

A photograph of a young man and woman dancing in a kitchen. The woman is wearing a red polka-dot halter dress and is smiling. The man is wearing a light blue shirt and is also smiling, with his arms around her. They are in a kitchen setting with white cabinets and a blue and white checkered pot on the counter in the background.

Sound strategies

CORBIS

Sonos was first with synchronous multi-room speakers. But the company is now facing stiff competition from Pure, DTS and CSR.

By **Kris Sangani**

IT WAS ONLY a couple of decades ago that if you wanted to listen to music, you simply removed a record or CD from its sleeve, switched on your stereo and hit play.

In the digital era, however, we expect so much more. We have playlists and we can carry our music with us everywhere. We can, for a small subscription fee, stream millions of tracks through Last.FM, Napster and a number of other similar services.

But that's not enough for some music fans, and satisfying their zealous equivalent – the audiophile – is near impossible. We are increasingly craving the ability to stream music room-to-room in our homes synchronously so that we're finally untethered from our smartphones or media players.

There are clear advantages to distributing sound around a home. Other people in the household are less likely to be disturbed by having one person's music only in certain rooms. Your neighbours, meanwhile, will appreciate you not having to put the living room speakers on full blast to hear the music while you're upstairs.

The multi-room market

Sonos were first to market with such a system in 2005. Their amplified ZonePlayer ZP100, with accompanying controller the CR100, allowed users to stream different content to different speakers in various rooms throughout the house – or the same music in multiple rooms synchronously wirelessly or using ethernet.

Today Sonos is the strongest player in the multi-room market and the service has improved incrementally. Each device on the Sonos network not only receives signals, but transmits as well. This allows it to create a mesh network, which means that the more devices you have, the stronger your network becomes. This plays well to the company's affluent customer base who may have larger properties than most consumers.

But the company remains tight-lipped about its synchronous technology.

"It's all done in software. I'm not going to disclose latency – except to say that it's low enough so as not to be noticed," says John Reilly, senior product manager at Sonos.

In 2004 Apple launched Airtunes, which allowed users to stream music from an iTunes library to an Airport Express device connected to an external speaker. The system is now called Airplay and

incorporates mirroring of video content to displays connected to an Apple TV. It also has the ability to synchronously send audio to devices connected to Airport Express or speakers that are Airplay compatible.

For several years, these were the only true multi-room systems on the market. These systems would cost a fair penny to set up, so most of us had to settle for our headphones getting snagged on door handles as we moved round the home or be content with sound from one solitary Bluetooth compatible speaker.

Pure sound

All this has changed recently with the arrival of a new multi-room sound system that became available earlier this year. Pure, the consumer subsidiary of Imagination Technologies, is most famous for its range of DAB and Internet radios. However, it has recently launched a multi-room system of its own.

The Pure Jongo system of speakers has been designed to work over Wi-Fi or Bluetooth. Through Wi-Fi it has the ability to stream to multiple devices synchronously with a controller, which in this instance is a companion app on an Android or iOS device. It broadcasts content from the mobile device or from its own commercial cloud streaming service, Pure Connect, which offers the facility to stream podcasts, live radio, 'listen again' radio and millions of music tracks.

As a subsidiary of a chip company, the Pure Jongo system has been designed to work with Imagination Technology's own Meta processor, which the Jongo speakers and some of Pure's other existing digital radios also incorporate.

"It's not an absolute requirement that our customers use a Meta-based chipset, but that is how we have configured it for now. Future versions of MIPS-based chipsets will also be able to run our [intellectual property]," says David Harold, spokesperson for Imagination Technologies – referring to the company's recent acquisition of MIPS, a Californian embedded consumer tech company.

With the close integration of the software technology and hardware, Imagination Technology claims that with the latency over a typical home Wi-Fi setup, synchronicity between multiple speakers would be no more than 50µs. This would make it the multi-room system with the lowest synchronous latency on the market. >

Pure Jongo works over Wi-Fi to stream multiple devices synchronously via a companion app on an Android or iOS device



< Pure, as a brand, is often used as a shop front to demonstrate the hardware and software technology for Imagination. Imagination supplies the same chipsets inside Pure digital radios to other well-known brands such as Roberts.

This will be the case with Jongo. In September, the company announced Caskeid, the core technology inside Jongo, which any manufacturer would be able to integrate and create their own multi-room ecosystem of products.

It would enable any compatible audio device (containing a Meta chipset) to stream music to Caskeid-enabled audio components or media servers over standard domestic Wi-Fi networks with the same low-latency synchronisation, which the company claims is far superior to any other multi-speaker solution on the market today.

The system has been designed to work with Imagination's FlowAudio cloud-based music and radio service – branded as Pure Connect on the Jongo system.

