



Putting the Home Network to Work

A Parks Associates White Paper

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1.0 The Stages of Home Networking

A key factor to consider regarding the rapid adoption of home data networking equipment since 1998 is the very practical purpose that these solutions have and continue to serve in the vast majority of U.S. households. Although the industry is quite keen to sell next-generation home networking equipment to link home computers to consumer electronics platforms (multimedia networks), the main benefit to consumers remains the ability to access broadband Internet access from multiple locations in and around the home (see **Figure 1**).

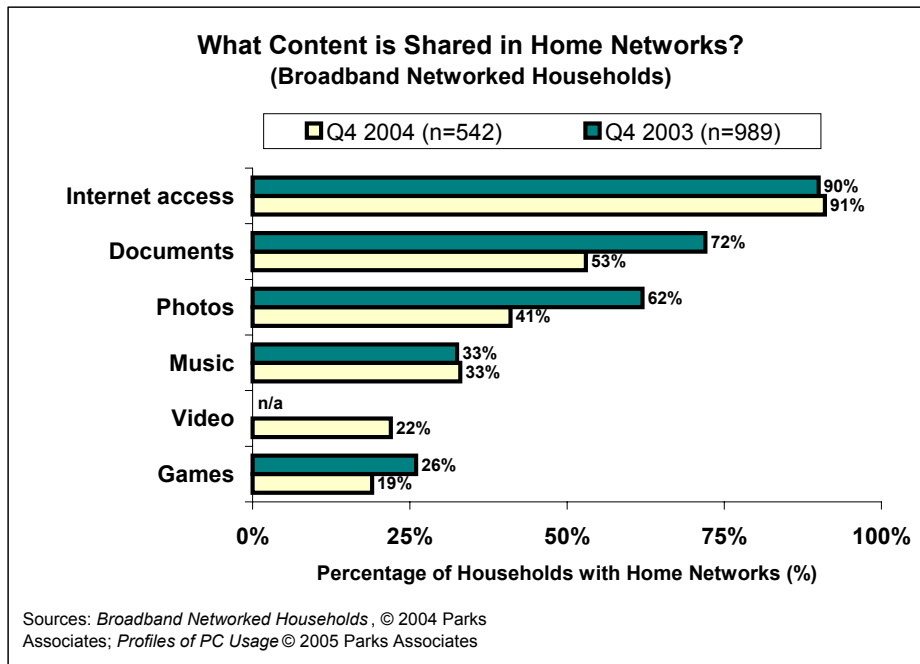


Figure 1 What Content is Shared in a Home Network?

The use of a home network as a broadband-sharing mechanism is just the first stage of several in the evolution of home networking. Both consumers and broadband and applications carriers will find benefits as connectivity expands beyond shared Internet. For consumers, shared multimedia content (music, photos, and video) from both home computers and other storage platforms will drive them to seek digital media adapters, either stand-alone or integrated with other platforms such as set-top boxes. For carriers, the deployment of home networks now is a service differentiator and a customer loyalty measure. However, the carriers will seek to monetize their customer premise equipment (CPE) deployments by tying them into additional services, notably voice and multimedia. We expect to see them deploy residential gateways (RGs) as part and

parcel of their next-generation voice services and for multiroom video applications. As the telcos in particular become more aggressive in offering music and video services to supplement their broadband and voice offerings, look to them to seek residential gateways that support multiroom distribution of this content. **Figure 2** provides an overview of the stages of home networking deployment.

Home Networking Stages: Key Applications

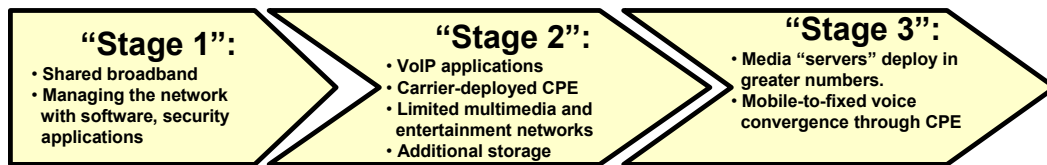


Figure 2 Home Networking Stages: Key Applications

2.0 Why the Need for Managed Services?

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

For a great many consumers, dealing with these problems has often been a case of “manifest destiny” insofar as they have fixed them on their own or sought the assistance of a technically minded friend or family member. However, we are entering an era in which consumers will have new software solutions and professional support to provide an enhanced level of home computer and home networking monitoring, maintenance, and support. There exist a number of drivers for the growth of these solutions:

