

Voice XML: Bringing Agility to Customer Self-Service with Speech

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About Eric Tamblyn

Eric has over 17 years of experience in customer service operations, e-business applications technology and engineering, with direct expertise in Customer Interaction Engineering methodologies and Customer Relationship Management applications. Currently Eric directs a 12-member Solutions Engineering Organization at Genesys Telecommunications Laboratories focused on the Genesys Voice Platform and Global Partner Alliances. He is responsible for the design, capacity planning, customer account management and satisfaction at Genesys Telecommunications Laboratories. Prior to joining Genesys, Eric held Technical Management positions at Edify Corp. and Syntellect. Eric graduated from the SMU Cox School of Business in Dallas, Texas.

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In 1998, EXtensible Markup Language or XML was born. Hailed as a revolutionary new language for the reconciling of disparate platforms on the Internet, XML promised to revolutionize the way code is written. Fast-forward to 2006, and that promise is being fulfilled as companies across the globe use XML technologies to drive business agility and innovation. This is especially true within the contact center function where Voice XML (vXML) technology, a markup language used for creating applications for the telephone, is changing the way companies manage customer service and interactions.

Voice Self-Service is a software application that is accessible over the telephone, which uses speech commands and speech recognition to provide either information to the callers or perform transactions, such as obtaining account balances or transferring funds. Over the last few years, three major drivers are influencing rapid growth of Voice Self-Service. These drivers are increasing phone usage, technology evolution, and the adoption of open standards.

With the advent of the Internet, many enterprises have deployed web-based channels such as e-mail and chat to manage customer interactions. Web-based channels provide an inexpensive means to manage customer interactions because they reduce telecommunications costs. However, consumers continued to use the telephone to contact the enterprises. Many factors, such as convenience, lack of access to Internet and the ubiquitous nature of the telephone, contribute to the continued choice of telephone over other channels. The rapid rise of cell phones is continuing to fuel the usage of telephone. As enterprises are acutely aware of their customers' preferences, they continue to invest in managing telephone calls and delivering agent-based service, while constantly looking for ways to reduce costs using self-service.

Technology evolution speech technology is also contributing to the rise of Voice Self-Service. For over a couple of decades, enterprises have provided DTMF-based (Dual-Tone Multi-Frequency) voice self-service applications using touch-tone DTMF technologies to their customers. Customer dissatisfaction with DTMF applications is quite well-known. Almost every caller can recall a frustrating experience with a touch-tone application. As a result, increasing self-service to effectively decrease customer support costs has become a significant challenge to enterprises. In addition to unhappy customers, enterprises are dealing with legacy interactive voice response (IVR) systems, which are proprietary, inflexible and highly expensive to maintain.

Industry analysts, Gartner¹, note that best practices in self-service have radically changed over the past three years with the core result of improving business operations significantly. They point to three significant changes including:

- the wide-scale adoption of standards-based architectures for voice portals
- the increased use of speech recognition technologies
- the move toward Web-based architectures

The increased adoption of speech recognition provides a strong driver for companies to replace aging proprietary IVR systems with the standards-based voice portal systems. In competitive industries such as retail banking and telecommunications, the ability to create agile IT architectures and voice self service environments, which can quickly and easily be updated as marketing and business plans change, is crucial.

Speech applications, which can understand spoken commands, have emerged as an alternative to DTMF-based applications, providing a more natural user experience to callers, while decreasing the costs of customer support. However, delivering speech applications using legacy IVR systems is not an ideal scenario because they are proprietary hardware platforms and were not designed to support speech commands. Hence speech applications were prohibitively expensive until open standards emerged.

Voice XML and open standards, however, have changed everything.

¹ Gartner Research: ID Number: G00139284, Title: Genesys-VoiceGenie Deal Will Create Clear Voice Portal Leader, 7 April 2006, Authors: Steve Cramoysan, Drew Kraus

The Open Standards Promise

Over the last few years, speech-based self-service applications have started to take off in supporting customer interactions over the telephone. Many enterprises, particularly in financial services, telecommunications and healthcare industries, deployed speech applications to increase customer satisfaction and decrease their customer support costs. Other industries are following the trend. Open standards, such as web technologies and voice XML technology, have been a key driver in the growth of speech-based customer service applications.

