

Endesa Pilots a New Paradigm in Telecontrol Networks

"Cisco IBSG was a trusted adviser and partner committed to helping us determine and deploy a set of solutions appropriate to our demanding networked environment."—Antonio Pareja Molina, Corporate Director, Services and Technology, Endesa, S.A.

In Brief

With 2008 sales of €22.8 billion, 24 million customers, and 26,600 employees, Endesa is the leading utility in the Spanish electricity system, the leading private-sector electric utility in Latin America, and the 11th-largest utility in the world, according to the *Fortune Magazine* 500. Cisco is a strategic supplier to Endesa, with a long history of sharing best practices.

Telecontrol networks are usually separate networks with a specific set of needs. Endesa developed an innovative packet-switching network that took into account the demands created by the singular environment in which a utility has to operate: reliability, resilience, immunity in the presence of strong electrical fields, and a disparate collection of transmission media with wildly different characteristics. This proprietary telecontrol network has evolved for the past 30 years, surpassing all expectations.

Integrating telecontrol information into an IP network has been done before, but usually on a gradual basis, based on discrete converters for specific pieces of equipment. What was lacking was a single platform that could understand and translate several types of protocol into something that could be transported over an IP network in a simple, efficient, and scalable manner. This is precisely what Cisco offered Endesa with its AXP platform, an optimal element for bringing all of that information onto the IP network.

After lengthy feasibility and compatibility studies, Endesa Network Factory labs started testing the 101-104 Gateway protocols' functionality, and initiated the first real production

Customer

Endesa, Spain

Industry

Utilities

Challenges

- Migrate from a proprietary telecontrol platform to an IP-based network.
- Evolve the network to provide additional services in a more efficient manner, minimizing investment in additional bandwidth.
- Enhance real-time control and management of the power distribution network.



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- Cost reduction—both CapEX and OpEX—remains a basic objective and is a must.
- Prepare communications network to cover “Smart Grid” requirements.

Solutions

Cisco Application Extension Platform (AXP) is an open network platform for application development, integration, and hosting. It is a service module (“Javalin”) on the Cisco Integrated Services Router (ISR), capable of implementing services on the router independently from the Cisco Internetwork Operating System (IOS) software. Javalin provides the software development environment and the necessary tools to integrate applications from third parties, such as 101/104 Gateway.

The solution—essentially a Linux platform that allows applications to run on the router itself—demonstrates an intelligent, cost-effective, and scalable approach to managing legacy protocols. It uses the protocol-agnostic capabilities of AXP to translate proprietary network protocol messages and enable cost-effective and efficient management of networks.

Cisco provided all the knowledge and experience on communications solutions, including the software development environment (SDK), training, and support, while Endesa provided the knowledge of telecontrol networks development, and integration of their utility-based functions. Endesa also provided valuable information to enrich and debug Cisco’s platform. AXP realizes Cisco’s “Network as a Platform” vision, while enabling collaborative partnerships.

Next Steps

- Studying the development of an IP-based solution for low-end telecontrol (below sub-station level).
- Exploring implementation of the solution in South America for remote sites.
- Integration of services such as video surveillance and telephony for operation.

Projected Results / Benefits

- Flexibility and scalability to include different services to guarantee and improve current features for critical telecontrol services.
- Integration of all assets, providing a complete picture of the network and extending different services in a simple and homogeneous fashion.
- Provision of innovative services to end customers.
- Deployment of 24/7 video surveillance and monitoring capabilities that reduce or eliminate the need to dispatch crews when visual information is required.
- Integration of voice communications for maintenance crews from remote sites.
- Reduction in costs and delays by having real-time information for the job at hand.
- Significant increase in productivity.
- OpEX reduction in operation and maintenance of the network.
- CapEX reduction from the previous, proprietary solution.

- Further gains attainable as the evolution of equipment in a standard IP environment provides an accelerated rate of innovation compared to a closed, proprietary solution.
- Additional sources of revenue if the solution is extended to control other elements not yet included in the telecontrol network, such as IP-based smart meters.

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