1. The segment of consumers with multiple computers and a home network to link a single broadband Internet connection has now surpassed the definition of “early adopters.” These consumers are less technically proficient than the very early market for connectivity, and they may simply not have the time or desire to provide IT support for their home.
2. For end users, the stakes of technological catastrophes such as hard drive failures grow significantly as they rely on their home computers to function more as “media servers.” In addition to storing productivity content (finances, addresses, etc.), home computers are increasingly serving as “entertainment hubs” – platforms to which consumers are

downloading photos, music, and video (see **Figure 3**). To lose an entire collection of this information is more than merely inconvenient; the loss of personal memories through a hard drive crash, theft, or other household disaster (flood, fire, etc.) can be heartbreaking.

3. Companies providing home networking products and broadband services are examining ways in which they can reduce the complexity of these services in order to mitigate potential customer service challenges, such as increased calls to customer support centers.

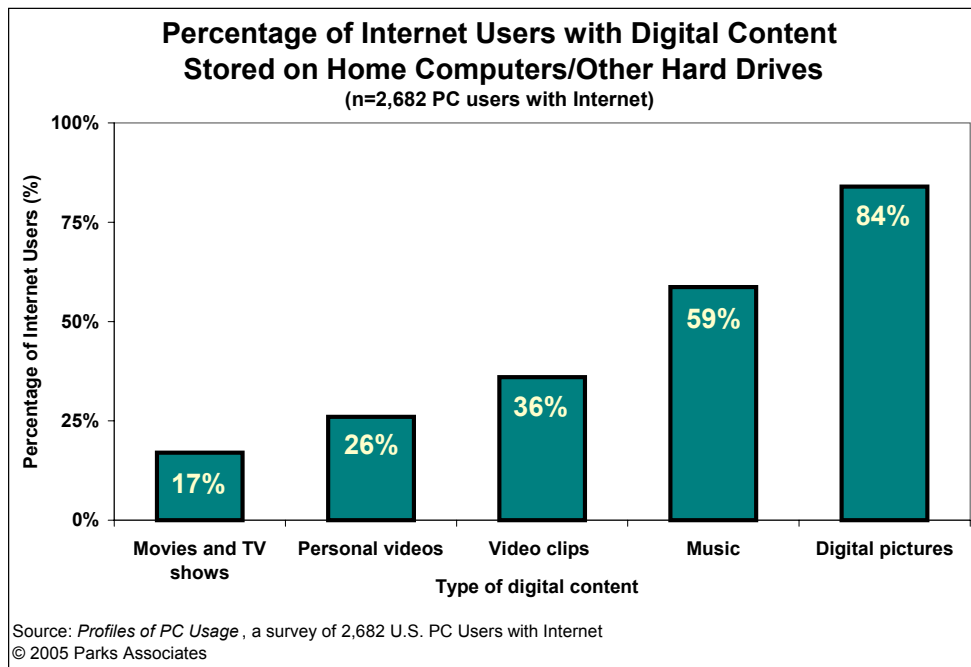


Figure 3 Percentage of Internet Users with Digital Content Stored on a Home Computer/Other Hard Drive

This white paper examines the challenges that face home users of computers, the Internet, and home networks and provides insight into how the industry is addressing the need for improved management, monitoring, and maintenance services and solutions to home users.

3.0 What Vexes the Home Computer User?

Depending on the number of home computers owned and the manner in which they are configured (i.e., are they networked?), consumers are going to experience different issues as they use them. PC households without a home network (an estimated 61 million at the end of 2004, as **Figure 4** indicates) are obviously not going to experience networking problems. On the other hand, households with a data network used for Internet connectivity for at least one home computer may experience connectivity challenges or glitches associated with the home network

itself (interference affecting the performance of a wireless solution, the inability to connect devices and resources such as shared drives and printers, etc.).

