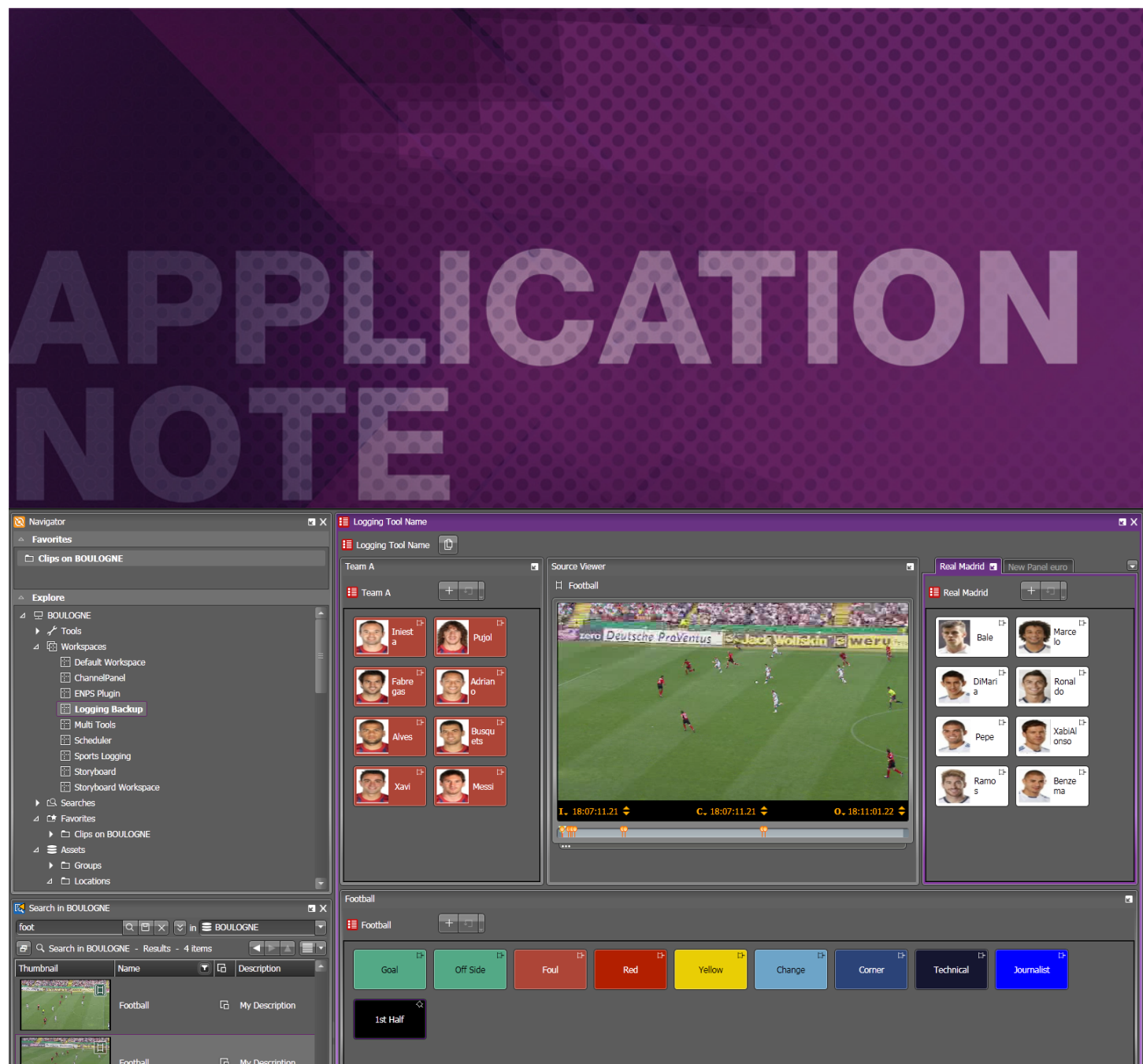# GV STRATUS in Live Sports

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Introduction

GV STRATUS from Grass Valley, a Belden Brand, integrates workflow flexibility and versatility so it can be used in many different production environments, including news, mobile platforms, web delivery and sports and live event production.

In this application note we explore how GV STRATUS, together with K2 media servers and the K2 Dyno Replay System, can be used in a live sports production environment.

Technical Overview

Grass Valley provides routing and multiviewer infrastructure, as well as modular equipment, for the Master Control Room, the main operational area for incoming feed routing and outgoing technical monitoring, including extraction/insertion of embedded audio for studio use.

