



# SATURN SYSTEMS

"Solving Complex Business Issues through Software Engineering"

## **Device Integration: Landis + Gyr Collector Simulator**

**Overview...** Landis+Gyr Energy Management Solutions (formally known as Hunt Technologies, LLC,) design and manufacture remote monitoring equipment for the power industry. A key component of the system is the Substation Processing Unit (Collector.) The Collector receives a constant stream of non-stop information from each endpoint. It also serves as the control hub for sending commands to endpoints individually, in defined groups or across the entire network. The Landis+Gyr Collector utilizes the power company grid to send messages to and from endpoints that are installed at a business or residence. The Collector also manages the messages being sent to and from the Landis + Gyr Command Center™ product.

Using the power grid as transmission medium to communicate with endpoints is not only challenging, but yields very low throughput. Because of this, it is very challenging to effectively test the system software in a real-time environment.

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*"Designing the system to provide maximum flexibility and modularity was imperative to the success of the project"*

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**The Solution...** Saturn was contracted to develop a simulation environment for the Collector which would execute on a standard Windows PC. Landis+Gyr engineers would use this system to analyze signal processing algorithms, DSP performance, and to verify system software changes. Having an effective simulator would also allow Landis+Gyr engineers to greatly accelerate the simulated data acquisition cycle.

**The Result...** Saturn developed the Collector simulator as two separate software components. The first a Wind River VxWorks™ target application developed using Wind River's VxSim™ product, and the second component a scalable DSP simulator tool written in C#.Net.



The two software components closely emulate the production environment simulating the same protocols as the original DSP hardware. This architecture allows separate testing of the Wind River VxWorks application, with live or simulated DSP's, as well as testing of the DSP's with a live or simulated Collector application. Landis+Gyr engineers are using the new tool to reduce the time and cost required for new development and maintenance of the Collector system.

**About Saturn Systems...** Saturn Systems is a national provider of software engineering solutions in the areas of device integration and enterprise technologies through our Rural Outsourcing business model.

Since 1990, Saturn Systems has created success through innovative application of technical expertise, a disciplined approach to project management, and a command of emerging technologies. Saturn Systems is a private company headquartered in Duluth MN, USA. For more information, visit our web site at [www.saturnsys.com](http://www.saturnsys.com). *Outsource To America!*