EcoStruxure for Data Centers FAQ

Revision 0

by Patrick Donovan

Executive summary

EcoStruxure™ for Data Centers" is Schneider Electric's IoT-enabled, open, interoperable system architecture for data centers. This architecture bridges electrical, mechanical, and IT space systems to reduce risk while increasing efficiency and operational speed. EcoStruxure maximizes the value of data by turning it into actionable intelligence to enable better business decisions. This Application Note describes the architecture and answers frequently asked questions related to what it is, how it helps, how it will impact our product offers, and more.

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FAQs

What is EcoStruxure and EcoStruxure Data Centers?

EcoStruxure is Schneider Electric's name for our IoT-enabled, open, and interoperable **system architecture.** A system architecture is a conceptual model that defines the structure and behaviour of a system. In the case of EcoStruxure, the system is comprised of 3 levels: connected products, edge control, and apps/analytics/services (see **Figure 1**). The layers connect to each other through the flow of data over IT networks. Cybersecurity technologies and practices are used at each level to ensure protection. The EcoStruxure architecture maximizes the value of data to deliver improved safety, reliability, efficiency, and sustainability for our customers and their data centers.

Figure 1

Graphical representation of the EcoStruxure architecture

EcoStruxure is our IoT-enabled, open, and interoperable system architecture
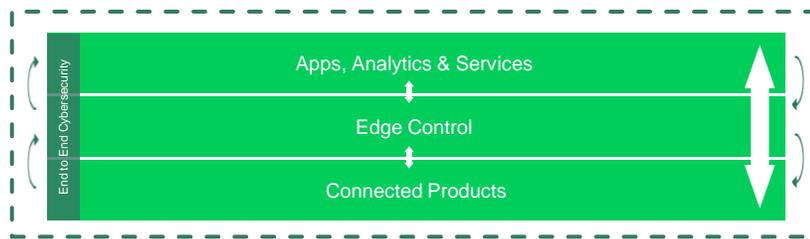
We deploy EcoStruxure in a tailored instance for each of 4 key vertical end markets -- ***Building, Data Center, Industry, and Infrastructure --*** where we have decades of deep domain expertise and applied experience.

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Domains of Expertise

The data center end market is served by 3 domains of expertise:

Building:
This domain covers the facility mechanical, fire, and security systems traditionally managed by a building management (or automation) system (BMS or BAS).
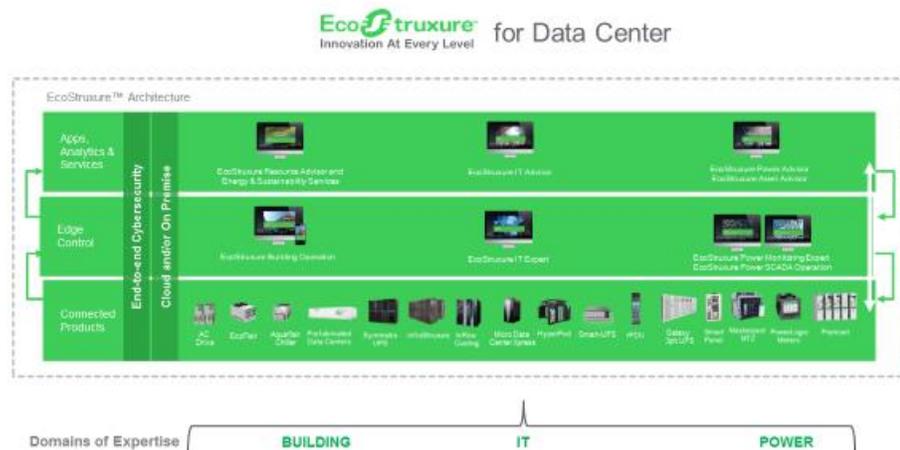
IT:
This domain includes the physical infrastructure systems typically found in the IT room or "white space" of a data center including IT racks, PODs, PDUs, Rack PDUs, air containment systems, and environmental sensors.

Power:
This domain covers the electrical distribution network and UPS systems including switchgear, transformers, breakers, panel boards, busway, and meters.

There is a specific instance of EcoStruxure with a unique set of connected products, software, apps, services and analytics for four end markets: Industry, Buildings, Grid, & Data Centers. **Figure 2** shows the EcoStruxure for Data Centers architecture. Note that the Data Center end market will commonly be served by 3 domains of expertise: IT, Buildings, and Power (see **Sidebar**). For each domain, there are product offers for each of the three levels of the architecture.

EcoStruxure is fundamentally about maximizing the value of data to make data centers more reliable, more efficient, easier to manage, and more cost effective.

What are the benefits?

Adopting the architecture makes the data center more reliable, more efficient, operationally simpler, and more cost effective than it would otherwise be through traditional operational practices. At a fundamental level, it does this by making management easier and by making smarter use of the data collected by the infrastructure hardware & sensors. EcoStruxure takes advantage of IoT and Cloud technologies to offer a superior alternative to traditional management systems:

- Quickly deploy and remotely manage all equipment, systems, and sites anywhere from one phone
- Easily connect Schneider Electric experts to monitor and service
- Unlimited scalability; collect and analyze massive amounts of data
- Increase performance and resiliency with redundant Cloud & on premise software
- Cloud-based analytics engines identify incident patterns and causal dependencies enabling predictive and proactive measures

What are "Connected Products"?

Connected Products refer to the hardware (e.g., power meters, UPSs, cooling units, etc) that is connected to a management network so that it can be controlled and monitored by on premise software or Cloud-based Web applications, analytics or services. These products are instrumented (have built-in sensors) to collect data about itself and its environment. That data is sent to the software or Web app (via a gateway). Connected products allow varying degrees of control via the software or app depending on which product and what is allowed by the owner. This might be as simple as configuring user adjustable operating parameters to full control of the unit's functions and operation.

