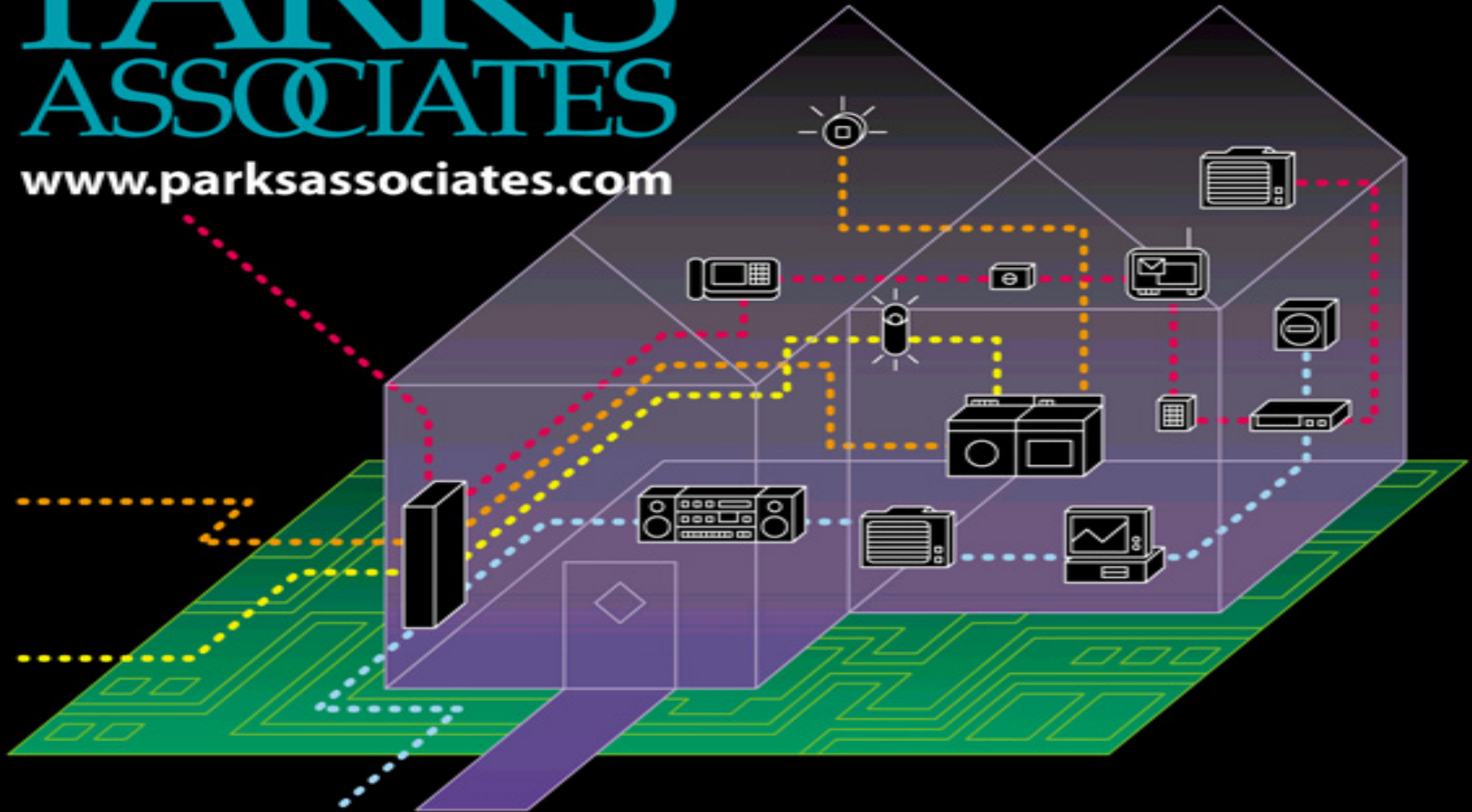


PARKS ASSOCIATES

www.parksassociates.com

Intelligence for Emerging
Technology Markets



“Leading the Market Requires Knowing the Market”

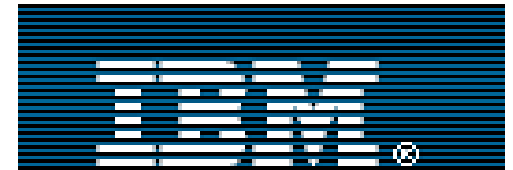
Who is Parks Associates?

- **Consumer research and consulting firm specializing in emerging residential technologies, the services they enable, and the business models made possible by these technologies.**
- **Primary areas of concentration: broadband connectivity, digital consumer electronics, home networking, broadband-enabled services, home media usage, mobile telephony, among other topics.**
- **17 years of experience in just the residential space.**

Who do we serve?



SONY



Panasonic





The Digital Home: The U.S. as a Case Study

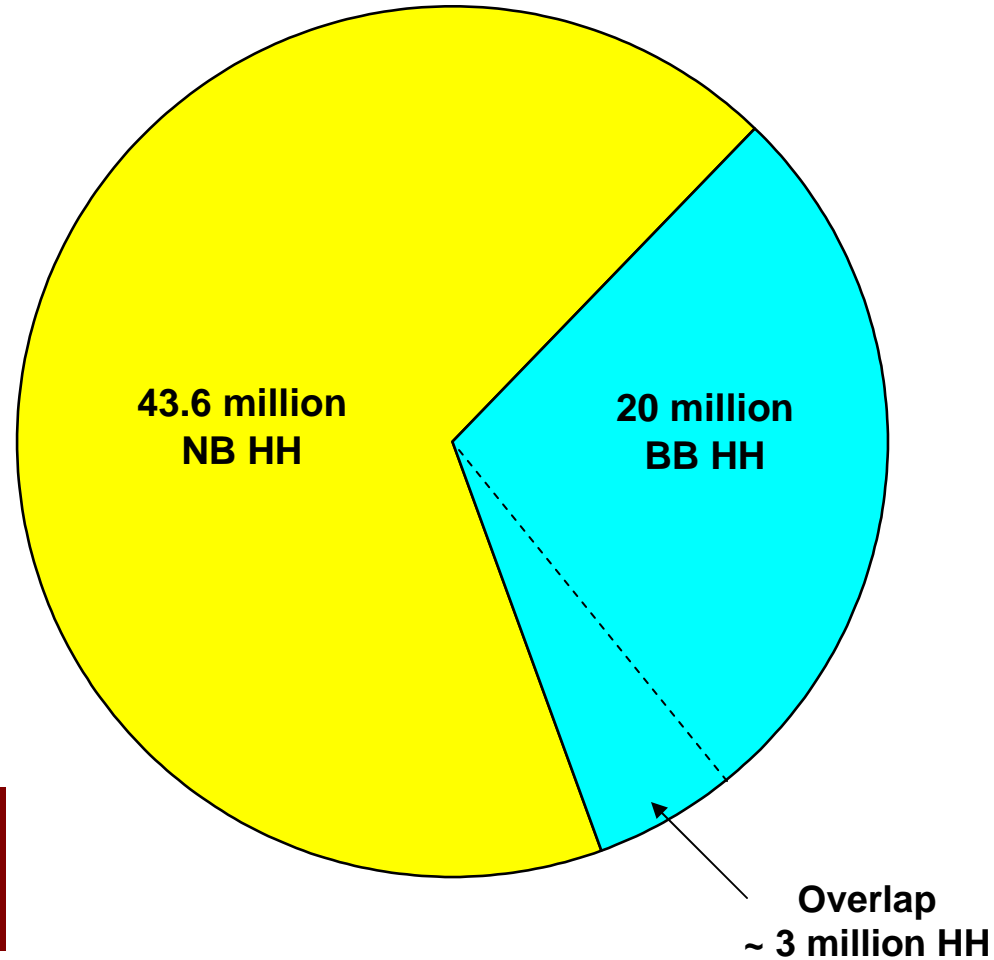
Why the U.S. as a Case Study in Understanding the Digital Home?

