

Interview: GPUs – a revelation in financial computation

Dr. Gerald Hanweck Jr., founder of Hanweck Associates, a provider of customized solutions that utilize GPU (global processing unit) technology to streamline financial computation, was the featured speaker at Eurex's recent series of seminars for quantitative analysts in Chicago, Toronto and New York. Dr. Hanweck spoke with Eurex about how financial firms are just beginning to adopt this mainstream technology and how there are competitive advantages for those early adopters.

Eurex: Who is Hanweck Associates and what is your relationship with the Deutsche Börse Group?

Hanweck: We specialize in high-performance risk management systems. The International Securities Exchange (ISE), also a member of Eurex Group, is a customer as well as an investor in Hanweck Associates.

Eurex: What are your benchmark products?

Hanweck: Our flagship is the VoleraFEED™, which provides real-time options analytics, such as implied volatilities and Greeks, for U.S. and European products as a data feed. It's a low-latency feed targeted towards institutional customers. We also offer VoleraRISK™, another product geared towards institutional customers, which provides risk analytics, pre-trade risk calculations and Risk-based Margining. In partnership with Interactive Data we offer an end-of-day Options Volatility Service™, which is a historical database of options volatilities, prices and corporate actions.

Eurex: You recently spoke at Eurex's North American road show for quantitative analysts. The events were very popular. Can you explain why the audience was so receptive to your topic?

Hanweck: There are really two reasons why I think that my talk was so well-received. First, given the growth in the quantity of market data that firms have to deal with, messages per second, etc., computational power is at a premium. For example, more market data means more calculations of implied volatilities, theoretical option prices and risk parameters. Second, the last two years have shown us that volatility is certainly not stable. Traders now want to look at many different ways to model it. My talk brought together two very relevant topics.

Eurex: How widespread is the use of GPU technology and are early adopters enjoying a competitive advantage? How extensively is GPU technology being employed by European houses and/or prop houses?

Hanweck: Usage of GPUs is not very widespread yet in the financial industry, although GPU technology has been in use in other industries for a few years. We at Hanweck Associates were, I believe, the first firm to utilize GPUs in a commercial financial application – the VoleraFEED™ back in 2007. Currently we see others beginning to adopt GPU technology, but they are primarily employing it in large processing tasks like overnight batch runs or risk management calculations. We are still pretty unique in utilizing it for real-time pricing. Bloomberg is running some mortgage calculations on GPUs, and we're now seeing some articles and conference panels where large banks both in Europe and in the U.S. are sharing their initial successes with GPU technology. I certainly think that early adopters will continue to enjoy a competitive advantage for some time, given the current penetration of the market. GPU users can simply calculate more data faster and cheaper, which logically enables them to act faster.

Eurex: Are the benefits of GPU technology focused on the options side (complex calculations) or does it provide advantages in a variety of asset classes?