

Blackout and Program Substitution

Case Study

The problem: program conflicts

As more providers transition to centralization of their network infrastructure, and as consolidation of cable systems increase, headends are increasingly playing the role of traffic cop. There are two trends at play here:

1. First of all, more and more IP sources are being routed around the network
2. Secondly, more and more headends are consolidating.

So the headend now finds it has to control the airing of certain programs through certain channels at designated times of the day. That means enforcing the syndication and licensing agreements that are attached to a specific program in order to avoid program duplication, or accidental airing of unlicensed programming on the wrong channel.

Retransmission agreements create issues for cable providers. The overlap in services creates network duplication issues that must be addressed. Certain markets are also not allowed to air certain programs without proper rights. Certain sporting events are only allowed to be seen in certain markets.

To complicate matters, Managers very often contact their Engineers asking if they can black out the channels based on a schedule - and often this request comes late. Splicers have historically addressed this problem, but are frequently cumbersome and manual.

All these issues create the need to manage blackout and program substitution.

The solution: IP switching

The problem may be complicated, but the solution can be simple: native IP switching - which eliminates the need for splicers. With the proper scheduling tools, you set the switches to a hands-off, automated schedule. And you would program the input to these time blocks based on IP addresses.

Native IP switching is a feature of the [TelVue HyperCaster](#)[®], our flagship IP broadcast server. The HyperCaster video server has IP StreamThru™, which is like having an IP matrix right in your broadcast server. The HyperCaster can rebroadcast another IP video stream either on schedule or as default continuity.

One of the primary uses of the HyperCaster in the cable and IPTV environment is as a blackout server. Other applications include channel substitution or channel swapping, CG replacement, IP matrix switching. It can also be used for straightforward program substitution.

Any number of incoming (ingress) network channels (SPTS MPEG-2TS in multicast, unicast, or SSM) originating from a groomer or from IP encoders can be scheduled and "grabbed" by the server. From 1-20 channels (or 200Mbps) can be played out. The server essentially acts like an IP Matrix Switcher with clean splices

between transitions.

If given a schedule or even for last-minute events, blackouts can be easily set up and started. For large-scale blackout of regional or national events, a traffic system can be used to schedule stream event "ID's".

Switching a Live Event

Here's how you would use IP StreamThru™ to switch live events.

Both a local and out-of-market feed can sit on the input side of the HyperCaster server. These feeds can originate as Single Program Transport Streams, from IP encoders or from a multiplexer on the network.

You can automatically upload the schedule to the HyperCaster. (Charter uses these). The video would switch to the local feed whenever required - based upon the schedule.

What follows is an overview of what the cable operators have to deal with as far as network non-duplication and syndicated programming exclusivity.

Let's say that a cable network has conflicts in the same given market. For example, a Fox affiliate in one market may overlap with another Fox system in the same market. This occurs as cable providers collapse their legacy headends and support more centralized headends, as Time Warner has been doing.

If a cable system were to carry two different ABC affiliates, generally speaking one of those two would be the designated affiliate for that market. They can, if they choose to, force the cable system to comply with network non-duplication language in their contract, and send a certified letter with the specific network programming that they are concerned with. The letter spells out specifically what the program is, the day of the week that it airs, as well as the time of day.

Here's how you would solve this particular problem with a HyperCaster:

1. Set the HyperCaster inputs to grab the multicast from Affiliate A to broadcast over Affiliate B - the affected channel - at the scheduled time.
2. When the program is over, both channels play normally
3. In this case, the HyperCaster acts like a splicer
4. You can also schedule video slates from the HyperCaster for blackouts, like for certain sports programs

In the non-dupe scenario above, here's how the operator would set the switch: The Affiliate A might normally have a multicast address, let's say, of 239.1.1.12. If one of their enforcement periods was Friday night from 8 to 10 pm, in their management software, they would set Affiliate A's multicast address to change to, say 239.1.1.99, the address of their CG, for that two hour period on Fridays.

Here's a quick run-through of how to make the switch in your HyperCaster interface.

1. First you would add the stream source through the Config panel. Under Feeds, click on Live Streams, and you get this form to fill out.
2. From the pulldown, choose Unicast, Multicast, or Source-specific Multicast. What you see here is the "Source-Specific Multicast" form. You'll need to enter

a name for this feed, the addresses, and an IP port - usually a higher port, not used by anything else.

