

A digital production and playout centre for British Forces Broadcasting Service Television



ATG Danmon is one of the world's most successful providers of high-end reliable and easy-to-operate integrated systems for broadcasters and programme makers.

Active in Europe, Asia, Africa and the Middle East, ATG Danmon is part of the Dan Technologies Group which operates from offices in the United Kingdom, Germany, Denmark, Norway, Sweden, Vietnam and Dubai.

BFBS Television provides the 'Best of British Television' to the Armed Forces and their families on overseas postings and operational deployments wherever they are around the world. Part of Services Sound & Vision Corporation, the British Forces Broadcasting Service (BFBS) works under contract to the MoD.

From its studios near Amersham in Buckinghamshire, BFBS assembles and transmits British Forces Broadcasting Service Television round the clock to Germany, Cyprus, Gibraltar, the Middle East, Afghanistan and bases in Canada, the Balkans, Belize, Ascension and the Falklands. Two 24-hour channels are broadcast via satellite to personnel in 17 countries, with Navy TV being transmitted to Royal Navy ships in various parts of the world. As well as showing all the most popular series on UK terrestrial and satellite TV, and

all major sporting events, BFBS makes it's own programmes, notably a live three-times-a-week news show titled BFBS Reports. It also relays several carriage channels. Until recently, the service has relied on tape-based acquisition, recording off-air, editing out commercial breaks, and with live continuity, distributed worldwide by satellite.

In 2004, ATG Danmon was awarded the contract to digitise BFBS TV's entire production and transmission facility. The objective was to move from tape-based to file-based acquisition and editing, playing to air both television channels - BFBS1 and BFBS2 - straight from hard-disk server. The contract with ATG Danmon included the complete refurbishment of the television infrastructure at SSVC's headquarters, starting with the production studio which occupies floor space leased from

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ISO 9001 No. FS 544441



Arqiva.

SSVC's requirement, expressed by its Director of Technology, Simon Shute, was a system that fully addressed the network's workflow without introducing any system bottlenecks. Systems that required file-flattening following editing could not cope with the quick turnround needed for many programmes.

Ingest

The new system enables programmes to be ingested off-air or via line feeds into two Quantel sQ servers under IBIS automation, controlled via record lists from a Provys scheduling system. 30 Mbit/s I-frame-only MPEG-2 files and 1.5 Mbit/s proxies are created in parallel.

The recorded clips are reviewed using IBIS Vistapoint, topped and tailed using Quantel Q-Cut. Any original channel continuity such as voiceovers or end credit squeezes are marked as 'points-of-interest'. Clips ready for transmission are then transferred to mirrored Quantel sQ playout servers or, if not required in the next few days, to the near-line tape store. An active xml interface enables IBIS to update Provys with frame accurate in & out points together with points of interest metadata - frame accurate TX schedules can then easily be generated in Provys, and downloaded into IBIS ready for automated transmission.

Production

BFBS TV has a three-camera digital studio which is used both for news and for children's programming. Additional studios are hired when required.

BFBS Reports occupies a 30-minute slot in early peak on BFBS1. It goes out live at 17.30 and is repeated later in the evening on BFBS2. News crews based at SSVC's headquarters, and in Germany and Cyprus, originate on Panasonic DVC-Pro, forwarding the tapes or (increasingly) emailing files.

SSVC uses the Livewire system which works with Inmarsat terminals. File transfer between fixed locations is performed using Telestream.

Streamlined newsroom system

To streamline the news production process, ATG Danmon installed a DaletPlus Newsroom system. Web access enables journalists anywhere around the world to input and review scripts and programme material.

A MOS interface to IBIS enables all news clips to be displayed within the newsroom system. Character generator and prompter interfaces allow dynamic updating of story information. A Quantel sQ Server under IBIS control provides clip replay for BFBS-produced news and children's programming.

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Playout control desks





Presentation suite showing monitor walls.



