



Johnson Controls Metasys® and Cisco EnergyWise: Converging Building Automation Systems and Information Technologies for improved Energy Management

Executive Overview

When building automation systems (BAS) and other facility and information technologies (IT) are converged onto a single IP-based infrastructure, previously disconnected systems can be made to work together seamlessly. An example of this can be seen in the Johnson Controls Metasys - Cisco EnergyWise™ Integration solution.

Developed collaboratively by Johnson Controls and Cisco, the Metasys - EnergyWise Integration solution enables the user to view, monitor and control both facility *and* information technologies from a single user interface. As a result, energy data and other valuable information about connected devices on an IP network can be used as part of a comprehensive energy management program. In addition to familiar building systems, facility managers can now work more collaboratively with IT to more accurately measure and reduce energy consumption in a building and across the enterprise.

Solution Description

Cisco EnergyWise is an innovative technology that provides the ability to monitor and control power across the IT infrastructure. With EnergyWise, power management can be performed through the network infrastructure providing a robust platform by which the network itself can be used to open power management to all device types, including building automation technologies. Since EnergyWise is embedded in Cisco's IOS® operating system, it can be found on millions of Cisco devices. The network identifies all EnergyWise manageable devices on the network, monitors the power consumed and executes policies to reduce power consumption without affecting business productivity or compromising security. These policies can now be set and managed through Johnson Controls' Metasys building automation system, also found in thousands of buildings worldwide.

Building automation systems like Metasys have a direct impact upon a facility manager's ability to maximize the performance of the building or portfolio of real estate. To achieve energy savings within a building, it is essential to ensure that every building subsystem, from heating to security, works together as a cohesive unit. By bringing independent systems together, building automation leads directly to better performance and more intelligent energy use. The Metasys® building automation system from Johnson Controls ensures all of your building systems – comfort controls, lighting, fire safety, security and equipment – operate together in harmony. With its innovative IT-based infrastructure, software and wireless capabilities, Metasys® is the one integrated network that coordinates and organizes all the information logically, then delivers it where and when you need it.

The integration of Metasys with EnergyWise enables users to converge their Metasys-connected building automation technologies with their Cisco network technologies into a single, connected environment. Users now have the ability to view, monitor and control multiple facility technologies from a single user interface and to apply that data in managing and reducing the power consumed by connected systems whether it's a traditional building system such as HVAC or an IT asset such as a computer, printer or IP Phone.

Solution Components

Architecturally, the embedded EnergyWise protocol resides in the operating system of Cisco devices, creating a domain that is the main logical structure in an EnergyWise-enabled network. Each device self-registers on the domain, becoming instantly available to measurements and control, without the need of a specifically developed driver.