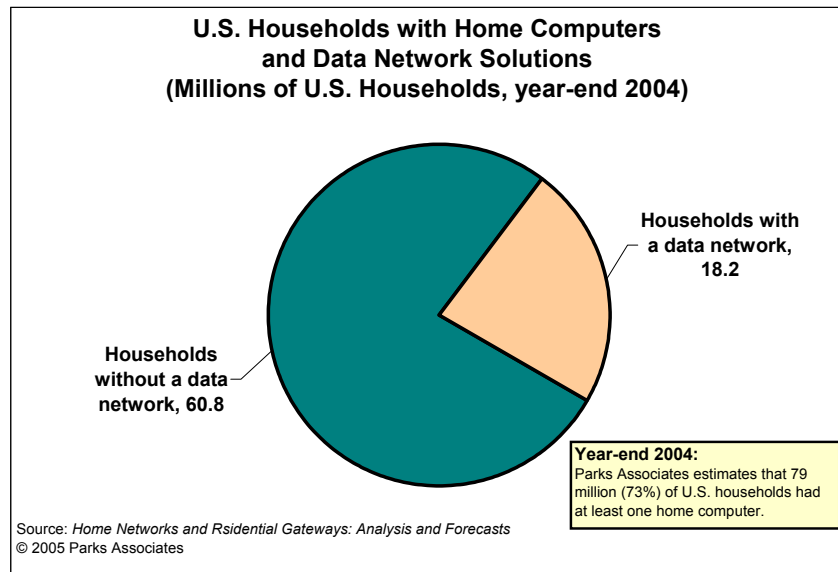


Figure 4 Home Computers and Data Network Solutions in U.S. Households

The potential problems facing today’s home computer and home network user are listed in **Figure 5**. These challenges can be grouped in three basic categories: those facing all home computer users; those associated with the setup and configuration of a home data network; and those that refer to more advanced home and public network use (such as setting up shared resources, managing port functionality for such applications as multiplayer gaming, and ensuring that security settings are established for both private and public networks).

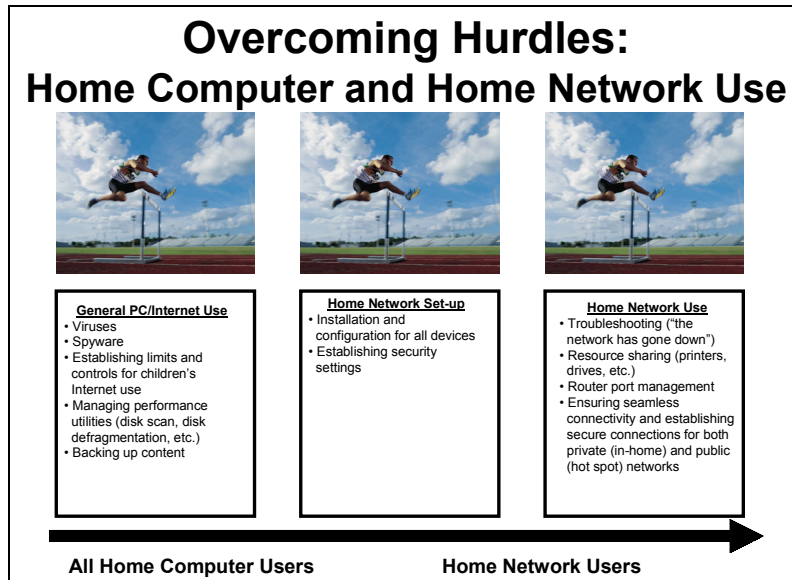


Figure 5 Overcoming Hurdles: Home Computer and Home Network Use

3.1 Security and Home Computer Performance Issues

The problems that consumers are experiencing with their home computers are also related to maladies coming from the Internet. As **Figure 6** illustrates, home computer owners with Internet access at home are significantly more likely to have experienced problems related to computer performance if they also reported problems with computer viruses or spyware in the last 12 months. Executives at Best Buy and CompUSA, who provide in-store and in-home computer installation services, indicate that the proliferation of Internet viruses and spyware is a significant reason that their services business are growing rapidly. Best Buy's Geek Squad®, for example, is expected to expand services to 45 markets and 425 stores by August 2005.¹

