SERVICE ASSURANCE

FOR 5G AND CLOUD NETWORKS

DART

DATA ANALYSIS in REAL TIME

cirries®

EXECUTIVE SUMMARY

5G AND CLOUD NETWORKS REQUIRE A NEW SERVICE ASSURANCE MODEL

Today's 5G networks require real-time proactive SLA monitoring which is exacerbated by network slicing that requires constant measurements to ensure Quality of Service (QoS) levels are met for demanding customers. Distributed cloud networks are now the norm to deliver value added services making it more difficult to measure overall network performance since the topology is constantly changing.

Cirries estimates that Cloud network end users discover 65% of network problems and many of those are not reported at all leading to customer dissatisfaction and higher attrition rates. Cirries' DART combines the richest dataset from the network with an automated alert and resolution workflow. This drastically reduces MTTR and ensures SLAs are met.

ACTUAL MEASUREMENTS VERSUS SYNTHETIC TRAFFIC

Actual measurements in networks provide accurate and reliable information about the behavior and performance of the network in real-world scenarios. These measurements are collected from physical devices and equipment that are deployed in the network and are based on actual traffic and user behavior. This data provides an accurate representation of the network performance, which can be used to identify and address issues and improve the overall performance of the network.

On the other hand, synthetic measurements in networks are generated using simulations or emulations of the network. Synthetic measurements are based on hypothetical traffic and user behavior and may not accurately represent the actual performance of the network. Synthetic measurements should be used for testing new network configurations, evaluating network designs before they are deployed, and troubleshooting specific known issues in a network.

To monitor 5G or cloud-based networks, the visibility solution must include streaming analytics augmented with AI and workflows to manage the millions of applications, processes, and network data points of your network. The data must be filtered, dissected, and humanized to be useful. It must collect and monitor the key performance indicators for all device types, identify applications, and generate reports for your complete infrastructure.

THE NETWORK SERVICE ASSURANCE INDUSTRY

The network service assurance industry has faced significant challenges in keeping up with the fast pace of technological advancements in recent years. As networks have become more complex and dynamic, traditional methods of service assurance have struggled to keep up with the demands of new and emerging services.

The industry has been slow to evolve partly since many existing networks service assurance solutions were designed for traditional, static networks, and have not been able to adapt quickly enough to the new requirements of dynamic, software-defined networks.

Additionally, there has been a lack of investment in new tools and technologies that are specifically designed to address the challenges posed by modern network environments.

Overall, network service assurance software providers must keep up with the pace of technological change and adapt to meet the needs of modern network environments. Many will be reluctant to shift from a network infrastructure mode of operation to a digital experience focus, moving to customer- and service-centric operations and others will not be able to since their entry into network performance monitoring was initially based on proprietary hardware and reluctantly modified to try and fit in the new software-based world.

DART BUILT FOR CLOUD AND 5G NETWORKS

Cirries DART provides a holistic visibility suite that combines the best attributes of Network Performance Management (NPM), Application Performance Management (APM), and Digital Experience Monitoring (DEM). DART ingests streaming network data augmented with Machine Learning to improve the manufacturing network experience, application performance, and device performance; providing the optimal environment required for Cloud and 5G network monitoring.

It includes packets and metadata from the network for all sessions and then humanizes the data delivered as visual actionable metrics. The primary objective is always to efficiently deliver manufacturing services, solve performance and threat issues faster, and mitigate risk more effectively than ever, maximizing the digital experience. These features include:

Continuous calculation of KPIs to ensure latency tolerances and performance demands are met

Instant alerts and auto-response to networking anomalies to minimize MTTR

Real time scoring of voice and video

THE 4 CORNERSTONES OF DATA ANALYTICS

Capturing all the network data is the only way to efficiently manage and protect your network. The four cornerstones are illustrated below:
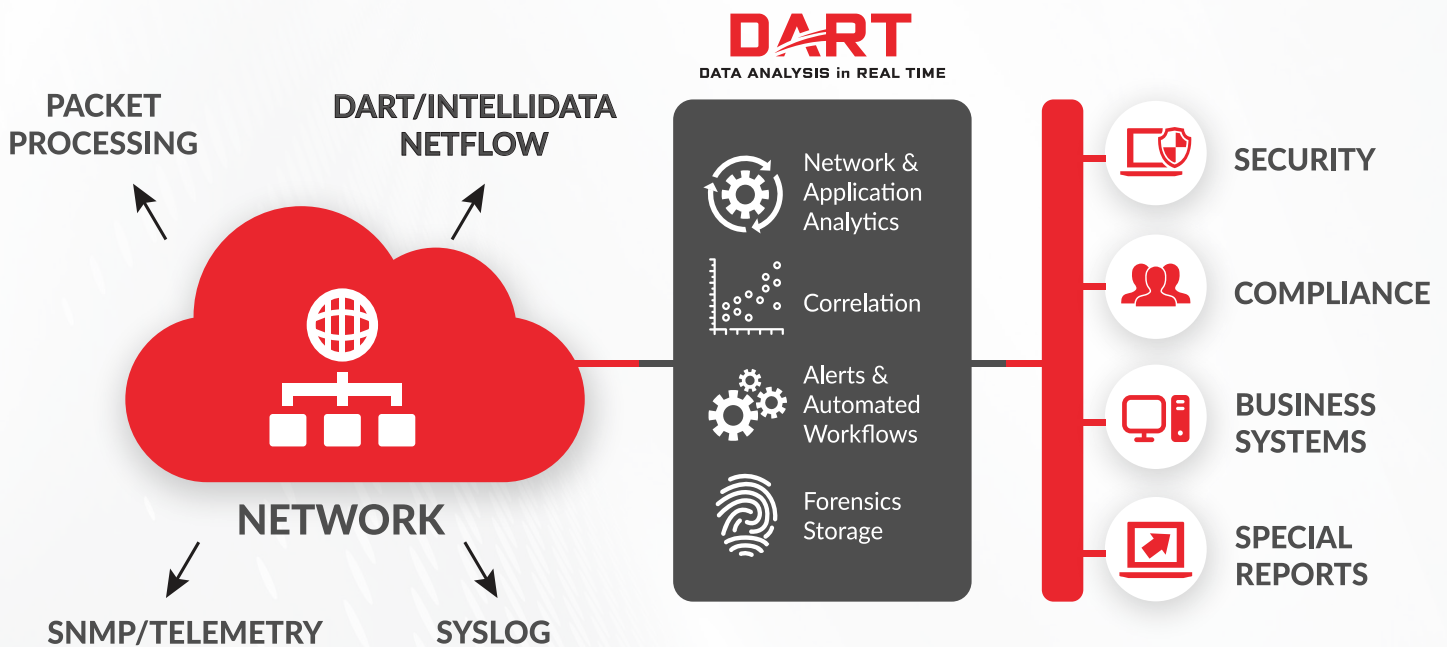
PACKET PROCESSING

