Pipeline
Knowledge Is Power

www.pipelinepub.com **Volume 5, Issue 5**

Enabling Innovation with KPI-based Service Management
Operator Key Performance Indicators (KPIs)

Operators encounter it daily: They work to provide their subscribers with the highest-quality end-to-end service for increasing revenue associated with voice, video, and data. In doing so, they must manage a hybrid network consisting of different equipment types from countless vendors, various troubleshooting and diagnostic tools, numerous operator interconnect agreements, and a plethora of performance data. All this while trying to integrate accurate and consistent performance data into multiple business entities within their operation – to maximize network and business performance.

Identifying, measuring, and managing the right **Key Performance Indicators (KPIs**) can be the difference between growth and prosperity – or decline and failure. The KPI management model (Measure-Manage-Monetize) allows operators to maximize the benefit from collected data by offering a systematic approach to continuously improve the process of collecting, analyzing and utilizing selected KPI data. The model:

·MEASURES KPIs that matter for each entity within the business that will improve efficiency and profitability.
·MANAGES, or creates, a process to gather information from the KPIs and feeds

that information into multiple organizations within the business. The quality of the network data being used is then validated in order to develop and leverage KPI data across the right organizations to make decisions that improve the business. ·MONETIZES or develops plans to understand and leverage financial metrics such as service growth rates, Capital Expenditure (CapEx), and Operating Expenditure (OpEx) investment needs.

Operator Challenges: Difficulty Collecting Data

In the face of deregulation, changing service requirements, new technologies, industry consolidation, and competition from non-traditional telecom providers, operators must determine the KPIs that are most important within their own organizations.

Today's operators provide a portfolio of services - voice, video, and data over both wireless and wireline networks. Many of these services traverse partner networks via inter-operator agreements. Meeting service performance and customer satisfaction metrics in such a multi-technology environment is extremely challenging – especially since operators don't necessarily own and operate the end-to-end transport network and access networks.

In a recent poll, conducted during a Tekelec webinar, operators were asked:

"What are the major challenges that you face in generating useful KPIs for business workflow?"

Over 40% of those asked indicated that DIFFICULTY IN COLLECTING DATA was their primary challenge. Difficulty in collecting data stems from several sources.

- New technologies
- Mixed technologies
- Maintaining compliance with government regulations
- Changing service requirements
- Organizational issues
- Difficulty in collecting data
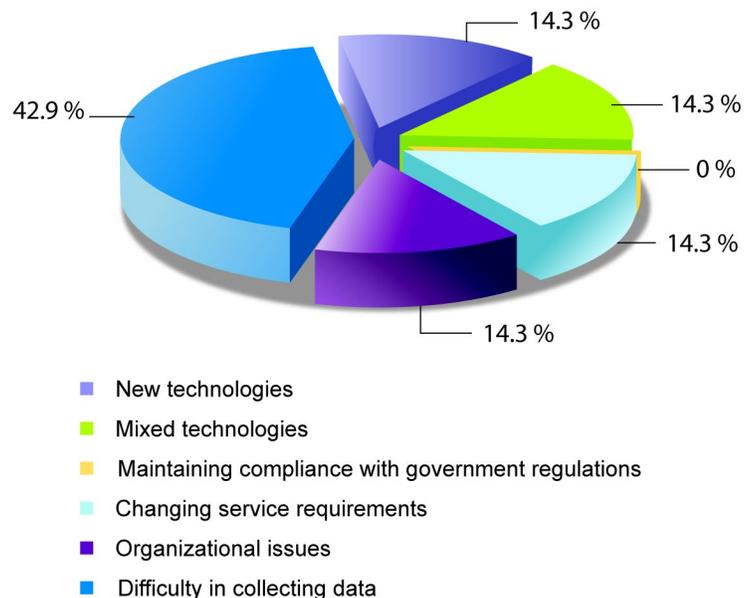
Multiple Sources of Measurements - Collecting data is made difficult by multiple sources of measurements. With operator networks consisting of multi-vendor

equipment, each with its own method of producing performance data, it is not difficult to see how an incoherent mix of data provides very little value to operators. Operators must manage and optimize end-to-end network Quality of Service (QoS) and Service Level Agreements (SLAs) across multi-vendor, multi-technology networks.

