

# Embracing Change with New Standards

BY HEATHER KIRKSEY

Industry analysts predict that 2006 will be the year of the connected consumer. However, they're not just describing the elite tech-savvy. Now, mainstream consumers are purchasing all manner of "network-ready" digital devices. The notion of the Digital Home is an upside opportunity for service providers because it creates increased demand for broadband network access. However, the bar of expectations for customer support has been raised—once again. Let's consider this new scenario and the role of evolving industry standards.

IP-based voice, video and data service delivery include a set of core components: broadband Internet access, a wired/wireless home network and multiple Internet-capable devices—all of which give consumers unprecedented choice for communication, information and entertainment. While providing the infrastructure for exciting new innovations, these technologies also introduce complexities that require service providers to extend their management capabilities beyond the traditional residential network interface.

In the past, service providers have applied a variety of standard and proprietary protocols to integrate with advanced customer premise equipment (CPE) for broadband activation and support. To date, functionality has been neither robust nor consistent,

and security has often been lacking. Intricate customizations have also been necessary, making it difficult to accommodate deployments of millions of CPE devices from multiple vendors. Therefore, key industry players joined forces to find a viable solution to this problem.

A combination of better wide area network (WAN) and local area network (LAN) standards were needed to enable service providers to remotely configure and manage these devices, as well as provide an automated means to interact with them within the subscriber's home. The DSL Forum released two Technical Reports (TRs) to address this need: "TR-064: LAN-side CPE Configuration Specification," and "TR-069: CPE WAN-side Management Protocol."

The resulting benefit for service providers: using these well-defined standards reduces deployment complexity and costs, while speeding time-to-market and also simplifying the customer experience.

TR-064, which facilitates easier broadband service self-installation and self-management from a consumer subscriber's home, is built on top of UPnP, a protocol widely deployed in the retail consumer electronics industry to promote interoperability among consumer devices. It allows a common management framework for service

provider-supplied devices and consumer electronics devices that the subscriber may have purchased at retail.

TR-069, which also builds on industry-standard technology, enables network-based CPE auto configuration and other management functions such as performance monitoring and dynamic service provisioning. It defines two entities: an Auto-Configuration Server (ACS), which is the network-based device management platform, and the CPE device being managed.

An ACS can configure and receive information on large numbers of TR-069 compliant CPE, which makes it a powerful tool for network management at the edge—and within the home. The ACS is used to discover devices and their capabilities, configure and interrogate them, download new firmware, and provision device-based services. Additionally, TR-069 defines a mechanism allowing the ACS to request active alerts from the CPE about changes. Information exposed by the CPE data model can be shared between the TR-069 and TR-064 protocols, which enable seamless end-to-end management.

