IBM Voice Systems

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Automating Contact Centers with IBM Voice Technology: The Business Case

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A technology whose time has come

In order to remain competitive and succeed in today's tough global economic environment, businesses are returning to the basics. Technology investments must satisfy a demanding business case, showing quantifiable results in terms of higher profits, enhanced productivity, and increased customer retention. In addition to demonstrating solid business benefits, these investments must also earn a quick payback, or Return On Investment (ROI). The linking of technology to bottom-line results has especially benefited companies seeking to make their customer contact centers more efficient, in the form of more automated transactions, increased agent productivity and better customer service. These contact centers are being transformed from cost centers into profit centers, thanks to a technology that has come of age—voice enablement.

Several converging trends are increasing the pressure to voice-enable contact centers. Budgets are tighter. With the proliferation of the Internet, smart phones, and a variety of telematics and mobile devices, customers are demanding information on a 24x7x365 basis. Voice-enabled contact centers have shown that they can enhance the experience of their callers, as well as improve their own operational effectiveness. This investment benefits both sides of the corporate equation—increasing productivity, profit and performance while providing enhanced customer service, support and satisfaction. And best of all, companies that implement voice technology in their contact centers often achieve a ROI in less than a year, making voice-enabled applications one of the best customer management investments today.

This industry has no shortage of niche players, each offering elements that help to create a voice-enabled contact center. Yet few if any can provide a total turnkey solution that is seamlessly integrated to deliver the level of service, support and access to back office data that is essential in large customer care operations.

IBM is in a unique position to provide turnkey business solutions with its WebSphere® Voice family of products, a proven platform for effective contact center voice applications. IBM WebSphere Voice solutions provide the infrastructure, hardware and software to deliver voice applications that automate customer interactions and deliver high-quality services—at a fraction of the cost of traditional call centers.

This paper addresses the benefits that IBM WebSphere voice-enabled contact centers can bring to the customer and the corporation. A real-life business case is included.

Introducing voice-enabled Interactive Voice Response (IVR)

More than three decades ago, semi-automated call centers were created to provide customer sales and support by handling transactions over the telephone. Much has changed since then. Customer inquiries no longer arrive only by phone, but are now also coming from a multitude of media, including FAX, wireless phones, Web, e-mail and a variety of portable devices. But customer expectations have increased exponentially, and interactions have become far more complex, requiring sophisticated transaction handling capability and multiple layers of information and workflow to support realtime requests. Yesterday's call center has emerged into a multimedia customer contact center that is a strategic component of a company's service, support and sales efforts.

The menu-driven, Touch-tone™ IVR system has been a basic building block of the call center. However, as companies pushed to implement more complicated customer interactions, a new technology was needed. Voice-enabled IVR systems provide the technology that an organization needs to address increasingly complex customer interactions; quality self-service requires responsive support tools that "understand" callers' requests and encourage them to easily complete routine transactions without the assistance of a live agent, or Customer Service Representative (CSR). Helpful voice prompts encourage callers who previously bypassed the IVR system to stay on the line and complete their transaction. Call durations are reduced.

Self-service inquiries are diverted to a voice technology platform, where a speech recognition engine recognizes the caller's inquiry and translates it to text. The request is then forwarded to a customer database or Web site, where a search locates a proper response. Text-to-speech software translates the response into audible speech, so the caller hears it in natural-sounding, conversational language.

An IBM WebSphere voice-enabled IVR system solves a whole range of challenges that call centers face. Here are the most common solutions that a business case should consider:

Highlights

Voice solutions can help organizations expand their customer services without having to increase their overhead.

