

Communications Industry Group

Managing the Digital Home

Consumers Need Help, and High-Performance Service Providers Must Be Ready to Meet that Need

by Larry Socher

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The ideal vision for the digital home is for an interconnected and interoperable network of PCs and a variety of communications and consumer electronics devices working together in a seamless environment—enabling consumers to use and share digital media and content including video, music, games and more.

Current reality falls well short of that vision, however. In most cases, the average consumer is struggling with the complexity of the various technologies at the heart of the digital home. Because many people realize only a fraction of the potential functionality, they may also fail to appreciate the value of a highly networked digital home. Under-appreciation of the value of a digital home could slow or stifle growth in the communications and high tech industries. To respond, companies must put in place compelling, new premium technical services to help consumers configure, connect and manage their digital homes.

The digital home: Highly promising, highly complex



Just as the home is the center around which people's personal and professional lives move, so has the digital home become the center around which a number of key trends in computing, consumer electronics and mobility are circling.

For communications service providers, software vendors and consumer electronics companies, digital home services and products represent a substantial market opportunity. One report estimated 2007 revenues for the digital home device markets to be \$268 billion, a growth rate of 38 percent.¹

However, the digital home marketplace is also seeing some troubling trends that could seriously impede economic growth and the achievement of sustained high performance. Consumers are having trouble dealing with the technical complexity of digital home connectivity, interoperability and management. Back in the 1980s,

the early days of the video cassette recorder, a standard industry joke was the fact that VCR displays constantly flashed their default "12:00 a.m." setting in millions of homes because even changing the time and date on the machines was overly complex. Multiply that complexity by many factors and one begins to see the challenge of the digital home.

A few "power users" aside, the average consumer does not have the technology skills to set up a digital home: to connect the multitude of new consumer electronic devices and networking technologies required to acquire, store, manipulate and share pictures, music, video and other digital content. Numerous studies indicate that, because the various technologies are currently too difficult to configure and use, consumers are only enjoying a fraction of the potential functionality of a digital home. If steps cannot be taken to boost consumers over the hump in terms of installing, connecting and using digital home services,

take-up will be delayed, costs will rise due to a high rate of returns for electronic equipment and an increase in support calls, and revenue growth will be slowed.

Accenture believes that if consumer electronics companies and service providers are to leverage digital home trends as a means of pursuing profitable growth, they need to rethink their business models, organizations, processes and systems for helping the consumer sort through the technical complexities of the digital home. Part of the answer to helping consumers maneuver through this complexity is in new approaches to making devices and networking easier to use and manage. Another part is in rethinking the business model for providing in-home support. Traditionally seen as a cost drain, in-home support can now be a means for driving high performance—generating revenue and reducing churn by creating more satisfied customers.

Excitement in the air: The growth of digital home technologies



The digital home is an interconnected and interoperable network of PCs and a variety of communications and consumer electronics devices, ideally enabling a seamless environment for consuming and sharing digital media and content including video, music, games and more. (See Figure 1.)

The digital home is among the most dominant trends being discussed by consumer electronics companies and service providers today—and, significantly, in the broader information technology industry. A digitally connected home also opens up possibilities for value-added services in a number of other areas. For example, digital medical services is one offering being aggressively pursued by the health industry, providing health services to those who may be homebound or otherwise looking for immediate attention to non-urgent medical

issues. Home security monitoring is also a rapidly maturing market, as homeowners seek new technological methods of detection, tracking and communications for security and observation purposes.

Research and analysis point to strong growth in the digital home market around the globe. Adoption of home networks and broadband access rose in all major geographic areas. The number of households around the world with data networking in place is now estimated at 80 million.² Technology research firm Parks Associates reports, for example, that Europe is in the midst of a home networking boom thanks to an increasingly competitive market for broadband services. After lagging behind other areas of the world, growth rates in Europe now surpass North America and Asia, with France and the U.K. in particular at the forefront of this growth.³

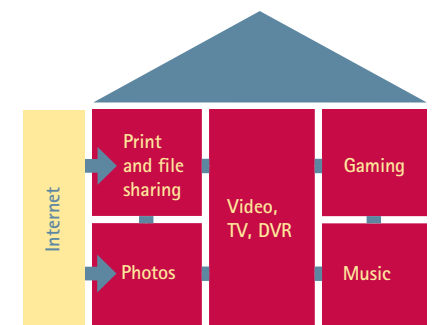


Figure 1: The digital home is connected to the universe of content via broadband access to the Internet. It then links various computing, communications, audio, video and gaming components across an interoperable network.

