



Case study: Leading technology company rethinks VoLTE quality assurance

Industry pain points

With the arrival of 4G, and 5G on the rise, service providers are pushed by the market to launch Voice over Long Term Evolution (VoLTE) and Voice/Video over WiFi (VoWiFi). For these time-critical services, Quality of Experience (QoE) is a crucial factor. But without the ability to accurately measure and control packet latency, subscribers are likely to experience service disruptions or poor voice or video quality.

Challenge

While the market offers a substantial selection of high-precision latency measurement solutions, these tend to be sizeable, closed and cost-prohibitive, adding excessive pressure on OPEX. Moreover, these solutions are often extremely complex, requiring dedicated and costly engineering expertise.

In addressing this challenge, an industry leading technology company was tasked to develop a solution for their service provider customers, offering the same level of precision but at a lower total cost of ownership and with less complexity.

Solution

The tech company selected Napatech's FPGA-driven SmartNIC hardware and software to accelerate their solution and enable latency measurements with nanosecond precision.

To uniquely identify individual packets and track their propagation through the network, Napatech implemented a hash-based correlation mechanism that added a "fingerprint" to each packet. This feature enabled intelligent comparison between two packets, taking into account changing header information and checksums.

Combined with Napatech's nanosecond precision timestamping capabilities, this correlation key allowed each packet to be accurately timestamped, traced and measured as it traversed the network. This made it possible to map out delays between different tap points providing a fully reliable, real-time portrayal of the overall network latency.

Challenge

Current latency measurement solutions for LTE networks are sizeable, complex and cost-prohibitive. To address this challenge, an industry leading technology company needed to develop a solution offering the same level of precision but at a lower TCO and with less complexity.

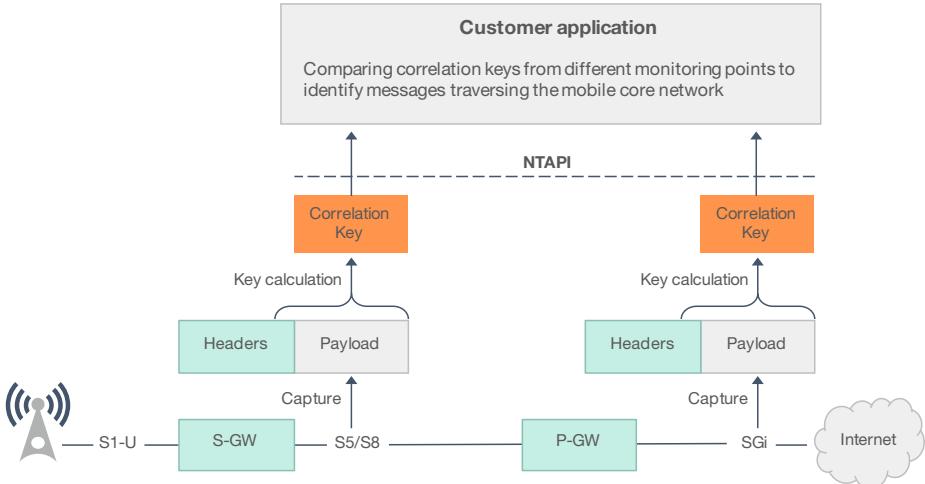
Solution

The tech company selected Napatech's FPGA-driven SmartNICs to enable latency measurements with nanosecond precision. A correlation mechanism was implemented to identify and trace the packet propagation through the entire network.

Benefits

Cost-efficient, compact solution that enables:

- network-wide latency measurements
- real-time insight into any issues degrading the VoLTE or VoWiFi



The Napatech SmartNIC brought the capability to recognize different kinds of traffic, even when transported in tunnels like GPRS Tunneling Protocol (GTP). It provided full theoretical throughput and added the intelligence to balance the load across available processing resources to ensure minimum pressure on the CPUs.

Benefits

- With nanosecond timestamp and time-synchronization, the solution enables QoE measurements between multiple points in a network at any port speed. This ensures that packet latency can be quickly detected.
- With this solution, users get a state-of-the-art analytics engine that provides real-time insight into

the network and overview of any issues degrading the VoLTE or VoWiFi quality across the infrastructure.

- The solution is highly cost-efficient as it is based on standard servers and continually scales with increasing network speeds and traffic loads.
- Compared to alternative market offerings, this solution requires significantly less rack space and provides better coverage with fewer hardware components.

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.

Find out more at:
www.napatech.com

Find more case studies at:
www.napatech.com/resources/case-studies

EUROPE, MIDDLE EAST AND AFRICA

Napatech A/S
Copenhagen, Denmark

Tel. +45 4596 1500
info@napatech.com
www.napatech.com

NORTH AMERICA

Napatech inc.
Boston, Massachusetts
Los Altos, California
Washington D.C.

Tel. +1 888 318 8288
info@napatech.com
www.napatech.com

APAC

Napatech China/South Asia
Taipei City, Taiwan
Tel. +886 2 28164533 Ext.
319

Napatech Japan K.K.
Tokyo, Japan
Tel. +81 3 5326 3374

ntapacsales@napatech.com
www.napatech.com