

APCON and Velocimetrics Solution Brief

With faster trading, growing volumes and emerging regulations, today's trading environment demands optimized operational performance.

Being able to access liquidity at the intended price, without fear of unexpected delays, is fundamental to trading profitability. That's why having a real-time understanding of exactly what is happening, as it is happening, across all systems and networks, and being able to immediately identify and rapidly resolve developing issues, is now an essential pre-requisite for trading firms in an increasingly competitive global marketplace.

Combining the strengths of Velocimetrics' TipOff® with APCON's INTELLAFLEX, capital market participants can be confident they can passively capture, aggregate and analyze 100% of all data traversing their networks and be instantly alerted to any issues that could negatively impact operational performance.

Using APCON INTELLAFLEX, packets captured using SPANs, taps and other data sources at multiple points across high-speed financial networks, can be effectively aggregated. After filtering and de-duplicating the data, adding high precision timestamps and VLAN port location tags, the packet data is sent onto TipOff.

TipOff then conducts detailed network, middleware and market data analysis on a hop-by-hop basis, delivering extremely accurate performance metrics and complete end-to-end network visibility.

Empowering users to forensically examine issues, right down to the individual network packet and nanosecond level, the root cause of performance issues can be quickly identified and eliminated. This integrated approach enables users to identify opportunities to improve performance and benefit from faster trade execution and accelerated matching speeds.

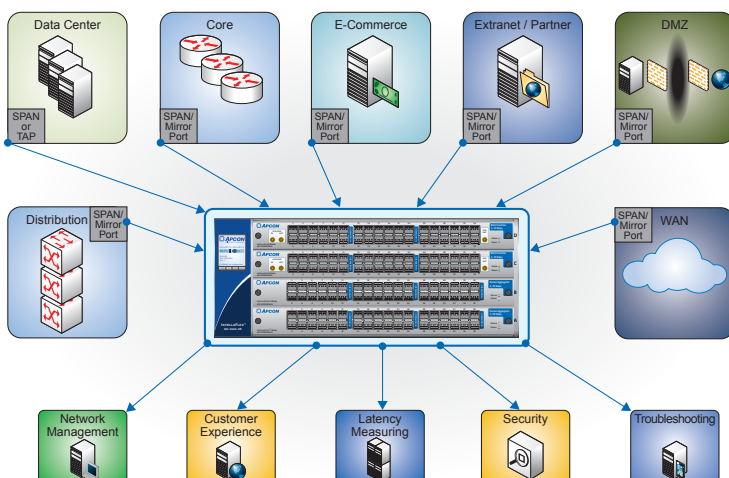


Figure 1: The APCON INTELLAFLEX XR switches provide a highly available, fault tolerant and scalable architecture suitable for use in a production data center running real-time application performance analytics.

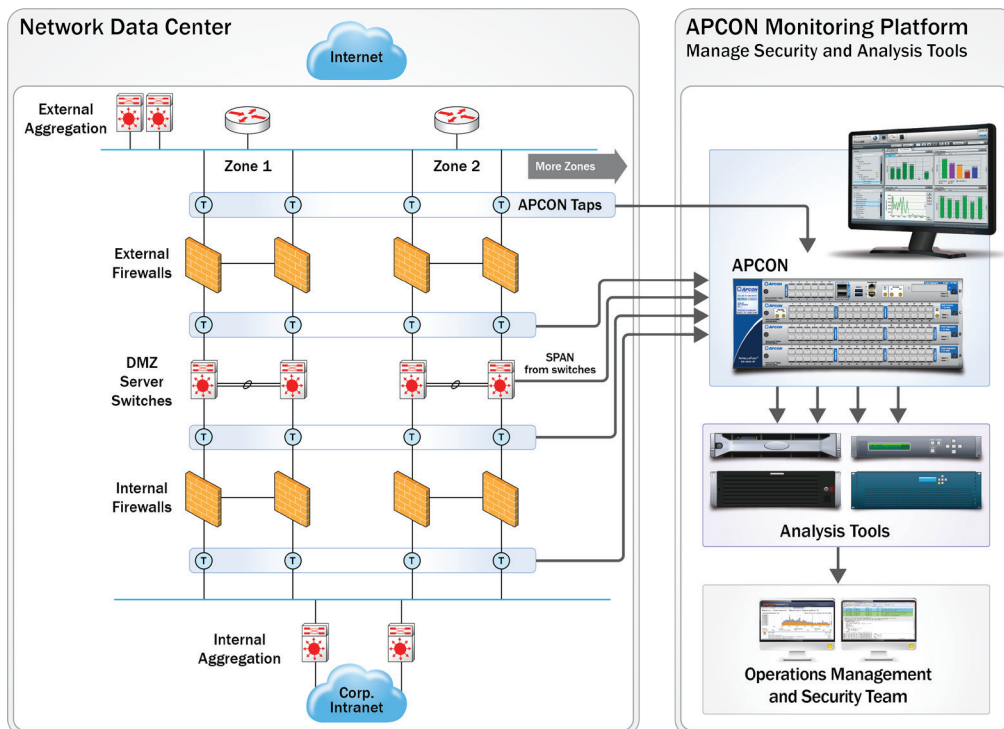


Figure 2: Monitoring tools leveraging APCON's intelligent network monitoring switch can be scaled across the data center. Additional sites can also be managed using APCON's TITANXR multi-switch management software. The INTELLAFLEX XR family of switches aggregate packets copied from SPAN and tap sources throughout the network and filters, deduplicates, packet slices the packet stream before passing the data to the TipOff appliance.

