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## Articles and whitepapers



### Technology: Specifying a Multiroom Audio System (5/12/2011)



By Will Hopkins, Your Smart Home

Multiroom audio has long been an integral part of custom installation. With an ever-expanding marketplace, greater product diversity, and an increasing variety of sources to integrate, choosing the best system for the job can be a challenge.

Whilst many of us involved with installations in the early days of multiroom audio will be familiar with the use of proprietary cabling systems, as multiroom audio has evolved towards the mass market, this use of proprietary cabling has subsided, with speaker cable and CAT5 taking its place.

Ask any professional and they will tell you that in general, multiroom audio systems are a compromise; ideally it would be great to have high-quality local amps and multiple sources for each room to ensure that perfect sound. However, such a set up can be impractical and expensive, so a compromise must be made between functionality and quality.

#### Planning

To the die-hard audiophile, a multiroom system will never measure up to the mark of a dedicated high-end audio system, so an important part of the initial discussions with the client is to clarify what the primary purpose of the system is.

Multiroom audio is not meant to be a solution to provide premium quality sound from ultra high-end speakers for applications such as home cinema or a listening room. It is simply meant to do as its name suggests – to provide audio to different rooms. That said, with today's latest offerings, for example the NuVo range, you can get pretty good quality distribution around the home.

The next step is to decide in which rooms the client requires audio zones, and to accept the fact that in some instances, it may be better to have a dedicated audio system that uses local amplification. Some systems will accommodate local audio inputs, so that for example, someone can plug their iPod into the system in their bedroom, and listen to it through the ceiling speakers.

Most multiroom systems comprise four parts:

- 1) Inputs – the sources that will feed into the system.
- 2) Distribution and amplification – the unit that sends out, and usually amplifies, the signal to each zone.
- 3) Control – the user interface for selecting a source and controlling the volume. This may be a dedicated keypad or touchscreen, or a third-party device such as an iPhone or iPad.
- 4) Output – the speakers that reproduce the sound.



Many system will now offer apps as an alternative control method.

#### Inputs

In the past this was something as simple as a radio, but now there is quite a choice of inputs or sources, including media servers, computers and iPod docks. Even having a radio is not straightforward, with installers being presented with DAB and Internet systems, and even analogue in some instances!

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Given the choice of sources and the fact that clients may have many weeks' worth of digital music, older or less-advanced 'dumb' multiroom audio systems often cannot cope with today's expectations.

In considering which system to specify, it is important to ensure that it is able to talk to the client's sources. So, for example, can it browse playlists using keypads and pause or skip songs? Also, since Apple has such a lead in the download market and has revolutionised the way music is purchased through its iTunes app, it would be wise to install a system capable of reading the AAC file format that this employs.



The NuVo system integrates with the user's iTunes collection.

**Distribution**

Lying at the heart of the system is the distribution amplifier. Most manufacturers provide a range of solutions capable of handling anything from a few zones and a few sources to systems that can be expanded to provide coverage of almost any sized property.

After you have worked out the number of zones and the number of sources, it then becomes a matter of choosing the brand and the features. Points here to consider are things such as the number of keypads, whether they have an iPhone/iPad app, whether the system will provide full amplification to each zone or whether it will act as a pre-amp, and whether the system is designed to be integrated with a particular control product such as the Elan g! home automation system.



The Elan g! home control system integrates multiroom audio systems and home automation functions.

**Control**

Having chosen which system best meets your client's needs technically, don't forget the aesthetics. Keypads and touchscreens are the part of the system that the client sees and uses, and it is this that they will show to others. Therefore, make sure that the interface is intuitive and user friendly, and that the fixtures and fittings are in keeping with the property. My company's stance for example, is that technology should enhance the space rather than being obtrusive.

**Output**

Think carefully about positioning the speakers. In most scenarios you would install stereo pairs, but be sure to avoid randomness. Speakers that are not carefully positioned just look messy and can soon clutter ceilings. Look at the character of the property too. Would in-wall or hidden speakers be better? Although you are never going to please the

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audiophile, the choice of speaker does make a huge difference.

We have found that BSA and Bravox speakers for example, offer impeccable sound quality, with many ranges having kevlar cones, and prices being comparable to many inferior alternatives. Using a better-quality speaker allows the use of a slightly smaller diameter, which can be better for aesthetic reasons. Again, it all comes down to that question of what the system is for.



*BSA in-wall speakers with kevlar cones.*

If you are unsure of what to specify, see if your local CI distributor can help. Habitech for example, has a useful demonstration suite where you can experience the sound produced by different speakers.

#### **General notes**

A system is only as good as its weakest link, so there is no point in using a good quality amp, and good quality speakers if the cable is inferior. For example, there has been an increase in the number of installers using CAT5 as speaker cable. Times may be hard, but this can never do a system justice as there simply is not enough copper in CAT 5.

You should also ensure that the speakers are not over- or under-powered. Check their rating and impedance, and do not pair too many together – keep everything balanced.

Finally, think about the future and plan for a system with expansion in terms of adding more sources or additional zones. For the latter, it might be worth ensuring that you have CAT5 going to all rooms in areas where you might want keypads in the future. Yes, wireless keypads are available, but wired is always better.

#### **Conclusion**

Ensuring that the client understands the capabilities and limitations of multiroom audio, and making careful plans so that the system is fit for purpose from the outset, can avoid a lot of headaches in the future.

Multiroom audio is a relatively easy way to give a property added value, and can be a great advertisement for your business. Do an installation right, and you can be sure that the client will show it off to all of their friends and colleagues; but get it wrong, and they will show no-one.

Will Hopkins is the Director of Your Smart Home Ltd, provider of smart home consultancy, design and installation services alongside operating one of the UK's leading home automation retail web shops.

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