



INTRODUCTION

As modern networks continue to evolve, the availability of real-time telemetry on physical infrastructure becomes more essential than ever. Datacenters, hyperconverged, Telecom 5G wireless next-generation networks scale out and run increasing amount of divergent Applications. Traffic run in the networks can be characterized by network profiles with different workloads characteristics and scattered quality of service expectations. Achieving networks operation efficiency to satisfy Applications demands, necessitate real-time granular telemetry data from the switches. Furthermore, maintaining network stability is not a trivial task as well – without proper eventful telemetry information availability, IT admins constantly face challenges to troubleshoot problems impact network performance and struggle to quickly identify whether the cause relate to software application performance or to physical network behavior.

Next-generation networks management demands real-time detailed visibility and eventful controls into network traffic and infrastructure, to prevent and to remediate outages and performance degradation.



LEGACY SOLUTIONS

Legacy solutions, based on diagnostic probing and polling counters data from switches, may become insufficient to meet the intensifying needs of the next generation networks operational management.

These methods are:

- NOT event-triggered – important events can be missed, if happen to occur between the samples
- NOT real-time – polling is typically done every few seconds which is eternity for the silicon speeds (there are ~150M packets being transmitted in 1second over a single fully utilized 100G link. Data Center switches pipelines can process several billions of packets...)
- NOT granular – complete telemetry data is NOT available in per flow resolution, thus making it very hard to measure specific application processing metrics. Without these metrics, switching behavior cannot be properly analyzed and the network cannot be configured for applications characteristics service optimization
- Limited hardware assistance – without switch built-in acceleration, software is required to “work hard” for telemetry data extraction. Not only the data cannot be processed at hardware speeds, but also since platform embedded CPU resources are limited, in many cases solutions are simply given up in favor of utilizing the resources to more critical network processing tasks.

PACKET TRAKKER™

Packet Trakker™ is XPliant programmable telemetry technology that combines the flexibility of XPliant Packet Architecture (XPATM) with software-driven programmability. Packet Trakker™ enables to monitor networks more closely and accurately than ever before, utilizing real-time granular eventful telemetry capabilities of XPliant switches. Within XPliant software defined networking framework, Packet Trakker™ enables comprehensive data center infrastructure performance management. Networks built with XPliant switches can now deploy Packet

Ethernet Switch Product Line
Cavium / XPliant® Packet Trakker™
Programmable Telemetry Solution

Product Brief

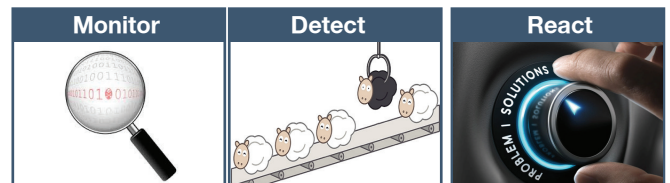


Trakker™ to provide the following operational benefits;

- Maintenance of a detailed history of switch resource utilization data and network performance logging that is used to perform performance validation
- Exportation of detailed real time switch utilization and network performance data that can be used to identify network resource contention patterns and isolate which workloads are causing resource contention
- Enabling the use of programmable instrumentation data gathering contexts that enable fine grained control of how telemetry information is organized for consumption by visualization tools and analytics engines
- Monitoring of system health and immediately alarms system management applications to circumstances that can cause data center performance degradation and equipment failure
- Microburst detection and identification of flows that destabilize application performance
- Latency fluctuations that negatively impact application behavior predictability
- Packets loss that is destructive to applications performance, which can be avoided through notification of pre-congestion in transmit queues
- Network utilization and increased network latency, though providing path distribution and latency metrics per flow
- Inconsistent configurations or packet processing exceptions

PACKET TRAKKER™ BENEFITS

Packet Trakker™ integrates with Network Operating Systems (NOS) and analytics engines, to deliver a comprehensive set of telemetry features that monitor network status in real-time and at scale. This technology assists data center network operators in dynamic remediation operations that continuously improve network efficiency and application quality of experience. Furthermore, the XPliant programmable switch architecture is future proofed for the continuously evolving world of Software-Defined Networking.



for more information about Cavium / XPliant® Packet Trakker™ Programmable Telemetry Solution. Visit www.cavium.com/XXX