CENTRALIZED PROCESSING FOR HYBRID LEARNING PLUS REMOTE MONITORING

BENTLEY UNIVERSITY

Bentley University Scales Hybrid Learning with the Q-SYS Audio, Video & Control Platform

📍 Waltham, MA

Founded in 1917, Bentley University combines business education with arts and sciences to provide students with the critical thinking and practical skills to help them collaborate effectively, communicate clearly and lead successful, rewarding careers. In early 2020, the school recognized a need to enhance the learning experience for students and professors, which was later heightened by quarantine measures that made the university expedite deployment of network AV systems to support hybrid learning for on-campus and remote instruction. After thoroughly testing a proof of concept, they chose the Q-SYS Platform for their classrooms across campus.
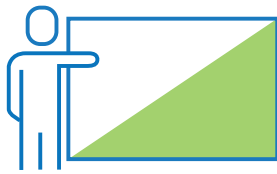
> ❝ **Q-SYS provided a transformative approach in the design and delivery of our hybrid courses.** ❞

Guarav Shah
Director, Academic Technology at Bentley University

Challenges

Bentley University was looking for an audio, video and control upgrade that would enhance the hybrid teaching and learning experience rather than be a distraction. This meant a feature-rich, but intuitive audio, video and control (AV&C) system was needed for all classrooms across campus.

Getting Right to the Lesson

Professors and teaching assistants were spending too much time with preparing their room's AV system rather than focusing on their instruction.

Minimize Hardware

Rather than expending resources on in-room processors for each classroom, they wanted to run multiple classrooms from a centralized processor.

Staying Informed

Campus support staff wanted to actively monitor the health of Q-SYS systems across campus or be notified of any system failure.

Solutions

Integrator CAVT Solutions initially deployed a proof-of-concept classroom that gave technical staff and professors an opportunity to test Q-SYS in a typical classroom environment. This gave the university staff full confidence in deploying the Q-SYS Audio, Video and Control Platform into all of their approximately 70 classrooms across campus.

Class in Session

For the majority of classrooms on campus, Bentley University chose to centralize the processing architecture, with a single Q-SYS Core 510i processor (now available as the updated Q-SYS Core 610) integrated processor that handles the audio, video and control for each cluster of ten 'standard' classrooms.

Video distribution and collaboration

Each room's podium is equipped with a Q-SYS Core 510i processor, which can encode up to three HDMI sources over the network. The classroom also has three HDMI destinations (smartboard, projector, and confidence monitor), which are connected to a Q-SYS NV Series Network Video Endpoint (set as a decoder). A professor or student can simply connect their laptop to the NV Series encoder in the lectern and share content to any of the HDMI destinations in the room.

Distance Learning

Each room also pairs an Q-SYS PTZ-IP conference camera (now available as the updated Q-SYS NC Series network cameras), for showing the presenter to the far end, and the NV Series video end-point, which also serves as AV bridging device for the presenter's PC (in addition to its video routing capabilities). The presenter need only plug their laptop into the USB-B port on the NV Series encoder at the podium, and it delivers Q-SYS audio and conference camera to share with the conferencing application of choice.

Solutions

Simple Room Control

CAVT Solutions created a user control interface (UCI) that offers some automation for the room, making it easy for a professor to start a class. From a Q-SYS TSC Series network touch screen controller, there are two room modes to select from: 'Local Presentation' or 'Extended'. Local Presentation mode starts the projector, turns on the confidence monitor, and mutes the ceiling microphones. Extended mode (meant for distance learning) unmutes the ceiling microphones, turns on the Q-SYS conference camera and shows the Zoom extended desktop on the confidence monitor (displaying remote students at the back of the room).

*Additional controls available to the professor on the Q-SYS touch screen controller include video source select, lighting and shade controls and preset recalls.

Acoustic Echo Cancellation (AEC)

"Another major driving factor of why Bentley University chose Q-SYS, was the processing horsepower," explains Dermot O'Keeffe, Principal at CAVT Solutions. "With up to two microphones per room, the Core 510i was the only processor in its class that could handle all of the AEC processing for the required number of rooms, and still have plenty of headroom."

Standalone AV Systems

There are a small number of 'specialty' classrooms on campus with additional functionality beyond that of the standard classrooms, and each is managed by a single Q-SYS Core 110f processor. Two of those rooms have a third-party camera switching system that was integrated into Q-SYS. With the Q-SYS Scripting Engine, CAVT Solutions were able to build custom scripts for this switch system that allowed them to add the necessary user controls to the room's UCI, ensuring ease of operation for instructors.

Monitoring and Management

The university was looking for an easier way for its support staff to remotely monitor the health of their AV systems across campus. With Q-SYS Reflect Enterprise Manager, they are able to view real-time status and event logs from all Q-SYS Cores and connected devices from a web browser, which helps them be more proactive should a device go offline unexpectedly. "We've already begun appreciating the value of a remote monitoring and management solution," shares Dermot O'Keeffe. "The university needed some help troubleshooting one of their classrooms, and our team was able to use a web browser to pull up the Q-SYS design, find the problem and solve it in much less time than it would even take us just to get to the campus!"

Solutions

With Q-SYS now standardized across classrooms on campus, Bentley University can rest assured that instructors and students get an intuitive and feature-rich technology experience for on-campus and remote learning.

"The Q-SYS solution allowed Bentley to seamlessly scale our existing hybrid learning environment from 15 classrooms to 69," explains Guarav Shah, Director of Academic Technology at Bentley University. "The platform provided a transformative approach in the design and delivery of our hybrid courses. With training and repetitive use in the first few weeks of the semester, professors were able to adopt the technology with ease and comfort. The cherry on the top was the ability to remotely manage and troubleshoot our AV equipment with timely alerts and, in most cases, even before the professor alerts us."

Q-SYS Equipment List

Model	Pcs Used	Description	Image
Q-SYS Core 510i processor (now available as the updated Q-SYS Core 610)	15	Q-SYS integrated core Software-based audio, video & control processor Network I/O: 256 x 256 8x audio I/O card slots	
CDN64 (Software-based Dante feature license lets you add Dante network I/O to any current Q-SYS Core processor)	3	Q-SYS unified core Software-based audio, video & control processor Network I/O: 128 x 128 On-board I/O: 8 in, 8 out, 8 flex	
CDN64	29	Q-SYS network I/O card 64 x 64 Dante™ audio channels	
NV-32-H	230	Q-SYS network video endpoint 3 x 2 HDMI I/O Software-configurable as encoder or decoder	
PTZ-IP 12x72	52	Q-SYS conference camera Motorized pan, tilt, zoom (PTZ) Resolution up to 1080p60	
SPA2-60	55	SPA series Half-rack power amplifier 60 W/ch at 4 Ω or 8 Ω	

Q-SYS is a globally recognized manufacturer of audio, video and control (AV&C) solutions for huddle rooms to stadiums–and everything in between. Our systems make it easy for your team to design and integrate flexible, scalable solutions and deliver the native IT integration and standards-based technology your customers expect.

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