

With consumers willing and able to view content on a range of different devices, it has been suggested that viewing on the TV set will decline, but the arrival of a new generation of 'Connected TVs', offering always-on, high-speed broadband connection puts an even greater choice of content with the TV viewer's reach.

However, Playcast Media CEO Guy DeBeer thinks that connected TVs will have a small impact. "TV sets with cable cards have been in the making in the US for years, and the Japanese market has also had a large connected TVs footprint. In both these examples, no alternative for the traditional pay-TV platforms has materialised, just because of the availability of the content, the network and the built-in decoder."

Jonathan Beavon, director, segment marketing, NDS, warns that focusing purely on connected TVs for OTT services is too narrow, with service providers looking at ways to integrate these services into games consoles, mobile devices, STBs and tablet PCs, as well as connected TVs. "That said, the CE manufacturers are keen to integrate any service that will help to sell their TV sets, so we will see many more connected TVs come onto the market. As the OTT services being offered become ever more sophisticated, the CE manufacturers will have to wrestle with whether they maintain the current 'ship and forget' strategy, or adopt a 'ship and support' approach."

HYBRID DEVICES. Thomas Dvorak, chief marketing officer at Aprico, suggests that hybrid devices will play an increasingly large role in the coming years. "Everyone will have a connected STB/TV in the coming years. We're seeing a number of projects and companies teaming up at the moment, via STBs, with people waiting for TV sets." Richard Lindsay-Davies, director-general of the Digital Television Group in the UK, advises that the body is currently working on the UK Connected TV Specification: D-Book 7. "We need to create stability to enable innovation on the platform," he states.



"THERE'S NO SUCH THING AS GOOD CONTENT FOR FREE."

BUDDY SNOW,
MOTOROLA

towards more open standards, and as these features become ubiquitous in TVs, the STB vendors will need new differentiating factors to maintain their current lead."

Kevin Lingley, head of strategy and business development OTT, at Amino, notes that if there are dedicated implementations of OTT



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OVER-THE-TOP TELEVISION HAS THE POTENTIAL TO TRANSFORM THE FACE OF THE TV INDUSTRY BY CREATING NEW BUSINESS OPPORTUNITIES FOR EXISTING STAKEHOLDERS AND FACILITATING MANY NEW ENTRANTS. IT ALSO HAS MAJOR IMPLICATIONS FOR EXISTING PROVIDERS. COLIN MANN SPOKE TO A RANGE OF INTERESTED PLAYERS TO IDENTIFY THE OPPORTUNITIES AND CHALLENGES OF OTT TV.

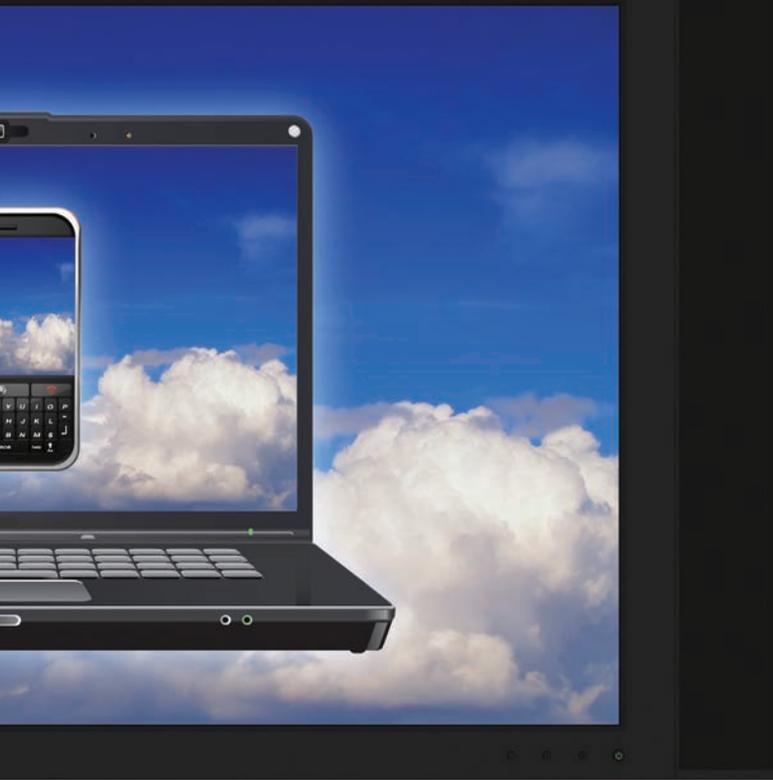
services – such as Netflix, YouTube or Hulu - available via a widget on the TV, then the user of the connected TV is at the mercy of the content partner not to change the way they deliver a service. "Unless the connected TV has an open and extensible framework at its core then either content innovation will be stifled or they will be left behind as it evolves," he warns.

