What Are Your Customers *Really* Experiencing?

If you think monitoring network performance provides an accurate picture of the mobile user experience, think again.

By M.J. Richter

Mobile operators know that enough poor experiences will drive their customers into their competitors' arms. That exodus negatively impacts churn and ARPU—2 metrics that analysts and investors watch like hawks—while the sullied brand increases user-acquisition costs.

But when it comes to managing the user experience, the traditional bottom-up approach of monitoring network performance rarely reaches the customer-experience level. In this traditional environment "the operations guys would analyze the network, the billing people would analyze billing and the customer-service people would analyze performance metrics," said Becky Watson, principal analyst with Stratecast, a division of Frost & Sullivan.

"I do not believe that operators can actually determine quality of experience unless they have a very robust analytics strategy. What has to happen for quality of experience to be truly realized is bringing all of that together."

Start with the User Experience

Effectively managing the user experience requires a top-down view. That process starts with the user's actual experience and then drills across and down into every aspect of the network that affects that experience at a user level.

To carry out such a comprehensive inspection of every network aspect, an analytics solution must be based on enterprise analytics rather than integrated real-time analytics.

An operator's engineering and operations groups typically use integrated real-time analytics tools in the areas of policy enforcement, PCRF and security. Because there's little data-storage capacity within that single network element, integrated real-time analytics tools cannot make historical comparisons or perform any trending analyses.

Enterprise analytics, on the other hand, involves the collection of data from multiple elements and backoffice systems across the network. It also includes the correlation of those information sets and their analysis to gain key insights.

The ideal end-to-end analytics solution should:

- Collect information from network elements, probes and back-office systems, feeding the information into a highly scalable analytics platform.
- Correlate those different information sets into unique, repeatable algorithms.
- Apply analytic logic, modeling and mathematics in the form of advanced statistics and business calculus.
- Produce configurable and distributable dashboards, views and reports, all tailored to meet the unique requirements of each business staff group, such as engineering, operations, marketing, customer care and product management, with the intent of providing actionable insights for each audience.

"End-to-end analytics enables you to look at the customer experience, isolate performance anomalies, do root-cause analysis and make the necessary changes to the network," said Scott Forbes, Tellabs director of professional services. "You know those changes improve the user experience because you can actually measure the improvements."

"By contrast, the best an operator can do with the traditional network monitoring approach is to focus on the availability and performance of the network, make changes to the network and hope they improve the user experience as a result."

Analyze, Then Act

Using new analytics platforms, in conjunction with correlating multiple data sources in a single, centralized system, operators now can capture, monitor and measure every user session leveraging all of the pertinent data points. Although they don't look at the content of what the user is doing, they can see exactly how the session is performing, all the way from the device through the network and out to the Internet. This design balances user concerns about privacy with the operator's need for deep insights.

As a result, operators can take action before users have negative experiences on the network and then call in to complain. Users typically don't complain after 1 bad experience but rather after 4, 5 or 6 bad experiences. By then, they're so frustrated that they often decide they've had enough and switch to another operator.

An advanced analytics solution enables engineers to proactively get ahead of problems instead of reacting to a complaint by adding more capacity or applying some kind of bandage to fix it. By constantly monitoring and measuring the user experience, this solution enables the operator to do a targeted root-cause analysis when the user experience degrades. The operator then can correlate that analysis with the user experience to determine what's affecting that experience and resolve the issue quickly—and before customers call to complain.

For example, if something in the network goes down, legacy analytics tools cannot to help the operator determine how many users are affected or whom the affected users are. However, an advanced analytics solution can use its analytical capabilities to answer both questions. It can pull up the MSIDs, which are unique to each mobile customer, correlate them with CRM data and supply relevant demographic data about each affected user.

To help operators isolate any issue affecting the user experience, the analytics solution can identify and correlate:

- The specific application being used during a good/bad/poor experience.
- The time of day the customers are using it.
- The components of the network that their sessions traversed.
- The websites that customers' applications used and whether they did so directly or via browser-based searches. Likewise, whether the customers were playing games through connections to gaming servers.
- The IP addresses of the websites or gaming servers and, depending on the operator's specified level of granularity, the associated URLs.

When the analytics solution determines that some user experiences are degrading, the operator can examine possible reasons and focus on the areas of the network where anomalies are occurring: Is it a network-configuration issue? Is it some type of problem with those users' mobile devices? Or is it something else altogether?

The user experience can be rated numerically and then ranked as good, bad or poor. If a user has multiple sessions per day, scores are correlated, providing a mean score for the overall experience. Operators also can store these scores in a database for tasks such as historical and trending analysis. Based on the user experience data, operators can isolate which part(s) of the network may have degraded the experience and do a targeted root-cause analysis to identify the actual problem.

"Then expert teams can say: 'You have issue X, and we think this sub-set of users is most likely to churn as a result. You might want to resolve it by doing Y, and here's the business justification for considering the various options available," Forbes said. "Through precise root-cause analyses, operators can actually solve underlying network problems to proactively manage the user experience and ultimately reduce churn. This is a direct correlation between user experience and network performance." ■

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ARPU: Average Revenue Per User
CRM: Customer Relationship Management
MSID: Mobile Subscriber Identification
IP: Internet Protocol
PCRF: Policy, Charging and Rules Function
URL: Uniform Resource Locator