Q-SYS

Themed Entertainment

WIDE-AREA PAGING AND SOFTWARE-BASED CONTROL

Santa Cruz Beach Boardwalk

Q-SYS Platform Is All Fun and Games at the Santa Cruz Beach Boardwalk

Santa Cruz, CA

Recognized as the world's best seaside amusement park, the Santa Cruz Beach Boardwalk has been a staple of family fun since 1907. With an amusement park full of rides and games, two indoor arcades, a two-story miniature golf course, laser tag arena and bowling alley, there is no shortage of ways to spend a day by the beach. With plans for a major overhaul of the park's AV system, the park's AV team enlisted Q-SYS to deliver networked audio and software-based control throughout the park, alongside Q-SYS loudspeakers and networked amplifiers.

The Q-SYS Platform enables us to deliver a top-notch guest experience throughout the park.

Kevin Grewohl

Audio Systems Supervisor, Santa Cruz Beach Boardwalk

Challenges

Streamlined AV&C

The in-house AV team wanted tighter integration between components for a better AV experience.

Flexibility

The solution needed to support a wide variety of applications including individual rides, arcade, laser tag arena and an event center.

Hybrid Processing Architecture

The system needed to offer flexible processing capabilities to support the unique needs of each area of the park.

The previous AV system at the park consisted of disparate AV&C components that were challenging to integrate and support. This upgrade presented an opportunity for the AV team at the Santa Cruz Beach Boardwalk to find a singular AV platform that had the flexibility to meet the distinct requirements of each area, while providing a holistic AV experience for each guest across the entire park.

Solutions

Optimizing Park Experience

There were a number of applications to consider for this installation – zone paging, wide-area audio distribution and control of Q-SYS peripherals and third-party devices were just some of the requirements throughout the park. The system designers wanted a hybrid processing architecture, using centralized processing for general, park-wide AV functionality while deploying dedicated processing in mission-critical areas of the park. To meet those requirements, the in-house AV team at Santa Cruz Beach Boardwalk deployed the Q-SYS Platform for network audio and control, along with Q-SYS loudspeakers and amplifiers.

