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IPTV slowdown: Myth or reality?

Despite a flurry of activity in the IPTV space, there is a perceived slowdown of IPTV rollouts. Many attribute this to the lack of appropriate infrastructure, but as Farah Jifri discovers, the truth is more complicated

Telcos have been pinning their hopes on IPTV as their killer application ever since the concept of triple-play first emerged. Similarly, the analyst community has been talking up the future earning potential of the medium.

A report published by Jupiter Research in February 2006 suggested that if the pricing models are attractive enough, 52% of consumers would switch pay-TV service providers if they could get a better price for the same channel selection. The option of 'pick and mix' or à la carte channel selection was cited by 46% of respondents, the report continued.

All this is good news for early entrants to the market, such as Telefónica in Spain, which has over 200,000 subscribers for its Imagenio television and is predicting one million customers by 2008. France Telecom's MaLigne TV has also passed the 200,000 subscriber mark and doubled its customer base during 2005. Other telcos getting in on the game are Telekom Austria, KPN in the Netherlands and BT in the UK, which recently launched its IPTV offering, BT Vision.

BT Vision offers BT broadband customers the chance to pick and mix digital TV programming and on-demand pay-per-view premium content, such as films and music videos, without a monthly subscription. Customers who sign up for BT Vision get a free set-top box, which receives both digital terrestrial channels, such as Freeview, and on-demand content via the broadband connection. There is, however, a £90 fee to cover installation and connection charges, and a 12-month broadband contract starting from £22.99 per month.

Content providers signed up to BT Vision include the BBC, Disney, DreamWorks, National Geographic, SonyBMG, Universal and Viacom. Customers of the service will also be able to get 'near-live' on-demand Premiership football starting in summer 2007.

Factors inhibiting IPTV rollouts

Despite this flurry of activity in the IPTV space, there is a perceived slowdown of IPTV rollout, especially from the perspective of consumers who have long been promised the wonders of quad-play.

"The perceived slow down of the European IPTV rollout is based on how you see the issue. On the one hand, broadband growth is steeply increasing - twice the rate of the US - and broadband growth is a primary lever for IPTV. On the other hand, you see delayed rollouts at some of the major Tier 1 Telcos. Italy, France, UK and Spain by far dominate the European IPTV market and companies like France Telecom and FastWeb have been successful in their rollouts," comments Venkat Krishnan, director, IPTV Solutions, SeaChange.

He goes on to explain that "video is greenfield for most of the telcos who have traditionally handled voice networks. Secondly, it must not be forgotten that it took cable significant time to get where they are and so we must in the same accord grant the telcos the benefit of time to perfect their infrastructure."

Peter Collingwood, regional VP, EMEA, for JDSU's Communications Test Division, agrees that the reality on the ground differs significantly from the perception of outsiders looking in. "One could argue that it's more a case of increased delays to planned deployments than a decrease in total deployments. Deployment has been more difficult than many thought. Both the system integration itself, together with the speed and quality of the delivery circuit have, been challenges. ADSL2+ is a minimum for IPTV and needs to be rolled out first, which has not been done in some markets.

"A big factor was the learning curve for video networks and associated technology due to the complexity of the equipment involved. This reality has seriously slowed deployment. Lost amid the IPTV hype was the reality that digital video is not as standardised as one may think. There's plenty of room between the standards used in video networks

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for 'legal' unique implementations, and most video networks, particularly in the United States, were practically turnkey systems. This freedom of interpretation of standards has perhaps been particularly troublesome for IPTV, given the tightly standards-driven IP industry," he adds. "There was also a common misconception that the primary hurdle to delivering video over DSL was the bandwidth bottleneck post-DSLAM in the copper pair, and that MPEG-4 based compression would tear down the barriers to that.

