



Rockwell Automation and Cisco Systems Partner Profile

Industry Leaders Deliver Seamless, Secure Connectivity Across the Enterprise

Today's manufacturing companies must become more responsive to changing market and operational conditions without sacrificing efficiency. This has created urgency for manufacturers to converge and connect the multitude of isolated production systems and processes throughout their entire value chain. To do that, they look for seamless, secure connectivity across the enterprise.

However, this connectivity can be difficult as manufacturing engineers and IT professionals have different priorities. Manufacturing engineers tend to care most about speed and uptime of equipment, while IT professionals care most about security and reliability of data transmission. With the right design guidance, manufacturers can meet these priorities with a single network architecture and truly harmonized approach.

Rockwell Automation and Cisco are committed to being the most valuable resource in the industry to help manufacturers improve business performance by bridging the technical and cultural gaps between plant-floor and higher-level information systems. Through successful collaboration on products, services and educational resources, these industry leaders enable manufacturers to converge their network infrastructure and tightly integrate technical and business systems using EtherNet/IP – the world's leading open industrial Ethernet network.

Manufacturers now have a proven, unified control and information infrastructure that delivers the speed, uptime, security and reliability they need across the factory floor and enterprise for production and workforce optimization and business transformation.



The Value of Network Convergence

To be more responsive to changing market and operational conditions, manufacturers need seamless, secure connectivity between plant-floor and business IT systems. Together, Rockwell Automation and Cisco present the most valuable resource in delivering Converged Plantwide Ethernet (CPwE) Architectures for manufacturing and industrial environments.

A converged network architecture will help manufacturers to:

- Lower total cost of ownership
- Improve operational responsiveness
- Reduce time to market
- Protect critical manufacturing systems
- Improve business performance

Best Pathway to Manufacturing/IT Network Convergence

Using EtherNet/IP for a Converged Network Infrastructure

EtherNet/IP is capable of connecting across systems and subsystems and from the plant floor to the end customer's IT infrastructure, delivering the agility and holistic view manufacturers need for making strategic decisions. Because EtherNet/IP uses readily available, off-the-shelf media and complies with IEEE 802.3 and TCP/UDP/IP standards and conventions, IT professionals and engineers can collaborate easily to deploy and maintain performance, security, reliability and quality of service.

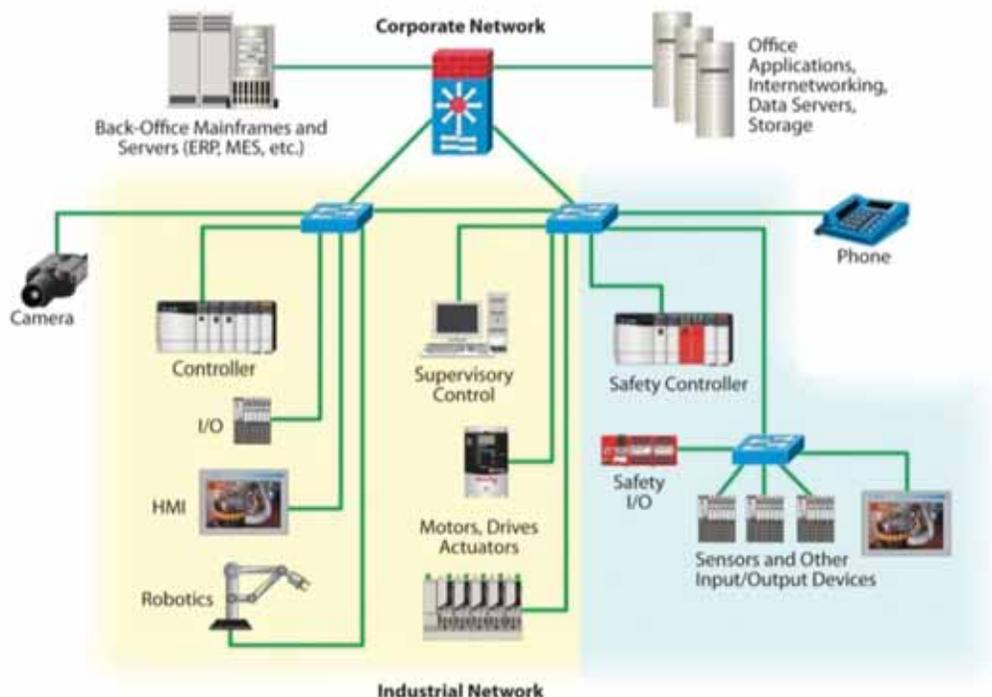
Securing Your Network

Protecting intellectual property and critical manufacturing systems requires an infrastructure that's secure from the plant floor to the enterprise system. Rockwell Automation and Cisco help manufacturers develop a comprehensive security model – all while enabling secure information visibility and access between production and corporate networks.

