

Duncan Potter, chief marketing officer at Edgware, recommends thinking differently and sets out the need for a Video Delivery Network.

In the last few years a huge range of Internet-connected devices has emerged that are capable of high quality video playback. These include laptops, tablet devices (such as the iPad) home media centres, smartphones, Blu-ray devices, gaming consoles and most recently connected TVs. These devices are typically connected to unmanaged access networks such as 3G, home networks or WiFi hot spots.

In addition, video content owners are increasingly choosing to make premium, high quality content available directly on the Internet via massively popular services such as the BBC iPlayer, Hulu™ and Netflix. Delivery of these services is typically handled by Content Delivery Networks (CDNs) such as Akamai and Limelight Networks® that deliver 'Over The Top' of operator networks, leading to the description 'OTT video services'.

To deliver their own content services with a high Quality of Experience (QoE) to this new set of screens and to participate in the value-chain for OTT video services, operators must take a holistic approach building a Distributed Video Delivery Network that enables monetisation from both their subscribers and the content provider.

The New Phenomenon - Multiscreen Delivery

Two major issues associated with multiscreen delivery are the variations in screen resolution and bitrate for different types of devices, and the lack of bandwidth consistency in unmanaged networks.

To overcome these issues, a new and more reliable underlying protocol suite based on HTTP has emerged. By encoding content at different bit rates and slicing it up into 'chunks', the client can seamlessly play out the highest possible bitrate at any point in time, avoiding buffering and interruptions. Industry leaders such as Microsoft, Apple, Adobe and Widevine have implemented variations of this standard to maintain a high Quality of Experience across the different devices and networks.

Taking Back Control of the Network

Operators are now facing the challenge of having to deal with fundamentally different types of network infrastructure to support the various devices and services. First, there is the traditional, managed IPTV infrastructure,

which typically delivers the operators own, premium content to managed set-top boxes with a range of sophisticated TV and Video on-demand features such as restart TV, pause live TV and network PVR.

Despite the optimal viewing experience, consumers also demand access to content available on the Internet via devices outside of the operator's control. These services generate a large increase in traffic delivered across the operator network and even higher costs in the form of access to expensive Internet transit. A big question for the operator is, therefore, how to take back the control of its network.

Monetisation, Bandwidth and Distributed Delivery – the Video Delivery Network

In order to meet the challenges of OTT video delivered across its network, the provider effectively has three alternatives:

- 1) To block or limit the OTT video traffic
- 2) To add more bandwidth to the core network
- 3) To implement a system to monetise the service effectively.

The first option is a risky strategy, as limiting access to a popular Internet site may result in lost broadband subscribers. The second is extremely capital-intensive and time-consuming, and so the answer is to embrace the OTT opportunity and seek to monetise it. The only way to stay competitive is to meet consumer demand by providing easy access to OTT content through the operator's own broadband infrastructure, with the highest quality of experience. As we will see, quality is essential as it directly contributes to the potential revenue attainable from the service.

This is where the Distributed Video Delivery Network comes in. The operators need to recognise that current, highly centralised, or inefficiently distributed content libraries will fall under their own weight. The traditional approach of deploying centralised VOD pumps designed to stream and cache content from one centralised location causes major overload on both the core and aggregation networks. Another issue is how to support an exploding number of devices and bitrates in a poorly distributed network. Supporting delivery to 10 devices each requiring five different adaptive bit rates potentially results in distribution of 50 versions of the same content.



“Who controls your network? In order to stay competitive, operators need to meet the consumers demand for content delivered over the top of their network. And the key to monetization of content is Quality of Experience.”

While distributed transcoding and re-packaging promises to reduce some of this load in the core network, many of these solutions are a long way from being deployable and savings are mainly reserved for live delivery.

The only viable solution is effective demand-based video delivery, which provides video streaming capacity as close to the viewer as possible. By being able to simultaneously download, cache and play out specific video assets it is possible to dramatically optimise the use of the network and the distributed video caches.

Operators need to realise that traffic patterns will inevitably change with the types of content being made available. This especially applies to potentially challenging issues of micro charged sports, or other key live events.

One of the key areas of requirement for streaming to a large range of devices is the area of sports event broadcasting. Sporting events typically take place during other times



within the operator's own network to ensure that bandwidth can be accounted for and if necessary billed back to the actual content provider.

In the future, it is highly unlikely that the current crop of CDNs such as Akamai and Level 3 will be the only organisations collecting money for content distribution. Why should the operator who is delivering the content to a subscriber, ensuring a consistent quality of experience and dealing with all of the complexities of delivery to the myriad of devices, not also profit from the content traversing the network? To do this they must be able to manage the Quality of Experience at the subscribers viewing station and also provide the tracking, stats and quality metrics to enable the justification of billing the content provider.

The provider of the Video Delivery Network is obviously in a very strong position to be able to deliver this additional level of functionality assuming that they understand the requirements and already actively participate in asset propagation and session management. The integration of this additional CDN management functionality becomes a natural step in the evolution of the Video Delivery Network transforming the video distribution infrastructure into a critical contributor to revenue growth for the future.

Edgeware's Distributed Video Delivery Network

Edgeware provides the critical components required to implement and run a Video Delivery Network. From the dedicated server technology capable of being deployed deep into the network, through the popularity based demand curve analysis tools that automatically distribute content around the network, to ad insertion and playlist management tools to allow the maximum leverage and use of the content resources to the CDN style management capabilities to allow full and effective monetisation of the delivery infrastructure. Edgeware provides the full range of capabilities to deliver and deploy a true next generation distributed Video Delivery Network.

ABOUT THE AUTHOR

Duncan Potter, chief marketing officer at Edgeware, is responsible for all marketing activities for the company. Potter brings extensive background in networking, convergence and security to the company. Most recently he served as chief marketing officer at Westcon Group and has held various executive, marketing and product management positions at Extreme Networks, Cisco Systems and 3Com.

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of peak activity for an individual. For instance, someone who passionately follows soccer, baseball or hockey may find themselves not being able to focus as much time on their beloved sport while spending time with their family or pursuing other pastimes. To capture this highly lucrative audience the operator must be able to provide four major elements:

- Access to the actual sports event
- Support for a full range of mobile devices
- Virtually unlimited capacity for sessions for short periods
- Very high quality of experience to the devices so as not to miss a second of the event itself.

These last two issues present a huge capital expenditure challenge for the operator. How do you justify infrastructure to support unlimited or at least very high peak traffic for very short periods (generally less than 90 minutes) without the additional justification provided by costly redeployment of those resources once the game is over? In one recent example, the operator was capping the number of online tickets to the event to ensure the quality of experience to its subscribers. In turn, this meant that a subscriber wishing to access a game could be faced with a 'Game Sold Out'



"In order to successfully deliver high quality content to multiple screens over unmanaged networks, operators must rethink their approach to the service and the network infrastructure."

message – obviously highly undesirable.

Edgeware has provided an answer to this problem by providing a 'burst' bandwidth-licensing model. This means that an operator can license the bandwidth to meet its regular baseline streaming and bandwidth needs and then burst over that to support limited time events such as sporting, news or political events that require the full bandwidth of operator infrastructure.

When is a CDN not a CDN?

However, this is not the end of the story. Layered over the top of this must be a common approach to management and accountability. Rapidly emerging is the requirement to support CDN (Content Delivery Network) functionality