"In truth, delivering any video (MPEG-2 or MPEG-4) over gigabit-ethernet IP is a complicated task. The nature of MPEG is such that the moment those video services enter a GigE transport they are "broken," unusable by a set-top box. The receive side of the GigE IP pipe has the burden of reconstituting each of the video streams to a set-top compliant status. Throw in the lack of QoS in IP and things get complicated quickly. IP packet loss and jitter that are acceptable for data and even voice have caused major problems to video payloads. All of these factors greatly complicated the process of distributing video to network edges, an area where there was already little margin for error. And that was pre-DSLAM. Once you get past the DSLAM you now have to deal with the copper loop, an inherently dirty line prone to signal problems that further impact video service quality."

The debacle surrounding 3G rollout is also fresh in the collective memory of the operators and as Allen McCaskill, senior manager, Ascent Media Consulting Services, says: "Much has been learnt from 3G rollouts and from churn factors such as QoS perception, so over-promising and under-delivering a new consumer service is no longer an option. Mature caution is now more deployed than youthful enthusiasm for launching the next new thing.

"Also, whatever vendors may say, IPTV is technically difficult; customers have grown to expect a lot from their TVs - consistent audio-visual quality and high quality content all only a couple of clicks away - and to do this on an enterprise's IP infrastructure is no easy task, with resilient load-bearing for service growth being a real hard nut to crack.

"IPTV systems also need to work with numerous sophisticated legacy systems in both Broadcast, Telco and IP environments; which all means that deployment is planned, staged and validated before any offering is properly launched to the full glare of the market."

Ben Allen, Director of Marketing for the Compression product line at Grass Valley, takes the idea of telcos having to live up to a level of expectation set by digital terrestrial and the promise of HD a step further.

"IPTV will enjoy mass market adoption when it offers the same sort of content and quality as other delivery platforms. Some compromises are inevitable, but most audiences have a choice of platform so picture quality will be a key selection criterion. So IPTV has to deliver excellent standard definition (SD) content and have a path towards the carriage of high definition (HD). For this to succeed, two things need to happen. First, telcos have to deliver genuinely broadband connections to the home. The access technologies to deliver this promise are available today," he explains.

"Second, the compression industry has to find a way of packing good quality SD and HD content into those broadband pipes. Everyone is agreed that MPEG-4/H.264 is the way forward for highly efficient compression and delivering the "50% reduction in bit-rate versus MPEG-2" promise. What no-one has acknowledged is that it is very difficult indeed to achieve the full potential of MPEG-4 and deliver this performance in platforms based on digital signal processors (DSPs) or consumer grade ASIC designs."

Overcoming backbone problems and legacy infrastructure

One of the key factors contributing to the logistical issues is the vast legacy infrastructure that already exists. The network is not capable of supporting a bandwidth-rich offering such as video with the reliability and high quality that consumers have learned to expect from terrestrial and digital television services.

As Paul Gainham, service provider marketing director EMEA, Juniper Networks, points out: "While there may have been some initial teething challenges for some new deployments of IPTV and this may have delayed some service launches and roll-outs, there have been some notable successes in the EMEA theatre like Versatel/Tele2 in the Netherlands and Fastweb's nationwide DSL based service in Italy. In competitive markets, service providers are realising that from an infrastructure perspective, good enough is not good enough; the network has to deliver supreme levels of quality, stability and reliability if they are to deliver the same levels of service as terrestrial/satellite DTV or the PSTN. The key to alleviating some of the potential challenges at the network level is for service providers to focus on simplicity - a common service/control plane approach from the core out to the 'broadband edge' (MPLS being a very strong, proven option here), combined with 'openness and agility' - the capability to easily and quickly integrate solutions from many vendors into a flexible, powerful offering. The days of proprietary vendor approaches are over."

The problem of legacy investment is not the only stumbling block for IPTV rollout, according to Ben Geller, director of industry marketing at Motive. "IPTV uptake is set to dramatically increase in the near future, with industry analyst Gartner predicting the global IPTV market will grow to 48.8 million by 2010. However, providers' ability to remotely manage and control the infrastructure in their network and technology in the home could be a hindrance. Consumers are unlikely to understand the new technology, and don't want the hassle of things going wrong with a service they expect to work as well as standard television. If providers can't show that their IPTV service is

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worthwhile and reliable, consumers won't switch," he says.

