

Introducing Gravity™ from SSL: An Integrated News Production and Media Asset Management System



Perhaps no segment of video production is as impacted by new technologies as cable and network television news. The latest options for content acquisition, media management and publishing, combined with an expanded spectrum of distribution channels, codecs, and formats, continue to evolve the art, science, and business of producing content for network news. In the midst of this changing, and often confusing, landscape, how does a news organization identify and select a new file-based production and media management system that delivers a “total solution” for present operations, and for the future?

DEFINING THE PROBLEM

The demands of running a news service are unique. Ready access to live material, and the ability for many geographically scattered users to have simultaneous access to that material, is mandatory. The expanding role of remote collaborative production, and the increased availability of high-definition video, makes Web-enabled, proxy-based access to content at low bandwidth an essential element of production workflow. News teams also want a straightforward, easy-to-learn interface that enhances common tasks, such as quick production editing. To maintain the breakneck pace, the new production system must integrate

quickly and smoothly with existing newsroom software and distribution systems. Ideally, this integration should be so seamless that it feels to users as if all production tasks were now controllable through a single interface for media and metadata manipulation and distribution.

Another critical criterion for this new system involves the teams of reporters, producers, editors, and technical staff who would be using it on a daily basis in a high-pressure environment. To be successful, this system must significantly improve productivity via a flexible workflow that helps, not hinders, these users.

Obviously great care is needed when evaluating any such production system. Selecting the wrong system is not only costly to remedy, but it could set back operations for years to come.

EVALUATING THE SOLUTION

A news organization first needs to evaluate the competing vendors' system build-outs and user interfaces. In their evaluation, they should determine system component connectivity and physical size, ensuring that the systems in question not only provide capable segments of operation, but also answer such vital questions:

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EVALUATING THE SOLUTION (CONT.)

- ✓ Can the system architecture readily accommodate expansion?
- ✓ Is the hardware platform standard PC-based or is it proprietary?
- ✓ Is the software based on open standards?
- ✓ Does the feature set improve operational workflow?
- ✓ How configurable is the software to the users' specific and perhaps unique operational requirements?
- ✓ How scalable and modular are the various functional components?
- ✓ Are the features well integrated into the user interface to allow for minimum workstations, windows, menus and keystrokes?
- ✓ Can the entire system be made to be robust and redundant and with no single point of failure?
- ✓ In the event of failure, how seamless is the switch over to backup?
- ✓ How easy is system upgrading?

HOW THE WORLD'S LEADING AUDIO COMPANY NOW ALSO HAS THE FASTEST NEWS VIDEO PRODUCTION SYSTEM

While Solid State Logic has been the premier designer of audio solutions for television and music production for over 30 years, its history in video solutions is also rich. This history has its genesis in 1985 when SSL introduced Screen Sound, one of the first non-linear disk-based editors for audio post-production. Recognizing the need for an equally powerful disk-based video solution to complement Screen Sound, SSL developed Vision Trac, one of the industry's first non-linear video editing platforms. To enhance the Vision Trac user experience, SSL engineers created and patented the world's first scene detection technology based on video compression techniques.

Leveraging these products and technologies, SSL entered the video production/asset management

market place in 2005 with the goal of creating a compelling solution for broadcast news organizations. SSL began by hiring the industry's top engineers: people who were eager for the challenge of developing a new and better method for producing and managing broadcast news content. SSL's Broadcast Vision unit now includes over thirty staff engineering and customer support specialists complemented by a network of consultants. This rapid expansion is part of our company's commitment to supplying the best in networked video solutions to our growing customer roster.

Using our team's broad industry experience with news workflows and feature requirements as a launching point, we've invested heavily in research and development, merging a number of established core technologies such as XML, MOS, Ethernet, SQL, .Net, - to name just a few - with proprietary new technologies and innovations. The result, we believe, is a breakthrough news production and media asset management platform that truly "pulls together" and unifies every element of the modern news production workflow. Appropriately, we've named this system Gravity™.

To illustrate just how the Gravity™ System from Solid State Logic compares with the current generation of production media/asset management solutions, let's examine the compelling advantages this system offers in these prime solution areas: system architecture, redundancy, acquisition, access, editing, asset management, monitoring, integration, remote operations, and upgradability.

SYSTEM ARCHITECTURE

An important consideration in selecting a system is its architecture. Gravity is designed on an open standards-based PC architecture with scalable and user configurable GUIs.

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SYSTEM ARCHITECTURE (CONT.)

User workstations, encoders, storage, transcoders, decoders, and servers, may grow from one to literally hundreds in single incremental units. These components can reside either locally, or distributed in remote locations around the world. The user may specify any number of levels and hierarchy of access security for the entire system. Content storage can grow to virtually unlimited capacity and can be designed to varying levels of redundancy.

