

A network is only as strong as its weakest link

by Chris Koopmans, Chief Operating Officer, Bytemobile

The de-coupling of service revenues from traffic volumes is continuing to reshape the Telecom world. Mobile video traffic is still growing at an alarming rate, and the impact of HD and Mobile TV are yet to be witnessed. Greater capacity is achieved at high cost - the cost of further 3G roll out and upgrading to LTE. However much can be gained - at far lower costs - from optimizing the network, adding intelligence to the way that it is run...



As Chief Operating Officer, Chris Koopmans, a founding engineer at Bytemobile in 2000, is responsible for all aspects of product development, management, marketing, delivery, and support, as well as information technology (IT). He has over thirteen years of industry experience in hardware and software engineering and architecture. In eleven years at Bytemobile, Mr Koopmans has held a wide range of technical leadership positions. Most recently, he served as vice president of Product Development, leading the R&D evolution of the Unison™ Platform into the worldwide leader in mobile video optimization and the strategic initiative that culminated in the launch of the T3000 Adaptive Traffic Management System (T-Series). Before joining Bytemobile, he worked as an engineer at Intel Corporation's Microcomputer Research Laboratories and Silicon Graphics' Cray Research subsidiary.

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Business relationships are often described in terms of a polarized dynamic interaction, where opposing parties are pulling in different directions according to their own desire to claim a greater share of the prize.

The truth of the matter is often less about competition and more about symbiotic co-operation - so much so that a new buzzword had to be invented on the conferences circuit to describe it - 'coopetition'. The principles of good business practice remain the same. Working in partnership enables the creation of a larger market from which all of the participants in a value chain benefit.

It is unlikely that broadband providers, mobile or fixed, will become - as the theme of this issue of Connect-World suggests - media impresarios. They are absolutely essential links in the chain of media delivery, but in a chain no one link is more important than its neighbour.

At the turn of this century, voice communications had been deemed, by a largely unsympathetic press and analyst community, as a commodity service. The operators seemed to be in a constant search for a data service 'killer app' to rival the success that SMS enjoyed. At the time, much was made of the potential service innovations that 3G network technologies would unlock and certain mobile operators repositioned themselves as media providers.

The walled garden, which was maintained by carriers protecting their investments in 3G licensing and infrastructure roll out, was expensive, prolonged and ultimately fruitless. The arrival of the Apple iPhone marked a watershed moment in mobile communications. All-you-can-eat tariffs and the emergence of the smartphone have seen a decoupling of data traffic and revenue generation to such an extent that networks are now stretched to capacity.

By 2015, there will be more than 7.1 billion mobile-connected devices according to Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010-2015. That's nearly one for every person on the planet. By the year 2016, mobile data traffic is forecast to increase by 25-35 times today's volume.

This data growth is being driven largely by mobile video, which already accounts for as much as 60 per cent of traffic on some 3G networks. In fact, in a survey of m.youtube.com users, 75 per cent of respondents said that mobile is their primary way of accessing YouTube and recent stats show that over 200 million YouTube videos per day are being played on mobile devices - up 300 per cent from January 2010.

To compound the issue, while platforms like YouTube are already posing real challenges for networks, that pales in

comparison to extended play services such as Netflix, Hulu and SkyTV - and that's not even considering the impact of HD (*High Definition*) video over LTE.

There is no single remedy to managing projected mobile data volume growth. Instead, it will require a combination of initiatives on the part of mobile operators, from upgrading existing 3G networks to deploying new LTE networks. However, as network operators make these investments, leveraging existing network resources is critical to ensure maximum network capabilities as well as a solid return on investment.

The popularity of smart devices and rise in mobile broadband continues to put a strain on networks across the globe. To support mobile TV, operators must ensure that their networks are equipped to accommodate the demand for mobile data. By taking steps to alleviate congestions from over-crowded networks, operators can better guarantee the quality of service expected from this demanding consumer market.