- 1. It constitutes an unsubsidized market – no bureaucracy is funding the adoption of broadband or broadband-related services (as in South Korea).**
- 2. It has a relatively pragmatic mass-market – not over eager to adopt new technologies, but rather looking for those devices and applications that can add real value to their lives.**
- 3. It is seen as predictive market – if it sells in the U.S. mass market, there exists a strong probability that it will sell well elsewhere.**



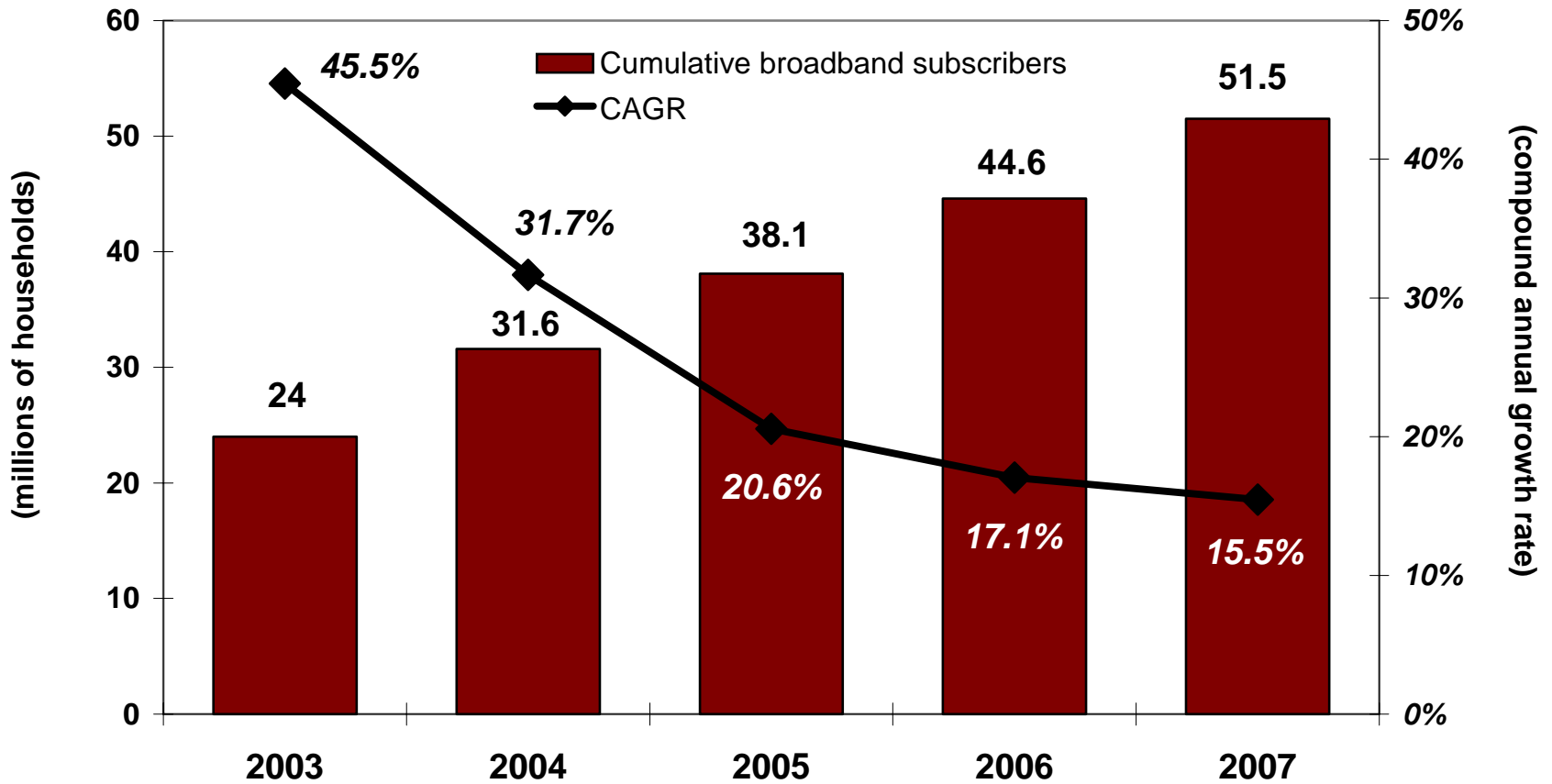
**The Good News:
Internet Adoption Advances
into the Mass Market**

