



Trends in Consumer Technology: Defining and Sizing the Market

A Parks Associates White Paper

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1.0 Snapshot: The Digital Lifestyle Landscape

The manner by which consumers create and share personal and commercial content, enjoy a variety of programming and entertainment applications, communicate, and enhance productivity at home and on-the-go is evolving as digital technologies become more mainstream. We are now at a point in which where the “digital lifestyle” – encompassing the consumer activities mentioned above – is becoming more of a reality now than ever. The last decade has seen much in the way of very solid activity and very real potential among multiple players in services delivery, software development, and platform design to address the growing consumer appetite for lifestyle enhancement solutions and productivity applications – from broadband to portable music and emerging television services – among many categories.

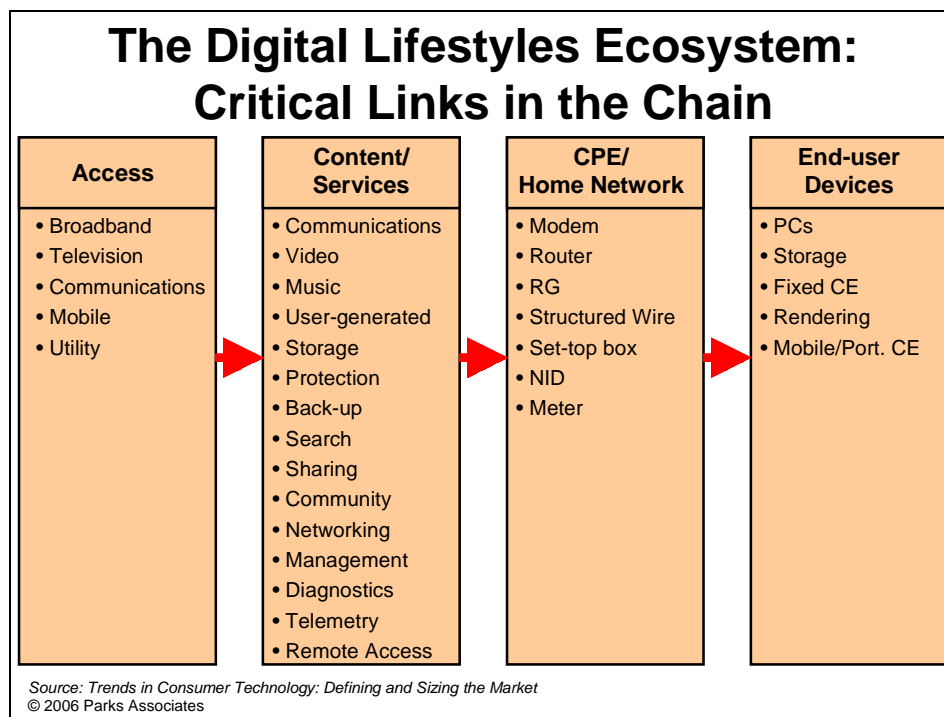


Figure 1 The Digital Lifestyles Ecosystem: Critical Links in the Chain

Growth of the digital lifestyle market has largely been consumer driven, and products and services have been acquired in a piecemeal fashion. For example, three-fourths of the data networks in U.S. households were purchased directly by consumers at retail, meaning it was up to them to determine 1) that they had a need for the network (to share a single broadband connection, for example); 2) the ideal solution for their needs, based

on such parameters as performance, opinions and reviews from trusted resources, and price; and 3) how to properly install and configure the product. This piecemeal approach is likely to continue, as consumers purchase technology solutions as the need arises and as their budget allows. This is even true among current owners of home theater systems. In many cases, these systems were created through the acquisition of different pieces of equipment at different times.

However, a key trend in this industry is the alignment between end-user products and services that accompany them. This has certainly been true in the case of Apple® Computer Inc.'s iPod® portable digital music player, which is tightly integrated with the iTunes® Music Store. The mobile phone industry has also developed this symbiotic relationship between the service and the handset to significant success. Enabling the seamless transfer of a ringtone from the mobile operator's network to a mobile phone handset that can play it clearly is a simple yet powerful example of this type of service-to-platform convergence. Facilitating this linkage between content and the platform allowed mobile operators who deployed this service (among other additional features) to build revenues per subscriber for services beyond a voice connection (**Figure 2**).

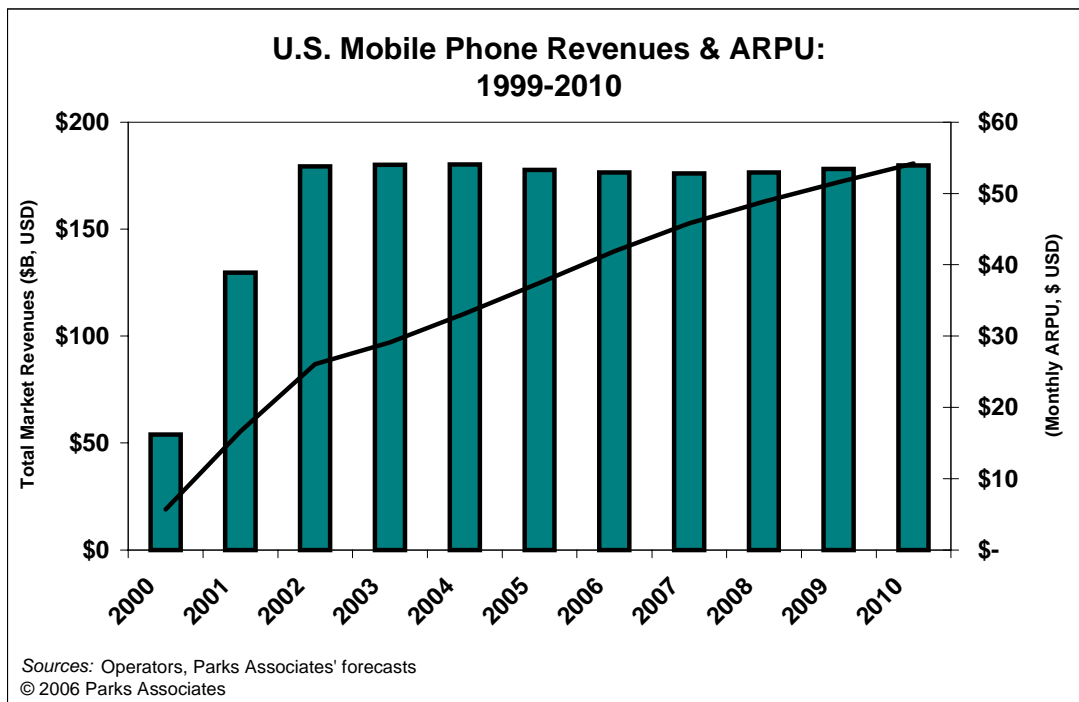


Figure 2 U.S. Mobile Phone Revenues & ARPU: 1999-2010

Beyond these examples, there are other more subtle ways in which “Access” and “End-user Devices” (as listed in **Figure 1**) are beginning to develop symbiotic relationships. Take the sale of high-definition televisions and the upgrade to a high-definition-capable television service. To take full advantage of the picture quality that an HD display can offer, buyers of these displays will likely turn to a service provider – cable, satellite, or telco (if available) – to provide for a broader array of content. Certainly, antenna ears will facilitate over-the-air HD of local channels, but growing base of consumers (**Figure 3**) are indicating that they are paying for such service as they’re seeking more in the way of additional HD programming, and half of them initiated this service in the last year. These are the trends that the service providers are watching as they determine how much HD content to supply to their subscribers. Following what should be a significant bump in sales of HD displays late in 2006, service providers will have an even larger base of potential high-definition subscribers.

