

Net-Enabled Appliances Can Save Energy

Who Really Needs The Internet On Their Fridge? You Might, If You Want To Save Energy In Your Home

By Celeste LeCompte
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The idea of the Internet-enabled home appliance has been around since the heady days of the dot-com boom, when LG introduced its DIOS refrigerator and Sun Microsystems' Scott McNealy paired a tablet PC with a Whirlpool fridge. But LG's "market leader," which sold for \$10,000, is no longer being made, while similar products from the likes of Samsung never even saw the light of day. Such devices have yet to become ubiquitous in the home because, well, who really needs the Internet on their fridge? Surprisingly, the answer just might be: you.

Tomorrow's Internet-enabled appliances go beyond the glitzy LCD screens and digital shopping lists; in some cases they may even forgo that kind of luxury bling altogether. Instead, these networked home appliances are wired to help consumers save energy and money.

The idea of using the Internet to cut energy use is gaining traction, with a number of startups launching online energy dashboards and in-home displays that supply information about how much you're using and at what cost. Information is power, they argue, and the research proves them right. One British study found that energy management systems can help cut residential electricity use by as much as 15%.

Limited User Input

Most of the products currently on the market require consumers to react to the information provided, either through timed schedules or immediate actions: High prices? Don't run the dryer. Critical peak period? Run down to the basement and turn down the water heater. But for monitoring systems to really pack an energy-savings punch, the information needs to be instantly actionable, with limited input required by the end user. That's where your Web-surfing refrigerator comes in.

Internet-based appliances of the dotcom days boasted of the ability to go online and download new programs—new fabric settings for your Web-connected washing machine, for example, or new cooking options for your online oven. Similarly, the Internet-enabled devices of tomorrow could monitor utility price information and activate, as needed, several internal actions designed to shed power for short, critical periods of time, all with little or no user input.

Instead of the utility or the consumer deciding what should be shut off, the device decides, based on current operation and price. According to Gale Horst, lead engineer at Whirlpool, 98% of consumers who participated in a small pilot project (BusinessWeek.com, 1/11/08) testing such devices found the level of interference from such device decision-making to be acceptable.

IP Addresses for Appliances

Andrew Tang, senior director of Pacific Gas & Electric's smart energy Web division, says many of the large "white-box" companies (home appliance manufacturers like Whirlpool, GE, LG, and Samsung) have already developed fully addressable, IP-enabled devices. But so far, he notes, they only exist "in deep, dark corporate labs."

Several factors are keeping them there. First of all, there are no standards governing how such devices communicate, either among home appliances or between the home and the utility. As Whirlpool's Horst notes, a consumer may buy a washer that can listen to what's happening on the power grid in Seattle, "But what if that person gets a job in Chicago or Atlanta and it doesn't interact with the grid?" he asks. Without a guarantee that the appliance will work no matter where you go, it's a tough sell.

Because the devices won't work everywhere, manufacturers are hesitant to sell them; and because customers can't easily gain access to energy management solutions, utilities aren't able to implement the smart-meter and time-of-use pricing programs that would make them effective. "There's a chicken-and-egg problem," admits Tang.

Change Is Coming

But there are signs that a shift is occurring, thanks to the proliferation of home entertainment devices and the subsequent need for home networks to connect. The convergence of such technology with energy monitoring is all but inevitable. Crestron, a high-end home automation company, has already set up a partnership with energy dashboard company Agilewaves, and appliance-ready networks will only open up opportunities for manufacturers to begin moving their devices to market.

And, in case you were wondering, LG will be there, too. Its Home Network, which was the backbone of its Internet appliance initiatives, is still a major R&D effort.

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