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**BEATING NETWORK LATENCY IS CRUCIAL FOR HIGH FREQUENCY TRADERS  
But Precise Measurement, not Vendor Promises, is Key to Algorithmic Trading  
Platforms, says new cPacket Whitepaper**

**MOUNTAIN VIEW, CA - OCTOBER 9, 2009** - Network latency - the milliseconds or microseconds of time it takes to transmit trades electronically from an algorithmic trading platform to the market - is one of the most critical factors in optimizing trading profits. Applications such as high frequency trading and derivative pricing are sensitive to variations in latency of a few milliseconds to microseconds or less, and the differences can literally be measured in "millions [of dollars] per millisecond."

With so much at stake, it is understandable that a strong focus has been placed on ultra-low latency by the high frequency trading firms and proprietary trading desks that now account for 73% of all U.S. equity volume, according to the TABB Group's Rob Iati, writing in [Advanced Trading \(July 10, 2009\)](#). But beating down latency - and the variations in latency called "jitter" - that can expose automatic trading platforms to latency arbitrage, traffic manipulations, and malicious attacks, is more than simply throwing bandwidth at the problem, says a new white paper from Silicon Valley's cPacket. It calls for a carefully-engineered solution that treats latency not only as a technical issue, but as an operational one - where precise, fine-grained latency monitoring becomes part of the overall trading platform.

The white paper, entitled "*Pragmatic Network Latency Engineering: Fundamental Facts and Analysis*", has been written to help traders understand both the technical and operational issues in network latency, and how these issues can impact the bottom line. The paper provides vendor-agnostic facts and observations that help stakeholders assess their current situation, develop intuition about critical bottlenecks, and create a strategy for implementing systemic latency improvements.

But the most important message for traders is the need for 100% latency monitoring. "Algorithmic trading platforms and the traders that operate them must monitor and account for network latency and jitter on a moment-by-moment basis, with the same diligence that they monitor market prices, trends, and news," says Rony Kay, president and chief technology officer of cPacket. "Otherwise, the variability in their network performance could drown out the sophistication of their trading algorithms."

Others agree on the impact of latency variability. A report published by the Tabb Group as early as April 2008 asserted that: "... latency impedes a broker's ability to provide best execution. In 2008, 16% of all U.S. institutional equity commissions are exposed to latency risk, totaling \$2B in revenue." TABB Group further estimated that if a broker's electronic trading platform is 5 milliseconds behind the competition, it could lose at least 1% of its flow - an estimated \$4 million in revenues per millisecond. Up to 10 milliseconds of latency could result in a 10% drop in revenues.

In terms of latency, automated algorithmic trading requirements, measured in mere milliseconds to microseconds, are as much as 1,000 to 1,000,000 times more strict than common

distributed network applications, such as Voice over IP (VoIP), web commerce, and interactive network gaming. Such applications, which in themselves required substantial network latency improvements to make them viable, can tolerate more than 100 milliseconds of one-way packet latency. However, with the rise in high-speed trading, the latency measurement problem has gotten tougher - with real-time monitoring needs 1,000 to 1,000,000 times as granular as was formerly required. This requirement means that traders and network providers have to completely re-evaluate their existing monitoring infrastructure.

Not only does cPacket's white paper flesh out the foregoing perspective, it also aids trading firms in evaluating the impact of equipment specifications on improving latency.

"Providers of networking equipment make a baffling number of claims about the performance of their equipment that leads platform designers to believe that they are attacking the latency problem," says Kay. "We show traders that latency depends upon the specific context of the network topology and traffic conditions, and that simply throwing costly equipment and bandwidth into the mix - without understanding the underlying principles and trade-offs - will lead to expensive and unproductive optimization efforts."

Kay said that cPacket had listened to many customers in the financial community that were deeply concerned about the delays and unknown random variability introduced into their transactions by the network itself, and developed the white paper as a consequence. "They clearly believed it was critical to understand at a deeper level how to evaluate whether or not their networks were optimized," he said, "and that is what we have tried to accomplish."

According to TowerGroup ([www.towergroup.com](http://www.towergroup.com)), in an interview with *Wall Street & Technology* in July 2009, the level of awareness among consumers of ultra-low latency, as it relates to the competitive advantage in electronic trading, has increased in 2009 substantially. Moreover, new regulations include obligations that make the brokers and exchanges responsible that trades are not executed at a poor price.

For a copy of the whitepaper, go to [www.cpacket.com/latency](http://www.cpacket.com/latency).

### **About cPacket**

cPacket Networks is an emerging leader in chip based technologies that offers breakthrough, Pervasive Network Intelligence™ at a fraction of the complexity, power, or cost of preexisting approaches. Based upon its powerful "complete packet and flow inspection" architecture, cPacket offers a broad range of solutions for network visibility, monitoring, and measurement. cPacket also provides manufacturers of routers, switches and other network appliances a low-impact means to easily drop game-changing, wire-speed active network traffic analysis and response directly into their existing or planned designs for the service providers, the enterprise, or the small office markets. The exploding use of 10 Gbps networks and beyond to support a relentless growth in media-centric applications makes the availability of truly pervasive network intelligence timely and critical.

cPacket was founded in 2003 and is located in Mountain View, CA. For more information, visit [www.cpacket.com](http://www.cpacket.com).