A typical production studio would be equipped with Grass Valley LDX cameras, and the studio control room with a Grass Valley Karrera K-Frame switcher, providing direct control of the video server playout ports.

Underpinning the whole production process — which spans acquisition, editing, content management and send-to-playout — is the GV STRATUS video production and content management system. GV STRATUS is based on a K2 SAN to which K2 Summit Production clients are added, along with K2 Dyno Replay controllers.

K2 Summit channels are allocated to scheduled baseband feed ingest. Each K2 Dyno Replay operator can deploy a K2 Summit (up to four ports each), leaving two K2 Summit channels available for other operations such as loading and playing clips on the GV STRATUS Channel Panel, or crash recording. The Karrera switcher in each studio also has access to a K2 Summit channel, giving the operator full access to video content on the K2 SAN, as needed.

Studio with LDX Series studio camera.

The K2 system makes low-resolution proxy content available to all users, and with the GV STRATUS Storyboard tool they can search, browse, review and add metadata to video as soon as the media starts arriving on the K2 SAN shared storage.

GV STRATUS also interfaces with the digital tape archive solution, and employs its powerful rules engine to automate the tasks of archiving, restoring and deleting content, all according to relevant criteria.


Control Room with Karrera switcher.

Workflow In Detail

All content is stored on K2 SAN shared storage and GV STRATUS tools are used to ingest, edit and manage that content. To facilitate this, good housekeeping is essential, and a folder structure classifying content according to the different workflow requirements should be created (example shown right).

This folder tree not only makes it easy to classify and find content, but it also makes it easier to automate certain workflow steps, for example moving content from editing to approval, and on to transmission.
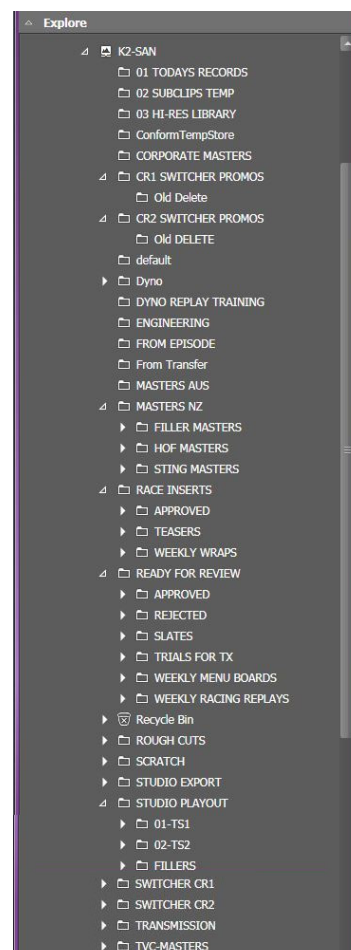
Ingest

Typically in a live sports environment, the master control room (MCR) receives a number of live camera feeds, which can include different camera angles from the same venue, or from different geographical locations.

With the GV STRATUS Scheduler users can set up as many live record ingest channels as required and schedule the recordings in advance, including the routing of sources from the facility matrix.


GV STRATUS Scheduler.

Ingest operator.

GV STRATUS can be used to acquire content as follows:

- Scheduled recording of live feeds using GV STRATUS Scheduler

- Studio camera feeds and ad hoc recording using GV STRATUS Channel Panel

- File-based camera footage import using the GV STRATUS Removable Media Import (RMI) tool

- Video content delivered via FTP, automated using GV STRATUS Workflow Rules. Watch folders are set up for automatic import of content to the K2 SAN, and import rules can be applied to put the media through a transcode engine if required.

Ingest operators in the MCR can begin sub-clipping live feeds within seconds of the start of the recording. They can also conform these sub-clips into new media files, so that the recorded source feeds can be deleted as required, to save storage space.

