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Everywhere, all the time, really fast: The importance of network quality

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Mobile broadband has made network quality a priority and differentiator for operators. Now, mobile players need to address demand at a more granular level to boost customer experience.

The use of smartphones and rise of mobile broadband make network quality a key topic as data-savvy customers increasingly select their carriers based on network coverage and speed. Price remains the most important factor for customers when selecting a mobile plan, but of the 11 decision factors used in a McKinsey consumer survey, network quality now occupies spots 2 through 5 (Exhibit 1). Moreover, network quality continues to be one of the key reasons behind customer churn. In Europe, for example, quality of service (QoS) has significantly decreased for voice. As data gains importance, it appears that voice has suffered. This diminished quality has not gone unnoticed by customers. For some operators, it has led to a doubling of churn. In the old mobile voice world, operators managed quality and investment decisions by tracking country-wide KPIs and coverage targets. To remain competitive today, operators need a new approach to network quality, one that optimizes customer experience and investments at a much more granular level.

The new network quality challenge

The explosive growth in data over the past few years will likely continue, growing exponentially at 40 to 80 percent each year – if not more – depending on regions and customer patterns. This rise in demand makes network quality increasingly important. But beyond the financial constraints that come with stagnating average revenues per user (ARPU), tighter capital budgets, and the all-time-high cost of network capacity, several factors make network quality a challenge for operators.

Changing customer needs. Usage patterns are changing rapidly, and customers engage with the network in an increasing number of ways and places. Some use voice only, others stream video, while others primarily use e-mail. Each group engages and values very different aspects of the network, making the balance between coverage, capacity, and speed all the more difficult and expensive. Customers also expect networks to work everywhere, putting higher requirements on in-door coverage for example.

Understanding customer perception. New usage patterns and handsets make it difficult for operators to link their network performance to actual user perception. Gone are the days when operators could rely on internally produced QoS KPI reports. Instead, data mining and a sense of how users experience network performance on their handsets are required to understand how customers perceive the services they use. Granularity is key. Without it, operators will not understand the real issues that customers face, thus important network quality issues could go unnoticed.

Exponentially growing demand. Data usage is increasing faster than operators can provide capacity. Small groups of subscribers drive a majority of usage within either a limited time window or a specific geographic area, creating congestion in networks. Not only does this degrade network performance for all users, it is also difficult to manage. Furthermore, these heavy users drive a disproportionate amount of network capacity costs, often costing operators more than their customer lifetime value (CLV).

Operational and technological complexity. Networks now often consist of two or three different technologies in a multi-vendor environment, making them increasingly difficult to build and manage. The addition of new technologies like 4G/LTE and the use of multiple spectrum bands put even more