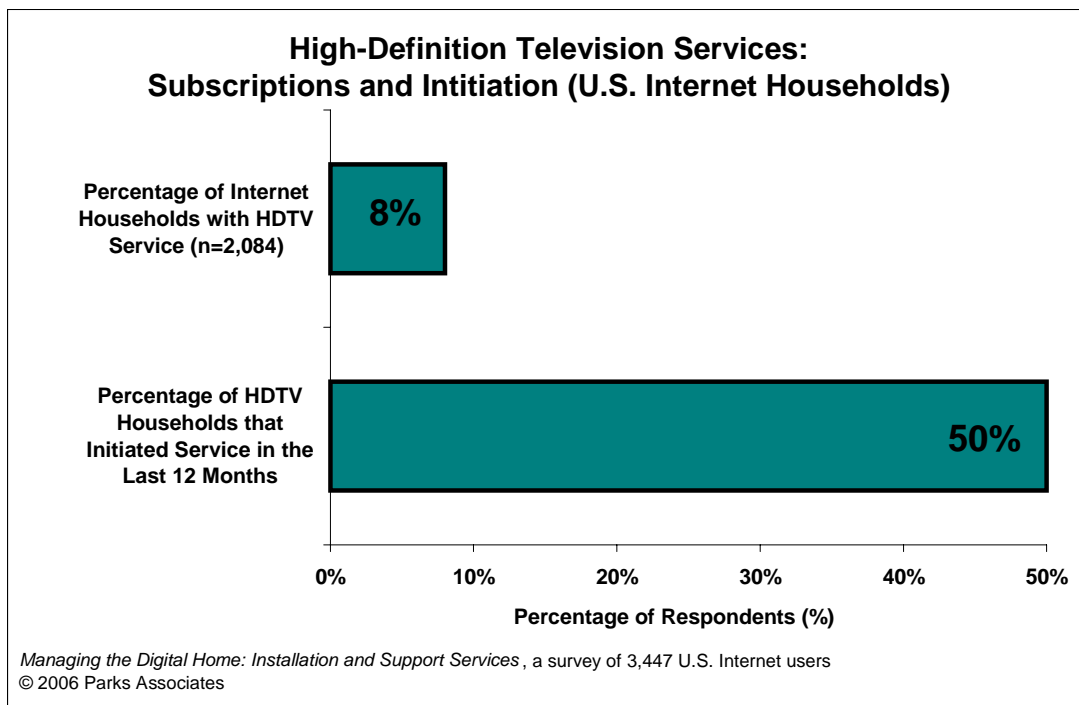


Figure 3 High-Definition Television Services: Subscription and Initiation

If the next wave of digital lifestyle developments will be predicated upon tighter linkages between access, content and services, entry points to the home and consumer technology ecosystems, and end-user products, the following fundamentals must be realized:

- Service providers will play a critical role in the development and deployment of value-added services;
- Wide area network coming into the home or mobile environments – be it Internet, television, fixed-line or mobile telephone, or utility – will be a critical pipeline through which content and services will flow;
- There exists for robust and flexible customer premise equipment at the home to receive, aggregate, and manage a growing array of these value-added services;
- The home network – a two-way communications infrastructure – is needed to support the sharing of communications and content from one device to another;
- The value of the home network expands exponentially as the number of end-user devices able to send and receive communications signals grows; and
- Ensuring the proper connectivity, installation, and configuration of digital lifestyle products to services and applications (and to other like devices) will be managed on multiple fronts: through embedded and third-party/after-market software and diagnostics, via trained installers and repair technicians, and through remote access services.

This paper examines digital lifestyle trends across the value chain and identifies key opportunities within digital lifestyle ecosystems.

2.0 The Digital Lifestyle Ecosystem

2.1 Broadband and Communications Services

The first link in the digital lifestyle ecosystem value chain begins with the robust access network, in this case, broadband. The number of worldwide households with broadband is expected to grow from 184 million at the end of 2005 toward the 400 million mark at the end of 2010. As incumbent broadband providers – the cablecos and telcos primarily – engage in more heated competition with each other and with such alternatives as broadband-over-powerline (BPL) and wireless solutions, including WiMAX – we’ll see a new form of competition emerge that places the emphasis on the broadband provider as an “experience providers” as opposed to merely a pipe for “high-speed access” **Figure 4**).

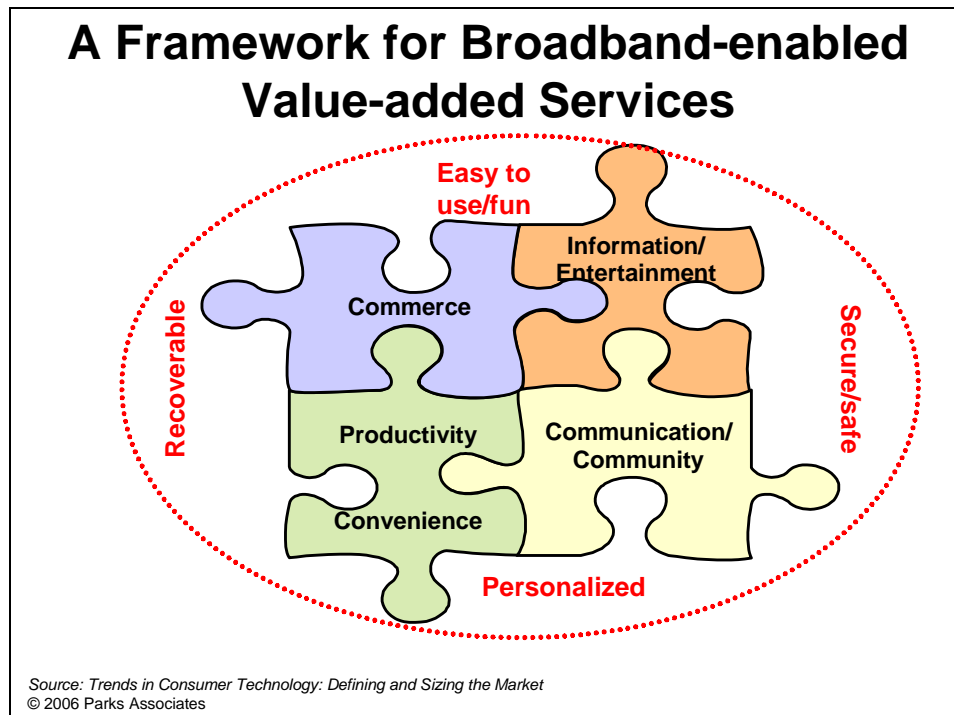


Figure 4 A Framework for Broadband-enabled Value-added Services

The battle to acquire and retain customers – in addition to building revenues per customer will center on how effectively the broadband carriers build compelling packages of services and move into the realm of “experience providers.” One key area of interest is the quad-play bundle, which will include mobile communications and entertainment services. In the U.S., it’s an area that we’re strongly encouraging the telcos to exploit, and one in which the cable MSOs expect to make up significant ground, thanks to a recent Joint Venture announcement with Sprint-Nextel. Beyond converged data and voice services – both landline and mobile – we expect the mobile phone to serve as a content receiving platform – both music and video.

Although low price may serve as an initial enticement to the bundle, our consumer research indicates that unique service offerings and good customer support are key variables in improving customer satisfaction with the broadband provider. In what ways specifically can broadband providers enhance this service experience? It may in fact be those applications that enhance security and ease-of-mind for home Internet and computer users. Two 2006 consumer studies – *Bundled Services & Residential Gateways* study and *Managing the Digital Home: Installation and Support Services* studies support this theory. We found, for example:

- That a “computer security software” suite and online storage and backup are two of the most-popular choices for value-added services in a bundle, and a “home monitoring service” is valued most, in terms of the amount that consumers are willing to pay; and
- That “technical support” is the most-important variable in a consumers’ decision to accept a home networking service from the broadband provider.