And the projected revenue numbers are certainly impressive. Various estimates place the current global market for digital entertainment content and products above \$200 billion annually.

Challenges to broader take-up

Technical complexity and device incompatibility prevent many consumers from setting up and effectively managing their digital home.



At the same time, all is not necessarily well when it comes to supporting broader take-up of digital home services and the kinds of revenue generation that can drive high performance. Potentially serious impediments stand in the way. One set of obstacles has to do with compatibility issues; the other concerns the ability of the average consumer to deal with the complexity of setting up and managing a digital home technology environment.

Compatibility

Sending digital content from one device to another is still hard to do. For example, if you want to get video from your PC to the large LCD television in your living room, ideally you would be able to download it directly via your home WiFi network. If you did not have wireless network connectivity to your TV, you might then have to transfer video from your digital video camera to your PC, burn a DVD, and then put that into the DVD player attached to the television. If all these components were from different manufacturers, the

process could take hours and require multiple conversion steps. And, in the end, the DVD player might not even understand the video encoding format from your PC. Significant connectivity and compatibility issues must be addressed.

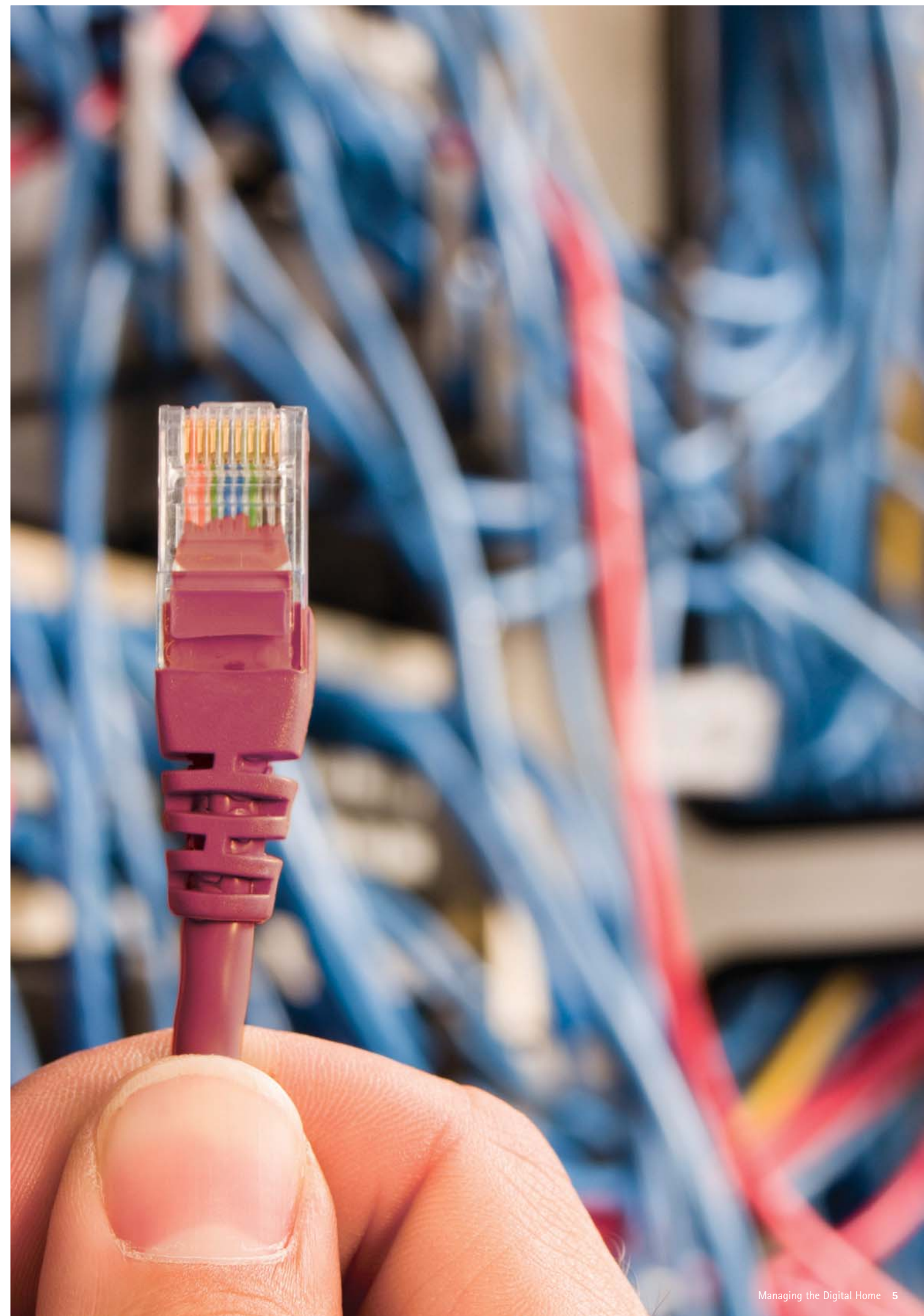
Complexity

If you've ever been to the house of a friend who is a technology expert or power user, you may get the impression that the sky is the limit when it comes to digital home capabilities. However, the reality for the vast majority of consumers is that technical complexity is, at the least, compromising their ability to reap the full benefits of digital connectivity. At the most, it is preventing them from even getting out of the gate.