As McCaskill points out, the need to invest in a new backbone means that the promises of IPTV are being delivered slower than analysts and industry observers predicted. "It would be really easy if we all had fibre to the home and a truly open infrastructure so all can use and supply too, but in the cold commercial light of day, the infrastructure will always play catch up and will always be blamed for the hold up. Engineers (and consumers for that matter) demand to get more out of the network than it can deliver. However, we always seem to find ways of doing it. Isn't that what compression/ADSL2/Pseudowires/ WiMAX etc is all about?" he says.

"It is more a matter of balancing a large number of balls, including delivering premiere content and engaging functionality on a well tried and tested infrastructure. Making this all available before launch date to the right audience types for successful consumer testing and being delivered within tightly defined SLA-driven budgets, whilst also effecting evolutionary technical change in large Service Provider organisations still silo'd into pre-digital 'device defined' worlds is no easy task."

Krishnan at SeaChange is of a similar view, citing the financial burden as a major hurdle for telcos. "Most of the telcos simply need to invest time and resources to build out their last mile speed to ADSL2+, VDSL@ and fibre build-outs to realise their dream of offering IPTV and quad-play. In many cases, telcos have overcome this hurdle, for example, Dansk Bedband with its FTTH and FT B offerings."

A double-edged sword

IPTV could be seen as something of a double-edged sword for telcos. Once the hurdles on the path to widespread IPTV rollout are overcome and IPTV take up is at the levels analysts are predicting, there is a danger that the network infrastructure can't support the user base.

"Certainly, demand from consumers is there. Recent research from Juniper Networks of 3,000 end users across the UK, Germany and France has shown a desire across all age groups for a greater level of service personalisation in areas like IPTV, with supportive comments on the need for high quality delivery and a greater mix of service availability. Good challenges like this are not solved by simply throwing bandwidth at the problem, the motorway analogy being a good example of the failings of this approach. Clearly, a scalable IP/MPLS network infrastructure is absolutely key to underpin any wide-scale IPTV service, but this has to be economically delivered by the Service Provider and seen as valuable, thus increasing the potential level of spend by the end user," says Juniper's Gainham.

"What no-one has acknowledged is that it is very difficult indeed to achieve the full potential of MPEG-4 and deliver this performance in platforms based on DSPs or consumer grade ASIC designs."

"An open network architecture, under the control of a scalable policy enforcement layer where end user service personalisation and policy control can be enforced is key to ensuring there is sufficient infrastructure available to meet the challenge without it being massively over engineered and thus increasing overall operational costs," says Gainham.

"The better question is, will existing infrastructure be adequate, and the answer to that is no. In markets where IPTV is an acceptable lower-cost option for subscribers to get video, the demand will likely exceed existing infrastructure. But in those markets where high standards for video have already been established by cable, terrestrial or satellite operators, the existing infrastructure will probably be inadequate to deliver a competitive product. This already exists in the United States, where IPTV operators are laying fibre for all new build-outs.

"IPTV presents telcos with a marketing challenge they've never really had before, in that they are trying to enter anexisting market that has a defined set of customer expectations," says JDSU's Collingwood.

"When the telcos gave consumers cell phones, dropped calls and poor signal were tolerable because, frankly, there was no other option for mobile voice communication. But when they offer video in any market that already has it, they won't have the security of a unique service offering," Collingwood adds.

"There are other considerations that will play a role in determining the success or failure of IPTV services, adds Motive's Geller. "The real challenge will occur if IPTV providers fail to effectively manage their networks. They must deploy technology that combats these problems, by offering easy and automatic installation and configuration, saving the customers from the technological complexity and giving the provider control of the network.

"Intelligent management software should be built into the service from the outset, so that providers can also more accurately pinpoint problems in a system, and remotely resolve them. This will result in a higher standard of customer services, and provide a more positive end-user experience." **CSI**