



The Pentagon Press Briefing Room (PBR) is the face of the U.S. military to the world. Briefings by leaders at the highest levels of the U.S. military and government held in the PBR are seen around the world daily. The design and build of the replacement system was intended to provide a studio, broadcast and production system utilizing state-of-the-art high definition technologies.

The facility, a flagship high-definition system amongst government agencies, puts the U.S. military at the leading edge of digital media. This installation brought their system from a hybrid of analog and digital components, to a fully digital core system with the ability to support multiple digital formats and future audio/video technologies, while continuing to support analog legacy equipment.

The old facility had two separate systems: one for Armed Forces Radio and Television Service (AFTRS) and one for the Pentagon briefing room/broadcast side. The new systems are shared by both groups and work both individually and in conjunction with each other.

The overall system includes a custom podium with multiple microphone capability, acoustical wall treatments, a digital video and imagery distribution system, and broadcast studio lighting with digital control. The system provides for digital audio mixing and multi-definition feeds for television and radio networks. Every display is multi-definition up to 1080i, and all RGBHV graphics are trans-coded to HD SDI for display on broadcast quality monitors.

There were many unique aspects to the project: from the architecture, to the size of the system, to the various ways that information had to be converted. The system provides the ability to route, distribute and display all audio and video sources used to facilitate press, radio, simultaneous translation or other internal briefings. The system is comprised of multiple subsystems that, by way of interconnections, communicate with one another.





The subsystems include:

- An advanced audio mixing subsystem used to support live briefings and post-production.
- A simultaneous translation/interpretation subsystem used to support briefings conducted in foreign languages.
- A video production subsystem consisting of video and audio routing equipment, processing equipment, and system timing and video synchronization equipment. Two separate DVR systems (one for each group) are used to record anything being shown or played (locally or remotely) within the system. All this information is archived in a massive digital archiving system.
- A camera subsystem incorporating three broadcast quality cameras controlled from a master camera control console.
- An audio production subsystem permits the selection of sources for program, preview or auxiliary output. Program outputs are routed, distributed and operated via the control system and audio mixing console.
- A sound reinforcement subsystem provides level control of all audio sent to outside speaker locations and remote feeds. Microphones, program sources, audio conferencing, and remote feeds are mixed using an audio mixing console and then distributed to various output such as speaker zones, feeds to the audio distribution sub system (including television network pools), and feeds to a phone system.
- An audio routing matrix and distribution subsystem takes any source and routes it to single or multiple destinations. Sources include remote feeds from the sound reinforcement system and the video production system, media decks with play and record options, audiocassette players, or TV tuners. Destinations include remote sends, video recorders, audiocassette recorders, and a press multibox.

Various presentation media used throughout the system include: DVC-Pro, Blu-Ray, remote video and audio feeds, and PC. Any source may be shown in the briefing room on either a remote-controlled moveable ceiling-mounted display, or a display on a mobile cart. A variety of preview monitors are used in the control room to confirm external and internal video being sent out. Additional sources include character generators for overlaying text onto video and high-resolution computer graphics. Video sources provide the ability to augment presentations using visual aids. Routing and transport control of audio and video components and source equipment is managed through a single touchpanel.

This was an extensive AV/IT install. All seven of the major subsystems are IT-based and network-based on their own LAN, each with a dedicated management computer that can be remotely controlled. The system allows fiber-based transmission of information (audio, video or data) to both internal and external locations. All terminal equipment, distribution amplifiers, up-and-down converters, servers, mixers and switchers are available for control, monitoring, and setup via TCP IP and LAN. The system also has the capability, through software working in conjunction with the AV system, to edit content and send in and out via streaming format.

A production switcher and a touchpanel at a remote location allow for operating the system and producing an event remotely. The new system provides much more control and capabilities, with fewer steps to make things happen through preset configurations.

Building the system was a massive undertaking due to the sheer size of what needed to be accomplished and the timeframe. The system incorporated five levels of switching, approximately 8,000 cables (including fiber optic, LAN and control cables), approximately 3,000 cable patch points, and 12 full racks and 19 below console racks throughout. A tremendous amount of redundancy and backwards compatibility was built into ensure the system never fails.

There was total collaboration between all parties (end-user, contractor and sub-contractors) from the moment the project began. There were numerous meetings (from construction to implementation) to make sure the project went smoothly. The timeframe for the project was short and had to be adjusted throughout. The project was completed in one year. Usually a job of this magnitude takes two years.



The project presented several challenges including: converting all signals from analog to digital (HD SDI) and back for external sources that may not have HD capability; handling each signal (audio, video and data) individually; designing and integrating the system to fit into a given space; and finding room for the amount of equipment and cabling the system needed. There was also a steep learning curve because the system was new to the end users, who had to adapt from analog to digital.

There were mid-project modifications, which were essential to make the system a fully operational state-of-the-art facility. A larger air-conditioning system was installed to maintain temperature, because more equipment was used than originally planned. Embedding the digital audio with the SDI signal was an issue as the original design had all external circuits in and out of the facility as discreet AES audio and SDI video.

During installation, it was determined that these existing circuits were not discrete but embedded, so additional equipment had to be added to correct the issue. The lighting in the briefing room was modified from a combination of LED and incandescent lights to an all LED broadcast lighting system with digital control.

The project was completed on time despite the short timeframe. The system has the latest in broadcast and AV technologies with the capability for full HD and digital production, transmission, recording and presentation. The quality of the system has been significantly increased because of the install. The facility is set up for the future.



Project Equipment List

- Apple Quad Core System
- Avid Digital CG System
- Avocent KVM Switchers
- Bosch Audio/Video Components
- Clear-Com Control Components
- Cobalt Convertors
- Crestron Control System
- Crown Audio Amplifiers
- Denon DVD/Blu-ray Recorders
- Evertz MVP Processors
- Extron Video Interfaces
- JBL Loudspeaker System
- Leightronix Controllers
- Marshall Monitors
- Middle Atlantic Equipment Racks
- NEC Display Monitors
- Omneon Media Storage System
- Ross Video Production Switchers
- Ross Audio/video Amplifiers
- Shure Microphones & Audio Processors
- Sony PTZ Cameras and Control System
- Soundcraft Audio Mixing System
- Tascam CR Recorder
- Videotek Processors
- Wohler Video Monitors



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