



Audio Networking in Higher Education

Transforming Facilities, Workflows and
the Student Experience with Dante

 **dinate**[®]



Transforming Facilities, Workflows and the Student Experience with Dante

A professor asks if you can facilitate recording a lecture by a visiting scholar that all students can access. Another asks if your department could somehow distribute real-time audio to students residing in dorms. The music department wants to give and record a performance in an outdoor space, but all the equipment is already setup in another area on campus. The big game is Friday, but the athletics department has their own separate audio system and so you can't distribute the play-by-play action to students eager to keep track from locations around the school.

Modern campuses contain many technical marvels, but too often the AV system isn't one of them. While today's students are accustomed to ubiquitous digital connectivity, the systems in place frequently use point-to-point analog and digital connections that tether the system to physical locations and short distances. Connecting these systems using legacy technology simply makes no sense, technical and otherwise.

Today, these challenges are solved through the use of networking to distribute real-time media. AV-over-IP solutions like Dante deliver incredibly reliable, high-quality audio over standard computer networks, free of the problems of noise, weight, distance, channel count and scale that limit legacy systems. Wherever there is a network port, hundreds of audio channels and devices can instantly be accessed, anywhere on campus.

This paper illustrates how Audinate's Dante - the most popular AV-over-IP solution by far - can transform what educators do with campus audio with the inclusion of Dante Domain Manager.

Industry Segment

Universities
Higher Education

Solution

Dante Audio Network
Dante-Enabled Products
Dante Domain Manager

Audio unbound

Imagine an audio system seamlessly covering your entire campus. Hundreds of devices in different areas, some stationary and some portable. Distances might range from 50 feet for a single room to thousands of feet for spaces around the school and associated buildings. And yet, everything can be easily connected to deliver flawless, real-time audio. Audio resources from around campus can be used together, no matter where they are located.

That lecture a professor wanted you to record? Done, directly to a server in another building. Connecting rooms to the stadium audio system to share game play? Done from any point on campus with a few mouse clicks.

“We can have a group of musicians in one room and have students in 4 or 5 other studios doing live mixes, all at the same time.”

— Scott Burgess, Manager of Recording Labs and Live Sound at the University of Colorado, Denver

Such a system was a pipe dream in the days of point-to-point analog or digital audio. But AV-over-IP delivers this kind of flexibility right out of the box; distance no longer affects signal quality or latency, and technologies such as fiber-optic cable allow network endpoints to be placed very far apart.

Dante takes these advantages and extends them further by enabling fully routed network audio. Unlike other AV-over-IP solutions that are relegated to a single network subnet, Dante with Dante Domain Manager can be deployed across any number of subnets. Rather than being forced to configure a separate “flat” network or VLAN for audio, the system can instead be laid directly over the existing topology, reaching every location in every building.

A Dante-based system with Dante Domain Manager lets you extend your audio system without the limits of other AV-over-IP solutions, addressing your entire campus as one coherent platform to serve the needs of teachers, students and faculty.

Audio organized

Media covering a sporting event at the stadium need access to audio feeds. Touring performers want to access parts of your sound system in order to use it with their gear. How can your AV department respond to these requests without jeopardizing the stability of the rest of the audio network? And how easy will it be to understand the changes one has to make?

“We have a stadium 365 initiative going on, a combination of a convention center and a stadium... 3rd party providers come in, they need connections whether it’s press feeds or a production team and they need a connection. This all needs to be manageable.”

— Sean Snitzer, Senior Systems Analyst at Arizona State University

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Speed is so important. Plug one wire in, and all of the sudden we had 12 wireless microphones or 24 channels of recording.

**— Scott Burgess,
University of Colorado, Denver**



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Traditionally, we'd have to roll a console to a location and do everything on site locally. We can now use mixing devices and send everything back to our main facility, and it will look as fit and finished as any production event that we'd do in the main auditorium.

— Will Davidson,
Brigham Young University,
Idaho

A large, flat network of devices would make this task difficult, as all devices are visible and editable at once in configuration software. While great for small systems, it's easy to see that this is a problem for someone trying to manage an expansive campus network.

Dante Domain Manager solves these problems of access, clarity and security. It lets you divide your campus network into separately managed groups called Dante Domains that are configured to correlate to rooms, studios, buildings, or event spaces, so that when an authorized user views the Domain in Dante Controller they only see the devices and connections within - other devices in other Domains cannot be affected. Domains simplify use of the system and prevent unwanted and unintended changes from interrupting service elsewhere on the network. Create "safe spaces" for visitors that allow stems to connect to other Domains reliably and risk-free.

Domains are easily created and managed with Dante Domain Manager, with no need to rewire or reconfigure individual devices. Dante Domain Manager is vendor-neutral and works with any up-to-date Dante-enabled products, allowing domains to be comprised of any devices you choose.

Audio secured

Legacy audio systems have little, if any concept of user security. If you can reach the products, you can change them.