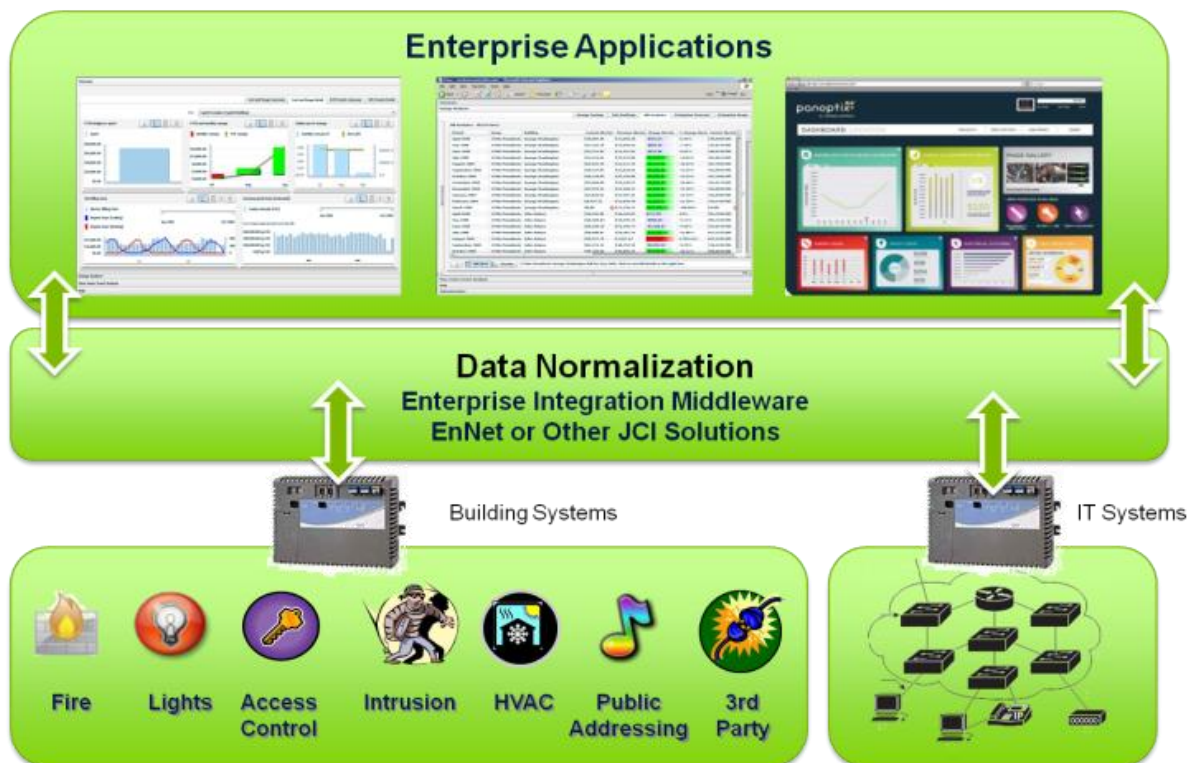


Figure 1: With the Metasys – EnergyWise Integration solution, data from Facilities and IT can be converged to a single user interface, including Metasys Energy Essentials or the new Johnson Controls’ Panoptix application suite.

A Johnson Controls Metasys NIE 59XX Controller is used to connect and communicate with Cisco EnergyWise domains through the Cisco switch (see diagram). This integration allows Metasys to treat each EnergyWise compliant device as a Metasys-compatible device, with all the points now being exposed as Metasys objects. As a result, Metasys customers can take advantage from all Metasys functionalities such as scheduling. Scheduling is a one of the most powerful features of Metasys and, with this integration, now it is possible to control IT device loads right from the Metasys interface. Further, with the energy data from connected IT devices in the Metasys domain, all compatible energy-consuming devices in a building can be measured, analyzed and improved.

Financial Benefits

As energy continues to be an increasing cost of business, the pressure to reduce energy costs and improve enterprise sustainability increases. By integrating Metasys with Cisco’s EnergyWise protocol, facility managers can now use their familiar Metasys environment to manage IT network-



connected devices such as printers, computers, fax machines, phones and more. Metasys can be used to schedule power reductions, device sleep and wake-up schedules, plug loads and sub-metering. Data can be extracted to display trends, operating anomalies, maintenance schedules, device alarms and more. As a result, IT and Facility Management can now work even more closely together to centrally manage and improve the energy consumption and sustainability of the enterprise.

Problems Addressed

With the cost of operating and owning real estate constantly increasing – especially the cost of energy to maintain facilities for a business purpose – organizations are paying close attention to where energy is consumed. With the introduction of the integration between Metasys and EnergyWise, facility managers can now integrate devices that have not traditionally been connected to the building automation world; for example, network switches, routers, servers, printers, computers and other IT assets. Data can now flow to and from Metasys as easily as traditional building automation devices. As a result, customers have increased visibility into where energy is consumed, the cost of that energy and can apply targeted initiatives, more accurately, to reduce the energy load of a building or portfolio of buildings and thereby drive down costs and improve enterprise performance.

Partner Profile

Johnson Controls delivers products, services and solutions that increase energy efficiency, lower operating costs and improve comfort and safety in buildings for more than one million customers. In 2008, Johnson Controls and Cisco entered into a Strategic Alliance to develop and deliver converged, IP-centric (Internet Protocol) 'Smart Buildings' and Connected Real Estate (CRE). The goal of the global Alliance is to design, construct and service buildings in which disparate and inefficient communications and building networks are replaced with a single, converged IP network over which integrated building applications can function. Like electricity, water and gas, the converged IP network – "the fourth utility" - becomes the fabric of every building, providing a strong, flexible foundation for organizational efficiency, lower costs, improved building performance, and better protection of people, property and assets.

For more information contact your nearest Johnson Controls Branch (www.jci.com) or email Systems Integration Services at cq-sis@jci.com or sis-europe@jci.com.



The Johnson Controls Metasys – Cisco EnergyWise Integration solution has passed Cisco's Interoperability Verification testing (IVT) program and has been approved as 'Cisco Compatible'.