Three Perspectives on Multiscreen Service Provision

By Stephen Hardy
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Whether they like it or not, cable operators now face a mandate from their subscribers: Deliver my content on whichever screen I want it, whenever I want it. The fulfillment of this demand, of course, poses several challenges that affect all aspects of a service provider’s operations, from the back office to the customer premises.

Having already treated the tricky aspects of ad insertion in a multiscreen environment in last July’s Special Report (download “Dynamic Ad Insertion Extends Monetization Opportunities” to read up on the topic), this month we’ll look at three other operational elements that must evolve to support multiscreen service delivery: the content delivery network (CDN), the BSS/OSS environment, and quality of experience (QoE) assurance.

Streamlining the CDN

Before operators can support multiscreen services, they must ensure the foundational elements of their operations, such as their CDNs, have the necessary capabilities. Given the strong demand for multiscreen, you would think that cable operators could expect a quick return on their CDN upgrade investment. But that’s not the case, according to Frank Childs, who is involved in product marketing for carrier

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The number of devices from which customers will want to access content and control services is only expected to grow. This trend puts tremendous pressure of cable operators to keep up.
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and cloud networking at CDN technology provider Akamai.

“I think the major challenge is that there’s not necessarily incremental revenue associated with multiscreen. It’s more of a way to prevent churn, which is obviously very important,” Childs says. “But as they’re investing in these technologies, what’s the business model associated with it? It’s to (1) make sure you don’t churn and (2) make sure you preserve and even grow the revenues associated with the broadband business.”

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Thus, operators might be tempted to look for the lowest-cost approach toward supporting multiscreen. But while cost is obviously a key factor, making a choice based on initial cost alone would only address the first of Childs’s two business model goals. To address the second, Childs says that operators have begun to look at multiscreen video service provision in a larger context.

“If you look at what most MSOs are going through, in the video aspect of their business, the margins are being squeezed and the growth is coming from the network services,” Childs explains. “So where the investment goes should be in the area that provides the richest margins and the highest growth. And so rather than investing in a do-it-yourself approach on the video side for the next generation of multiscreen, they’re taking a partnership approach.”

That partnership approach not only helps reduce the cost of supporting multiscreen, but also can help operators achieve the second business goal by enabling them to use the enhancement of their CDN’s multiscreen features as a pathway toward more efficient, IP-based transport.

Childs reports that some cable MSOs are using multiscreen services to establish a beachhead on IP service provision. As they have success with multiscreen, they then can expand their IP transmission investment and port other services into the digital domain.

“People who have launched the first generation of multiscreen, have seen some growth, have seen some take-up, have seen some opportunity; now they say, ‘How do I get my VOD infrastructure over to this model so I can start the reduction of proprietary VOD steamers that I might invest in? And then how do I get to a linear sort of distribution so that they can converge on what would be an all-IP broadcast model?’” Childs explains. “That will take time. But it starts with multiscreen. it starts with a smaller investment, and as it grows, they look to take other distribution models and put them to a like infrastructure.”

While the partnership model naturally would appeal to companies such as Akamai, Childs admits that cable operators generally want more direct control of their CDN than other client groups. Thus, while the original rollout of multiscreen might heavily depend on Akamai’s CDN platform, the convergence he describes generally sees operators deploying technologies and platforms they own.
Meanwhile, Back in the Back Office

Not surprisingly, multiscreen support adds yet another layer of complexity to business support systems and operational support systems (BSS/OSS). Authentication, for example, clearly becomes a greater challenge; whereas a customer could be easily identified because he or she was accessing content via the set-top box, now customers can access content via devices the service provider didn’t supply, point out Ari Banerjee, senior director, strategy, and Kirk George, director, strategy, at BSS/OSS supplier NetCracker Technology. Similarly, while an entire family once shared a single set of services via that set-top box, each family member now may have their own (different) plan they access through the same WiFi router.

