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Case Study

TRANSITION NETWORKS®

Southeast Utility

An electric utility in the Southeast deploys Transition Networks Industrial Ethernet Switches providing fiber communications in substations throughout its system.

Company Type: Electrical Utilities
Headquarters: Southeastern United States
Transition Networks Product Deployed: INDURA™ Hardened Ethernet Switches

Customer Overview

The customer is a large electric utility in the Southeastern United States. It provides electric power across thousands of miles and serves approximately 4.5M customers. Its telecommunications network connects over 1,000 substations, generation plants and other key sites to its primary and backup control centers and utilizes a variety of networking technologies. A key part of its network strategy is to move from leased services toward its own fiber optic telecommunications facilities. Transition Networks has been selected as the primary platform for supporting substation communications over its fiber optic facilities.

The Energy Independence and Security Act of 2007 established a goal to modernize the nation's electricity system and assigned to the National Institute of Standards and Technology (NIST) the primary responsibility to coordinate development of this new frame- work to achieve interoperability of new technology grid devices and existing systems. The utility is an active partner in defining the new "smart" network and is in the midst of a multi-year statewide fiber and leased services deployment to provide broadband connectivity to substations and other facilities in its territory. New network technology provides superior reliability and security, as outlined by NIST and NERC/CIP, and was a key requirement and challenge for the utility in its selection of network products to build a 21st century state-of the-art utility network.

Due to the security and sensitivity of this large utility, we are bound to protect specifics as it relates to its network infrastructure as well as its identity. However, more detailed information can become available based on qualified inquiries.

Solutions Deployed for Future Growth

The first of many technology implementations for the new network was the installation and turn-up of a modern state-of-the-art core network exclusively for interconnecting substations and other key locations. Grid modernization leveraging the transformation for a highly available network for mission-critical communications was the foundation for system wide implementation of new generation products and management tools. Once the core network was implemented, selection and deployment of substation automation and active Ethernet solutions within the substations began. The newly innovative network transports SCADA (Supervisory Control and Data Acquisition) information, and "intelligent" IAD/RTU management/control distribution data from substations. The utility selected Transition Networks INDURA™ hardened Ethernet IEC61850-3 certified switch for its robust reliability, advanced secure management and redundant G.8032 ring architecture.

"We value Transition Networks as a vendor. We have been extremely impressed with the capabilities and performance of their products and even more with their support and willingness to work with us to add features or address issues."

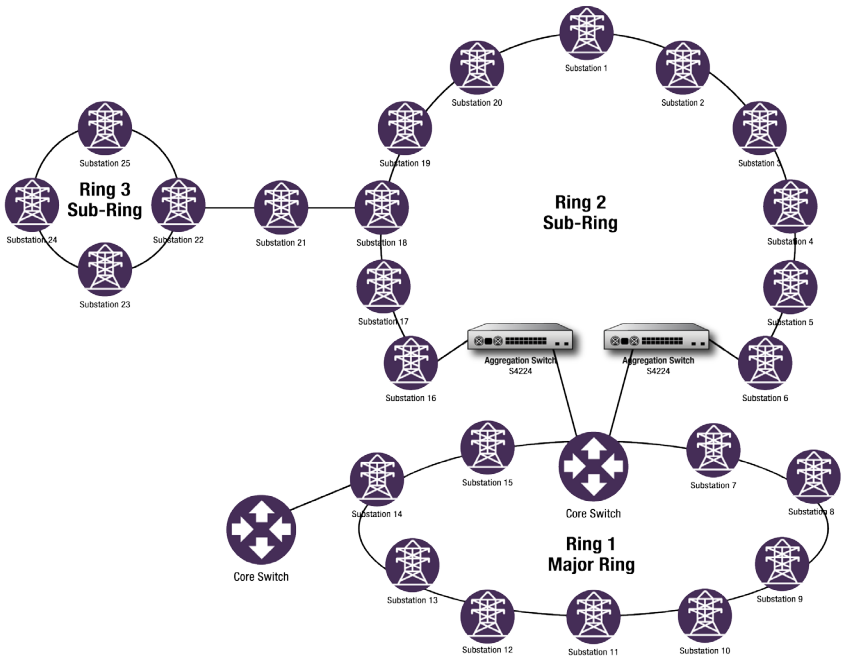
—Southeastern Power Utility, Vice President of Telecommunications

Power Utility Deploys Transition Networks Industrial Ethernet Substation Switches

