

Chapter 1.15

Networked Appliances and Home Networking: Internetworking the Home

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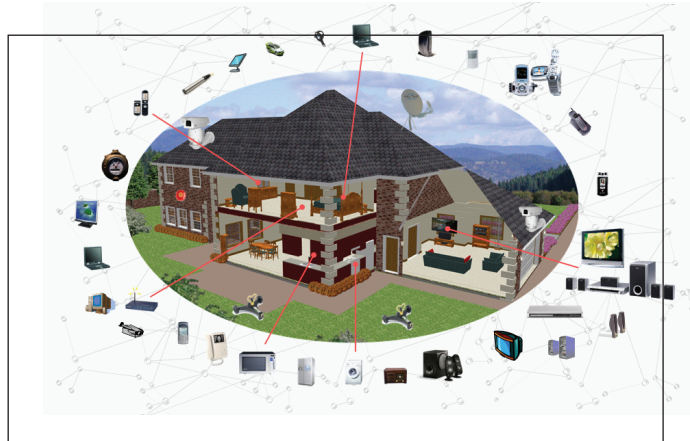
INTRODUCTION

The Internet has revolutionised the way we access and disseminate information and changed the way we communicate with each other. More and more homes are Internet-enabled as people from all walks of life embrace this technology because of the benefits it brings. However, to date Internet usage has predominately focused on personal computing. This said, an interesting technological shift is taking place, whereby any

device, irrespective of its capabilities or conventional usage, will form part of the Internet. These devices will reside at the edge of the Internet, thus enabling devices to exploit the power of Internet communications to interoperate devices and utilise the functions they provide.

Researchers believe that this transition mirrors the evolutionary process undertaken within personal computing and wide-area communications, whereby it is difficult to imagine using a computer without Internet access. Given the success of this

Figure 1. Networked devices in the future



transition, home networking platforms aim to achieve the same level of acceptance. Already, our homes are populated by numerous electronic computing devices that form part of some network, be they TVs, PCs, set top boxes, or mobile phones, as illustrated in Figure 1.

The difficulty is getting different devices, built to different specifications, to work together without changing their original characteristics or protocols. This will result in more complex systems, which will be a by-product of device heterogeneity and the dynamic nature associated with networks that resist any form of control. Putting complexity aside, there is, however, a need to promote this integration because these developments are too expensive and limiting for innovative applications. The downside is that the proliferation of home appliances and the complex functions they provide make it difficult for a specialist, let alone an ordinary home user, to configure and use them. Therefore, complexity needs to be abstracted using flexible solutions that allow for better exploitation of devices and the functions they provide.

This new interconnected world will enable devices to automatically integrate and interoperate themselves within the network. It will provide

access to a plethora of online services, such as digital radio, programme guides, on-demand TV, online gaming, as well as ad hoc services capable of enhancing or extending the functional capabilities devices support beyond what they were initially designed to do.

What is clear is that we are at a crossroads whereby the ability to effectively manage next generation homes and the interconnected devices they contain will be highly dependent on how we utilise the Internet, Internet technologies, and the IT sector. This is a vision shared by many research communities.

BACKGROUND

There are a number of research initiatives trying to address key requirements for next generation networked appliances and home networking. For example, the ePerSpace project (France Telecom, 2005) aims to develop an end-to-end solution for personalized value-added audiovisual services contained within global environments. It provides distributed multimedia services via open access networks, based on the details defined in personalisation profiles that allow content and devices

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