REDUNDANCY

In a typical news operation, downtime is not tolerable for even one second. The production and media management system must therefore provide robust reliability. Gravity has been designed with the architectural flexibility and connectivity to meet this stringent requirement. Because the Gravity system can be configured to eliminate any single point of failure, it can automatically and seamlessly switch to back-up mode without interruption. Gravity's Media Manager regularly checks all system components and hardware for errors and warnings. If a failure occurs, Gravity will record it and notify all relevant parties. Gravity generates a printable database of all system status reports, right down to the temperature of the hardware. Gravity thus meets the most stringent reliability standards through its built-in hardware redundancy, powerful diagnostics and notification routines, and comprehensive but easy-to-understand system operations and maintenance monitoring.

ACQUISITION AND DISTRIBUTION

Content acquisition has become simultaneously easier and more difficult. The ease arises from the proliferation of content shot by anyone with a digital video camcorder. The difficulty arises from the multiple file formats, compression formats, and transmission methodologies used for file transfer

and live material. When an organization works concurrently with SD and HD, file-based and live, 16:9 and 4:3 aspect ratios, not to mention a slew of codecs, they need a system that can handle them all.

At most news organizations, content typically goes out to the world in SD, HD, and in several Internet streaming media formats and resolutions. With so many different video and file formats to contend with, a news production system must be prepared to instantly convert and transcode video to and from any format.

Gravity handles this diversity by simultaneously producing multiple file formats and resolutions all within a single video ingest process. Gravity can also simultaneously create multiple output video formats, seamlessly, without rendering. Users can store the high-resolution version while Gravity creates the proxy version for network-based access. All content ingested into Gravity, regardless of resolution, is simultaneously accessible for browsing, logging, monitoring, searching, and editing on the same timeline with the user specified output automatically determining the conversion requirements. Aspect formats are automatically converted, or not converted, depending on the user's needs. Thus a news organization can output an edited piece into virtually any number of formats, and resolutions, simultaneously and effortlessly. The savings in time, not to mention convenience, is significant. This functionality also lets users work in a format-transparent environment, with freedom to use all content easily and quickly. The content itself, rather than the format in which it was shot or encoded, once again becomes the driver.

ACCESS

Due to the "live" nature of the news business, immediate access to incoming video content is hugely (*continued on next page*)...

ACCESS (CONT.)

valuable to producers and editors. In this respect the Gravity system stands far above its competitors through access to incoming material being encoded within a few seconds of the start of the recording!

A user can be viewing and cutting footage that's virtually live, finishing the edit even before the live event being encoded has ended.

Interface simplicity and functional flexibility are also essential to getting material into a system quickly and accurately. Gravity excels in these areas through its built-in scheduler and asset manager. These tools provide a reactive (changeable on the fly) and graphical representation of all encoder status and router interfaces, including proxy signal monitoring. Creating scheduled encodes is now as simple as creating a business meeting in your calendar. Gravity can schedule single or multiple events as a "one time" or recurring encode at any time. Colored indicators give at-a-glance status of all encodes while displaying user-entered metadata on the evolving timescale. This display allows the user to clearly view and track the status of all existing and future encodes from a single monitoring station.

EDITING

In talking to editors, we learned that one of the things they appreciate most about editing software is its comfort in function. This characteristic of making edit operations easy, fast, and familiar, is central to the design of Gravity's Package Production Tool (PPT) editing function. The PPT offers flexibility in edit functions with immediate reach to the most essential functions. In addition to a customizable keyboard that lets editors assign their favorite editing functions to familiar keys, the PPT also offers an on-screen/monitor scrubbing function. Edit points can now be fine-tuned frame

accurately via a natural and tactile interface. Because all functions within Gravity are render-free and performed in real time, work can continue uninterrupted without waiting for saved projects to render. This speed is matched by a full-featured editing tool set that includes hundreds of real time video and audio transitions and filters, splice, slip, and slide functions, multiple video and audio tracks, and unlimited undo. Navigating available media is easy through Gravity's motion video "picons" (picture icons) and tabbed sections with deep sorting and quick search capabilities. Customizable relevant metadata are conveniently displayed on the editing interface, enabling real time tracking of scripts and content review for accuracy. The status of live, incoming video being encoded is viewable by all Gravity users at the same time. Producers and editors in various locations of the virtual global newsroom can now collaborate on the same content at the same time.

Another PPT function that newsrooms will deem essential is the tool's ability to seamlessly hand-off material to external craft editors for additional post-production work or transferal to distribution or archive systems. The finished piece can automatically be transcoded into a variety of video or compressed file formats simultaneously, enabling editors to drag and drop media into their workflows without having to first transcode. The user needs only to think about editing the material, not the technology of file formats and publishing requirements.

