



> **Detecon Executive Briefing**

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Is iPhone strangling mobile operators' network performance?

Many operators have recently seen their network resources being used up by a sharp increase in data traffic from smartphones such as Apple's iPhone. And through its App Store, Apple has cleverly managed to make sure that its own revenue streams are the ones which are being increased. In other words, mobile operators are being forced into spending money on expanding their network resources without getting any immediate return on this investment.

So, is the balance of power in the telecommunication industry shifting towards the handset vendors?

In this article we'll discuss how mobile operators can avoid being reduced to simple bit pipes for the internet in this age of Web 3.0, and what effects the iPhone will have on the mobile network operators' bandwidths and their revenue streams.

Executive Summary

What do the iPhone and prepaid services have in common? They each represent a paradigm shift for the mobile industry and have been big boosters for mobile operators. However, at the same time both have created some headaches in terms of sharp traffic increases and predictability of user behavior. Before the advent of smartphones the range of available applications was very limited and fully controlled by the mobile operator. Hence, traffic growth was rather straightforward and predictable. Today, with the advent of mobile devices such as iPhone, and with the broad availability of attractive applications which can easily be downloaded and installed from online application stores, mobile operators run the risk of losing the ability to predict the future developments of traffic within their networks.

In recent months, many operators around the world have been concerned about seeing their network resources used up by a sudden and unforeseen increase in always-on data connections as a result of the Apple iPhone's latest software upgrade. Version 3 of the iPhone software was designed to maintain an online data connection. This in turn occupies the limited network resources and may eventually prevent other mobile users from establishing a data connection. What is more important, this would also prevent mobile users from transmitting and receiving data which they would normally pay for. One could compare this situation with a restaurant with a limited number of tables: if a large group of people suddenly enters the restaurant and sits down without ordering anything they will stop potential paying customers from being served. As a consequence of the increasing uncertainty about short term traffic developments mobile operators have to find ways to expand their network capacity fast. This means they need to apply financial and other resources without getting any immediate return. Through the creation of its App Store, Apple for its part has cleverly managed to increase its own revenue streams without taking into consideration the consequences for the mobile operators.

In this paper, we will discuss the effects that the iPhone and similar phones will have on the mobile network operators' bandwidth and their revenue streams in the future. It could be that the balance of power is shifting to the handset vendors and depends on how well they manage to capture customers and revenues through their on-line App sales. Some recommendations are also made about what mobile operators should take into consideration in order to avoid being reduced to simple bit pipes for the internet in this age of Web 3.0 and the peer-to-peer environment, whilst also generating revenues from the extra services provided.

What is the initial situation?

It's like a double-edged sword, the gift of the iPhone exclusivity deal for the mobile operators. Over the last couple of years, Apple has been releasing newer and faster iPhones into the market: giving the user enhanced user-friendliness compared to most of its competitors. At the same time a lock-in mechanism has been guaranteeing Apple a steady stream of revenue through the iTunes and iPhone stores. This mixed blessing for mobile operators does not come without its perks, nor is it cheap or affordable. On the one hand those players who are privileged have gained subscribers and boosted their service revenues. Bernstein analysts estimate the iPhone accounted for 100% of the British operator O2's growth last year, 14% of its service revenues and 13% of its EBITDA. On the other hand, iPhone users use as much as ten times the network capacity used by other smartphone users hooked up to the mobile operator. Ralph de la Vega, president and chief executive of AT&T's mobile business, has admitted that the operator is struggling to cope with unprecedented mobile data usage and is exploring ways to curb excessive customer usage. "The growth that we are seeing in wireless data is unprecedented". De la Vega added that 40% of AT&T's data traffic came from just 3% of its smartphone customers. Those with an iPhone – which AT&T offers exclusively in the US – are deemed to be among the heaviest users. A study of 1500 British adults and teenagers carried out by Olswang, a media and technology law firm, and YouGov found that 19% of iPhone users watch on-demand TV, compared to 3% overall, and 37% want to access on-demand TV via their handset, compared with the 11% average.

This increase in data usage has caught network operators off guard. Before the advent of the iPhone, smartphones were cell phones with a clumsily attached browser. The iPhone has also taken user-friendliness to the next level with its large icons, and the flipping of page or photo. On top of that, a huge number of apps aim at connecting the iPhone to the internet in one way or another, making it an even bigger network hog. The bad news for the telco players is that through its iPhone, Apple has practically reduced mobile operators to pipeline connections to the internet, without much of a revenue share, and left to sort out the mess and avoid bad public relations. If there ever was a disruptive technology, the iPhone is an ace.

Could mobile operators become irrelevant?

