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## **TS-Associates announce the Application Tap™ for hardware assisted software instrumentation**

**LONDON – 1<sup>st</sup> September 2009:**

TS-Associates plc (TS-A), developers of TipOff™, the market leading solution for the precise measurement and management of low-latency messaging infrastructures, announces the Application Tap™, previously an internal component within TipOff™ that is now being offered as a product in its own right, as a result of customer demand.

The Application Tap™ is a PCIe card that enables the implementation of precisely time stamped software instrumentation with negligible performance overhead. The product is suitable both as an enabler of production systems monitoring, and for a wide range of software performance optimisation tasks such as deterministic profiling.

The traditional, although still leading edge, approach to high precision, non-invasive monitoring of distributed systems, such as market data and trading systems, has been to capture and precisely time stamp network traffic, decode protocols, and analyse data flows, yielding latency and performance metrics. However as architectures evolve from highly distributed systems towards consolidation onto multi-core servers, less inter-process communication is physically available to capture on the network. At the same time, it is becoming increasingly important to be able to monitor software events occurring in the depths of applications, such as order matching engines, and emit data associated with events, precisely time stamped, in a manner that imposes negligible performance overhead.

The Application Tap™ solves the challenge of minimally invasive software instrumentation by providing a user space API that enables software events within applications to be instrumented with minimal overhead, with the aid of an FPGA based co-processor and precise hardware clock. Instrumentation code added to applications is able to pass instrumentation metadata to the co-processor which time stamps the event to 10nS resolution, and forwards the instrumentation metadata to an external monitoring appliance, such as TipOff™, using an on board gigabit network interface. Clock synchronisation is supported using either PPS or PTP.

The Application Tap™, which was originally developed by Accolade Technology in partnership with TS-A as a key enabling component within *TipOff – NYSE Technologies Data Fabric Edition*, has been independently benchmarked operating at over two million events per second.

Henry Young, TS-Associates' Director of Product Development, says, "Some time ago we spotted a major hole in our monitoring strategy, which is based on non-invasive network packet capture. We saw architectures consolidating, and high performance messaging increasingly using shared memory. We also saw an increasing demand for production systems software instrumentation without the usual overhead associated with emitting instrumentation metadata. We responded by developing the Application Tap, which provides a unique and innovative solution, solving the problem of how to rip instrumentation metadata out of the heart of applications without missing a beat, with the added bonus of nanosecond resolution time stamping."

The Application Tap™ is undergoing trials with a US based global investment bank, and is expected to be in production use before the end of the year. The Application Tap™, is also a key enabling component within the TradeSync™ product, previously announced by TS-A in conjunction with its first customer, a leading European MTF.

The Application Tap™ is available, exclusively from TS-A, for evaluation by early adopters in limited quantities, with support initially for both 32 and 64 bit builds of version 2.6 Linux kernels.

**About TS-Associates:**

Trading Systems Associates plc partners with leading financial markets participants to overcome the complex technology integration issues that relate to the deployment and management of middleware based financial markets applications.

As a result of its focused technology consulting and through its close partnership with customers, TS-Associates has established itself as the leading developer of appliance based, hardware accelerated, real time latency analysis, middleware monitoring and diagnostic products.

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