Challenge	*Voice-enabled solution*
Increase the successful call completion rate	Aids in fewer callers opting out for CSR assistance
Reduce the cost per transaction	Can reduce hold times allowing faster processing
Reduce call length and cost	Flattens speech menus to reduce call length
Provide new revenue streams	Can automate additional routine or low value calls
Seamlessly blend front and backend systems	Allows for Java Beans integration of Web and IVR applications
Add new transaction handling applications	Allows for the use of VoiceXML and Java which can simplify and speed application design and deployment
Provide mobile access to data	Can be ideal for a mobile, hands-free environment
Faster application deployment and portability	Allows for the use of VoiceXML and Java which can simplify and speed application design and deployment
Increase customer satisfaction and retention	Can provide additional accessibility to your applications
Automate additional customer service	Can enable support for rotary as well as Touch-tone customers
Improve agent satisfaction and productivity	Allows one to screen incoming calls and collect info to allow agents time for high value transactions and assignments
Remove language barriers to open new markets	Allows one to translate Web site text on-the-fly to engage customers in their native language

Keeping customers happy

Companies across all industries realize that cultivating long-term customer relationships is key to profitability. Existing customers are a valuable investment, since studies have shown that it costs five times more to acquire a new customer than to retain a loyal one. By implementing a voice solution, organizations can expand customer services without increasing overhead. Voice technology offers a variety of potential automation opportunities that allow a company to gain a competitive edge by attracting new accounts as well as retaining existing customers. Every business has unique opportunities to develop and deliver powerful applications that enhance and extend customer services.

Customer satisfaction is a key area for measuring the impact of voice technology in contact centers. Companies typically base their customer satisfaction on business objectives such as sales per customer, customer retention or satisfaction ratings that are provided by customer surveys. A major benefit of investing in voice technology is the delivery of higher quality

Highlights

The results of voice-enabling customer interactions with IBM WebSphere solutions typically show high customer satisfaction, added value and improved customer retention.

customer support. Customer satisfaction is often determined by ratings in the following areas:

- Call handling capability
- Time to completion
- Single call completion
- Ability of customer to navigate system
- Number of transfers
- Knowledgeable transfers
- Courteous treatment
- Abandonment rate

Many businesses spend large sums of money to build strong customer relationships, but fail to pay adequate attention to the "front door" of their business. The telephone is the prime communication tool for today's customer, and companies want to create a positive experience each time someone calls. Solutions that encourage customers to easily navigate IVR systems with a friendly user interface provide a strong foundation for successful customer interactions. There is no easier interface than speaking naturally over the telephone and then listening to a pleasant response. Using voice technology to enhance the customer's experience is one of the most cost effective means to generate high customer value, while providing one of the fastest paybacks in Customer Relationship Management (CRM) today. Voice enabling customer interactions with IBM WebSphere solutions usually results in significantly higher customer satisfaction ratings, as well as adding value and improving customer retention.

Voice-enabled customer service can enable companies to offer more self-service options and a wider range of services that can normally be handled without the assistance of an agent. Although a company's Web site may offer a full selection of online self-service options, many customers still prefer to use their telephone to transact business. Others want the flexibility of choosing from multiple communication channels, including the telephone, as well as the Web and e-mail. Additionally, the increased mobility of customers and employees has fostered a demand for hands-free cell phone access. In a recent survey, consumers listed the telephone as their preferred communication channel, compared to the Internet. Additionally, most said they are less likely to do business with companies that do not provide their preferred channel.

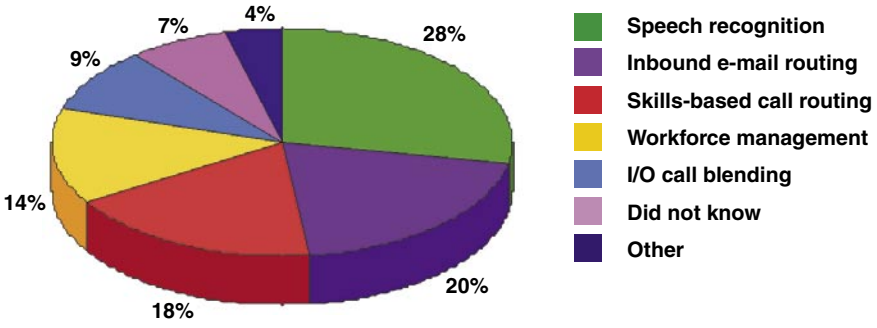
Highlights

…approximately 70% of a contact center's cost is labor…speech solutions allow businesses to rapidly reduce operating costs, while providing their agents with more challenging inquiries and more productive activities…

