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Telegenic's 3D Coverage of the 2010 Ryder Cup for BSKYB's 3D Channel

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APPLICATION NOTE

Telegenic provided the 3D facilities and used Grass Valley's EDIUS to compile the various 3D graphic and green screen player walkthroughs, while Grass Valley's K2 Solo media server was used to playout the key+fill elements into the live production switcher.

Background

Telegenic provides outside broadcast services to BSkyB for their Sky Sports, Sky Sports HD and now, the new Sky 3D channels. Prior to the 2010 Ryder Cup in October, Telegenic had successfully used EDIUS and a K2 SAN to provide BSkyB with coverage of four major golf tournaments in the US.

The Ryder Cup is a biannual event where the best golfers from Europe and the US compete for the Ryder Cup trophy. After the Football World Cup and the Olympic Games, the Ryder Cup is the most watched sporting event in the world with viewing figures approaching 350 million.

On October 1, 2010 BSkyB launched its SKY 3D channel, this coincided with the first day of play of the Ryder Cup, Telegenic provided the 3D facilities and used EDIUS to compile the various 3D graphic and green screen player walkthroughs, while Grass Valley's K2 Solo media server was used to playout the key and fill elements into the live production switcher.

Equipment:

7x EDIUS STORM 3G-based editing systems

2x EDIUS/EDIUS INGEST STORM 3G-based ingest systems

1x EDIUS for P2 ingest (local)

1x EDIUS for P2 ingest (remote fibre channel connection, 1,200 meters)

2x EDIUS laptops for viewing/logging

1x K2 SAN, 15.8 TB, RAID-6

1x EDIUS XRE Conform Engine

2x K2 Summit media server

2x K2 Solo media server

Solutions

The Ryder Cup project was the biggest outside broadcast undertaken by Telegenic and BSkyB, so the existing system required upscaling to deal with the additional demand by a greater number of SAN clients.

The Telegenic K2 SAN had worked very well for other golfing tournaments in the US, but the Ryder Cup demands were much higher and the system required upgrading. This was not an issue due to the flexibility of the K2 product range.

The SAN capacity was doubled to give 11.5 TB of usable RAID-6 storage.

The transmission-grade storage is housed in three 3 RU chassis. Physical size and weight was a major concern for Telegenic as the system would travel many thousands of miles, mostly by air freight.

A cold swap backup K2 media server was added for additional redundancy.

The Ryder Cup project also required the production of a daily 150-minute highlights program to be transmitted at 7:00 p.m. each evening.

For this mission-critical task, several Grass Valley K2 family products were used.

Two standalone K2 Summit media servers were used to record the program and clean feeds from the main OB truck. Two K2 Summits were used for redundancy and each one recorded program and clean feeds.

The highlights program consisted of eight parts, each part was sent to the main K2 Summit via the Grass Valley EDIUS XRE Conform Engine. This allowed the highlights editor to carry on working without delay.

The highlights program was played out to air directly from the K2 Summit at 7:00 p.m. each day.

The replay operators in the truck were also placing key shot replays directly on to the SAN allowing very fast access to the shots by all the editors.

