

White Paper

The Power of Retail Self-Service Solutions

January 2006

“ With the explosion of e-commerce and advances in computer-telephony integration (CTI), the telephone has re-emerged as a potent third sales channel for large, multi-site retail businesses. ”

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A White Paper by Vertical Communications, January 2006

EXECUTIVE SUMMARY

Retailers are embracing self-service solutions at a rapid pace, deploying new technology to reduce costs, attain and improve customer relations, and remain competitive. Over time, automated solutions have appeared across the retail sector. Early advances in call answering and routing, such as centralized attendant service (CAS) and auto-attendant, have given way to Web portals and interactive voice response (IVR). These advances have enabled a new and powerful channel for customer interaction with the business past pure brick and mortar, by enabling customers to use voice communications to obtain service and make transactions around the clock.

The telephone has long been an access point for customer service, but since the maturation of e-commerce and improvements in Point Of Sale (POS) techniques, it increasingly had become a third, largely untapped, sales channel for large, multi-site businesses. However, recent improvements in speech recognition and computer-based IVR have enabled great advances in the handling of telephone calls. The VoiceXML programming standard has facilitated the development and customization of voice applications and their deployment in a single site or across a network of branches. In addition, the convergence of voice and data traffic on the data network has enabled the integration of call handling and data management techniques, providing management with a new consolidated control of the voice channel. As a result of these developments and the concomitant, rapid growth of wireless telephony, voice is re-emerging as a potent, virtually ubiquitous portal for self-service.

This paper details the evolution of retail self-service, and explains how Vertical is pioneering communications solutions that achieve the goals of delivering superior service to customers while reducing the cost of operations. Vertical InstantOffice® and InstantOffice Voice Server (IOVS) run on and leverage the data network infrastructure to integrate voice services and solutions across all branches of a retail enterprise.

INTRODUCTION

One of the biggest challenges facing retail today is to efficiently provide immediate, high-quality customer service across a large, multi-site business enterprise. Chances are, when a customer calls for product information and the location of the nearest branch store, they are ready to buy. But each calling opportunity is ephemeral – calls must be answered promptly and the appropriate response provided in real time to exploit sales potential and avoid losing the customer. Appropriateness is a multi-dimensional consideration. For example, for a large restaurant chain, providing the same general information to all callers across all locations, but without highlighting different specials offered at local branches, is a lost opportunity to entice local customers.

How does a multi-site store or restaurant integrate localized information across all store branches or restaurant locations? How do you know you failed to convert a customer at one location, or closed one at another? The lack of integration across the voice channel deprives the business of a detailed, site-by-site understanding of operations, and also compromises its ability to provide localized information to callers who phone a central information number. But with razor-thin margins, how does a large, multi-site business truly listen to the voice of the customer and provide customized information and response while controlling costs and thwarting competitive threats?

Vertical InstantOffice is an integrated communications platform that solves the critical

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issues of integrating enterprise-wide data, optimizing data and network resources, customizing customer call handling and providing superior self-service customer applications. InstantOffice is a next-generation, IP-based phone system that delivers voice-enabled applications and speech solutions via the InstantOffice Voice Server (IOVS), a critical component of the solution. IOVS delivers real-time voice responses to customer queries and allows retailers to offer customers richly personalized self-service experiences, while providing branding consistency across all locations and giving management detailed business intelligence. To better understand what is possible with IOVS it's best to first take a look at how self-service in retail has evolved as a context.

MODERN VOICE APPLICATIONS ARE LIGHT YEARS FROM CENTRALIZED ATTENDANT SERVICE

The evolution of customer service in the retail sector has gone through some steep, but exciting developments during the last two decades. We have come a long way from the days of centralized attendant service (CAS), one of the earliest specialized telephony-based applications embraced by the retail industry. CAS allowed retail chains to publish one 800 number and have calls answered and then transferred to the proper store or store department. CAS-style functionality was ultimately replaced with DTMF-based auto-attendants that routed calls based on scripted menus of choices. But many customers perceived this as a step down in service. The friendly human attendant was gone, replaced by an inflexible, obviously canned series of voice prompts. The addition of speech recognition technologies to auto-attendant solutions now allows customers to simply say what they want to route themselves to their desired store, restaurant or department, intuitively and quickly.

