



SOLUTION DESCRIPTION

Napatech and Velocimetrics Accelerate Financial Trading Performance

Overview

Velocimetrics, the provider of real-time business performance monitoring and analysis solutions, and Napatech, a leader in reconfigurable computing platforms, have joined forces to enable the rapid identification, detailed investigation and ultimate resolution of mission critical trading issues.

Combining Napatech SmartNIC hardware and software with Velocimetrics analysis software, users can capture data with nanosecond precision time stamping at multiple points throughout complex trading environments and achieve exceptional, real-time operational oversight across end-to-end business flows. This powerful partnership rapidly detects and notifies users to emerging risks, the possibility of regulatory and SLA breaches as trading thresholds are reached, potential exposure to financial loss and capacity challenges. Whilst simultaneously providing access to the decision-making analytics required to effectively understand the issue's impact on individual clients, orders or trades in real time.

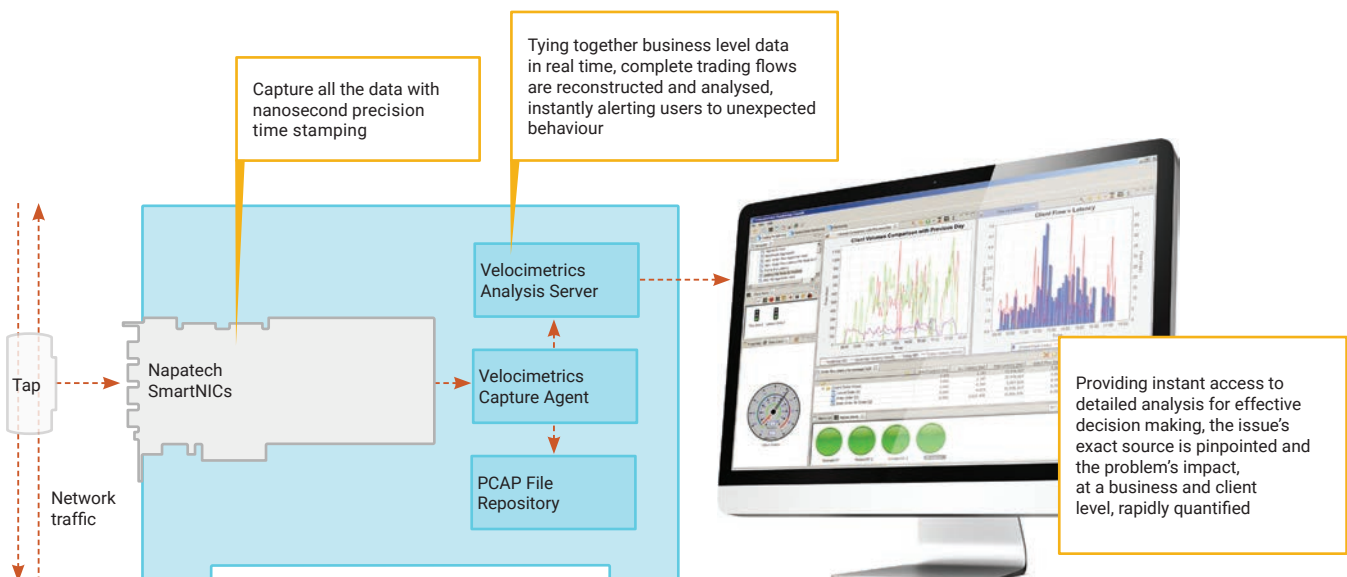
Armed with this insight, and Velocimetrics' ability to instantly pinpoint the issue's exact source, preventative action can be quickly instigated and the situation more effectively managed and controlled.

Guaranteed Delivery of Analysis Data

Knowing when an issue occurred and the amount of delay in the network is important for many financial analysis applications. Napatech FPGA-based SmartNICs are designed to ensure guaranteed collection and delivery of network analysis data under all conditions. This includes zero packet loss capture of network data with direct transfer to system memory ensuring optimal availability and analysis performance. Each packet is time-stamped with nanosecond precision for every frame captured. This allows precise identification of events and measurement of time-related quality of service parameters, such as latency and jitter.

In addition, Napatech SmartNICs provide advanced data pre-processing features that allow layer 1 to layer 4 flows to be identified and distributed to up to 32 CPU core host buffers. This multi-CPU distribution mechanism allows applications to scale performance using additional CPU cores for processing.

Napatech reconfigurable SmartNICs provide flexible support for a range of standard time synchronization mechanisms. Dedicated time synchronization connectors enable direct time signal input from an external time source and retransmission of time synchronization signals to other SmartNICs.



In this way, multiple SmartNICs in the same host or in different hosts will operate in lockstep in a large synchronous installation.

Napatech SmartNICs also provide 64 complex flow filters that can be setup, modified and removed on-the-fly. Filters can be used to manage the type of data presented for analysis. Napatech SmartNICs support line-speeds from 1 to 100 Gbps. Data from multiple ports of different speeds on multiple SmartNICs can be merged into a single analysis stream using Napatech software.

Transforming Data into Performance Improving Insight

Applying Napatech SmartNIC hardware and software for accurate data collection and nanosecond range time stamping, Velocimetrics is able to conduct independent, network-level monitoring and access the precise business-level information required to detect latency and other performance issues emerging.

This approach can be combined with application and middleware data capture methods, based on the client's requirements, to achieve a transparent and detailed view of all activities taking place across each and every system and network as they are happening. In doing so, effective operational oversight across all areas of the transaction's lifecycle is delivered regardless of how complex, dynamic or geographically dispersed the infrastructure may be.

Capturing business-level information and applying advanced statistical analytics, Velocimetrics is able to instantly correlate the received data together, accurately determining for instance the market data ticks that caused an order to execute a trade. This functionality enables any given order or trade to be rapidly reconstructed, even if orders have been executed as multiple child orders, or if trades fail to retain a unique ID as they move through various systems and processes.

Generating complete end-to-end and hop-by-hop performance measurements, outliers are instantly detected and alerts raised the instant a pre-set threshold is breached. Velocimetrics then immediately identifies the issue's exact location and with Napatech SmartNICs, the individual network packets associated with the incident can be immediately accessed.

Velocimetrics' detailed analytics then rapidly and accurately quantify the business and client impact, identifying exactly which orders or trades have been impacted, how they have been impacted and the clients they belong to. Users can slice and dice the real-time business-level data in many different ways to meet their individual requirements to determine for instance:

- How trading decisions impacted future developments
- How long certain trades are taking to settle
- The performance being achieved by different DMA clients
- in a trading environment compared to SLA commitments
- Comparative member performance in an exchange environment by individual participant or different groups
- Performance by different instrument types
- How different gateways compare

In addition to revealing many other types of possible analytics, depending on the user's information requirements. This dynamically reconfigurable, highly customisable and scalable solution is open to multiple extension, integration and deployment options.