Custom Metadata

GV STRATUS provides the ability to create an infinite number of metadata fields so that users can catalog and classify the material for easy searching later at any step of the workflow (ingest, production, editing, pre-archive, etc.). Metadata fields can take the form of tick boxes, drop-down lists with multiple choices, dates and free-form fields. Operators use tick boxes, for example, to label material and trigger workflows automatically, such as exporting content from K2 storage for multimedia publishing, or requesting a restore from the digital tape archive.
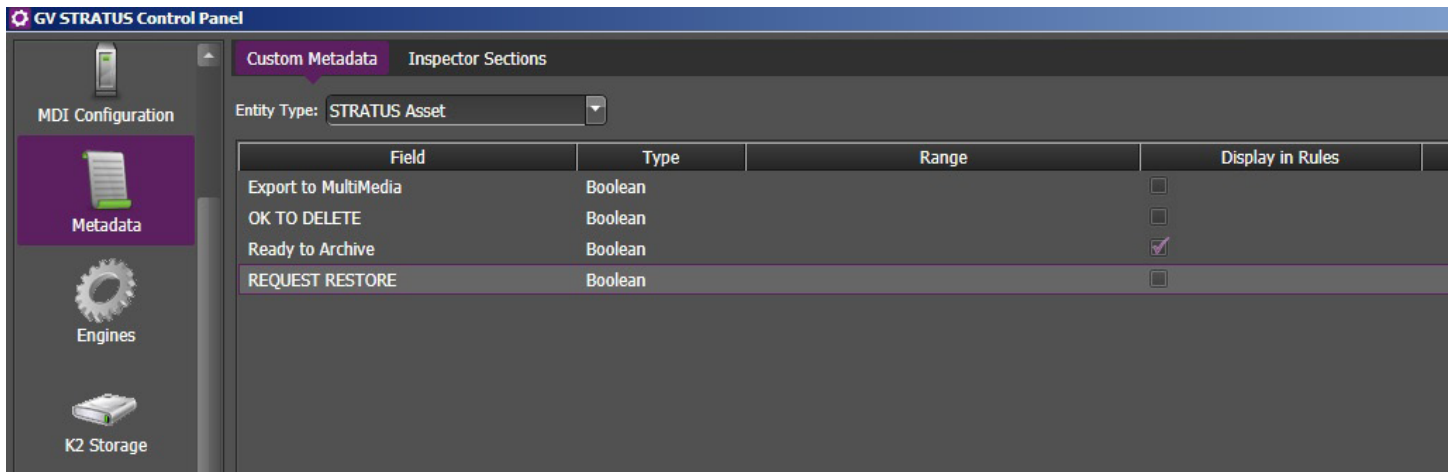

Sample of custom metadata fields

Producers' Workflow

GV STRATUS also gives producers the ability to preview content in low resolution as it is being ingested, to add markers and descriptions, and perform some basic editing with the Storyboard Editor. This is something that was simply not possible with legacy systems and it means that content can be prepared in advance of working with craft editors in the edit suites. This allows video editors to be creative, skipping the step of the initial shot selection and raw feed browsing. In fact, any markers and metadata added by ingest operators or producers during the ingest and production process (for example to give the video editors special editing instructions) helps the editing process and speeds up the entire operation.

GV STRATUS Storyboard Editor.

