

Looking at the continuing upward trend, there is little doubt that mobile video is rapidly growing in popularity. Pyramid Research predicts that by 2014 there will be over 500 million users globally paying for mobile video services. But traditionally, mobile video has been a disappointment and for many years service adoption has fallen way short of the mark with operators taking a cautionary approach in deploying services to avoid over exposure. **Scott MacKenzie**, director of product management for Helix products at RealNetworks, reports.

Mobile video rises from the ashes

And therein lies the dilemma - operators need to see a clear return on investment before installing infrastructure but consumers won't subscribe until the services are compelling and offered at an affordable price point. This constitutes an effective stand-off with neither party fully committing.

Consumer demand is rising and has been encouraged by three key developments. Firstly, the high-speed capabilities of 3G networks are, at minimum, essential in order to deliver quality video services. Secondly, the increasing popularity of all-you-can-eat data plans removes the worry of an unknown monthly bill. Finally, and perhaps most importantly, the new wave of handsets such as the iPhone and Nokia N Series have made mobile video viewing truly engaging for the first time.



Scott MacKenzie, director of product management for Helix products at RealNetworks.

At a glance, it would appear subscribers are ready and waiting. That surely just leaves the content providers and operators to take the leap and push out video services to the masses.

The options for operators and content providers

Unicast streaming of mobile content remains the de-facto standard for mobile video delivery today and is used by virtually every operator that chooses to deliver video services direct to handsets. The delivery mechanisms are based on widely available technology and boast the ability to offer up individualised video content through mobile networks.

On the upside, streaming provides impressive control over content and enables the ability to splice in targeted advertising on an individual basis, direct to the handset. Video services

can be tailored to specific users with recommendation engines firing out clip suggestions and with accurate billing and usage statistics ensuring that revenues can be maximised. In the online age, streaming also provides an Internet styled navigation experience akin to YouTube which allows individual users to create their own unique video clip snacking experience.

The principal issue with delivery of individual streams revolves around bandwidth constraints. Sending out simultaneous and relatively high bit-rate streams to many thousands of concurrent viewers can begin to place strain on even the fastest 3G network.

Is broadcast a valid alternative?

To help overcome the problems associated with bandwidth, some would put forward DVB-H mobile broadcast technology as a better

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alternative, largely because it shifts content delivery over to an entirely separate broadcast infrastructure, thereby freeing up the mobile network. Broadcast compliant handsets continue to use CDMA, GSM, 3G or similar mobile networks for voice, text and web access but save on the heavy traffic burden of video delivery, offering the advantage of scale through point-to-multipoint delivery on a dedicated broadcast network.

Wide scale broadcast is therefore able to service an almost limitless number of subscribers with seemingly no impact on the mobile network. So why haven't operators and broadcasters thrown up masts and head-ends to drive mobile video adoption?

For all its promise, broadcast creates a number of challenges such as cost, fragmentation and the flexibility of services on offer. Deploying broadcast infrastructure comes at incredible cost - from back-end delivery systems and mast construction through to lining up the radio chipset and integrating additional antennas into the handset. For subscribers to receive the broadcast services, they need to have a compliant handset which would mean a complete overhaul of phones on the network, another monster expense that consumers certainly wouldn't want to pay for either directly or indirectly. In summary, the initial investment is huge and relates to ROI which, depending on consumer adoption, may never come.

Adding to the complexity, fragmentation of the number of broadcast solutions increases risk, poses interoperability problems and reduces economy of scale. The sheer number of proposed broadcast solutions ramps up the overall complexity of what's on offer with DVB-H, DVB-SH, T-DMB, S-DMB, MediaFLO, ISDB-T and MBMS (leverages existing wireless networks - inband multicast) all being potential candidates.

There is additional inflexibility associated with the broadcast model in that subscribers will only be able to 'tune-in' to the selected programmes offered on the select channels the operators choose to broadcast, at the exact time the operators wish to broadcast them. In the world of iPlayer, YouTube and any number of similar pick-your-own VoD services, it is likely that very few consumers will pay for linear TV on mobile delivered in this manner.



Despite offering a method to deliver content off the mobile network and saving bandwidth headaches for operators, the lack of consumer deployments indicate that broadcast adoption across mobile is slowing. Conversely, streaming may yet provide the boost that mobile video needs to become a mainstay service, allowing not only mobile operators but also broadcasters and other content providers to derive value from the most personal of the three screens.



So what's the answer?

The fact remains that the global penetration of people who are paying for mobile video services remains fairly low at around 2.5% according to Pyramid Research. This of course doesn't represent 24/7 video streaming for each individual user. Rather, it refers to viewers regularly snacking on short clips meaning that at any given time the actual number of concurrent viewers watching mobile video is far lower (in the thousands) than the total number of service subscribers (in the millions).

Through a global study, Nielsen found that subscribers view on average just over 3.5 hours of video per month. The average video stream lasts for 2 minutes and 48 seconds and interestingly it's paid-for news, sports, music and comedy clips that drive the most traffic above and beyond free sites such as YouTube.

This usage model lends itself to the streaming model for which the only downside is bandwidth constraints on the network when distributing many individual streams concurrently. With mobile video penetration expected to rise to around 8.5% globally by 2014 (Pyramid Research) it's reasonable to assume that mobile networks as they currently stand won't be able to keep up with demand. But with the industry talking about 3.5G, 3.9G and even 4G on the horizon, targeting download speeds between 1 to 5 MBps per user, these sorts of networks will easily be able to handle huge numbers of concurrent viewers each streaming individual clips to their handset.

Where we are now?

The prediction for the future growth of mobile video gives the impression that adoption is sluggish at best, but some of today's real-world evidence suggests differently. RealNetworks' Helix media delivery platform is deployed by over 100 mobile operators globally and by several hundred content providers who already use the platform to provision streamed mobile services. Granted, many of these mobile services are on a relatively small scale but RealNetworks is seeing increasing traction with operators looking to offer mobile video to concurrent viewer numbers topping 100,000 people. This sort of capability is particularly important for delivering live events such as large sports games, which

offer the potential to generate ROI and which provide a natural fit for viewing on mobile.

The bottom line

Despite current network restrictions, streaming offers the flexibility to grow innovative services as mobile networks improve and to meet the growing consumer demand for video services. Current developments point towards a future in which streaming can offer up a tailored, unique viewing experience for mobile users and the ability for operators and content providers to control, monitor, bill and advertise effectively through video.

Broadcast certainly has a role to play in the adoption of mobile video and is an efficient way to deliver the most popular content to a mass audience - but it can only really be considered viable in the longer-term if demand for linear TV on the mobile network ever becomes high enough to generate acceptable levels of revenue to recoup the initial costs of deployment. As this story plays out, broadcast and streaming need to coexist to deliver a complete mobile TV experience where broadcast delivery will cater to mass simultaneous audiences and streaming to mobile users for the majority of the content they desire.

Currently, live events are perhaps the only circumstance in which a broadcast delivery model could scale up in terms of getting enough viewers to make it financially viable. But with mobile networks continuing to improve their efficiency on their path to 4G and with operators continuing to deploy streaming services to increasingly bigger audiences, the ROI from deploying mobile broadcast is pushed out even further. Viewing habits need to be monitored closely to determine if enough content is ever being viewed linearly or concurrently to warrant the large upfront investment in broadcast.

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