2.2 Trends in Mobile Communications

The mobile phone industry has evolved from simply being voice enabled to being capable of providing diverse new experiences to its users. With high penetration of mobile phones in the market, service providers are no longer content with simply adding subscribers. Instead they are pursuing opportunities to retain their subscribers and encourage them to use new technologically advanced handsets and data services, thereby increasing their average revenue per user (ARPU). In order to provide these services, they are spending billions of dollars to deploy new networks. At the same time, handset vendors are trying to develop the next breakthrough product in terms of design and capabilities. In this effort, they not only consider consumer response to the product but also take cues from the service providers because service providers sell the handsets to consumers.

Once bulky voice transmitting devices, handsets are now sleek, converged devices that not only enable voice communication but can also provide diverse experiences, ranging from camera-like functions to TV viewing capabilities. The camera-like capability in phones, introduced in Japan in 2000, has become practically a standard mobile phone feature. Since 2004, nearly 80% of mobile phones in the U.S. market have been camera-capable models. Service providers have been offering attractive prices to entice their customers to purchase a camera phone. As mentioned earlier, selling camera phones provides them an opportunity to sell services associated with this advanced feature and thus increase their ARPU. Subscribers have also shown an increasing interest in these phones. With the introduction of mega-pixel camera phones, the demand will further increase and will provide additional opportunities for operators to offer complimenting services like photo printing and photo sharing.

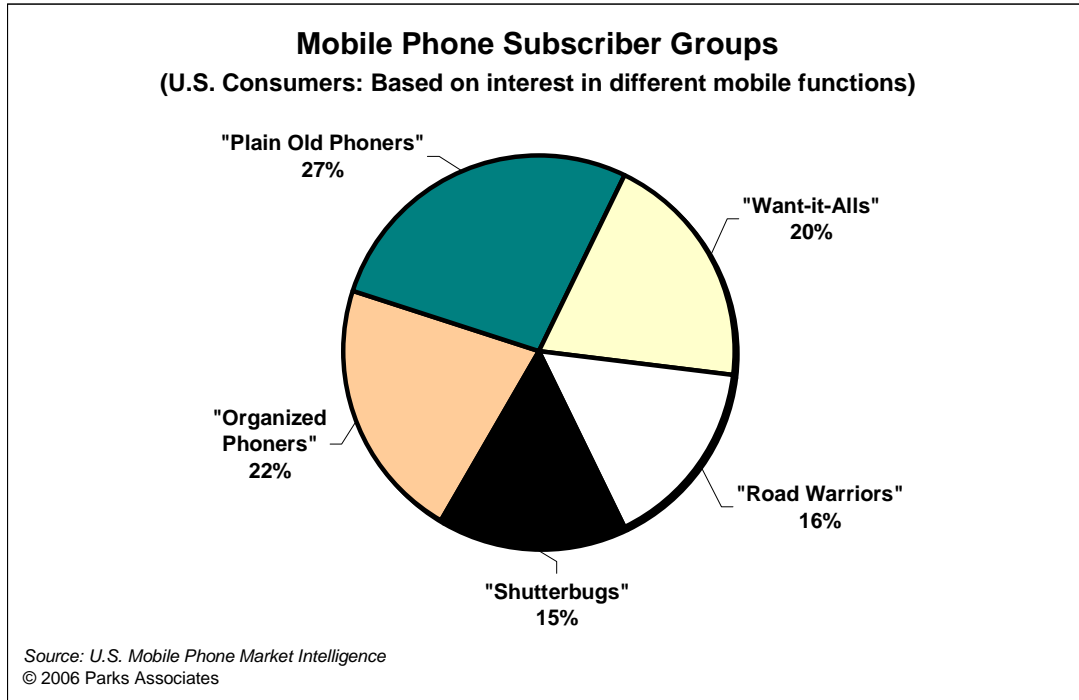


Figure 5 Mobile Phone Subscriber Groups

2.3 Broadband-enabled Content

Households with a broadband connection and a home computer drive a significant share of digital home service and product trends at present. Although the main lure of a home broadband connection may simply be “faster e-mail,” categories of “Active Media Consumers” – those heavily invested in online applications such as music, photography, and video – already number in the tens of millions of households.

Our research indicates that significant percentages of U.S. Internet users are now paying for these online content experiences (**Figure 6**). As more mainstream consumers begin to utilize Internet content services as complements to existing subscriptions (broadband, television, mobile phone, etc.), we expect to see a growing number of users paying for these services as value-added services rather than stand-alone subscriptions. Also, the growing links between content and the platforms from which consumers will access and enjoy the content are also growing stronger, thanks to industry consortia and other standards-based work. Revenues in the U.S. for such online entertainment activities as gaming, music, and video – all of which can be enjoyed with a simple broadband

connection and a home computer – will exceed \$11 billion annually by the end of 2010.

That’s no small change.

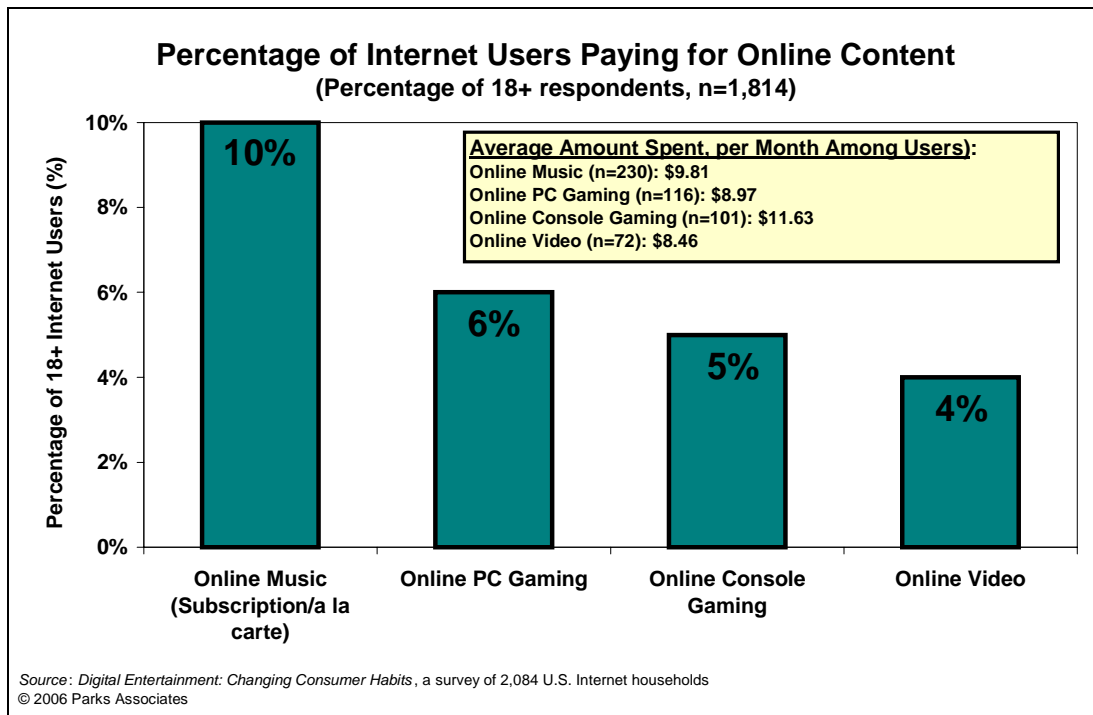


Figure 6 Percentage of Internet Users Paying for Online Content

We view the entry of larger companies into the online video distribution business and the attitude changes on the content provider side as positive news for consumers and manufacturers of the End-User Devices, as shown in **Figure 1**. Most of the current services are PC-based, limiting the upside for CE manufacturers. But consumers’ familiarity with Internet multimedia content and their evolving desire to enjoy video content on TV will drive the demand for either bridging solutions like today’s digital media adapter or consumer electronics devices with the direct connection to the Internet and their home network. Services and products offered by companies such as Akimbo™ Systems and MovieBeam are examples of the converged platforms and distribution models to be further developed by industry players and accepted by consumers. AT&T’s Homezone service, which includes Akimbo’s Internet video offerings, is certainly one model that can lead to the fruition of a connected entertainment experience.





