

## CASE STUDY

# Leading HFT organization deploys Napatech's FPGA SmartNIC and ntop's n2disk™ to create a powerful analytics solution for trade optimization and security monitoring

### **Challenge**

With high-frequency trading (HFT) demanding faster execution times and trading systems becoming more complex, the customer approached Napatech for a SmartNIC capable of capturing, replaying and analyzing network and security activity at line speeds up to 100G - with zero packet loss

### **Solution**

The customer selected the Napatech NT200A02 with Link™ Capture software to capture and filter packets to their ntop n2disk™ open-source traffic recorder application

### **Benefits**

The result was a powerful capture/replay solution with analytics, in which the NT200A02 captures all packets at line speed, while ntop n2disk™ provides filtering for network and security analytics

*“Our challenge was that we initially wanted something higher level than just a SmartNIC. However, the commercial options we looked at, were either too expensive for what we wanted or did not meet many of our requirements. Integrating the NT200A02 with n2disk™ gave us the flexibility and features we needed in our very demanding environment and at a much lower TCO.” - Head of Engineering*

## Industry pain points

- Optimizing trade algorithms by measuring performance of previous trading days and testing against previous trading data
- Replaying captured data at line speeds with nanosecond precision
- Identifying data bursts/gaps which may cause misplaced or dropped orders
- Accurately reporting trade history data for regulatory compliance
- Protecting external facing infrastructure from outside security threats

Standard Network Interface Cards (NICs) are not designed to handle the amount of data that is regularly transmitted in bursts. Napatech SmartNICs, however, include large onboard buffers designed to absorb microbursts.

Identifying and mitigating network issues is a complex and resource-heavy task. As the density of systems

and infrastructures grows, so does the challenge of ensuring peak network performance. Napatech SmartNICs provide the capability of capturing all packets at line rate.

## Client Challenge

To maintain their competitive edge in the High-Frequency Trading (HFT) market, the customer needed to design, build and customize their own cutting-edge analytic platform.

As standard NICs are not designed to meet HFT requirements, the customer approached Napatech for a SmartNIC capable of

- Capturing all packets up to 100 Gbps for their network security application - with guaranteed 100% zero packet loss
- Filtering packets based on protocols unique to the financial trading industry
- Replaying capture data at line speeds with nanosecond precision

## Solution

The combination of Napatech's NT200A02 FPGA-based SmartNIC with Link™ Capture software to capture, filter and accelerate data and ntop's n2disk™ open-source network traffic recorder provided a powerful backend solution with analytics.

By capturing all packets at line speed and using the NT200A02 to filter specific Fin-Tech protocols, the customer accelerated data delivery to n2disk™.

## Benefits

- By deploying a COTS platform with the NT200A02 SmartNIC and n2disk™ network recorder, the customer achieved
- higher performance of trade execution
  - improved back-office monitoring
  - reduced TCO by several million dollars

Example of Typical Datacentre with Co-Location