Mobile operators' business models are continuously being challenged by innovations in the handset devices. Up until recently, mobile operators were in a position to dictate which devices they allowed on their networks as well as which software was put on those devices. With the appearance of iPhone, those days seem long gone and mobile operators are having to reassess their business models in order to avoid becoming commodities. With WiFi now available on most devices, an increasing number of phones automatically nudge WiFi as the preferred connection choice when available. The result is that subscribers are using the high bandwidth benefits of WiFi and often free access to take advantage of mobile services that were formerly only accessed via the cellular network.

The Apple app store numbers are also staggering: Apple recently announced two billion downloads from its AppStore, with subscribers downloading more than five million applications per day. Nokia, LG and BlackBerry have created another development in the latest hot mobile trend through their proprietary solutions. All of this represents potential for increased mobile data traffic, but it also highlights a threat to mobile operators. Established relationships that operators have built with their subscribers are gradually eroding now that subscribers are increasingly turning to and interacting with other service providers. There is an increasing probability that subscribers will become loyal to a service rather than to the operator.

For the user, the experience is the combined perception of the device, the touch-and-feel sensation, the graphical user interface, the applications, and the ubiquitous access to the Internet. So the mobile network operator risks potentially being rendered irrelevant. Worse still for mobile operators is the fact that they foot the expense as data traffic increases with uploading and downloading of content such as pictures, video and networked game play, while flat rate pricing is slowly emerging. Mobile operators also have to carry the costs of customer service when applications don't function correctly.

Have mobile operators missed the train?

Given that the future of mobile communications is in data rather than voice, especially with the arrival of next generation networks such as Long Term Evolution (LTE) and WiMax, it may be that mobile operators have missed out on a golden opportunity to innovate and create long term revenue generating applications. With the introduction of iPhone, and other smartphones coming onto the market soon, it could be that the balance of power is shifting to the handset vendors as a result of how well they manage to capture customers and revenues through their on-line App sales.

In this case, mobile operators will need to regain control of the subscriber experience and generate revenue streams from it in order to participate in the next wave of growth as margins on traditional services decline. To achieve this, mobile network operators must take the current "app store phenomenon" to the next level by enriching applications with their unique capabilities like messaging and browsing, location, user profiling, presence information, security, and even mobile payments: making handsets powerful, feature-rich and closely aligned with the needs of every subscriber segment. Without this move, the mobile network operator risks ceding customer control and ownership to the content-driven smartphones.

Recommendations

Mobile operators of course remain a dominant force within the mobile ecosystem, and they can solidify this position by using their unique assets to better effect. From our experience with industry and telecommunication companies, we have identified several success factors tackling the pressure points:

- In order to tap into the huge innovation potential of the developer community, mobile operators need to work closely with developers. It needs to be simple and inexpensive for developers to launch new applications in partnership with mobile operators. Mobile operators also need to find a balance between securing the integrity of the network and simplifying the process to publish new applications. They should offer powerful enablers to the developer community in order to tie the applications to their networks. Examples for such enablers may be: location, presence, identity, billing, or the upcoming areas of policy control and real-time charging. Combining policy management with real-time charging can change how service providers package and sell data access, bringing subscriber and network data together to:
 - Create innovative data plans to differentiate offerings
 - Control subscriber usage of network resources and services
 - Enable subscribers to personalize services to build loyalty

- Mobile operators need to focus more on a complete end-user experience combined with the capabilities of the telco network while using the dynamic information they possess about the subscriber. The objective is to create integrated, context aware, and, at the end of the day, easy-to-use applications to continue to promote vertically isolated applications around messaging, gaming, social networks or similar. This would exploit advanced and innovative technologies to a much greater extent than today. Examples of this could be service control frameworks, SDPs (Service Delivery Platforms), or technologies such as IMS (IP Multimedia) defined by 3GPP - although there may still be technical limitations in some areas. New and out of the box services could be developed by integrating the mobile phone with home experiences provided by the same operator. In this way, incoming phone calls could be displayed on the TV screen, emails could be read using the set top box or even movies from Video-on-Demand services could be ordered during the day using the mobile phone so that they are downloaded and ready for viewing in the evening.
- Finally, mobile operators need to find new ways to ensure the quality of their networks in the future. In light of what has transpired with Apple iPhone, mobile operators must be able to expand their network capacity faster. However, this might not be enough. In order to regain full control of their network while at the same time maximizing their revenue, mobile operators need the means to differentiate among different user profiles. By doing so, they could implement preferential treatment for customers who access the operator's own services while at the same time giving lower priority to those who use third party applications.

Finally the mobile operator should study all methods of revenue generation taking into account the user's likes and dislikes. Using data mining techniques and personalized questionnaires, subscriber preferences could be segmented. This in turn could help develop the science fiction of the past into the reality of the future: imagine monitors in public places instantly reacting to passers by by promoting local shops and restaurants which reflect that passing subscriber's specific preferences.