How The Analog Sunset Will Affect You

And how you can prepare for the changes it will bring.

////// By John Laughlin

Is it an opportunity to improve corporate and educational communications, or a disaster for existing AV systems?

The "analog sunset," the coming obsolescence of analog high definition devices, has been called both.

Precisely defined, the term 'analog sunset' refers to an important part of the Advanced Access Content System, or AACS license agreement adopted by content owners and device manufacturers to protect movies and other consumer media on Blu-ray discs and certain other sources from illegal copying.

Less precisely, it refers to the ongoing demise of analog connections—VGA and component video—on laptops, Blu-ray players, flat-panel monitors, projectors and other source, switching and display devices.

One problem is that exactly what's going to happen is a little unclear, and it's also unclear how it will affect commercial and educational AV systems.

THE ANALOG SUNSET AND CONSUMER MEDIA

What we know for sure is that the movie industry and other content owners have worked to restrict the analog video outputs on Blu-ray players, worried that an analog signal path makes it too easy to get around HDCP copy protection and illegally duplicate high-definition media. These changes may or may not affect other devices as well.

Content owners have succeeded in pushing through three industry changes:

1. Licensed manufacturers can no longer introduce any new Blu-ray model with an analog output offering a signal of higher resolution than S-video or 480i digital video (or, in PAL and SECAM countries, 576i).

2. Existing Blu-ray players with high-definition analog outputs may no longer be manufactured or sold after December 31, 2013.

3. As of January 1 of this year, content providers are allowed to embed a bit of code in their media which will prevent it from being played on analog systems. This code can take two forms. They may opt for an "Image Constraint Token" (ICT) which will constrain ICT-labeled Blu-ray disks from displaying high-definition images on older players connected to a display with an analog (that is, a component) output. If you play one of these discs, the resolution will drop down to 704 x 480 pixels. They may also opt to embed a "Digital Only Token" (DOT) which will prevent the player from showing any image at all if it is connected via an analog output.

In addition, content providers can embed either kind of token into first-run movies to be played over cable or satellite video-on-demand services for the first 90 days after their release. And movies and other HD content on online services, such as iTunes or VUDU, could be embedded with these tokens.

All of this means that, if you need to show mov-

ies or certain other commercial media on your AV system, you may not be able to do so if the copyright owner decides to employ an ICT or DOT to prevent you. On the other hand, these changes will have no effect at all on in-house video or computer productions, on broadcast or cable news or other TV programming. The FCC has specifically prohibited the disabling of analog outputs on cable and satellite set-top boxes for general programming.

So you will be able to watch the NBA playoffs in your boardroom if you choose, although perhaps not a Blu-ray highlights disc of your team's championship season.

ANALOG SUNSET

- The conversion to digital broadcasting took effect in 2009.
- The end of 2012 marks the full analog sunset where all pro-AV products will be available only in digital format.
- There are a significant number of analog products in existence that continue to be serviced. As the analog sunset approaches, these products will have to be replaced.
- In 2009, this trend is not a major driver of product sales, but as the analog sunset approaches AV professionals anticipate that it will be an increasingly significant factor that will drive product sales.

Courtesy of InfoComm International

THE ANALOG SUNSET AND PROFESSIONAL MEDIA

There's another side to this issue. HDMI and DisplayPort are becoming the computer and video standards, and it's getting harder and harder to buy a laptop or a digital video device with a VGA or component output. On December 8th, Intel, Dell, Samsung, AMD, and Lenovo jointly announced that they would end inclusion of or support for VGA on their chipsets, computers and displays—with some of these companies ending support in 2013, others as late as 2015.

Some of our customers have also begun to bump into a problem caused by EDID, or "extended display identification data." EDID is designed to enable a digital device to know what kind of display is connected and supply the best possible signal. A laptop with a 1280 x 1024 screen built in might, for example, output a 1920 x 1200 video signal when connected to a large-screen display that supports it. As helpful as EDID can be, if for whatever reason the external display does not provide EDID information, you will get no image at all.

This can be especially problematic because some new video drivers require an EDID handshake even when you connect with a VGA connection. A guest presenter might walk into your conference room with a laptop and, even if it's an older unit with a VGA output, if you're not prepared there may be no way you can get it to show an image on your projection screen.

WHAT TO DO

If you're installing a new AV system in your facility, the best and safest course is to build an all-digital system, using digital cabling, switchers, and other infrastructure. For smaller systems, it can make sense to use HDMI input boxes, cables and switchers. For larger systems, especially those requiring long cable runs or matrix switching, HDMI can be difficult and expensive to work with. You need a system that will not only transport and switch the signals, but manage EDID and HDCP copy protection across multiple devices and displays.

The cable platform that you install, and its bandwidth, will be crucial to the long-term life of your system. At CTI, we recommend pulling category-type cable or fiber for most new installations. A dual-cable Cat5e system or Crestron's proprietary DigitalMedia cable each provide roughly four gigabits/second bandwidth. Crestron also offers an 8-gigabit DigitalMedia cable, and multi-mode fiber optics at least 10 gig, although that depends on the type of fiber. Any of these schemes will support uncompressed 1080p video and audio, but, given the ongoing increases we've been seeing in color depth (as well as resolution), you may want to consider an 8-10 gig system. That's especially true if you intend to use the same infrastructure for more than five or six years.

info
CRESTRON
crestron.com
EXTRON
extron.com
KRAMER
kramer.com
VUDU
vudu.com

It's important to make sure that a new digital system can handle analog sources, especially VGA, component video, and S-video. VGA laptops will be around for several more years, and most of today's document cameras, satellite and cable TV receivers, DVD players and cameras still include only analog outputs. On the digital side, HDMI, DVI, and DisplayPort are all based on the TMDS standard and can easily be adapted from one to another, so HDMI-compatible cables and switchers will handle any of them. In can also be helpful to be able to accept SDI inputs, especially if you work in the video production or medical industries. It's a good idea to choose card-based switchers that can be upgraded easily should standards change.

If you own an analog system, there are several work-arounds that can keep it compatible with digital-only laptops and other devices.

Kramer and other companies offer EDID emulators which will allow you plug a new digital or analog laptop into your system and get a clean video signal. Extron and Kramer offer HDMI to RGB and RGB to HDMI converters to allow you to use new sources and displays with older systems.

Although they are not HDCP compliant, these solutions work well enough that installing a new analog system can make sense, depending on your budget, your requirements and the longevity you expect from your system. The fact is that an all-digital system can cost significantly more, so you'll need to consider the trade-off between cost and functionality.

We do recommend that customers who elect to stay within an analog environment opt for a 'medium neutral' cable plan using either category cable or fiber. With that in place, an upgrade to a digital system may still require new switchers and other infrastructure components, but it will be far less expensive than pulling new cable.

John Laughlin, CTS, is President and CEO of Conference Technologies, Inc., a provider of audio-visual design, integration, digital signage, rental solutions, and technical service support, with nine offices throughout the United States.

moreonline

This white paper discusses and clarifies the issues surrounding the analog sunset and the implications for Blu-ray Disc players and commercially pre-recorded Blu-ray Discs. The paper also discusses cases where, especially for professional AV applications, the provisions of the analog sunset do not apply. Visit avtechnologyonline.com/april11