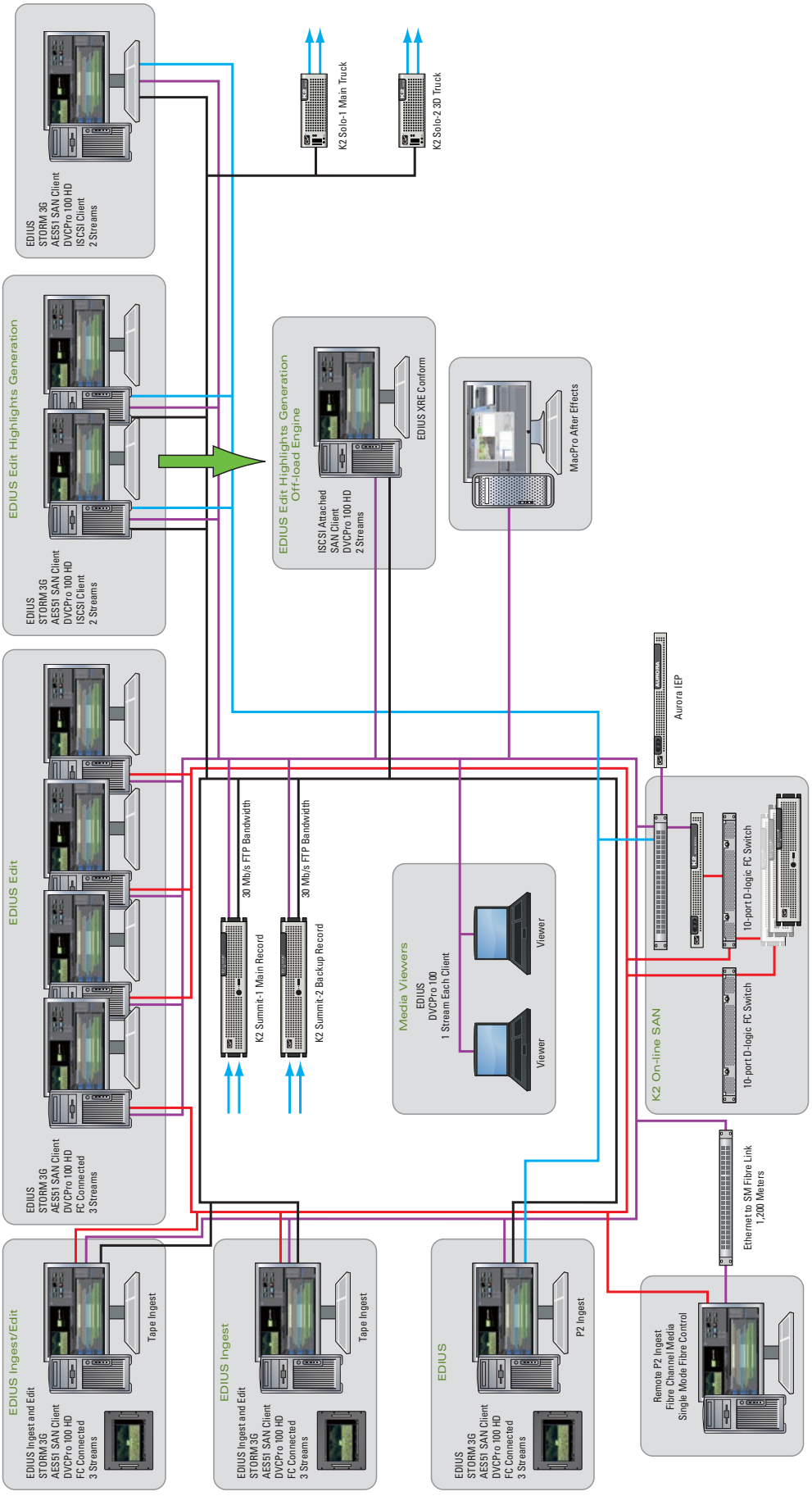
For the previous tournaments, four EDIUS turnkey systems were connected to the SAN as Fibre Channel clients. The Ryder Cup project required more clients, so a combination of Fibre Channel and iSCSI clients were added to the system increasing the capacity to 12 SAN clients. Two After Effects compositor systems and two laptop viewing system for the production office were added as CIFS mounted clients.

Two K2 Solo media servers were used, one controlled by the technical director via Grass Valley's K2 AppCenter in the main production truck, to playout packages such as interviews, openers, closers and teases.

The second K2 Solo was controlled by the 3D truck via AppCenter and used to lay out the 3D graphics and green screen composites that had been assembled as left-eye and right-eye elements in EDIUS.

The editors were able to send finished packages via FTP to the first K2 Solo "FOR REVIEW" bin. The production team in the main OB truck could then approve the packages and then move them to the "FOR AIR" bin, ready for playout.

For close-to-deadline scenarios, the tight integration of EDIUS and K2 was very beneficial. Within 15 seconds of the editor sending their package, the production team could review or playout the package directly from the K2 Solo.


