

The Connected Home and Multi-Device Video: The Big Picture

Produced by

DIGITAL TV EUROPE

In association with

 AirTies

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Introduction

Multiroom TV – the distribution of pay TV services to multiple TV screens within each home served – has become an established feature of most service providers’ offerings. Multiroom TV is now being supplemented by multiscreen or multi-device offerings – meaning that TV services are available to users via consumer electronics devices such as tablets and smartphones as well as via traditional set-top boxes, initially within the home. Increasingly, service providers are also supporting distribution to devices including tablets and smartphones outside the home as well via 3G, LTE and public WiFi networks.

TV operators face a range of challenges in delivering these services and, in particular, in ensuring a consistent user experience across networks over which they have limited or no control. While consumers are likely to be more forgiving of service dropouts outside the home they are increasingly coming to expect that the service delivered to others TVs, tablets, smartphones, game consoles and other devices within the home should be at least as good as that delivered to the main TV screen.

DTVE surveyed 235 senior industry participants from 61 countries to find out how they viewed multiroom and multi-device delivery of video services and what challenges they face in supporting such services. Our sample included satellite operators, cable operators, telecom service providers, mobile operators, over-the-top consumer IP video service providers and free-to-air broadcasters.

The survey revealed that:

- Video service providers have adopted a range of approaches to delivering content to multiple rooms in the home and to multiple devices. A significant proportion of operators deliver multiroom services via multiple set-top boxes connected to the broadcast network, while others have deployed DVR-enabled gateway devices. Operators often deliver content to IP consumer devices using a different headend infrastructure than that used to provide traditional broadcast services.
- When asked to identify factors underpinning the success or failure of multiroom and multiscreen TV services, operators rate consistent Quality of Service highly, along with the need to keep installation and customer care costs to a minimum.
- WiFi is the widely deployed by service providers to support the provision of distribution of TV to tablets and smartphones. However, service providers have concerns about the reliability of WiFi for video services, with coaxial cable preferred as a technology choice that can help ensure consistent Quality of Service. Inconsistent or incomplete wireless coverage in the home is seen as the most significant drawback of WiFi for video services.
- When deploying multiroom and multiscreen services, service providers believe that installation costs are one of the most important determinants of economic success. Service providers are keen to keep installation costs to a minimum by adopting a self-installation model where possible. A significant proportion of operators levy no charge on subscribers for installation.

Multiroom choices

Seven in 10 respondents to our survey offer multiroom TV services, meaning the delivery of TV to multiple screens via set-top boxes, while a slightly smaller proportion – just over three in five – provide access to TV services via multiple types of device within the home – in other words, by streaming services to tablets and other mobile devices.

Just over half of respondents – 54.4% – also offer such as service outside the home.

Finally, just under half of service providers who responded – 43.3% – offer residential fixed broadband access among their portfolio of services (fig. 1).

While a relatively large proportion of respondents offer some kind of multiroom service, service providers have adopted a number of approaches to ensuring delivery of video around the home.

For example, two in five respondents say that they do not provide a central DVR-enabled gateway device and that each set-top box is connected individually to the broadcast network.

About half that number again – 22.1% – provide a central DVR, with users having the option to watch the recorded content on other set-tops around the home.

A significant number of respondents – some 27.9% – also deliver broadcast TV signals to a central gateway-type device in the home and then over the home network from that gateway to multiple devices including TVs, tablets and smartphones. A slightly smaller proportion – 18.4% – also distribute the broadcast signal around the home to other TVs only via a central gateway device, using in-home networking to distribute both recorded on-demand content and real-time over-the-air video.

While the number of service providers delivering video to multiple devices over the in-home network is significant, many operators do not appear to have integrated their headend operations in a way that would enable them to do this with maximum efficiency. A significant proportion of respondents – 38.2% – say they deliver multiscreen video over a broadband network to tablets and smartphones using a different (IP-based) headend than

Fig 1: Which of the following services do you offer?