Breakdown of U.S. Internet Households: Q2 2003



**Total U.S. Internet Households
~60 million**

Forecast for Broadband Adoption among U.S. Households

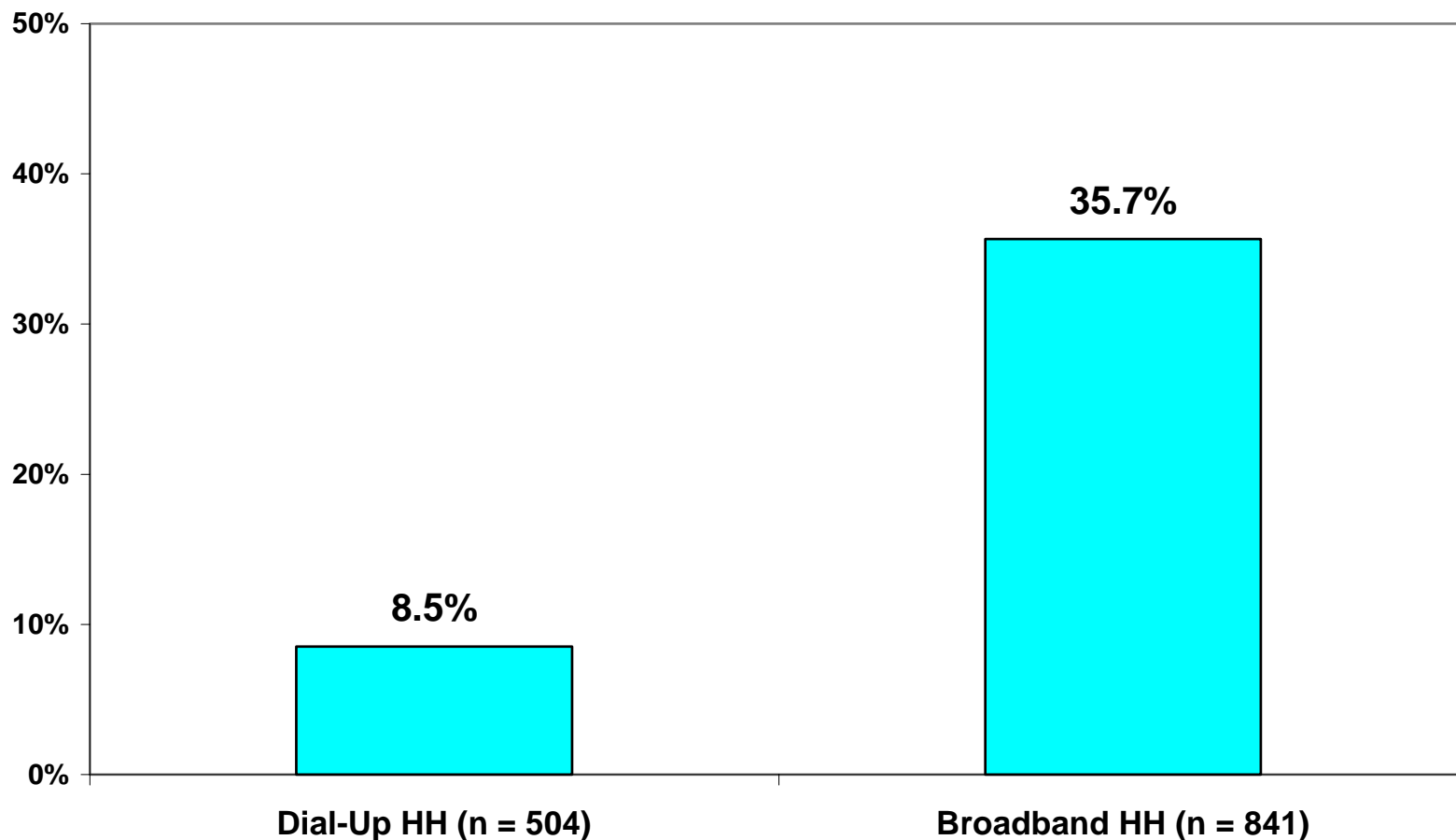




The Good News: Home Network Adoption Ramping Up

Penetration of PC-Centric Home Networks among Internet Households

(Expressed as a % of all Internet households using the specified access technology)

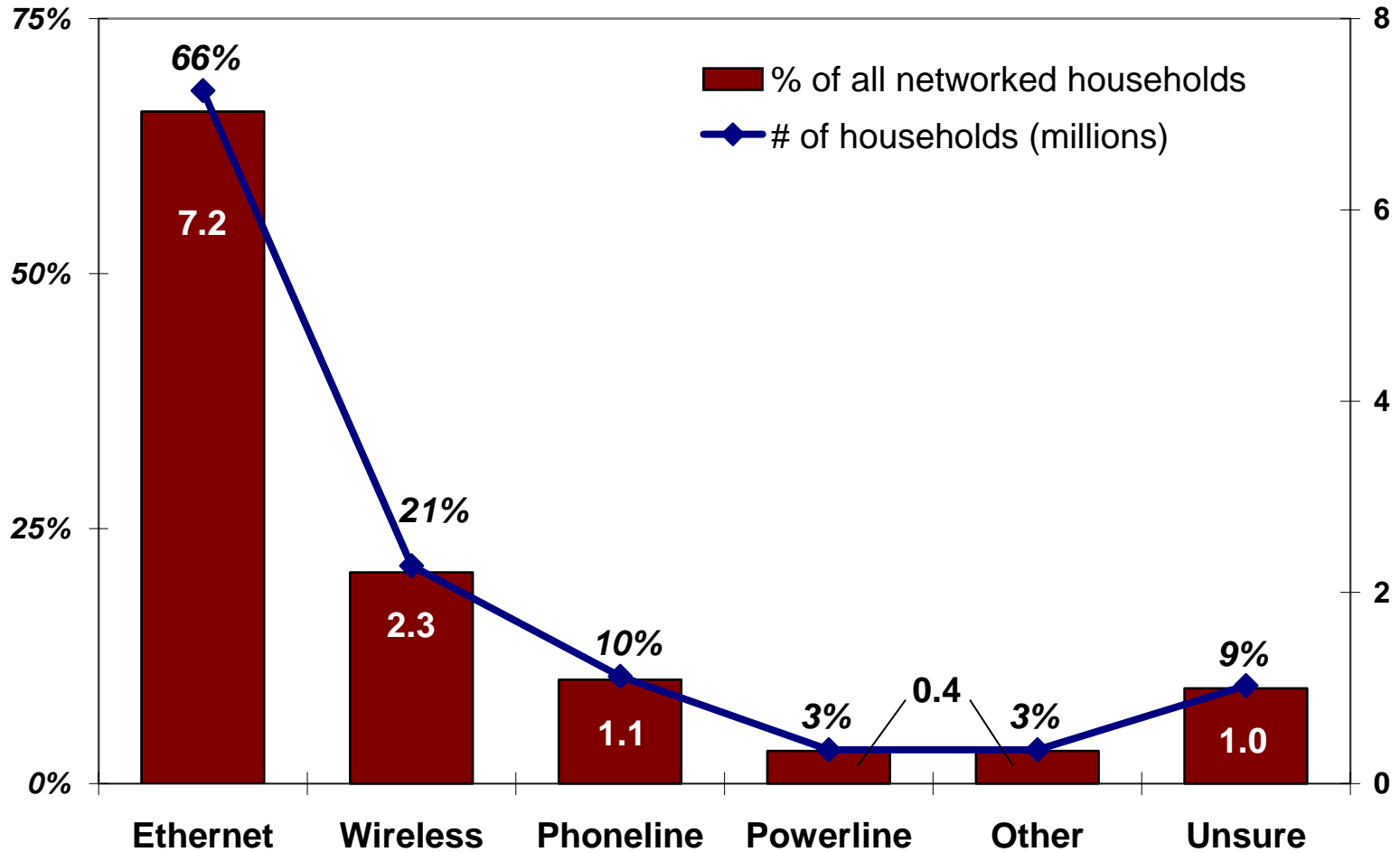


Source: *Electronic Living @ Home*, Phase II data (Q2 2003)

OSGi World Congress
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Penetration of Various PC Networking Technologies

(Among U.S. Internet HH with home networks, n = 343, multiple responses allowed)

