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## Extron NAV Pro AV over IP Expands the Reach of Surgical Grand Rounds at UNC Chapel Hill School of Medicine

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Christopher Ferrer, CTS-D / CTS-I, AV Engineer  
University of North Carolina School of Medicine

Similar to its peers among top-ranked medical schools in the United States, the University of North Carolina School of Medicine incorporates grand rounds as an integral component of their medical education curriculum. The mission for Surgery Grand Rounds is to provide an educational format with broad appeal to UNC faculty, residents, staff, and students. A wide range of topics are presented by local, regional, and international speakers on clinical education, research science, technological developments, and related issues affecting UNC's current and future surgeons. A worldwide medical community can participate through streaming over the Internet. This fulfills a core value of the Hippocratic Oath: for doctors to share knowledge actively and openly to improve patient care.

### Challenges

To support their knowledge sharing goals, UNC's Department of Surgery engaged the IT Department's AV Engineer Christopher Ferrer to design and install state-of-the-art AV systems in a comprehensive renovation of the fourth floor of the Burnett Womack Building on the Chapel Hill campus. Central to the project was creation of a 140-seat Surgical Education Center to connect UNC surgeons with their peers. Consultants Newcomb & Boyd performed AV design. Integrator ClarkPowell performed installation. Extron was vendor of choice for AV switching, distribution, and control systems.



The AV system and room lighting are controlled at the wall-mounted TouchLink Pro touchpanel. Presenters advance and annotate their slides at the smart lectern. Photo courtesy of Heidi Grassley, ClarkPowell.

## Design Solution

In addition to the expansive Education Center, the project includes new AV-enabled office spaces and conference rooms. Construction of building modifications and AV system commissioning were completed late fall of 2020, capping three years of work. When UNC's new surgical tower opens in 2022, the final leg of AV connectivity to the tower's operating rooms will be established over the network.

## AV Facilitates Wide Dissemination of Medical Knowledge

Whether colleagues are in the first row, the last row, or on the opposite side of the world, the Education Center AV system helps UNC surgeons cut to the core of concepts as deftly as they handle a scalpel.

Positioned in front of a 24' x 5' videowall, a smart lectern feeds presentation video and audio into the AV system from the lectern's PC or a guest laptop. Other AV content sources include media players and a wireless access point for mobile devices. There are also inputs from a PC in the Control Room and from multiple PTZ cameras around the venue.

The direct-view LED videowall is comprised of left, center, and right screens driven by up to six 4K HDMI sources via an Extron Quantum Ultra 305 videowall processor. The videowall processor allows wide latitude for windowing the video images on the screens in mixed resolutions, formats, and orientations.

The Quantum Ultra videowall processor also provides signals for the two portrait-oriented confidence monitors that face the lectern. During videoconferences, the processor allows the confidence monitors to display local content, shared content, and far-end participants simultaneously as three separate images. Six flat panel displays above the audience reinforce views for the back rows. To interact with remote audiences, there are AV feeds to a Cisco videoconferencing system, to soft codecs for unified communications platforms such as Zoom, and



Portrait-oriented confidence monitors driven by the Quantum Ultra videowall processor give the presenters a preview of the content displayed on the large videowall.

to an Extron SMP 351 streaming media processor for livestreaming, storage, and archiving to the Panopto platform for lecture capture.

An IPCP Pro 555 IP Link Pro Control Processor controls all room functions, including AV signal routing, PTZ cameras, and room lighting. Users make selections through an interactive GUI on a TLP Pro 1220MG 12" touchpanel on the wall. Control Room personnel can assist presenters with delivery of audiovisual content during lectures using the control room PC and flat panel display connected to the NAV AV network, and a TLP Pro 1220TG 12" tabletop touchpanel that duplicates the functions of the on-stage touchpanel.