What is "Edge Control"?

Edge control refers to the software or systems (either on premise or via Cloud) that offers monitoring, alarming, and individual device controls/configuration for the physical infrastructure equipment. Edge control is used by the customer. NOTE: the use of the word "edge" here should not be confused with the term, "edge computing". Instead, edge here is referring to the data center physical infrastructure equipment in the context of an IoT focused world where the "things" (i.e., equipment being managed) are on the "edge" from the perspective of the Cloud.

What is "Apps, Analytics, & Services"?

At the top of the EcoStruxure architecture is the "apps, analytics, & services" level. This is fundamentally where the full value and promise of the EcoStruxure architecture gets delivered. Cloud-based applications and "big data" analytics will provide unprecedented visibility and insight that will reduce risk, simplify operations, and increase efficiencies. Users will be able to monitor their sites anywhere, anytime from any device. Resiliency and visibility will improve through live sensor data, predictive analytics and smart alarming. Applications offering remote monitoring capabilities

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(via smart phone) can be done either by the end user or by Schneider Electric experts providing peace of mind for data center operators. Data analytic services in the Cloud takes the data collected from the Edge Control software to provide status, trend, and predictive reporting information that reduces risk, improves performance, and reduces operations costs. Digitized services will provide a much faster, more proactive response. For example, live "7x24" technical support and field service dispatch all from Schneider Electric's experts will help prevent problems, resolve issues more quickly, and reduce mean time to recovery or repair. These services are integrated within the app simplifying their use. The apps and cloud data will also serve as a foundation for an open app development platform that uses public APIs enabling further innovation and value to emerge.

How is the architecture "IoT enabled"?

The architecture's foundation is the connected products; i.e., the "things" of IoT. The value of analytics, planning, and the edge control function of the management system depends on the data collected and sent to the system. Schneider Electric offers easy-to-connect systems with embedded or add-on network management cards. Schneider Electric ensures the secure collection and transmission of the right kind and amount of data.

How is EcoStruxure "open & interoperable"?

EcoStruxure Data Centers relies on open protocols including publicly available Web service APIs to make it possible for customers and 3rd party developers to create their own unique applications or dashboards to pull in device or system data. It is also designed to be interoperable by enabling the sharing of data across the 3 domains of expertise: Buildings, Power, and IT. This occurs today at the Edge Control layer, and will eventually occur at the Apps & Analytics level.

If EcoStruxure is an architecture, is it also a platform?

EcoStruxure Data Centers is fundamentally an architecture. However, the Connected Products and Edge Control layers do provide a platform for the development of applications. While limited in scope and capability today, there are plans to make a full and open platform for EcoStruxure Data Centers that includes public APIs and software development kits. So, while there is a platform *within* the EcoStruxure architecture (the platform being the connected products and edge control software tools), they are not one and the same. The EcoStruxure architecture includes the Schneider Electric apps, analytics and services that come from the platform. **To be an "EcoStruxure solution" or to be an example of an "EcoStruxure Architecture", there should be all three levels present: connected products, edge control AND apps, analytics, & services.**

Is the EcoStruxure architecture available today?

Yes, across all of Schneider Electric's end markets including Data Centers, solutions based on the EcoStruxure architecture can and have been specified and installed for customers. In the Data Center end market, there are solutions for each of the 3 layers (connected products, edge control, and apps, analytics & services) across each of the 3 domains of expertise (IT, Buildings, Power) …see **Figure 2** above. These solutions continue to evolve and progress over time to further the vision of EcoStruxure.

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Are there new product offers that are part of the EcoStruxure Data Centers launch?

Schneider Electric's current data center offer of connected hardware products, software, and apps fit within the EcoStruxure architecture today. However, our offers will continue to evolve and improve with time. In 2018 there will be several new product launches from IT, Power and Buildings that will further embrace the vision of EcoStruxure.

Is this primarily a marketing initiative?

EcoStruxure represents a fundamental evolution in our offer away from traditional non-connected hardware and on premise software to one that is IoT-enabled and Cloud-based. It takes advantage of increasingly low cost, small, and varied sensors along with the power of the Cloud-based "Big Data" analytics to collect, analyze, and report infrastructure data to the great advantage of our customers. Our offer has been evolving towards the vision of EcoStruxure for some time now—making connected products, on premise Edge Control software, and Cloud based apps & services. Our offers will continuously evolve to take increasing advantage of the architecture and to push its boundaries for the benefit of our customers.

How does this architecture affect Schneider Electric data center product offers?

The EcoStruxure architecture impacts our offer development going forward. The following is a list of attributes for each level that are a priority to optimize:

- Hardware
    - Easily connectable
    - Cyber secure as a "thing" in the IoT world
    - Highly instrumented to collect data needed for predictive analytics
- Edge Control software
    - Cloud enabled for limitless scalability & resiliency
    - Cyber secure
- Apps, analytics & services
    - Open platform to enable prolific app development
    - Cyber secure
    - Cross domain (Facilities/IT/CxO) data sharing & integration
    - Predictive analytics engine
    - Remote management & integrated services (support, proactive field service dispatch, etc)

Is EcoStruxure the same throughout the company?

The architecture is the same across the company…for every end market there are the same three levels: connected products, edge control, and apps, analytics, & services. The products, software tools, apps, and services vary, however, by end market. The degree to which these offers embrace or take advantage of the architecture also varies from one end market to another and from one domain to another. Over time, however, as offers evolve, these differences will decrease.

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Does this replace StruxureWare?

StruxureWare Data Center Expert and Operation will continue to exist as legacy offers, however, there will be no new development beyond security patches, bug fixes, and other support activities. There will be no new feature development.

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