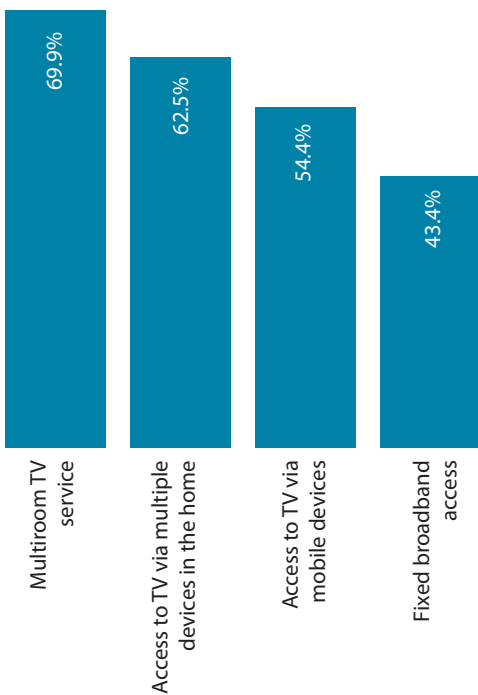
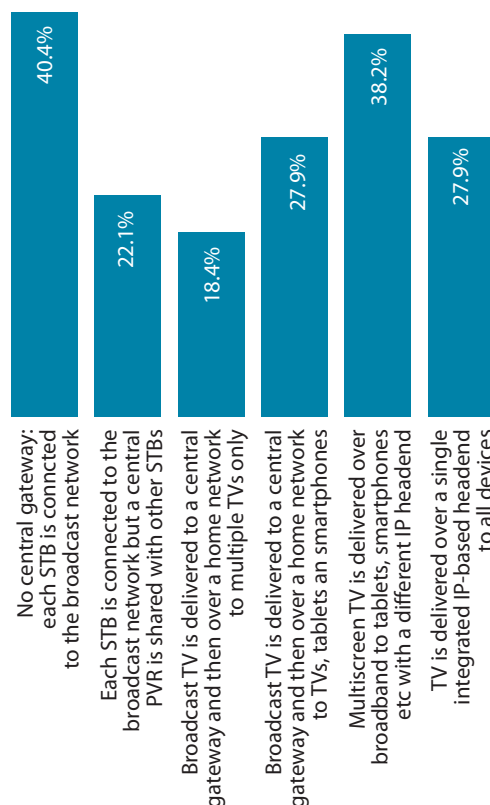


Fig 2: How to you deliver multiscreen TV if you offer it?



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the one used to deliver broadcast video. Meanwhile, only 27.9% say they are delivering everything over a single integrated IP-based headend to all devices, including TVs, tablets and smartphones (fig. 2).

Factors for success

For services providers, the success of multiscreen and multiroom TV depends above all on providing a consistently high Quality of Service across all devices, with minimal buffering or blocking of video.

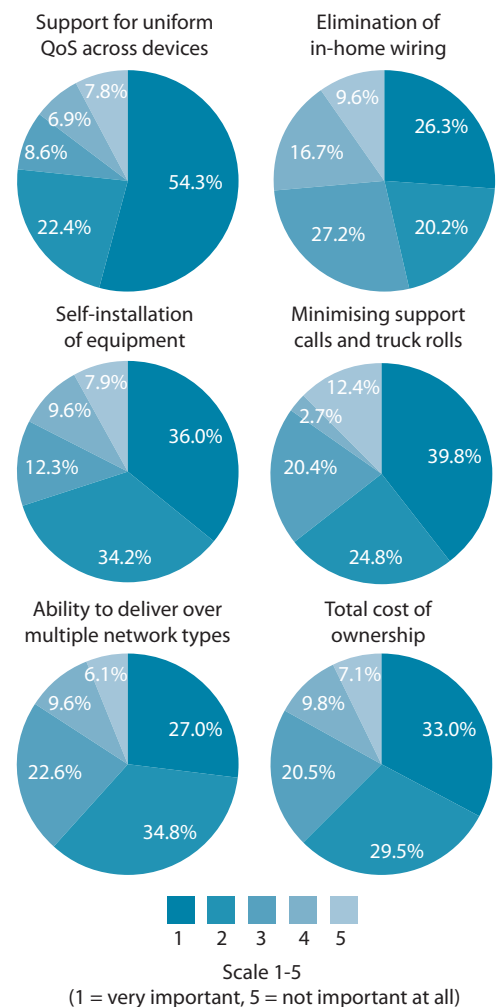
Asked to rate six independent factors for the importance of their contribution to the success or failure of multiscreen and multiroom video on a scale of 1-5, over half of respondents gave the ability to support the same Quality of Service of the video on the main screen in the home across all devices as the highest possible score.