Adobe Premiere Pro CC and GV STRATUS.
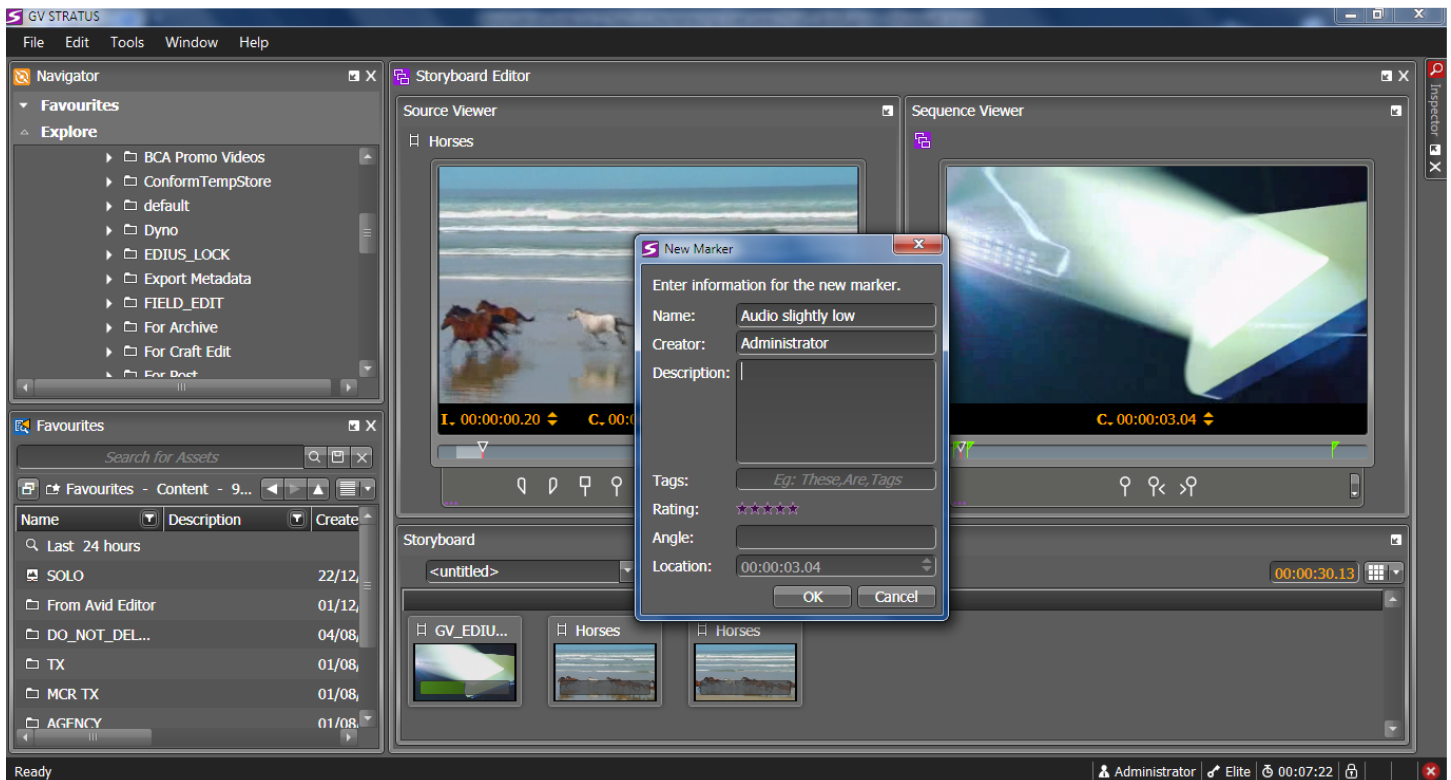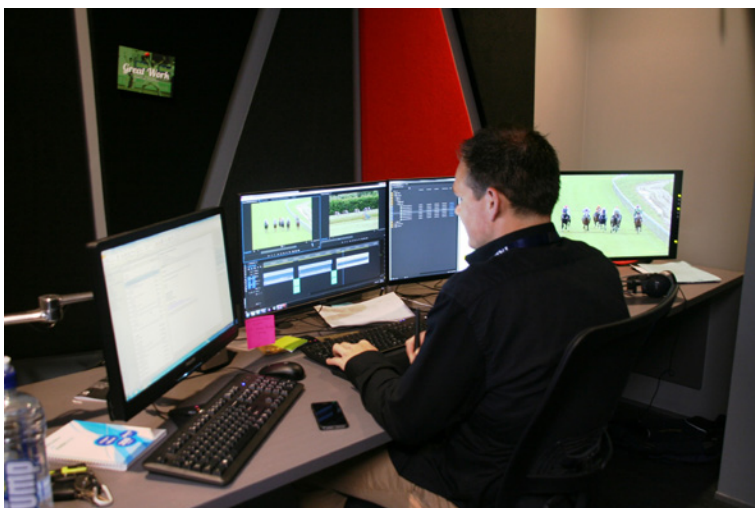
Video Editors' Workflow

Although Grass Valley EDIUS is often the choice for both proxy editing and high-resolution editing, GV STRATUS is an open system and offers integration with other third-party NLEs from Avid, Apple and Adobe. All of these editors can be integrated either by performing file transfers of both content and metadata, or editing-in-place when using the GV STRATUS plug-in. In this example we are using Adobe Premiere Pro CC.

Once video editors have completed their edits, they push them to a "READY FOR REVIEW" bin on the K2 SAN, where producers can review and approve or reject edits, using a metadata field on the GV STRATUS object inspector. Workflow rules are then applied, depending on the outcome of the review. If the edit is approved, it is automatically sent to the "STUDIO PLAYOUT" bin. If it is rejected it will not be transferred, but automatically deleted after one week.

