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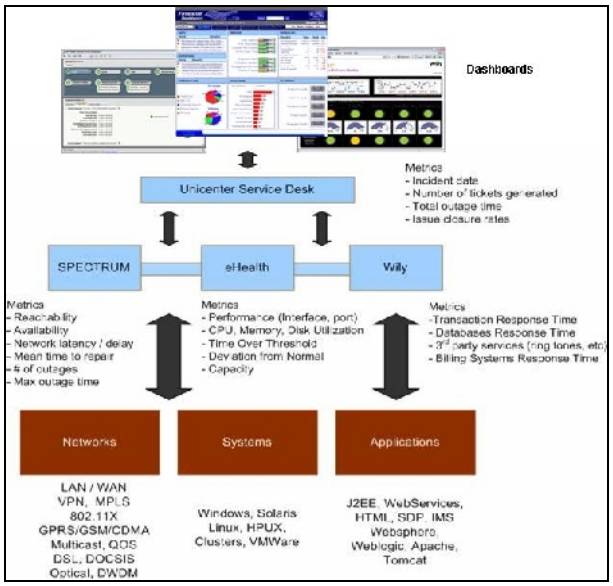
Service Quality Management – The next logical step

by James Lochran

Service Quality Management (SQM) is the latest in the long list of buzz words floating around the Telecommunication industry as it struggles with competitive pressures and attempts to capture the elusive customer experience. SQM, as a practice, is in its nascent stages as the technology is emerging and practical implementations are months, if not years, away. However, SQM is a natural extension of existing performance management techniques that capture quantitative aspects of the users experience leveraging live and/or synthetic data. Clearly, one of challenges with this approach is that it does not capture the qualitative nature of the user's experience which is typically the best indicator of customer satisfaction. The qualitative observation of the customers experience is certainly difficult to directly capture. In fact, even customer surveys after that fact are often unable to capture the desired information. An approach gaining momentum is observation. This involves observing the users behavior to imply the quality of the experience. SQM looks to unify these disparate approaches through the use of correlation to derive a more comprehensive view of the user's experience.



SQM starts with Service Management as the cornerstone of an OSS (Operational Support System) that is responsible for service fulfillment, assurance and billing. In order to execute an effective SQM strategy the service management function needs to be well defined and fully implemented. An effective service management implementation must have a comprehensive understanding of the overall services being offered as well as a detailed understanding of the dependant services and resources required to deliver the complete offering. It's from this foundation that an effective SQM strategy can begin to take shape - leveraging the dependency

mapping of a service an SQM solution can correlate quantitative and qualitative measurements of performance to determine overall service quality.

Why is SQM important?

Revenue growth rates continue to decline as most Communication Service Providers (CSP) reach subscriber saturation. Investments in next generation networks and service delivery platforms are providing a mechanism for additional growth through the rapid launch of new services. These new services provide a platform for customer acquisition through innovation and bundling of offerings to attract and retain customers. Bundling services increases the demand for service quality as customers look to adopt an all or nothing approach to their services. As a result, the cost of churn for the CSP is growing rapidly as customers who once had one service at $40 per month now have three or more services at $150 per month. Accordingly, if quality of any service is not up to the subscribers expectations, then they will drop all three services. Service quality is also becoming a key differentiator against new competitive entrants that are looking to steal subscribers from the traditional CSP's by offering cheaper solutions - typically aimed at one particular service (Voice, Video or Data). In the North American marketplace, this battle is playing out in real-time as traditional CSP's continually advertise the quality of their service experience and non traditional entrant's blast out ads for cheaper video or voice services.

What role do standards play in SQM?

As CSP's look to embrace the concepts of SQM, there is increased focus on standards bodies such as the TeleManagement Forum (TMF) to provide guidance, use cases, architectures and standards that vendors and CSP's can leverage to ensure interoperability and a more plug and play implementation experience. Fortunately, TMF has responded with a series of initiatives around SQM, leveraging existing SLA focused areas. The SQM initiative within TMF is a combination of several projects that are now in the process of coming together. At a macro level the objectives address three key deliverables:

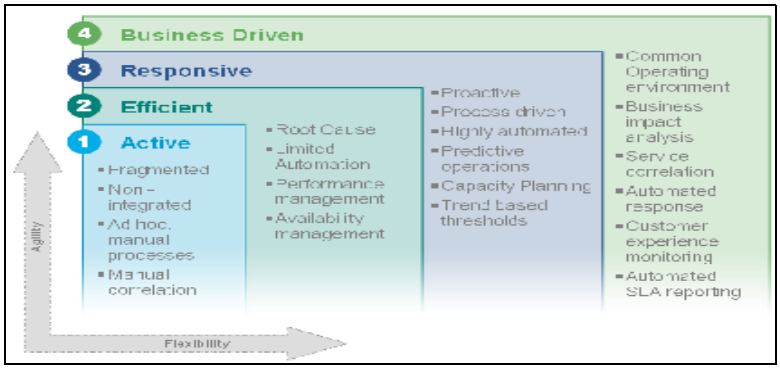
- What needs to be measured? (Methodology)
- How to measure it? (Architecture)
- How to use the measurements? (Process)

An interesting outcome of the TMF efforts is an increased investment by CSP's in the network layer in an early effort to improve SQM. This makes perfect sense as the network provides the best source for key performance information; however, the approach only achieves partial SQM as the measurement of the network and its performance does not provide a direct indication of the end subscriber's experience. As an example, network performance typically involves gathering performance information from key points in the network every 5 minutes - information such as throughput, errors/discards, CPU utilization, etc. This is critical information for network resource capacity planning or proactive management of the network; however, it does not provide a mechanism to deduce the quality of a user's session

(voice, video or data) across the network. To address this weakness, CSP's typically deploy probes or leverage internal testing agents within the network to create synthetic transactions to simulate actual user sessions. In combination with performance management systems, synthetic transaction measurements help provide a comprehensive quantitative measure of the network and the quality of services delivered. Unfortunately it's not enough as customers continue to churn from their CSP's due to poor service quality.