120 terabyte archive

A 120 terabyte ADIC Scalar 2K Archive Library controlled by SGL's Flashnet Hierarchical Storage Manager allows files to be saved either as a manual process or according to archive rules set within Flashnet. A Microsoft SQL database drives a scalable cluster of servers, transferring data into and out of the archive at high speed.

Each server runs identical software, which means each can perform any task, and each is connected via a switch to every archive device so that the archive always operates at maximum capacity. If content is not required within seven days, it is transferred from the servers to the ADIC data tape system.

From the operators' viewpoint, the server and tape stores work seamlessly except that file transfer from the ADIC is around four times faster than real time, compared with practically instant access to server-based content.

Editing

SSVC required the ability to edit ingested programmes, allowing advertisements to be removed and the beginning and end to be tailored into BFBS-specific schedules. Being a public service wholly funded via the MOD, SSVC does not carry advertising so closes the gaps or inserts with promotional and

informational interstitial material. Start-and end-credit promotions within incoming content used to be handled by tape editing but are now processed live in the presentation suite with a Miranda PresStation. This allows staff to check and rehearse the end-credit masks which have timecode-driven points-of-interest, for example to fade the sound or shrink the picture and display a caption. The operators insert the points-of-interest before publishing the programme back to the server.

PresStation is based on traditional master control design. All functions requiring instant action have dedicated keys. Set-up and monitoring controls are presented by colour displays which provide monitoring of the core master control switcher functions from a single screen. Each panel area has an associated key which instantly presents the information relevant to that function on screen.

The Quantel system also allows BFBS to start transmitting a programme before ingest has completed. It includes seven Quantel QCut workstations, three of these being used in preparing material for BFBS Reports. The other QCuts are employed in preparing trails and promotional content. Three Quantel QEdit

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*Playout
control desk
and (far right)
voice-over
suite*



allowing the operators to monitor, and control as appropriate, all aspects of the ingest, preparation and transmission process.

Transmission

BFBS TV's distribution is entirely by satellite with uplinks provided by Arqiva. BFBS1 transmits about 18 hours each day, sustained with BBC News 24 overnight. BFBS2 carries a 6-hour segment, repeated four times every 24 hours. A DVB multiplex, containing six TV channels, together with BFBS Radio feeds for rebroadcast via FM transmitters in each locality, is carried on Eutelsat W3a in Ku band. A sub-set of these channels is carried using DVB-S2 on two further C-band satellites to serve the Atlantic Ocean Region.

Television delivery is in the main direct to viewer via encrypted satellite and a BFBS-branded Pace set-top-box, which is rapidly replacing the old single channel UHF analogue transmission service. Recently, multi-channel transmission has been established locally in some areas using DTT transmission. SSVc has also moved into Internet-based delivery of television content by making clips from BFBS Reports available on www.bfbs.com. Its radio channels are also available on the Internet.

Conclusion

The new installation at SSVc is a true end-to-end digital system. It will greatly improved the network's efficiency by enabling content to be acquired and processed much more quickly than before, and has allowed file-based content distribution to greatly reduce manual movement of tapes within and beyond the network's headquarters.

Pro edit seats are used for finishing material ready for transmission. Quantel's Frame Magic technology enables files to be streamed at very high speed between servers using IBIS intelligent workflow methods.

Provys schedules are downloaded into IBIS Landscape for transmission, with IBIS controlling template recall on the Miranda PresMaster presentation mixer to replace original channel branding. Desks and equipment storage pods are by Custom Consoles.

Presentation

Each BFBS Television channel is controlled from its own presentation suite. The suites are identically equipped with Custom Consoles furniture, a Miranda PresStation, a Zandar 4 x 4 splitter feeding a 42 inch JVC plasma screen, Genelec loudspeakers, Trilogy comms, Pro-Bel router, ATG Danmon audio units, an ATG-three-channel main voiceover fader and a Sony MiniDisc recorder.

Master Control

SSVC has a dedicated local MCR which operates in conjunction with Arqiva's main MCR. Three control screens in the local MCR provide access to control software (IBIS etc)

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