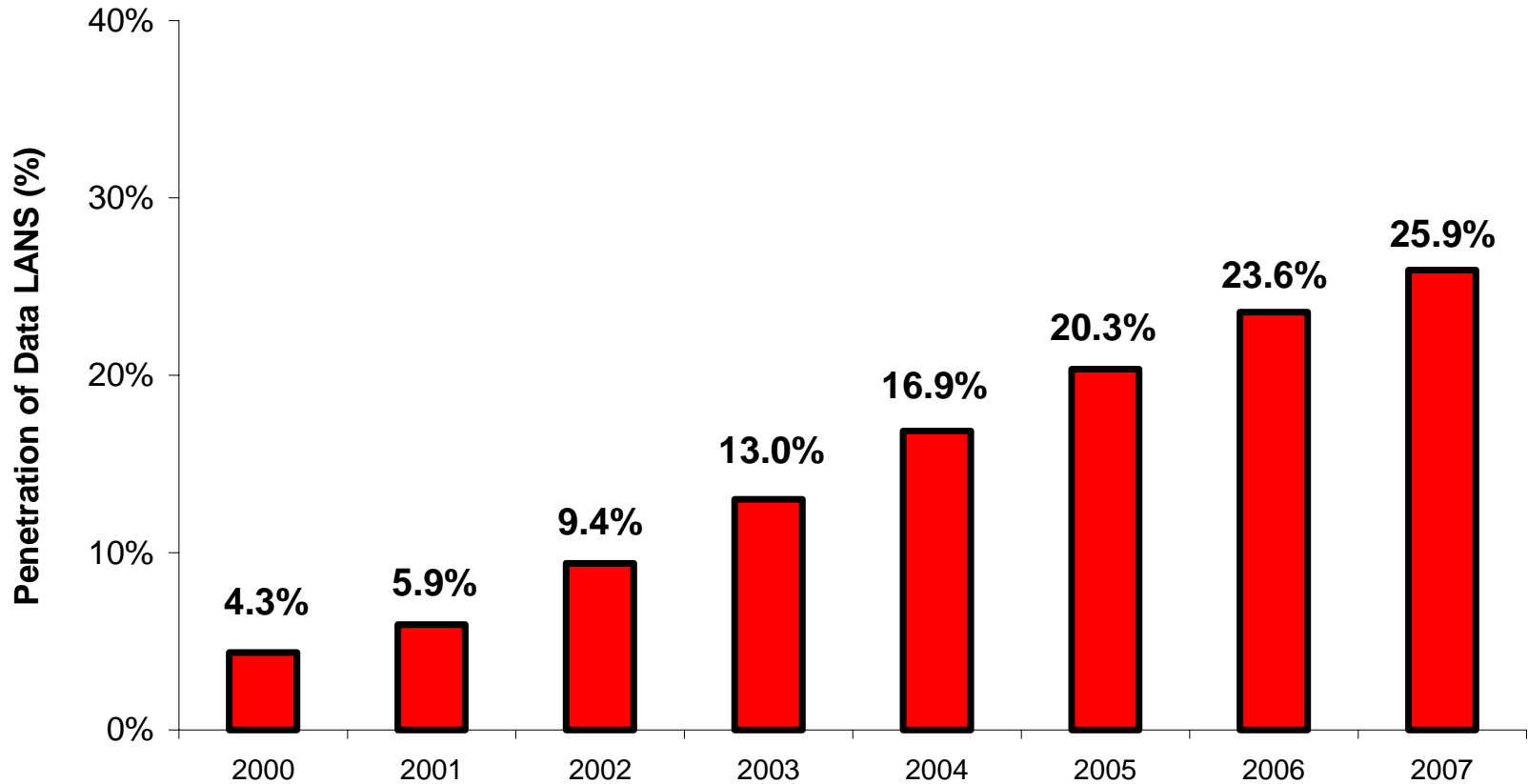


Source: *Electronic Living @ Home*, Phase II data (Q2 2003)

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Forecast Growth of Data Networks

Percentage of U.S. Households with a Data LAN



Source: *Networks in the Home: Analysis and Forecasts (Fourth Edition)*

The Four Waves of Home Network Evolution

First Wave:

Primary driver for adoption is sharing an Internet connection, peripherals, and files.

Ethernet dominant but wireless makes it early move.

Second Wave:

Drivers shift from “simply sharing” to mobility but applications remain data-centric.

Hardware is increasingly hybrid Ethernet/wireless.

Third Wave:

Data-centric applications give way to entertainment-centric.

Content sharing and portability will become increasingly important.

Hardware will be bridge-type devices that connect legacy CE to PC – in other words, adapters.

Fourth Wave:

Entertainment applications expand networking into majority of households.

Converged data & entertainment networks lay the groundwork for easy and rapid expansion of home control applications.



**The Bad News:
Broadband Service Providers
Pushing Their Own Solutions**

The OSGi Position in the Digital Home Value Chain

Content Creators & Aggregators

Broadband Network Operators

Internet Service Providers



Residential Consumers

Broadband Network Operators

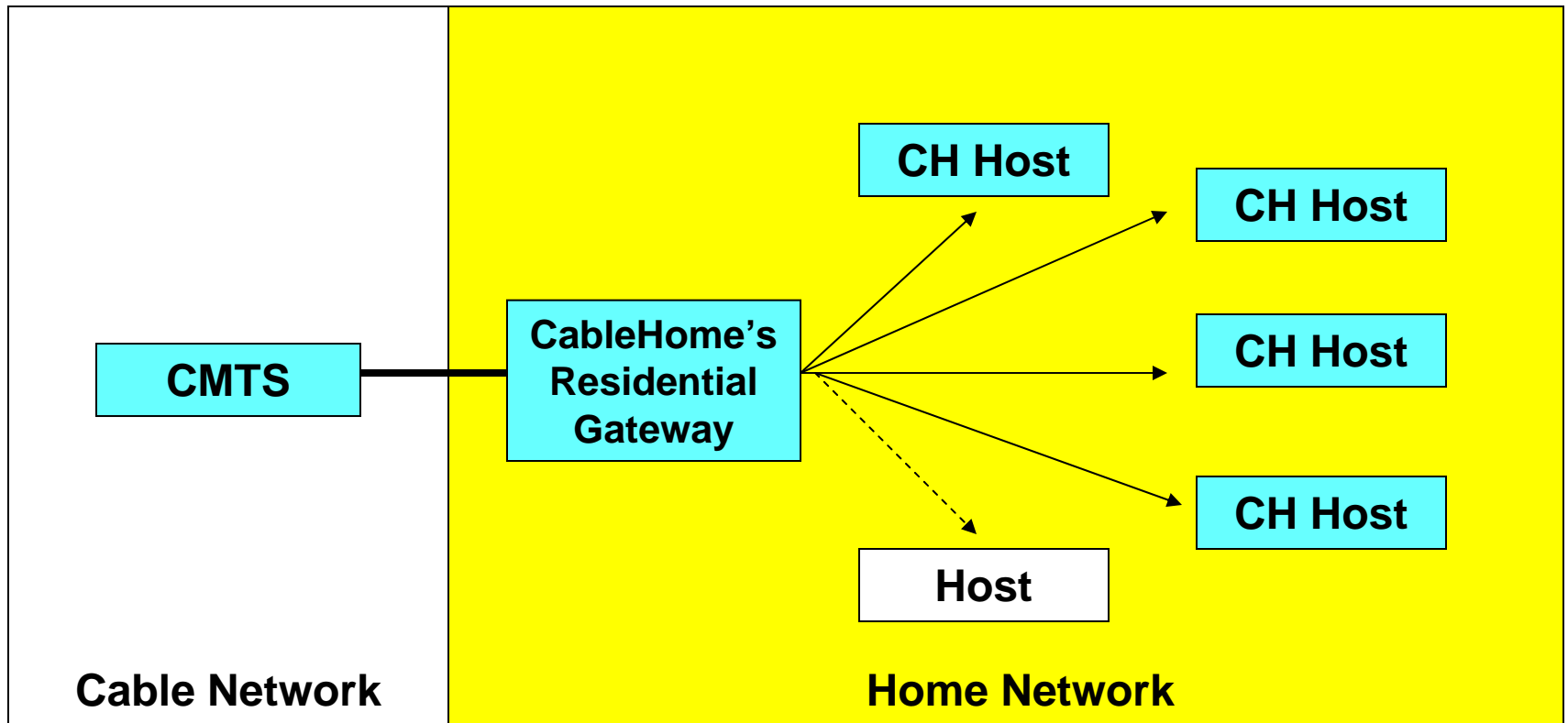
- **To date, no major U.S. broadband network operator has signed on as an OSGi member.**
- **U.S. network operators are instead creating their own service deployment and management environment.**
- **CableHome™ and DSLHome™ are efforts on the part of U.S. broadband network operators to define the network elements (both hardware and software) that must be present in order to deliver and manage services via a broadband-enabled home network environment.**
- **If this proves to be the case, there exists no reason for these operators to concern themselves with OSGi certification.**