Service providers are also highly concerned with factors affecting the cost of deployment and support. Two in five respondents gave the highest possible score on a scale of 1-5 to the need to keep technical support, customers calls and truck rolls to a minimum after equipment is installed. Respondents also rate the ability of subscribers to install equipment themselves without the need for intervention by engineers employed by the service provider as important, with over a third of respondents giving this the top score on a scale of 1-5.

Of less emphatic significance to service providers are factors relating to the consumers' own choice of in home infrastructure. Respondents rated their ability to deliver vide in the home to all subscribers using a combination of technologies (for example by combining WiFi with coax or powerline technologies) as only moderately important.

Finally, of least importance to service providers amongst the six factors they were asked to rate is the elimination of in-home wiring (fig. 3).

Fig 3: How important are the following in delivering multiscreen or multiroom TV?



Home networks

In terms of the in-home network itself, WiFi emerges as a widely deployed home networking technology, with over three-quarters of respondents saying they support the delivery of TV services over this technology. Given widespread skepticism about the suitability of WiFi to deliver premium services, it is likely that the majority of providers are using it to support the distribution of TV Everywhere services to tablets and smartphones.

Delivery over coaxial cable based on standards such as Multimedia over Coax Alliance (MoCA) comes next, with two in five – 39.7% – of respondents saying they support the delivery of TV services over this technology. Powerline delivery of TV is supported by just under a third – 27.9% – of respondents, while 36% say they support distribution of TV using other types of in-home wiring (fig. 4).

Of those service provider that say they support WiFi delivery of video around the home, over half – 54.2% – say they currently offer a service – which in most cases is likely to mean they use WiFi to deliver video to tablets and smartphones – while 16.9% plan to launch a services within the next year. Just over one in five say they have no plans to offer a video-over-WiFi service (fig. 5).

Reliability

While WiFi is ubiquitous and convenient, it is not seen as the most reliable physical infrastructure for distributing video. Service providers' belief that Quality of Service is the key determinant for the success or failure of their offerings plays a key role in determining perceptions here.

Asked to give a score of 1-5 for reliability to different infrastructure types, coaxial cable emerges as the service providers' favourite technology, rated more highly than other forms of in-home wiring, WiFi and Powerline.

While wireline solutions are seen as generally more reliable, WiFi is favoured by respondents above Powerline, which is seen as only moderately reliable by most respondents (fig. 6).

As far as WiFi is concerned, inconsistency of wireless coverage and performance is seen as the key problem or challenge, cited by two thirds of respondents when asked to identify the most challenging or difficult aspects of WiFi video delivery. Half of respondents cited related Quality of Service problems – meaning blocking and pixilation or buffering of the video signal – as a key challenge.

Fig 4: Which of these in-home technologies do you support for the delivery of TV services?