Making agents more productive

Self-service solutions also address a major challenge for today's contact centers: agent recruitment, training and retention. Recent Frost & Sullivan research reflects a strong demand for speech recognition due to consistent and recurring high turnover rates of contact center agents (see figure below). Agent replacement costs, repeated training and residual productivity losses from high turnover rates drive the need for contact center automation. This research also claims that 85% of all contact center inquiries can be handled without human intervention if speech recognition and automatic voice response technology are deployed. According to the *Customer Contact Strategy Forum*, approximately 70% of a contact center's cost is labor. Speech solutions provide an opportunity for businesses to rapidly reduce operating costs. They also provide a residual effect of reducing attrition, because the more routine (and sometimes boring) inquiries are handled in a self-service manner, providing agents with more challenging and interesting inquiries, and freeing up their time for more productive activities, such as customer sales.

Agent Top Technology Desires



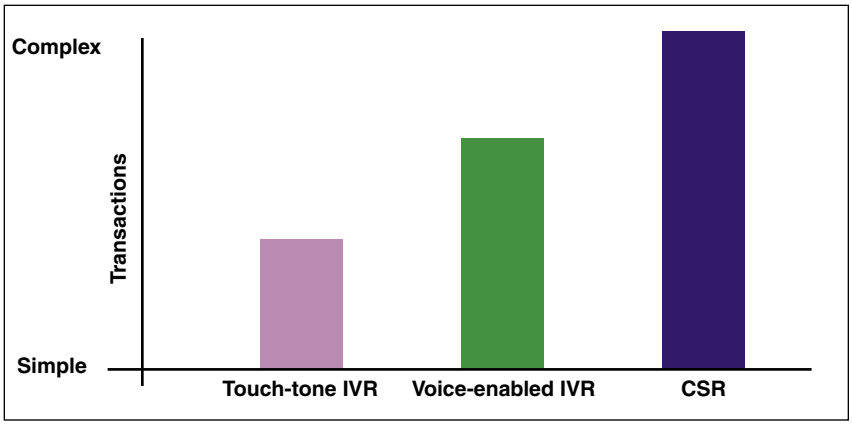
Source: Frost & Sullivan survey of 100 Call Center Executives, 2001

Touch-tone IVR systems are best used for simple customer interactions (see figure on page seven). Many companies restrict the use of their IVR systems to call routing and call screening and do not extend their use for self-service functions. Businesses that enhance their IVR systems with voice technology provide callers with comprehensive support on a much wider range of topics. Additionally, voice technology is far more forgiving than keypad menus in overcoming caller mistakes, encouraging them to remain on the line, and offering suggestions on how to proceed with system navigation.

Highlights

Voice-enabled companies can extend their operating hours by offering calling options 24x7x365 to their customers.

Transaction Handling Capability



Source: Giga Information Group

More hours, more calls, more applications

Voice-enabled companies can extend their hours of operation by offering 24x7x365 calling options for their customers. This promotes greater use of the IVR system and spreads out calling times, eliminating peak rush hours while providing service at the customer's convenience.

Voice technology can provide a dramatic increase in call-handling capability. It allows a caller to access information on a company's Web site and complete transactions much like using a Personal Computer (PC), but without the need for either a PC or special wireless device. This technology compliments PCs and is best used for solutions that do not require an extensive download of information. For example, field sales personnel can call into their company to check the current status of a customer's account. A traveling employee may use voice technology to call into the help desk for an automated password reset. The following list suggests some areas where voice technology can automate routine transactions.

Pre-Sales	*Transactions*	*Post-Sales*
Call routing	Account setup	Check/update info
Product information	Buying	Order status
Price/rate information	Selling	Shipping status
Schedule information	Reservations	Report problems
Availability	Making calls	Update status
Literature requests		

Highlights

The powerful combination of improved customer satisfaction and consistent cost reduction makes voice technology a worthy investment.

Voice-enabling the enterprise

The IBM award-winning global voice solutions can be customized to a specific industry, as well as to individual company needs. Voice is especially appropriate for the types of transactions common in the finance and banking, telecommunications, travel and transportation industries. Financial and banking organizations can deliver new services, such as bill payment, account information, telephone trading and customized services, through voice-enabled self-service access. By extending voice-enabled services to access customer databases, they can reduce costly staffing devoted to routine inquiries and transactions. Customers gain 24x7x365 access to their accounts, avoiding long queues for an agent or complex, multi-tiered IVR menus. New speech applications can also deliver customer value that strengthens customer loyalty and promotes new revenue streams.