Core Business Objectives of CableHome™

- Reduce time to market for compliant products
- Standardize technology
- Allow for easy upgrades
- Enable as many services as possible

- Create scaleable architecture
- Enable vendor competition
- Enable ease-of-use which will spur adoption of networked products
- Enable vendor innovation

CableHome™ Device Landscape



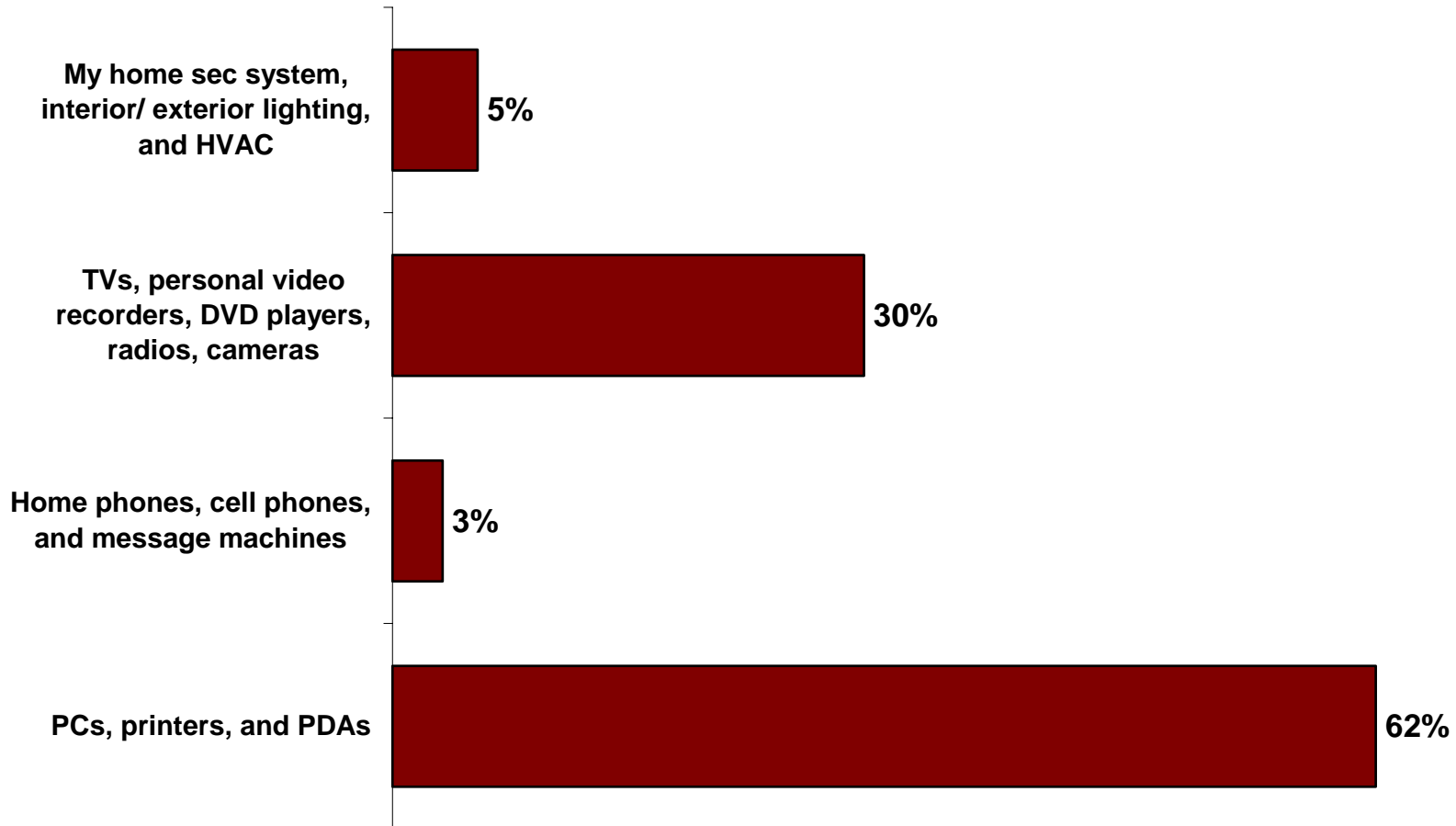
-  CableHome™ compliant sub-elements
-  Non-CableHome™ compliant IP devices

Why Might this be the Case?

- 1. Consumers show little interest in many of the home services which OSGi places at the center of its value proposition, the “intelligent living services”**
 - Remote home control (lights, irrigation, security)**
 - Networked white goods**
 - Energy management (either provider- or consumer-driven).**
- 2. OSGi has yet to articulate a convincing entertainment-related value proposition, although that is where the market momentum is developing.**

