

Bringing it all Together for High-End Residential



Family achieves goal of centralizing AV distribution and control, simplifying access to personalized entertainment in every room

A luxury home AV installation for the Singleton family in Huntington Beach, California highlights how HDBaseT routing and distribution systems provide exceptional value and flexibility for moving audio, video and control data across multiple rooms and spaces. Installed by Long Beach-based Digital Installers, the project delivered a multi-room system with a centralized AV core into the residence of an existing client as part of a larger renovation.

A Need for Centralization

According to Esmond Duong, technology manager at Digital Installers, the lack of a centralized headend meant that connectivity between spaces was virtually absent, leaving the family to manage a hodge-podge of disparate systems by room.

“There were separate systems throughout the entire home, which meant that the AV equipment was local to whichever room that person happened to be in,” said Duong. “Both the Singletons and the Digital Installers team had a goal to design and deploy a centralized system that would also bring down the number of components to manage.”

Duong and his team set their sights on an HDBaseT matrix design that brought together new technology from Atлона, Control4, Samsung, Sonos and TruAudio. The backbone includes an extensive new cabling infrastructure as well as a centralized Middle Atlantic 19-inch rack enclosure.

“The headend exists in a very tight space,” said Duong. “We needed a single tall and robust rack that could



slide out from the wall and support a lot of weight, particularly for the audio systems that populate most of the rack space. The enclosure was also spacious enough to accommodate our cables, which we also pull through a wall-mounted Legrand On-Q enclosure to manage the runs.” WattBox WB-100-VPS-6 rack-mounted power strips serve as AV power management inside the rack.

AV Everywhere

The AV for the two-story house is distributed to a large and diverse group of spaces. Inside, the system reaches a foyer, wine cellar, kitchen, dining room, living room, two offices, a master bedroom and two guest bedrooms. The system also reaches outdoors and other sections of the home, including a covered patio, a trellised patio, a pool, an exterior deck, and a large garage.



AT-OPUS-810M



The backbone of the system uses HDBaseT-certified Category 6 cabling throughout, which Duong emphasizes as “mandatory” for ensuring signal integrity. “The cabling must always be HDBaseT-certified,” he said. “Otherwise, there are too many potential quality issues to troubleshoot, especially when it comes to high-resolution video transmission.”

Digital Installers quickly concluded that Atлона’s Opus™ Series of matrix switchers and receivers would best meet the requirements for the Singleton home, which included 4K video distribution for several rooms. Duong chose the AT-OPUS-810M HDBaseT matrix switcher for the heart of the system, which provides eight inputs for local sources and ten outputs for delivering content to the various zones.

The main switcher is installed in the Middle Atlantic AX-SXR-43, an in-wall rack that can be rotated once pulled out from the structure. The rack system is installed in a second-floor closet that essentially serves as the Singleton’s AV headend.

The 8x10 matrix capacity was a strategic choice, according to Duong. “In choosing the largest size available, the client can grow into the system,” he says. “Instead of choosing the exact fit for the time, we prefer building in extra capacity because then the client knows that they can always grow into it and continue to add new sources and destinations.”

The matrix switcher feeds Atлона AT-OPUS-RX receivers in several rooms that are outfitted with new 4K/UHD displays for television. Digital Installers added a Samsung

UN43LS03NAFXZA 43-inch “The Frame” TV to a first-floor home office where Mrs. Singleton typically works. “She enjoys interior design, so we thought that ‘The Frame’, whose bezel emulates those found in art galleries, was the perfect aesthetic choice for her space,” said Duong.

Sony OLED and LED 4K displays were added to the family room, master bedroom, the second office, and the outdoor patio. Several televisions from the homeowner’s previous residence were also installed, along with a number of client-furnished Apple TVs and DirecTV set-top boxes for media playback.

Duong notes that the Opus system streamlined distribution between these rooms, and was supplemented with Atлона HDR-EX-70C-KIT HDBaseT extender kits in the rooms most distant from the headend. The HDBaseT connectivity in all of the Atлона systems eliminated the need to integrate Apple TVs or DirecTV boxes in each space the homeowners wanted these services.