IP Video Delivery and End-user Digital Products		
Type of Service	Providers	Solutions and Their Value
Movie Streaming/ Downloading		<ul style="list-style-type: none"> • Media Servers: Store and secure downloaded on-demand content. • Digital Receivers: Bridge the gap between the broadband connection and the television. • Mobile/Portable CE: Enjoy video on-the-go. • Consumer Electronics: DVD creation for download-to-burn offerings.
Web & Entertainment Portals/Services		<ul style="list-style-type: none"> • Media Servers: Store and secure downloaded on-demand content. • Media Adapters: Bridge between the modem/RG and the television. • Mobile/Portable CE: Enjoy video on-the-go. • Consumer Electronics: DVD creation for download-to-burn offerings.
Aggregators		<ul style="list-style-type: none"> • Digital Receivers: Bridge the gap between the broadband connection and the television. • Media Servers: Can store and secure downloaded on-demand content. • Mobile/Portable CE: Extend time-shifted content to on-the-go environments. • Consumer Electronics: DVD creation for download-to-burn offerings.
Broadcast Initiatives		<ul style="list-style-type: none"> • Media Adapters: Bridge between the modem/RG and the television. • Mobile/Portable CE: Enjoy video on-the-go. • Digital Receivers: Can stand-alone or complement IPTV or satellite offerings by bringing more on-demand broadcast offerings to the TV.
<p>Source: Trends in Consumer Technology: Defining and Sizing the Market © 2006 Parks Associates</p>		

Figure 7 IP Video Delivery and End-user Digital Products

2.4 Trends in Video Competition

The global outlook for digital video services is nearly 400 million households using digital cable, terrestrial, satellite, or IPTV services. The IPTV share of the total global digital television market will grow from 6% of all global households at the end of 2006 to nearly 20% by the end of 2010, with robust development and deployment in Asian and European markets particularly.

Major Global IPTV Offerings: Key Features and Subscribers	
Country/Provider	Features and Subscribers
Canada: SaskTel	<ul style="list-style-type: none"> • Features: 130+ digital TV channels, VoD, 45 commercial-free music channels, and 33 Saskatchewan radio stations • Subscribers: 42,000 as of year-end 2005
France: France Telecom	<ul style="list-style-type: none"> • Features: MaLigne TV offers digital-quality television programs with access to TPS L and Canal Plus program packages. • Subscribers: 306,000 MaLigne ADSL Digital Television subscribers as of June 30, 2006
Italy: Italye.Biscom (FASTWEB)	<ul style="list-style-type: none"> • Features: 100 TV channels (broadcast, free satellite, premium thematic, and live soccer, a VoD library of 5,000 titles (with Dolby 5.1), "VideoREC" feature (Network DVR) • Subscribers: Approximately 675,000 "Families" (averaging over €304 annually in ARPU per video subscriber as of Q2 2006)
Hong Kong: PCCW	<ul style="list-style-type: none"> • Features: <i>A la carte</i> offering of digital channels, variety of "channel packs," premium programming, on-screen cinema ticketing service • Subscribers: 549,000 NOW TV subscribers as of the end of March 2006
Spain: Telefónica	<ul style="list-style-type: none"> • Features: Imagenio IPTV service includes all digital channels, VoD for a variety of content with DVD-like controls • Subscribers: 200,000+ as of year-end 2005
Taiwan: Chunghwa Telecom	<ul style="list-style-type: none"> • Features: Broadcast TV, VoD, karaoke, banking, information, education, and games • Subscribers: 100,000 subscribers as of year-end 2005
United Kingdom: HomeChoice	<ul style="list-style-type: none"> • Features: 80 channels, 1,000 VoD titles, 3,000 music videos • Subscribers: 34,000 in the London area
<p><i>Source: Trends in Consumer Technology: Defining and Sizing the Market</i> © 2006 Parks Associates</p>	

Figure 8 Major Global IPTV Offerings: Key Features and Subscribers

The competition that is now underway among multiple providers for the delivery of multi-channel and on-demand video offerings provides significant opportunities and challenges across digital lifestyle ecosystems. The next stages of competition in video provision will center on the improvement of established offerings – for example, via the provision of more personalized and local content (with attached advertising), stronger linkages between communications and entertainment services, and the development of unique and innovative services that go beyond the scope of traditional video offerings. A home management/monitoring offering tests quite well among U.S. consumers, and international players such as Korea Telecom, Deutsche Telekom, and TELUS are either already offering or are taking a serious look at launching such innovative services.

Stages of TV and Access Competition: Market Opportunities			
Stage	Stage 1: “Me Too”	Stage 2: Convergence	Stage 3: Innovation
Characterized By:	<ul style="list-style-type: none"> Multi-channel and VoD offerings Low price, initially 	<ul style="list-style-type: none"> Blending of communications and entertainment “Triple-play/Quad-play” land grab 	<ul style="list-style-type: none"> “Experience providers” Carrier as one-stop shop
Opportunities: Carriers	<ul style="list-style-type: none"> Differentiate by packages Go local (Advertise local Caller ID on the TV Games, Music, Local Sports 	<ul style="list-style-type: none"> Voice mail/IM on the TV Premium for fixed-to-mobile applications “Outside/in” solutions Complementary content drives viewers Social networking/recommendations 	<ul style="list-style-type: none"> Home status reports on the TV/PC Home health care Security Home control Network PVR
Opportunities: Vendors	<ul style="list-style-type: none"> DVR and whole-house DVR Home networking Bandwidth optimization Remote configuration/monitoring 	<ul style="list-style-type: none"> Multi-service RGs Robust Wi-Fi-to-mobile handoff solutions Back-end and billing support Media processing (fixed to mobile) Cable replacement 	<ul style="list-style-type: none"> Low-cost and reliable home networks RG/software link between carrier and other services (utilities)
<p><i>Source: Trends in Consumer Technology: Defining and Sizing the Market</i> © 2006 Parks Associates</p>			

Figure 9 Stages of TV and Access Competition: Market Opportunities

So, what is the outlook for players within the digital lifestyle ecosystem as we examine video competition?

- As competitive video players seek end-to-end solutions for high-quality multi-channel services, we may likely see additional mergers between and among players in access and CPE, as well as WAN and LAN management.
- In-home networking equipment – including residential gateways with integrated VoIP adapters – will also accompany many of these rollouts, as service providers seek to provide more seamless services for different areas of the home and for a variety of applications.
- Finally, we anticipate that – similar to recent moves from cable powers to align themselves more closely to the mobile phone industry –telco equipment vendors and handset developers will also work together to provide for a growing number of “on-the-go” applications that extend from the living room set-top box to mobile environments.

2.5 Home Networks

The notion of the fully connected digital home – defined as two-way connectivity and communication between two or more of a residence’s subsystems – exists only in a miniscule percentage of homes. However, significant growth opportunities exist within the broader notion of the digital home, each of which warrants significant attention.

