

# The networking people

The journey from a government-funded research group to one of the leading names in networking technology has been an award-winning and interesting one for Audinate. But what does the future hold?

## 'THE REAL DIFFERENCE IN OUR

company is we're not audio folks, we're networking people,' says Audinate CEO Lee Ellison. 'We really looked at the world as how do you do things properly in a network.' Focusing on its core competency in this way has been the defining characteristic that has taken the Australian company from its intellectual roots to the multi-award winning mainstay of networking technology that it is today.

Audinate was officially formed at the end of 2006 but its roots go back to 2003. 'The original founders of the company used to be with the Motorola Research Centre in Sydney. At that facility they spent most of their time in R&D developing next generation technologies,' explains the CEO. 'The core competencies of the group encompasses areas such as time synchronisation protocols, zero network



The Audinate team in Sydney

the CEO. 'Because there are so many advancements happening in Layer 3 IP, we took an approach that leverages all that the networking and computing industry have created and learned. We employ QoS to ensure

technologies to date is that they have been overly complex to implement. The A/V installation contractor almost has to be an IT expert. Obviously we are seeing that shift going on from the convergence of A/V to IT.'

To address this challenge, Audinate has designed zero-configuration networking technologies into its product. 'So when two Dante or three Dante or 10 Dante nodes are on a network and you plug them in, devices automatically discover one another,' explains Mr Ellison. 'We name a device, Dante tells you how many channels it has and then you just set up routes based on where you want to transmit and receive in either multicast or unicast mode,' he continues. 'When you look at the cost of installation, this really reduces your long-term cost of ownership and the cost of implementation. It also simplifies things like moves and changes.'

With the technology as its driving factor, Audinate has developed a sensible business model of staying with its core competency. Equally it has used this idea to attract numerous partners and OEM companies to release Dante-enabled products. 'We sell modules or license our technology in the form of reference designs for modules that allow customers to implement them quickly and go to market,' says Mr Ellison. 'Networking is hard, and if you really look at most successful businesses they focus

on their core competencies so they can produce their products and get to market quicker. We enable them to do that. Our core competency is the networking and theirs is the professional audio, or in the future video as well,' he reasons.

The company is working with a number of manufacturers across live, installed and broadcast sound on a variety of new products, and the CEO believes Audinate has now passed a turning point in market acceptance. 'We're getting two or three new OEMs coming to us a month,' he says. 'In the past two or three years we were going out to

them, now they are saying "you do solve a problem that hasn't been solved out there" and coming to us. That has been

## Audinate CEO Lee Ellison

configuration protocols, wireless protocols and various types of IP and networking technologies. But when Motorola shut the centre down they said "we've got an innovative idea that we want to take and develop," he continues.

The founders approached the National Information and Communications Technology of Australia (NICTA) research institute and pitched their project. 'They said "we think this is pretty compelling, we'll fund that". So initially we started out as employees of NICTA,' says Mr Ellison. 'Then in 2006 when we got our first licensee, which was Dolby, NICTA said "rather than licensing technology as we have been doing, we think this is interesting enough that we are going to spin this company out". And we became the first commercial spin out of NICTA,' explains the CEO.

Eight years of work has seen the company become recognised as an inventive developer of its patented Dante networking technology, and Mr Ellison is keen to point to what he sees as the core basis of that development. 'We were really the first company to say "why don't we use methodologies for highly accurate



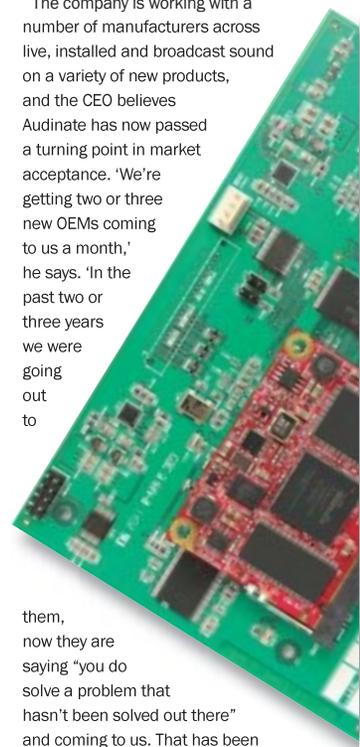
An Allen & Heath DANTE Card

time precision protocols? because networks don't understand timing",' he states. 'We incorporated an open standards approach called IEEE 1588. That time precision protocol is typically used in robotics systems or test and measurement systems for accuracy.'

