

Dante AV™ or NDI®?

Bolin designs and builds product lines for Dante AV™ and NDI® AV over IP systems. Customers usually ask, “Which of these is better?” We answer, “Let’s discuss which solution best suits your needs.” In that spirit, here is a high-level overview of Dante AV and NDI.

Bandwidth

NDI®	High Bandwidth	HX3
• 3840x2160 4:2:2	~250 Mbps	H.264 ~110 Mbps H.265 ~84 Mbps
• 1080p60	~130 Mbps	H.264 ~62 Mbps H.265 ~50 Mbps
Dante AV™	Ultra	H
• 4096x2160 4:4:4	~250-700 Mbps	
• 3840x2160 4:2:0		~10-50 Mbps
• 1080p60	~100-300 Mbps	Very Low

Bandwidth is a foundational issue, especially in the standard 1Gbps networks in which NDI and Dante AV are designed to work, and your choice of transport system must include the typical bandwidth for the video stream. The details in this table are best estimates based on my tests and sourced from NDI and Audinate.

Audio/Video Synchronization



Audio will always beat video in the race to the screen because it is a much lighter packet stream. This is why the audio stream must be delayed to synchronize with the video. The audio delay is adjusted in Dante Controller for each Dante AV Ultra video flow. Once synchronized, that timing is constantly monitored and maintained by precise PTP clocking, which is communicated device-to-device across the network. This is a hallmark of Dante AV Ultra, resulting in **unparalleled precision and performance.**

NDI functions differently. “NDI transmitters and receivers do not require any specific synchronization method to connect and function. An NDI infrastructure can operate “sync-free,” avoiding the complexity and cost of network systems that support synchronization

layers.” [Source: ndi.video] In live production, this means that if the audio layer of the NDI feed can be delayed, the TriCaster does this exceptionally well; audio/video synchronization is achievable, if not rock-solid. To synchronize multiple video and audio sources, NDI recommends one or a combination of a blackburst signal, an NTP or PTP clock, or Genlock. [Source: docs.ndi.video]

Software Tools – NDI

The Tools and Plugins available for NDI are extensive. From versatile video and audio utilities to broadcast test patterns and plugins for production software, the tools available for NDI expand its capabilities significantly. And they are free. Most video conferencing and presentation software has native or plug-in support for NDI. Production software like Adobe Premiere Pro and After Effects have NDI plug-ins. Tools like Screen Capture make broadcasting a computer presentation output as easy as a PTZ camera. Studio Monitor makes it simple to discover and display any NDI source on the network with built-in support for PTZ control. And then we have NDI Bridge. NDI Bridge uses PCs in Host and Join mode to securely connect NDI infrastructures across LANs and WANs. With NDI Bridge, a broadcast host can easily bring in an entire remote broadcast setup, camera crew, or a single reporter and put it on air. NDI Bridge supports video, audio, PTZ control, and more. NDI 6 introduced NDI Embedded Bridge, which allows individual devices to connect to a remote LAN with NDI Bridge in host mode. It’s a remarkable achievement. NDI Tools are available for Windows and Mac. NDI Bridge is Windows-only.

Software Tools – Dante AV

Dante Controller software is recognized worldwide. That’s because it is the heartbeat of Dante’s signal flow management. Dante AV uses Dante Controller to make video subscriptions in precisely the same way. Dante Controller makes it easy to create multicast video flows, simplifying the ability to take a single video source and subscribe it to multiple endpoints. It is available for Windows and Mac. Audinate also offers Dante Studio™ for Dante AV, which extends the capabilities of Dante AV Ultra and Dante AV-H. Dante Studio can receive up to four simultaneous video flows, which are then available to vMix, OBS, Teams, Zoom, and more. Studio channel 1 supports AV Ultra or AV-H. Dante Studio can also transmit the output of the PC on which it is running, making that video available anywhere on the Dante AV network. Dante Studio also includes Dante Video Viewer, a standalone application that allows you to view the subscribed video streams. Dante Studio is for Windows PCs only and has an annual subscription price model.

Summary

Bandwidth, Video Quality, Tools, Integration, and Audio must all be considered when choosing between Dante AV and NDI. Each solution has keystone features that, in many cases, are the deciding factor. Dante AV and NDI have proven reliability as an AV over IP solution, are in active development, and have exciting futures.

<https://bolintechnology.com/bolin-infocus/case-studies/dante-av-or-ndi-which-is-better>