Other avenues of access to retail enterprises have taken similar evolutionary paths. For example, after HTML was first developed in 1991 and the Internet became available to the public in 1992, the Web rapidly evolved and retail enterprises developed simple Websites with static data and contact information. As numerous improvements were made during the 1990s in coding and hardware, businesses were able to develop full-service e-commerce portals that allow customers to use their PCs

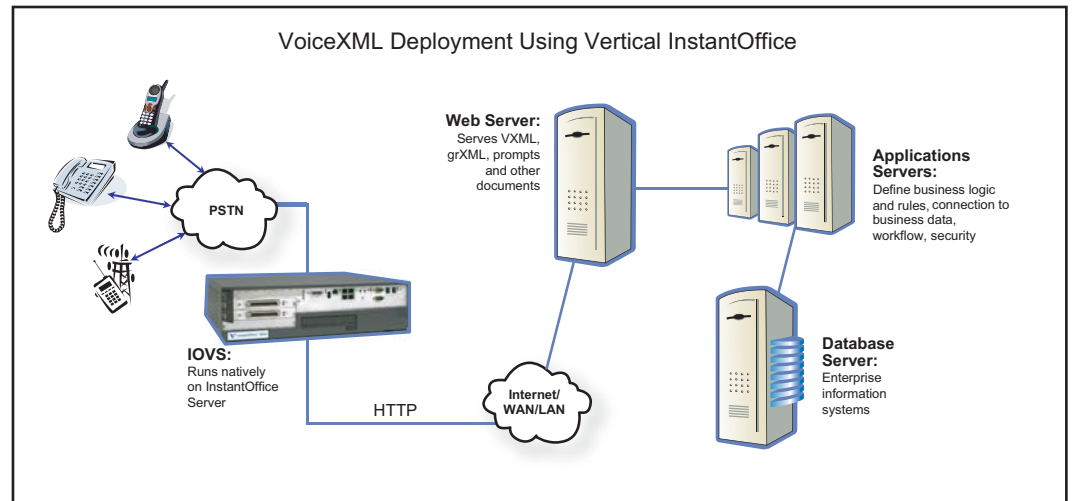
to order goods and services, check shipping status, send messages to customer service and obtain information. In recent years, IVR voice applications have mirrored this evolution in the voice channel, progressing from primitive touch-tone menus that can provide basic data access and simple transactions to large vocabulary, speech-enabled voice portals that allow customers to interact by speaking to an application residing on a server on a network in much the same way they would speak to a live agent – and at any time from any phone or mobile device.

Improvements in computer-telephony integration (CTI) have revived and improved the voice channel, which can now leverage the ubiquity of the Internet and the network infrastructure of large, distributed businesses. While the brick and mortar storefront has gone virtual, the process has not been without difficulties. Just as early Web development first required a specialized skill set, so did the development of legacy IVR applications, with resulting high costs for systems development and maintenance, and intrinsic limitations to the true convergence of voice and data on a network. Furthermore, legacy IVR systems were built with proprietary hardware, software and development tools, resulting in high costs for upgrades and long development times for even limited computer-telephony messaging integration.

A major problem holding up the progress of the voice channel from CAS to automated IVR was the challenge of rapidly accessing centralized data stores containing data on inventory, special offers, prior customer purchase history and so on. Rapid access to this information is required for real-time response to caller inquiries, but such a capability across a multi-site environment requires powerful network solutions and generous bandwidth.

At first, real-time response to voice calls requiring data access was not practical. But as early proprietary voice solutions gave way to economical open, standards-based approaches, a flurry of innovations have resulted. Examples include dramatically faster application development and roll-out, the availability of off-the-shelf applications that quickly integrate with existing infrastructure, much more timely information delivery and a decreased total cost of ownership (TCO). Today, thanks to

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major advances such as VoiceXML and improvements in network architecture, applications sit at the edge of the network near the customer, yet have immediate access to data – the last piece of the puzzle needed to revive the voice channel.

THE CRITICAL ROLE OF VOICEXML IN SELF-SERVICE

The progress from proprietary hardware and software to open-standards solutions has been crucial to the successful development of voice-based self-service. One of the most important standards in this respect is Voice Extensible Mark-up Language (VoiceXML). VoiceXML is to voice as HyperText Mark-up Language (HTML) is to the Web, rendering “voice pages” for the ear, analogous to how HTML renders Web pages for the eye.

VoiceXML is a World Wide Web Consortium (W3C) standard initially published in 1999. It is a platform-independent structured language based on the extensible mark-up language (XML) specification that provides developers of voice applications the same kind of tools and ability to deliver voice content to users as enjoyed by Web developers. Using VoiceXML, developers can build automated voice services using exactly the same technology they use to create visual Web sites, significantly reducing the cost of construction and delivery of new capabilities for phone customers. As a direct result, it enables businesses to recycle the same business rules and back-end logic for voice applications that they use for Web applications. User input is delivered to the application through touch-tone or speech recognition. Content is delivered using text-to-speech (TTS) or digitized audio.

