SOLUTION BRIEF

The Value of Keysight Subscriber Metadata in 5G

Harness the power of visibility

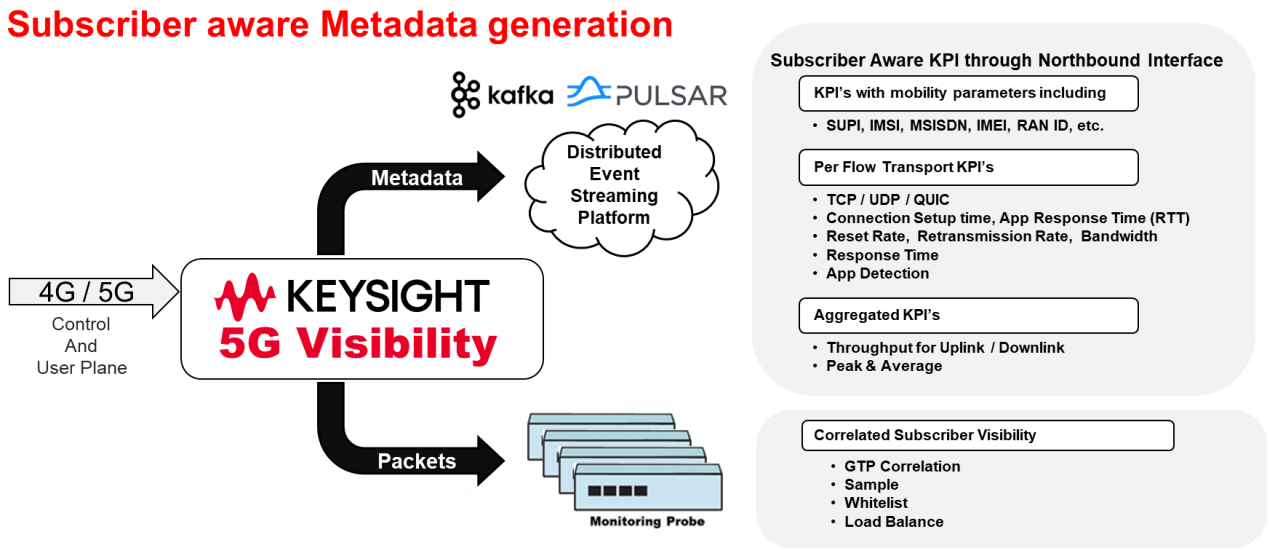
KEYSIGHT

Introduction

Service providers agree that network visibility is crucial to ensure the optimal performance and reliability of their networks. Network visibility, through traditional approaches of correlation, sampling, and filtering enables efficient and effective use of packet-centric monitoring tools, targeting only the subscribers and traffic of interest. However, as network traffic continues to scale, with the incredibly high 5G expected growth in user-plane traffic, visibility's standard capabilities will not be enough for the monitoring infrastructure to provide a comprehensive view of the network's performance at scale at an acceptable cost. Service providers need a new approach. The solution, to address this exponential growth, is to harness the power of visibility by leveraging its ability to generate mobile subscriber-centric network metadata.

Background

Network metadata efficiently summarizes and describes additional network data. In the context of network visibility, subscriber metadata can include information such as subscriber IDs, location, performance, and supplementary data that provides context and insight into network traffic. With the extended ability to analyzing subscriber metadata, service providers can gain a deeper understanding of network performance and identify issues that may not be apparent from viewing standard packet-based visibility alone.



Solution

Keysight's 5G network visibility platform, in addition to integrating with existing probes and tools, can generate subscriber-aware metadata and provide a more complete view of network performance. As the Keysight 5G visibility platform collects and analyzes the subscriber metadata, service providers benefit from these important capabilities:

