Cisco Connected Grid Portfolio: Meet Mandates, Increase Reliability, Cut Operating Expenses

What You Will Learn

For the past 25 years, Cisco has been the power industry's trusted network communications provider and continues in this role for the next generation. The new Cisco® Connected Grid is an end-to-end, standards-based communications infrastructure architecture that delivers solutions for the smart grid. The first solutions in the Cisco Connected Grid portfolio bring advanced transmission and distribution automation solutions to the power utility substation. Learn how Cisco's transmission and distribution automation solutions, featuring the Cisco 2000 Series Connected Grid Router (CGR 2010) and Cisco 2500 Series Connected Grid Switch (CGS 2520) enable utility companies to:

- Increase grid reliability
- Comply with regulatory mandates
- Reduce operational expenses
- Extend the value of the utility's corporate network to the substation

Challenge

Utility operators face a rapidly changing operational and business climate due to increasing regulatory compliance requirements and demands for security. In addition, they need to be able to consolidate and manage the growing variety of information and communications that form the "central nervous system" of power delivery.

At the same time, utility operators must not only maintain, but also increase the reliability of the power delivery system. Utility operators also must plan for new operations such as the integration of renewable energy sources to meet legal and regulatory mandates. All of these challenges must be met in the extremely demanding physical environment of the power utility substation.

New transmission and distribution automation solutions from the Cisco Connected Grid portfolio enable secure, resilient, scalable standards-based communications in the most demanding environments. These solutions, based on the new Cisco CGR 2010, a ruggedized substation router, and the Cisco CGS 2520, a substation ready switch, enable utility companies to build the core of their smart grid infrastructure with greater security, reliability, and operational efficiency, while complying with regulatory mandates and industry standards and supporting new energy supply sources.

Business Benefits

Cisco's new transmission and distribution automation solutions for the power utility substation deliver clear and immediate benefits to utility operators, enabling them to:

- Reduce power outages and service interruptions, as well as decrease response time by providing a secure, scalable communications network to identify, isolate, diagnose, and repair faults, more quickly and efficiently.
- Meet regulatory mandates by helping utilities secure, monitor, and manage their critical data networks in accordance with requirements, such as North American Electric Reliability Corporation/Critical Infrastructure Protection (NERC/CIP) requirements.

- Reduce operational expenses by providing better remote engineering access to resolve network issues, which reduce the need for costly onsite repairs.
- Combine supervisory control and data acquisition (SCADA) and nonoperational data onto a single IP network while maintaining higher priority for grid operations and management traffic.
- Extend the value of utilities' corporate networks to the substation, allowing qualified personnel in substations the same high-performance access to applications, data, and people available in headquarters and operations centers.
- Plan and develop energy management solutions and take advantage of new service creation opportunities.

Solution

First in the Cisco Connected Grid portfolio are utility substation automation infrastructure solutions that include the new Cisco CGR 2010 router and Cisco CGS 2520 switch. Combining the rich functionality of Cisco IOS® Software with ruggedized features required for smart grid deployments, these solutions deliver a next-generation secure and reliable network infrastructure for automating substation operations.

Cisco CGR 2010 and Cisco CGS2520 comply with IEEE 1613 and IEC 61850-3 standards. These standards certify that Cisco's new substation automation solutions meet stringent environmental, surge, and electromagnetic immunity (EMI) requirements for utility substation environments, including tolerating a broad range of temperatures, surge, fast transients, radio frequency interference, and electrostatic discharges.

Cisco has also integrated a wide set of network security features into these new substation routers and switches to help utility operators meet the requirements of NERC–CIP. These state-of-the-art security features include intrusion prevention system (IPS), VPN, firewall, user and device identity, and access control capability, all of which provide unparalleled protection and reliability to the grid. Cisco also supports a complete portfolio of IP-based physical security solutions serving a wide range of industries.

Additional benefits enabled by the new Cisco Connected Grid solutions for substation automation include:

- Reducing power outages and service interruptions while improving response time by using the network for real-time access to operation and control systems to quickly identify, isolate, diagnose, and repair faults. In the future, this real-time information access will enable faster and more accurate data correlation across multiple monitoring systems that will lead to more efficient resource management and thus more effective grid operations.
- Reducing operational expenses by converging legacy control and monitoring systems into a secure, segmented IP communications network while helping to ensure a higher priority for grid operation and management traffic.
- Helping to ensure that substation automation solution deployment is a success and integrates with existing power utility communications infrastructure and management and control applications through professional services for rigorous requirements planning, design, and implementation.

Why Cisco?

Cisco delivers unrivaled pervasive security and end-to-end data internetworking capability that reaches from power generation to homes. As the leader in IP networking, Cisco's switching and routing solutions are the foundation for many of the largest and most secure mission-critical networks in the world, including service providers' networks, networks in the military, and networks for financial services and manufacturing process control. Cisco has extensive industry experience helping customers migrate, with minimal effect on operations, from multiple legacy serial communications networks to a consolidated, standards-based IP network.

Cisco is a trusted partner for utilities as they embrace the adoption of IEEE 1613 and IEC 61850 substation networking. Through 25 years of promoting the world's migration to IP, Cisco has the deep expertise to help utilities realize the digital transformation of the grid while maintaining their investment in existing systems.

For More Information

To learn how the Cisco Connected Grid utility substation transmission and distribution solutions can help you

- Comply with regulatory mandates
- Increase reliability of your power delivery system while lowering operational costs
- Expand the value of your substation data communications networks

Contact your Cisco account team or partner. You can also find more information at:

Cisco 2000 Series Connected Grid Router (CGR 2010): http://www.cisco.com/go/cgr2000

Cisco 2500 Series Connected Grid Switch (CGS 2520): http://www.cisco.com/go/cgs2500

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