For example, one of the IBM North American banking customers recently moved from a regional to a more national focus by consolidating eight call centers into a single office. This bank then implemented a seamlessly-integrated self-and-assisted-service contact center that combined customer data, financial consultant skills and sales opportunities—turning the center into a strategic profit center. The bank is now able to identify and route transactions based on current cross-selling opportunities and leverage customer profiles to optimize every interaction.

This bank now provides 24x7x365 information via self-service access to its back-office databases. Customers are delighted. They get fast and efficient service when human skills are required for a specific transaction, quick self-service information when and where they need it, and they don't have to repeat customer identification information after the first point-of-contact. From a payback perspective, the bank has been able to reduce costs from $14 down to 70 cents per investment transaction, and shorten the average call duration from seven minutes to two.

The business case for voice-enablement

Because of today's precarious economic environment and the difficulty in achieving and sustaining profit margins, businesses have become more sensitive to managing costs, and as a result, are putting increased pressure on management to justify business expenses. Many key CRM applications take years to deliver an ROI, and are put on a back burner. On the other hand,

automating customer interactions with voice technology produces cost savings almost immediately and typically achieves ROI in under a year. Although immediate savings can be linked to reductions in a CSR's time, other important benefits are realized by providing customers with higher quality services, greater convenience and improved responsiveness. This powerful combination of improved customer satisfaction and consistent cost reduction makes voice technology a worthy investment, especially during slow economic conditions.

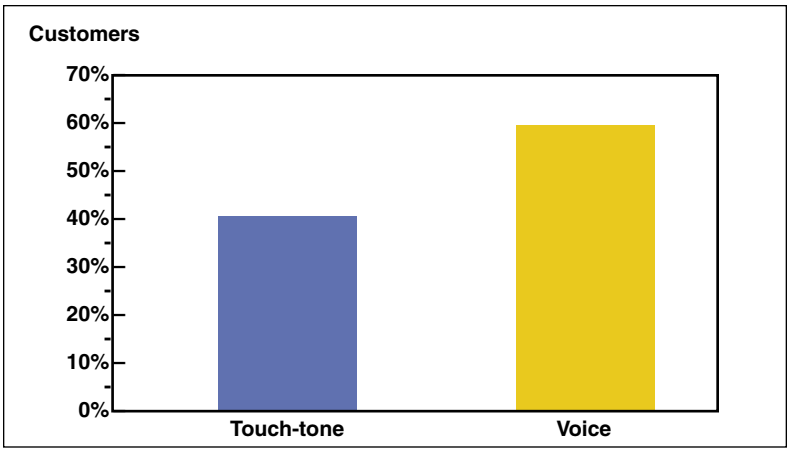
The addition of voice technology for customer self-service can enable many potential savings. These include:

- Higher percentage of callers/lower caller abandonment—increases of up to 60 percent
- Higher percentage of completed transactions without an agent—increases up to 50 percent
- More complex transactions are possible—voice-enabled IVRs can handle more complex transactions than Touch-tone IVRs
- Maximum hours of operation—24x7x365
- Lower toll charges due to shorter conversations—reduced toll charges 20 percent and more

Recent studies indicate that callers prefer interacting with voice prompts over Touch-tone systems by a margin of four to one. Today, typically 40 percent of a contact center's traffic is channeled through an IVR system. However, menu-driven Touch-tone prompts limit the system to providing basic support or directory assistance, which, depending on user demographics, can be complex and frustrating to use. With voice technology, more customers are willing to use an IVR system due to its simplified, natural user interface. Companies are able to increase the total number of calls handled through their IVR system by up to 60 percent based on conversational responses and less confusing menus (see figures on page ten).

Without speech recognition, contact centers typically average less than 25 percent of calls completed without assistance (see page eleven). Voice technology increases this percentage by up to 50 percent over unassisted calls, with results varying depending on the nature of the transactions.