Morphing of Performance Management to Service Quality Management

The migration of performance management to service quality management closely aligns with the process maturity model (see graph). Initially, CSP's had very simplistic approaches to performance management best described as red light, green light or basic availability monitoring. This provided a basic view of performance that was typically characterized by waiting for customers to call into customer care, then reacting to the outage. This approach transitioned into a more efficient mechanism for performance management where the CSP was actively monitoring the network for key performance indicators; however, as noted previously, this approach did not accurately reflect the subscriber's quality of the service experience.



Today, many CSP's are in the process of migrating from the efficient stage of the maturity model to a more responsive stage where they're beginning to be more proactive in their performance management – for example, many CSP's have made investments in probe architectures to simulate end subscriber usage and they've begun to correlate across these quantitative measurements. The end state of SQM offers a more holistic business driven approach that incorporates the quantitative and qualitative measures of all services in the context of the end subscriber. The holistic approach to service quality from the end customer perspective means that the CSP must gain a complete understanding of what the customer wants and what the customer ultimately gets in an environment of highly customized requests for services. The customer is always watching service quality no-matter how sophisticated the technology and services a CSP offers to its customers - if subscribers experience difficulties in service ordering and/or delays in fulfillment, customers will ultimately leave for another provider. Even after the service is activated, the CSP needs to be vigilant with all customer touch points, from the service itself to customer care, billing and even termination, to provide a holistic and positive customer experience as it is possible the subscriber may chose to return in the future. Ultimately, the goal with an SQM implementation is having incidents resolved before the first customer complains, no matter which organization holds the responsibility for the incident. This is not a trivial task in an environment supporting composed services and complex service delivery processes.

Realities of implementing SQM

One of the core aspects of SQM is the ability to correlate key quality indicators to determine the end to end quality of a service(s) from the end subscriber's perspective. To achieve this, the SQM solution needs to be able to construct KQI's (Key Quality Indicators) from a collection of KPI's (Key Performance Indicators) - providing an end to end view of the service and its underlying resource components. An important aspect when considering KPI's is the inclusion of network and non – network resources in the make up of the service. As a service is decomposed into its components - activation, configuration, assurance, billing and termination - the need for a comprehensive service management and mapping capability becomes apparent. Mapping the relationships and dependencies between resources, components, and services provides the intelligence for the eventual correlation of end to end quality indicators. Instrumentation needs to be incorporated into the resources, components and services to gather KPI's, both quantitative and qualitative measures.

Quantitative measurements typically include the KPI's from the underlying network resources, such as network latency or delay across the network, CPU / Memory / Disk Utilization of key systems or network elements, bandwidth utilization of key network links. As CSP's begin to implement SQM, quantitative measurement points need to expand to include all aspect of the customer experience from activation, fulfillment, billing, etc. Components of the service activation / service delivery platform needs to be instrumented in real-time to gather performance indicators on actual user transactions to identify performance issues that only occur under actual subscriber load. Qualitative measurements are more difficult to gather; however, they can prove extremely helpful in identifying potential reasons for customer churn. An example would be to audit the average number of clicks associated with a provisioning action on a customer self-service portal. If this is an action that customers are repeatedly asked to execute in order to subscribe to a new service, then the subscribers experience will be diminished increasing the likelihood of churn.

In order to ensure sustainability of the SQM infrastructure, particular attention needs to be paid to reuse, specifically with regard to nested services. The decomposition of services into there critical components provides an opportunity to take advantage of Service Orientated Architectures to ensure maximum component reuse. These service building blocks and corresponding KPI's can be reused as services are composed, in some cases on the fly. Creating service models that reflect the customer experience and system performance, as well as putting in place the appropriate service management processes across all organizations responsible for end to end service quality, is vital to provide the speed and scale necessary to cost effectively implement and maintain an SQM solution within a CSP's environment.

CA provides a Service Quality Management solution that addresses the spiraling cost and complexity associated with an implementing an end to end service quality management solution. The CA solution offers a comprehensive approach that has a

modular architecture that allows the CSP to leverage existing investments while implementing a holistic service quality strategy. The solution consists of core technologies areas of Service Management, Resource Management, Problem Management and Identity Management. Service management provides the service dependency mapping and configuration capability linked to a unified service model to deliver a converged view of the services and key quality indicators inclusive of contracted service levels. Resource management provides flexible correlation and root cause analysis of heterogeneous networks, systems, applications and databases. Key performance indicators are defined and implemented at the resource level and roll up into key quality indicators at the Service Management level. Problem management provides a work flow driven solution for automated incident management with auto-assignment and notification / escalations to ensure SLA compliance. Customer self-service capabilities for call optimization, deflection and prevention ensure the customer satisfaction is maximized in the unlikely event of an incident. Identity management provides a comprehensive solution for management of a subscriber's identity and entitlement. Federation of identity across platforms and services ensures rapid deployment of new services across multiple applications, devices and networks.

Designing, delivering and managing a customer's entire experience, from cradle to grave, is incredible complex as it requires real time information from hundreds of disparate systems compiling dozens of metrics. However, the cost of not proactively undertaking a Service Quality Management initiative far outweighs the investment as increased competition intensifies the battle for loyal customers.

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