Dante Troubleshooting

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Dante Troubleshooting

In this session we will be covering:

- Several real world troubleshooting scenarios
- An overview of top issues and how to resolve them.
- Tips and techniques to use when analyzing or troubleshooting a Dante network.
Before We Begin...

- It is recommended in general that you ensure all your Dante devices are using the latest firmware.
- And that you are using the latest version of Dante Controller.
You’re in charge of the audio system for a week long sports festival.

- The numerous Dante enabled mixing consoles, DSP, speaker processors, and switches are supplied by a rental company.
  - It’s gear you’ve worked with before, except for the switches
- The equipment is set-up, connected and powered on.
- All of the devices appear as they should on the network.
  - You begin routing some audio.
- You immediately notice that audio is intermittent throughout the system.

What should you do?
Troubleshooting Examples

Scenario 1

- You check the Clock Status tab find:
  - Multiple devices are appearing as the master clock for the system.

- You can perform a test:
  - Connecting several of the devices in a “daisy-chain” configuration
  - These work fine, so you suspect the switch settings.

- You check the configuration of the switches.
  - Finding that the previous user had blocked all multicast traffic.
  - Preventing the Dante PTP clock from functioning properly

- You correct the setting(s) and the Dante network clocks properly.
Troubleshooting Examples

Scenario 2

- A recent Dante installation has 20 equipment closets located throughout the facility.
Troubleshooting Examples

- Room combining is an everyday occurrence with this system.
  - Typical of the audio systems used in Hotels & Conference/Convention Centers.

- Your client is complaining of intermittent noise and/or distorted audio.

What should you do?
Troubleshooting Examples

Scenario 2

- You determine certain room combines and overflow combinations can trigger the noise.
- In Device View in Dante Controller you check the latency settings for each of the devices.
  - They are set to the default value of 1ms
- The number of switch hops that occur in certain room configurations well exceeds the default latency setting.
- You change the latency settings for the devices to 2ms.
Your bringing a system online in a facility which contains many Dante devices

- Around 30% of the devices use Brooklyn II (Gigabit)
- The remaining devices all use Ultimo (100Mbps).
- The audio distribution needs of the facility require the use of numerous multicast Dante flows.
- The system has been running for several days.
- It is passing audio but occasionally sounds distorted in certain coverage areas.

What should you do?
You look at the Multicast Bandwidth usage on the Status Bar in Dante Controller

- It says that you have 90 Mbps of multicast traffic on the network.

A majority of the Dante equipment being used is has 100Mb ports (Ultimo)

- The amount of multicast traffic is nearing the capacity of the 100Mb Dante interfaces.
- Running out of bandwidth.

You turn on IGMP snooping to manage the multicast traffic.

- Leaving you with plenty of headroom for the Ultimo devices.
You’ve been using the same 200’ length of CAT-5e cable
- For connection between the stage and FOH mixer for gigs.

You used it the night before
- It worked for at a smaller event (24Rx and 12Tx).

Today it's being used at a larger event.
- 256 x 256

But you are having problems connecting all of the channels

What should you do?
Troubleshooting Examples

Scenario 4

- The cable appears to be good
  - After all, it worked yesterday

- You disconnect the cable and plug in a spare.
  - All channels are working properly.

- You determined that the bandwidth of the cable was compromised.
  - It worked for lower channel counts (requiring less bandwidth) but did not function at higher channel counts.
Overview: Dante Troubleshooting FAQs

- Many Dante issues are very simple to resolve.
- These issues tend to fall into one of the following categories:
  - Connectivity
  - Dante Controller - devices not appearing properly.
  - Audio artifacts or distortion on certain devices
  - Loss of audio / Audio muting
Connectivity & Device Appearance

- Check that the network cable is plugged in
  - And that the activity lights are flashing (fairly rapidly).
- Check that the correct network interface is selected.
  - Using the 'interface selection' button in the toolbar of Dante Controller:
- Check that your network interface has the correct IP address.
  - Or that it is set to DHCP
- If there are two different wired network interfaces on your computer:
  - Ensure that they are in different subnets – or disable the unused network interface.
Connectivity & Device Appearance

- Check that you have no Antivirus software installed or firewall active
  - Please see Dante controller user guide for details of how to safely configure a firewall for use in a deployed network.

- If an item/feature is greyed out:
  - It is because that Dante enabled device you are using does not support changing that feature
  - Or the feature is unavailable in that Dante enabled device.
    - For further information, contact the device manufacturer’s technical support, or visit the support pages of their website.
Audio Artifacts and Distortion

- Probably caused by the input not being synchronous to Dante. Either:
  - 1 - Set the input source to clock to Dante (in most consoles this is a card slot option).
  - 2 - Set Dante to slave to external word clock on this device (external being external to the Dante Network – it is not normally a visible cable).

- Can also be caused by bandwidth limitations caused by network traffic on 100Mb nodes.
Loss of Audio / Audio Muting

- Typically caused by clock issues.
- Dante will mute the audio of a device if it loses sync.
  - Any muting of audio will be listed in the Event Log.
  - Once synced, it will un-mute.
- Use the Clock Status Monitor to analyse the performance history of all the Dante devices on the network.
Tips & Techniques

- Audio professionals’ typically have acquired various test tools and devices over the years.
  - Especially if you're in the field service department
  - Things that make troubleshooting and commissioning audio systems easier

- For analog systems, you might have in your kit:
  - Impedance meter
  - Cable tester
  - Signal generator
  - Telephone Butt-Set
  - Spare microphone
  - Spare cables & adapters
  - DMM
  - Laptop computer
Tips & Techniques

- For networked audio systems, you might have in your kit:
  - Your laptop
  - A long CAT-5e cable
  - Not much else.
Some things to add to your toolbox:

- A spare Gigabit switch
  - To quickly determine where the problem resides
    - In the switch configuration
    - Or the equipment
  - 4 or 8-port
- Various lengths of network cable.
- Dante Virtual Soundcard or Dante Via loaded on your computer.
- A small Ultimo-based I/O device is very handy to have.
Tips & Techniques

- Work smarter, not harder
  - Bring the system up several devices at a time
    - It’s easier to detect any issues (if they appear)
  - For rentals and installations:
    - Do an initial configuration at the shop
    - Not always possible, but it saves time in the field.
Tips & Techniques

- Work smarter, not harder
  - For redundant networks:
    - Bring the primary network online first
    - Get it 100% functional
    - Make sure all of the devices (that have primary and secondary) are set to redundant mode.
    - Then begin work on the secondary.
  - Do not assume every store bought cable is good.
Thank You!