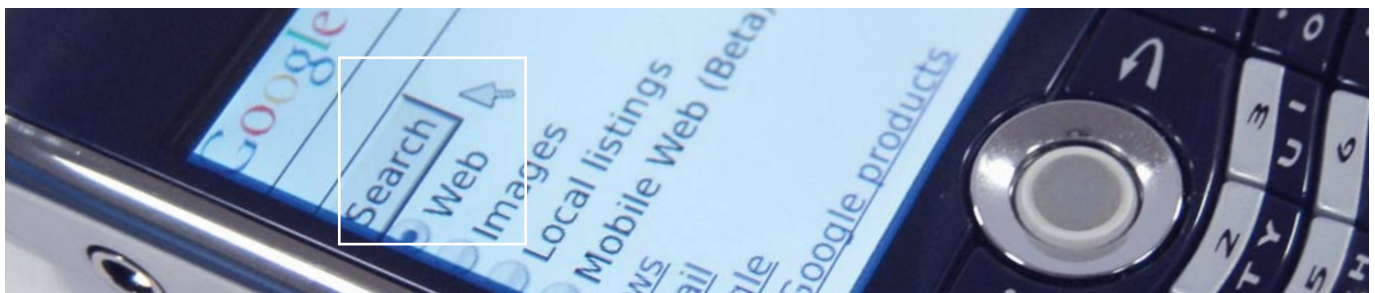


Making the network count again

Differentiated network service quality as a future option for mobile operators to survive in an increasingly competitive environment

Feb '08



With competition in the mobile industry growing, mobile operators are now considering flat-rate pricing as the best way to meet customer expectations and to stimulate the take-up of mobile broadband services. Although mobile customers will appreciate the freedom to talk or be online as much as they like, operators will eventually face a very serious issue: How to meet growing capacity requirements in the network, while ARPUs are constantly decreasing? We think, it's time to put the network access back into the pricing equation by establishing and offering distinct network based service classes for different customer groups.

The first problem with flat rates is that they do not leave much room to differentiate on anything other than price – which will eventually decrease as rapidly as it has done in the fixed-line business. The second problem is that as IP traffic takes off in the mobile environment, operators will need to invest heavily in additional capacity with little or no prospect of generating additional revenues (under flat-rate pricing regimes, traffic per customer will increase but revenues barely at all).

Operators argue that the DSL model, with different pricing for different connection speeds, should apply in the mobile space – but speed alone is unlikely to be an effective differentiator. So, the worst-case scenario confronting mobile operators involves a flat voice-and-data fee structure that slightly exceeds the cost of providing the services. Not a bright future – at least not for operators.

But there might be a way out of this dilemma. We believe that the paradigm of offering “best effort” access to every customer has past its sell-by date and needs to be refined.

Instead of guaranteeing every user the right to fight for access to the mobile network in areas of heavy demand, regardless of the price paid, we believe that time is right to apply the principle of demand and supply to the mobile world and put network access back into the pricing equation.

Net neutrality and Differentiated Quality of Service

The idea of differentiated quality of service (QoS) is hardly new in telecommunications. In the fixed-line world, operators have discussed “network neutrality” as a possible way of sharing in the revenues of “free-loading” ISPs. The ISPs, claim the operators, offer capacity-consuming services to network customers without paying for use of the network-access facilities. However, this discussion differs fundamentally from that needed in the mobile space:

- The fixed-line access network has far fewer capacity constraints than the mobile networks, which inevitably depend upon a finite, shared spectrum whose total capacity is much lower than, for example, fiber optics.
- While the concept of net neutrality proposed by fixed-line operators tries to open up the budgets of internet powerhouses such as Google or eBay as additional revenue streams for operators, the QoS model proposed here for the mobile space would involve customers themselves making the decision to pay for priority access to the network.
- In the fixed-line world, net neutrality would link access and the respective service, eliminating the issue of free-loading altogether. In contrast, in the mobile space, access itself would be differentiated regardless of the service or application being used.