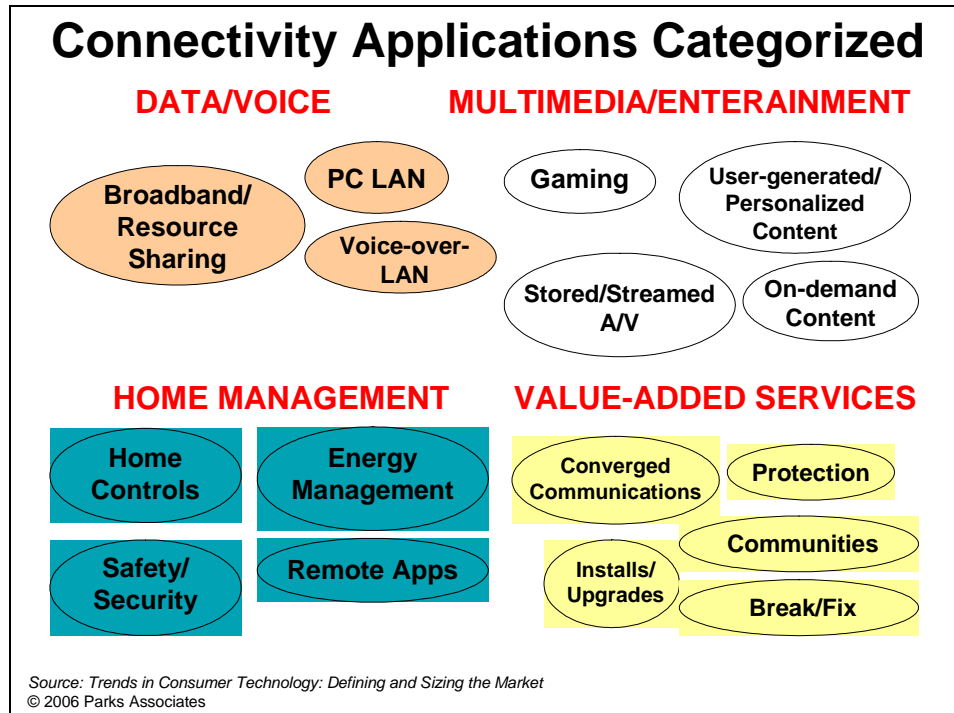


Figure 10 Connectivity Applications Categorized

2.5.1 Data Networks

Data networking has been a success story in its own right, despite its less-than-sexy use. Penetration has grown from 2.5 million U.S. households at the end of 1998 to exceed 20 million today (and an estimated 80 million worldwide) because it solved a couple of key problems: 1) allowing multiple users to access shared resources such as broadband; and 2) liberating the home computer from the broadband modem. With broadband providers now more heavily invested in the data connectivity space, this category is still growing in importance. Key opportunities within this digital home subcategory will emerge as companies develop solutions to address remote management and diagnostics of the home network (using such industry standards as TR-069) and that simplify connectivity and resource sharing (printers, files) while enhancing security.

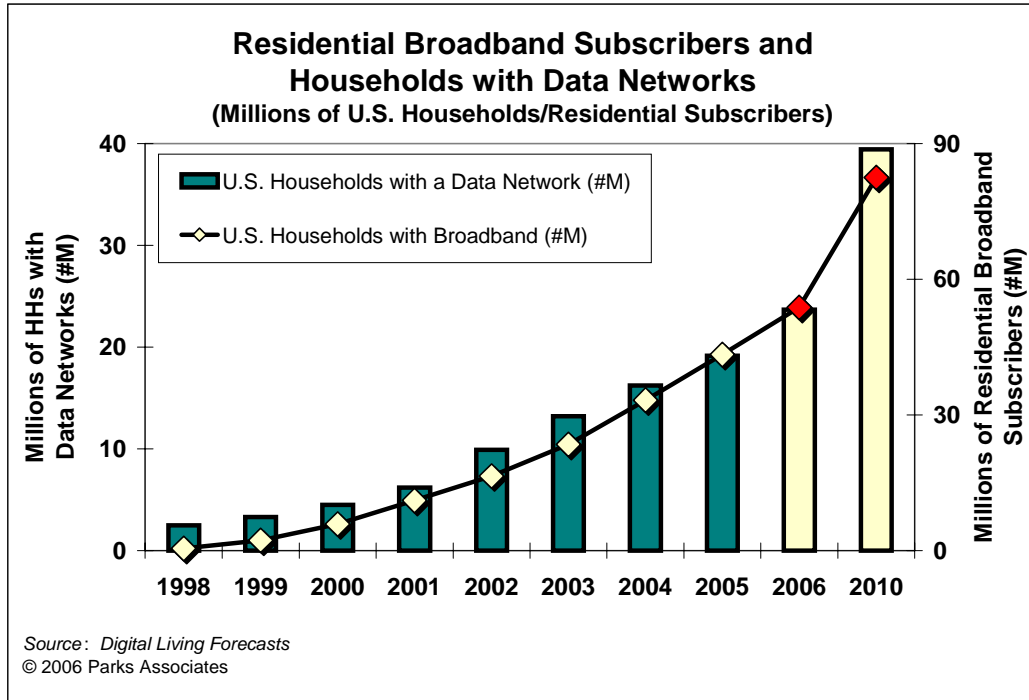


Figure 11 Residential Broadband Subscribers and Households with Data Networks

2.5.2 Multimedia Networks

The addressable market for linking a home computer to a legacy CE device is quite small at present. Furthermore, the early market for so-called digital media adapters hasn't fared as well as many manufacturers would have hoped due to challenges such as higher prices and less-than-perfect connectivity. That being said, there's reason to believe that a market for multimedia networks (PC-to-CE) will emerge as consumer use of digital content services (music and video) – both downloading and streaming – increases and as they seek ways to extend entertainment beyond the home computer. For example, from our Global Digital Living™ research, we've identified a global base of households in the tens of millions that are likely buyers of at least a point-to-point music distribution system (**Figure 12**). Service providers may also play a key role in driving developments in this subcategory. As IPTV providers seek differentiation, they may push set-top-to-PC links that would allow end users to display photos and video and play music that is stored on a home computer or other platform.

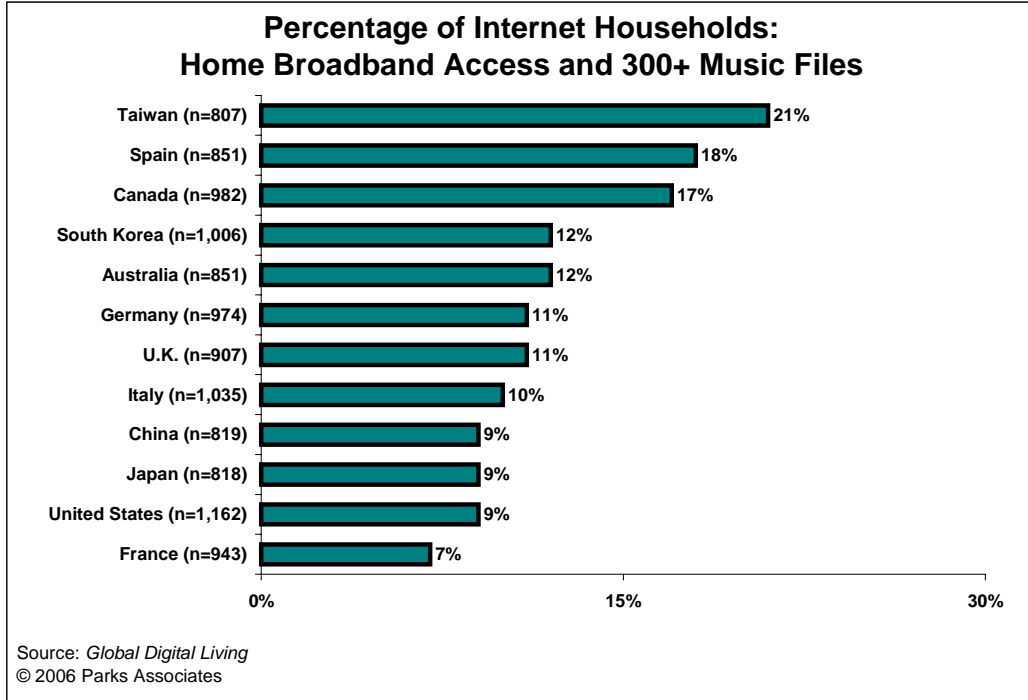


Figure 12 Identifying Global “Digital Music Enthusiasts”

Beyond home networking adapters and bridges, significant growth in multimedia connectivity will come with greater availability of embedded adapter systems. Already, more than 500,000 Xbox® owners have linked their systems to a home computer, including the Media Center systems that are beginning to penetrate a larger base of households worldwide. Another key category of products to watch in this realm will be the networked attached storage (NAS) media servers, which will be used primarily for safekeeping and backup of digital content but will also increasingly enable streaming of content to a variety of platforms inside the home.