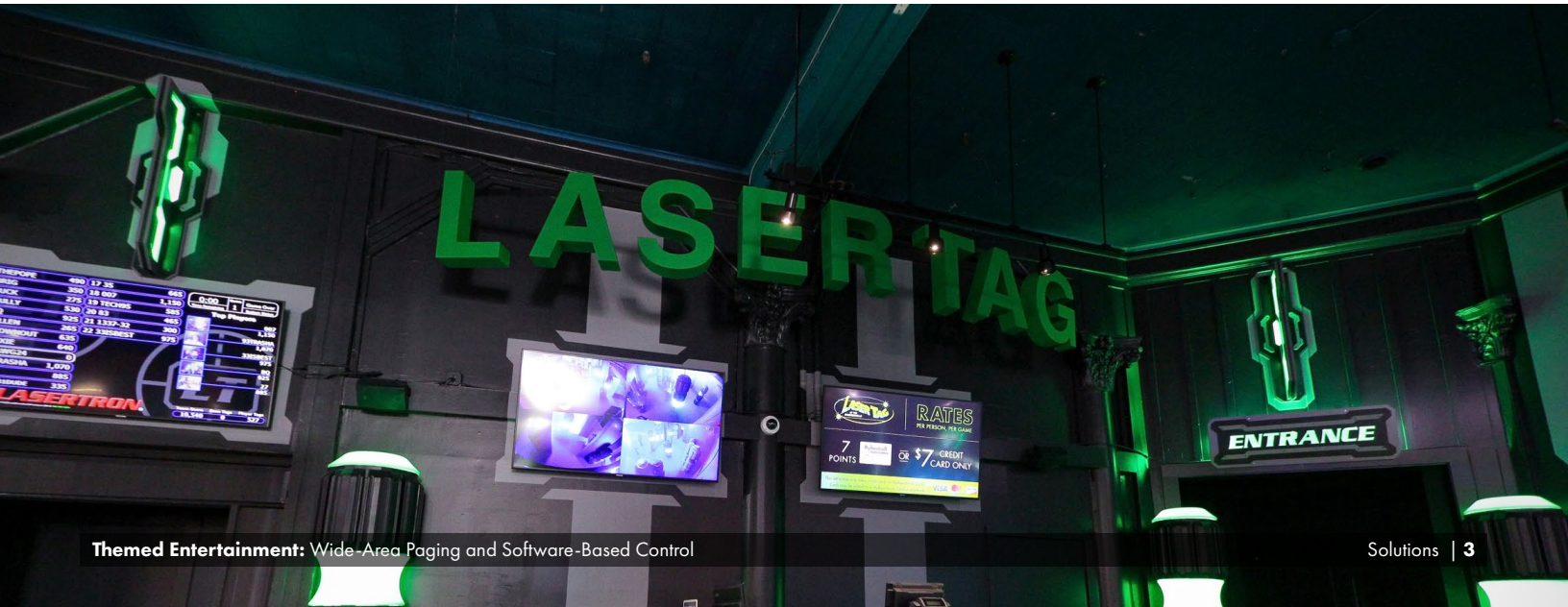
Redundant Core Stability

Redundant Q-SYS Core 1100 Enterprise Core (now updated to the Core 5200) processors handle the background music, zone paging and software-based control for all general-purpose zones. If the system detects a fault on the primary Core, the redundant Core processor would seamlessly assume full audio streaming and control communication of connected Q-SYS peripherals and third-party devices, ensuring that these functionalities remain uninterrupted throughout operating hours.

Q-SYS for Themed Attractions

The primary Core 1100 also handles networked audio and control processing for the Casino Arcade, which also includes an attached 3,500 ft² laser tag arena. In the arcade, a Virtual Page Station component manages the zone paging throughout the facility, while Command Scheduling enables automated playback of pre-recorded announcements throughout the day. When each announcement plays, the background music level automatically ducks so announcements are audible.

In the laser tag arena, the team used the Q-SYS Scripting Engine to write custom Lua control scripts and design custom user interfaces for the game operators. Before a match starts, the operator selects a combination of color and time remaining on a Q-SYS TSC Series touch screen controller. Based on their selection, a custom script sends out a prerecorded message that informs each team when their games start and where to meet up with their teammates. The script also sends an additional control trigger to a third-party digital signage player for visual message reinforcement.



Solutions

Processing Power Unleashed

A number of mission-critical zones and rides throughout the park feature dedicated Q-SYS Core 110f processors. This setup provides additional processing power and local audio channel capacity for these zones while maintaining local AV operation should the primary Core 1100 go offline for any reason.

- As the number of ride occupants increase, in the "Logger's Revenge" attraction, so does the amount of noise generated from the rising water levels, making the ambient noise level much louder. Designers deployed the Q-SYS Ambient Noise Compensator component, which automatically adjusts background music and paging levels to stay at an audible level without needing a staff member to make these audio adjustments manually.
- The "Fright Walk" haunted walkthrough attraction took full advantage of the Core 110s' onboard multitrack audio player, which has the ability to store up to 32 audio tracks (with a software-enabled license). This enables playback of the myriad of haunted sound effects used for this attraction.

The AV team also used Core-to-Core streaming, which allows for audio streaming and control from each individual system (powered by a Q-SYS Core 110f processor), back to the main Q-SYS Core 1100 Enterprise processor that serves the entire park. This supports emergency paging and other notification needs between different areas in the park.

Q-SYS for Events and Meetings

"The Cocoanut Grove" event space hosts a variety of in-park corporate and private events. It includes an 8,500 ft² ballroom along with a number of divisible meeting spaces.

The team deployed the software-based Room Combiner component, which offers a simple and intuitive way to combine audio in divisible spaces. They also used a combination of the Command Buttons component (one-way, command strings) and Lua scripting (custom control scripts) for control of thirdparty projectors, displays and video switchers in the meeting spaces and the ballroom. With Q-SYS UCI Editor, the team deployed custom user control interfaces (UCI) to Q-SYS touch screen controllers. The UCI Editor allows for drag-and-drop integration of controls onto custom UCIs, allowing for quick deployment without the need for any programming.

Solutions

Q-SYS Loudspeaker & Amplifiers

A number of high-impact locations throughout the park feature Q-SYS AcousticDesign™ Series loudspeakers. The team chose AD Series because of the consistent acoustic properties shared across different enclosure types (ceilingmount, pendant-mount and surface-mount). This allowed them to mix-and-match enclosure types throughout the event center, bowling alley, haunted attraction and amusement park ride queues without any noticeable audio transition between form factors.

