



## Case study: A cost-efficient migration to 100G

### Industry pain points

As the data curve is climbing, so is the demand for higher capacity networks. Many data centers and telecoms have already transitioned to 100G and others will need to follow suit in the imminent future. Meanwhile, industries are facing steep power consumption costs and a growing scarcity of rack space.

These conditions are pushing network monitoring solutions into unfamiliar terrain, and the task of managing and analyzing data is becoming an even greater challenge.

*“The changeover to 100G network analysis from its smaller 10G cousin might seem like a simple matter but, in fact, introduces new challenges in terms of system performance and offload requirements”*

Sven Olav Lund  
Sr. Product Manager at Napatech

### Client challenge

In facing this changing landscape, a leading network solution provider needed to ensure 100G compatibility while also meeting demands for cost and energy-efficiency. A clear tendency amongst their clients was the desire to utilize standard rack solutions as a means to curb costs.

To accommodate these requirements but still maintaining their high level of performance, the solution provider was looking for a high-capacity acceleration solution that would enable 2 x 100G applications in standard 1U servers.

### Our solution

Already a longtime Napatech client, the solution provider solicited the Napatech R&D specialist team to develop a compact 2 x 100G network SmartNIC based on flexible, reconfigurable FPGA technology. They were keen to integrate the capabilities of the Napatech 200G Performance Solution already on the market but requested that this design was further developed to meet the industry need for compactness.

### Challenge

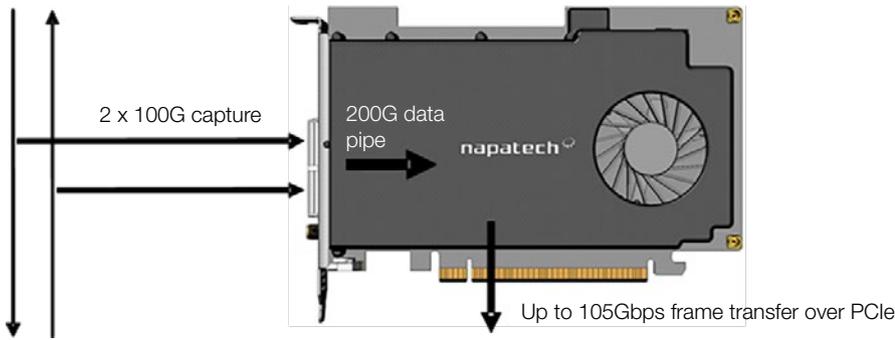
In response to industry requirements, a top tier network solution provider needed to ensure 100G compatibility while also meeting demands for cost and energy-efficiency. They needed a high-capacity acceleration solution that would enable 2 x 100G applications in standard 1U servers.

### Solution

Napatech engineered a 2 x 100G Compact Solution in a condensed form factor but with the key Napatech trademark features to ensure complete and efficient data delivery.

### Benefits

The 2 x 100G Compact Solution enables the client to offer 1U solutions to the market, affording them the means to analyze 100G networks while reducing footprint and TCO.



## Napatech

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### Compact design

To increase density and ensure deployment in 1U servers, Napatech therefore engineered a SmartNIC in a half-length PCIe design. By using QSFP28 transceivers, this solution allows customers to benefit from a significantly lower cost point compared to other 100G solutions. For a higher port density, Napatech created a two-port design. This way, only one slot is occupied to monitor bi-directional links, which almost doubles the power efficiency.

### Time-stamp precision

The solution ensures that each incoming data packet is precisely time-stamped in the same order as it is received in the network. Data from the two ports are then merged into one stream and sent to the application in the right order for further processing; a crucial feature for reliable network monitoring. By facilitating upstream and downstream data merge, the Napatech SmartNIC ensures that the data is delivered into a single time-ordered data stream to the right CPU core. This minimizes the processing load on the CPUs and enables applications to efficiently analyze data in standard servers.

### 100% capture

Drawing on the key packet capture technology from Napatech, the SmartNIC ensures 100% capture - even during traffic bursts in the network. This provides complete visibility and enables a fully reliable traffic analysis.

### Full scalability

To stay ahead of market demands, the solution is fully scalable. The SmartNIC family is expanded on an ongoing basis, enabling customers to handle their connectivity needs now and in the future.

### NEBS compliance

To accommodate the US telecoms market, a NEBS variant is available, including the exact same features but meeting the specific NEBS level 3 requirements.

### Benefits

Collectively, these features translate into some very tangible benefits. The 2 x 100G SmartNIC allows solution providers to deliver 1U offerings to their clients, affording them the means to analyze 100G networks while reducing footprint and overall cost of investment and deployment.

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