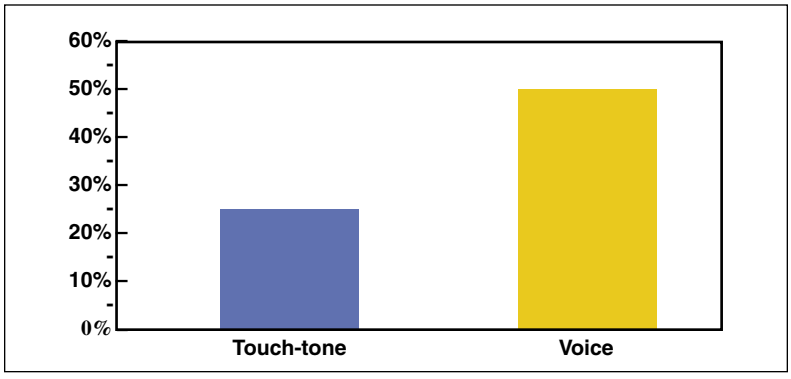
Increased use of IVR System by customers



Source: Giga Information Group

There are still some calls that require the assistance of a live agent. However, if the caller is able to provide needed account information or handle other transactions prior to the transfer to a CSR, the call handling time can be reduced, resulting in lower connect times and toll charges. With Touch-tone IVRs, companies average a ten percent or greater reduction in call volumes. When adding voice technology to these IVR systems, call volumes are often reduced by 20 percent or more, a significant savings.

Call completions

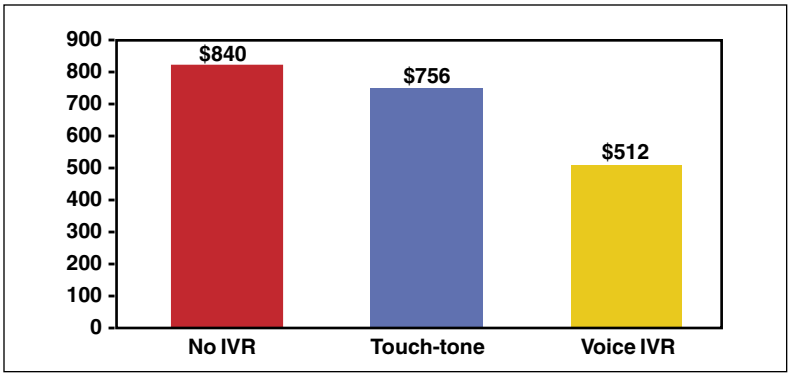


Source: Giga Information Group

A business case example

The following example is based on a contact center handling 6 million calls per year, with an average call duration of four minutes and a cost per call of 35 cents per minute in toll charges. Without an IVR system, the toll charges were $840,000 per year (6,000,000 calls x 4 minutes x 0.35/call). Using a traditional Touch-tone system, call volumes were reduced by 10 percent, for a savings of $84,000. With voice technology, call volumes were reduced by 20 percent for a savings of $168,000 (see figure below).

Reduction in toll charges



Source: Giga Information Group

The chart on the following page is a worksheet to estimate ROI for this company. Of course, every enterprise is unique and actual savings depend on factors such as call volumes, the ability to automate transactions, the nature of the transactions, average call-handling time and calling patterns. In addition to actual dollars and cents, automating routine transactions frees up the CSR to handle more complex customer issues. Customers appreciate faster turnaround and access to information at their convenience. These factors usually can lead to higher customer and employee satisfaction—and in turn, reduced attrition and increased customer retention—all adding to down-the-road profits not included in these calculations.

These numbers are representative of a typical contact center. IBM contact center specialists determine savings for customers and prospective customers based on their specific usage data and requirements.

