Adventures in audio networking

• 1998 - Our first audio networked project
• 1998 - Did we invent networked intercom?
• 1999 - Created the first networked self powered loudspeaker
• 2008 - Our first Dante project - largest at the time 148 channels
• 2009 - First hybrid Cobranet AND Dante network
• 2012 - Started researching industry networked audio use
• 2012 - First questions AVB’s used in ProAV market
• 2015 - Started independent AES67 tests
• 2016 - Our first fully AES67 installation
• 2017 - Our first fully integrated voice alarm and IT network
Audio networking use

82% had done at least one networked project

Installation

ProAudioEast  ProAudioAsia

Pro Tools Expert
How many projects combine with IT network?

- Fewer than 30%: 69
- 30 to 70%: 16
- More than 70%: 15

(40% have never combined with IT)
Full IT convergent system

- 20 equipment locations
- 6 PCs with controllers and touch screens
- 3 brands of amplifier to monitor
- Full voice alarm compliance
- Full integration with IT network
- Q-Lan and Dante streams and a RAVENNA node
Project requirements

- A client who trusts you (or simply doesn’t understand!)
- An enlightened IT manager
- An intelligent IT manager
- An IT manager who knows the role of IT
- We are the customer
Is it audio over IT or IT over audio?
Whose network is it anyway?

• Define a critical signal path on the network
• Both audio and IT monitor network switches
• QoS, QoS, QoS
• IT sits on audio UPS
Geek detail...

- 2 redundant networks
- 10 gig uplinks between switches
- 3 V-LANS - Control, AES67 and Dante
Discuss

• All suppliers must commit to the AES67 firmware upgrade within 12 months
Audio networking use

Installation

scn

ProAudioEast

ProAudioAsia

Pro Tools Expert
Reasons for most used protocol?

- Most products: 132
- Will be around: 120
- Easy: 93
Reasons for change to new protocol?

- Most products: 125
- Interoperable: 103
- Reliable: 116
How many projects using each protocol?

- AVB 2015: 492
- AVB 2016: 906
- Cobranet 2015: 1,193
- Cobranet 2016: 379
- Dante 2015: 1,744
- Dante 2016: 6,630
- EtherSound 2015: 253
- EtherSound 2016: 191
- RAVENNA 2015: 107
- RAVENNA 2016: 253

80% increase
69% decrease
380% increase
35% decrease
230% increase
More networked projects

<table>
<thead>
<tr>
<th>Year</th>
<th>&lt; 50%</th>
<th>&gt; 50%</th>
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<tbody>
<tr>
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<td>24</td>
<td>18</td>
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<tr>
<td>2016</td>
<td>19</td>
<td>13</td>
<td>13</td>
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</tbody>
</table>
What protocol would non-networkers use?

- Dante: 80%
- AVB: 7%
- Cobranet: 3%
- Dante: 6%
- EtherSound: 4%
AVB
Product availability, switches, support

CobraNet
Old, latency

Dante
Proprietary

EtherSound
Not needed, not supported, limited support

RAVENNA
Don’t know it, broadcast only
Easy to use

- AVB
- Cobranet
- Dante
- Ethersound
- Ravenna
How many projects combine with IT network?

- Fewer than 30%: 69
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(40% have never combined with IT)
And the numbers are ...
Protocol licensees

- AVnu ‘ProAV’
- Dante
- RAVENNA
The beer bet

• Available Dante products Jan 2015 - 296
• RHC Estimate for Jan 2017 - 758
• Available Dante products Jan 2017 - 793
• Available Dante products Feb 2017 - 916
• All Dante products February 2017 – 1008
Products

For explanation go to www.rhconsulting.eu
We don’t count interface cards
Manufacturer Ecosystem Activity

How many manufacturers shipping for each protocol?

- AVB: 8
- Cobranet: 33
- Dante: 132
- Ethersound: 12
- Ravenna: 18