Manufacturing IT Infrastructure Solutions

Creating solutions that help IT & Manufacturing Systems professionals anticipate their information and data.

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Business Case for Manufacturing

The Changing Production Floor

The worlds of IT and operational technology (OT) are converging. For industry to realize improved quality, efficiency, productivity, safety and customer satisfaction, all at a reduced schedule, OT and IT professionals must understand the significant complexities of building a connected enterprise. The next phase in the digitization of the manufacturing sector, Industry 4.0, will drive an increase in computational power, connectivity, and data volume, all requiring low-power wide-area networks.

These changes will be far-reaching, changing every aspect of manufacturing. Businesses must be proactive in addressing these new competitive challenges.

Schneider Electric’s Manufacturing solutions simplify IT/OT infrastructure as well as address data management and cybersecurity concerns while reducing the overall complexity of factory floor operations.
Industry Trends

Advanced analytics will be more involved than ever in manufacturing operations. The workplace will become more efficient and safer due to the digitalization of assets, which allows for digital design and more distributed manufacturing. Manufacturers will be able to improve their inventory due to the information presented by both supply chain and operations data. This will lead to:

- Improved quality of products
- Demand for more accurate forecasting
- Increased equipment value due to optimization and automation
- Increased equipment uptime
- Safer workplace environments
- Greater demand for cybersecurity

The Role of Robotics and Automation

Robotics & Automation have been in the manufacturing industry since the 1950’s. Early automation systems had limited “intelligence”, autonomy and operational degrees of freedom. They were mostly designed to perform one or two sets of repetitive tasks in a highly controlled environment. However, industrial automation and robots are increasingly becoming more “intelligent” and versatile. In the future, these systems are expected to be able to collaborate with human resources to take on more aspects of a flexible manufacturing process.

Between 2015 and 2018, it is estimated that about 1.3 million new industrial robots will be installed in factories around the world.

Solution Offering

- Integrated Infrastructure Lifecycle Solutions

Customer Benefits

- Reduced cost
- Reduced volume of vendors
- Pre-integrated systems
- Global supply chain capabilities
- Proactive system management
- Increased efficiency
Manufacturing IT Network

Staying connected to plant systems is the key to running a productive manufacturing environment. However, factory environments are harsh and require a more robust IT infrastructure solution to ensure network systems are environmentally protected and secure. Schneider Electric offers a wide variety of integrated enclosures (power, cooling, security, environmental, management) that can meet the challenges of factory floor located network equipment.

Manufacturing Control Cabinet

Maintaining power to system controllers (PLC, PAC, DCS) as well as industrial networks and intelligent devices is more important than ever. Aside from avoiding many power disruptions altogether, power continuity enables effective system shutdown and startups. It also ensures that critical plant floor data will continue to be available to upstream systems and applications. Often it is during events that drop power, intentionally or unintentionally, when that data is most important. This is especially true as systems become more connected and web enabled as often described by adoption of the “Internet of Things” in the Industrial Space.

Critical Manufacturing Process

In the most critical applications, downtime is simply not an option. This can be because of concerns about lost production, damage to product or equipment, even safety. In these cases, UPS systems applied to equipment power can provide insurance for your facility and process. In addition to preventing power loss, UPS systems provide the cleanest possible power, isolating equipment power related issues: harmonics, transients, spikes, sags, etc. Schneider Electric offers UPS systems designed to protect individual equipment and systems designed for central protection of systems integrated with power distribution architectures. This includes heavy industrial systems that can be deployed directly on the plant floor without additional enclosure protection.
Industrial PC

The use of PCs in plant floor applications has been growing for many years and takes a number of forms. Often PCs are integrated with HMI hardware to provide additional functionality to the user interface. Industrial PCs are also often added to control system enclosures to provide specific functions that are not ideally suited to the controllers themselves; typically, data intensive and/or highly computational functions. Traditional rack and tower server hardware is often used as well with measures taken to provide protection from the plant floor environment. Schneider Electric provides solutions for this as well as UPS solutions for all form factors. Regardless of how “industrial” the PC application may be; it is important to protect it from power related events. Unlike controllers, PCs are not designed to accommodate interruptions and critical data can be lost.