Added to this, the company put a real emphasis on the internet protocol (IP) suite when developing Dante. 'Early approaches to networking were innovative for the time, but you wouldn't implement it that way today. Most audio networks deployed today do not use IP, rather merely audio over Layer 2 Ethernet,' states

robust operation in mixed networks, and incorporate zero-configuration networking using IP standards like DHCP and Bonjour to simplify network configuration. Dante delivers a complete implementation delivering high-quality, sample-accurate audio at any sample rate.'

While the technology behind the system is clearly the driving factor, Mr Ellison also points to its usability as one of the most important features for market acceptance. 'Usability and market acceptance of the user interface shouldn't be underestimated. The problem we've seen with the adoption of networking



A Dante enabled DiGiCo SD11 circuit board

extremely gratifying.'

As with all companies involved with networking, Audinate is acutely aware of the AVB Standard and what it could mean for the industry. More than anything, Mr Ellison sees the new standard as an opportunity for both Dante and the company. 'You need a transition strategy just as we saw in mobile networks – a phone will support 2.5G as well as 3G. The A/V industry needs that same kind of transition support over time for AVB,' he reasons.

'AVB is still in the definition stage for some of its standards. The core standards have finally been ratified, but Dante gives them a path to AVB and it actually follows many of the things we've already been implementing,' he continues. 'One of the AVB standards, (802.1as) is a profile of the IEEE 1588 time synchronisation protocol. We already have a robust implementation in Dante that we've been using for years. Dante already incorporates QoS, and AVB will provide an improved methodology in quality of service,' notes the CEO.



The Dante-MY16-AUD soundcard for Yamaha products

standards that exist today have not yet finalised how to configure the system, how to discover and name devices, how to implement redundancy in a system. These system features are still required when deploying an AVB network transport,' he adds. 'Audinate offers the applications on top of the QoS, time synchronisation and transport layers, enabling you to configure and manage the network. When the AVB standards and AVnu compliance processes are completed, our OEMs will just update their modules from a Dante transport to a Dante AVB transport,' reasons Mr Ellison. 'The technology and the way

improvements in the solutions. There'll be some lower cost solutions for the OEM manufacturers which will enable our products to get into more low-end products,' he reveals. 'We recently made announcements introducing Dante Netspander which will be available next year, enabling devices to be discovered and transmitted over routed networks. This enables large campus-wide systems support of synchronised

audio across subnets which could not be accomplished to date. 'Because we leverage IP, we will continue to leverage and take advantage of those developments that are occurring,' concludes the CEO. 'We really do future-proof our customers in respect to their implementation today and the future that they have for networking.'

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A Dante PCIe card

the network – you don't need better than that for anything you are doing with live,' he notes. 'Also because it's IP, Dante is highly scalable for installed applications such as public address systems, evacuation systems, conference centres, and broadcast applications. There is a lot of momentum there.'

As the company continues to grow and develop its core competency, Mr Ellison can see a number of areas where Audinate can continue to develop. 'There will be continued

'When you look at the cost of installation, this really reduces your long-term cost of ownership and the cost of implementation'

'AVB will be helpful though because if we ultimately have interoperability, there will be more network devices.

However, AVB networks will require new switches that support AVB, and that is going to take some time for those to proliferate into the

our core engineers have designed Dante lends itself to that.'

The future for Audinate, as Mr Ellison sees it, is no longer one of trying to gain OEM industry acceptance, but trying to boost end-user knowledge about Dante. 'The next 12 months we are not focused on building OEM brand awareness because that's there. It's really building the end-user market awareness,' he explains. 'When you look at how many end-users there are, it's just an incredible number of people who recognise the benefits of an IP solution.'

To aid this acceptance, the CEO is keen to point to the successful projects Audinate has been involved in. While many notable success stories to date have come from the live side of the industry, Mr Ellison explains how Dante supports a diverse group of vertical market use cases better than existing technologies. 'With our design, we are targeted well in live. We've done events like the opening and closing ceremonies of the Olympic Games, there were 2 million watts of amplifiers in that stadium,' says the CEO. 'We did the Papal address at Randwick Racecourse in Sydney and there were 75 speaker towers, seven switch hops comprising of both 10Gbit and 1Gbit in the backbone and sub-millisecond latency throughout

market.

As a result, you will need a transition migration strategy until these switches are prevalent in every facility,' says Mr Ellison. 'Upon completing of the compliance standards, a simple firmware update will be all that is required for most Dante modules to be updated to support AVB. The core



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