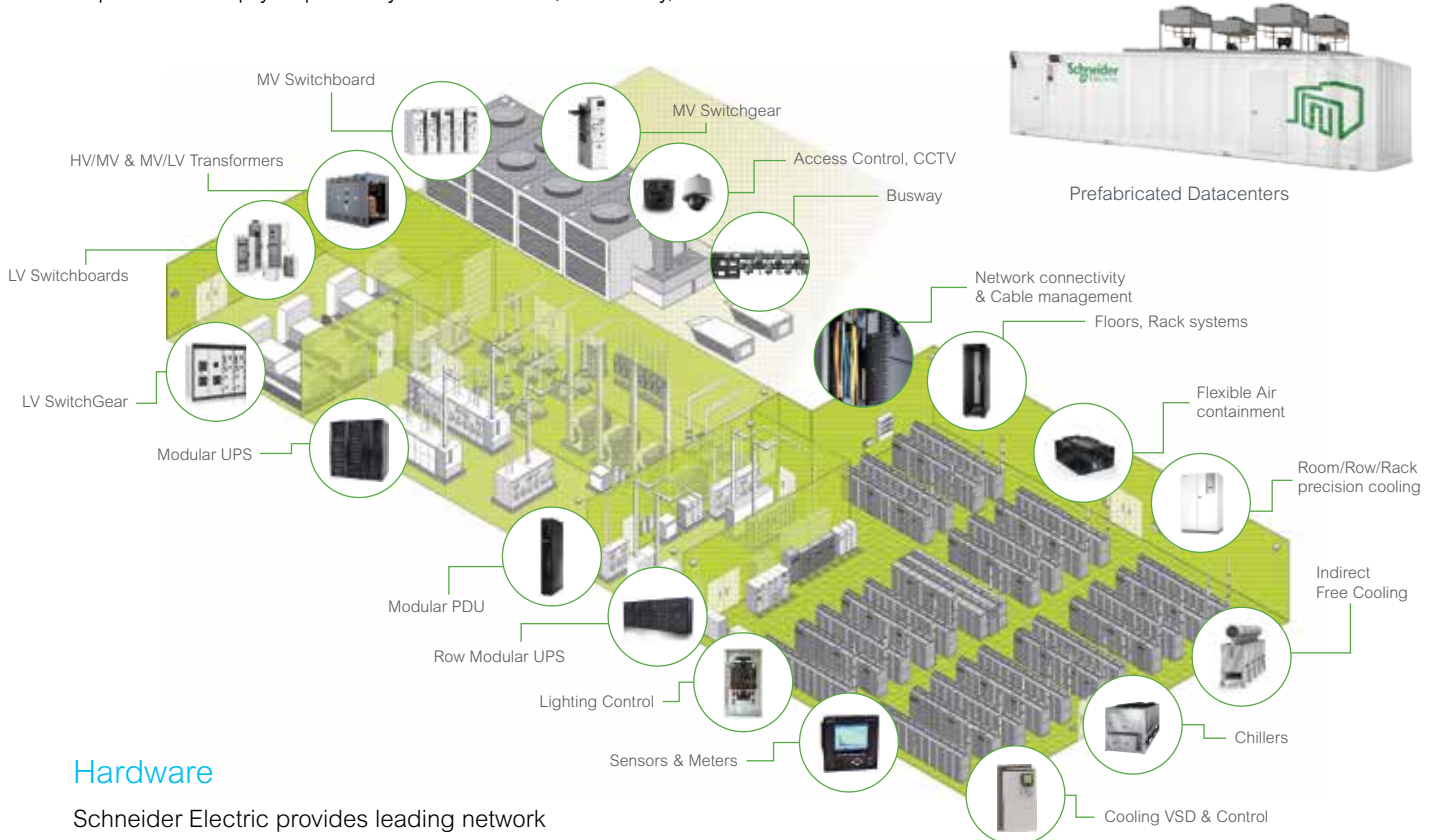
Choose from our broad selection of rack components Rack with all components factory installed Completed rack on Shock pallet ready for install

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.

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.

Schneider Electric has the solutions, experience, and expertise to help you protect your investment, efficiency,



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.



-  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:

UTHSC's goal was 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, providing an opportunity to build 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 a good idea because that location is primarily in the shade. The size of our proposed data center fit quite well in the space 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 calculations, growth paths, and cooling related issues. Prior to construction, a floor plan design was developed for in-row integrated racks, 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 there. A poorly managed data center 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 visitor walks into our data center and the facility is clean, organized, and 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 facility is properly designed, executives within the organization are more likely to trust the IT team, and fund key IT projects.

Customer Example: Care New England

InfraStruxure Solution Enables Higher Availability, Better Care

Care New England Health System (CNE) is composed of an association of five healthcare providers, each of which has established a reputation as a leader in the domains of community health, research, and education. Three years ago, we embarked on a strategic business plan to enhance the quality of care, while streamlining processes and cutting costs. On the information technology side, we made the decision to digitize as many critical processes as possible.

In our assessment of available power, cooling, and rack enclosure technologies, we determined that many of the physical infrastructure solutions possessed single points of failure, did not employ N+1, fault-tolerant components, and could not sufficiently detect and communicate faults at the system and component level over the network.

Rather than buy one oversized 200kW UPS, we purchased an InfraStruxure solution consisting of four 40kW, N+1 systems with 50 enclosures, air distribution, cable management, environmental monitoring, and metered PDUs. The design of the InfraStruxure gives us the flexibility to scale by simply adding additional racks, batteries, and power modules.

"Due to the rapid pace of healthcare IT implementation, we needed to be able to deploy systems into the data center more rapidly. The ability of APC to quickly deliver power when and where we need it is unparalleled in the industry."

— Howard Rubin, Director, IS Technical Services and Henry Mota, Network Analyst
Care New England

Life Is On



Scalability, experience, reliability—there are a dozen reasons for any business to choose Schneider Electric for an innovative, integrated solution.

But for those in the healthcare profession, Schneider Electric offers a more complete solution than any other industry player. More than 100,000 employees in more than 130 countries are on staff to make sure you have the help you need, when you need it. And since almost 5% of its turnover is reinvested in R&D, you can rest assured you're getting an efficient and innovative product.

Schneider Electric is
committed to supporting
the Healthcare sector

Schneider Electric

132 Fairgrounds Road
West Kingston, RI 02892

schneider-electric.com

June 2017

©2016 Schneider Electric. All Rights Reserved.
All trademarks are owned by Schneider Electric Industries SAS or its affiliated companies.