Open standards promise enterprises several benefits such as reduced application development costs; the ability to leverage existing web infrastructure (hardware and software); reduced operating expenses by eliminating the need for a separate Telecommunications group to manage the new open standards-based software; and access to multiple emerging applications as more and more vendors race to provide standards-based software. Hence, the promise of open standards is very attractive for enterprises that are looking to do more with less.

While there is a great potential to realize the promise of open standards, enterprises need to be cognizant of several issues that play critical roles in making their speech application strategy work. Here we examine those issues and provide an insight into how enterprises can ensure the return on investment (ROI) on their Voice Self-Service investments.

The Voice Self-Service Value Chain

A crucial element in the successful deployment of Voice Self-Service solutions for any enterprise is to understand the Voice Self-Service value chain. The value chain consists of hardware vendors (e.g., Intel, AMD, NMS), core speech technology software vendors (e.g. Nuance), vamp platform vendors (e.g., Genesys Telecommunications and Voice Genie who have recently merged), developer tool vendors (e.g., Audio, Voice Objects) and application developers (e.g., Recommence). Open standards provided a disaggregated value chain, as an alternative to a vertically integrated value chain of legacy IVR systems, to deliver the promised benefits. Enterprises can benefit from understanding each value chain member's role and utilize their contestability to achieve higher returns on investment.

While all value chain members play critical roles, vXML platform software vendors play a crucial role in making an enterprise's Voice Self-Service initiatives successful. vXML platform software is like the foundation to a house; it is the open platform upon which voice applications are built and run upon, serving as the critical link between voice applications and underlying component technologies such as

telephony hardware and speech technologies. Building a foundation first, enterprises must select a vXML platform software vendor before attempting to select other value chain members.

Case study: StarHub, a Singapore-based cable service provider, uses vXML technology to enhance the experience of pay-per-view cable TV subscribers. The Genesys open standard voice platform solution has enabled StarHub to integrate multiple IT platforms within the call center. As a result, StarHub's customer care center now provides customers with more self-help service options, such as the Activation/Deactivation of Value Added Services (VAS) via a voice portal. Philip Tan, Senior Vice President and Head of Customer Experience and Information Services Division at StarHub notes that, "If we suddenly have a high demand for a pay-per-view football match, instead of speaking to a call center consultant, we can quickly reconfigure the system so that customers can simply make their program selection and payment through the highly-configurable Genesys Voice Platform and self service system."

Enterprise Voice Self-Service Strategy

Before attempting to develop and deploy voice self-service solutions, enterprises must craft their enterprise-wide voice self-service strategy. Projects can fail because companies fail to consider the environment in which they function. . The following aspects should be considered when deploying a voice self-service application:

1. Realize that the application will be customer-facing and seek to enhance the customer experience not just cut costs
2. Understand the state of Voice Self-Service in the current contact center deployment
3. Identify a vXML platform software partner who has experience in your industry and ask for customer references
4. Identify suitable application categories where speech-based Voice Self-Service can be deployed (e.g. check order status, transfer funds)
5. List the expected benefits from speech-based Voice Self-Service and devise metrics to measure the benefits and the ROI
6. Identify candidate applications and create a roadmap
7. Perform a gap analysis in skill-sets of existing resources in order to move to an open standards-based application development
8. Use speech experts or dialogue designers to help design dialogue patterns that are intuitive and will enhance the customer experience
9. Put into place a solid test plan to ensure that the customer experience is positive
10. Constantly review the application to ensure that it stays current and useful

vXML Platform Software Selection Criteria

Enterprises should employ the following criteria while choosing a vXML platform software vendor:

