MULTIPURPOSE MEETING ROOMS

LinkedIn

Q-SYS Enables Large Meeting Room Integration Across Multiple Corporate Campuses

California, US

As one of the world's fastest growing social media platforms, LinkedIn has become an essential part of how more than 500 million people build and curate their business networks. LinkedIn have applied their belief in fast, efficient and flexible networking by enlisting Q-SYS to achieve advanced integration within their large multipurpose meeting rooms across multiple corporate campuses.

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John Brenneis,
*Lead Design Engineer, David Carroll Associates*

Challenges

Within each of LinkedIn's four Californian corporate locations, large multipurpose meeting spaces are used for all-hands gatherings, hosting seamless discussions and presentations spanning multiple sites. But in order to achieve faultless communication between campuses, along with centralized control and production, they needed an AV infrastructure with immense flexibility. For leading systems integrator David Carroll Associates (DCA), this required deep design considerations.

Intelligibility

With all-hands meetings taking place across multiple corporate sites, LinkedIn required a system that would not only enable discussions to take place seamlessly, but would eliminate the acoustic challenges of broadcasting from large, reverberant reconfigurable multipurpose rooms.
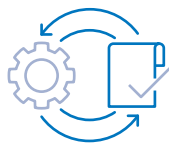
Channel Count & Source Conversion

The chosen solution had to be able to manage and convert multiple sources and formats while accommodating a high channel count density.

Current and Emerging Standards

The system needed to be designed for today's standards like bridging between native and bridge networks like Dante. Equally, it needed to be ready for any future standards that might emerge, including AES67 for audioover-IP interoperability.

Ease of Use

The system had to be user friendly, so that LinkedIn staff members were comfortable using it immediately and with minimal instruction.

"This was very much a 'ground up' project focused on moving our facilities towards IP. We quickly discovered that Q-SYS was the ideal bridge between the various technologies." Gary D. Schneider, Global Production Systems Lead for LinkedIn Media Productions.

Solutions

Connecting Campuses

DCA and LinkedIn decided to implement Q-SYS within the company's famous San Francisco headquarters, its Middlefield campus in Mountain View, CA, and its Maude campus in Sunnyvale, CA. A fourth location, Pastoria Avenue, will follow imminently. The intention is to connect all of the facilities, allowing for the maximum flexibility of audio, video and control processing and management – both for current and possible future requirements.

Each of the four locations currently feature Q-SYS Core 500i (now updated to the Core 610). These Cores each have the capability of accommodating eight Q-SYS input and/or output cards. The channel count may be further expanded by the addition of Q-SYS I/O Frames and other Q-SYS peripheral devices.

Higher Channel Count Density

A closer examination of the installation in San Francisco underlines the advantages of a Q-SYS Platform backbone. Work at this location focused on a large meeting room featuring such equipment as a Cisco video conferencingsystem, a number of wireless microphones enabled with Software-based Dante™ media networking technology, and a third-party 64-channel Digital Mixer for audio mixing.

"In San Francisco, most of the sources were analogue or AES digital, but the live-sound mixer only had a few analogue inputs," explains John Brenneis, an Lead Design Engineer at DCA who worked intensively on the LinkedIn project. A solution immediately presented itself courtesy of Q-SYS, specifically the extremely high channel count density that its Intel-based Cores support. "The combination of Cores and Q-SYS I/O peripherals were used to convert these various formats to and from Dante to allow mixing to take place," Brenneis confirms.

AES67

Eventually, LinkedIn expects to route audio between campus sites via AES67, the audio-over-IP standard that guarantees interoperability between existing IP-based audio networking products. Q-SYS Designer software supports AES67-standard interoperability, which LinkedIn plans to implement into its campuses.

Solutions

Robust Acoustic Echo Cancellation

Enabling basic two-way communication is one thing, but ensuring it sounds great is another challenge entirely. When all-hands meetings take place in large, often reverberant spaces, it's easy to run into intelligibility issues. To ensure a seamless two-way communication experience, Q-SYS once again delivered the ideal solution with its third-generation acoustic echo cancellation (AEC) technology, which ensures that all audio is delivered with pristine intelligibility. The room used software-based AEC processors within Q-SYS to provide over a dozen portable and fixed microphones in each room before being mixed into the PA and the video conference codec. "We've tested acoustic echo cancellation (AEC) from all the major DSP manufacturers," explained David Carroll. "We noticed that the AEC from Q-SYS offered very natural response and no gating artifacts."

Audio Conversation

In addition to 'pure' audio processing duties, Q-SYS is being used to convert embedded audio from SDI video signals outputted from a Grass Valley Router into Dante for mixing on the 64-channel Digital Mixer. Analog mics and line inputs from the Cisco video-conferencing system codecs can also be routed out on Dante via Q-SYS.

"Above all we needed a platform that could handle conversion between all of the various audio formats – analogue, AES, Dante and AES67 – and that is what we have achieved with Q-SYS," says Brenneis.

Solutions

Future-Proofing AV Networks

With the AV networking landscape still in a period of transition, there was occasionally a feeling that "we were engaged in a science project because we were working away as standards were continuing to come online," says Brenneis. But the benefits are clear – by establishing a multi-site framework using remote sites as virtual studios, LinkedIn is significantly reducing operational costs while spurring the creation of in-house standards and improved alignment from one location to the next. Meanwhile, with its support of multi-format conversion and various benchmark standards from Q-SYS, the LinkedIn installation is as futureproof as it is possible to be.

The solution is also so flexible that it will grow alongside LinkedIn's requirements. "Since it's a software-based platform, Q-SYS offers the ability to do what you want, whenever you need it," says LinkedIn's Gary Schneider. "It's a flexible platform that has allowed us to achieve our goal."

He concludes, "We are pleased with the results to date and DCA has done a fantastic job in optimizing the use of Q-SYS and getting all of the streams to route successfully." The best is still yet to come as there will soon be complete freedom of source-sharing and routing between all four sites thanks to Q-SYS and 10Gb / dark fiber network connectivity.

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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