Training Day 4 Report:

10 June 2024

The fourth day of training at Doordarshan News, Doordarshan Bhawan, offered an in-depth understanding of the Production Control Room (PCR) operations and the intricate technological ecosystem supporting live broadcasting. This report synthesizes the information acquired over the previous training days, providing a comprehensive analysis from the perspective of a Computer Science Engineering student.

Review of Previous Information

Ingest Room Operations

The Ingest Room is the initial point where data from various sources such as journalist reports, YouTube, social media, and raw footage are collected. Key systems and processes include:

Quantel and Grass Valley (GV) Servers: These servers handle the ingestion of video, audio, graphics, texts and other media content.

ENPS (Electronic News Production System): Managed by SHAF Broadcast Pvt Ltd, ENPS serves as the central hub for news production, where all data is routed from Quantel and GV servers.

Teleprompter, Graphics, Audio: Various files such as scripts for teleprompters, graphics, and audio files are also routed to ENPS for final broadcasting.

Switches: The ingest room contains switches for managing feed lines, main RTR (Router) outputs, and destinations.

Electronic News Production System (ENPS)

ENPS is a powerful tool for managing the entire news production workflow:

MOS Protocol: ENPS utilizes the Media Object Server (MOS) protocol to facilitate communication between newsroom computer systems (NRCS) and broadcast production devices. The PCR uses MOS addresses to take different shots and sequences from the ENPS servers.

Synchronization: ENPS synchronizes video, audio, and graphics, ensuring all elements are coordinated for broadcasting.

Detailed Working of the Production Control Room (PCR) :

The PCR is the heart of the broadcasting process, where live broadcasts are managed and executed. Here's an in-depth look at the PCR operations and technologies:

Live Stream Management

Direct Feed Line: The PCR receives direct feed lines from OB vans or other external broadcasting systems.

Immediate Edits: These feeds undergo immediate edits for graphics overlay, audio adjustments, and transitions before being broadcast live.

Large Screen Displays

Monitoring: Various screens (FS1, FS2, ME1, ME2, DD News TCR, AS1, AS2, CASPER1, CASPER2, GFX) display different outputs and preview windows for monitoring and control.

Roles and Responsibilities

Producer: Manages the broadcast flow, making real-time decisions, and uses MOS addresses to integrate content from ENPS.

Graphics and Video Editors: Use Non-Linear Video Editors and CASPER-CG Client to manage real-time graphics and video playouts.

Sound Engineers: Operate systems like Studer Vista 1 and Yamaha MG16XU for audio control.

Technical Director: Uses the vision mixer to switch between feeds and manage transitions.

Teleprompter Operator: Controls the teleprompter, providing text for news anchors.

Maintenance Team: Addresses technical issues, particularly with ENPS.

Technologies in the PCR

CasperCG: An open-source graphics and video playout software used for real-time rendering and playback.

Watchout: Multi-display production software for synchronizing multiple screens.

Quantel and GV Custom Software: Specialized tools for video editing and broadcast management.

DMX 512 Decoder: Converts DMX signals to control lighting and effects, enhancing the visual aspect of broadcasts.

Video Wall: Composed of multiple screens, the video wall displays integrated content managed by video wall controllers and software like CasperCG.

In-Depth Analysis of Video Wall Operations

Video Wall Components

Monitors/Screens: Multiple screens tiled together to form a single, large display.

Video Wall Controller: Hardware that manages video signal distribution to each screen.

Control Software: Software such as Watchout and CasperCG to control and synchronize the display content.

How It Works

Signal Distribution: The video wall controller receives video signals and distributes them to individual screens.

Content Management: Control software manages the input sources and arranges content across screens.

Synchronization: Ensures all screens display content in sync, providing a cohesive visual experience.

Integration with Broadcasting: The video wall can display multiple feeds, including live video, graphics, and pre-recorded content, managed in real-time by the PCR team.

Detailed Workflow of DD News Broadcasting

Ingest Room to PCR

Data Collection: Journalist reports, social media, and raw footage are ingested into Quantel and GV servers.

Routing to ENPS: Data is routed to ENPS, where it is organized and prepared for broadcasting.

Teleprompter, Graphics, and Audio: Scripts, graphics, and audio files are integrated into ENPS.

PCR Operations

Content Access: The PCR accesses content from ENPS using MOS addresses, ensuring all elements are synchronized.

Live Edits and Monitoring: The PCR team makes real-time edits, monitors various feeds on large screens, and prepares for broadcasting.

Real-Time Control: Using software like CasperCG and Watchout, the team manages graphics, video, and audio.

Communication: The producer coordinates with the news anchor, providing guidance through direct communication.

Live Broadcast

Direct Feed Handling: Live feeds from OB vans or external systems are processed.

Graphics and Audio Overlay: Real-time graphics and audio overlays are applied.

Broadcast Execution: The final output is broadcast live, monitored and controlled by the PCR team.

Conclusion

The fourth day of training provided an in-depth understanding of the complex operations within the PCR at Doordarshan News. The integration of advanced technologies like ENPS, CasperCG, DMX 512 decoders, and video walls enhances the efficiency and quality of live broadcasts. From the perspective of a Computer Science Engineering student, the coordination of these systems underscores the importance of real-time data processing, synchronization, and seamless integration in modern broadcasting. The experience highlights the critical role of teamwork, technology, and precise execution in delivering high-quality news broadcasts.