In addition to wanting content on each device they own, customers also want to be able to change service mix with just as much flexibility, Banerjee points out. And those services may not come directly from the operator, but from a company with which the operator has partnered. These partners may include over-the-top (OTT) video content providers as well as those offering value-added services such as home security.

This trend will mean a significant change in the way operators will deliver most services, George believes. “You’re going to see the cable [user interface] and all those services delivered as an app. The home set-top box is going to go away. They’re going to let the consumer pick the device they want and you load your service on that.”

And the variety of potential devices that the BSS/OSS must support and interface with is growing. “It’s not just self-service; it’s self-service in so many different formats,” Banerjee points out. “It is the Web, it is your television set, it is your Xbox terminal, it is your tablet, it’s your handset, it is your smart devices, you name it.” And that means a wider array of CDNs and other content generation and support platforms the BSS/OSS must interface with as well.

Thus operators must move from a more traditional structure for the BSS/OSS to one that supports more of an e-commerce approach and all that entails, not just in terms of the user interface but also the support infrastructure behind it. Customers will want to access services via portals rather than call centers, and will want new services to begin immediately. This means quicker turnaround for billing, provisioning, and a host of other functions. Lowering latency is a key here, Banerjee points out.

“The platforms that they’re using today or before for traditional linear TV are going to have to be modernized to support those approaches to ordering,” George asserts.
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For most operators, this means partnering with their BSS/OSS provider to create a customized e-commerce engine that runs in parallel with their more traditional setup, say the NetCracker sources. “It will be on a staged basis,” George says. “And what I mean by that is maybe they get a framework or a platform that they can put their existing BSS and OSS on and start to run something else in parallel that they can add pieces to.”

Thus, as this new approach becomes more successful and stable, operators can then move additional services and customers onto the e-commerce platform. This evolutionary approach minimizes risk and promotes success-based investment. However, an open architecture that fully supports such step-function improvements is essential, the NetCracker sources say. Scalability complements this approach as well, they add.

**Ensuring a Good Experience**

Of course, while cable operators race to support multiscreen, their competitors are doing the same thing. A first-to-market position likely won’t last long. Thus, the differentiator among competitors will shift from whether an operator offers multiscreen to which operator does it better.

The challenge here, says Kumar Subramanian, CEO of QoE technology supplier MediaMelon, is that many aspects of the experience are beyond the operator’s control. These factors include potential sources of WiFi interference, which devices are in use, how many of them are in use, and how far away they are from the wireless network.

While in some ways the multiscreen phenomenon offers a blank slate to cable operators, most have focused on video on demand.
router or hotspot. In the case of OTT content, the service provider may have no control of the content’s original quality as well. Operators also need to know how the services are performing before the customer complains – or switches to a competitor.

Subramanian says that operators have three avenues available to them to solve this dilemma:

Add more network capacity: This brute force approach can take many forms, from switching to an all-fiber network to adding servers, routers, and CDN nodes. This tactic is fine, but expensive and also limited if the whole network can’t be upgraded, Subramanian points out.

Switch to new compression and codec technology: This also can be expensive and require additional changes to the network, according to Subramanian.

A “lighter touch approach,” in the words of Subramanian: Make service delivery more efficient, particularly in terms of how content is switched across different routes and networks. Additional processing of video content to improve streaming quality that doesn’t involve the investment inherent in Option 2 can add an effective element to this lighter approach as well. With the right video processing technology, operators can ensure their content does not dip below a mean opinion score (MOS) of 3.

The key, says Subramanian, is to use the available bandwidth with maximum efficiency to support the different requirements of the different screens. These challenges will become even more acute as operators move to 4K and HDR, as well as 8K down the road. As long as operators continue to use multiple networks (as they sometimes must if a customer is accessing content while traveling), being able to switch content efficiently across these networks also will remain an important goal.

As we can see, supporting multiscreen is important, but challenging. Operators must balance the need to meet customer requirements and competitive threats quickly while ensuring they can take an evolutionary approach to the various challenges.

Stephen Hardy is editorial director of Broadband Technology Report.