

**CASE STUDY**

# Fueling TOYO SYNESIS to deliver 200 Gbps lossless capture

**Challenge**

TOYO SYNESIS is a preferred solution for capturing and replaying traffic with exceptional precision. But with the emergence of 5G, TOYO's mobile carrier customers increasingly need to test systems and infrastructures at multi-hundred gigabit speeds.

**Solution**

To accommodate these challenging requirements, TOYO selected Napatech's FPGA SmartNIC software and hardware to upgrade their SYNESIS solution, delivering the world's first capture appliance capable of 200 Gbps.

**Benefits**

With this solution, TOYO's carrier customers can now deliver on the 5G promises of advanced services, generating ultra-accurate test results even at 200 Gbps.



*“Customers always need to provide excellent service at any network speed. TOYO’s SYNESIS capture appliance is a powerful tool that is able to record every single packet without any loss on 200G networks, and thus customers are able to fix the issue quickly and accurately.”*

Tatsushi Nakamura  
Senior Sales Manager US/EMEA, TOYO Corporation

#### Industry pain points

As 5G emerges, it is becoming increasingly business-critical for mobile carriers to have the right technology in place for performing high-precision network quality monitoring, measurement and assurance.

#### Challenge

TOYO SYNESIS is a preferred network monitoring solution, capturing and replaying traffic with exceptional precision. But with bandwidth demands increasing, many of TOYO’s mobile carrier customers now need to test systems and infrastructures at multi-hundred gigabit speeds.

One such customer is a leading Japanese mobile carrier, who needs to consistently deliver best-in-class network performance to a wide range of enterprise customers. The carrier has been deploying SYNESIS for a while, but now needs to capture 100 GbE of up and downlink traffic simultaneously to ensure high-quality services and enable customers to react instantly in the event of network issues.

An unconditional requirement to achieve this is the ability to capture 100% of all network packets, enabling informed investigation and troubleshooting to quickly resolve any issues. Missing even a single packet can prevent or prolong the troubleshooting, which may lead to severe and lengthy downtime - and very unhappy customers.

#### Solution

To accommodate these challenging requirements, TOYO selected Napatech’s FPGA SmartNIC software and hardware to upgrade the performance of their SYNESIS appliance to handle 2x100 Gbps in a portable design - with zero packet loss guaranteed.

#### Lossless capture and replay

In addition to the lossless capture capabilities added via the Napatech SmartNIC, an advanced transmit feature enables the exact capture timing to be replayed with nanosecond precision. This facilitates precise session replication both for lab and real network testing and enables network engineers to simulate, analyze and remedy any network issues as generated by peaks or bursts.

#### Benefits

With this solution, the leading Japanese mobile carrier and other TOYO customers can now generate ultra-accurate test results even at 200 Gbps, allowing them to provide the needed network and application quality monitoring, measurement and assurance to deliver on the promises of 5G.

With Napatech FPGA SmartNICs, TOYO can preserve the low-cost server design and scale to multi-hundred gigabits in a portable platform - which has never been achieved before.