ROI worksheet for Voice Technology in contact centers: A Typical Example

Category	*Sample Data*	*Description*
Total number of calls	6,000,000	Annual number of calls to contact center
Total operation cost	$25,000,000	Fully loaded operational budget
Cost per call	$4.17	Divide total operational cost by total number of calls
Average call time	4 minutes	Average minutes per call excluding after call work
Annual call minutes	24,000,000	No. of call x no. of minutes
Annual call hours	400,000	Annual call minutes/60
Agent utilization	75 percent	Percent time agent spends on phone
Agent availability per day	6 hours	Total hours worked x utilization percent
Annual agent availability	1560 hours	Hours per day x 5 days x 52 weeks
Number agents required/year	256.4	Annual call hours/annual agent availability
Annual agent salary	$33,000	Average salary per agent
Percent routine transactions	35 percent	Basic transactions that can be automated
Routine transaction agents	90	Percent routine transactions x total agents
Routine transaction costs	$2,961,420	Annual salary x routine trans. agents
Voice technology investment	$998,000	Cost for hardware, software and services (estimate only)
Payback period	123 days	System payback in days: (investment/routine costs) x 365

Source: Giga Information Group

Implementing voice technology

Prior to implementing any voice technology, it is important to clearly understand how the solution will be deployed and define how users will navigate through the system. Designing voice applications that match customer skills, needs and requirements is critical for generating a high acceptance rate and continued use. Although voice technology has been around for quite some time—IBM has invested more than 40 years in voice research and development—the past few years have shown major usability and accuracy advancements, enabling today's voice applications to support a wide range of interactions.

Implementing voice services requires a professional services team to partner with the enterprise. At the beginning of the deployment, a project team must be assigned to manage the project and to ensure that the voice applications are delivered on time and within budget. After the project is defined, the design and development phase begins to create an application that is highly

Highlights

IBM expertise in telephony solutions…provides the qualifications required to design, build and maintain robust and reliable speech applications.

functional to a wide range of users, with new technologies properly integrated into existing voice and data systems as necessary. IBM development tools support an open programming environment, built on open standards-based VoiceXML and Java.™ Deploying applications developed on open standards can reduce time-to-market and decrease implementation costs.

IBM has extensive experience with the complete voice and data infrastructure required to support world class applications. This gives companies an opportunity to work with an experienced team, qualified to deliver robust voice applications from the entry point to the backend data and return—a seamless, integrated end-to-end solution.

When defining new speech applications, the following steps are recommended:

- Define clearly the requirements for the application, taking into account user demographics and both immediate and future uses of the application.
- Identify the user population and their requirements. Remember that speech applications are not suited for large downloads of information or complex interactions. (IBM has a host of multi-modal offerings that would be better suited to a situation where lots of data or complex information needs to be retrieved.)
- Recognize the language requirements for the users. IBM systems support several languages and recognize accents and regional dialects.
- Determine the internal functional groups that will be impacted, and gain their support early in the process.
- Specify the information that will be accessed and where it resides today. Share any customer issues (pro and con) that would help a designer create better service.
- Review network and security requirements. This is a key step in avoiding repeated design revisions and ensuring usability.
- Estimate the time for the pilot rollout and any modifications in schedule.

Major areas for consideration in vendor selection include experience in the following areas:

- Automatic speech recognition software
- Text-to-speech software
- IVR system or gateway platform

- Voice browser
- Computer telephony integration
- Application integration
- Development and management tools
- Professional services and support

Let's get started!

IBM is unique in its ability to help businesses achieve superior voice applications. Decades of expertise in telephony solutions and worldwide leadership in voice technology provide the qualifications required to design, build and maintain robust and reliable speech applications. Additionally, IBM can fully integrate with other vendor products and legacy systems, if needed. Well-designed and fine-tuned voice applications generally gain immediate user acceptance. Partnering with a company that offers a comprehensive platform for delivery of voice applications can eliminate problems down the road. The solution: IBM WebSphere Voice Products.

Automating transactions requires the integration of hardware, software and services with speech recognition engines and text-to-speech tools designed and tuned to meet the needs of a specific enterprise. IBM is unique in delivering voice applications because it provides the entire platform for enabling applications as well as the professional services and support to implement them. IBM voice technology provides the complete solution for connecting a telephone or other device to business applications using only a natural voice interface. The IBM *Conversational Services*—the technology that puts a natural voice interface on the computing infrastructure—are delivered through the IBM WebSphere Voice family of products.

The IBM WebSphere Voice family includes *WebSphere Voice Server* and *WebSphere Voice Response with DirectTalk® Technology*. Both can enable businesses to automate call centers by allowing customers to easily access information with their voice. These products are part of the IBM WebSphere software platform, providing a comprehensive set of e-business solutions for the Web and telephony environments.