POWER SHIFT. Yann Courqueux, CMO at NetGem, suggests that there is some trepidation amongst operators that the OTT capabilities of connected TVs will shift the balance of power to global media/CE conglomerates, because connected TVs provide some companies with an opportunity to expand their product offering and in some cases, their customer reach.

"Multiple connected devices, including TVs, are coming to the market and are expected to become commonplace in homes over the next decade. However, the connected TV sets provided by Samsung, LG, Sony and other manufacturers do not currently provide the key features and services that consumers expect: integrated billing and payment systems (for Pay-TV, VOD, DRM management); technical assistance; and management of software upgrades over time."

He recommends that the best way for operators to take advantage of the wider penetration of connected devices in the longer term will be to offer customers STBs that offer media server capabilities to

o wins?



distribute content in order to manage the user experience across any screen in the home. From this perspective connected TVs will become clients of next generation STBs.

USER INTERFACE. For many observers, the role of middleware that could knit together managed and OTT services is crucial, as are User Interface and recommendation engines. Steve Christian, VP of marketing at Verimatrix, says that the most powerful middleware he has seen creates a content presentation experience explicitly tailored to the device on which it is displayed. "A programme guide or EPG, based on the same underlying data, can be offered in fundamentally different forms on a big screen TV with a 10 inch interface than on a PC (with mouse/keyboard interaction) and different again on a small touch screen mobile device. By exploiting the intrinsic strengths of each device the experience of the overall service offering – be it pay-TV or Internet TV – is strengthened. This is in stark contrast to

Video consumption online vs TV	age	age	age
	18-25	26-35	36-45
Online video less than 50%	52%	70%	73%
Online Video 50% or greater	46%	28%	19%

Source: RealNetworks

services that attempt to provide the same look and feel across the diverse devices," he notes.

Matthew Huntington, VP, product marketing for Nagravision-OpenTV, predicts that on Connected TVs the main UI will be defined by the CE vendor, but the UI will change with the brand of the OTT service using standards such as HbbTV. "Service providers will look to replace the CE UI with their own when using their services; today the main option for this is through CI+ and MHEG, but richer solutions will emerge. On service provider set-top boxes the overall UI will be controlled by the service provider, but with the UI changing to the brand of the content providers in some cases."

For Charles Dawes, product management director, service provider solutions EMEA at Rovi, the remote control is the most important piece of equipment in the home. "It's the most handled device in the living room and to retain control of it will be essential to provide a solution that knits managed and OTT services together. The winners are going to be the ones who command the remote control that is picked up from the coffee table when the customer starts to watch television. Customers don't want complicated solutions with multiple remotes. Companies that embrace this and deploy solutions that allow customers to access a mix of traditional linear, operator on demand, OTT and personal content using the same remote control will ultimately be the winners."

TRUSTED SOURCE. He argues that customers are looking to be able to access content in a seamless and simple way, irrespective of where it comes from. "This sounds like it could be a win-lose situation for the network operators who've traditionally acted as the main source of high-quality entertainment programming in a home, but it isn't. Operators who embrace OTT content will be in a win-win situation as they continue to command the role of 'trusted source and aggregator of entertainment content' in the home."

He suggests that the UI and recommendation engines need to be all encompassing. "Gone are the days of having separate silos for linear, on demand and other content. People are used to being able to access multiple types of content in one place. When they feel like watching something they want to know that it's available to them irrespective of where it is housed: on broadcast TV, from an OTT service or a download sat on a NAS in their home network. The owners of these UIs will be the companies that manage to pull off the challenge of being able to integrate the information from multiple sources and provide the customer with a single trusted source of information and recommendation."