APCON

The INTELLAFLEX XR intelligent network monitoring switch is the next generation of APCON's traffic visibility technology. It is designed for scalable, high-capacity, reliable data aggregation and filtering, which increases tool efficiency and lowers enterprise monitoring costs.

APCON monitoring systems offer precise nanosecond level time stamping of monitored packets at points across the network, using GPS, PTP, IRIG-B or NTP. By delivering precisely time stamped packets, captured at multiple points across data centers, APCON provides Velocimetrics' TipOff with the detailed information needed for highly accurate latency, network, middleware and market data analysis.

TipOff

TipOff enables capital market participants to effectively measure and control performance in extremely fast moving and high volume environments, pinpointing opportunities for improvement.

By importing high-speed financial data using APCON's packet aggregation switches, data captured at multiple points on the network can be consumed through a single port on a TipOff appliance.

Instantly decoding the embedded time stamps, TipOff then normalizes all data and alerts users to abnormalities or the breaching of thresholds, providing real-time and retrospective analysis with access to detailed performance insight.

Combining APCON's packet aggregation switch technology with TipOff's high precision monitoring and analysis capabilities, users benefit from:

High precision latency measurements

APCON's packet aggregation switches timestamp data to a resolution of sub-10 nanoseconds, at the ingress point. Consuming these highly accurate timestamps, TipOff can instantly generate extremely precise hop-by-hop and end-to-end performance measurements and analytics.

These statistics enable TipOff users to very quickly comprehend the current performance being achieved across their networks and identify latency hotspots for focused improvement.

Network analysis

Consuming and analyzing the data received from the APCON packet aggregation switch, TipOff enables performance issues to be forensically examined, right down to the individual network packet and nanosecond level, facilitating:

- Nano burst analysis at OSI layers 1, 2 and 3
- TCP re-transmission statistics
- TCP latency and packet layer latency analytics

All generated with exact timings, alongside detailed bandwidth analysis.

Middleware analysis

TipOff supports performance root cause analysis by leveraging its thorough examination of the middleware stacks that comprise each hop in a data flow. As the most significant source of latency is often the retransmission latency that results from lost packets, TipOff enables middleware-messaging activities to be independently monitored and analyzed.

TipOff monitors the internal operation of reliability layers across an extensive range of middleware messaging protocols. TipOff provides protocol specific statistics, identifying retransmission requests, and generating subscriber, publisher and topic statistics for the messages themselves.

In doing so, early warning signs of operational conditions that could result in increased latency can be detected, exposing potential load balancing and capacity challenges.

Market data analysis

TipOff supports high volume, market data sequence gap detection. By instantly identifying and alerting the business to missing sequences, and recognizing the feeds impacted, damage limitation methods can be implemented to avoid inaccurate trading decisions based on unknowingly partial data streams.

TipOff also enables the real-time and historical analysis of market data message volumes, which can then be used to facilitate more effective capacity planning.

Event syndication into client specific analysis systems

In addition to offering an extensive range of performance analytics of its own, TipOff is also able to stream normalized data into a client's own choice of either in-house or third party analysis tools.

Syndicated events can be seamlessly fed into the most widely adopted third-party analysis solutions, as well as client specific systems, databases and messaging tools, providing vital risk and regulatory insight.



About Velocimetrics

Velocimetrics sets a new benchmark for operational oversight by delivering uncompromised end-to-end visibility across complex environments, accompanied by performance improving analytics.

Its full-spectrum product suite including TipOff, Velocimetrics and Application Tap enables emerging problems to be instantly detected and their root-cause rapidly understood from both a business and technical perspective. This significantly reduces an issue's potential impact, whilst also identifying opportunities for on-going performance improvements. Providing asset class agnostic, highly customisable, agile, open and globally scalable solutions, Velocimetrics prioritises flexibility so it can build the solution that will effectively meet your firm's specific requirements.

Formed in 2009, Velocimetrics' world-class financial services expertise continues to attract a growing global client base. Its sophisticated solutions deliver the level of transparency required to instil confidence and its innovative approach demonstrates the future potential for business flow monitoring and performance analysis tools.

For more information, please visit: www.velocimetrics.com.



About APCON

APCON develops scalable network switching solutions for enterprise data centers worldwide. APCON intelligent network monitoring switches and taps provide complete network visibility, improve network security and optimize monitoring tool efficiency. APCON's filtering and aggregation technology and multi-switch management software minimizes network downtime and maximizes monitoring tool investments. Learn more about APCON at www.apcon.com.