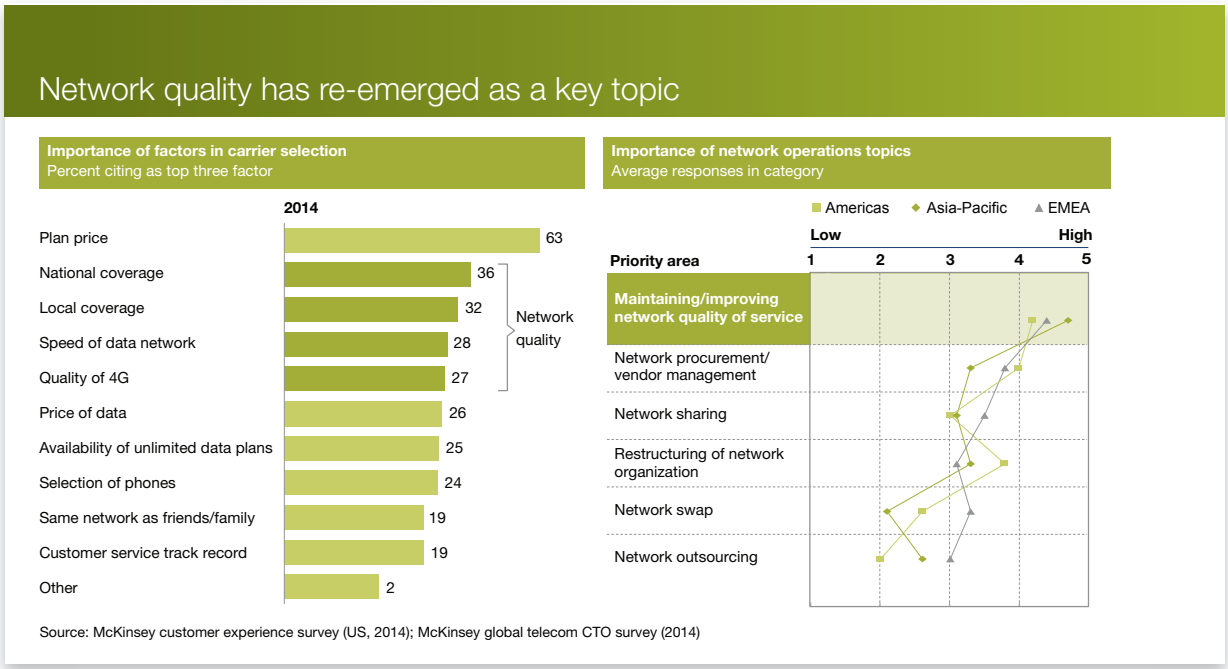

Exhibit 1

pressure on operators to continuously optimize their networks and adapt, e.g., by reframing 2G spectrum to 3G or 4G as usage shifts. Finally, device characteristics can vary greatly, affecting both perceived network performance and operational complexity for operators. As an example, introduction of multi-band smartphones can allow operators to significantly improve customer experience, but can at the same time result in problematic signaling and handover issues.

Despite these challenges, operators have no choice but to make network quality a strategic priority. Customers have spoken, and next to plan price, network quality factors make the difference in their selection of one carrier over another.

Strategic priorities of "network quality" leaders

Optimizing network quality requires operators to completely shift their perspective. Instead of relying on the old KPIs associated with QoS, operators will want to focus on customer experience (CX). Although each operator is different and requires customized solutions to its particular situation, there is a set of practices shared by the operators that deliver the best network quality.

Understanding your customers. Given the rapid change in how users engage with networks, operators need to develop a thorough understanding of what users actually care about. Most network spend and marketing campaigns focus on peak speeds that can only be achieved by a small subset of devices (that are data-only in many cases). Instead, a focus on what mainstream users value, such as reliable performance of their top three apps, reveals that latency optimization or smart caching is actually more important than extreme data speeds (see text box "An Asian operator's surgical approach to network quality improvement"). Another area where a limited understanding of what customers value leads operators to miss the mark is coverage. Operators often focus on adding capacity or on improving coverage in the areas where their customers live. But users often access their networks primarily from other locations. One operator used advanced analytics techniques to group

An Asian operator's surgical approach to network quality improvement

A number of telecoms players have already recognized network quality as a key customer differentiator and are taking steps to improve their performance in this area. One Asian operator suffered from poor network quality and was consistently ranked third or fourth in the country despite a concerted effort to upgrade its network. After conducting detailed customer surveys, it found that three to four specific applications drove the network satisfaction levels of 80 percent of its users. This information enabled the operator to shift from its strategy of overall network upgrading to a focus on delivering the highest possible quality in these critical applications and optimizing quality of service parameters to boost their performance. As a result, the company reduced its capital expenditures by 20 to 30 percent while leapfrogging ahead of peers to achieve and maintain either first or second place in network quality in the country.

customers based on their usage patterns and locations (and not their home addresses) as input for capital planning and user experience optimization.

Finally, a better understanding of the marginal cost involved in adding a user and that user's gross margin can inform operators' decisions regarding which segments to target with which products in an effort to maximize profitability.

Identifying and tracking the quality indicators that matter to customers. Operators need to specify cross-functional, customer-centered quality objectives, which should align well with the company's business objectives and value proposition. These "key quality indicators" (KQIs) should focus on specific characteristics that customers care about (e.g., speed and availability of social media sites) and measure the network as customers experience it – an approach far from the traditional way of measuring network performance. Using geolocation solutions and big data-based advanced analytics, operators can gain a deep understanding of user behavior and experience while eliminating expensive, dated methods such as drive tests. Furthermore, these indicators (e.g., number of bugs, speed to load a page) should be linked to key apps, which are an important part of how customers interact with the network. Operators also need to understand that, while data may be the priority, voice is still important.