Management of End-to-End QoS - Operators are challenged by the need to collect performance data for multi-services offerings - voice, video and data – supported by different technologies, protocols, equipment, and vendors. Over time, more equipment types are added and the ability to manage end-to-end QoS for a specific service deteriorates because each network component produces performance data locally and has no indication of end-to-end quality or the impact on subscriber experience.

Data collection, especially end-to-end quality data, becomes difficult at very best. Service providers are often forced to deploy additional bandwidth as a safety measure, which is often an unnecessary and costly proposition.

Quality of Data – Difficulty in collecting quality data can be the result of many factors, including poor data access methods, diverse data sources, types, and formats. Quality of data, which can be fully enhanced with the KPI management model, is critical to operator success. Reliable and error-free data availability is crucial to managing network-wide QoS.

Amalgamating data from multiple components offers many challenges:

·Synchronization of collection intervals across components
·Uniform aggregation and rollup of data
·Ability to audit data
·End-to-end troubleshooting

Without a viable way to correlate all of this data, operators are left with low confidence in the accuracy of the collected data, which, in turn, impacts performance analysis, troubleshooting and ultimately, profitability.

Ability of multiple business entities to leverage data internally - Data collection with quality issues reverberates throughout the entire operator organization. Business entities struggle with information integration because of the low quality of data and its ability to be delivered throughout organizations uniformly. The use of faulty data or poor dissemination of quality data can have a negative impact on an operator's short- and long-term business objectives.

The Signaling Fix for KPI Calculations

With the responsibilities of the many network components nearing capacity to support the ever-growing mobile market, operators must exploit available network-wide monitoring systems. Signaling-based network monitoring systems collect information for the purpose of generating "xDRs" – Call/Transaction/Session Detail Records. These xDRs can then be used to calculate KPIs that can be leveraged to alleviate many of the problems confronting operators. Signaling-based monitoring

systems that produce KPIs are quite beneficial to the entire network for the following reasons:

·Information is generated by a source independent from any single component within the network. The monitoring system is not in the media path and the signaling-based monitoring measurements do not place an additional burden on the already busy network elements.
·The network system is synchronized by a single clock source, which means all data across the network is naturally synchronized.
·Measurements are based on network signaling and are uniform, irrespective of network element vendor or protocol.
·It is possible to generate a network-wide multi-protocol trace for troubleshooting and diagnostics.
·Measurement changes are easily implemented.

Benefits of Utilizing KPIs Generated Centrally

The advantages and benefits of utilizing KPIs generated from a central performance/service monitoring system are:

·The ability to analyze QoS and usage patterns. These patterns can determine profitability based on income versus usage costs.
·Developing marketing plans that enhance profitability based on the capacity to analyze usage patterns by region and end-points.
·Capability to manage services in developing network, planning, and growth initiatives.
·Early identification of potential revenue leakage.
·Generation of day-to-day usage reports for traffic analysis.
·Generation of week-to-week reports for identifying trends in take rates.

KPI Service Packages

The Tekelec webinar referenced earlier also polled its operator attendees about what they need for an effective workflow driven by KPIs. Almost **90%** said they need all of the following:

·A network-wide integrated monitoring system that is capable of analyzing multiple protocols across multiple technologies. Every operator faces the same challenges and therefore needs cohesion among its makeup of diverse network components and data reports.
·Tools to analyze the collected data.
·Tools that present the KPI information in concise and easy-to-understand reports. The reports need to be formatted so they can be disseminated uniformly to various business organizations.

- 0%
- 0%
- 12.5 %
- 87.5 %
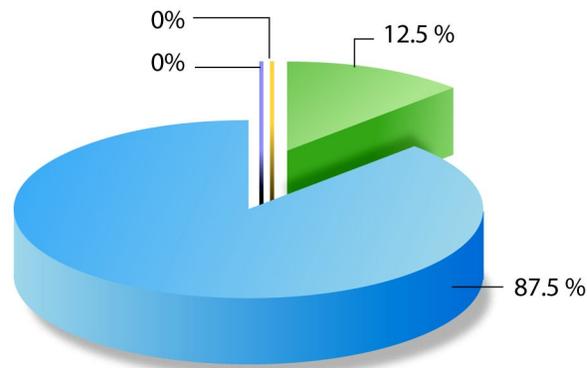
- ■ Network wide monitoring system which is capable of analyzing multiple protocols across multiple technologies
- ■ Tool to analyze the collected data
- ■ Tool to present the information in a concise manner
- ■ All of the above

To this end, an operator is in need of a central network-wide integrated monitoring system that will process and archive "xDRs" – Call/Transaction/Session Detail Records
from the network that can be used to generate KPIs for optimizing a variety of services.