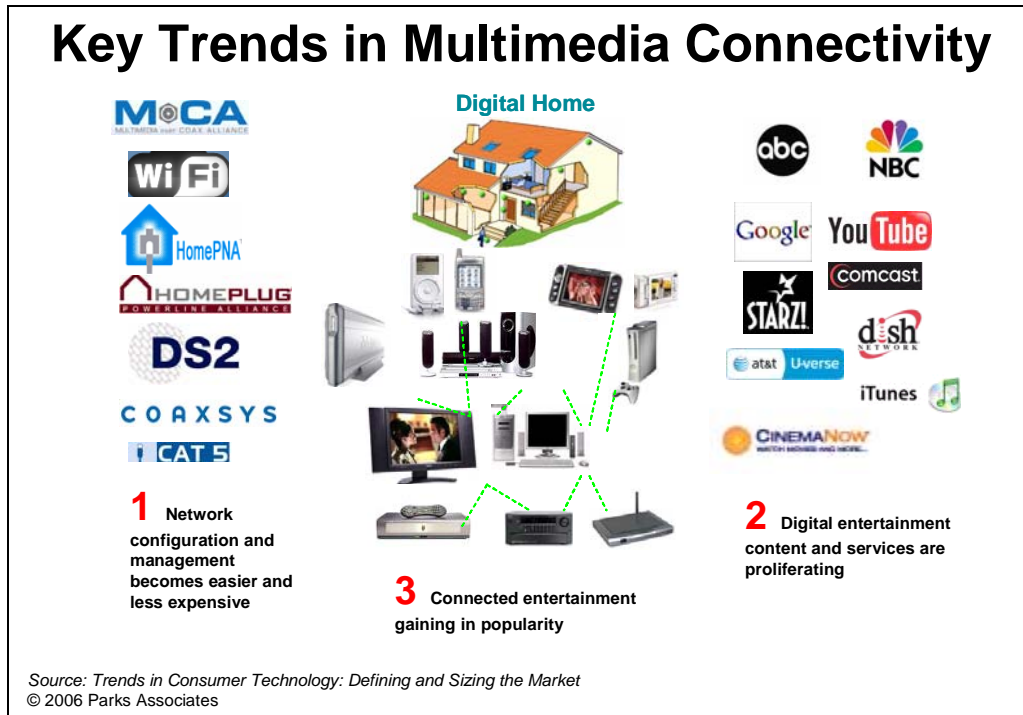


Figure 13 Key Trends in Multimedia Connectivity

2.5.3 Connected Entertainment

Competition between the main players in the United States cable market and DBS satellite providers has sped the evolution of the digital video recorder (DVR) from a solution deemed “too early for its time” to an absolute necessity in luring new consumers, keeping existing subscribers, and building average revenue per subscriber/user (ARPU). With the entry of telcos into the television-provider mix, differentiation, customer acquisition and retention, and growth of revenue per customer all become critical, and this is where home networking will play a key role. The penetration of whole-house DVR solutions – and set-top box media servers – will grow steadily from 2006 and beyond to meet customer demand for flexible access to time-shifted television programming throughout the home. And, as mentioned previously, we are not too far off from a market in which set-top-to-PC linkages (for distributed multimedia experiences) is a reality. Beyond the set-top box, additional CE media server platforms will grow in importance for such applications as backup and centralization of media files (music and photos initially) and for connectivity to a larger base of available video content from a host of Internet services.

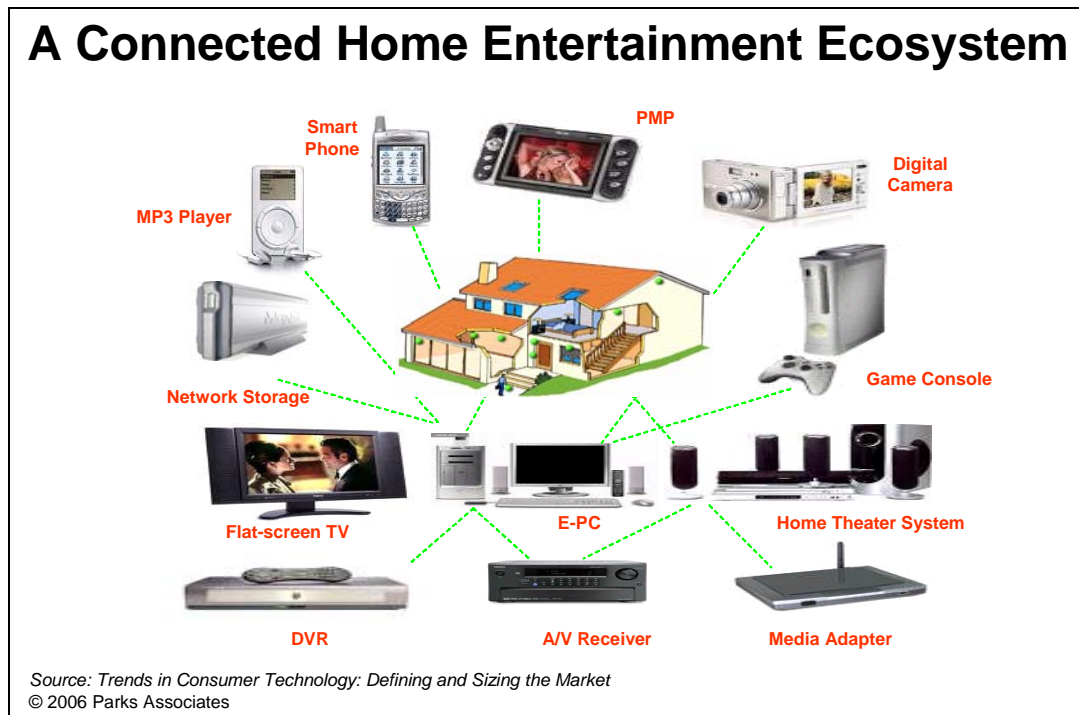


Figure 14 A Connected Home Entertainment Ecosystem

2.5.4 Connected Communications

Because voice services (landline and mobile) remain a critical component to the service providers' bundled services strategies, expect to see the services extended to include converged services. From a digital home perspective, this extension will include blending of services on multiple fronts – fixed and mobile as well as entertainment. An example of the fixed-to-mobile convergence are the “handoff” services some carriers are currently exploring (telecom providers such as T-Com in Germany and Korea Telecom in South Korean are two early examples of this experimentation). Although the talk of IP Multimedia Subsystems (IMS) and fixed-mobile convergence (FMC) may sound like mere “technospeak” at present, the integration of IP communications across networks and platforms does speak to the importance of convergence for many carriers.

On the communications-to-entertainment convergence front, a good deal of activity is already taking place on the IPTV side. In one example, operators are using a relatively simple Caller-ID-on-the-TV feature as a value-added service. Beyond this, the opportunities in this area are interesting, albeit at the early stages of development. Instant

messaging across platforms as well as such features as videoconferencing may be another set of valued features, particularly among the “MySpace.com Generation.”