Aprico's Dvorak contends that middleware companies have to offer an OTT solution nowadays; "they are not state-of-the-art if they don't." He also suggests that a recommendation engine can make a big difference. "With a lot of content out there, personalisation can play a key role. The end-user has to feel he is in control, yet operators like to balance the amount of free versus pay content that's available."

ATTRACTIVE MODELS. Major challenges lie ahead for OTT video developing into a service that could be embraced by managed service operators. Can service providers find a way to insert themselves into the relationships between the OTT provider and their customers, and develop attractive business models? Mauro Bonomi, CEO, Minerva, notes that the early OTT TV initiatives are primarily driven by consumer equipment manufactures. "Services are delivered directly to a consumer appliance connected to the television set, bypassing the operator. It is not surprising that the experience of



"THE VIDEO CONSUMER EXPERIENCE SCALABILITY NEED WILL BE THE VALUE-ADD FOR NETWORK OPERATORS."

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RGB NETWORKS



"THE CONSUMER WILL FIND THE CONTENT ONE WAY OR ANOTHER."

JIM LOMAX,
AIRTIES

early adopters of OTT TV services tends to be very fragmented as they currently access multiple services each with its unique user interface, video resolution, billing system and performance.

As such, he suggests that service providers have a unique opportunity to improve the current OTT TV experience by leveraging their unique assets and expertise (e.g. Access network, CDN, billing and support system). "A broad set of services, a single playback device, better video quality, a uniform and responsive navigation experience, a centralised billing and support system are just a few of the benefits operators can offer content providers and aggregators on one side and subscribers on the other."

Paul D. Hamm, president and CEO of Endavo, says his company is aligning with telcos as an augmentation rather than as a threat. "They can wrap OTT with their brand, linear and packaged TV as well as other screens. From the service provider perspective, TV will be the main device, despite others being available." He notes that bi-directional connectivity has created an environment that can bring in aspects of linear plus the benefits of Internet. It can become a mass-consumer market if OTT can be married up with traditional broadcast TV into a user experience. As to who is likely to emerge victorious: "We firmly believe that Service Providers are the best opportunity for OTT to become a real consumer product; they generally own the last mile. Whoever owns that has the capacity to manage a certain part of that delivery."

OPEN PLATFORM. Graham North, commercial director, Humax, believes that most operators are looking at enhancing their current offering by way of OTT services. "This offers the opportunity for operators to expand

their footprint outside of their current customer base. It will also enable additional content delivery on a more cost-effective scale. Open platforms provide an opportunity to add pay services as an option. For example Humax will launch an OTT service on the current range of Freeview HD products, which is very much an open platform and is ready to support a variety of services. We have also announced that Humax will support Sky Player, thus enabling the addition of selected pay services on free-to-air boxes."

Dreampark's CTO, Bjorn Lang, suggests that with the ability to perform cross-content recommendations, the managed service operators can use the OTT content to up-sell their premium content, either due to the fact that they can provide a higher quality service

or perhaps since the particular piece of content is not available anywhere else – for example, old seasons of a TV series are available OTT but the new season is exclusive to operators.

Amino's Kevin Lingley thinks that service providers will be critical in offering a 'QoS'd' network that underpins a great content experience to the customer wishing to use OTT services. "The barriers to offering content to TV devices are falling away with OTT, but those who have already invested in managed networks may actually offer a better experience to their users because they can guarantee a network already profiled for video traffic."

MOVIE GUIDE. For Vince Pizzica, Technicolor's head of strategy, technology, research and connect, the long-term answer can best be found by looking at the issue from the consumer's perspective. "When you sit down to watch a movie you clearly do not want to decide if you first want to look through the programme guide, then the content of your DVR list, then what is available from VoD, then the Internet (maybe in a different order). You just want to watch a movie."

"People won't pay for bad quality," asserts Joachim Roos, CEO of Edgeware, who says that Service Provides can host a delivery platform, and argues that it's not so much a question of technology, but being able to scale it in a cost-effective manner. You need to deliver from as close as needed to the actual consumers. There are huge challenges, and new types of architecture will emerge.

Geir Bjørndal, EVP products and markets, Conax, contends that if the entrance of content from open networks through to the TV segment is viewed as an opportunity, TV operators have an excellent chance to take a leading role and use their brand as a TV operator to offer additional services to the TV consumer. "While traditional TV services remain consistent, the Internet demands a much more a forward-leaning approach to content. Operators, by choosing the correct partners and solutions, now have the possibility to create a win-win scenario. Merging the content available on Internet with the traditional lean-back approach, operators can select a solution where the consumer is easily guided to the right content without having to struggle with the entire web."