Cirries Packet Sensor provides on-demand packet recording, DART flow data generation, and light packet brokering capabilities, including filtering, shunting, and load balancing to forward packets to other tool sets, i.e., security.

DART FLOW INTELIDATA

Network flow or traffic is the amount of data being transmitted across a network over a specific period. Monitoring network flows is key to understanding the typical behavior and performance of your network. DART provides intellidata to represent the traffic on the network for each flow session. Cirries capability exceeds traditional Netflow Generation and Analysis by first evaluating every packet in a flow, not sampled 1024:1 or higher by other Netflow Generators. This allows the ability to provide detailed metrics for each flow including latency and error conditions met along the flow path.

SNMP/NETWORK TELEMETRY

SNMP is used to collect information about managed devices on networks. Devices that send SNMP data include cable modems, routers, switches, servers, workstations, printers, and more. Correlating this data with the other data from your network is key to finding erratic behavior or failures in network elements. Network Telemetry works on the push model and can provide a more real-time view of key metrics in the network including critical traffic and other performance measurements.

SYSLOG DATA

Syslog is used by applications to send data about events, statuses, diagnostics, and the severity level of an event. Syslog allows you to historically investigate incidents to determine and eliminate the root cause. As a result, it can eliminate the damage caused by similar future events thereby saving minutes or even hours of downtime.

THE BEST NPM SOLUTION FOR DIGITAL NETWORKS

DART network performance solution meets the following criteria needed for digital networks

Scalability – Grows as your network grows without limitations

Capturability – Captures all your existing and future network protocols

Virtual Sensors – Supports nodes to join and leave virtual sensor networks, broadcasting, and merging

Network Baseline – Captures network activity, establishes a baseline and alerts on variations

Offline Storage – Able to download data to an external device for long-term analysis

Auto-Discovery – Identifies and discovers network elements automatically and reports

Auto-Mapping – Geolocate your network locations on a map using Lat and Long coordinates

Auto-Drill Down – Allows an issue identified by a red icon to be clickable to drill down to the root cause

Workflows – Investigate alarms and providing the most likely cause reducing MTTR

Machine Learning – Discovers data trends not otherwise detectable

Application Performance – Measures and reports performance metrics

Segment Breakout – discrete calculations for access latency, overall network latency, and application response

SENSOR DEPLOYMENT

Sensor deployment in cloud and 5G networks can provide a wide range of benefits, such as improving efficiency, reducing costs, and enhancing security. In cloud networks, sensors are deployed to monitor various aspects of the network, such as traffic flow, network performance, and security. These sensors can provide real-time data that can be used to optimize the network's performance, detect, and prevent security threats, and improve the user experience.

In 5G networks, sensors are deployed to support various applications, such as smart cities, autonomous vehicles, and remote healthcare. These sensors can provide real-time data that can be used to support these applications and improve their performance. For example, sensors deployed in a smart city can monitor traffic flow, parking availability, and air quality, providing valuable data that can be used to optimize city operations and improve the quality of life for residents.

It is important to carefully plan the deployment of sensors and use advanced technologies, such as Cirries DART, to process the sensor data. The best attributes of Cirries sensors are:

Scalability grows as your network grows without limitations

DART sensors monitor critical network infrastructure

Gathers data from device including packet brokers, load balancers, SD-WAN forwarders, and next generation firewalls

Virtual Sensors gather data from cloud service providers, such as AWS, Microsoft Azure, and Google Cloud to get visibility into cloud-hosted applications

SUMMARY

Cirries' DART is a holistic network, digital experience, and application performance observability platform that provides complete visibility across physical, virtual, software-defined, and cloud network infrastructures. With a comprehensive set of network monitoring tools, DART tracks all network flows and application transactions across data centers and virtual environments, north-south and east-west. The result? All user experiences and all applications and server performances become known and visible to ensure quality of experience (QoE) across the organization.