

# Speech

**A new generation of voice-recognition technology — already pleasing callers and cutting costs — is poised for going mobile.**

Providing top-notch customer service and controlling costs are key mandates for leaders at most large organizations, but they are two objectives perennially at odds with each other.

Customers crave one-on-one interaction with a living, breathing customer service representative, but automated response systems (“Press 1 if you’d like to hear your account balance. Press 2...”) are more cost-effective — albeit often frustrating for the user. However, advances in voice-recognition technology, coupled with the spread of mobile applications, may soon present the perfect compromise solution for many enterprises.

The convergence of several factors, including the Internet, advances in voice-recognition technologies and the boom in wireless, has spurred a tremendous amount of activity among a broad base of applications developers, enterprises and telecommunications carriers, according to The Kelsey Group, a Princeton, N.J.-based market research and consulting firm specializing in voice processing and e-commerce. It has identified more than 100 companies actively working with speech technology across a spectrum

of applications and markets, and projects an annual market of \$41 billion in speech-enabled applications by 2005.

“There have been tremendous advances in speech recognition, text-to-speech capabilities and how those technologies are being integrated with artificial intelligence,” says Dan Miller, senior vice president in The Kelsey Group’s voice and wireless program. “The result is a new generation of voice-response systems that are much more human-like, both in how they sound and in how customers interact with them.”

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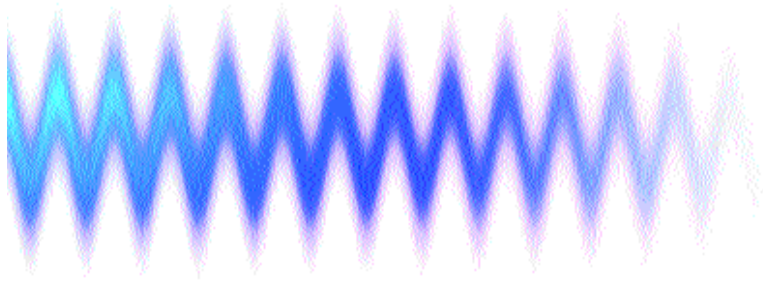
Some of the advances in voice technology are simply the result of computer platforms and memory becoming faster and less expensive. “Speech recognition is pattern recognition. It’s much the same technology as that used for fingerprint recognition, for example, so greater processing power at lower cost is a significant development in this field,” Miller explains. The development of more sophisticated algorithms is also boosting voice-recognition performance.

Just how much more human-like voice recognition can make an automated customer-service operation is illustrated by T. Rowe Price Retirement Plan Services’ new system, which uses IBM Voice Systems technology. The system lets participants in 401(k) plans check fund and account balances, fund prices and investment objectives; request statements; enter or change personal identification numbers; and perform other transactions, without tapping any buttons on the phone. Instead, callers use natural phrases, such as “I’d like my balance,

please” or “What funds are in my plan?” Callers can change their mind part way through a transaction and execute tasks in any order — capabilities sorely lacking in conventional interactive voice response (IVR) systems.

The system relies on Natural Language Understanding (NLU), a feature of IBM’s WebSphere Voice Server and DirectTalk products for voice-enabling contact centers and the Web.

Amtrak has been using a speech-recognition system built by Boston-



# Therapy

By Michael J. McDermott

based Speechworks International to handle train status inquiries since last May. The pilot program was expanded nationwide in October. About 10 percent of the 27 million annual calls to Amtrak's toll-free reservation number are to request train status information. With the new system, callers do not need to know the train number, just the origin and destination cities and approximate arrival time. With the old touch-tone system, 75 percent of callers exited the automated system in favor of an agent. Now, however, 70 percent complete their call using the speech recognition feature. Amtrak estimates that the system will result in 850,000 fewer operator-assisted calls

tions devices such as cell phones, personal information managers (PIMs) and personal digital assistants (PDAs) promises to greatly expand the number of applications where voice-recognition technology's bulked-up capabilities can be harnessed, notes Sunil Soares, director of product development at IBM Voice Systems. "This is a much more natural way for people to interact with IVR under any circumstances, but voice-enabling is particularly well-suited to the mobile environment," he says. "For example, a customer could use his voice to instruct his PIM or cell phone to dial a call center, then check a stock price or perform some other customer service function simply by

dominated by four companies — IBM, Speechworks, Menlo Park, Calif.-based Nuance and, in Europe, Philips Electronics — but leading systems integrators and process-automation shops have begun to enter the market in a big way. "SAP, BEA, Oracle — all the big ERP and MRP shops have some sort of voice initiative going," Miller notes. Speech-recognition systems can also leverage existing Web-application infrastructures using a standard called Voice XML.

The bottom line is that speech-recognition technology is here now, it works, and mobile applications are only going to make it more valuable. As Soares points out, any solution that can



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each year, generating savings of more than \$1.3 million annually.

Customer service calls handled by live operators typically cost \$5 to \$10 to support, according to IBM's data, and automated voice recognition can lower that to 10 to 30 cents. Additional boosts to ROI will come from enhanced customer satisfaction and client retention, as automated speech reduces lost calls and frees agents to upsell and provide superior service, Miller says.

The spread of mobile communica-

speaking a command. He never has to take his hands off the wheel.”

While speech recognition fused to mobile applications still represents an emerging technology, it's already “nibbling around the edges of mainstream,” as Miller puts it. Besides the examples mentioned above, companies such as United Airlines, AT&T, Charles Schwab and E-Trade are saving millions while also enhancing the customer-service experience.

Currently, speech recognition is

address the issues of improving customer service and reducing costs at the same time is worth a closer look by every CEO. You might begin by calling in to your own company and seeing what it's like to do business with yourself. ●

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