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GABRIEL BOSCH

IP at the NAB Show: Showcasing the Future

Big Changes at Avid

CEO Louis Hernandez Jr. was terminated by Avid's board of directors in the wake of an internal investigation into "improper non-financially related workplace conduct." Jeff Rosica (pictured)

Innovations: Audinate Dante Domain Manager Platform

By Brad Price, Senior Product Manager, Audinate

As AV systems move toward using IP networks for connectivity, we now see much deeper levels of integration for control and configuration. How is this affecting what it means for AV gear and what it means to be an AV professional?

New audio devices and networking

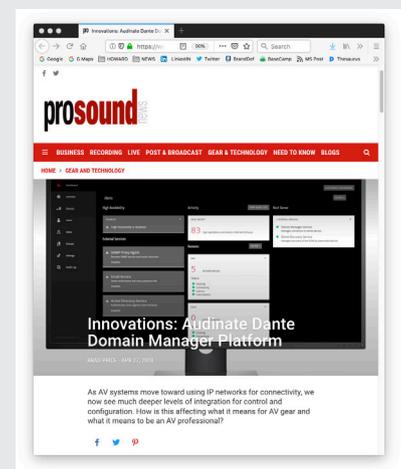
Newer audio products and devices now commonly offer networking options for audio transport and configuration. In some earlier implementations, we saw separate network connections for control and audio connectivity. Now, this is not necessary because of how IP networks are designed.

IP networks are designed to accommodate a nearly infinite variety of data types simultaneously. In computer networking environments, thousands of transactions are conducted between many devices every second, delivering everything from emails to software updates and location data on your phone to an upload of your latest novel without worry of data loss or corruption. AV networks are no different. Audio and video signals are simply types of data, sharing cables and ports with all the rest. It makes economic sense to treat AV products as devices that can use the network for any and all communications.

Getting legacy devices onto next-generation networks

Older equipment cannot be blamed for being "network unaware" since it still may work well and have value, such as analog and digital devices, and point-to-point digital audio transports like MAD1 and AES3. It also applies to early implementations of "audio over Ethernet" that are not compatible with general purpose networks, such as Ethersound or CobraNet.

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Fortunately, manufacturers have stepped into this breach with a wide array of convertor products that can help migrate both analog and digital signals to audio networking. Dante, for example, is built into over 250 input/output (I/O) products available to handle nearly any number of channels in nearly any type of format.

It must be noted that while I/O converters are incredibly useful for getting audio in and out of older gear, they cannot provide any type of internal control for the products to which they are connected, which limits the capabilities of the system. Individual devices must still be managed using non-networked workflows.

Adapting older equipment to audio networks is key to preserving their value. With that in mind, Audinate has created a family of cost-effective, low-channel-count adapters for use with non-networked mixers, direct boxes, amplifiers, powered speakers and more. Dante AVIO adapters are available for one- or two-channel analog input, one- or two-channel analog output, bidirectional two-channel AES3 and bidirectional two-channel USB. Dante AVIO helps older equipment be useful for years to come.

Networks do more than transport media

Because an IP network may carry many data types simultaneously, AV systems are evolving toward a completely IP-based model for all tasks. This consolidates connections and technology, and provides a consistent, reliable platform upon which software applications can run to perform a wide range of common, and uncommon, tasks.

System configuration

One of the more obvious applications is the control and configuration of AV gear beyond interconnection. This may include adjusting channel gain on a mixer, creating submixes or summoning different effects presets on a DSP. The flexibility of IP technology allows all of these things to be performed using software from anywhere on a network, without the need to physically contact equipment that may be difficult to reach.

Subnets

Many past and present IP and AV transport systems are designed to work on single segments of an IP network, also called subnets, limiting the expandability and range of an AV network. These barriers are coming down as

technologies — like Dante — mature and allow media to be distributed over much larger and more complex networks comprised of many subnets.

Security

Prior to the use of IP networking, AV systems offered very little protection for data or tampering. This made sense in closed, point-to-point systems, like analog. But with networking comes the need to manage and protect all easily-accessible devices. Administrators are now realizing that AV networks require robust access protection, just like any other IP network. Fortunately, IT has a long history of solving these problems, and AV-centric management and security products are starting to appear.

Dante Domain Manager (DDM) allows Dante audio network administrators to determine who can access selected sections of the system, using a familiar system of user authentication that can be tied to existing management infrastructure, such as Active Directory. Dante Domain Manager organizes a network into zones called “domains” that each have individual access requirements, making it clear and easy to know who can access any area of the system. All activity is logged, tagged and date-stamped so problems can be quickly identified and solved.

Dante Domain Manager also coordinates multiple subnets, allowing Dante audio to be used across networks of nearly any complexity or size. Users of Dante-enabled devices don't have to perform any special configuration since this task is completely automated by DDM.

Conclusion: What we've learned from IT

The AV world is migrating away from the point-to-point devices employed for decades and quickly moving toward networking. This does far more than simply change what wire carries a signal – it alters the landscape completely, allowing for far greater degrees of control, flexibility and responsibility. With that comes the need to understand the basic tenets of security that IT has developed from decades of experience.

The much talked-about IT/AV convergence is as much about people learning from people, as it is new products and technologies coming our way.