ADDED VALUE. He notes that TiVo – with whom Conax recently announced a joint DVB set-top box platform for deployment by television operators around the world - is an

Web-enabled devices 'gamechangers'

The increasing popularity of web-enabled consumer electronics (CE) products is a game-changer for the digital entertainment industry, according to In-Stat. OTT video services are increasingly offering compelling alternatives to traditional TV viewing.

"Most web-enabled CE devices will be sold in developed countries. Our research shows that within five years nearly all broadband households will own at least one web-enabled CE media device," noted Norm Bogen, In-Stat analyst. "The implications of this across the digital entertainment industry will be huge."

Recent research by In-Stat found the following:

- Worldwide shipments of web-enabled stationary CE devices will grow more than seven-fold from their 2009 levels to over 230m by 2013.
- There will be over one-half billion web-enabled CE devices in operation worldwide by 2013.
- In 2009, there were five broadband households worldwide for every web-enabled CE device. By 2013, this ratio will be 2:1.
- Many cable operators, worldwide, are predicted to introduce BBC iPlayer-like OTT services for catch-up and on-demand programme viewing.

In-Stat's consumer survey indicates that over half of US consumers with network-connected Blu-ray DVD players/recorders use WiFi, while 30% use Ethernet.



“THE BARRIERS TO OFFERING CONTENT TO TV DEVICES ARE FALLING AWAY WITH OTT.”

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AMINO

example of a solution provider that has successfully integrated linear and stored content offerings presented to the end-user in an integrated and user friendly manner. When the solution is integrated

to content below certain technical thresholds (bit rate, codecs, etc). This is not an easy job as it is dependent on an external, uncontrolled source of content description.” He also believes that an OTT content service can be integrated with pre-roll and post-roll advertising as done on the web, which would be acceptable to the viewer. This allows the viewer to access the OTT content and still be exposed to advertising (possibly targeted) at the same time, allowing advertising revenue.

Jan Steenkamp, VP Americas for Irdeto, stresses the importance of defining the level of the content’s inherent value. “Some content can be added to pay-TV at an incremental cost,” he recommends. “The next couple of years will establish how payment can be set up.” Stefano Visconti, R&D manager at Neptun, accepts that there’s a risk for complete telco bypass, either by direct content or aggregators. “Content owners are best placed, they can discuss who they want to enter into discussions with. Service Providers will concentrate on getting the best deal with content owners.”

“There’s no such thing as good content for free,” asserts Buddy Snow, senior director of marketing, Motorola broadband home solutions. “The companies trying to do it for free are losing money, such as Joost and Hulu. He describes OTT as “the world’s largest DVR, it enables you to grab a show you’ve missed, and suggests that there is an under-served market, which is not about sourcing User Generated Content, but rather about TV-quality, premium content. To address this, Motorola talks about Internet-era TV. “People are comfortable with what the Internet brings. The Internet is now becoming a viable platform. Service providers see a need to shift to a pure IP-based network.” To aid this transition Motorola has introduced Motorola Medios, a new suite of software applications that manage media across

		2009	2010	2014
Total online movie revenue	£m	22.3	44.3	123.9
Total online TV revenue	£m	94.0	132.5	259.1

Source: Screen Digest

multiple devices from multiple sources. **PLATFORM LAUNCHES.** Video platform provider Tvinci unveiled a complete end-to-end Pay-OTT solution in mid-May (see *Monitor*). “We’re focusing on paid content. We believe people will continue to pay for content, and will pay for OTT, reveals Yonatan Sela, VP Marketing. “The open Internet will be the platform over which content will be provided.” The company plans to work with both content owners and service providers.

Another organisation to propose a new OTT solution is consultancy and out-sourcing firm Accenture. Angelo Morelli, global lead, new product development and innovation practice, sees OTT as, “a kind of tidal wave. Even if players don’t like it, it will happen,” he predicts. “It’ll stay; people will have to live with the situation. Once a customer has a connected TV, he will want to seek content.” He suggests that the service provider needs to become an enabler of digital distribution. “There will still be the need to go through a Content Distribution Network.”

