napatech

Case study: Dedicated QoE monitoring up to 100G

Industry pain points

To ensure continued commercial viability, telecom operators need to cater to their high-value customers and deliver prioritized, premium on-demand services. But with the momentous increase in speeds and traffic load, applications are struggling to keep up.

Client challenge

A leading network equipment vendor was faced with this very challenge as they were developing a bespoke solution for a client in the telecom industry. To sustain customer loyalty, the telecom operator wanted to ensure premium Quality of Experience (QoE) for their high-value clients, giving them dedicated priority among hundreds of thousands of mobile subscribers.

Napatech was engaged by the equipment vendor to help them accelerate and optimize their solution to meet client demands. They needed to enable real-time monitoring and reporting of the prioritized subscriber traffic - providing detailed insights into their mobile network performance, service

performance and customer experience. This involved highly advanced analyses - which added severe pressure on the server and degraded the application performance. Analyzing the entire network would involve an overflow of traffic from video streaming, music services, social media, etc. There was a need to reduce the data amount so only traffic from the high-value subscribers could be processed.

Solution

To limit the data volume and optimize performance, the monitoring appliance was equipped with Napatech's FPGA-based SmartNICs, designed to release valuable compute resources.

Data reduction

Using a bespoke IP group match filter, a list was established of selected IP addresses and any irrelevant traffic was filtered out. This made it possible to reduce the gigantic volume of data - and only send the designated information to the application for further processing.

Challenge

To ensure continued commercial viability, telecom operators need to provide premium QoE to their high-priority subscribers. But with the momentous increase in network speeds and traffic load, applications are struggling to keep up.
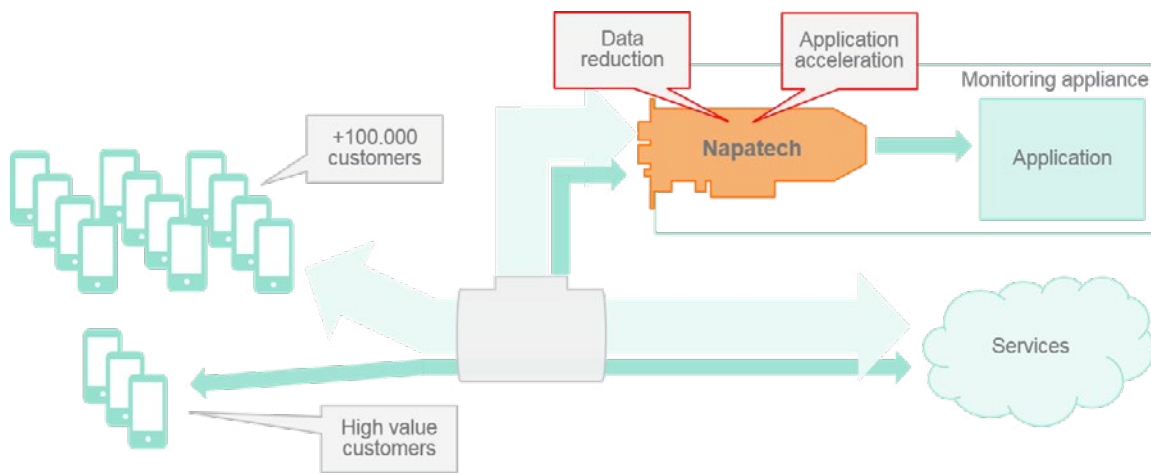
Solution

In addressing this challenge, a leading network equipment vendor partnered with Napatech to develop a high-performance solution that could intelligently filter the data and distribute the load over multiple CPU cores.

Benefits

This enabled enhanced QoE monitoring through:

- Substantial data reduction
- Accelerated application performance

Application acceleration

To manage the data more efficiently and accelerate the application performance, we optimized the load distribution based on the subscriber IP addresses inside the GTP tunnels. An IP fragment handling feature ensured that the load was then distributed over multiple CPU cores based on subscriber IP header information, even for fragmented IP datagrams.

The Napatech SmartNICs supported the specific mobile network GTP protocols; a crucial requirement that would not have been met using a standard solution.

Ns timestamp and 100% capture

To enable reliable, in-depth assessment of the QoE, the appliance had to provide nanosecond timestamp accuracy and ensure 100% packet capture. These distinct Napatech features were an integral part of the solution.

Scalability

All features supported from 1 to 100G up/downstream monitoring at any packet rate and size, thus offering full agility to scale according to market demands.

Benefits

By integrating Napatech SmartNICs, the equipment vendor was able to deliver a solution that could intelligently filter the massive amounts of data, so only prioritized subscriber traffic would need to be processed. By thus unburdening the server CPUs, the application performance was accelerated, which enabled higher throughput using the same hardware – helping the vendor to realize substantial savings.

For the telecom operator, the solution equipped them to deliver premium QoE assurance to their high-value subscribers, even at 100G - and provided them the agility to continually scale solutions according to market needs.

Napatech

Napatech helps companies to reimagine their business, by bringing hyper-scale computing benefits to IT organizations of every size.

We enhance open and standard virtualized servers to boost innovation and release valuable computing resources that improve services and increase revenue.

Our Reconfigurable Computing Platform™ is based on a broad set of FPGA software for leading IT compute, network and security applications that are supported on a wide array of FPGA hardware designs.

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