

Case for SP CDNs Builds as Tech Gives IP Players New Advantages

By Fred Dawson

Privately controlled video-optimized content delivery networks are becoming more vital than ever to premium TV providers, thanks to advances that are driving down multi-device formatting and functionality costs for managed and unmanaged on-demand services.

One bellwether to the growing appeal of privately controlled CDN-type architectures to network operators and over-the-top providers alike is the sales pace

35 percent of our business came from the over-the-top side, and, as of Q1 this year, it's at 45 percent."

But Edgware's business is also growing rapidly on the service provider side with recent wins that include Telecom Austria, Telecom Slovenia and an expansion of its engagement with The Netherlands' KPN. "All of a sudden we're talking to a lot of potential service provider customers about when rather than whether they want to deploy our technology," Potter says.

Edgware's high-density solid-state servers employ flash

facilitate session and bandwidth management as well as monetization through advertising and wholesale service offerings. The platform supports fast-channel change and the addition of features such as start-over, pause on live TV, integrated multicast-to-unicast conversion and network PVR.

Video-optimized CDNs in general have gained considerable appeal with the formatting efficiencies made possible by software encoding system supplier Envivio, Duncan notes. "They've developed a protocol based on open standards for



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at Edgware Networks, a supplier of distributed video delivery network systems which saw its business grow by 130 percent in 2010. While cable and telco service providers remain Edgware's core target sectors, a surge in OTT players seeking to deliver high-quality video to TVs and other devices is having a big impact on Edgware as well, notes CMO Duncan Potter.

"Two years ago our business was almost purely IPTV driven," he says, in reference to the early adopters who leveraged Edgware's IP video streaming architecture to cut the costs of implementing VOD. "In 2010

memory in combination with a hardware-implemented data plane, allowing operators to distribute edge caching points with support for advanced functionalities across the network. "No matter what your legacy service base is, once you've gotten distribution into IP mode, you have huge flexibility to slot in our technology wherever you need it," he says.

The Edgware server allows operators to deliver IPTV or cable services over managed networks together with Web TV and HTTP adaptive streaming-based services over unmanaged networks with the help of tools that

segmenting the steps in multi-device encoding, which allows the different parts to talk to each other across the network," he says. "It allows distributors to scale really fast and big with formatting segments sitting further and further out in the network."

As described by Envivio officials, the firm's Genesis universal mezzanine format eliminates the need to deliver multiple streams supporting multiple bit rates in any given streaming format from headends and other encoding centers to the network edges. Because each output profile only differs from oth-

ers by a few small parameters, the platform can deliver all the video processing information for multiple bit rates, metadata and other information together with a single H.264 stream from the master encoder.

This architecture achieves the bandwidth savings that come with delivering a single stream over the network while avoiding the quality loss and costs incurred with transcoding at the edge, notes Bob Stockwell, director of marketing and communications at Envivio. "We're sending profiles to the edge and telling the processors what bit rates to deliver without introducing another generation of loss," he says. This approach cuts over 50 percent of the bandwidth that would be used if all the streams for a given set of adaptive streaming profiles were delivered.

NEW ADVANTAGES >2

<1 NEW ADVANTAGES

ered from the central encoding point, he adds.

The crucial endpoints in this new architecture are the Envivio 4Caster headend encoder and the edge-based Halo Network Media Processor (NMP), which the firm introduced last month after several months of testing in various service provider networks. The new approach has already caught the attention of cable operators, Stockwell notes. "We now have two cable MSOs employing the architecture to deliver over-the-top content to their customers," he says.

With Halo NMPs in place an operator can send a single master stream with up to ten format profiles with bit rates suited to streaming HD, SD and variations of those resolutions to all types of devices, Stockwell says. The profiling information is delivered with the encoded content in the universally interoperable MPEG Transport Stream container format, which overcomes the incompatibility between broadcast transport and HTTP streaming that has prevented efficient deployment of multi-screen services alongside legacy TV service. Now, he says, all the established monitoring, forward error correction and stream protection workflows can be brought into the information conveyed along with the bit-rate profiles.

