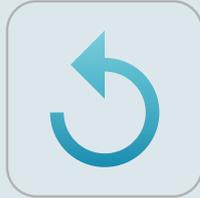


Napatech SmartNICs



Traffic Replay

SOLUTION DESCRIPTION

Traffic Replay up to 100G Line Rate

For Napatech FPGA-based SmartNICs

Problem

Identifying and mitigating network issues is a complex and resource-heavy task. As the density of systems and infrastructures is growing, so is the challenge of ensuring peak network performance. Various solutions are available for testing and assessing the performance of a device or system, but many rely on traffic simulation alone. And while such tools do provide valuable and realistic patterns, they cannot deliver a complete reflection of reality, which in many instances is crucial to achieve 100% reliable test results.

Solution

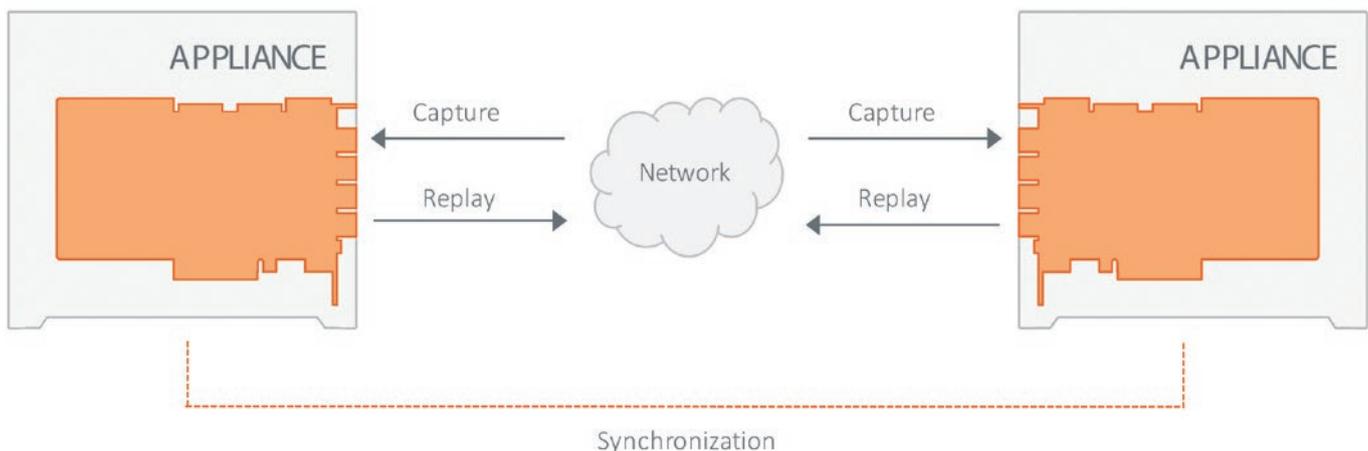
Napatech SmartNICs enable network engineers and developers to capture and replay traffic with nanosecond precision. Rather than basing tests on synthetic data, the replay feature makes it possible to recreate actual traffic scenarios that have caused network issues such as outages, breaches, Quality of Service (QoS) problems, etc. This provides real-world causality and offers the best possible outset for improving and hardening your infrastructure. Napatech SmartNICs also support synchronized replay across multiple appliances, enabling large-scale test setups with perfect timing and precision - and substantial cost benefits.

Application

The traffic replay feature is extremely useful for testing a single device in a network, e.g. a switch, router or firewall – or for testing more complex infrastructures or cloud services that need to behave in a specific way under certain circumstances. By recalculating the time stamps, it is possible to replay e.g. 10G PCAP files at 10x the speed, thereby recreating the traffic burst pattern at a load that fits any link speed. The feature also makes it possible to replay all traffic scenarios at full line rate, which is extremely useful for simulating line utilization and verifying system strength at all speeds.

Key use cases

- Replay from file exactly as the traffic was recorded, either out in the field or back in the lab
- Control replay speed to simulate different traffic profiles
- Synchronize traffic replay from multiple SmartNICs, within the same appliance or at remote locations



Feature specs

Traffic replay is based on an advanced Napatech feature that enables transmit on time stamp. The transmit is controlled by the time stamp, which means that the exact capture timing can be replayed with nanosecond precision.

- Line rate transmit from application to network ports enables network simulation at 1G, 10G, 40G and 100G port speeds
- Supports network test and simulation up to 100G line rate for any packet size
- Enables replay of PCAP files
- Enables replay as captured based on time stamp
- Transmits frames immediately or according to ns time stamp
- Configurable rate limiter for control of network load

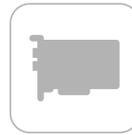


Napatech Link™ Capture Software

Napatech Link™ Capture Software supports a broad range of applications and use cases. Where standard Network Interface Cards (NICs) suffer from intolerable packet loss for the target applications, Napatech guarantees line rate throughput with zero packet loss and replay for all packet sizes.

Key Features

- Zero packet loss under all conditions
- Full throughput up to 100 Gbps bi-directional
- Nanosecond timestamping and packet merge
- 50 million flows with stateful match/action
- Flow records with metrics for both directions
- PCAP and DPDK API support



Napatech SmartNICs

Napatech is the pioneer and preferred supplier of FPGA-based SmartNICs designed to improve application performance and provide ultimate network flexibility and security. Our industry-leading feature set provides capabilities that are crucial for high-speed, real-time data processing.

With Napatech SmartNICs, you can build affordable, high-performance solutions based on standard, low-cost servers. The card offers market-leading integration capabilities and provides a robust and well-documented Application Programming Interface (API) that seamlessly integrates with open source, custom-developed or commercial applications.

The SmartNIC's intuitive programming language enables on-the-fly filtering configuration and intelligent multi-CPU distribution. With added support for libpcap and WinPcap, programmers can quickly integrate Napatech SmartNICs into their system.

Napatech helps companies to reimagine their business by bringing hyperscale 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.

NAPATECH RECONFIGURABLE COMPUTING

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