Consider one recent study from the Consumer Electronics Association analyzing whether or not HDTV owners are actually receiving an HD signal. The study found that only 44 percent of HDTV owners actually receive HD programming; 34 percent are definitely

not receiving HD programming; 16 percent are not sure; and 6 percent think they receive HD programming, but likely are not.⁴ Try to imagine some other utility or service where consumers experience difficulty even knowing if they are getting the service.

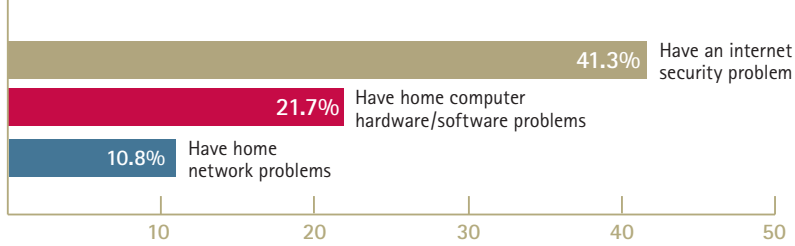
Whose fault is this? One might try to blame consumers themselves for not reading the manuals. But no less a technology guru than Donald Norman—a computer science professor and leading expert in information technology usability—reported recently that even he had had to hire someone to hook up his HDTV system. Norman said, "Someone complained, 'You'd need a degree, an engineering degree from MIT, to work this...!' I have an engineering degree from MIT. And I couldn't work it." It's not the consumers' fault, says Norman. It's technologies and interfaces designed based on an inadequate understanding of the technology limitations of everyday people.⁵



Service providers and consumer electronics companies are bearing the brunt

Millions of U.S. households reporting a home technology challenge in past 12 months

Source: *Managing the Digital Home*, a survey of 6,116 U.S. and Canadian home internet users. © 2006 Parks Associates



As a result of consumer frustrations regarding technical complexity, service providers and consumer electronics face a number of stiff challenges in driving growth and high performance from digital home products and services.