Until Dante Domain Manager came along, our security policy was just "don't touch anything or you're fired".

No one wants to work that way.

*— Will Davidson, Media Systems Engineer at
Brigham Young University - Idaho*

In a campus environment, such a model forces AV departments to assign personnel to each event to operate systems, creating bottlenecks and increasing costs. There are lots of students who would like to learn and help, but it can be risky to grant them access to the entire network.

Dante Domain Manager lets you securely give students and contractors access to specific areas of your audio network to run events and class projects. Rules are centrally administered, and each user must be authorized by the site administrator to use the any Domains at all. The administrator can choose roles for each user, from view-only to full access. Users may be defined within Dante Domain Manager or using existing services such as LDAP or Active Directory.

This approach allows an AV department to confidently allow faculty, students and even third parties to use the system with safe, appropriate levels of restrictions. Instructors may be given access to route audio in their own classroom and select students may be allowed to use parts of the system for performances, all without jeopardizing configurations elsewhere on the network. Tampering issues are eliminated, as are many unintentional mistakes.



“As audio guys, we’re “get off my lawn” type of people. IT land are also “get off my lawn” type of people, but now we have something with which we can all play well together.”

– Joe Way, Director of Learning Environments at the University of Southern California

Dante Domain Manager maintains complete audit logs of all activities, making it easy to determine who did what and when, to any part of your Dante AV network.

Audio controlled

In legacy point-to-point systems, cables and connectors dictate most signal paths. Control happens on devices themselves, and it usually requires a trip to wherever the gear is installed. This often means redundant equipment in different areas of campus, and a constant drag on AV department resources.

In any Dante system, routing is done entirely at the logical level over the network. Ethernet cables remain static while channels may be reassigned and configured in nearly any imaginable fashion, a task that may be accomplished from any point on the campus network with simple software and appropriate permissions from a Dante Domain Manager administrator.

The use of Dante Domains greatly simplifies the task of controlling system organization and routing in safe and understandable ways, even over a distance. By dividing the system into smaller, functional sections it is easier than ever for an administrator to clearly see how each domain is configured and by whom, while each authorized user sees only the devices for only one domain at a time.

Dante Domains help to maintain system integrity. Rather than allowing the system to gradually become more disorganized over time - as pieces are borrowed, broken and moved - Domains allow any administrator to instantly see the complete inventory of the AV system and take steps to ensure that all components remain in place and working.

In legacy AV, it’s a familiar drill: a connection fails, but no one bothers to mention it and so there it sits until an important event makes it a sudden priority, sending staff scampering to find the culprit on the other side of campus from wherever they are.

A networked audio system with Dante Domain Manager won’t let this happen to you again. A user-configurable dashboard provides a complete set of real-time alerts to administrators, letting them know instantly if there is a problem and precisely where that problem might be on the Dante network. Unauthorized gear, device failures, user errors and network issues are immediately visible from any point on the network, while email alerts can be configured to keep administrators informed no matter where they are.

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The less time you have to stand in a room fiddling with something in front of 200, 300 people, the better.

— Guy Eckelberger,
Director of Information
Technology,
University of Oregon



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They don't have to be practice rooms. Throw a Dante connection in there and they're isolation booths.

— Sean Snitzer,
Arizona State University



Legacy system failures may induce head-scratching puzzlement, but Dante Domain Manager knows what happens, 24/7. Complete time- and user-tagged audits of all activity allow administrators to clearly see patterns of use, helping them to spot potential problems before they become severe. Is one device power cycling twice a day? Now you know, and you can address it. Is there one user who makes many routing mistakes before arriving at the right set of connections? Perhaps that person needs some training - and now you know.

Conclusion

A true campus-wide AV system has been a dream for years, but until recently it remained an unpractical one. That changes with Dante Domain Manager. Only a Dante network coupled with Dante Domain Manager offers educators a completely managed, easy-to-use, subnet-traversing solution that spans multiple vendors over an incredibly wide range of devices and applications.

Only Dante with Dante Domain Manager supports the scale and range of vendors that IT and AV departments demand. And only Dante with Dante Domain Manager gives your students the chance to work with the industry standard for professional audio transport.

- Subnet traversal for complete coverage of all network regions
- User authentication for secure access control by faculty and students
- Domain organization for clear, easy management of the system by all users, including third parties
- Manage from anywhere using any connected computer
- Audits and alerts to keep administrators instantly informed about all system changes and activities.

With more than 2,000 products from more than 400 manufacturers with which to deploy your system, Dante with Dante Domain Manager fits perfectly into AV designs for colleges and universities.

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Audinate is the leading provider of professional digital audio networking technologies globally. Audinate's Dante platform distributes digital audio signals over computer networks, and is designed to bring the benefits of IT networking to the professional AV industry. Using Dante-enabled products ensures interoperability between audio devices and allows end users to enjoy high quality, flexible solutions—typically with a lower total cost of ownership.



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