

BANDWIDTH IS NOT ENOUGH

AS WEB 2.0 FEATURES AND FUNCTIONALITIES RAPIDLY MAKE THEIR WAY ONTO THE MOBILE PLATFORM, THE ARRIVAL OF 4G IS WELCOMED. BUT IT WON'T SOLVE BANDWIDTH BOTHER FOREVER, SAYS RANDY CAVAIANI.

The explosive growth of data usage on mobile devices has been one of the defining industry trends of the last year or so. While the trend towards increasing data ARPU is positive, it has not come without a cost; these data dependent applications are overloading operator networks to such an extent that their reliability and, more importantly, the services themselves are suffering. The situation is becoming so critical that operators are apologising to customers for the disruption to core services, and it is even beginning to affect their bottom line.

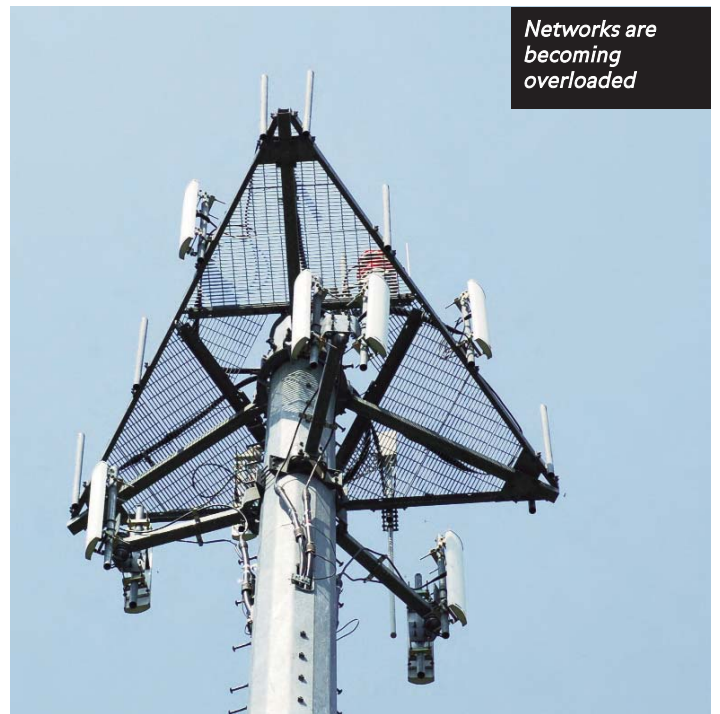
There are two points to consider. The first is how consumers are using data. The second is the technology. These points are not mutually exclusive, as handsets and networks have become more capable consumer uptake of rich content has grown, however they do need to be considered separately. In addition, as operators migrate to all IP networks, a wider range of services that use more data will be competing with core mobile revenue streams, such as voice or text, for bandwidth. Operators must now put technologies in place to not only offer and monetise new data services but guarantee a quality consumer experience across all services that

use the network. There is an immediate need to satisfy bandwidth hungry consumer apps and services without crippling their networks.

While many hold out hope that 4G technologies will largely solve this data congestion, it is an interim solution at best as operators learn to deal with the new mobile internet and applications reality. Below is an outline of the key factors that are affecting data-driven services now and into the future.

Growth of the mobile phone as a web terminal

Mobile social networking and micro-blogging are regularly cited as key drivers of web usage on mobile, with an estimated one-third of 16-35 year olds accessing Facebook and Twitter regularly via their phones (CSS Insight, Report on Mobile Internet Usage 2009). Novarra's own research from last year showed that mobile traffic to twitter increased 3500% since the start of 2009 and mobile click-throughs of URL shortening services bit.ly and tinyurl.com, regularly used in social networking and Tweets, have grown by well-over 1000% in 2009. Consumers are increasingly transferring web habits to the mobile, whether it be online shopping, checking sports results or seeing who has been voted off X Factor.



Networks are becoming overloaded

While social networking explodes and consumers transfer daily web habits to mobile, this may not be the biggest burden network operators face. Cisco claims that mobile video will exhibit the highest growth rate of any application category accounting for over 64% of the world's mobile traffic by 2013.