2.5.5 Home Management

Finally, home control and management applications remain a largely untapped market even after 30+ years of available products and solutions. Solving the issue of low-cost and reliable communications protocols has now been largely completed, thanks to the emergence of an array of low bit rate protocols. Now the key challenge will be in implementing these solutions into devices and systems that really matter for consumers. These areas will likely include lighting control and peace-of-mind applications like security, safety, and environmental monitoring devices. And, if consumers are truly seeking to “go green” (as a recent issue of Newsweek iterated), then energy management solutions may be an important home management category in their own right. As the price of oil surges, we would expect growing numbers of end users to respond, at least in some part, to option that would better manage their home’s energy consumption. Programmable and communicating thermostats may be one such step, but the energy utilities themselves may also aggressively offer network-addressable home network nodes to perform more remote functions – including set-back and other load control measures to reduce costs on their end.

The home builder segment is becoming an increasingly important champion for home control and other home systems. In our *2006 Builder Insights* study, we noted that energy-saving amenities are the most widely offered and installed of the selected technology products builders, and that hardware revenues for all technology amenities sold through the builder channel will approach \$5 billion annually by the end of 2010.

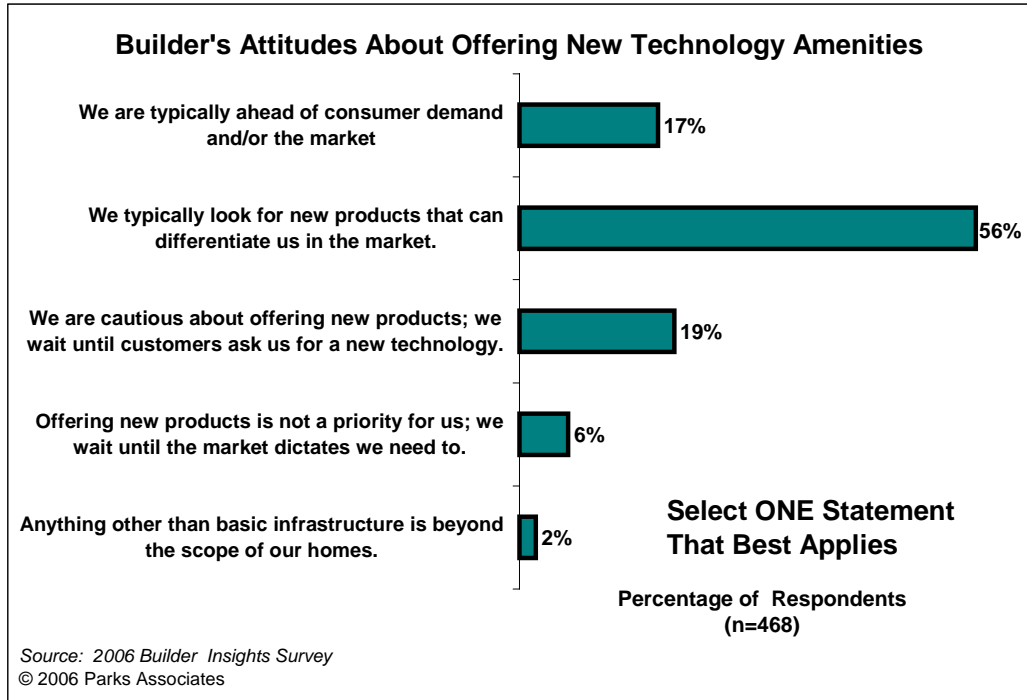


Figure 15 Builder's Attitudes about Offering New Technology Amenities

2.6 Who's Going to Manage the Digital Lifestyle?

As residential and portable technology solutions provide end users with new ways in which to access and share content, they likewise create new challenges and headaches. Home computer hard drive often fail, home networking solutions are in many cases not quite as easy to install as advertised, and printers sometimes fail to print!

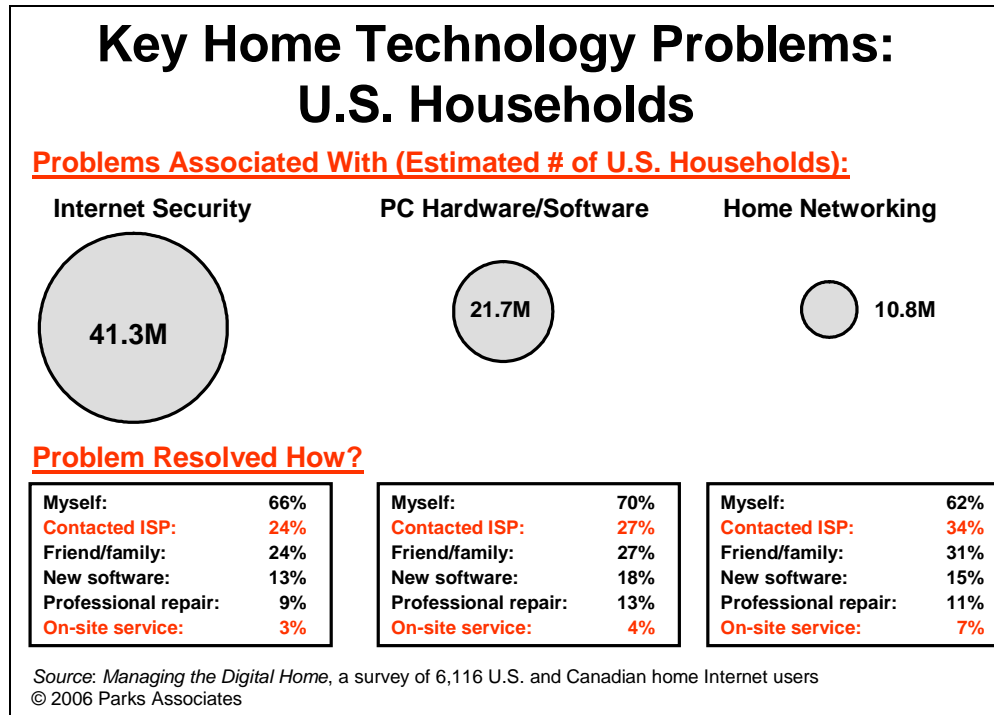


Figure 16 Key Home Technology Problems: U.S. Households

For a great many consumers, dealing with these problems has often been a case of “do-it-myself” insofar as they fixed them on their own or sought the assistance of a technically-minded friend or family member to solve the problem. This is particularly prevalent for problems related to Internet security threats – viruses, worms, and spyware, in particular – where consumers are becoming more accustomed to finding new software to address these issues.

At what point, however, does “do-it-myself,” the “family-and-friends” network of IT support, and additional software purchases and downloads fail to keep pace with the ever-increasing complexity of the digital home? When self-help fails, how do product manufacturers and service providers avoid creating huge cost burdens on their technical support centers when customers require their assistance? What key solutions are needed now to help customers ameliorate the complexity, confusion, and consternation with which they view their home technology products? Finally, are their business cases that can be built upon delivering digital home management solutions?

The one digital home management tool that receives overwhelming interest is the “digital dashboard” feature that automates some basic PC and Internet performance enhancements and provides up-to-date diagnostics information that can be easily reviewed by the user. Along with this solution, our research finds that consumers have and are willing to pay for home computer equipment set-up and configuration, as well as for professional assistance in a “break-fix” case where home computers and/or home networking equipment is in need of attention.