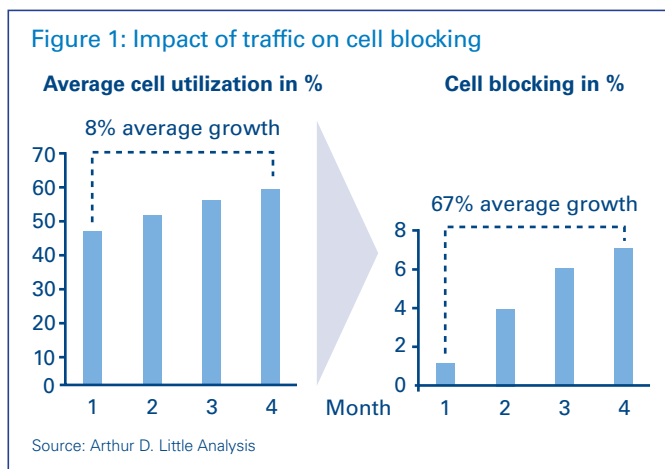
So, the differentiated QoS model in the mobile space does not aim to obtain additional revenue sources from third parties. Rather, it is a method of managing the available networks more effectively and being rewarded by the customer for doing so.

The network dilemma

The development of the mobile network was and still is a very costly undertaking given initial investments for build out and operational maintenance for several network technologies deployed in parallel. Not to mention the need to further enhance these technologies (e.g. EDGE and HSxPA) over time. Eventually, new technologies will enter the markets that also require investment for additional build-up since it is unlikely that the existing radio technologies will vanish in mid term.

But in a market where the revenue from minutes of use is decreasing, budgets for investment in the network are likely to fall as operators find it increasingly difficult to justify these investments on a RoI (Return on Investment) basis.

While core network systems currently have more than sufficient capacity, the radio access network is beginning to get extremely crowded in some areas.

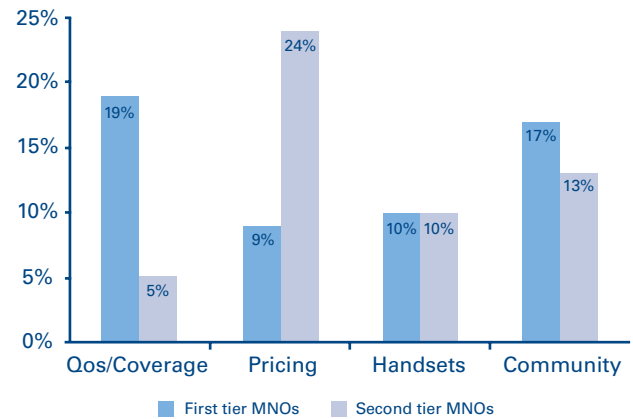


Operator data shows that while the average cell utilization is only slightly increasing, the cell blocking rate dramatically grows to levels where customers will experience significant problems to use their cellular.

And this might become even more critical for operators, since network quality and coverage still rank amongst the most important buying criteria for consumers and especially business customers.

Recent Arthur D. Little analysis shows a strong correlation between the price sensitivity of customers and the available network quality. While customers of smaller operators and green-fielders usually choose the operator for their attractive pricing, customers of incumbent MNOs rank network quality and coverage as one of the most important feature.

Figure 2: Buying criteria for mobile customers in % (example Germany)



Source: Arthur D. Little Analysis 2006

Having said this, customers probably would not necessarily switch your operator right away if the connection drops in the lounge at Heathrow Airport, but they eventually might be willing to pay to make sure that the drop is avoided in the future.

So how will it be possible to avoid the commercial death spiral of increasing capital costs for the build-out of radio networks with decreasing Quality of Service that generate stagnant or even declining revenues?