Manufacturing IT Room

A highly flexible and resilient IT Room will ensure high availability to data while being able to quickly expand and contract with the ever changing manufacturing environment. The broad and highly integrated Schneider Electric solution allows ultimate flexibility, simplicity, and speed of deployment.

Manufacturing Control Room

Ensuring visibility to the production processes is critical to maintaining smooth operations. This means that control room infrastructure must provide a highly available and highly flexible environment to ensure stable systems connectivity. Schneider Electric can provide the right infrastructure solutions (critical power, cooling, racking, security and environmental) to deliver that stability while being flexible enough to adapt to the always changing manufacturing environment.
Solutions for:
Factory IT Networks, Control Rooms, IT Rooms

Racks and Accessories

- Standard IT
- 2/4 Post Open
- Self Contained
- PDUs
- Wall Mount
- KVM
- Video
- Ventilation
- Shelving
- Cabling

UPS Systems

- Room Level
- Row Level
- Rack Level

Cooling Systems

- Room Level
- Row/Rack Level

Management Software

- Infrastruxure System
- Prefabricated/Modular

Complete Solutions

- 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
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.

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

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.
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 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 pre-installed
- 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 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.
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 Manufacturing Data Center Complexity

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

- 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 businesses reduce, eliminate, improve, and create:

**REDUCE**
- Number of decisions and the complexity of their data centers
- Number of equipment and 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, and density
- Aesthetics

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

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.
Solving customer challenges

Customer Example: Control Power UPS

Customer Challenge:
The customer was facing periodic system shutdowns and restarts were taking excessive amounts of time. Also, system diagnostic was overwhelmed with errors due to power and network outage rather than root cause.

The solution:
Together with the customer, Schneider Electric created a centrally backed up control power distribution architecture. This included a central UPS solution that was integrated with facility power systems and monitored in both the building BMS and Plant SCADA Environments. In some cases, additional protection was provided locally with small UPSs integrated into plant floor control panels.

Customer Example: Building Security Solution

Customer Challenge:
The customer was dealing with occasional outages in their building's security systems including access control, cameras, and monitoring systems. Often the outages coincided with events that multiplied the importance of security.

The solution:
Schneider Electric helped design a system that provided central UPS support for access control devices and security cameras including the network upon which the equipment operated. Schneider Electric also provided a managed infrastructure environment for the security system servers and DVR equipment. The systems are now monitored and maintained remotely by both the customer's IT department and by Schneider Electric as part of our base Fleet Management Services.

Schneider Electric offers a wide variety of services to help keep 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.
Customer Example: Critical Process Power UPS

Customer Challenge:
Customer had a very long cycle time application that involved charging Li-Ion batteries for their product. Even a very brief power interruption led to a substantial loss in production time.

The solution:
Schneider Electric provided a UPS integrated with the customer’s power distribution equipment, allowing for extremely high availability of the power to the equipment. The system also gave the customer an isolated, “clean” power source that is expected to extend the life of the equipment itself. The UPS solution is also network enabled and tied into the customer’s energy management and power control systems.

Schneider Electric believes effective energy management begins and ends with strategy. That’s why our energy management life cycle addresses questions at five key stages beginning with the most fundamental: “What is my strategy?”

Whether you have a specific need or are ready to address your entire program in a streamlined fashion, Schneider Electric is the only solutions provider that offers consistent, global capabilities backed by substantive, local resources. We blend global thought-leadership with local knowledge to match the specific needs of your business.

Contact us today!
Maintaining a competitive advantage requires that you go beyond the traditional strategies of developing innovative, energy-efficient machine designs, reducing design time, and lowering manufacturing costs. New technologies and the evolution of human behavior call for machines that continuously adapt to their operating environments.

To increase customer satisfaction you must supply safe material-working machines, which are energy-efficient and reliable, at a reduced cost and with shorter lead times. Your choice of control solutions is now, more than ever, a determining factor in distinguishing yourself at each stage, from design and development, to implementation and maintenance of the machine.

Schneider Electric is committed to supporting the Manufacturing sector.