This gives service providers the opportunity to operate in the multi-device world in ways that are responsive to how things work in the new environment, he adds. "Content providers can't think that they define the user experience anymore," he says. "The device does. The guys who will win are the ones who understand what it takes to serve an under-25 generation of users with no plans to buy TV sets. It can't be a fear-driven response that just focuses

on getting service out to iPads or to turn iPads into glorified remote controls."

Along with providing a means of supporting live broadcasts to multiple devices the Genesis architecture can be used in conjunction with CDNs to streamline delivery of on-demand content in the multi-screen domain. Sezmi, which began as a U.S.-based provider of hybrid over-the-air pay TV and over-the-top video, has now become a global provider with a more flexible approach that relies on the Envivio encoding system to support multi-device services, says Sezmi CMO David Allred.

"We've built out our workflow and integrated their technology with ours," Allred says. "We can bring in live video and encode, encrypt and distribute it live or to our CDNs for delivery to any device. We control the middleware, front- and back-office systems and all the multi-screen components for getting service to iPhones, iPads, Androids, etc. What we're saying around the world is let us drop our platform in place and you can launch a revenue-generating hybrid service very quickly. It's a very appealing proposition in emerging markets."

Sezmi has embraced multiple approaches to supporting hybrid services where the source of content complementing OTT might be DTT (digital terrestrial television), satellite or even IPTV over a PON (passive optical network) infrastructure. "We started out with a DTT-plus-broadband model, but we learned that around the world not everybody is delivering TV services via DTT," Allred says.

"In the Middle East we had an opportunity to bundle satellite offerings with OTT," he adds. "In Malaysia we're working with a DVB-based system, and in Mexico we're bundling OTT with live multicast IPTV

delivered over PON." In the last case, the contract is with broadcaster Grupo Salinas, which is also engaging Sezmi for hybrid service delivery with its direct-to-air and Web-subscription business units.

The opportunity is huge given the percentages of people who are not subscribing to pay TV services in some markets. "In many markets outside the U.S. 60 percent of users are taking free over-the-air TV and the rest are buying very expensive satellite service," Allred says. "That's why the notion of the hybrid model has become very effective in a lot of emerging economies."

Domestically Sezmi has altered its original broadcast station-centric approach owing to broadcasters' reluctance to devote available spectrum to delivering pay TV services. "Our basic business model now is to license our technology with a professional services component and some recurring cost element based on subscriber growth," he says. The company is negotiating with unnamed ISPs that may use Sezmi's system to launch OTT subscription services that could extend nationwide.

How big a threat the use of platforms like Sezmi's in conjunction with advanced streaming and CDN architectures will become to established service providers could depend on how aggressively the operators embrace the new IP distribution capabilities. Indeed, says Edgeware's Potter, the flexibility of the Edgeware platform to scale IP distribution capacity as needed opens an opportunity for service providers to generate wholesale revenue from OTT suppliers while cutting the costs of providing backhaul support for broadband streams.

"The backhaul costs are enormous for big telcos," Potter says. "Those costs will be reduced if you can place a lot of the

content at the edge and scale the transcoding infrastructure by abstracting more encoding pieces to the edge."

And there's a revenue side to it as well. In one analysis for a European telco factoring in the savings in backhaul costs and any revenue benefits from creating a CDN architecture, Edgeware assumed the operator would be able to sell CDN services to just ten percent of the OTT content providers using the network. "We then asked how long it would take to get to ROI on the CDN investment," Potter says. "The answer was three and a half months."

In another interesting variation on how service providers might make profitable use of the Edgeware platform, KPN, after building out the Edgeware VDN infrastructure to support its IPTV services, determined it wanted to offer an unmanaged OTT service on a separate VDN infrastructure. "They didn't need the full capacity of our 20 gigabyte product all the time, but they needed to accommodate peak usage periods for soccer games and other popular events," Potter says.

"We sold a license for regular five gig usage on the 20-gig product and charge them for the higher levels on a usage basis," he adds. "This way they can cost justify the CDN while avoiding having to cap the number of tickets sold for a Saturday soccer match."

With microcharging for event purchases online and much else via cell phones now commonplace as a replacement to the use of credit cards in Europe, the need for support for "very peaking behavior" is well established in the international market. "It will be interesting to see what happens here in the U.S. as service providers take advantage of OTT delivery to compete effectively," Potter says. **<**