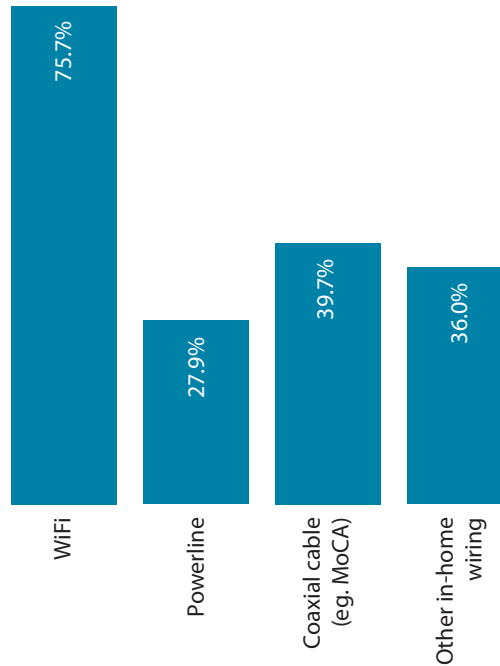
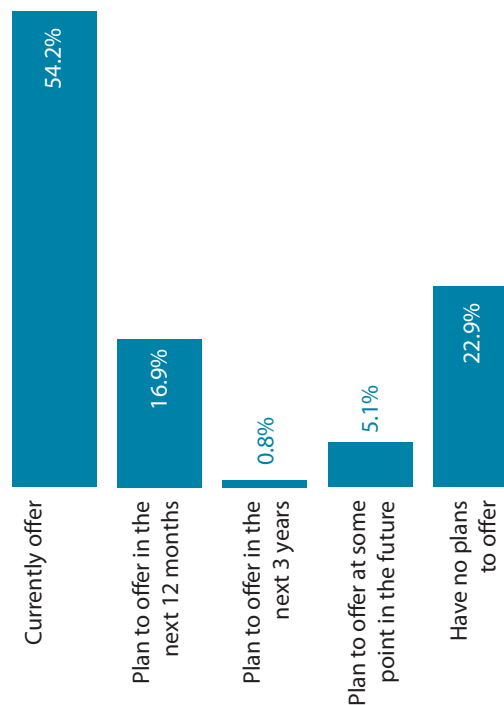


Fig 5: If you support WiFi in the the home, do you offer the following?



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Fig 6: How reliable are the following for delivery of video to multiple screens in the home?

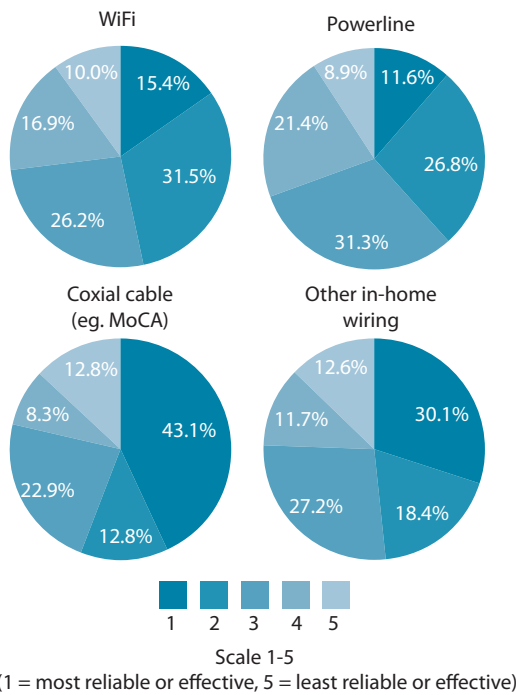
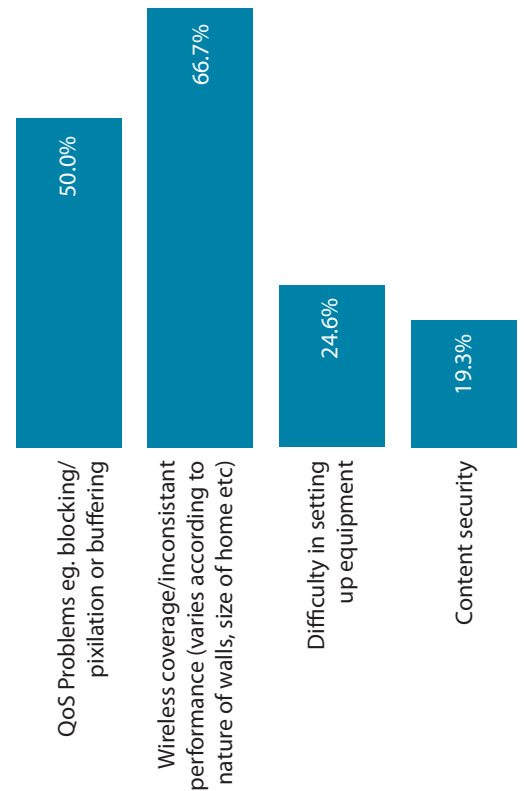


Fig 7: What is the most difficult aspect of delivering multiscreen/multiroom TV over WiFi?