Bringing Value to Machine Builders and End Users

Rather than using a dedicated network for each application (motion, safety, I/O, information), machine builders are using EtherNet/IP to simplify their network architecture. This helps machine builders streamline design and development, build IT-friendly equipment and provide value-added remote monitoring capabilities. End users, meanwhile, are using the wealth of data generated by plant-floor systems to support real-time process improvements.

Figure 1. Imagine the benefits of replacing small, dedicated networks with a single network architecture that connects from business level systems all the way down to device-level instruments, such as flow meters, overload relays and auto-identification stations.



Collaboration that Drives Results

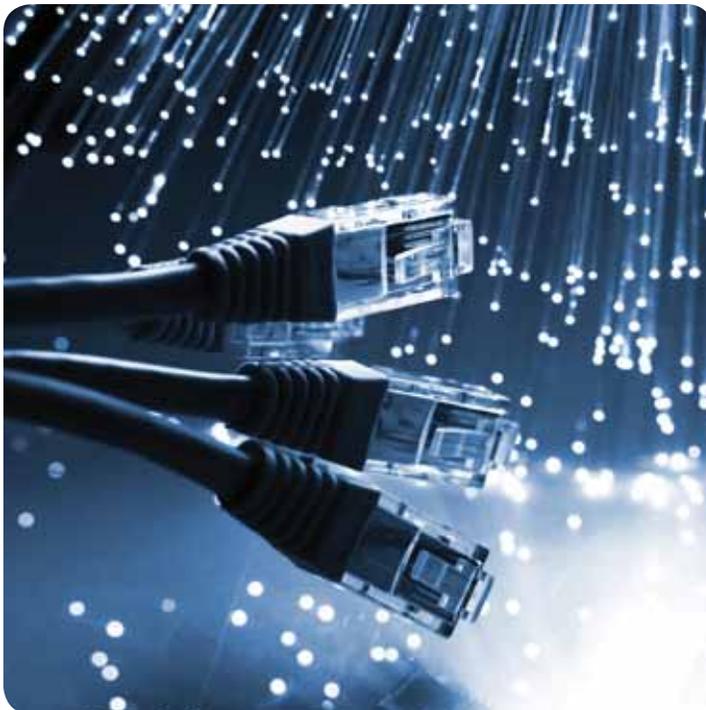
Rockwell Automation is the largest “pure play” industrial automation company in the world. Cisco, meanwhile, is the worldwide leader in networking for the Internet. Together, Cisco and Rockwell Automation are helping companies achieve successful convergence.

Common Technology View

Visibility of production information is critical to achieving the responsiveness required in today’s global manufacturing environment, and Ethernet is the technology that delivers this information.

Ethernet and TCP/IP have become the most important networking technologies for any application globally. With billions of nodes installed around the world, no other networking technology has more investment, more trained developers and maintainers, or more maintenance and diagnostic tools. EtherNet/IP is the world’s leading open industrial Ethernet network. Designed to connect across systems and subsystems and from the end customer’s IT infrastructure to the instrumentation level, EtherNet/IP streamlines control and information flow and offers the best pathway to a single network architecture.

EtherNet/IP uses the same Ethernet and TCP/IP protocol suite that is used for email, the Internet and other commercial applications, delivering the real-time performance, resiliency and security of traditional fieldbus solutions, along with the bandwidth, open connectivity and global acceptance of standard Ethernet.



Converged Plantwide Ethernet Architectures

Detailed design and implementation guidance and best practices for a converged network architecture help bring together relevant applications, technologies, and principles enabling Manufacturing and IT organizations to successfully collaborate and implement a truly integrated network infrastructure.

Converged Plantwide Ethernet Architectures are built on common standards between IT and manufacturing. These include technologies such as the IEEE's standard Ethernet, IETF's Internet Protocol (IP) and ODVA's Common Industrial Protocol (CIP). The collaboration on the Converged Plantwide Ethernet Architectures incorporates Cisco's "Ethernet to the Factory" solution and the Rockwell Automation Integrated Architecture™ that expands across discrete, motion, process, batch, drive and safety applications.

Joint Product and Solution Collaboration

Cisco and Rockwell Automation developed the Stratix 8000™ Layer 2 and the Stratix 8300™ Layer 3 managed industrial switch lines, creating an ideal networking environment for both IT and controls professionals. Using the current Cisco Catalyst switch architecture and feature set, along with powerful configuration tools, the product line helps to provide secure integration with the enterprise network. At the same time, it allows for easy setup and comprehensive diagnostics from within the Rockwell Automation Integrated Architecture.

The collaboration between the two companies also delivers services, including network assessments, architecture design and implementation, security programs, project management and audit services.



Allen-Bradley Stratix 8300

Allen-Bradley Stratix 8000

People and Process Optimization

Education and services to facilitate Manufacturing and IT convergence help enable successful architecture deployment and efficient operations allowing critical resources to focus on increasing innovation and productivity.

Cisco and Rockwell Automation hold a series of educational seminars and customer advisory boards, publish joint documents to help companies understand best practices, facilitate Manufacturing and IT convergence, and help enable successful architecture deployment and efficient operations allowing critical resources to focus on increasing innovation and productivity.