Network as a differentiator

Operators need to manage customer access to their existing capacity more effectively. QoS mechanisms are already available in most RAN technologies – it is only by default that best effort has become the standard for determining access and given rise to a lack of differentiation in service provision.

Several operators are currently thinking about QoS differentiation in the context of the IP world, borrowing net neutrality logic from the fixed-line environment. However, we believe that QoS differentiation should be driven by customer decisions. Operators can manage this relationship much more easily since they will not need to negotiate the terms of service provisioning with third-party service providers.

In its simplest terms, we see the logic of the credit card – or the airline industry being applied to the mobile world. In future, customers will be able to decide if, in addition to or as part of a voice-and-data tariff, they want priority access to the radio network and authorization to use extensive mobile broadband features and/or several types of network access

In the case of a flat rate that includes all calls to national fixed and mobile operators, the customer would select a service package that offers specified levels of access priority, band width and/or seamlessness. Our illustration shows how this might work.

Figure 3: Illustrative example of service differentiation classes for mobile access

Blue Card	Gold Card	Black Card
<ul style="list-style-type: none"> ■ Best effort voice access (first drop outs in crowded access networks) ■ Normal voice quality ■ Best effort data services (First decrease of capacity in crowded access networks) ■ No seamless roaming in available own networks (2G 3G, WiFi, others) ■ No roaming out of own network 	<ul style="list-style-type: none"> ■ Priority voice access (later drop outs in crowded access networks) ■ Increased voice quality ■ Priority data services (Managed decrease of capacity in crowded access networks) ■ Seamless roaming in available own networks (2G 3G, WiFi, others) ■ No roaming out of own network 	<ul style="list-style-type: none"> ■ Always connected voice access (no drop out in crowded access networks) ■ High quality voice ■ High priority data services (Managed capacity bandwidth for data services) ■ Seamless roaming in available own networks (2G 3G, WiFi, others) ■ Roaming over other MNOs when out of own network
Low involvement mobile users – low usage and / or high cost	High involvement customers – Medium to high usage of voice and data services	Very high involvement customers – want to be available at any time and any place
Low impact – slightly	Medium impact – lower drop outs and higher data bandwidth	High impact – always connected as service excellence

Source: Arthur D. Little

For business customers, the service could also include the promise to be “always connected,” regardless of the availability of the network – by using roaming agreements with other operators. In addition, additional services (e.g. higher-quality voice codecs, streaming capacity etc.) could be part of the differentiated QoS model.

Each level of service would be subject to conditions necessary to ensure the functioning of emergency services. Furthermore, depending on regulatory decisions, it might be appropriate to let blue-card holders – on the principle of universal access – have access at all times to a minimum level of non-voice services, such as a speed equivalent to a fixed-voice-grade dial-up data channel, for example.

If operators do not want to actively sell different Service Classes, it is also conceivable to define them based on existing tariff-structures – for example, Flatrate offers get “best-effort” QoS while higher-end consummation tariffs have a prioritized Service class by default.

Marketing differentiated QoS

Most operators today argue that bringing QoS back into the pricing equation would make them vulnerable to other MNOs who do not follow the same route and that they would lose customers who are not willing to pay for services as a result. They believe that as an effect, QoS pricing could only be introduced on an industry-wide level. However, consensus on this within the operator community will be hard to reach mid-term.

However, we believe that the “service differentiation” story can be told differently, since these models have already worked well in other industries for a long time – be it the “Class-System” at Airlines with dedicated services or the Banking sector with differentiated services depending on the customer’s priorities.

Operators will target high-end customers who are willing to pay for the guarantee of a higher service level. Although not a high percentage of the customer base they are the ones that operators are desperate to keep.

On the other side, customers with low revenues will not experience a diminished service quality since they use their handset infrequently; therefore, the risk of churn is relatively low.