EDIUS
STORM 3G
AES5I SAN Client
DVCPro 100 HD
ISCSI Client
2 Streams
K2 Solo-1 Main Truck
K2 Solo-2 3D Truck
EDIUS Edit Highlights Generation
EDIUS
STORM 3G
AES5I SAN Client
DVCPro 100 HD
ISCSI Client
2 Streams
EDIUS Edit Highlights Generation
Off-load Engine
ISCSI Attached
SAN Client
DVCPro 100 HD
2 Streams
EDIUS XRE Conform
MacPro After Effects
EDIUS Edit
EDIUS
STORM 3G
AES5I SAN Client
DVCPro 100 HD
FC Connected
3 Streams
30 Mb/s FTP Bandwidth
K2 Summit-1 Main Record
30 Mb/s FTP Bandwidth
K2 Summit-2 Backup Record
Media Viewers
EDIUS
DVCPro 100
1 Stream Each Client
Viewer
Viewer
Aurora IEP
10-port D-logic FC Switch
K2 On-line SAN
10-port D-logic FC Switch
Ethernet to SM Fibre Link
1,200 Meters
EDIUS Ingest/Edit
EDIUS Ingest and Edit
STORM 3G
AES5I SAN Client
DVCPro 100 HD
FC Connected
3 Streams
Tape Ingest
EDIUS Ingest
EDIUS Ingest and Edit
STORM 3G
AES5I SAN Client
DVCPro 100 HD
FC Connected
3 Streams
Tape Ingest
EDIUS
EDIUS
STORM 3G
AES5I SAN Client
DVCPro 100 HD
FC Connected
3 Streams
P2 Ingest
Remote P2 Ingest
Fibre Channel Media
Single Mode Fibre Control

Working with P2

In addition to the cameras on the course providing live coverage, there were four roaming P2-based camera operators.

Due to the sheer size of the event, its high security, and the fact that the TV compound was almost a mile away from the 1st and 18th holes, a remote P2 ingest system was installed near the course and connected via Fibre Channel. This saved the camera crews having to travel to the TV compound to upload their P2 cards several times a day.

Working with Legacy Tape Media

Despite all of the 2010 Ryder Cup coverage being tapeless, there was still a need to ingest material from previous events on tape. For this, Telegenic used EDIUS for ingest. The simple and intuitive EDIUS ingest interface meant that virtually anyone could quickly load content onto the SAN without training. In times of high demand, the ingest systems could also be used as a full blown NLE for editing with EDIUS.

Working with 3D

The 2010 Ryder Cup was shown for the launch of the Sky 3D channel. Twenty 3D cameras were used on the course and controlled in the 3D OB truck. EDIUS was used as a compositor for the 3D graphics and golfer walkthroughs, the composites were sent to a dedicated K2 Solo via FTP and played under the control of the 3D production switcher operator. The ability of EDIUS to work with many layers of HD without rendering was a major timesaver.

Working with After Effects

The creation of many packages such as opens and closes required intensive visual treatments, some were created within EDIUS, but when more was needed, the AAF export feature in EDIUS was used to allow quick and effective integration into the After Effects system. Once complete, the final results were exported back as HQ codec (with alpha channel) AVI files into EDIUS, ready to be sent to the K2 Solo.

Working with Bad Weather

Predictably, on the first day of play, the British weather turned bad and torrential rain fell for most of the day. This put pressure on the post-production team as there was now many hours of scheduled live airtime and no golf being played. The quick turnaround design integration of EDIUS and the K2 family of products meant that additional non-live content could be created to help fill the huge hole in the schedule.

Play resumed late in the afternoon, but the highlights program still had to go to air at 7:00 p.m. with much less time to create the show. Thanks to fast editors, and reliable equipment, the show was aired despite the difficulties Mother Nature had caused that day.

Conclusion

The 2010 Ryder Cup was without doubt a huge project that would test any production system. The decision to use Grass Valley products paid off and the virtually tapeless workflow was proven.

Despite the massive challenges the bad weather caused and an extension of play until the Monday conclusion, the entire system performed beyond expectations and can certainly be considered a big success. Should there ever a be a bigger event than the Ryder Cup, we at Telegenic remain confident that our investment will perform and is still scalable to cope with demands of the future.