FLIPPING OVER HD SYNDICATED SHOWS
The move to eliminate transcoding of HD syndicated shows from cache to playout server advances the HDTV transition
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HAMILTON, N.J.
In the HD domain, where digital video files are five times larger than SD, "flipping" HD syndicated shows from the station's cache server onto the playout server has been a time-consuming bottleneck.

This is because delivery services, such as Pathfire and DG FastChannel—recently merged into one company—have traditionally delivered their content to cache servers using MPEG-2 compression and media wrappers that couldn't necessarily be directly imported into the various flavors of play-to-air video servers the stations are using.

Until now, this caused broadcasters to resort to third party transcoding engines, like the Telestream FlipFactory, to convert those files into formats their playout servers would support. Since this transcoding job can take up to three hours for each half-hour HD show, it quickly becomes an unwieldy proposition for any station carrying a lot of syndicated programming.

ELIMINATING BOTTLENECKS
Besides transcoding the files, all of the metadata provided by the syndicators and passed along by the delivery services must be picked up by the station's automation software in order for the broadcast workflow to be automated.

This metadata carries essential data regarding the start and end points of each program segment and the exact run-times for each segment in the HD show. If the automation software can't grab and use this metadata, the station must have an operator sit there and watch each show to determine the in/out points and segment run times—another time-consuming bottleneck for stations carrying a lot of syndicated shows.

"At Pathfire, our product approach, especially with HD, is to minimize the time required to transfer HD files into a station's workflow---and we're spending a lot of time working with the industry's server and transcoding vendors to make this happen," said Michael Connell, broadcast product manager for Pathfire, in Roswell, Ga. Pathfire, which was acquired by DG FastChannel in June 2007, delivers programming content, while DG FastChannel delivers commercials, so the two product lines are complementary.

"The industry is right now at the edge of transitioning to the distribution of syndicated content in HD. This year, Warner Bros. began distributing the sitcom 'Two and a Half Men' in HD via Pathfire; but we expect more shows to transition [to HD syndication] in

2008," Connell said. "We're working with manufacturers of server, automation, and news editing systems to implement our 'Direct Connect' interface which provides a mechanism by which to accept HD content and metadata directly from our cache servers. This reduces the time to transfer shows to less than realtime and is a large key to stations' ability to handle more HD programming."

One server maker that has already incorporated Pathfire's Direct Connect support within its Media Fire server is Digital Broadcast of Gainesville, Fla. And this Direct Connect-enabled server is now in use at seven television stations within the Communications Corporation of America station group to manage and air HD content.

THOMSON K2 CAPTURE SERVICE
Thomson engineers have also been working closely with Pathfire and DG FastChannel engineers and the result is the new Thomson Grass Valley K2 Capture Service. This new software product, Version 3.2.6x of Thomson Grass Valley K2 software (released in December 2007), enables the Thomson Grass Valley K2 Media Server to initiate and manage HD file transfers from Pathfire and DG cache servers. By NAB 2008, Thomson intends to have an SD version available as well.

According to Charlie Dunn, director of server and playout product management for Thomson Grass Valley, in Beaverton, Ore, "With this file-based HD workflow, users can see speeds of five to ten times faster than realtime, compared to conventional transcoding methods that are two times longer than realtime. Now a 30 minute HD show can move across in just three minutes versus the hour it used to take."

"This new software has gotten a lot of media attention and as a result, we've gotten a lot of interest from broadcasters that see an immediate need for this solution," said Dunn. Dunn added that they had three beta-testers, including Tribune Company, a major station group based in Chicago, Ill. While Tribune's Ira Goldstone gave the product a positive review, Tribune has since decided not to purchase it at this time. Instead they are using a customized solution. At press-time, there were also three or four additional broadcasters planning to be among the first to buy the solution once it was formally released in December 2007.

HD FLOOD WATCH
At WHDH-DT and WLVI-DT, sister stations in Boston, Mass., Jim Shultis, director of engineering agreed that resolving these HD workflow issues would advance the transition to HDTV.