Because Gravity handles multiple, simultaneous, transcode operations in a background process that's totally transparent to the user, producers and editors don't have to wait their turn to get a high demand clips into their show. This simplified workflow allows program producers to create more stories - faster.

ASSET MANAGEMENT

The ability to manage and monitor the movement and status of vast quantities of media content is essential to efficient news operations. Gravity excels in these areas by leveraging its powerful SQL data base.

In addition to standard file IDs and user input fields, the project administrator can use Gravity's customizable readouts to track and report on the overall production status from file accessing, editing, and saved versions, to the published content. Customizable fields are also supported for enhanced integration into third party applications.

MONITORING

Another unique and particularly important Gravity function is its multi-view live monitoring. It's not uncommon to have a dozen or more incoming feeds, a half dozen on-location live shots, and an equal number of network packages all downlinking from the satellite at the same time. Engineers who've had to design and maintain complex monitoring and signal routing systems for such input loads will appreciate Gravity's single-point-of-monitoring-on-any-workstation advantage. Up to five independent and assignable video windows can display current live encoding or playback of other content in its original aspect ratio on one or more display monitors. Up to fifteen simultaneous channels may be monitored at low bit rate proxy. With multiple inputs now viewable on the same monitor and ready to edit within a couple of seconds of their icon appearing on screen, Gravity simplifies and speeds-up workflow.

INTEGRATION

To stay competitive, every organization constantly evaluates and purchases new tools and solutions. Smooth integration with these tools is therefore a

high priority purchase criteria for any core system like the content management and editing platforms.

Gravity's integration capability to all willing third party vendors for both media and metadata is of particular value. SSL has employed a number of core software technologies such as SQL, XML, TCP/IP, Ethernet, .NET, DirectX, SDI, RAID, MPLS, Clustering, SOAP, MOS, and more, to bring to market a true next generation asset management and editing product. As a result, Gravity is able to support a multitude of media formats such as: AVI, DV, WMV, ASF, MXF, DIVX, MP4, MOV, WAV, MP3, AAC, and more, as well as a multitude of codecs such as: VC-1, H.264, MPEG2, MPEG4, MPEG1, DV, HDV, XDCAM, XDCAM-HD, DVC-Pro, and Motion JPEG.

SSL has brought all these technologies together in Gravity to create a system of incredible power and synergy. This willingness to integrate with multiple vendors, coupled with wide range of features and customization options offered by SSL, is unparalleled in the marketplace.

REMOTE COLLABORATIVE PROXY-BASED OPERATIONS

Today's newsroom is global, with reporters and producers shooting content, editing their stories, and filing finished pieces from locations virtually anywhere on earth. Recognizing the needs of geographically scattered news teams, news organizations require a system that can readily adapt to and enhance its remote-based workflow.

SSL has taken the initiative in this respect through its agreement with Masergy Communications for dedicated and extended IP services via its MPLS network technology. This reliable and easily accessible wide area network forms a solid and secure IP-based communications pipeline with very low latency (<2 seconds) for distributed *(continued on next page)...*

REMOTE COLLABORATIVE PROXY-BASED OPERATIONS (CONT.)

news operations. As a result of this collaboration with Masergy, Gravity supports remote encoders and decoders at a fraction of the cost of satellite delivery.

One of Gravity's most exciting capabilities is its real-time file proxy creation and distribution. This functionality allows access to and editing of server content, both file and live, from any authorized and enabled desktop either via Web interface or enterprise licensed workstation. Producers and editors make all their creative decisions with the proxy files. When the story is finished, the proxies act as a blueprint for the instantaneous conformation of the full resolution server files for on-air play-out. The finished piece can also be instantly transcoded into multiple resolutions and file formats for multiple platform distribution on demand.

It's no secret that producers love having video on their desktops and proxies have become a necessity for bringing in and working on more than one signal at a time. SSL is one of the few vendors to offer proxy generation and editing capability that fits in perfectly with the multi-format newsroom workflow.

CONSIDER THIS:

If your news organization is planning to invest in a new media production and file management solution, allow us to offer some quick advice:

- 1) Know your workflow and requirements, and their potential for growth. This is paramount for evaluating any news production solution in detail.
- 2) Anticipate and expect changes in formats, codecs, workflows, and file data management, and look for solutions that not only adapt to, but readily facilitate change.
- 3) Recognize the importance of seamless integration to third party applications that enhance workflow efficiencies and handoff distribution of metadata and media.
- 4) Look for clear, well designed, and readily adaptable asset management and scheduling tools. These tools will greatly improve your production management.
- 5) Remember that proxy capabilities are of prime importance for supporting a geographically diverse reporting team. Your producers and editors in the field will thank you time and again for fast desktop access to content files.

At Solid State Logic, we've worked hard and we're continuing to work even harder to make Gravity a compelling total solution that any television news organization can utilize to their advantage.