Adobe Premiere Pro CC with GV STRATUS plug-in and edit-in-place.
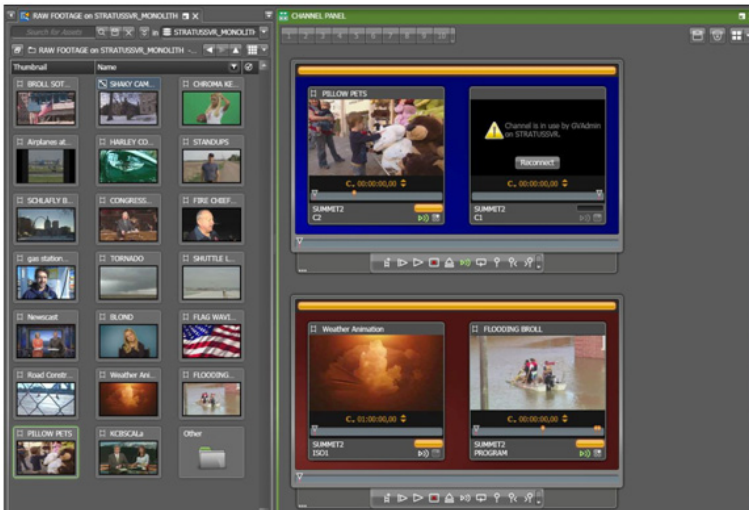
GV STRATUS Channel Panel.

Playout

A third-party playout automation system is used to access the K2 content according to daily playlist requirements, and transfer content to the playout servers as needed. As a backup for playout operators, GV STRATUS offers the Channel Panel and Playlist Editor tools, which allow playout operators to search and load ready-for-transmission media, and prepare and play out simple playlists.

Archive/Restore

The GV STRATUS open architecture and its RESTFul API means that it can be tightly integrated with third-party solution providers). From within GV STRATUS, users can archive and restore content between the two systems, and monitor progress throughout. Once the high-resolution content has been archived to digital tape, GV STRATUS will keep all metadata information (description, markers, etc.) as well as a low-resolution proxy copy of the asset. GV STRATUS users can subsequently search for archived content, preview the low-resolution copy and then request a restore of the high-resolution media to any bins within the K2 storage.

Name	Description	Status	Scope	Destination
Archive-To-MASTERS	Archive Masters NZ to Masters	Enabled	K2-SAN:V:/MASTERS NZ	Archive:MASTERS
Delete-Rejected	Delete Rejected clips after 1 week	Enabled	K2-SAN:V:/READY FOR REVIEW/REJECTED	
Delete-HiRes-Library		Enabled	K2-SAN:V:/03 HI-RES LIBRARY	
Archive-To-TVC-MAS...			K2-SAN:V:/TVC-MASTERS	Archive:TVC MASTERS
Archive-To-Library		Enabled	K2-SAN:V:/03 HI-RES LIBRARY	Archive:LIBRARY
Archive-To-Corporate			K2-SAN:V:/CORPORATE MASTERS	Archive:CORPORATE MASTERS
Restore-From-Library		Enabled	Archive:LIBRARY	K2-SAN:V:/03 HI-RES LIBRARY
Restore-From-TV-Ma...		Enabled	Archive:TVC MASTERS	K2-SAN:V:/TVC-MASTERS
Restore-From-Masters		Enabled	Archive:MASTERS	K2-SAN:V:/MASTERS NZ
Restore-From-Corpor...		Enabled	Archive:CORPORATE MASTERS	K2-SAN:V:/CORPORATE MASTERS
Export-To-MultiMedia...		Enabled	K2-SAN:	\\ST01\Multimedia\FROM STRATUS

GV STRATUS Workflow Rules.

To simplify and speed up the archive and restore process, workflow rules can be applied so that users do not need to know where the media is archived or restored.

If the customer already has an automated procedure for archiving and restoring content according to criteria such as media lifetime, source location within the ingest/production servers, etc. It is possible to implement the same automated workflows, as well as add extra functionality and flexibility to the new production process. For example all users being able to access the central storage pool and work on content, even when it is still arriving, throughout all stages of the production process.

Equipment room displaying Grass Valley system.

Summary

- Grass Valley's extensive product portfolio and integration expertise significantly enhances live production capabilities, to enable them to provide an even better service.

- The powerful production asset management and workflow capabilities of GV STRATUS gives users the ability to work collaboratively, efficiently and quickly, with browsing and metadata insertion at their fingertips within seconds of media being acquired.

- The open philosophy behind GV STRATUS means that integration of third-party systems give customers the flexibility to go forward without sacrificing existing expertise and best practice.

- The workflows can be developed to demonstrate the suitability of GV STRATUS to serve fast-turnaround, live production environments. Because GV STRATUS is scalable, these workflows can be applied to other, smaller environments such as mobile facilities covering a wide range of live events, including concerts as well as houses of worship.

References

- GV STRATUS Topic Library

- Adobe Premiere & GV STRATUS Application Note: GVB-1-0020A-EN-AN_for_Adobe_Premiere_Editors

GVB-1-0482A-EN-AN

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