NDS’s Beavon notes that platform operators have the option of creating and integrating their own OTT services and/or letting third party services into their platforms. “Some operators will embrace existing online services, while others will prefer to offer an OTT service that is well integrated to their existing TV and VOD experience. For the best experience there needs to be a tight integration of OTT video with the rest of the content platform, so that viewers do not notice the transition from OTT to broadcast TV. NDS’s FluenTV, a conceptual navigation tool for a channel-branded hybrid STB, smoothes the transition between OTT and broadcast content,” he claims.

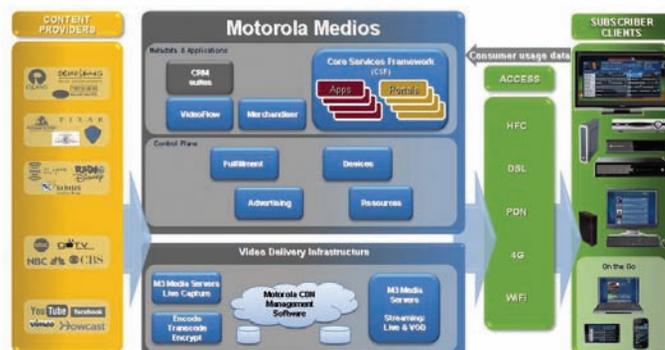
LAZY TOWN. Huntington believes that consumers are lazy, particularly when sitting in front of a TV and will value a service provider who provides an easy to use user interface that aggregates content from all sources. “By providing search, recommendation and community services across their own and OTT content, service providers can insert themselves into the relationship.” According to Huntington, the business model for this will come from: 1. OTT providers who want to

with the operator’s traditional security platforms, it gives the operator an opportunity to provide added-value to the user experience, beneficial to both viewer and operator.

Rovi’s Dawes says that MSOs need to work with the OTT businesses to provide customers with the services they want. “There is a role for the MSO in guaranteeing the quality of service and working with OTT companies to bring content delivery networks that enable OTT online to deliver a compelling service alongside traditional MSO delivered services.”

Ben Hookway, CEO, Vidiactive, suggests that there is always going to be a place for service providers providing easy access to content. “That and the billing relationship held with the customer for subscription content, whether web or broadcast, means that opportunities continue to exist for service providers. Providing an easy experience, which leverages all the consumer’s digital devices, and an open choice of content, are key to success.”

CONTENT VALUE. Derek Coetzee, Digisoft’s CTO, sees the main challenges primarily as integration into their existing environment and quality content perception, describing the latter as an independent variable. “In our experience, bad video quality reflects (unfairly) on the entire solution, so operators need to be aware of this audience perception and consider limiting access



charge for content access and use the service providers billing relationship with the consumer for this; 2. OTT providers who want to make their advertising addressable and use the service providers knowledge of the consumer to do this, and 3. Operators who want to bring web content together with the 'traditional' pay-tv content to deliver a truly convergent all-under-one offering to their customers.

Verimatrix's Christian says that there is an assumption by many market pundits that the service operators in the world of Internet TV services and that of traditional pay-TV are totally disjointed. "We think this is rather too simplistic. Just like the world of e-commerce in the early generations of Internet, the shift of consumption did not totally upend the value of existing brands and consumer loyalties. A few new players emerged for sure, but by and large, the brick and mortar brands have become just as prominent on the Internet as they are on Main Street – the power of branding transcends the medium. When you apply this logic to video, the service operators who make the leap to multi-screen delivery can indeed be the same names that dominate the pay-TV market in cable, satellite and IPTV today. They have the content, the subscriber relationships and the scale to make service delivery compelling whatever the physical distribution network," he contends.

"The challenge for existing operators is that this requires a fundamental shift in the

way they think. The progressive pay-TV operators may have to embrace novel technologies that have been designed to effectively solve IP video issues and apply them over their delivery networks. By integrating OTT and



"WE NEED TO CREATE STABILITY TO ENABLE INNOVATION ON THE PLATFORM."

RICHARD
LINDSAY-DAVIES,
DTG

Online video set to eclipse television...