The first INDURA™ substation project was kicked off last year with deployment of a project to confirm design and configuration choices. Following successful pilot testing, over (35) substations are now fully deployed and operational with INDURA™ systems. The utility selected Transition Network's INDURA™ for a three to five year substation project after an extensive evaluation of other vendor's products. INDURA™ was selected because of its small form factor, innovative fan-less design, substation IEC61850 certification, and RFC2544 test capabilities. The product also has advanced operational, administration, and monitoring (OAM) protocols (IEEE 802.3ah) that can detect failed and degraded Ethernet circuit connections, remote fault signaling and loop-backs, including "dying gasp" alarm/event notification should there be a loss of power. The utility's personnel are immediately notified and are able to isolate and provide fault detection and rapid dispatch for network verses power related incidents.

INDURA™ provides backbone connectivity to field sites to collect distribution power data. To provide resilient failover/redundancy, all of the INDURA™ switches are installed in a fiber ring topology between substations and of the offices. This architecture provides a working and protected network fiber path in and out of each substation and regional office. Interconnecting the rings with aggregation switching, the utility deployed Transition Networks' S4224 access switches, which provide link redundancy fail over between individual rings. Should the working fiber network path fail, all nodes on the ring will failover to the alternate fiber network path within <50ms.

INDURA™ Ring Architecture Diagram

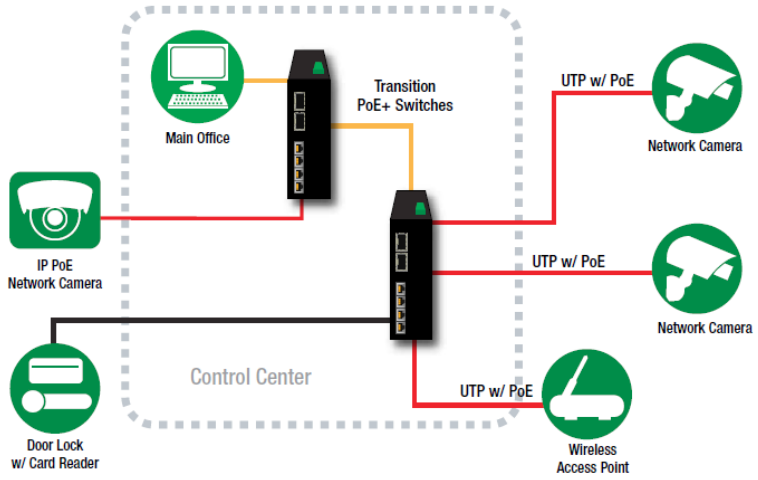


"Certified for IEC 61850-3, INDURA™ offers advanced Ethernet management, network and power redundancy and security features coupled with rugged hardware performance for industrial or outdoor environment applications requiring high reliability and availability."

—John Ragan, Hardened Ethernet Product Manager - Transition Networks

Transition Networks also provides equipment that assists utilities in deploying secure physical access control and surveillance to meet the NERC CIP requirements. From theft prevention, to protecting intellectual property, to managing energy usage, the demand for security/surveillance/intelligent building networks has increased dramatically over the past decade. Not only have the number of these complex networks increased, but so have their geographic size. Transition Networks' SISTP1010-380-LRT POE+ Industrial switches provides the fiber to UTP network connections with the powered-copper interfaces for security cameras, and other equipment at substation locations.

Surveillance & Secure Access Configuration



About Southeast Utility

This case study focuses on the usage of the INDURA™ product line within a specific electric utility in the Southeastern United States. In accordance with its security policies the utility does not allow itself to be identified in connection to specific technology choices in publicly available documents. However, on request, contacts with the utility will be made available to other utilities or companies with similar network requirements.

About Transition Networks

Transition Networks, Inc. is an industry leader with over 25 years of experience designing fiber integration products that deliver the security and reliability for today's networks while future proofing for tomorrow. Offering support for multiple protocols, any interface, and a multitude of hardware platforms, including Hardened Ethernet, Carrier Ethernet, CWDM, 1G/10G Ethernet, SFPs, PoE and PoE+, Transition Networks gives you the power to deliver and manage traffic reliably over fiber in any data network – in any application – in any environment. With partners and customers in over 50 countries, Transition Networks has built a reputation as a reliable global innovator focusing on quality and customer service. Transition Networks is a wholly owned subsidiary of Communications Systems, Inc., a publicly traded company (NASDAQ-GM: JCS), and is based in Minneapolis, MN.

For more information about Transition Networks' Hardened Switches, please visit www.transition.com or contact sales@transition.com.