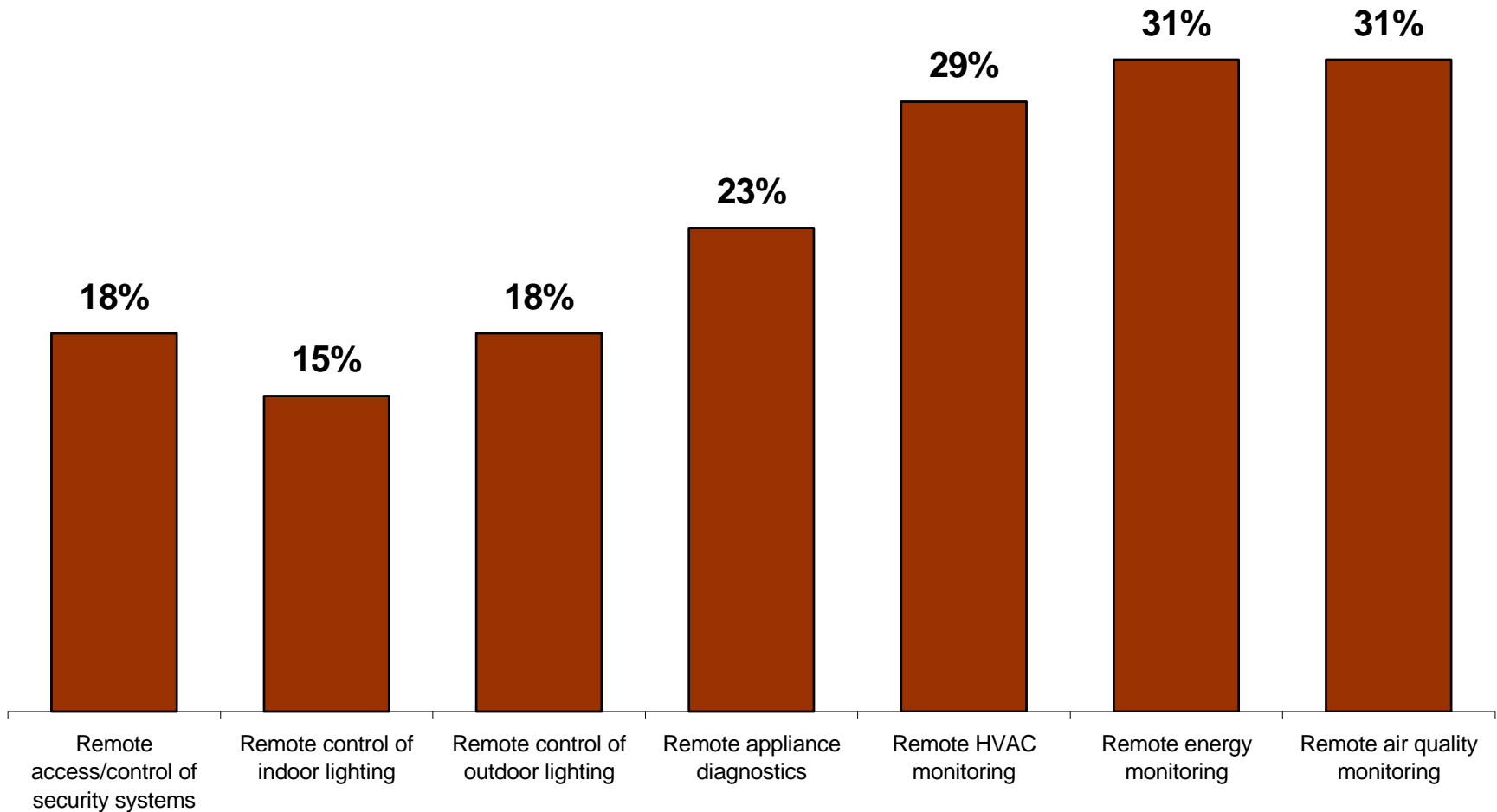
Preferred Application Clusters among Network Intenders

(Among broadband households likely to buy a home network in the next year, n = 317)



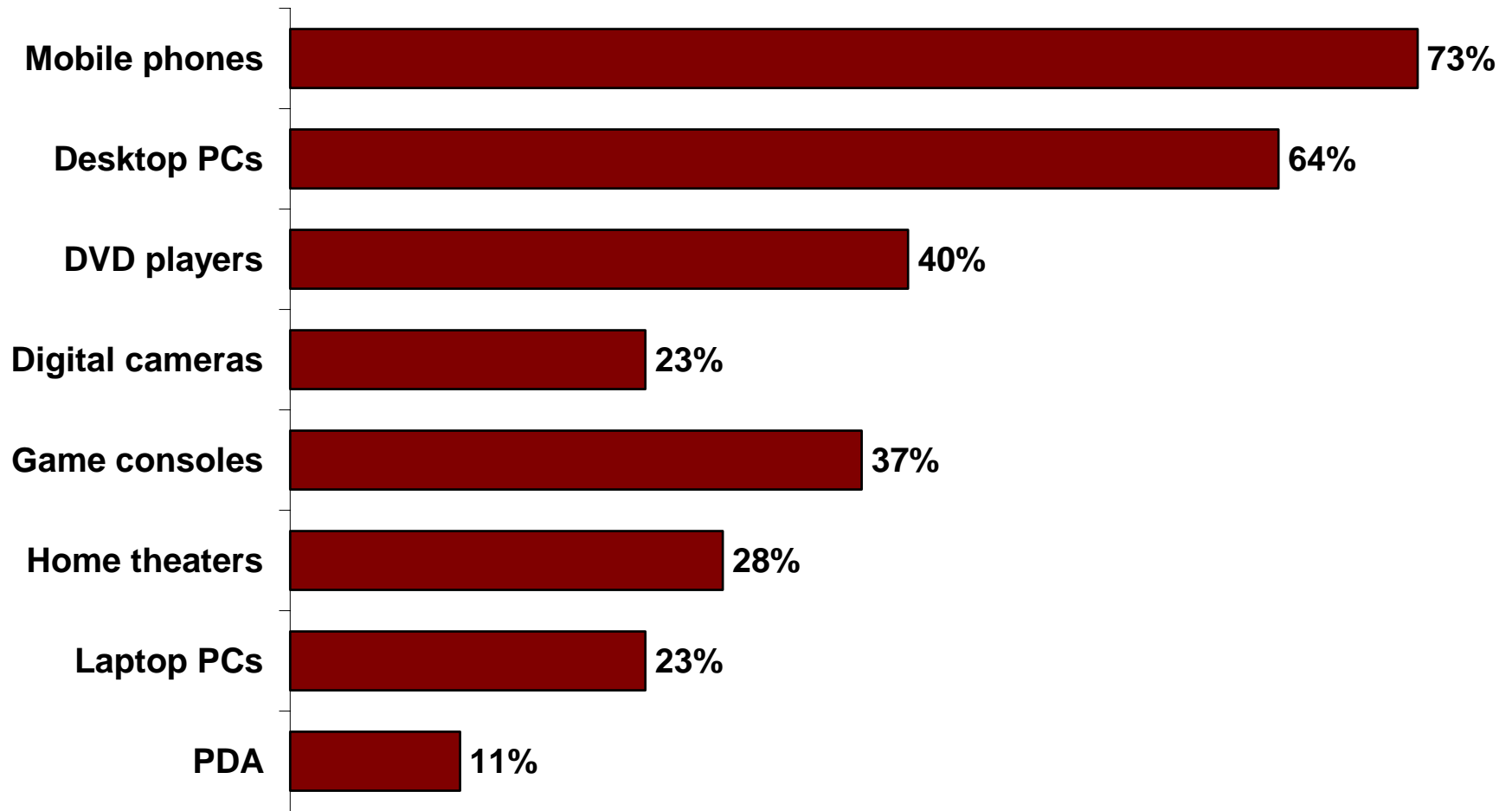
Consumer Interest in Various "Smart Home" Applications