"When these workflow issues are finally resolved, it will be like a dam breaking and the market will be flooded with HD syndicated shows," said Shultis. "Most syndicated shows are shot on 35mm film or hidef tape, so it's a natural progression to distribute them in HD. Since syndicators want their shows to be appealing to viewers, it only makes sense they will push in this direction."

"I really think it's going to snowball in early 2008 because we're roughly a year away from the February 2009 analog shut off date," said Shultis.

As a CW affiliate, WLVI airs 16 hours of syndicated programming per day so having an automated solution is critical. WLVI has been experimenting with flipping "Two and a Half Men onto its Avid Media Stream 8000 playout server.

WLVI uses the Harris H-Class ADC playout automation system and Shultis said that Harris has been working closely with Pathfire and Telestream to find a way to automate flipping HD shows from the cache server to the playout server simply by changing the media wrappers. Telestream's Flip Factory is at the heart of Harris' Automated Ingest software which targets this problem.

"I believe that Harris is very close to offering us a software fix that enables us to just change the media wrapper on HD shows. This would streamline the flip into our playout server which would be able to play it out without artifacts, such as video jitter," said Shultis. The HD version of this new Harris software is expected to be released in late January 2008.

"Harris ADC Automated Ingest grabs and preserves all the metadata as the show is flipped so we don't need to have an operator figure out the start and end points and run times for each segment—another big timesaver. Metadata is the key to managing this workflow in an automated fashion."

Shultis added that in the near future, they also want to accept and air HD commercials, and Harris Automated Ingest solution will enable them to flip HD commercials quickly and accurately.

TURNING TO FLIPFACTORY
If the program files are delivered to the station's cache server in the right bitrate, format, and resolution that the station needs to air, flipping that show can be as easy as changing the media wrapper.

But, according to Anna Greco, director of product marketing for Telestream, Inc, in Nevada City, Nev., if the program is not delivered in the correct bitrate, format, and resolution, then transcoding is necessary. Transcoding would be necessary if, for example, a 1080i file was delivered to a station that needs to air 720p.

"Transcoding has become somewhat of a commodity since there are many products that perform that function," said Greco. "The value that FlipFactory brings is our system also manages the ancillary data, such as metadata, audio, closed captioning, and other elements that enabled a fully automated workflow. FlipFactory serves as a bridge between the cache and playout servers and manages an automated workflow between the two."

Since the broadcast environment is a hybrid mix of SD and HD formats, Greco said that the transcoding step will still be necessary in cases of format incompatibility. "Our engineers are working diligently to find ways to speed up the transcoding process. We believe that in the next six months, quad core CPU processing within the server platforms will make transcoding faster than realtime, and we intend to take advantage of this hardware advancement." Telestream engineers are working closely with Pathfire, DG FastChannel, and VYVX (which distributes commercials), as well as Harris.

RAYCOM MEDIA: COMPLEX ISSUES
At Raycom Media, a large station group based in Montgomery, Ala., Chief Technology Officer David Folsom said that for local stations, the delivery and broadcast of HD syndicated shows is very complex. He cited several key factors, including the lack of industry standards, the cost of satellite transmission, the lack of adequate facilities to handle HD syndicated shows at the stations; and the HD audience for syndicated shows is still relatively small.

"Inevitably, we'll all be accepting and airing HD syndicated programming. But at this moment, it has been a bottleneck, and it continues to be one. There has not been any solution," said Folsom. "Different segments of the industry are progressing at different rates because some programs, such as primetime and sports, benefit more than others."

Folsom named "Wheel of Fortune" and "Jeopardy" as two shows that are provided in both HD and SD by their syndicator King World. "They're both fairly popular shows in primetime access, but not every station takes them in HD," said Folsom. "We need manufacturers to make [it] relatively easy to flip HD material from one piece of equipment to another. In most locations, we're still a ways away from it happening."

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