## NAV Pro at the Heart of AV Content Distribution

Extron NAV® Pro AV over IP Encoders and Decoders link every AV source to every AV destination. The NAVigator System Manager configures and controls the NAV system. NAV Pro was the natural choice for this application because it sends video, audio, and AV system control over UNC's enterprise data network with ultra-low latency and easy, economical scalability. These qualities are essential for an AV system that transports real-time video and patient vital sign telemetry among a large and growing array of endpoints. These endpoints include the Education Center with all of its sources, displays, and internet streaming feeds, AV-enabled conference rooms and staff offices, video displays in lobbies and hallways, and 24 AV-equipped operating rooms in UNC Hospitals' new Surgical tower.

## DTP CrossPoint Switchers Perform Source Selection, Audio Amplification, and Control in Conference Rooms

The Burnett Womack Building fourth-floor renovation included construction of new conference rooms that are used stand-alone or as extensions of the Education Center. Both rooms have identical AV amenities. A DTP CrossPoint 84 4K IPCP SA matrix switcher with integrated audio power amplifier and built in IPCP Pro control processor connects selected AV content to an interactive flat panel





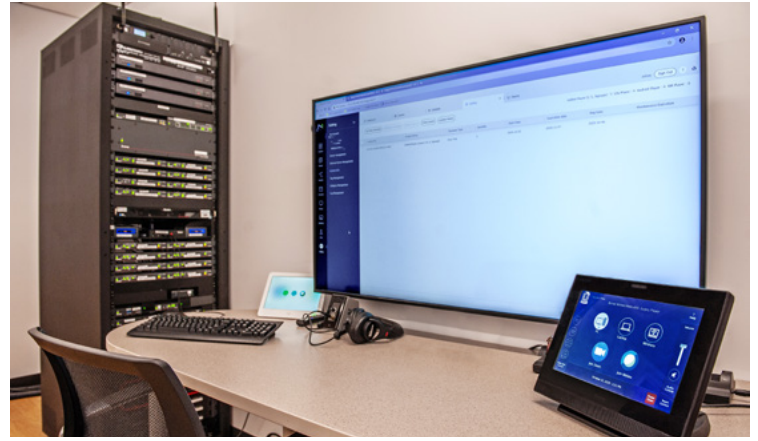
Two new conference rooms connect to the Education Center via NAV AVoIP, providing additional gathering spaces for collaboration. Photo courtesy of Heidi Grassley, ClarkPowell.

touchscreen display. Presenters can select AV content from several sources: guest laptops via a DTP T USW 233 three input switcher; the conference room's PC; mobile devices via a wireless access point; a videoconferencing camera; or any source on the NAV AVoIP network via a NAV Pro decoder. A TLP Pro 725T 7" tabletop touchpanel on the conference table controls AV system functions, including system on-off, AV source selection, audio volume, etc.

## Results

The UNC Department of Surgery mission statement is, "To provide the highest patient care to all people through innovation, world-class research, and training the next generation of surgical health care professionals and scientists." The chair of the surgery department, who guided creation of the Education Center, noted upon completion that, "This new Center will provide a state-of-the-art space for that collaboration and training." According to Christopher Ferrer, "Utilizing our enterprise data network, we are able to send any AV source to any display. The videowall's 24' x 5' expanse of direct-view LED tiles and the extensive choice of video scaling and windowing arrangements made possible by the Extron Quantum videowall processor provides a perfect palette for presenting large amounts of information like patient charts, photos, and live video, all at once, readable from short or long distances."

Ferrer continues, "The Surgical Education Center, its videowall, and NAV AVoIP network tying all meeting spaces on the fourth floor together surpassed everyone's expectations. We couldn't have done it without the aid of a company that was willing to embrace our design goals, train us, and support us, as Extron did throughout this project."



The Education Center Control Room houses AV equipment and an operator position that allows technical and production personnel to configure the AV system and assist presenters with delivery of audiovisual content during lectures.



The Control Room rack contains NAV Pro encoders, decoders, and NAVigator, as well as the Quantum Ultra videowall processor, IPCP Pro control processor, and various AV content sources.

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