Consider just a couple of data points here:

Connectivity problems are rampant. Millions of consumers each month report difficulties with home Internet connectivity, security, hardware and software. (See Figure 2.) According to Parks Associates Digital Home research, between 20 to 50 percent of all Broadband Service Provider calls are out-of-scope: that is, unrelated to the issues that a service provider should be expected to resolve. At the same time, if those issues are not

resolved, the customer will simply stop using the carrier's services. So whose responsibility is it, exactly, to fix home networking issues? Home networking calls can take twice as much time to handle as connection-only calls, averaging between nine and 25 minutes. This has profound cost implications for providers. Customer service calls just for home networking problems could cost broadband service providers in the US more than \$200 million annually by year-end 2011.

Return rates are high. In a report on the TV news program "60 Minutes," Robert Stephens, founder of the information technology service and repair company Geek Squad (now a subsidiary of consumer electronics company Best Buy), said that more than a third of the wireless routers and modems purchased at

Figure 2: US study shows that millions of consumers are wrestling with technology issues related to their digital home infrastructure.

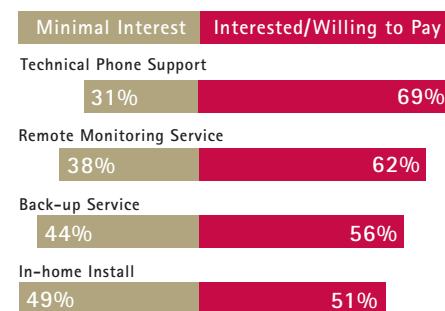
Best Buy stores are returned because people think they are just too complicated.⁶ Recent Accenture research confirms this. We found that the average return rate for consumer electronics devices ranges between 11 percent and 20 percent. Of those returns more than two-thirds (68 percent) can be characterized as "no trouble found." That is, the device met the manufacturer's specifications but not the customer's expectations—the consumer found no use for it, could not figure it out or otherwise found the purchase of insufficient value. In the United States alone, the total cost of consumer electronics returns was \$13.8 billion, of which 20 percent was due to processing costs of "no trouble found" devices. That's a huge cost drain.⁷





A premium for digital home set-up and management?

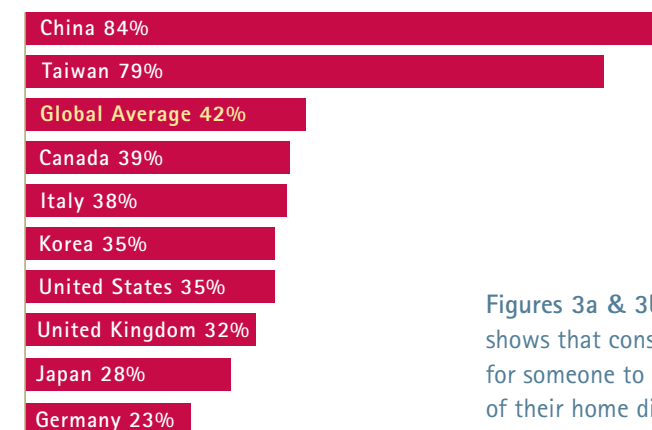
Global consumer interest in digital home services
Source: Accenture Global Digital Home Consumer Survey, April-May 2006



Clearly, consumers need help setting up and then maintaining a digital home networking system. But who will pay for such support? A presumption at the heart of the business model for service providers and electronics companies has been that companies must subsidize in-home support—configuration, set-up and management—simply as a cost of doing business.

However, our research suggests otherwise—that consumers are actually willing to pay to have a provider remove some of the technological complexity of the digital home from their lives. (See Figures 3a & 3b.) Fairly impressive majorities of consumers surveyed in Accenture's Digital Home Survey indicated their willingness to pay for premium services such as in-home installation, technical phone support, back-up and remote monitoring services. And numbers of consumers rapidly approaching 50 percent would be willing to pay a provider a monthly fee to manage their digital home.

Interest in the digital home as a utility service (% of respondents)
Source: Accenture Global Digital Home Consumer Survey, April-May 2006



These are significant findings. A prevailing attitude in the industry has been that in-home support is a drain on profits, but our research suggests otherwise. Consumers understand the value and importance of their broadband service, wireless in-home network and home entertainment systems. They are frustrated at their inability to put a full suite of services in place themselves. If someone buys a two- or three-thousand dollar HDTV and spends another thousand dollars on receivers, cables and other devices, they want to make sure they are getting high-definition content from their set-top boxes, gaming stations and Blu-ray players. And they are willing to pay just to get these devices functioning properly.