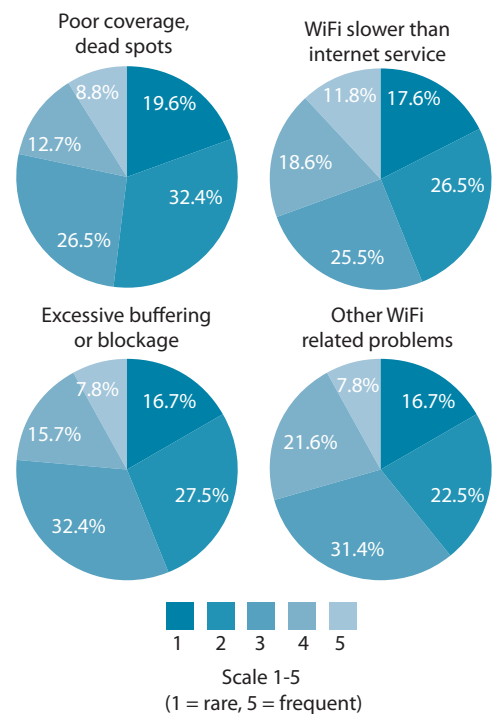


Of less significance in the list of hurdles service providers feel they have to overcome in delivering high-quality video services over WiFi is difficulty experienced by users in setting up equipment and connecting different devices – cited by about a quarter of respondents – and security issues, cited by one in five respondents (fig. 7).

Service providers' preoccupation with consistency of coverage and performance of WiFi above other considerations is unsurprising, given how large these concerns loom in determining the frequency of calls for support from customers.

Asked to rate the frequency of the reasons for support calls related to WiFi, service providers gave high scores to poor WiFi range of coverage and dead spots in the home in particular, followed by WiFi connection speed being slower than headline internet speeds. Excessive buffering or blocking of video on devices came third (fig. 8).

Fig 8: What is the most common cause of WiFi related support calls?



Installation and support

While support costs are clearly of importance to service providers in determining their priorities, in their calculations about the economics of multiroom TV services they are keen above all to reduce or eliminate installation costs – which enables them to avoid passing costs on to subscribers in the form of higher charges.

According to respondents to our survey many have by and large succeeded in keeping installation costs – and charges to a minimum.

Asked how much it costs them to install a multiroom service in terms of truck-roll/technical support costs, over two in five respondents said the cost is zero – thanks to self-installation.

Of the remainder, about a quarter say the cost of installation is under US\$100 on average, while a further one in five faces costs of between US\$100-US\$200. Only 2% of respondents say installation costs exceed US\$300 (fig. 9).

Service providers say they are succeeding, by and large, in keeping truck rolls to a minimum when installing equipment, with a minority of service providers admitting that over 50% of their installations require a technician onsite.

Truck rolls and charges

Two in five service providers say that fewer than 10% of multiroom TV installations require a truck roll, while a further 27.5% say that between 10% and 25% require a technician onsite. A smaller group – 15.7% – say that between a quarter and a half of all installations require a truck roll. Under a tenth of respondents – 9.8% – say that technicians are required onsite in over 75% of cases.

These costs – kept low thanks to self-installation – are more or less reflected in the charges levied.

Asked how much they charge customers for the installation of multiroom TV services by technicians, two in five respondents said they levy no charge at all on subscribers. A further 36.3% levy charges of between US\$5 and US\$100 to install multiroom TV.

Higher charges are the province of a minority. Under a quarter of respondents charge more than US\$100, with 2% charging over US\$300 (fig. 10).

Fig 9: How much does it cost you as a provider to install a multiroom TV service?

