

► Advisory Report

Digital Home Convergence – Are We There Yet? What Speed Bumps are Ahead?

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Report Date:
June 7, 2005
Module:
Digital Home

► **Summary**

Issue

To get a connected digital media center in the home requires more than just getting a bunch of cool new gadgets from the local electronics store. The promise of connecting content to multiple devices such as taking a movie and having it wirelessly streamed throughout the house on multiple TVs and PCs has been marketed to consumers for some time, but with disappointing results. Consumers are overwhelmed by so many types of technology, and some users feel that they need a degree in computer engineering to figure out how to do something as simple as record a movie on their TiVo in their living room and play it in the bedroom.

Consumers have started to amass large libraries of digital music, photos, and video files, however it is still a complicated process to port these digital files in their various formats onto different devices. Digital files can be changed into different formats like transforming an MP3 file to a WAV file, but a hard copy DVD or music CD is still the easiest way to transport content from one device to another. To make convergence of digital household products a success, it needs to be as easy and as straightforward as point, click, and play. On the other hand, making files more open increases the risk of pirating content for illegal distribution and puts fear into content creators embracing these new technologies.

Analytical Summary

While the convergence of digital applications on different types of media and across different types of devices in the home is a reality today, there's also a potential growing divide. On one hand, any major telecom or cable service provider by the nature of its business model wants its solution to be the foundation of the digital home, and allowing many outside service providers to participate makes it more difficult to have a consistent, unified customer experience. On the other hand, by bringing in third-party providers, these other companies might have more compelling content or applications. Consumers want choice and the freedom to pick their own solution, whether e-mail service, an online music provider, or digital video programming. The digital household is put in a dilemma in today's market: to get truly connected to a digital library of content means having to sacrifice choice. A customer may need to pass up a piece of content or a communication service that they would prefer, in order to gain the benefit of a service that is integrated into a fully networked digital home environment. Innovation has created the possibility for home convergence, but consumers have not yet been given a mainstream solution.

► **Perspective**

Current Perspective:

The message coming out of Connections: The Digital Home Conference in San Francisco, held in May, was that technology today offers the possibility, but not yet a practical implementation

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of a true digital home experience. Consumers with enough tech knowledge can piece together a wireless home network that connects various media players and other devices to video, voice, and broadband offered by cable providers and incumbent phone companies. The service providers are working to catch up with some consumers' desires for a digital home experience: digital TV has been widely adopted through cable and satellite providers with more than 50 million users in the U.S., and broadband has reached critical mass domestically, with about half of Internet households using DSL or cable modem service for Web access. These services, along with voice, are marketed at lower price points through providers' bundle package deals of under a \$100 a month. Plus the adoption of consumer VoIP has also become stronger in the last year with the leading independent service provider, Vonage, acquiring more than 600,000 VoIP subscribers.

Meanwhile, wireless home networking equipment that links digital devices using WiFi technology can be purchased at retail in some cases for under \$40, and a few incumbent telecom providers, such as Verizon, offer access gear incorporating WiFi, which is subsidized or offered free of charge with an annual contract by the carrier. Consumers are excited about digital video that can be time managed through a digital video recorder (DVR) application like TiVo, and they have adapted to paying for music online such as with Apple's iTunes via its popular iPod MP3 player. The challenge left for the service providers is to make the process seamless, to connect multiple devices using digital content in various formats while allaying content providers' fear of widespread copyright infringement. It will then be the next step for a provider to take on the responsibility of providing customer service and support to help install and maintain these personal home networks with a growing number of new devices and applications.

Consumers would like the easiest solution – one that encompasses all the digital services they enjoy in the home. With such a large potential emerging market, companies are already adopting tactics to shut out competitors by limiting the ability for content to be shared between their own devices and those from competitors, in order to gain a market advantage and become the center of a consumer's digital home universe. Today, service providers like Comcast and SBC take on the key role through offering access to video and Internet content, plus the bundled solution of digital services – voice, data, and video.

But pulling it all together is a pain point for the consumer, whether that means signing up for a bundled services package from one provider and then using other providers to supply the equipment and content – for example, to play a song on an Apple iPod on a home stereo system, or to take a legitimately downloaded a movie off the Web and view it on a high-end TV entertainment center. There are no easy-to-use mainstream solutions yet that allows this function, called “play shifting,” to happen. But consumers would like to use digital media in various formats, with multiple devices in the home easily interconnecting and interoperating with each other using wired or wireless home networking to be played in high quality sound and crystal clear picture throughout the home.

The fourth, and emerging, component in the digital home equation is the cell phone. The mobile phone has become a consumer digital Swiss Army knife with a multitude of features that are starting to be linked to the home; for example, allowing photos taken on a cell phone to be displayed on a widescreen TV. But in most cases, the consumer's personal computer or set-top box from the cable company serves as a media hub, which has limited functionality and ability to play shift content from a cell phone to another device. Another barrier is cell phone carriers' business models are still based on minutes of talk or data time used, a disincentive to encourage carriers to offer mobile phones with built-in dual-mode cellular/cordless or cell/WiFi VoIP functionality.

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Vendor Actions

- Service providers need to stay on top of the latest trends with consumer home entertainment, and make sure their bundle offerings include applications and content that consumers want. Shutting out digital content because a service provider does not support the device or format that carries the content will irritate the consumer, and cause them to rethink what services they most enjoy and seek out providers that support it.
- Service providers and device manufacturers need to exercise patience with the pace of digital home technology progress. Consumers will demand digital home applications that work on the first try and will be frustrated if they are hard to set up and connect to their existing home media systems. The challenge for service providers is to stay cutting edge and at the same time offer a seamless solution.
- Service providers need to find a balance of keeping their home networks and content files open enough so the consumer can play shift content from one device to another, while at the same time ensuring security to reduce risk of tampering and unauthorized distribution of content. Consumers would like to use digital media in various formats, with multiple devices in the home easily interconnecting and interoperating with each other. While safeguards need to be put in place to protect content from being misused, consumers must not be locked out of accessing their own content.
- Providers should be aware of the added cost and responsibility of providing customer service and support to help install and maintain personal home networks with a growing number of new devices, protocol/file formats, and applications. Consumers need someone to call when their digital home gear stops working, and customer support needs to be knowledgeable enough to isolate a problem quickly and effectively.

User Actions

- Consumers need to realize the limits of digital devices, and do research ahead of time on what content is proprietary and only can be used on one device, and what content is on an open format that can be copied, transported, and accessed freely. Consumers with large libraries of digital music, photos, and video files, need to recognize it is not only a complicated process to port these digital files in their various formats onto different devices, but that content providers in many cases are actively trying to thwart this kind of porting.
- Service provider triple play and quadruple play bundle packages that offer video, voice, high speed data, and wireless services are a great value with discount pricing for combining different services onto one bill. These services are marketed at lower price points through providers' bundle package deals, in some cases at less than \$100 a month.
- Consumers need a basic understanding of copyright restrictions and software licensing agreements. They should understand when they could be going outside the bounds of fair use, since organizations such as the Motion Picture Association of America and Recording Industry Association of America have had few qualms going after common citizens for unauthorized copying and distribution of copyrighted content. Content creators have a lock on content they own; but consumers can always vote with their wallets to buy less restrictive (if less mainstream) types of content.