VoiceXML provides a uniform development environment that allows a business to build on its existing Website investment, providing a consistent view for the customer, regardless of how they choose to interact with the enterprise. VoiceXML also allows an application developer to use the same familiar tools for speech recognition as they do for non-telephony application development. Benefits of VoiceXML include:

- The ability to reuse code from Web applications
- The ability to quickly develop and deliver speech-enabled Web applications
- The ability to easily integrate voice applications with store infrastructure (pager devices, call buttons, in-store kiosks, cash registers, fax)
- Faster ROI on application development
- Increased customer satisfaction through improved self-service applications
- Enhanced investment protection

INSTANTOFFICE VOICE SERVER

InstantOffice Voice Server (IOVS) is a powerful VoiceXML-based self-service platform that can employ advanced speech technology to deliver voice responses to customer requests. IOVS provides cost-effective, round-the-clock spoken customer assistance, improving the caller experience, automating repetitive tasks and offloading routine requests from in-store personnel. IOVS eliminates the issues of legacy IVR, because it is based on open standards, allowing quicker and more flexible application deployment, reduced costs, and more varied and useful customer-facing applications.

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An IOVS solution enables businesses to deploy applications where they need them across the network, speeding up delivery of critical functions to the end-user, and preserving the benefits of centralized data and administration. The business data gathered from consolidated reporting from a central data store provides actionable intelligence to the enterprise that can be used to identify sales trends and business bottlenecks, and facilitate improvements in business processes and the bottom line.

INTELLIGENCE AT THE EDGE

IOVS exploits the architectural approach of pushing intelligence to the edge of the network where the user connects, giving control to the user, but enabling centralized control of application delivery and data. This strategy improves speed and distributes network traffic, and allows customers to interact with the business from anywhere, using the same application, while giving them a single view of the enterprise. To further capitalize on this architecture, IOVS includes an advanced standards-based voice browser that enables customers to quickly navigate through self-service content. It employs a patent-pending method of pre-loading a cache with static content (such as WAV, VXML and grXML files). This procedure reduces latency and bandwidth requirements, thereby improving application availability and response time and maximizing the value of each ephemeral call opportunity. The result: shorter calls, lower abandon rates and reduced costs.

For example, consider a pharmacy environment in which multiple branches are distributed across a region. Virtually all customers for prescriptions, except for the occasional traveler, are local with respect to their closest branch store. The storage of customer records and security verification data in a central location could be cumbersome for remote data access, especially over a slow data line. Any delays in response are time consuming and frustrating to both the customer and pharmacist. But with IOVS, customer data is stored locally, greatly expediting data access. Only when a customer from a remote area visits does the application have to access data from the central database. However, local data is backed up to the central data store on a scheduled basis so that consolidated data is available for network-wide reports.

Converged Platform

The InstantOffice solution, including IOVS, provides an open, standards-based, consolidated infrastructure that greatly reduces expenses and simplifies management. The converged platform eliminates the restrictions and expenses that legacy IVR systems created through their requirement of proprietary hardware and software. In keeping with today's Service Oriented Architectures (SOAs), Voice Server lets developers treat voice as "just another Web service," allowing dynamic content and sophisticated voice dialogs to be developed to automate routine business processes. Tight integration between applications and call processing allows the system to seamlessly transition between functions such as order entry, inventory management and security checks, greatly accelerating the transaction and dramatically enhancing the calling experience.

From a Total Cost of Ownership (TCO) perspective, IOVS enhances investment protection by simplifying the integration of voice applications with the enterprise's legacy infrastructure and business applications. Integration with existing store infrastructure is mandatory from cost and performance perspectives. Vertical has engineered the standards-based IOVS to quickly and easily integrate with POS devices such as in-store kiosks, pager devices, call buttons, faxes, etc. IOVS can reach across the entire network when necessary, providing a strategic customer benefit. When a customer calls into a local store, and asks if something is in stock, data from the local branch and in all other locations is available, providing alternatives if the local store should be out of stock.

Multi-Site Reporting

Since the performance of stores, restaurants and managers in an enterprise are measured against each other, it's critical to have efficient tools to accurately monitor and evaluate them. IOVS reporting and business intelligence tools integrate data between point of sale (POS) branches, inventory management systems and customer databases. IOVS closes the gap in business intelligence by providing an automated way to capture voice-based data consistently and pass it along to a centralized data store. Thus data from all voice interactions are saved, whether via voice, Web or POS.

InstantOffice Multi-Site Reporter (MSR) makes calling data from branches – previously dis-

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connected from and “invisible” to central IT resources – fully accessible in real time. MSR provides visibility into the performance and effectiveness of all applications across the enterprise and by region, store, department or endpoint. Managers can see how many callers accessed a particular voice application or feature, how many successfully completed their interaction or abandoned it and requested human assistance, and the average time it took.

Multi-Site Management

In response to performance data revealed by MSR, InstantOffice MultiSite Manager (MSM) allows an enterprise to remotely deploy new voice-enabled applications to all stores or select locations with the click of a mouse. Armed with these powerful administrative tools, managers can use MSM to quickly and easily deploy voice application upgrades and revisions to applications, use MSR to measure whether the changes achieved the desired improvements, and use MSM again to implement further changes if warranted. These two applications dramatically improve business intelligence and reduce deployment time and costs.