Mid-term opportunities include Internet security suites that provide not only for basic Internet security features (anti-virus, anti-spyware, etc.), but also include alerts, updates, and recommendations for both proactive preventative and reactive measures against Internet threats. Overwhelmingly, consumers deal with Internet security challenges on a do-it-yourself basis, and they are not strongly interested in third-party software that comes as part of a subscription. However, a security service can be perceived with greater value for providing more of a holistic solution that incorporates features in addition to protection functions. The aforementioned “digital dashboard” is a good example of a value-added feature that would draw more customers to a solution.

Longer-term, there are opportunities for software vendors to help carriers and equipment vendors better understand the basic parameters of the digital home. At present, Internet service providers are largely flying blind when it comes to knowing what devices are connected on a home network and how they are being used. With remote diagnostics capabilities and two-way reporting to a “knowledge database,” carriers can benefit from more timely information about the configuration and use of digital home products and provide more proactive service in the case that their customers have problems with equipment or services. Furthermore, the value of the knowledge database can be extended as consumers seek to add more devices to their home network. In addition to recommending fixes, the database can be used to generate recommendations for compatible hardware or equipment. For example, the carrier may build internal case studies that would indicate that Wireless Bridge X works particularly well with Game Console Y, and could serve to recommend such a product when the customer is ready to link their game console to the broadband connection for online gaming.

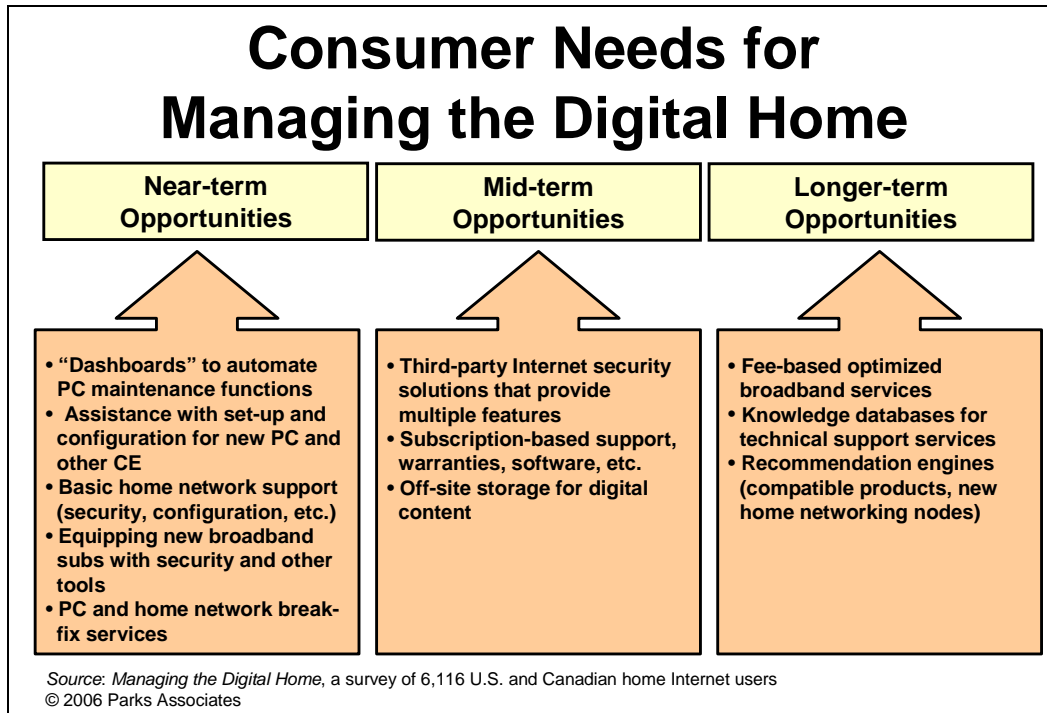


Figure 17 Consumer Needs for Managing the Digital Home

2.7 Summary Thoughts

Like Pandora’s Box, consumer demand for gadgetry grows with each successful introduction of a product or service that actually delivers on its promised benefits. Combine the appeal of gadgetry with “bet the farm” product strategies of service providers and many hardware companies and the result is a plethora of new entertainment, communication, and control applications offered by all classes of vendors. Of course many of these offerings will fail while others will follow the notable success of the MP3 player, the monitored alarm system, the smart phone, and DVR, to name a few. These technologies have quickly become entrenched in our lives, and we do not plan on a future without them. And, very quickly, the scope of opportunities has now become not just about the digital home but about enhancing the digital lifestyle – which includes services, applications, and products for use both in and outside of the home, fixed and mobile.

Digital living is now a reality. Check your monthly budget to understand what percentage of disposable income is now earmarked for personal technology products and services. With increased adoption of digital products, however, comes increased scrutiny of

products that don't work, are excessively complex, or are difficult to install or adopt. It seems that a quiet backlash has already begun against the complexity of the products we have embraced. We suggest, judging from consumers' increasing frustration with three or more remote controls on the coffee table, increased simplicity requires increased integration of both services and end-user platforms.

The current phase of the digital home is a land grab, with vendors aggressively competing to invent or capture brand new product categories. Shortly behind this phase is consolidation, in which revenue growth comes from conquering and acquiring another's market share. As usual, the spoils will go to well-entrenched incumbents, as witnessed by Cisco's acquisition of Scientific-Atlanta, Alcatel's merger with Lucent, and AMD's acquisition of graphics chipmaker ATI. This type of merger mania allows industry executives to speak highly of "synergizing core competencies" and "leveraging operational efficiencies," but there are key points not to miss. One, service providers themselves are actively seeking end-to-end solutions that help them deliver converged and digital lifestyle services in a reliable and cost-effective manner. Second, although the "Swiss Army Knife" approach to end-user platforms may not fit the bill for every consumer, the integration of multiple applications and capabilities on a single device will matter to a growing base of consumers. Just ask the folks at Research in Motion. Convergence applications and the digital lifestyle are more real than ever.

As the giants of the industry, including Hewlett-Packard, Microsoft, Verizon, Intel, Cisco, Walt Disney, and Motorola, set their sights on larger portions of the digital home, the digital home will be increasingly integrated. Integration efforts through standards such as those prescribed by the Digital Living Network Alliance (DLNA) are noble yet painfully slow. Integration for the sake of market domination by a set of strong players will happen increasingly quickly as emerging technologies become mainstream. The most exciting questions to contemplate are the spheres of influence that will be held by the market leaders: service providers, set-top box manufacturers, consumer appliance manufacturers, home computer makers, network equipment manufacturers, monitoring and security equipment manufacturers, and mobile device manufacturers. The ability of one or more giants to dominate more than one segment and integrate the two (or more) will lead to significant shifts in market share. If the solution is simple, reliable, and fairly

priced, the consumer wins, and the integrated digital home – nay, the digital lifestyle – vision becomes a reality – rapidly.

About the Author:

Kurt Scherf studies developments in home networks, residential gateways, digital entertainment, technology development in the housing market, and residential and building management and controls. Kurt is the sole author or contributing author/analyst to more than 40 research reports and studies produced by Parks Associates since 1998. Kurt is a frequent speaker at conference and events around the world, and is frequently cited in the industry and general business press. Kurt is a certified Focus Group Director. Kurt joined Parks Associates following a career in political research and multi-tenant dwelling management. He earned his BA from The University of Iowa.

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About Parks Associates: Parks Associates is a market research and consulting firm focused on all product and service segments that are “digital” or provide connectivity within the home. The company’s expertise includes home networks, digital entertainment, consumer electronics, broadband and Internet services, and home systems.

Founded in 1986, Parks Associates creates research capital for companies ranging from Fortune 500 to small start-ups through market reports, multiclient studies, consumer research, workshops, and custom-tailored client solutions. Parks Associates also hosts two executive seminars, both part of the Fall Focus series, and co-hosts CONNECTIONS™ (in partnership with the Consumer Electronics Association) each year. www.parksassociates.com.