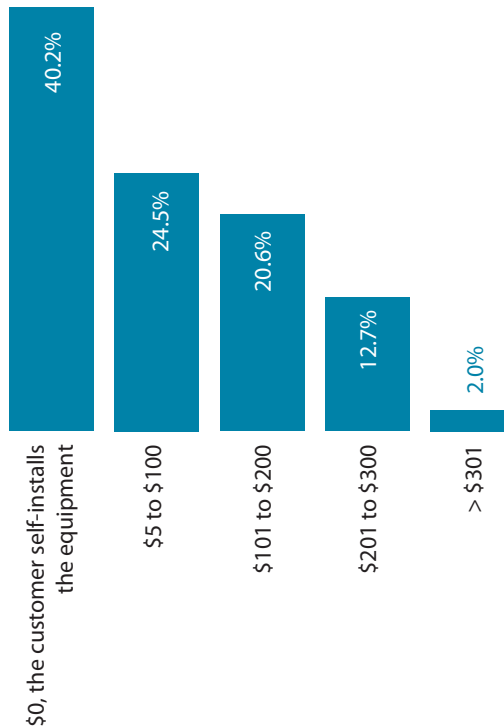
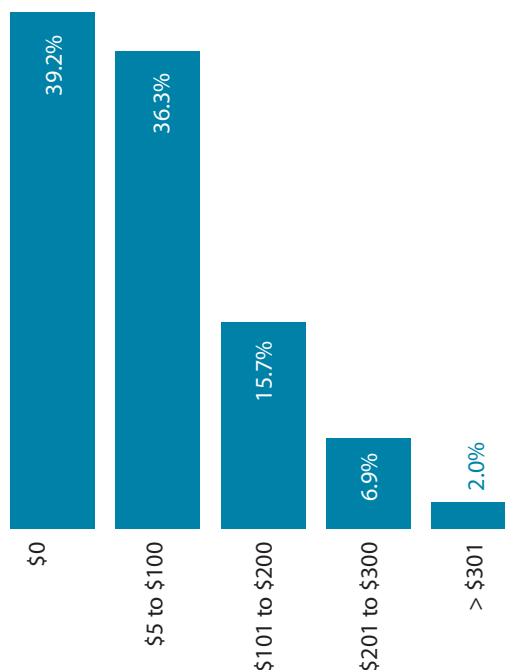


Fig 10: What is your charge to the end-user for multiroom TV installation by a technician?



Conclusion

Service providers have embraced both multiroom and multiscreen TV, but many have deployed services on an ad hoc basis without integrating all their offerings within a single delivery infrastructure. Operators have taken a variety of approaches to choosing which consumer premises equipment to deploy and support for multiroom TV, with some deploying separate set-top boxes for each TV and others looking to connect 'slave' boxes to a central DVR-enabled gateway device. Service providers have deployed a variety of hybrid broadband and broadcast architectures, with no clear consensus emerging on the ideal deployment architecture. They have also taken a variety of approaches to delivering multiscreen services to tablets, smartphones and other devices.

Where services are delivered from a central device to multiple end points within the home, in the case of delivery to tablets and smartphones at least, WiFi is the most common type of in-home network for doing this – but it is one of the least trusted. Operators have concerns about the impact of imperfect WiFi coverage and strength on their ability to deliver video Quality of Service and Quality of Experience. Service providers see poorly performing WiFi as a major source of customer complaints related to video – particularly important given that video is a premium service where subscribers demand high quality delivery and a consistent performance.

As well as seeking to minimise complaints to their customer call centre related to poor experience of video within the home, service providers are keen that such services pay their way. For most, this means, above all, minimising the cost of installing equipment at subscribers' premises. There is considerable evidence that service providers are looking to an installation model to eliminate or keep costs to a minimum. Few providers are seeking to pass on, or perhaps few believe they can pass on, high installation charges to their customers.

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AirTies is a leader in advanced wireless video and OTT streaming technologies, designing and developing IP network based consumer devices. Its product portfolio ranges from wireless gateways, to video streaming devices, to OTT/IPTV and Hybrid set-top boxes. AirTies has a proven track record of successful deployments with multiple tier 1 European operators.

AirTies differentiates with its award-winning wireless mesh technology enabling the best user experience in wireless video distribution: providing 100% home coverage, streaming ten channels of operator grade high-definition video to any device and consumer self-install.

AirTies integrates its wireless know-how into its latest generation of HEVC set-top boxes which enables providers to bring Satellite quality TV over the unmanaged internet to anyone with a broadband service. The wireless capability integrates mobile devices and Pay TV into the same network enabling consumers to watch any content, on any device, in any room.

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