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-Esmond Duong, technology manager at Digital Installers

“They just have a few Apple TVs and DirecTV boxes that are on the Opus matrix, and then from there the signal is distributed to any room they want,” he says, emphasizing that this strategy simplified the Singleton’s video requirements.

A Control4 C4-4SIGHT-E solution, chosen for its ability to work well with the Atlona Opus, provides a remote connection back to the headend for control of the AV across all rooms.



“Control4 simplified the entire rollout, as we did not have to build the entire control matrix from scratch,” said Duong. “It’s a simple interface for the Singletons as well, and a quick learning curve when it comes to managing video and audio playout across different rooms. This system also plays very nicely with Opus, which was important for both our team for the integration, and to the Singletons for ease of use.”

Free Flow

Communication between other devices in the system, such as control, audio, and automated home systems (including Nest temperature control) is enabled through an Araknis Networks AN-700-AP managed switch.

“We selected a managed network switch that allows us to pull up the GUI interface, see the pathway of how the traffic flows, and label the connection points,” said Duong. “This is a robust switch that adds value by enabling control of each port, which facilitates troubleshooting.”

A Sonos networked audio system amplifies and delivers audio throughout the house, including surround sound in several of the rooms with TVs. Opus supplies the television audio to be played back through the speaker system.

“We de-embedded the audio from the HDMI input and send it out as an analog signal,” Duong says. The speaker system is made up of a combination of six- and eight-inch TruAudio speakers powered by either Sonos amplifiers or a Sony AV receiver.

“We chose different TruAudio systems for each room to match the environment,” said Duong. “For simpler listening rooms, we chose their six-inch carbon fiber speakers. For surround rooms with a complete AV experience, we chose the larger format eight-inch loudspeakers with separate in-wall subwoofers. That helps to free up real estate on the floor, which especially pleased Mrs. Singleton.”

For the Singletons, the Atlona Opus system answered their key requirement for a system that supports 4K.

“As technology changes and new resolutions are introduced onto the market, the video distribution systems have to support it,” Duong says. “When 4K was introduced, there were few companies that jumped on the bandwagon right away. This system addresses the requirements for high-end AV distribution in the home that we see emerging as a common request from residential customers.”

SELECT FEATURED PRODUCTS

MODEL	DESCRIPTION	
Opus Series Matrix Switchers	<p>The Atlona AT-OPUS-46M, AT-OPUS-68M, and AT-OPUS-810M are part of the Opus™ Series of HDMI to HDBaseT matrix switchers for high dynamic range (HDR) formats. Part of the comprehensive family of Atlona 4K HDR integration products, these 4x6, 6x8, and 8x10 matrix switchers are HDCP 2.2 compliant and support 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI data rates up to 18 Gbps.</p>	
AT-OPUS-RX	<p>The Atlona AT-OPUS-RX is an HDBaseT receiver for high dynamic range (HDR) formats, designed for use with the Opus™ Series of HDMI to HDBaseT matrix switchers. Part of the comprehensive family of Atlona 4K HDR integration products, the OPUS-RX is HDCP 2.2 compliant and supports 4K/UHD video @ 60 Hz with 4:4:4 chroma sampling, as well as HDMI data rates up to 18 Gbps. It receives HDMI, Ethernet pass-through, and bidirectional IR and RS-232 control signals up to 330 feet (100 meters) over CAT6a/7 cable.</p>	
AT-HDR-EX-70C-KIT	<p>The AT-HDR-EX-70C-KIT is part of the Atlona UHD-EX Series of HDBaseT extenders. The HDR-EX-70C-KIT is cost-effective and ideal for applications requiring the latest as well as emerging 4K/UHD and HDR sources and displays. It supports 4K HDR10 @ 60 Hz and Dolby Vision @ 30 Hz.</p>	