KPI Service Management Packages

Tekelec's KPI Service Management Packages provide data usage in the form of reports and customized dashboards, accessible by any authorized user through standard browsers.

Prepaid KPI Service Package: Prepaid services have gained appeal with a very wide customer base because of their simplicity and lower commitment up front than post-paid services. Prepaid KPI Service Packages can be used to resolve issues such as a high rate of prepaid call failures and zero balance calls.

Roaming KPI Service Package: Operators like to host roaming subscribers on their network because it is a very profitable business. Improving roaming quality increases the number of roaming subscribers in an operator's network, thus generating additional revenue and profits. Using a comprehensive system to monitor links, mobile operators are able to obtain vital data about the foreign or visiting subscribers roaming on their network and are able to make informed decisions regarding service offerings, rate plans, and premium content based on the roaming subscriber behavior.

Short Message Service (SMS) KPI Service Package: The mobile messaging market is growing rapidly and is a very profitable business for mobile operators. Unfortunately, increased competition, bundled SMS packages, and growing security

threats pose a significant risk to the profitability of mobile operators' SMS business. Operators can leverage an SMS KPI Service Package to detect and locate efficiency issues at the transport level, detect problems that arise during SMS delivery by the SMS service provider and detect abnormal ratios for identifying potential spamming cases (spoofing or faking).

Security Management KPI Service Package: Security is one of the chief concerns of service provider executives worldwide. Many service disruptions go undetected with a transport layer view (which is where most security investment has occurred), since calls or sessions can masquerade as normal traffic. The call control protocols, Signaling System 7 (SS7) and Session Initiation Protocol (SIP), provide vital details that, when viewed from a network perspective, can be critical in identifying the characteristics and source of an attack. For example, with the Security Management KPI Service Package, an operator can track interconnection traffic, detect bypass schemes such as Global System for Mobile communications (GSM) and Voice over Internet Protocol (VoIP) bypass, combat fraud by identifying suspect subscribers or call patterns, and monitor content downloads, all while providing a comprehensive security solution.

Traffic Management KPI Service Package: Competition in both wireline and wireless telecommunications markets is putting downward pressure on operator margins and is directly impacting their ability to invest in the network. Visibility to the core network and its functions is essential to managing and improving margins. As networks evolve to next-gen networks (NGNs), this becomes even more critical.

With the Traffic Management KPI Service Package, operators can manage network-wide QoS, detect bypass calls, identify traffic anomalies in real time, track SIP and H.323 calls, as well as manage service level agreements (SLAs).

Summary

As the telecommunications universe rapidly changes and puts greater demand on existing networks to support the growing mobile market, operators will face greater challenges to secure subscriber share and satisfaction with quality of service. As such, it would behoove the operator community to constantly analyze their performance data to find trends, security breaches, and so on.

Identifying KPIs is the important first step in realizing service provider efficiency and profitability. But, performance data is just data unless it is of the highest quality and can be correlated and disseminated uniformly throughout the organization. Centralized collection, analysis, and utilization of data facilitate KPI report generation and ultimately improves network and business decision making and performance.

Employing the Measure-Manage-Monetize model of KPI Management provides operators with the best chance of success in their data analysis. And, by leveraging some of the KPI Service Management packages available today - Prepaid, Roaming, SMS, Security Management and Traffic Management – operators can better optimize and plan their business for today and tomorrow.

Operators, develop and use your KPIs wisely.

About Tekelec

Found at the heart of most global networks, Tekelec's market-leading, service provider-grade network solutions enable the secure and instant delivery of calls and text messages for more than one billion mobile and fixed-line subscribers. The company's session management solutions allow telecom operators to manage the diverse applications, devices, technologies and protocols, across existing and evolving networks, to meet the demands of today's consumer. Tekelec uniquely ensures telecom operators have a clear migration path to SIP-based IP networks, and whatever comes next, with the flexibility to deploy solutions at a pace dictated by their business needs. For more information, please visit www.tekelec.com/KPI.

If you have news you'd like to share with Pipeline, contact us at editor@pipelinepub.com.