¹ Best Buy 2004 Annual Report

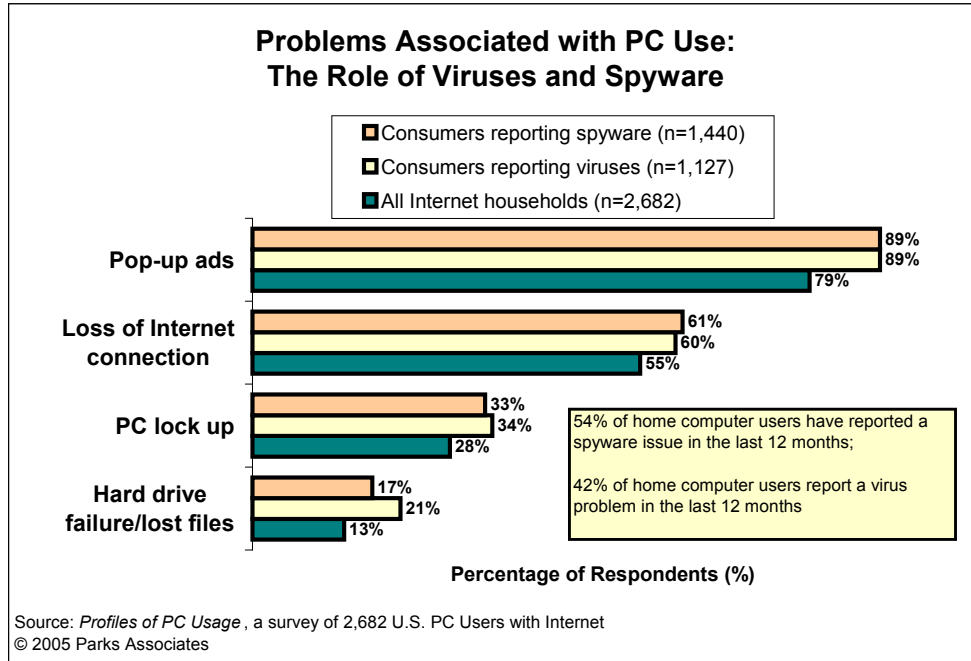


Figure 6 Problems Associated with PC Use: The Role of Viruses and Spyware

3.2 Home Networking Challenges

Data networks are certainly a success story. Penetration of connectivity solutions for sharing a broadband connection between a modem and one or more home computers has grown from 2.5 million U.S. households at the end of 1998 to more than 18 million U.S. households at the end of 2004. Consumers have clearly embraced these solutions, particularly those using Wi-Fi® for untethered connectivity. At the end of 2004, approximately eight million U.S. households were using wireless solutions.

The success of home networks also presents new challenges to both developers of customer premise equipment (CPE) and broadband service providers deploying home networks as integrated residential gateway (RG) solutions. As reported by many companies, return rates for home networking equipment are as high as 20%, and some customers still struggle with basic configuration and setup or experience frustration with connectivity issues (lack of range with wireless networking products, for example). As **Figure 7** indicates, the broadband service provider is often the first call that consumers make when attempting to fix a home network issue. With customer support costs estimated at anywhere from \$7.50 to \$15.00,² the costs to

² Source: Service Excellence Research Group

broadband carriers for home computer and home network-related issues could be enormous – an estimated \$700 million to \$1.4 billion in a year!³