By increasing revenues through QoS-based pricing, the operator will be able to make additional network investments and enhance the installed capacity. As a result, the performance of mobile broadband offers will improve so that higher usage of these services can be anticipated. In addition, high-quality voice and seamless access to multiple networks will enhance the image of the operator, driving customer acquisitions and increasing retention.

But even operators who are not willing to market different service classes actively, the introduction of differentiated QoS will enable them to pre-define service classes for their customers and support the management of their networks. They can use the service to increase network quality for high end customers in their customer segmentation (e.g. “Diamond customers” get higher priority as a standard), using differentiated QoS as a retention measure.

What to do?

So, what should be done from an operator’s perspective? We believe that the paradigm shift from best effort to differentiated QoS cannot be affected through industry discussions and by waiting for a consensus. Operators who are prepared to drive differentiation in an environment characterized by ever-increasing price reductions will reap the benefits of being bold.

In order to set up the differentiated QoS model, operators should consider first to define the different packages they would be able to offer to their customer groups. This includes not only the technical elements of quality of service but also the quality of experience for the customer. Key performance indicators for each differentiation criterion should be defined to ensure that the service levels can be maintained across the network.

Second, operators may want to assess and adjust the existing network capabilities and the build-out strategy. Equally, operators should assess and adjust the OSS and the BSS to ensure that the consistency of the service meets the promise of each service package.

In addition, in the case of an "always connected" service offer, operators should consider how to identify network white spaces and negotiate roaming agreements with other MNO's to offer the required back-ups and transitions to alternative networks.

Finally, operators should think about a sound go-to-market strategy to keep vulnerability to competition low, something that is especially important for a first-mover. This last aspect includes developing a clear regulatory strategy which addresses the following points:

- The unrestricted use of a finite resource such as the wireless spectrum could eventually result in an inadequate network and, therefore, reduced access for everyone. Mobile operators must therefore be permitted to manage network traffic. QoS-differentiated pricing is a means of managing traffic on the basis of decisions by customers (users), who are the most appropriate decision-makers.
- The principle of paying different prices for different levels of service is intrinsic to any competitive market and mobile operators have the right to innovate as they see fit, taking on the risks and potential rewards that they may incur as a result of their decisions
- Differentiated QoS pricing can be implemented with safeguards to ensure everyone has access to minimum levels of communication according to social policies with respect to universal service, even while some people are paying more for access to superior levels of communications. QoS-differentiated pricing will not violate principles of free speech or universal rights of access to information, as proponents of wireless net neutrality might suggest.

Conclusion

The standard flat-rate pricing model now being considered by many mobile operators may encourage customers to make more use of mobile broadband services, but will not deliver increased revenues. By contrast, flat-rate tariffs that incorporate a 'quality of service' element could increase usage among medium- and high-end customers and deliver new revenues streams for operators. Operators who are bold enough to move first on a new model for mobile access pricing have an opportunity to establish a distinct profile, which in turn will support new customer acquisition and increase retention.

Contacts

Ansgar Schlautmann

Senior Manager TIME practice Germany
schlautmann.ansgar@adlittle.com



Jean-Luc Cyrot

Head of TIME practice France
cyrot.jean-luc@adlittle.com



Klaus von den Hoff

Global Head TIME practice
vondenhoff.klaus@adlittle.com



About Arthur D. Little

Arthur D. Little, founded in 1886, is a global leader in management consultancy; linking strategy, innovation and technology with deep industry knowledge. We offer our clients sustainable solutions to their most complex business problems. Arthur D. Little has a collaborative client engagement style, exceptional people and a firm-wide commitment to quality and integrity. The firm has over 30 offices worldwide. With its partners Altran Technologies and Cambridge Consultants Ltd, Arthur D. Little has access to a network of over 16,000 professionals. Arthur D. Little is proud to serve many of the Fortune 100 companies globally, in addition to many other leading firms and public sector organisations. For further information please visit www.adl.com

Copyright © Arthur D. Little 2008. All rights reserved.

www.adl.com