BENEFITS OF SPEECH-ENABLED VOICEXML APPLICATIONS FOR RETAIL

VoiceXML-based self-service solutions deliver a more content-rich, user-friendly experience for the customer by enabling retailers to incorporate advanced technology such as speech. The primary value of speech is its ability to personalize the interaction, provide consistency across all customer contact points, and enhance the value of automation through increased capabilities for the customer. The primary value of speech is its ability to personalize the customer interaction, provide consistency across all customer voice contact points, and enhance the value of automation through increased capabilities for the customer. Applications that are speech-enabled using VoiceXML allow an enterprise to automate and streamline a wide range of existing customer interactions, including complex, multi-step business processes.

For example, prior to speech-enabled applications, it would have been impractical to check inventory over the phone for items that use alphanumeric product codes. With speech technology, inventory items can be checked automatically in response to speaking their

category, name, or SKU, without the use of lengthy menus or tedious touch-tone input.

The use of VoiceXML makes existing transactional applications from Web servers accessible to customers through the voice channel. VoiceXML-based applications can be readily modified, allowing an enterprise to customize them for different branches to derive the most value out of communications with the local customer base. For example, a customer can easily check on the availability of an item, and if it's out of stock, find out if it is available from a partner store or another vendor during the same call, without customer service intervention. Customers can also order multiple disparate types of services during one call because different services can be linked more readily via the data network. These capabilities reduce customer frustration as well as the cost of doing business.

For another example, let's look at a pizza ordering and delivery transaction with and without speech-enabled applications. Without speech, one employee takes orders in person over the phone or by fax. With speech, a customer can place an order, add items, leave special instructions, or if a frequent diner, even give an order for their “regular,” freeing employees to focus on in-store activities. The system can be easily configured to describe “specials” and upsells while it takes the order, and inputs the order data to a database. This information in turn can be shared immediately across the network so that consolidated statistics on what is selling, including specials, can be used by management.

Further benefits are gained from a development perspective because the voice server uses one platform, one code base and open standards, significantly reducing the tasks of development, maintenance and operation. In addition, Vertical offers standards-based, off-the-shelf, packaged applications such as prescription refill, order tracking, and employee time punch in/out and schedule checking, which can be rapidly deployed and easily managed.

DEPLOYED APPLICATIONS

The following InstantOffice retail applications are available for deployment as speech and/or DTMF-based solutions:

- Order processing
- Employee time and attendance

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- Prescription refill
- Employee scheduling
- Check order status
- Automated attendant
- Refill ready notification
- Restaurant reservations
- Return to stock
- Delivery tracking
- Pricing and inventory information
- Store locator
- Automated upselling

In addition, the availability of IOVS-based integrated voice response to customer calls can be a valuable asset in conveying the brand, look and feel of a company in ways not possible with legacy IVR solutions. Automating a speech response solution enables an enterprise to brand the response with the sound and sense of the enterprise, similar to how the look and feel of visual branding is achieved through Web and print applications. Voice responses can mirror the in-person experience within a store or restaurant location, and add value by winning or retaining customers in ways unique to the spoken medium.

WHY VERTICAL COMMUNICATIONS

The Vertical InstantOffice platform is a field-proven solution already deployed in thousands of retail stores. These deployments have provided Vertical with the advantage of deep domain knowledge of the retail industry. In response to lessons learned, we partner with our clients throughout the sales process, from the presale discovery phase through post-deployment fine-tuning with one goal in mind: to optimize your business.

We understand the value of your ability to continue using POS and other communications

assets that are already installed across your enterprise that represent a substantial investment in capital and training. In fundamental response, we have designed the InstantOffice platform to be strong and flexible to “future-proof” and protect your investment. For example, your InstantOffice system is “ready for IP when you are,” and does not force you to commit to a pure IP environment. You can readily phase in new communications technologies such as VoIP and SIP when it makes sense for your organization.

Benefits can also accrue from economic improvements that can be realized after operations-related revelations. For example, our comprehensive discovery process found that the telecom resources of certain rural branch stores of some of our client organizations were needlessly over-provisioned because they were built on templates designed for city branches, wasting thousands of dollars a month.

From another perspective, you continue to derive benefits from our open, standards-based programming environment indefinitely. This developer-friendly environment radically simplifies tailoring custom voice solutions to assure you continue to derive maximum value from the voice channel. Evidence: we have designed and implemented phased implementation of voice-enabled self-service applications that have reduced the rate of failed customer calls from 30% to virtually zero for some of the largest retail chains in the country, recouping millions of dollars of formerly lost revenue opportunities annually.

To learn more about Vertical Communications and Vertical InstantOffice solutions, visit our Web site at www.vertical.com or call 800-914-9985.



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