The AV team also chose CXD-Q network amplifiers, which were built for the Q-SYS Platform, to provide power throughout the park. Q-SYS allows for full control and telemetry monitoring of the amplifiers. The amplifiers also feature Intrinsic Correction™, a QSC technology that works directly with Q-SYS loudspeakers to provide uniquely optimized sonic performance. This feature helped expedite tuning and deployment activities in areas of the park that included Q-SYS loudspeakers.

AcousticDesign™ Series pendant-mount loudspeakers

CXD-Q Network amplifiers, Q-SYS Core 110f & a custom UCI for monitoring

Solutions

End-to-End Network AV&C Solution

"Q-SYS just seemed to be the perfect answer to our problems!" explains Kevin Grewohl, Audio Systems Supervisor at Santa Cruz Beach Boardwalk. "First, it helps us deliver more functionality with less hardware. And because it's software-based, it will be better prepared to support our future plans as we continue to add more features and capabilities down the line."

"The system has worked great thus far," he continued. "It's more streamlined from an operational standpoint, but most importantly, the Q-SYS Platform enables us to deliver a top-notch guest experience throughout the park. We are really happy we chose Q-SYS for this project."

Q-SYS

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Q-SYS Equipment List

Model	Pcs Used	Description	Image
Q-SYS Core 1100 Enterprise Core (now updated to the Core 5200)	2	Q-SYS Enterprise Core Audio, Video & Control processor Network I/O: 256 x 256	
Core 250 (now available as the updated Core 610)	2	Q-SYS Integrated Core Audio, Video & Control processor Network I/O: 64 x 64 8x I/O audio card slots	
Core 500i (now available as the updated Core 610)	2	Q-SYS Integrated Core Audio, Video & Control processor Network I/O: 128 x 128 8x I/O audio card slots	
Core 110f	8	Q-SYS Unified Core Audio, Video & Control processor Network I/O: 128 x 128 Local I/O: 24	
CXD4.2Q	5	CXD-Q Series Networked Amplifiers Four-channel Q-SYS network amplifier with 4 mic/ line inputs 700 W/ch at 8 Ω	
CXD4.3Q	53	CXD-Q Series Networked Amplifiers Four-channel Q-SYS network amplifier with 4 mic/ line inputs 1400 W/ch at 8 Ω	
CXD4.5Q	4	CXD-Q Series Networked Amplifiers Four-channel Q-SYS network amplifier with 4 mic/ line inputs 2000 W/ch at 8 Ω	
AD-P6T	12	AcousticDesign Series pendant-mount loudspeaker, 6.5 in	
AD-C6T	12	AcousticDesign Series ceiling-mount loudspeaker, 6.5 in	

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Q-SYS Equipment List

Model	Pcs Used	Description	Image
AD-S4T	2	Q-SYS Enterprise Core Audio, Video & Control processor Network I/O: 256 x 256	
AD-S8T	2	AcousticDesign Series surface-mount loudspeaker 8 in woofer / 1.4 in compression driver	
I/O-8 Flex	3	Q-SYS Channel Expander 8x I/O flex channels built-in Q-SYS Web Conference Integration	
I/O-22	2	Q-SYS Channel Expander I/O Channel Count: 2 x 2 built-in 8.5 W mono amplifier for local loudspeaker	
I/O Frame	5	Q-SYS I/O Network Interface 4x I/O card slots for up to 16 channels of I/O into the Q-SYS network	
TSC-7w	6	Q-SYS Touch Screen Controller (wallmount) 7 in (178 mm) screen dimension 800 x 480 resolution	
TSC-7t	4	Q-SYS Touch Screen Controller (table-top) 7 in (178 mm) screen dimension 800 x 480 resolution	
TSC-55w-G2	2	Q-SYS Touch Screen Controller (wallmount) 5.5 in (127 mm) screen dimension 1280 x 720 resolution	
TSC-3	10	Q-SYS Touch Screen Controller (wallmount) 3.5 in (88.9 mm) screen dimension 320 x 240 resolution	

Q-SYS

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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