IBM offers a variety of products for the contact center. A company currently operating a basic, agent-staffed assisted service center should consider WebSphere Voice Response, a Touch-tone IVR as a first step. Most existing

IVRs are candidates for the next step, upgrading to a voice-enabled platform with WebSphere Voice Server.

IBM WebSphere Voice Server

The *IBM WebSphere Voice Server 2.0* is an enabling platform for delivering voice applications. It extends existing Web infrastructures for the delivery of voice-enabled applications. It includes a developer's toolkit that allows developers to build and deploy applications using ready-made building blocks called Reusable Dialogue Components (RDC), which provide for conversational telephone support to Web applications. The IBM WebSphere Voice Server uses industry standard technology such as VoiceXML and Java.

The WebSphere Voice Server encompass four elements:

- A speech recognition engine that recognizes the spoken word and converts it to text
- A text-to-speech engine that produces a speech audio stream from text, which is provided by an application for playback over the telephone
- Voice application development tools to develop and test speech applications using speech recognition and/or text-to-speech
- A telephony platform connector, which is a run-time platform for speech applications that connects the voice audio stream from the telephony network to speech recognition and text-to-speech engines

A major benefit of the IBM WebSphere Voice Server is that IBM can eliminate costly integration of disparate products by providing all components needed for a voice platform. It offers an open solution built on industry standards and the VoiceXML programming model, and ties in speech recognition, telephony (WebSphere Voice Response or Voice over Internet Protocol [VoIP] gateway) and the Web (WebSphere Application Server). It also supports multiple languages, including US English, UK English, French, German, Italian, Spanish, Japanese and Chinese (simplified and traditional).

IBM WebSphere Voice Response with DirectTalk Technology

IBM WebSphere Voice Response with DirectTalk Technology is a versatile voice processing platform that brings expanded functionality to Interactive Voice Recognition applications, including advanced speech recognition and VoiceXML for the Web. WebSphere Voice Response integrates information

The full potential of voice applications is measured not only in cost savings, but also in promoting greater customer satisfaction through improved responsiveness, service quality and convenience.

from multiple sources and can deliver direct access to the services and information needed around the clock. WebSphere Voice Response can answer and process a large number of calls simultaneously, reducing caller wait time and improving customer satisfaction. WebSphere Voice Response for Windows NT® and Windows 2000 Version 3.1 is suited for small to medium-size businesses. WebSphere Voice Response for AIX Version 2.3 is the product of choice for large enterprises and Service Providers. WebSphere Voice Response is scalable and it allows a robust 24-hours-a-day and 7-days-a-week continuous operation. A WebSphere Voice Response system can support:

- Simultaneous handling of calls
- Four to 480 ports on a single system
- Speech recognition and Text-To-Speech applications using IBM WebSphere Voice Server
- Open standards-based service creation environments Java and VoiceXML
- Multiple connectivity environments such as T1, E1 and VoIP

IBM can provide the right platform to enable voice applications, while further supporting successful deployment with their global services organization.

The bottom line: IBM WebSphere Voice

Voice-enabling a contact center is much more than just replacing Touch-tone menus with voice technology. The IBM WebSphere Voice family of products offers a wide range of customer-facing applications that can improve the performance of the contact center and deliver high customer value, redefining how a company does business with its customers. The full potential of voice applications is measured not only in cost savings, but also in promoting greater customer satisfaction through improved responsiveness, service quality and convenience.

Voice technology can enable several potential savings in contact centers, and companies that replace current IVR functions with self-service voice applications gain immediate value. Cost reductions can be realized from faster transactions, a higher percentage of call and transaction completions, lower toll costs, and redirection of agents from routine tasks to higher value customer service.

IBM, which has a solid history in both voice and data communications, can provide the right platform to enable these voice applications. IBM further

supports the successful deployment of voice technology through its global services organization, which offers solid experience with the IBM WebSphere family of products.

The end result is a win for both the company and customer, as voice technology delivers the next step in cost-effective customer support.

For more information

For further information, contact your local IBM sales representative or IBM Sales Support at **ibm.com/**software/voice or 800 TALK2ME.

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