



## Extron NAV & Streaming Systems Serve the Chef for St. Helena High's Culinary Program

“Integration of Extron's NAV Pro AV over IP system and the SMP 111 streaming processor lets the students at home be on the same page as those in the classroom, making this AV system just what the chef ordered.”

Brian Baesler, Program Manager  
Consolidated Networks Corporation

### Challenges

St. Helena High School is a top-ranked institute of learning in California's Napa Valley wine region. The county is filled with luxury hotels and Michelin-starred restaurants, such as The French Laundry. Because of this wealth of fine dining and high-end accommodations, the high school offers programs that prepare students for careers in hospitality and the culinary arts.

For the culinary classroom, a new AV system would enhance instruction and enable students attending from home to have as close to an equal experience as possible. St. Helene High brought in E.R.I.C. Low Voltage Services to design and program and Consolidated Networks Corporation – CNC to integrate a NAV® Pro AV over IP system, along with the SMP 111 streaming media processor and other professional AV products from Extron.

### NAV Enhances Classroom Learning and Demonstrations

The culinary classroom includes six full commercial kitchens, and the instructor is Chef Karl Turner III. Previously, the students gathered around the outside of the kitchen to watch the professional chef prepare and plate the gourmet dishes. Visibility was an issue. A rudimentary AV system was introduced, with the video sourced from a GoPro camera that the chef wore around his neck or on his toque hat. While this did improve visibility for



Located on a shelf beneath one of the preparation tables are the chef's PC and an Extron MediaPort 200, which converts the PC's USB signals to HDMI and then scales the video to enhance the content for the students attending from home.

students, the camera was cumbersome and the single point of view had limited value. Later, a closed-circuit TV system was installed, with RG 59 to BNC connectors going from PTZ cameras directly to receivers installed behind the 55" wall-mounted displays. A network solution with streaming capabilities was the next step.

The NAV Pro AVoIP system ties three broadcast-quality 4K HDMI PTZ cameras to the existing 55" displays, as well as provides content to the streaming system. An Extron NAV E 101 encoder mounted with each camera shares video from the chef's grill/range station and the two food preparation stations. The cameras are installed to the left and right sides of the grill vent hood and the third is above the gas range. The chef's PC is installed on a shelf beneath one of the prep tables, and it is connected to an Extron NAV E 201 D wallplate HDMI encoder. The five transmitters stream AV signals over the 1 Gbps Ethernet network.

To support the PC's USB signals, an Extron MediaPort 200 HDMI and Audio to USB Scaling Bridge converts USB to HDMI. The bridge enhances the computer-sourced content for the students attending class from home.

An Extron NAV SD 101 scaling decoder mounted behind each display scales the video to the device's native resolution. The decoder includes



The culinary classroom includes six full commercial kitchens, and the instructor is a professional chef. A NAV Pro AVoIP system enables signal distribution to the various displays.



The chef uses the Extron TLP Pro 1225TG 12" Tabletop TouchLink® Pro Touchpanel installed next to his computer to control the AV system, including selecting among the camera presets.

the PURE3® codec, which leverages periods of low motion to stream high quality video at efficient bitrates. A serial control port on the NAV decoder passes control signals from the Extron control processor to the display. The NAV encoders and decoders are powered over Ethernet alongside the AV signals. Use of PoE+ streamlined installation and freed outlets for the many kitchen appliances.

### NAV & Pro Series Combine for Five-Star System Control

To control the AV system, the chef uses an Extron TLP Pro 1225TG 12" Tabletop TouchLink® Pro Touchpanel installed next to the PC. Its quad-core processor ensures quick page loads, so the system keeps up with the chef. Installed under the prep table, it is within easy reach while also being protected from splashes and direct heat. The touchpanel is paired with the Extron IPCP Pro 255 IP Link® Pro control processor, which includes the LinkLicense® for User Interfaces upgrade. The control processor automatically distributes IP addresses and network configuration parameters for the PC, camera system, and other AV sources connected over the school network. LinkLicense provides a means for the control GUI to be run on wireless devices, such as a guest chef's tablet.

The system programmer used Extron's Global Configurator Professional software to create six presets that provide advance selection of camera

angles and playback of supplemental lesson content. Presets free the chef's hands, allowing him to concentrate on the dish and how well the students are absorbing the lesson.

The system also includes a NAVigator System Manager which helps the NAV system operate as a flexible network matrix switching solution. NAVigator is integrated directly with the control processor. This isolates the signals from the rest of the school's network traffic, ensuring high performance system operation without interference or switching delays. The system components are rack-mounted in an equipment room located down the hall.

## Extron Audio Products Ensure Sound Clarity Near & Far

Audio is picked up by the classroom's Shure BLX wireless microphone system and the lavalier worn by the chef. It is designed by zone, with the chef's kitchen and each student kitchen being a separate zone. Signals are fed into an Extron DMP 64 Plus C V AT 6x4 digital audio matrix processor that includes AEC, VOIP, and Dante®. Two of the processor's four line outputs support the videoconferencing and ALS systems, and a third output enables connection of the MediaPort® scaling bridge. The bridge provides an AEC reference point for the videoconferencing system, ensuring verbal clarity at the remote locations.

Within the classroom, an Extron NetPA U 1004 power amplifier with Dante and DSP 100 watts per channel drives a 70 V distributed audio system consisting of twelve Extron SF26CT SoundField® ceiling speakers. The system provides clear audio throughout the 2,500-square foot (232-square meter) classroom and allows students to hear over the clatter of pots, pans, and chopping blades. Being convection cooled, it can withstand the fluctuating temperatures within the culinary classroom. Like the DMP64 Plus processor, the audio amplifier receives signals from the network switch over Dante.

## SMP 111 Streams Each Step for Budding Chefs

Three years ago, CNC upgraded the school to a CAT 6 cable infrastructure that provided a 40 Gbps backbone with at least a 10 Gbps uplink between the switches. Currently, the system maintains 40 Gbps with up to 100 Gbps in some spots of the switching architecture. This gave the school the bandwidth needed to support streaming. The Extron SMP 111 streaming media processor was a perfect fit. The single-channel, H.264 streaming media processor captures and distributes the camera feeds and other resources for selectable live streaming.



**A happy Chef Karl Turner III has gone from wearing a GoPro to using a complete AV system with signal switching and distribution over a NAV Pro AV over IP installation.**

The content can be streamed to the offices of the school officials and any classroom on campus, as well as to the students attending class from home. The SMP 111 also provides simultaneous recording of the HDMI video and audio. Recordings can include metadata, such as a date and time stamp, the chef's name, the title of the recipe, and the technique being demonstrated.

## Results

From concept to commissioning, the entire project was completed in two weeks. CNC credits this in part to Extron's well-designed products and the support engineers. The administration is quite pleased with the success of the AV system upgrade in the culinary classroom, and Chef Turner III is happy with how easy it is to use.

At the chef's request, a fourth PTZ camera is being mounted to the front of the vent hood. It will allow each student to see a hands-on view of the chef at work. According to the programmer, adding to a NAV system using GC Pro only requires very little time. "In my experience of programming products from a wide variety of AV manufacturers, NAV is by far the easiest system to configure and program, and Extron support is top notch," says Eric Marshall of E.R.I.C. LVS.

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