Online video consumption amongst younger age groups has now grown to the point that it looks set to overtake traditional television as the platform of choice, according to data released by online video specialist RealNetworks. The results of the YouGov online research, commissioned by RealNetworks, have revealed that amongst 18 to 25 year olds, roughly half (46%) split their video time at least equally between computer and traditional TV platforms and for around a third (32%), a computer is now the preferred platform. Older age groups still show a preference for traditional TV services but even amongst the 36 to 45s, a significant proportion (20%) are confirmed computer fans, spending at least 50% of their video viewing time on a computer.

"The research data confirms a trend that the industry has seen for some time now but the speed of change is surprising, even for those of us directly involved in online video," said Marili 't Hooft-Bolle, MD consumer, EMEA, for RealNetworks. "It's still early days for online video but as each year passes the quality and breadth of online video content increases dramatically and the tools to access, manage, share and consume the content grow ever more sophisticated."

adaptive rate streaming technology with pay-TV services, operators can enhance ARPU, subscriber loyalty and lure incremental advertising dollars," he advises.

CO-EXIST. Boris Felts, VP marketing, Envivio, notes that despite content owners increasing desire to deal directly with the consumer, there remains a need for a Content Delivery Network in between. "The Service Providers can offer the CDN themselves. This enables the content owner to reach the subscriber and the Service Provider to tap into new subscribers beyond what they have in IPTV. They can co-exist," he states, but warns that if OTT becomes popular, it will impact on the network. "The number of bits to transport will be huge, especially for live events. It's impossible to guarantee QoS – there'll be a need to invest." In terms of the ability to deliver to a range of devices, he sees this as a positive. "The operator gets more value by enabling more platforms."

Jim Lomax, EVP, sales and marketing for AirTies, sees the challenge as a question of ownership of the customer, with enabling the subscriber to access content becoming a

customer retention tool. "The consumer will find the content one way or another. There's a strong enough desire from the customer to enable it if Service Providers don't want to get involved themselves," he warns.

Ric Brovedani, senior director, multimedia integration services, Alcatel-Lucent suggests that a seamless capability between OTT and managed service is paramount. "You've got to avoid going through extra hurdles. The path forward is to add value to the operators and vice versa. If OTT providers are to grow the market beyond ad-supported, that will need QoS support and assistance. Content owners and service providers need to find the middle ground that works for both of them."

CLEAR BENEFIT. Nabil Kanaan, director, product marketing, RGB Networks, suggests that managed service operators will look to OTT for non set-top box devices initially. "That provides a clear benefit to their service offering (by increased revenue, retained customers, or a combination). Once the managed service operator's network gets upgraded with the relevant technologies, and IP capacity is upgraded drastically, there may then be an incentive to cut over the legacy large screen TV delivery services to that 'OTT' network it's not OTT at that point, since OTT implies an unmanaged network, whereas here we're referring to OTT-type technologies like HTTP and adaptive streaming, but applied in a managed IP network."

He believes that service providers will find ways to add value, and therefore insert themselves into the value chain. "This will primarily be driven by networks not being able to keep up with the exponential growth in video traffic, and Net Neutrality notwithstanding, the consumer video experience beginning to suffer due to its own success. This video consumer experience scalability need will be the value-add for network operators."

With many observers agreeing on the importance of quality in the delivered service, what are the remaining technical challenges of transporting high quality video from the Internet to TV? According to Dawes, the main challenges are the bandwidth that is available and the power of the devices in the home. "Companies need to continue to invest in solutions that bring the serving of content as close to the customer as possible. Without this, high-viewership events will only ever be available on a broadcast or multicast basis as networks won't be able to support the originating bandwidth that is required for everyone to view on a one to one basis." He also points out that there are millions of legacy devices in people's homes, often rented from an MSO that are not yet amortised.

"Many of these devices are not suited to this new world so there remains a challenge for MSOs as to how to deploy to them or create an affordable upgrade model for their replacement."

PIPE DREAMS. Christian points out that the traditional guidelines for an acceptable quality, enjoyable video experience can only be provided in the limited circumstances of fully-controlled delivery pipes.

"Those pipes have to terminate at devices that are logically separated from the dynamics and unpredictability of a general purpose broadband service. If operators continue to only focus on extending network QoS management, current market dynamics have the potential to gradually relegate the traditional operator into an esoteric and commercially less profitable corner.

Fortunately, the technology behind video delivery services is evolving to keep pace with the new market dynamics. The emerging substitute for managed network delivery of video is the technology of adaptive rate streaming. This technology emerged on the PC platform, but is also an example of a delivery format that is particularly suited to the limited resources involved in mobile content delivery."