“A Rockwell Automation Stratix 8000™ Managed Ethernet switch helps ensure proper network segmentation, allowing the end user to integrate multiple cell zones across the plant while helping to achieve secure integration at the enterprise level.”

Larry Luciano, president, Luciano Packaging



Network Convergence In Action

Aluminum Manufacturer Gains End-to-End Production Visibility

To maximize production, minimize power consumption and achieve a low total cost of ownership, one of the world's largest aluminum manufacturers wanted the ability to share control network data with manufacturing execution systems (MESs) and the company's enterprise resource planning (ERP) system.

Traditionally, manufacturing control networks have been separate from the main enterprise network with their own proprietary network protocols, topologies, cabling, and signaling transmission architectures. This means that it is almost impossible to poll systems for diagnostics and health monitoring. Interfaces between individual production systems and the network are also proprietary, which makes them more costly and more difficult to support. Traditional control networks have also shared bandwidth, which limits network throughput. These networks are not designed for carrying real-time data or for easily incorporating devices, like video cameras, that demand significantly more throughput.

Together, Cisco and Rockwell Automation worked to securely connect the manufacturer's factory floor and corporate office. A single, end-to-end networking architecture now integrates production data with information from business applications, while quality-of-service mechanisms help ensure that mission-critical and time-sensitive information is delivered in real time to the company's ERP system. Using a single network has reduced operational and maintenance costs, and provided robust bandwidth and flexible network addressing for built-in adaptability. As operations expand over the next several years, the manufacturer can easily provide access to important information for supply chain partners and customers, as well as implement collaborative technologies for connecting people across locations.



Vehicle Manufacturer Follows a New Road

After decades of growth, a well-known American vehicle manufacturer was hard-hit by the economic downturn. As the company moved to reduce costs and increase efficiencies, it recognized that its primary plant would need re-tooling to adopt best practices and leaner manufacturing techniques.

An inability to share information between work cells made it almost impossible to accommodate more efficient processes needed in the new plant. The plant floor required EtherNet/IP-enabled processes and the ability to share that information wherever it was needed to support the company's goals. The vehicle manufacturer implemented the Allen-Bradley Stratix 8000 Switch and Cisco Unified Wireless solutions to support mobile access to data and communications within the plant.

The vehicle manufacturer expects to increase agility beyond what was previously possible – to build a model on a production line and deliver customized products almost on demand while increasing employee productivity. As a result, the Cisco and Rockwell Automation solution will be the standard the automaker uses when upgrading other plants or building new facilities.



Tire Maker Moves to Ethernet

One of the world's largest tire manufacturers has production facilities around the world. Company leaders planned to migrate to an Ethernet environment to network its plant-floor infrastructures to simplify gathering and analyzing data. They also wanted to manage its infrastructure using the Rockwell Automation Integrated Architecture instead of a third-party solution.

Because the company was engaged in a large-scale project to design a new machine, the design required a large number of 24-port switches for high availability. The existing switches couldn't support the high number of ports needed or the company's high-availability requirements.

Using the Converged Plantwide Ethernet Architecture approach, Cisco and Rockwell Automation implemented Allen-Bradley Stratix 8000 switches in the machine infrastructure, and it has run nonstop for more than 12 months. The tire company has standardized on the Stratix 8000 Series switches for all new construction and upgrades in its plants worldwide.

From Production to the Enterprise

Rockwell Automation and Cisco present the most valuable resource in the industry for deploying a converged network infrastructure, helping manufacturers improve business performance, simplify the network architecture and build IT-friendly machines.

Lower Total Cost of Ownership: A single network architecture and open standards help eliminate the costs associated with multiple isolated networks and proprietary systems.

Improve Operational Responsiveness: Deeper insight into operations and real-time collaboration between manufacturing, engineering and suppliers improve decision quality and helps manufacturers quickly and efficiently adapt to changing business requirements and supply chain management needs.

Reduce Time to Market: By replacing a multi-tier networking strategy with one standard network architecture, OEMs can reduce the time it takes to design, develop and deliver machines. Manufacturers, meanwhile, can reduce their time to market with fewer integration risks and better visibility into data.

Protect Critical Manufacturing Systems: Rockwell Automation and Cisco help manufacturers develop a comprehensive security model – all while enabling secure information visibility and access between production and corporate networks.

“A converged network architecture is crucial for delivering the deep insight end users need to quickly and efficiently adapt manufacturing operations to changing market demands.”

Craig Resnick, research director, ARC Advisory Group

To learn more about how Cisco and Rockwell Automation can help you, please visit:

www.rockwellautomation.com/partners/cisco.html

http://www.cisco.com/web/strategy/manufacturing/cisco-rockwell_automation.html

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Rockwell Automation is a leading provider of power, control and information solutions that enable customers to get products to market faster, reduce their total cost of ownership, better utilize plant assets, and minimize risks in their manufacturing environments.

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