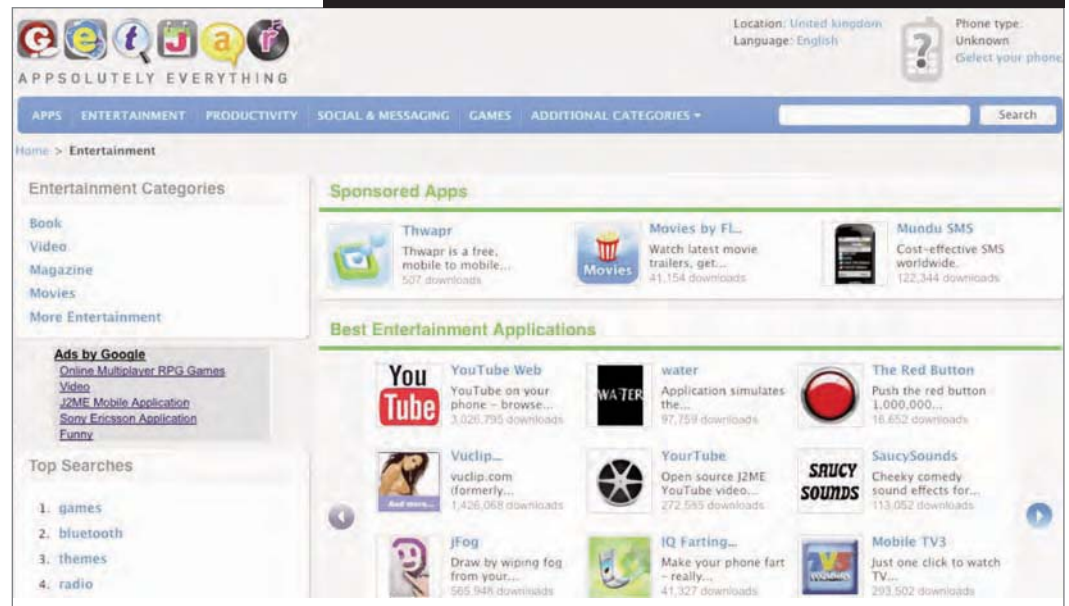
Statistics like these suggest that the growing problem of network congestion already being experienced by operators will not abate, as bandwidth-intensive services become increasingly popular and intrinsic to the mobile web experience.

4G - too little, too late?

The roll-out of 4G and the prospect of an infrastructure more capable of processing the increasingly sophisticated fabric of the internet holds promise for operators but will not be a panacea.

The experience of 3G should be a lesson that data consumption will grow to fill the capacity of the pipe. 2G struggled to cope with consumer demand for basic search and email. When 3G arrived, demand for such services was replaced by a desire to access even richer ones, such as social networking and content-sharing

How will the infrastructure cope as application stores flood the market?



websites. Similarly, rising consumer expectations for rich services and the expanding user base suggests that 4G will alleviate the pressure of network congestion for a period of time, rather than serve as a definitive solution to the problem.

The rise of application store offerings from both handset manufacturers and operators poses another challenge to network capacity. Apple recently announced that more than 2 billion applications have been downloaded from its store over the course of eighteen months – almost 20 per user per quarter. This begs the question of how the infrastructure will be able to cope as application stores flood the market and it underscores how the technology of the internet will always outpace that of mobile networks and devices.

Cloud computing

Since the first browsers were installed on mobile phones, proxy servers have served to optimise and enhance the mobile web experience. Initially WAP gateways, they evolved to transformation and network acceleration servers, most recently migrating to distributed browsing and application solutions. The distributed architecture delivers a desktop-equivalent experience with mobile context, increasing the speed of data transfer and reducing over-the-air payload. While 4G will relieve some of the pressure, there are three primary reasons the mobile internet proxy will become increasingly important.

Growth in complexity.

The need for in-network intelligence to bridge the gap between handset capabilities and web content technologies is ever more important. Next generation approaches require an intelligent, broader array of processing which creates additional functionality and understands the way a user wants to interact with the web via mobile. Ajax, Silverlight, Flash and other as yet undeveloped technologies will enhance the user experience and create challenges for processing and delivery to mobile. Whether operators continue to offer unlimited data plans or move to tiered offerings, there will always be a need to improve network efficiencies – proxies reduce over-the-air payload by up to 90%.

In-network intelligence will be the norm.

The need for in-network proxy technology will be crucial for the successful provision of new services and cloud-based ‘mobility’. Consumers will expect

services to follow them whereby they can seamlessly transition to and from the PC, TV and mobile with “always on” connectivity and real-time presence, status and alerts. A device-centric architecture will not suffice. Networks are the logical place to manage this integration of location data, profile and mobile-context information and services. Over time, applications will migrate to the web and the browser will be the central access point for consumers’ favourite services.

Mobile devices capabilities will lag the PC.

Even today’s best smartphones are unable to deliver all the richness of web or multimedia and commonly take close to a minute to load pages designed for a PC. Moreover, two-thirds of all mobile devices today are being sold in emerging markets where economic conditions require a very different class of device. While these devices will eventually take advantage of the wider 4G pipe,

they will still require the assistance of a server or proxy browser to be able to access and run the hundreds of thousands of applications available via the plethora of app stores and service providers. Regardless of the cost and capability of these devices, consumers will expect access to the same level of services as those available on high-end devices.

4G networks will accelerate the migration of the full, rich internet to the mobile environment. However, the distributed mobile internet and applications architecture that offers in-network intelligence and device-side micro-applications will enable service providers, internet brands, and handset OEMs to deliver compelling mobile internet services while leveraging the new infrastructure with maximum efficiency.

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