(Percent interested equals those answering 5 or more on a 7-point interest scale, n = 2,500 U.S. HH)



CE Ownership among U.S. Households

(n = 1,005)

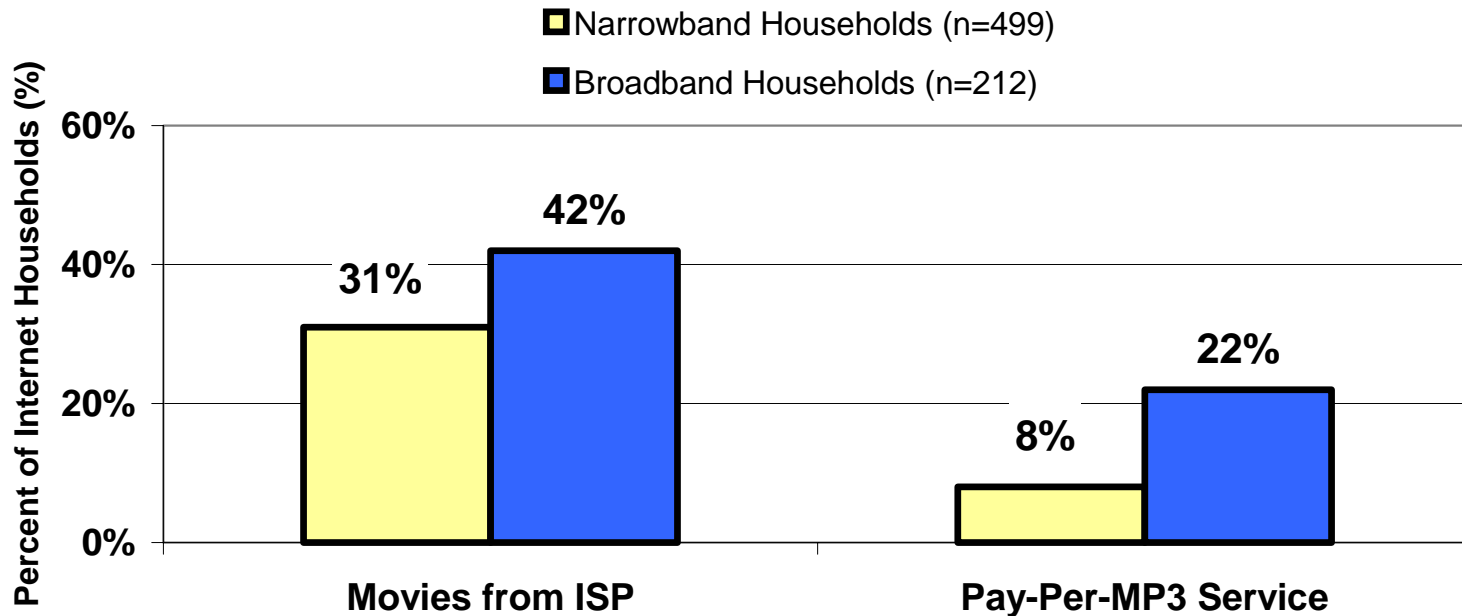


Source: *Electronic Living @ Home* (Q2 2003)

Growing Consumer Interest in Pay-per-Content Internet-Based Services

(Among U.S. Internet Households)

Percent of Internet households rating interest as a 5-7 on a 7-point scale, where "7" means "extremely interested"

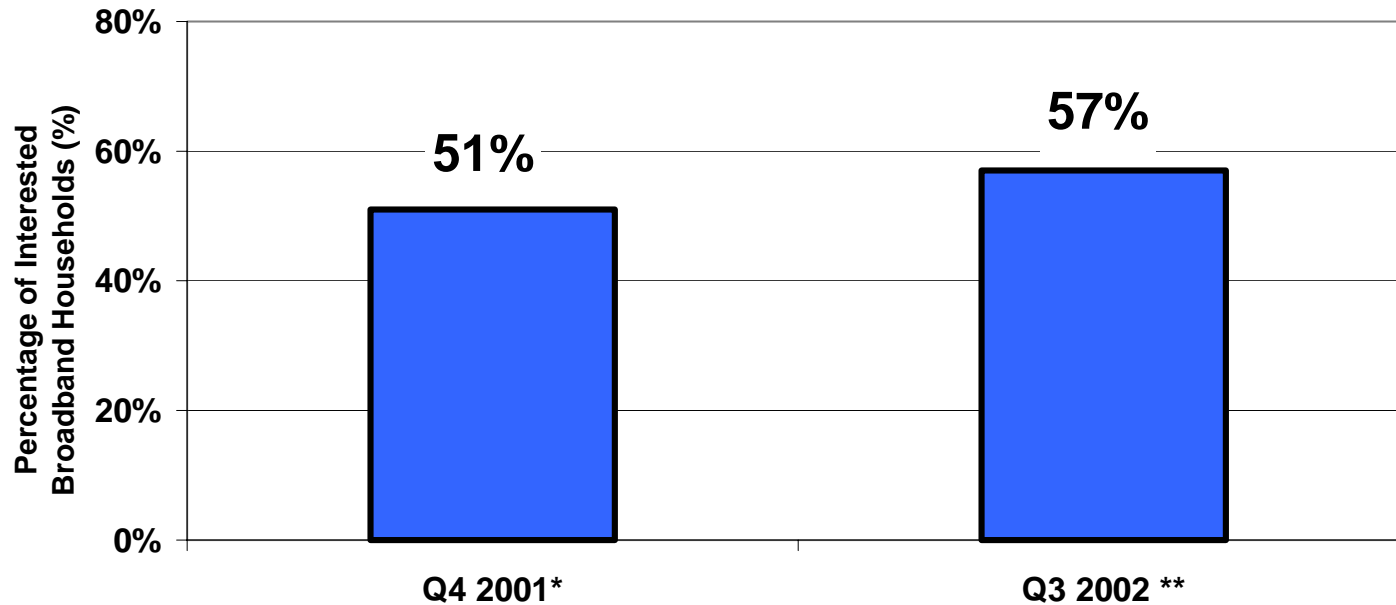


Source: E-Home 2001
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Growing Consumer Interest in Networking Video Content from PC to TV

(Among U.S. Internet households)

(Respondents in broadband households indicating at least an interest of "5" on a 1-7 scale, where "7" means "extremely interested")