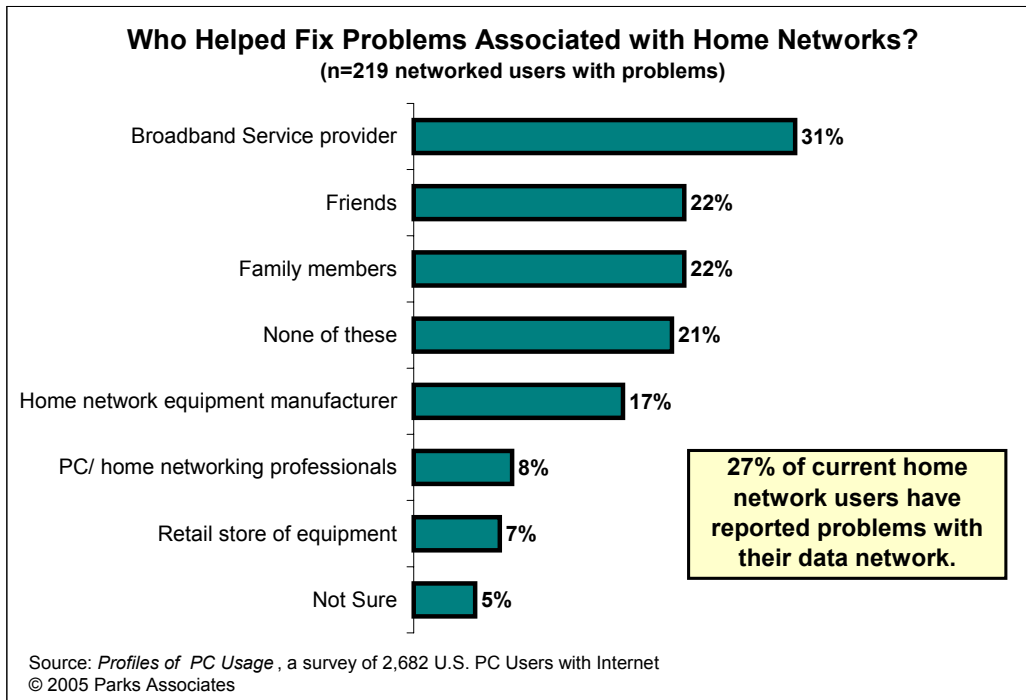


Figure 7 Who Helped Fix a Problem Associated with a Home Network?

4.0 The Opportunities for the Industry

Given the challenges that consumers are facing with home computers, Internet services, and home networks, we anticipate significant interest among both home network OEM players and broadband carriers in deploying a host of more advanced products and services. These solutions will include the following types of applications:

- Internet security and parental controls features that will increasingly come from a broadband provider (in addition to those solutions sold at retail);
- Home computer utility solutions that help consumers automate basic performance utilities (disk scan, disk defrag, virus and spyware scans, etc.);
- Helping consumers more easily configure home networks, especially in setting appropriate security protocols;
- Assisting consumers with resource sharing (drives, printers) on their home networks; and
- Providing broadband carriers with tools to help better manage home network installation, configuration, and troubleshooting.

³ The Digticians LLC

Opportunities Within the Stages

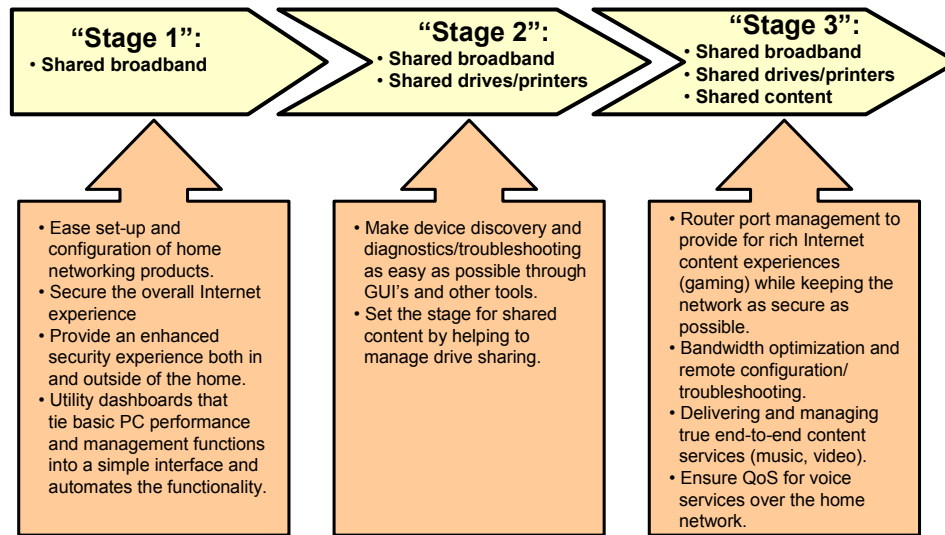


Figure 8 Opportunities within each Stage

About the Author: Kurt Scherf is vice president of research for Parks Associates and studies developments in home networking, residential gateways, digital entertainment, technology development in the housing market, and residential and building management and controls. Mr. Scherf is the sole author or contributing author/analyst of more than 30 research reports and studies produced by Parks Associates since 1998. His most recent work includes *Home Networks and Residential Gateways: Analysis and Forecasts*.

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.