So are companies ready to step up and provide premium technical services for the digital home? Here, the answer is less convincing.

Figures 3a & 3b: Accenture research shows that consumers are willing to pay for someone to manage the complexity of their home digital environment.

In the consumer electronics industry, isolated examples do exist of companies that provide flexible, pre-integrated solutions to help consumers manage the complexity of their digital homes. Independent services such as Geek Squad (at Best Buy stores) and Firedog (at Circuit City) provide set-up and maintenance services in the customer's home. Geek Squad, for example, offers a variety of in-home services including mounting and set-up of flat-panel TVs, diagnostics and repair of a home networking system, and set-up of a home wireless network.

In general, however, companies are not stepping up to provide either the usability and "plug and play" features that would make a digital home network easier to set up and manage, nor the in-home set-up and maintenance services that would raise the comfort level of average consumers in their ability to create a home network.

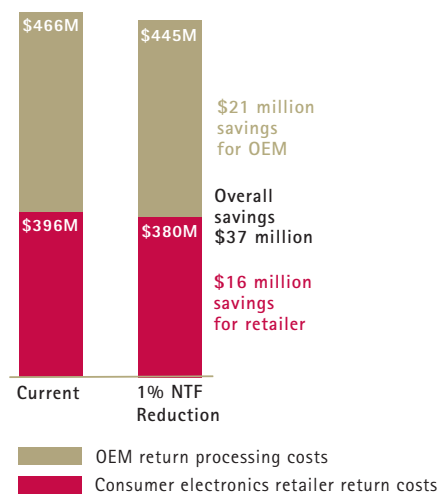


Figure 4 (left): Accenture research found that a 1% reduction in No Trouble Found returns will reduce return and repair costs by 4% for both the consumer electronics retailer and device manufacturer.

That is unfortunate, because these installation and configuration services can help boost retailers' bottom lines. As consumer electronics products fall in price and as margins get squeezed, retailers can help augment revenues by providing these kinds of additional installation and support services.

They can also cut costs from returns. The Accenture study of "no trouble found" (NTF) returns, referenced earlier, shows the tremendous potential economic impact of reducing such returns even incrementally. As shown in Figure 4, a one percent reduction in NTF returns can translate ultimately into \$21 million savings for a manufacturer, and \$16 million savings for the consumer electronics retailer. In this example, Accenture found that a 1 percent reduction in NTF returns will reduce return and repair costs by 4 percent for both the manufacturer and retailer.

At the service provider level, some companies are beginning to experiment with new business models. In the US, for example, AT&T has started to offer premium support to residential and small business customers—installation, configuration and troubleshooting of a wide range of devices and applications through its "Support+" service. The company markets the service as "a complete, single-source solution to your computer and home networking technical support needs."

While the AT&T service relies on a contact center model, others are focused on a self-service model. For example, French telecommunications company Free (a subsidiary of the Iliad group that serves almost 3 million broadband subscribers) provides sophisticated customer self-service capabilities, based on an easy-to-use "softpanel," allowing consumers to manage their own services.

Growth of home networks deployed and managed by service providers
 Millions of U.S. households with a data network: deployed and managed by Broadband Service Provider (BSP)

Source: *Digital Home Services: Carriers, Retailers, and the Consumer* © 2007 Parks Associates

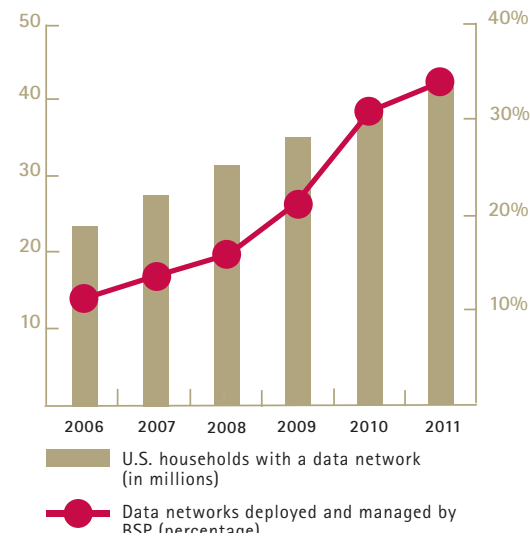


Figure 5 (right): Growth of home networks deployed and managed by a service provider