The first Caskeid compatible audio modules are already shipping from Frontier Silicon, part of the Toumaz Group. Original device manufacturers and original equipment manufacturers would be able to leverage the off-the-shelf app framework or could choose to customise one of Imagination's own apps for their brand.

Further wireless choice

But Imagination is not the only company looking to license multi-room technology to original device manufacturers. Last year DTS launched its Play-Fi wireless audio platform, which is also capable of delivering multi-room and synchronous

audio over Wi-Fi. With its installed app, any equipped mobile device can be turned into controller for streaming high quality, lossless audio throughout the home.

Like Jongo, it streams directly from your smartphone with the controller app installed. It also allows PCs to wirelessly stream high-definition audio to compatible speakers.

DTS says that Play-Fi is able to wirelessly transmit up to high-definition 'lossless' audio, with no impact on sound quality – unlike Bluetooth, which degrades sound quality with file compression.

But unlike Imagination Technologies, the company says that its streaming ecosystem does not require the manufacturer to have a particular chipset. The system is primarily software and the toolkit can be integrated on PCs, smartphones and speaker systems.

With the addition of iOS compatibility, "DTS Play-Fi is now the first licensable whole-home audio technology capable of streaming lossless, high-quality audio from both iOS and Android devices, as well as Windows PCs, to multiple rooms, from multiple users, simultaneously using standard Wi-Fi", the company claims.

Consumer Electronics

A number of new products are expected at the next year's Consumer Electronics Show (CES), thanks in part to a DTS initiative to enlist leading contract manufacturers to develop Play-Fi products as ODMs, Jon Kirchner, DTS chairman, explains. Also helping is a new Play-Fi module that is now in mass production with twice the processing power of its predecessor and with improved Wi-Fi. "We're working through ODM partners to get licensees

to sign up quickly," Kirchner notes.

And there's yet another important player in the market. At CES in January of this year, Cambridge Silicon Radio (CSR) announced two new platforms for multi-room audio

– The Vibe Hub and the Vibe Player.

The Vibe Hub, whose reference platform could be integrated into third party devices, is a bridging device which allows content to be pulled in from music servers and content from the cloud.

It is designed to work seamlessly with speakers that have CSR's Vibe Player platform built-in. Thus CSR has created what it claims is a compelling synchronous multi-room platform.

In 2009, CSR purchased Belfast-based APT Technologies who specialise in providing high-end audio software and hardware technologies for the broadcasting industry. With the expertise that this acquisition has brought to CSR, the Cambridge-based company has been able to launch high-end audio solutions that consumers could enjoy.

Like Caskeid, Vibe Hub and Vibe Player will incorporate Bluetooth technology. It will also include CSR's aptX Lossless codec for bit-rate efficiency over Wi-Fi.

So far, CSR has not been able to announce any customers. However, the company does say that it has a great deal of interest and is confident that in 2014 a number of speaker manufacturers will be using their technology to create multi-room speaker systems.

But so does Caskeid and DTS. Therefore, consumers are likely to be spoilt for choice and will be able to choose between several proprietary multi-room audio systems next

Jongo works with a range of devices, including Apple's iPad tablet

year. DTS has already said that several third party manufacturers will demonstrate systems using Play-Fi at next year's Consumer Electronics Show. Imagination and CSR are so far remaining tight-lipped about which speaker manufacturers will be using their respective platforms.

Leading a standard

All this begs the question, why isn't there an open standard and is the current jockeying for position simply a way for companies to place themselves in a strong bargaining position if there are negotiations to create a common standard.

"We would love this... we're always supportive of standards," says Jeremy Stark, product manager for CSR. "But we also need to push boundaries with our proprietary technology before we take steps, before creating an interoperable industry standard."

However, it would be very difficult to create a common standard without big companies steering the process. For instance, the Bluetooth Special Interest Group (SIG) and the Wi-Fi Alliance had influential players such as Intel Corporation taking part. Additionally, these technologies were developed around one type of platform, the personal computer. Today, the tech industry is more fragmented and it would

be difficult for one organisation to steer the industry to accept compromise.

Perhaps leadership could be established from the music industry? According to the International Federation of Phonographic Industries (IFPI), global recorded music revenues are being boosted by subscription services such as Napster, Last.FM and Spotify. These digital services are now available in over 100 markets compared to only 23 markets two years ago, concludes the IFPI's annual Digital Music Report published earlier this year.

But this may be optimistic for the music industry to lead when it comes to technical standards. This is an industry which reacted very late in the day to the introduction of digital downloads.

They tried to prosecute toddlers for downloading nursery rhymes; and they were dragged kicking and screaming by Apple to allow it to sell music downloads. The thought that music industry executives might join some kind of IEEE steering group to forge a new technical standard for multi-room audio seems very slim. *



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