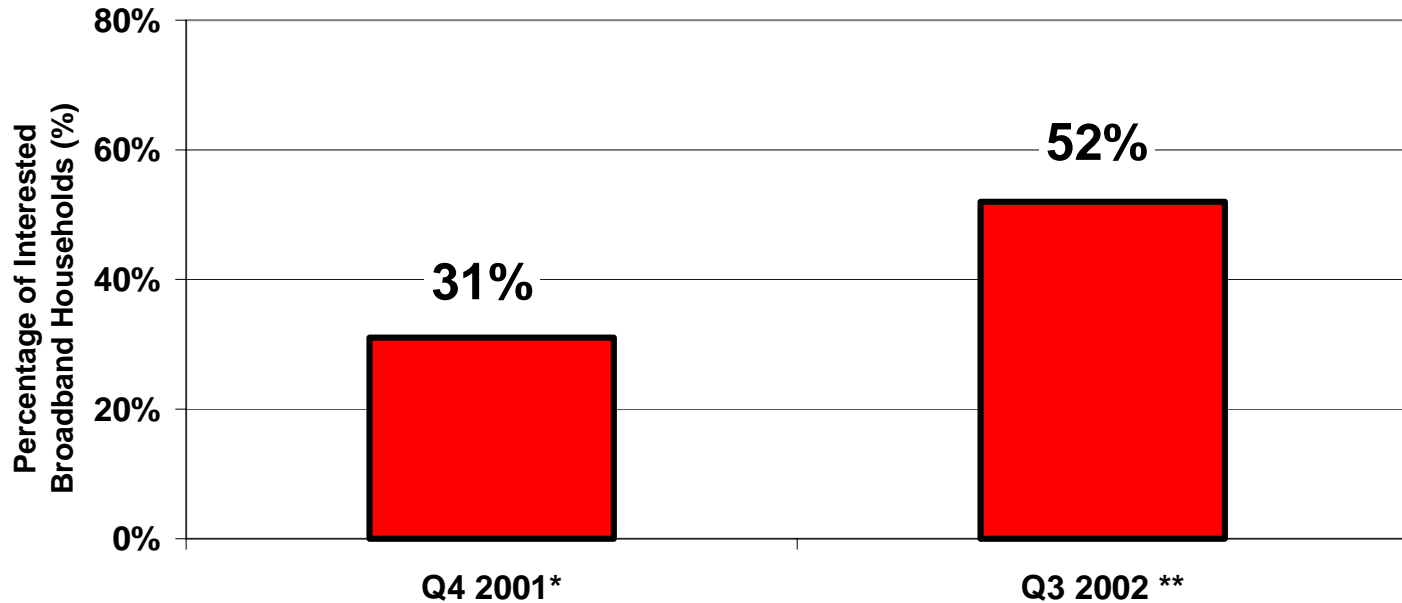
* *E-Home 2001*, 2001, a survey of 711 U.S. Internet households

** *Broadband Access @ Home III*, 2002, a survey of more than 10,500 U.S. Internet households

Growing Consumer Interest in Networking Music Content from PC to Stereos

(Among U.S. Internet households)

(Respondents in broadband households indicating at least an interest of "5" on a 1-7 scale, where "7" means "extremely interested")



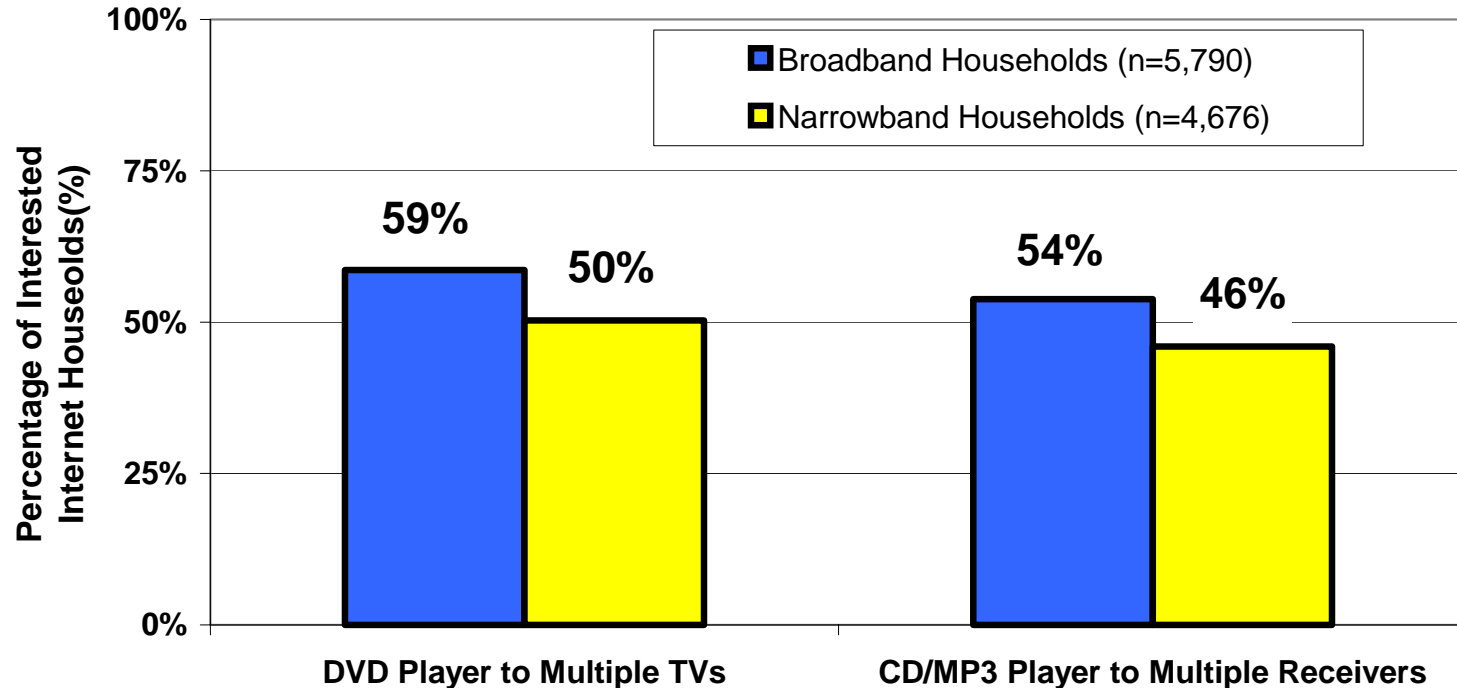
* *E-Home 2001*, 2001, a survey of 711 U.S. Internet households

** *Broadband Access @ Home III*, 2002, a survey of more than 10,500 U.S. Internet households

Consumer Interest in Network Applications Between Multiple CE Platforms

(Among U.S. Internet households)

(Respondents in Internet households indicating at least an interest of "5" on a 1-7 scale, where "7" means "extremely interested")



Source: *Broadband Access @ Home III*, 2002, a survey of more than 10,500 U.S. Internet households

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Take-Aways

In terms of the “digital home,” OSGi is pigeon-holed as a “smart home” solution enabling “intelligent living services.”

Limits the attraction of the OSGi platform to “fourth wave” home networking services (at least in the eyes of the U.S. broadband providers).

Moreover, the next big push for home network adoption will be based on the value of networking PCs and consumer electronics – not home control and management applications.

The challenge: repositioning what OSGi means in the digital home.

The reward: being embraced by U.S. broadband service providers who can help push new digital devices and services into the home.