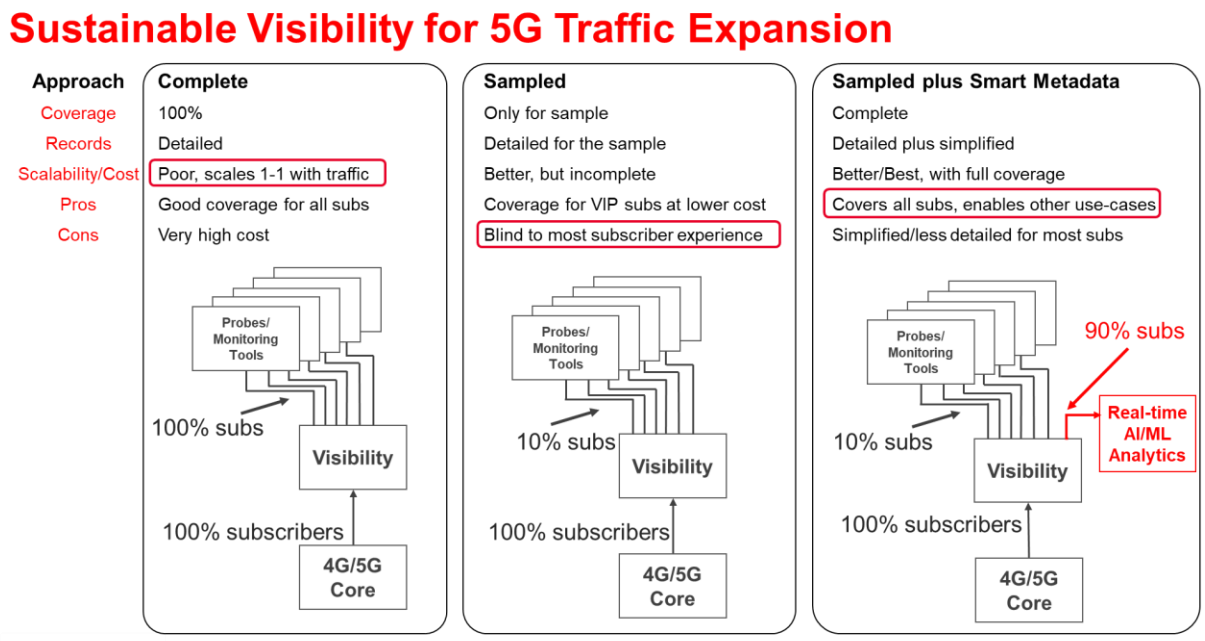
1. **MEC metering and revenue share validation:** Use subscriber metadata to measure network throughput and latency to cloud service providers for metering and validation in support of billing agreements between hyper scalers and service providers at the Mobile Edge Computing (MEC) level.

2. **Optimize user plane probing:** combined with user plane packet correlation, only traffic that matters can be shared with user plane packet monitoring probes, while rest of the traffic information is shared with metadata description to data lake.

3. **KPI correlation:** Use subscriber metadata to perform a deeper diagnosis of subscriber problems through the correlation of Key Performance Indicators (KPIs), identify patterns and isolate the root cause. For example, providers can determine which specific subscribers or subscriber groups, locations, or applications are impacted and use this information to determine the cause. Service providers can identify and resolve performance issues more quickly and effectively and ultimately improve the overall performance and reliability of their networks while simultaneously lowering the cost of monitoring.

The Keysight 5G visibility platform is flexible and customizable, enabling service providers to configure it to meet their specific needs. Additionally, the visibility platform is scalable and able to handle large volumes of subscriber metadata, with the flexibility to acquire control-plane and user-plane data in cloud-native 5G networks and to supply existing probes and tools with the data needed for effective operation.

In addition, when compared to standard packet-based visibility, the use of subscriber metadata offers significant opportunities to increase coverage, and scalability, and reduce cost. The image below highlights these benefits:



Benefits of combined visibility and metadata

Standard packet-based visibility includes correlation, sampling, and filtering and enables the optimized use of traditional monitoring tools, which are powerful but expensive, which increasingly confines the use of these tools in the network. As an improved alternative, subscriber metadata offers an even more cost-effective and scalable solution, which is especially important at the 5G network edge where there are limited resources.

Using a combined visibility and metadata approach, service providers can optimize expensive traditional monitoring and analytics capabilities across a smaller sample of traffic. For example, target sampling of VIP subscribers and important applications like videoconferencing and social media, while using subscriber metadata to monitor the health of the rest of the network. This metadata sampling approach, combined with the robust filtering and forwarding capabilities of Keysight's visibility platform, makes troubleshooting with advanced analysis possible by dynamically directing traffic of interest to specific analytics tools. In this example, the combined existing probe monitoring capabilities and scalable subscriber metadata can quickly identify and resolve the issue. Furthermore, visibility with metadata enables monitoring at MEC sites, where the alternatives of placing new probes or mirroring the traffic back to core monitoring tools are both unaffordable.

Conclusion

By implementing subscriber metadata as a component of the service provider monitoring strategy, service providers begin to cost-effectively scale networks for 5G standalone and MEC services, and quickly adapt monitoring capabilities to support the rapid endeavor of new revenue-generating service offerings.

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