It's the Network

BY BOB RENNARD, PRESIDENT, LXI CONSORTIUM

With apologies to a familiar cell phone company, LXI really is about the network—about the familiar Ethernet network foundation and the network of organizations committed to helping one another build better systems and instruments. I was reminded of this during the recent PlugFest hosted in Irvine, CA, by VXI Technology. The general meeting and PlugFest were alive with energy. Speed, simplicity, and the power of LXI were major themes during the meeting, and it became clear to me that LXI really is the standard for Ethernet in test and measurement.

The first day started with five vendors testing IEEE 1588 v2 implementations. Several companies, including Hirschmann, Ixxatt, National Semiconductor, and Freescale, joined the IEEE 1588 v2 PlugFest session, demonstrating designs, testing interoperability, and helping to lower the bar for instrument vendors and integrators.

In parallel, The MathWorks hosted an interoperability session to demonstrate how easily LXI test systems go together. That presentation proved once again why we believe LXI is the future of test—it works. The instrument discovery setup protocols worked perfectly, allowing the system to come together with remarkable ease.

Day two was devoted to technical discussions on resource management, instrument states, scripting, web triggering, and event logs. These are all important topics for system speed and large multiclient systems.

Keithley hosted a very compelling discussion on scripts, showing how system performance can be significantly speeded up by preloading downloadable code into the instrument. With scripts, LAN and controller traffic are reduced to a simple trigger command, freeing IO capacity and unburdening the controller for more important tasks. Keithley's benchmarks showed a 4x improvement in system throughput. While these techniques have been around for many years, they are particularly well suited for networked systems where multicast peer-to-peer communications and multiple triggers are available. The benefit for designers is improved system speed with less latency or controller traffic.

Similarly, the state management discussion led by VXI Technology and Aeroflex explored how systems integrators can recall instrument states with one command, eliminating time-consuming SCPI strings. To prevent unnecessary state rebuilds, they proposed a fingerprint or hash that allows an integrator or client to identify whether the instrument state had changed since it was last used. Again, the benefit for systems designers is improved system speed with less latency or controller traffic.

The third day was devoted to applications presentations where members and integrators discussed real test systems built on LXI platforms and how LXI solved common test problems. Joe Engler of Intepro ATE Systems described high channel count, high-volume systems. He explained how integration ease was a key determinant for systems integrators competing in today's market and how LXI delivered for him. We were shown how Class B improved system speed, how timestamps and event logs simplified system troubleshooting with unprecedented visibility into system timing, and how peer-to-peer triggering simplified test-program development. We even saw how a system integrator achieved *negative latency*, completely eliminating over-the-wire transit times and using time triggers to overlap instrument settling and analysis times.

LXI PlugFests offer unique opportunities for integrators and instrument vendors alike. They are friendly events where companies help one another build better test systems and instruments, recognizing no single vendor can cover everything and that the value of the network improves as it grows.

Our next PlugFest and general meeting will be held May 20-22. The details are on the LXI website at www.lxistandard.org. Come join us.