QDXray[®]

Streaming Telemetry, enabling High Definition decision making

Polling shortcomings

In a traditional polling environment, data is collected from network devices at regular intervals, regardless of whether any significant changes have occurred. This approach has several limitations:

Latency & Staleness

Polling introduces inherent latency as data is collected periodically, leading to delays in detecting and responding to critical events. Stale data might not accurately represent the current state of the network, compromising the accuracy of analysis and predictions.

Increased Overhead

Frequent polling consumes significant network bandwidth and device resources, affecting the overall network performance. This overhead becomes more pronounced in large-scale networks, inhibiting the ability to scale efficiently.

Lack of Granularity

Polling typically provides limited granularity, often missing transient events that occur between polling intervals. This lack of fine-grained data hinders the identification of subtle patterns and anomalies.



The need for data

In today's rapidly evolving technological landscape, the efficient utilization of data has become paramount for organizations seeking to remain competitive and innovative. Streaming telemetry has emerged as a powerful paradigm that enables the real-time collection, analysis, and utilization of data from network devices. This whitepaper explores the reasons why subscribing to a telemetry stream is significantly more effective than a traditional polling environment when performing data science and AI tasks on telemetry data. By leveraging streaming telemetry, organizations can better define actionable insights and become truly data-driven entities.distance between the central office and the customer premises may be longer.



Streaming telemetry addresses the limitations of polling by providing a continuous flow of real-time data from network devices. This approach offers several compelling benefits for data science and AI tasks.

Streaming benefits

Real-time Insights

Streaming telemetry offers immediate access to the most current network data, enabling rapid detection and response to events. Real-time insights enhance situational awareness, allowing organizations to address issues promptly.

Reduced Latency

With streaming telemetry, data is available as soon as it is generated, minimizing latency in data delivery. This timely information is crucial for timesensitive applications such as anomaly detection and predictive maintenance.

Resource Efficiency

By eliminating the need for frequent polling, streaming telemetry reduces network overhead and minimizes resource consumption on network devices. This efficiency enables the deployment of data-intensive tasks without straining the network.

Fine-grained Granularity

Streaming telemetry provides a detailed view of network behavior at a granular level, capturing transient events that might be missed in polling-based approaches. This granularity enhances the accuracy of analytics and predictive models.

Enabling Data-driven Decisions with Streaming Telemetry

Predictive Analytics

Streaming telemetry enables the development of predictive models that anticipate network behavior. By analyzing realtime data streams, organizations can identify early warning signs of potential issues and take preemptive actions.

Anomaly Detection

The constant stream of telemetry data enables the rapid identification of anomalies and deviations from baseline behavior. Machine learning algorithms can be applied to realtime data to identify abnormal patterns, reducing the time to detect and mitigate issues.

Proactive Maintenance

Streaming telemetry empowers organizations to shift from reactive maintenance to proactive strategies. By monitoring devices in real-time, organizations can predict maintenance requirements, minimizing downtime and optimizing resource allocation.

Actionable Insights

The continuous nature of streaming telemetry ensures that insights are derived from the most recent and accurate data. This timeliness leads to actionable insights that can drive informed decision-making and strategy formulation.



Insights

Correlation & Patterns

The continuous nature of streaming telemetry facilitates the identification of complex patterns and correlations in data. This capability is invaluable for uncovering insights that might not be apparent through sporadic polling.

Conclusion

Streaming telemetry represents a transformative shift in how organizations collect and utilize network data for data science and AI tasks. By moving from traditional polling environments to streaming telemetry, organizations can harness real-time insights, reduce latency, and make proactive, data-driven decisions. The ability to capture fine-grained data, identify patterns, and respond promptly to events positions streaming telemetry as a cornerstone for achieving operational excellence and competitive advantage in today's dynamic network environments.

Thank you for reading this paper. If you have any questions about our company or products, please don't hesitate to contact us. You can reach us at:

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We look forward to hearing from you!