



Extron XTP II Matrix Switcher and Pro Series Control Enhance Communication at Carilion Clinic

“The XTP II CrossPoint 6400 matrix switcher handles all of the command center's many and diverse immediate needs, but also provides plenty of headroom to expand and upgrade the application as technology changes.”

Jay Ensor
System Designer/Project Manager
Stage Sound, Inc.

Challenges

Carilion Clinic in Roanoke, Virginia, is charged with providing and coordinating emergency rescue and healthcare services among the area's first responders, hospitals, and clinics for the entire southwest region of the state. To bring inter-related divisions under one roof, they purchased the Shenandoah Life building. The 88,000 square foot (8,176-square meter) four-story 1945 structure resembles a period school house built into a hillside. In case of a blackout, the clinic's industrial-grade generator can continuously power the entire facility 24/7.

Integration firm Stage Sound was contracted to assist with design and install the mission-critical AV systems, including within the Carilion Transfer & Communications Center – CTaC. The AV system had to provide instantaneous switching among 14 computers with dual video cards each for a total of 28 computer inputs and interconnectivity with the CTaC EOC conference room sources, such as the Cox® Cable service and additional computers. Any of the 28 computer signals plus additional signals from cable boxes needed to be routed and displayed on any of the 28 wall-mounted 65" flat panel displays. Each of the 25 operator stations includes a local computer with LAN access, enabling views of the same network content on



In the event of a national or weather-related emergency, Carilion Clinic is charged with providing and coordinating essential rescue and healthcare services for the entire southwest region of Virginia. All photographs courtesy of Jared Ladia, Carilion Clinic.



The XTP system enables source signals to be sent to any combination of the 28 flat panel displays mounted across one long wall in the rectangular room. The XTP II CrossPoint 6400 remotely powers the XTP receivers over the CATx cable.



The CTaC manager uses the Extron TLP Pro 1220TG Tabletop TouchLink Pro Touchpanel at their desk to easily control the XTP system and select the content for each of the 28 wall-mounted displays.

their three to four 24" monitors. Because CTaC is in use 24/7 for emergency response, easy system operation and a short user learning curve were mandatory. It was also critical that there must not be any interruption to service when cutting over each division to the new facility.

Solution

The basement houses the 5,500-square foot (511-square meter) CTaC and adjoining conference room. It brings together the healthcare call center, ambulance dispatch, helicopter dispatch, patient placement and transfer, case management, behavioral health call intake, and environmental emergency services.

The initial installation included 22 65" flat panel displays and 11 computers with two video cards each. A short time after the system was commissioned, Stage Sound upgraded the installation with six additional displays and three more dual video output computers, resulting in a total of 28 computer inputs to the CTaC's matrix switching system. The computers are rack-mounted in a cage to one side of the rectangular room. An Extron XTP® system, USB Extender Plus Series transmitters and receivers, as well as a Pro Series control system were deployed to support CTaC operations.

The heart of the installation is the Extron XTP II CrossPoint 6400 modular matrix switcher configured as 28x36. Seven XTP II CP 4i HD 4K PLUS HDMI input boards support the rack-mounted sources. Of the nine XTP CP 4o 4K output boards, one enables signal extension of AV, control, and Ethernet to the adjoining EOC conference room and another supports the monitors and touchpanel at the manager's desk. The remaining seven XTP output boards support communication between the matrix switcher and the Extron XTP R HD 4K receiver installed with each of the 28 displays in the main room. Run distances are up to 175 feet (53.3 meters), well within the XTP extender's capability of 330 feet (100 meters). A combination of wall furring, conduit, and ceiling cable trays hide the infrastructure of 200,000 feet (60,960 meters) of XTP DTP 24P shielded, plenum-rated twisted pair cable.

Content from each computer is selected by using an Extron KVM extension system over USB. The CTaC manager uses the keyboard, mouse, and two monitors at their desk to remotely select what network content is sent to the switching system for display on the wall-mounted flat panel displays. An Extron USB Plus Matrix Controller paired with a USB Extender Plus T transmitter and USB Extender Plus R receiver support KVM transmissions. The controller receives switch tasks from the control system and sends commands to the USB extenders over Ethernet to select among the various computer feeds.

The manager can also control the system using the Extron TLP Pro 1220TG 12" TouchLink Pro Tabletop Touchpanel at their desk and the TLP Pro 720M touchpanel mounted on the EOC conference room wall. The secondary



The CTaC conference room is used for decision making at the highest levels and serves as the failsafe location during a catastrophic event. Because source video resolutions vary, images are scaled to 1920x1200 by the DTP CrossPoint presentation matrix switcher's built-in Vector 4K scaling engine.



The Extron DTP CrossPoint 84 4K IPCP MA 70 matrix switcher in the conference room is controlled from the wall-mounted TLP Pro 720M touchpanel or an authorized iPad running the Extron Control app. The DTP system is tied to the XTP II CrossPoint 6400, enabling access to all CTaC resources.

touchpanel facilitates display on one or both in-room flat panel displays of locally sourced content and the videoconferencing feed, as well as network content. This capability was implemented primarily so that the Carilion executives could monitor any situation and response from the EOC conference room during an emergency.

Both touchpanels are connected to the Extron IPCP Pro 550 IP Link® control processor rack-mounted with the XTP II CrossPoint® matrix switcher and the computers. The conference room system can also be controlled using CTaC-issued iPad® tablets running the Extron Control app.

Operator stations include a local computer, three to four 24" monitors, a PBX-style phone system, and two microphones. Each station is tied into the LAN to receive content from rack-mounted computers in the cage. Even though operators are usually viewing the same network content on their local monitors as is displayed on the wall-mounted flat panel displays, they are not connected to one another other than via Carilion's network.

Free of Communication Silos with XTP II

Cut over of each group to CTaC was accomplished with no down time. "A vital part of my design for the CTaC Carilion Transfer and Communication Center was that this facility would connect to the Security Department at our main 700-bed Carilion Roanoke Memorial Hospital, and serve as the Incident Command Center in the case of a national or weather-related emergency. The design for this center also features programmable lighting and a sound masking system. This ensures that the technicians have complete control over the center's lighting, acoustics, and most importantly what is being displayed on the 28 flat panels using the essential Extron technologies," says Jennifer F. Rotenberry, NCIDQ-certified Project Manager, Construction at Carilion Project Management.

CTaC personnel use the XTP and Pro Series control systems to successfully facilitate rescue land and air transport, patient intake, placement, and transfer between facilities, caseload management, and environmental emergencies 24/7, 365 days per year. Carilion administration credits CTaC and its advanced AV technologies with breaking the communication silos between divisions and ensuring the region's citizens receive emergency and healthcare services when and where they need it.

WORLDWIDE SALES OFFICES

Anaheim • Raleigh • Silicon Valley • Dallas • New York • Washington, DC • Toronto • Mexico City • Paris • London
Frankfurt • Madrid • Stockholm • Amersfoort • Moscow • Dubai • Johannesburg • Tel Aviv • Sydney • Melbourne
Bangalore • Mumbai • New Delhi • Singapore • Seoul • Shanghai • Beijing • Hong Kong • Tokyo

www.extron.com