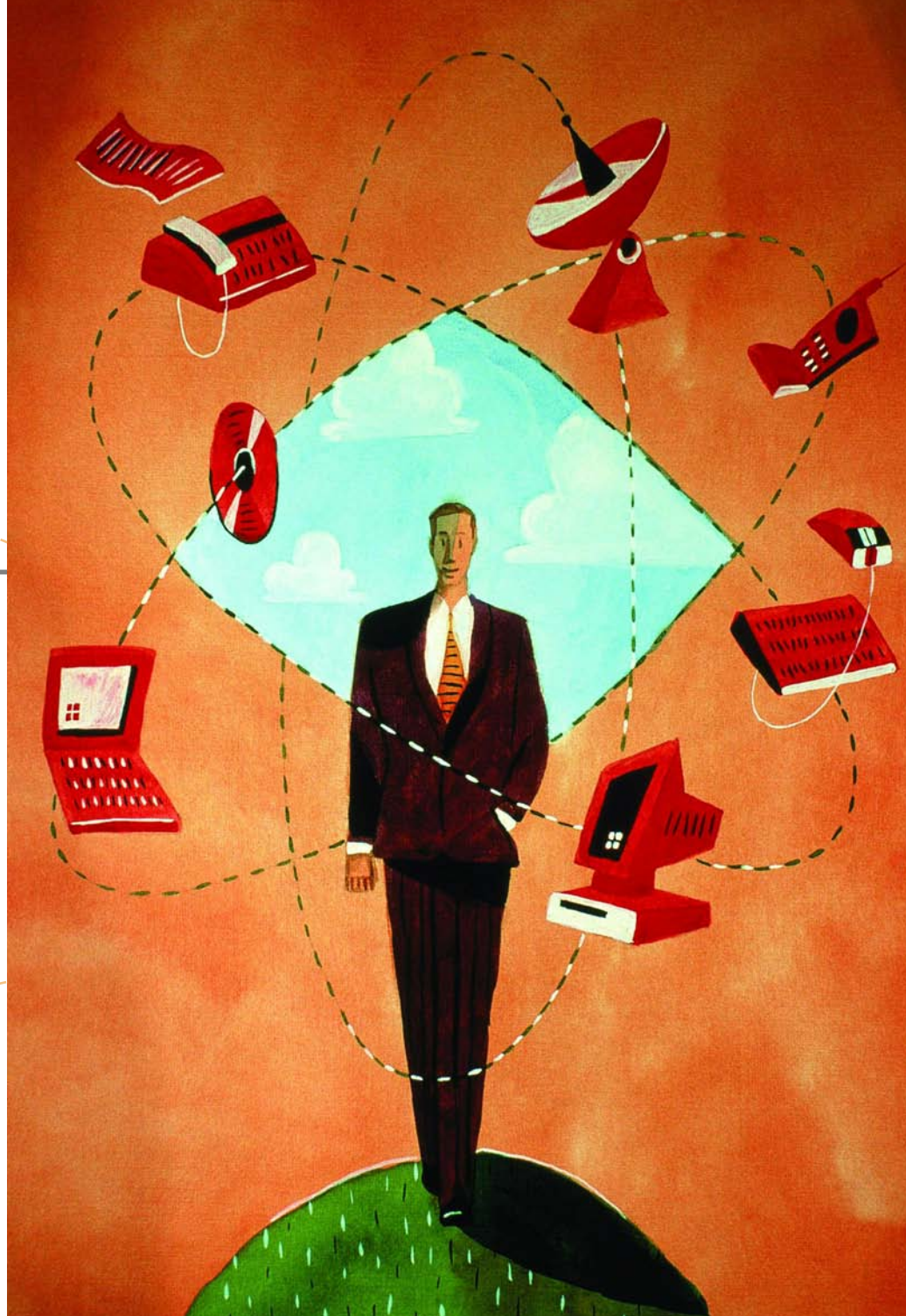
One of the main benefits of any standardization effort is interoperability between various vendor technologies: in an ideal situation, an ACS platform should be able to manage any TR-069 compatible CPE. The ability to

manage multiple vendor devices offers numerous benefits over proprietary solutions provided by a single vendor. The biggest advantage is the ability to multi-source hardware devices to encourage competition among vendors and enable service providers to negotiate lower prices.

It also gives providers the ability to choose a best-of-breed solution. A service provider can select a set-top box from one company, DSL modems from a second and VoIP devices from a third. Multi-vendor management gives providers the flexibility to choose among low-cost vendors for basic access devices, and to work more closely with preferred partners to support strategic services with rich feature sets, such as IPTV.


The ability to manage configurations across multiple vendors and device types gives the provider maximum flexibility to experiment with deployment models and to employ alternate hardware acquisition strategies for different consumer segments. As CPE vendors and service providers make strategic decisions about the functions to bundle together, ACS management software vendors must be able to accommodate these different configurations.

In summary, standards-based device management is now considered crucial to the rapid, cost-effective deployment of next generation IP-



based services. Interoperability must be built into devices from the beginning, so that providers can take full advantage of new hardware innovations as they become available, and reap the benefits of the cost efficiencies derived from CPE multi-sourcing.

As new services move into the mainstream, the ability to offer zero-touch provisioning, automated diagnostics and problem resolution across

complex environments will increase subscriber satisfaction, promote service adoption and substantially improve provider profitability. Embracing change can be demanding. Fortunately, this one is manageable. 

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