The state of audio networking

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How big is networked audio?
We don’t know!
Nobody knows !
Actually now we know a little!
What don’t we know

- Product sales volume
- Product sales price
- Product sale profit
- Where most products are used
- Was it a networked application?
- Success of the project
Our research

- From an end-user point of view
Available networked audio products

- **AVB**
  - Up to and 2013: 24
  - 2014: 32
  - 2015 (6 months): 7

- **CobraNet**
  - Up to and 2013: 313
  - 2014: 38
  - 2015 (6 months): 134

- **Dante**
  - Up to and 2013: 124
  - 2014: 164
  - 2015 (6 months): 134

- **EtherSound**
  - Up to and 2013: 84
  - 2014: 8
  - 2015 (6 months): 32

- **Ravenna**
  - Up to and 2013: 1027
  - 2014: 6
  - 2015 (6 months): 24

- **Other**
  - Up to and 2013: 104
  - 2014: 10
  - 2015 (6 months): 0
Caveats

- It’s a small data set
- One product line skews data significantly
- Do we know enough about discontinued products?
- Sales volume, profit, actual use?
- Is it *really* shipping?
Interfaces, Transport and software

- Interfaces are product enablers
- Software is one product but unlimited applications
- Transport category will eventually decline
How many manufacturers shipping for each protocol?

- AVB: 8
- Cobranet: 40
- Dante: 87
- Ethersound: 13
- Ravenna: 12
Protocol Loyalty

Number of manufacturers only adopting one protocol
AES67

- Currently 49 products
- 471 if you include Dante products
- 55% of all networked audio products could be AES67
## AES67 Growth

<table>
<thead>
<tr>
<th>Positives</th>
<th>Negatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dante</td>
<td>Cobranet</td>
</tr>
<tr>
<td>Ravenna</td>
<td>AVB</td>
</tr>
<tr>
<td>Q-Lan</td>
<td></td>
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<tr>
<td>Livewire</td>
<td></td>
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<tr>
<td><strong>Layer-3</strong></td>
<td><strong>Layer-2</strong></td>
</tr>
</tbody>
</table>
A tiny proportion of projects

- Too difficult to do
- Lack of true interoperability between products
- Still a pro-audio niche
End-Points

- Until everything is networked, getting signal on and off the network is the key
- Build networking into microphones
- Setting up ‘dumb’ products is tricky
End-Points

- Get it into non-pro-audio products
- RAVENNA and Dante software democratise networked audio
White paper on audio networking

- Released 17th February 2015
What is the networking business?

- It can be tracked like any other new business
- New technology has both invention and a new business model
- Networking technology is a product that needs development and support
Protocols are not standards

- Protocols are products
- Protocols are ecosystems
- Protocols should not be standards
- Protocols should use standards as building blocks to allow interoperability
Types of standard

- De facto - private companies
- De jure - committees and consortia
Product Support

- Difference between AVnu and Dante
- Learn, adapt, develop
- AVnu requires interoperability testing
- Dante carry out bug fixes
## Product development

<table>
<thead>
<tr>
<th>Product</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dante Legacy Module</td>
<td>2008</td>
</tr>
<tr>
<td>Dante Virtual Soundcard</td>
<td>2009</td>
</tr>
<tr>
<td>Dante Brooklyn</td>
<td>2010</td>
</tr>
<tr>
<td>Dante Brooklyn II</td>
<td>2011</td>
</tr>
<tr>
<td>Dante PCI-e card</td>
<td>2011</td>
</tr>
<tr>
<td>Dante Ultimo 2x2</td>
<td>2013</td>
</tr>
<tr>
<td>Dante HC</td>
<td>2014</td>
</tr>
<tr>
<td>Dante Ultimo 4x4</td>
<td>2014</td>
</tr>
<tr>
<td>Dante Via</td>
<td>2015</td>
</tr>
</tbody>
</table>
Typical adoption curve
Tracking adoption

- Audio networking is 18 years old
- We don’t know where we are on the adoption curve
- Perhaps 1 to 3% of projects?
The real competition

Analogue
97%

3%
What does the industry say?

Worldwide survey with unprecedented co-operation from four magazines
Audio networking use

- 75% had done at least one networked project
- 66% used one of the ‘standard’ network protocols (9% custom or proprietary)
How many projects

- AVB: 492
- Cobranet: 1,193
- Dante: 1,744
- Ethersound: 253
- Ravenna: 107
- Other: 471

Projects per user

- AVB: 2
- Cobranet: 6
- Dante: 9
- Ethersound: 1
- Ravenna: 1
- Other: 3
Reasons for most used protocol?

- Most products: 66%
- Will be around: 57%
- Easiest: 47%
Reasons for change to a different protocol

- Most products: 59%
- Will be around: 60%
- Easiest: 44%
More networked projects

- **Last 12 Months**
  - None: 23
  - < 50%: 58
  - > 50%: 19

- **Next 12 months**
  - None: 3
  - < 50%: 55
  - > 50%: 42
Reasons for not using...

- AVB - product availability, switches & support
- Cobranet - Old, Latency
- Dante - No consensus
- Ethersound - not needed, not supported, limited, support
- RAVENNA - Don’t know it, broadcast only
Who controls the market

- 127 people have decided to adopt audio networking
- 87 have opted for Dante
Where is Dante?

- Offering an integrated solution
- Evolving into modular phase AES67 support
- Becoming the De facto standard
Will control points change?

- Initially a few control points create a virtual monopoly
- Later, consumers wrestle control of that decision away from manufacturers
Summary

- Audinate are market leader
- Planning to evolve if they need to
- Dante makes a profit for its customers
- Competitors are slow to market, diminishing or focussed on a niche
- Adoption is increasing rapidly