Full-fledged managed services are another option. That is, rather than focusing on a "per incident" business model for in-home services, one attractive business model for the future is to take over management of a consumer's digital home network and entertainment system. Figure 5 shows that in the US, the percentage of households where a data network is deployed and managed by a Broadband Service Provider (BSP) is steadily growing, and forecasts call for that growth to continue in the foreseeable future.

Key technology trends and the digital home: Accenture's technology vision

Three of the eight technology trends identified in Accenture's 2008 technology vision, researched and published by Accenture Technology Labs, are directly related to digital home products and services:

Continuous access to people and content

The increasing availability of powerful and easy-to-use mobile devices, coupled with new computing and networking technologies, leads to the ubiquity of communication and access to applications and data anywhere, anytime. Because the same devices and applications are used, the lines between personal and professional computing, and between desktops and mobile devices will continue to blur. This continuity of usage will allow service providers to better track and profile users through search history, group filtering, mining of social networks, and location monitoring. Based on that, they can deliver highly personalized information and advertising.

Social computing

As part of a broader shift from technology to people, social computing has moved away from structured collaboration and communication to social networks. Just like the Web has evolved from being a transactional medium to becoming a communication and now a predominantly social medium, early signs indicate that enterprise software follows a similar path. Major vendors (e.g., Oracle, Microsoft) have already begun to incorporate social computing capabilities (such as unified communications, content sharing and social networks) into their enterprise software suites. At the same time, consumer-oriented social network services sites (e.g., Facebook) continue to evolve into platforms, where user experiences are further enriched through applications from 3rd parties, including users themselves. Initiatives like Google's OpenSocial promise to break down the "walled gardens" among different social networks, and to make them the identity fabric of the Internet.

User-generated content

The proliferation of social networking and content aggregation sites, combined with the wide availability of consumer multimedia devices (e.g., digital camcorders, camera phones, MP3 players) and software, has led to a huge explosion of user-generated content in the form of videos, photos, blogs, podcasts, and social tagging. This new source of content, which will likely continue to grow at a brisk pace, is bound to transform the individual experience with media, entertainment and learning. For example, YouTube videos are already beginning to replace instructional manuals on tasks ranging from computer repairs to fixing a leaking faucet. More significantly, the power shift from traditional distribution channels (e.g., TV networks, classrooms) to content aggregation players (e.g., YouTube) will lead to a more level playing field.

Keys to success

The drive to achieve high performance through offerings related to the digital home goes well beyond basic technology capabilities. Based on the trends discussed here, companies should consider the following keys to success when it comes to providing premium technical services for the digital home:

Make it easier to extend and integrate devices and services across platforms and with one another through standard interfaces and protocols.

A key to making the digital home a reality is better hardware and software integration, and improved interoperability between devices based on standard technology protocols and consistent user interfaces. Web services and other interfaces and protocols will be critical to making components of the digital home "speak" effectively to one another.

Design effective packages of premium, managed digital home services, including installation, management and support of devices.

After years of avoiding the "truck roll," the industry is starting to rethink the business model for providing in-home support. In the past, charging a \$100 fee to perform an in-home call for service was prohibitive, undermining the business case for value-added digital home services. Today, if one can charge \$150 for in-home services, a company gets the extra margin, but also something more: the ability to deepen customer relationships, getting to know their real needs in a way that enables a company to up-sell or cross-sell additional, profitable services.

Such a recommendation is easily made, but in fact companies must rethink their existing business models, organizations, processes and systems if they are to offer support services that help consumers manage the complexity of digital home technologies.

Instead of regarding customer service as a drag on bottom-line profitability, companies must determine how to transform the consumer experience by embedding services in their offerings. We believe that enormous benefits await companies that can achieve this transformation, from improved differentiation to greater brand loyalty and new revenue streams.