- **Choice** – The platform software must provide a choice of speech recognition software, text-to-speech (TTS), language capabilities, developer tools, TDM vs. IP, and signaling. Having a choice in the selection will enable enterprises employ the contestability within the value chain.
- **Consistency** – The platform software must provide support for all relevant open standards such as vXML, Speech Application Language Tags (SALT), Speech Synthesis Markup Language (SSML), and Speech Recognition Grammar Specification (SRGS). A point to note is that earlier this year, Microsoft announced support for vXML for the next release of its speech recognition software and telephony platform, Microsoft Speech Server 2007 (MSS 2007) – this will help drive adoption of vXML as well as probably herald a decline in the general use of SALT. In addition to supporting current standards, the platform software must be built to be “future-proof” in order to accommodate emerging standards, without forcing enterprises to rewrite applications written in current standards. Enterprises will benefit from reduced application development costs as there is no need to employ expensive specialized IVR programmers to build standards-based applications.
- **Control** – The platform software must provide control on deployment, operations, performance, and scalability. Further, the platform software must support “true” open standard architecture that facilitates separation of platform software from application execution. Enterprises should expect complete control on their platform software and on applications in various scenarios such as premises-based deployment, hosted deployment, and mixed-deployment (premises-based deployment with fail-over/burst-up capacity in a network).

The enterprise efforts to select a vXML platform software vendor that delivers on choice, control and consistency will play a critical role in achieving the return on investment (ROI) on the speech-based Voice Self-Service.

The New Application Development Paradigm

Open standards paved the way for a new application development paradigm. Before vXML, enterprises relied heavily on custom application development, as there is no way to standardize application offerings from different application developers. Since every application was being built from ground-up, enterprises incurred significant expenditure in building and maintaining applications.

Open standards provided opportunities for pre-packaged applications that significantly reduce total cost of ownership of applications. Hence, enterprises have the opportunity to realize a higher ROI while

maintaining control of application development, maintenance and operations. Hence, enterprises have the following options:

- **Build custom applications.** When building custom applications, enterprises can either use in-house resources or outsource to the vXML platform software vendor. Alternatively enterprises can outsource to a preferred application developer that possess the domain and technological experience.
- **License pre-packaged applications.** Instead of building custom applications from ground-up, enterprises can license pre-packaged applications and customize them to suit their specific needs. Enterprises can often achieve higher ROI by utilizing pre-packaged applications. There is a potential risk in deploying pre-packaged applications, as many of these application vendors are small start-up companies. Hence, enterprises must exercise appropriate caution, such as requiring the pre-packaged application vendor to keep the source code in escrow, to mitigate risks.

Whether an enterprise chooses to build custom applications or license pre-packaged applications, it must explore both possibilities for every application. Open standards provide the basis for pre-packaged applications success as for the availability of pre-packaged applications is not limited by the market share of any specific vXML platform software vendor.

Deployment Options

Enterprises have a choice of deploying Voice Self-Service applications either on premises or in network. Premise-based deployments have higher capital and operating expenses than network-based deployments, where enterprises pay during the duration of the hosting service. Each option has its own advantages and disadvantages. As a rule of thumb, if an enterprise is in the initial stages of its Voice Self-Service strategy, utilizing a network service provider to host its applications will result in a quicker ROI at a considerably reduced risk.

The following factors are relevant when enterprises make a deployment selection:

- **Security.** Enterprise security standards play a big role in determining whether to deploy on premises or in network.
- **Number of calls serviced & expected life of applications.** The higher the number of calls and longer the expected life of applications, the higher the costs for a network-based deployment.
- **Operating expenses.** Going to a hosting provider instead of retaining internal operations staff to maintain Voice Self-Service software and applications can reduce operating expenses.
- **Expected functionality.** Enterprises may not choose a hosting option if expected functionality is not available with any network service provider.

- **Fluctuating capacity requirements.** Enterprises that experience fluctuating capacity requirements will benefit from either network-based deployment or mixed deployment.

Conclusion

Enterprises can realize the promise of open standards by understanding and utilizing the Voice Self-Service value chain to drive down costs and increase the ROI. The selection of the vXML platform software vendor is a critical first step that determines the success of the entire Voice Self-Service solution. Application development and maintenance costs are continuing to be significant in the overall investment, but enterprises can take advantage of pre-packaged applications to drive down the costs of applications. The ROI on Voice Self-Service investments will also be determined by a host of factors including the selection of a vXML platform software vendor, application and deployment choices made by the enterprise.