He suggests that adaptive rate streaming of video provides an optimum-quality viewing experience that scales effectively on global and local networks, makes highly effective use of today's content distribution networks, and ensures that true HD media experiences over the Internet can become a reality.

Playcast's De Beer argues that on the network side, it seems that the bottleneck would not be in the last mile, as bandwidth growth has been keeping up with demand for years.

Angle	Criteria	OTT delivery	Managed delivery	Requirements of an Optimal Solution (Based on Gap Analysis of Current Offerings)
Consumer	Consumption	●	●	<ul style="list-style-type: none"> High picture and sound quality Possibility to view full HD and 3D films with no lag/interruption/delay
	Convenience	●	●	<ul style="list-style-type: none"> Possibility to view content across devices, seamlessly at the time preferred by the viewer, e.g. using a remote Multiple payment options e.g. on-the-spot or monthly
	Content	●	●	<ul style="list-style-type: none"> Mix of web content (UGC/professional), TV shows, films, etc. across diverse genres Possibility to block inappropriate content and does not permit children/youth to make unauthorized transactions
Commercial	Consumer	●	●	<ul style="list-style-type: none"> Relationships established where appropriate from a business standpoint, not dictated by technology Fully flexible ways of reaching consumers
	Contribution	●	●	<ul style="list-style-type: none"> Effective ads based on detailed viewer information Direct payments for premium content Cost effective distribution
	Control	●	●	<ul style="list-style-type: none"> Completely leak-proof, encrypted distribution Extensive editorial control based on location, time-of-day, etc.



RGB's Video Multiprocessing Gateway

"Streaming of high quality HD in real time, and in large quantities is likely to challenge the capacity of the long-haul

networks, although there is such an abundance of fibre optic capacity that this is not a significant technological barrier either. In-home video distribution may be a bit of a bigger challenge: although HPNA, Power line communications and high speed WiFi seem to be able to pull the job inexpensively."

CAPACITY LIMITS.

ANT's Morris is another who cites bandwidth issues. "Reliably delivering a high-definition service to a consumer device with no glitches is difficult and a high-bandwidth connection to the home is not enough to handle this. The infrastructure - the ISP's core network and the content delivery network used by the content provider - can't be overlooked either. Not least because of the costs, both to the ISP and to the service provider, through CDN costs, of running a successful service. As services grow, these issues become a real problem for content providers and ISPs. Just look at the amount of bandwidth currently being

consumed by the iPlayer. Without a solution to this, widespread take-up of streaming HD content is likely to be limited by the capacity of the ISP's networks and the CDNs being used," he warns.

Joe Del Rio, senior marketing manager at Broadcom, stresses the importance of standards.

"Broadcom is working with standard committees and its customers to ensure solutions are in place for the delivery of high resolution and quality video such as 1080p progressive output to and throughout the home. We also enable and push for higher and higher bandwidth to the home. Moving high quality video throughout the home, reliably and over diverse topology is key, and MoCA is designed to deliver high-quality video throughout the home. DLNA has also developed a robust set of technical guidelines supporting high-quality streaming of multimedia content over wireless and wired connections between home entertainment and mobile devices. This enables a full-service home entertainment network that can deliver even multiple channels of HD video reliably."

A recent study by consultancy group Capgemini - *Will On-Demand OTT Growth Be the TV Industry's Bane?* - foresees a fusion of OTT and managed delivery models evolving that can encompass the best of both the managed environment and OTT. To be successful, players will need to forge partnerships across the value chain. Content, aggregation, distribution and device players should develop the viewing experience in order to fill the current gaps in the 8C framework analysis (see Figure above). Together, suggests Capgemini, stakeholders can address the challenges needed to ensure a viewing experience tailored to different consumer needs; including the right quality of service, an intuitive user interface, a seamless viewing experience across screens/devices and the ability to shift between a lean-forward and a lean-backward experience depending on situation. However, it warns that these partnerships and the fusion of OTT and managed environments are likely to also bring further turbulence to the positions taken by different players in the value chain.



"ONCE A CUSTOMER HAS A CONNECTED TV, HE WILL WANT TO SEEK CONTENT."

ANGELO MORELLI, ACCENTURE