Provide an easy-to-use "softpanel" for configuring, interacting with and managing devices and services in a consistent way, including a device/ services "dashboard."

Because it is increasingly difficult to pack both functionality and usability into a consumer electronics device, an emerging paradigm is to use "soft-panel" controls as part of what Accenture calls a "trivergence" architecture—where the device is technically separated from the data and the controls.

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Figure 6: Accenture softpanel prototype, designed to control the functionality of the digital home.

The most obvious example of a soft-panel solution is with the Apple iPod. The iPod relies on a network to download content; but then, rather than asking a consumer to perform complex manipulations of data on the small device itself, Apple enables a user to use a PC to control and manipulate the content via a softpanel interface. Another example is Vonage, which maintains a self-service website giving consumers an easy-to-use portal for configuring and managing complex voice and messaging services. Vonage has no field force, so these self-installation and self-service capabilities are critical to the company's success.

Softpanels will become increasingly important components of a total solution enhancing usability of digital home features. Figure 6 shows a screen created by Accenture for one such softpanel approach for controlling the functionality of the digital

home. The dashboard is laid out according to a user's intentions, allowing consumers to configure and manage how their digital home and mobile devices will interoperate and use a variety of communications, entertainment and social networking services. These services can either be provided by the service provider, or alternatively sourced from third parties such as YouTube, Flickr and other Web 2.0 providers.

Provide more effective, end-to-end service management for devices and services.

Making technology work for the consumer can be an expensive proposition. Home visits are a potential drain on profitability. To be successful, companies should incorporate troubleshooting and repair mechanisms into their solutions, and provide better instrumentation to the service provider's management systems.

Accenture research highlights the potential damage of providing poor customer support. Consumers in our study said they are often frustrated with how long it takes to fix problems as well as with the qualifications of the service representatives. Companies need to reengineer the entire customer support chain to make it more responsive to consumer needs. For example, service providers have historically operated with siloed departments and device-centric fault management approaches. Today they need to manage IP services such as video or music on an end-to-end basis. Such a capability starts with intelligence embedded in the solution or on-board support. It includes appropriate instrumentation for management applications, and moves up the chain with online support, phone support, field support and, finally, return or repair.



Companies that expect to achieve and sustain high performance will need to rethink their business models, enabling them to implement and then manage digital home services on behalf of their customers.



Managed digital home services can help by delivering better configuration management, offering the capability for remote diagnostics and troubleshooting, as well as providing end-to-end service monitoring and management. Not only does this require better instrumentation and management tools with end-to-end service views, but typically requires that service providers reengineer their organizations and processes to support a more service-centric model.

Work to create and maintain trust in your diagnostic and repair capabilities.

A company's viability in the area of digital home services will be built on a trusted relationship with consumers. The role of the "trusted digital advisor" will become increasingly important. Here there are numerous pitfalls.

A recent exposé by a US news organization in Ohio found that several major repair services could not be trusted to render a basic diagnosis for a laptop repair. The investigative news team changed a single BIOS setting on the computer, causing it not to read the operating system. Upon taking the laptop to several repair services, two out of the three tech teams did not make the proper diagnosis and charged the consumer hundreds of dollars in unneeded repairs.⁹

Pursue alliances and partnerships.

The combination of hardware, software, access, connectivity, content, field support and proactive/reactive services may be too much for one company to handle on its own. Intelligent partnering and collaboration between hardware, content and service companies will be essential to achieving high performance through digital home services.

As the technical complexity of the digital home increases, consumer electronics companies and service providers must increase their capacity for both reactive and proactive customer support. A combination of effective design and use of interoperable technologies will go a long way toward helping consumers use their digital home services more effectively.

At the same time, companies that expect to achieve and sustain high performance will need to rethink their business models, enabling them to implement and then manage digital home services on behalf of their customers.

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Author

Larry Socher is a Partner with the Accenture Communications and High Tech Operating Group and is responsible for leading the global Accenture Network Practice within the group.

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