Managing demand. Operators can work to reduce the overall data consumption of heavy users – the top 10 percent of users consume as much as the remaining 90 percent – and proactively manage "busy hour" traffic and offload to Wi-Fi. Managing demand requires a deep understanding of which customers an operator should target, and which to de-prioritize. In other words, it is becoming too expensive to provide everything to everyone everywhere. Potential actions include policy changes (e.g., change prices or introduce data caps or throttling), network changes (e.g., tweaking quality of service), or customer segment changes (e.g., target business users instead of teenagers). As data traffic continues to grow and the addition of capacity becomes unsustainable, most operators will need to explore these approaches much more aggressively to drive the right customer behaviors.

Adding capacity intelligently. Instead of homogeneous, mass rollouts of new networks, mobile network operators (MNOs) should add capacity based on a detailed, micromarket view of their customers. By using big data and advanced analytics, operators can track their target customers' movements across the network and determine how they engage with the network at each location (e.g., voice in rural areas, heavy data in urban zones). With this information, operators can focus their capacity efforts on the locations that will optimize the experience for their target customers with

the right technical solution. An example of how this can work: one attacker suffered from poor network quality and coverage compared with incumbents. By conducting a detailed profitability analysis, the operator was able to specify an optimal footprint, refocusing its own coverage areas to improve network quality while reducing overall roaming cost.

Beyond being smart about location, operators also need to explore agile solutions such as small cells, radio parametering, and dynamic capacity allocation.

Continuously pursuing operational excellence. Operational excellence (network rollout, optimization, and operations) remains a core attribute of any good network. By attaining both capital efficiency (e.g., rollout speed, cost per site) and effectiveness (e.g., deploying functionally appropriate technology), operators can continuously and rapidly adapt and morph their networks to meet the needs of the digital age. The best operators employ lean network build-out approaches that can, for example, reduce waste in the installation process and streamline interactions with suppliers. They also strive for procurement excellence to ensure world-class pricing and cost transparency.

Attention to operations, customer insight, and performance management are the heart of success for those operators who do best in network quality. For all of the other operators, adopting these priorities will require shifting many of their approaches and upgrading their capabilities.

Preparing the organization to operationalize quality

Many MNOs struggle to adapt their organizations and processes to succeed in this new reality that demands a shift of focus from QoS to CX and a higher level of agility. Most MNOs must make significant changes to operationalize these initiatives. That means rethinking organizational incentives and processes to break down silos along with developing distinctive capabilities in data analytics. To succeed, operators need to address five specific areas to tackle network quality on an operational basis:

Processes. Traditionally, network planning followed a linear process – the marketing department developed subscriber and usage forecasts, which were then forwarded to the network department to guide planning and build-out activities. This worked well in a voice-centric world, where users were much more homogeneous. In a mobile broadband context, however, customers behave very differently from each other. This requires that networks have an integrated planning process that considers network costs from the beginning. One operator, for example, found several products that were driving more network cost than their lifetime value. This provided valuable input for marketing to limit its focus on these products.

Tools and technologies. Operators have typically used basic tools for understanding how customers interact with the network. In the future, they will require strong, big data-based analytic solutions to understand rapidly shifting customer usage patterns on both the micromarket and app levels. This will require measuring experience as perceived by customers on their devices in contrast to previous network counters and drive tests.

Target setting and performance management. Operators need to set KQIs or cross-functional, customer-backed quality targets to measure CX and drive a quality culture both across the internal organization and with vendors.

Organization and capabilities. Telecoms leaders usually give responsibility for managing overall network quality to silo organizations with narrow capabilities. To succeed going forward, they will need a cross-functional organization that has end-to-end responsibility for managing network quality.

Network strategy and architecture. Despite efforts to modernize network infrastructures, networks remain complex and ever changing. Operators need to focus on continuously revising and adapting

their network strategy, making decisions based on balanced technical and business rationale.

Network quality has once again become a key priority for MNO leaders, but the rules for winning are different now for mobile data. Today, operators need to understand demand at the microlevel and operationalize their responses by breaking down internal organizational silos and developing distinctive capabilities.

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