The on-demand nature of mobile TV is more like video-streaming than the traditional broadcast television and operators looking to capitalize on this opportunity must ensure they can offer a better viewing experience. Bytemobile's 2011 Mobile Analytics Reports show that mobile video already accounts for up to 60 per cent of mobile network traffic but subscribers experience stalling between five and 40 per cent of the time. Consumers looking to migrate to mobile TV services will not be prepared to pay premium prices for an inconsistent service.

So what are the options? Video optimization technology can reduce stalling by 30-50 per cent and by measuring the quality of experience around fluctuating service demand operators can ensure that subscribers receive a consistent service and discourage churn.

A rise in mobile TV usage results in more high-quality content going across the network. Operators need to ensure they have policies in place that manage access and bandwidth to prevent a single subscriber from take up all the available bandwidth. For example, offering improved resolution for mobile TV across just ten per cent of subscribers can have a 30-40 per cent additional impact on the consumed capacity and therefore affect

the remaining 90 per cent of subscribers' user experience.

Operators are faced with two options: add raw bandwidth to increase capacity or optimize existing bandwidth. Adding raw bandwidth to increase capacity by 40-50 per cent will see an operator's CAPEX rise by US\$3-4 billion. Alternatively, the same operator could spend US\$2 billion to add 20 per cent capacity and optimize accrued capacity to the cost of tens of millions and realize a total capacity increase of 60 per cent (40 per cent from optimization technology).

As the industry moves towards LTE, mobile video content is expected to rise as network speeds open up operators' pipes and enable more content. The market is ripe for mobile TV as subscribers look for enhanced services on-the-go. However, to capitalize on this market, operators must safeguard their networks against the data deluge, enabling them to entice new customers and avoid churn.

Even with the migration from 3G to 4G networks, demand on capacity for multimedia traffic will continue to increase. Taking advantage of new content, applications and devices, subscribers will consume all available bandwidth and still expect the same quality of service that came with their original service plans - if not better. One US operator is currently processing an average of 7 GB per subscriber per month. Another operator in the Scandinavian countries is moving 17 GB per subscriber per month. This trend will continue as live streaming video broadcasts and video-on-demand become mainstream.

A report earlier this year from ratings agency Nielsen shows that television viewers using mobile devices have increased by 41 per cent and mobile video has seen more than 100 per cent increase since 2009. Mobile TV allows subscribers to customize their television experience, offering a wide variety of content unrestricted by traditional television listings and the ability for family members to view shows on different channels.

The fantastic flexibility of mobile TV places the handheld at the centre of media consumption, but it does not make the network provider an impresario. This is analogous to the Highways Agency claiming they are responsible not just for

the diversity of vehicles travelling up and down its roads but also for the value of those journeys.

We are moving rapidly towards a future where the terabyte will become part of people's everyday vocabulary - and yottabyte a standard metric for baseline network capacity. Broadband providers, both fixed and wireless, will not be impresarios but they need not become dumb pipes either.

Sticking with the Highways Agency metaphor, the network operators play the same role in the delivery of the traffic on their systems. Roads alone are dumb pipes but in adding intelligent traffic management systems such as metering lights and carpool lanes, Highway Agencies are providing added value to motorists to make their driving experience more pleasurable. Telecommunications operators are deploying the same intelligent traffic management architectures to ensure the best possible user experience on their network while enabling them to capitalize on data demand.

The sophistication and complexity of the system, not to mention the on-going billing relationship that carriers enjoy with their subscribers, and all of the associated intelligence which that brings, can raise network operators up the value chain. They are the gatekeepers to media consumption, rather than impresarios, but they cannot work successfully in isolation. They tried that with 3G and it was not successful. Likewise they should not simply give free and complete access to their networks since the resultant deluge of traffic creates a classic tragedy in which no one benefits.

As Chief Executive Vittorio Colao said in Vodafone's 2011 half-year report: 'Data traffic growth is aligning with revenue growth at around 20 per cent. This is happening because we are proactively managing traffic.' ●