3. You want to set your maximum bitrate to insure that your stream source is in line with downstream expectations.
4. Add this, and the HyperCaster now recognizes your source as a Live Stream source.
5. Then you can navigate over to your Dashboard, to assign the live stream as continuity.
6. Pick a channel, check the box to enable continuity, and then you'll see the feed we chose as an option for continuity feed.

Switching on a Schedule

If you want to switch feeds on a set schedule, these are the steps to follow:

1. Navigate over to your Programming tab. You'll see an option to "Add Stream Event". Click on that, and it opens a window that allows you to schedule this live stream event, much as you would schedule any other video in your HyperCaster.
2. Choose your channel, choose your feed, fill in duration, and start time. If it recurs on a regularly scheduled basis, you set those parameters here too. And on the right, you have the option of including this information in your Program Guide.
3. Save all this information, and your HyperCaster will take care of the switch when you need it. No need for any more manual intervention.

Program Substitution

In the case of syndicated exclusivity, if the cable system carries a CW affiliate for example, they may exercise their rights to syndicated exclusivity by sending the cable provider a certified letter stating that they have exclusive rights to certain syndicated programming. They claim their rights to syndicated exclusivity, and it is up to the cable provider as operators to find all episodes of the syndicated programming on any other station that they carry and block it, regardless of date or time.

Like the non-dupe scenario we just looked at, this one also contains a start and end date for the enforcement period. So if the designated ABC affiliate is on channel 5, and the "out of market" ABC is on channel 12, network non-dupe requires that I need to be able to redirect channel 12 to either a blank screen, or preferably a CG screen with some sort of interrupt message on it, for the dates and times that channel 5 mandates.

In this syndicated exclusivity scenario, if the CW affiliate on a channel 4 claims exclusivity on a certain program, the cable provider needs to seek out all instances of that program or series, regardless of what channel they are on, and redirect those channels to a blank or CG screen for the duration of that particular episode.

In this case the HyperCaster itself stores alternate programs or video slates. These are scheduled via StreamThru switching, to play when needed. While you are still grabbing the multicast stream of the event – say a sporting event – the HyperCaster acts like a CG replacement. The Video Slates or substitute programs play over the event for the scheduled duration. The HyperCaster then switches back to the programming source when the blackout period is over.

A virtually identical workflow can be used for program substitution, as in the case where an operator would want to cut over to locally-produced events, news cut-ins, or local sports.

More about the HyperCaster

This is why the HyperCaster, with its native IP switching functions, is an ideal solution for the increasingly common requirement for blackout and program substitution. Besides the IP StreamThru feature described above, these are some of the main features of the B1000 model HyperCaster IP Broadcast Server:

- Supports up to 20 SD or HD channels in a single rack unit, in MPEG-2 Transport with MPEG-2 and optional H.264 video codecs.
- The server supports CableLabs® and ATSC standards. The HyperCaster features IP switching and capture capabilities, which are key to the program substitution issues.
- The HyperCaster has a user-friendly content management and scheduling system, via CCMS
- The broadcast automation application includes categorization, search, and drag-and-drop uploading.
- Content is also scheduled via this versatile and powerful drag and drop interface. The server can publish a searchable program guide for your website or provide schedule data to 3rd party guide services.
- It integrates with most Traffic and Billing and middleware systems
- The server also can pass PID or remap PID's for detection by downstream devices.
- The unit's native IP over Gigabit Ethernet interface can be easily integrated with any copper or fiber IP network architecture. The output can also be used by industry standard IP-to- QAM modulators.
- The HyperCaster runs on Linux, on solid state drive, and is available with up to 5-point-5 TB RAID.
- It comes with a Redundant Power option. The IP origination capability of the server enables file-based workflows and all-digital outputs; eliminating costly, per channel real-time encoders while maintaining your content's original quality.

For more information on the TelVue HyperCaster or any of the other TelVue hardware, software, or cloud-based broadcasting solutions, please visit www.telvue.com, and contact a TelVue sales representative at 800-885-8886 or email sales@telvue.com.



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