

Why Upgrade Your IVR?

Whitepaper

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1 Executive Overview

The rationales for upgrading your legacy IVR (problems solved and benefits derived) fall into three basic categories:

- Technology
- Customer experience/customer retention
- Financial (costs, economics and ROI)

All of which impact the bottom line!

Those legacy IVR problems are exacerbated by today's communication's paradigm shift; the shift from traditional calls on PSTN land lines to wireless mobile and Internet based communications methods. Older and proprietary IVR technologies are being left behind.

In this article, we'll look at the problems of legacy IVRs and touch upon the "red flags" for recognizing them, discuss modern IVR "must haves", enumerate the benefits enterprises gain from upgrading their IVRs, and show how that improves the bottom line.

2 Legacy IVRs

Legacy IRV systems are fraught with challenge which leads to a host of issues.

Typical older IVR deployments employ obsolete hardware: PBXes, telephony, servers and specialized computers with proprietary IVR architecture. The mechanisms for creating their voice applications are similarly obsolete, therefore patched rather than renewed as changes are made. They are not enabled for Speech Recognition. Corporate executives do not see the value (read cost benefit) nor consider them strategic to company directions. All these challenges lead to a myriad of problems for most IVR applications.

Many of the problems associated with obsolete hardware are obvious. Special purpose chassis with pluggable cards for processors, storage, and telephony interface, DSP cards for audio processing, or x 86 servers with add-in telephony cards. Channel capacities are limited by available ports, hardware obsolescence (replacement of aging parts), easily overloaded as call volumes mount which in turn degrades voice quality in prompts or captured audio. Added to all this is the difficulty in scaling.

Service creation with legacy IVRs (whether traditional programming languages or proprietary application script files) has its own set of associated issues. Patched voice applications that just grow - because of the cumbersomeness of updating/modifying them and in retaining people with the skills to do so - leads to inefficient menu trees. Callers are made to "button press" through redundant menu trees, duplicating choices and being asked to re-enter data. Menu choices sometimes become circular, or lead to dead ends. When callers are finally transferred to agents, they are often asked to again provide information they have already supplied. Net, frustration on both ends of a call (agent, caller), inefficiency in menu trees, overworked hardware and poor response/poor performance. Initially well designed VUIs (Voice User Interfaces) simply degrade over time, and the difficulty in maintaining and updating in-house applications leads many enterprises to explore outsourced capabilities.

Other issues are less obvious. For example, legacy IVRs are often seen as part of the telephone system rather than the IT infrastructure, outside of the CIO's purview, and therefore not well integrated into the enterprise's central database. In fact they may physically be close to the in-house PBX, and not the data center at all. In non-service industries, contact centers are frequently considered "just" part of customer service - a cost center - after all, it's just an IVR. Speech Engines are considered "too expensive" and

ASR “doesn’t work” well. Application development isn’t subject to the same QA standards used in enterprise IT application development. This lack of integration with the enterprise core infrastructure leads to quality issues in both VUI design and audio flow, and to hand-offs to agents who proceed to request all the data previously provided to the IVR.

At the end of the day, the “red flags” that indicate a legacy IVR’s technology is adversely impacting the customer experience (thereby indicating an upgrade should be considered) are:

- Irrate customers who need to be appeased when calls are ultimately connected with agents - observed by an increasing need for more agents, or a reduction in the number of calls handled by the current cadre of agents
- An increasing number of abandoned calls - indicating frustrating call flows, slower performance
- More callers pressing “0”, “#” and “*” to get around redundant or irrelevant voice prompts
- A rising frequency of repeat calls from unhappy customers calling back to talk to an agent
- Rising average time call duration over successive time periods - another indication of degraded voice user interfaces.

3 Modern IVR “Must-Haves”

There are a number of “must have” items that characterize “modern IVRs” and which incent enterprises to consider upgrading. These yield shorter call durations, voice responses to prompts, reduced agent interaction, better audio quality (no jitter or clipped voice responses), and most importantly, happy customers. The specific items are:

- Soft IVRs (pure software voice application engine implementation) - require no special purpose hardware, have no telephony restrictions, and require only standard x86 servers
- Conformance to W3C and IETF standards - exploit both Internet/Web infrastructure and standards based voice application script languages
- Support for inbound, outbound, bridging and conferencing - all on the same server
- CCXML - the basis for exotic call flows
- VoIP only (RTP voice with SIP signaling) within the enterprise infrastructure, and either SIP trunks or a commodity media gateway to interface to the TDM world.
- Multi-media capable (voice, video, SMS, email) to take advantage of social media, web streaming and modern mobile telephony
- Use of MRCP (a vendor agnostic protocol) to interface an IVR to a Speech Engine - makes it easy to change speech engine vendors, or add additional vendors for language specific purposes.
- Complete integration into the enterprise IT infrastructure, with read/write access to enterprise data bases allowing a customer centric focus on voice application development, uses standard x86 servers, and easily integrates into the standard IT infrastructure (Ethernet, LAN, SNMP, Syslog ...)
- Systems are extendable, scalable, manageable & supportable, no longer unconstrained by trunk/port and channel restrictions of the traditional TDM world where digitized voice enters/leaves on fixed copper channels.

4 Technology Benefits

By upgrading to a modern soft IVR, the enterprise company has immediate access to technologies not present in first generation IVRs.

First, since the IVR *is* software based, it can take advantage of SIP (Session Initiation Protocol) based VoIP (Voice over IP), and it is the rise of VoIP telephony leads that attack on hardware restrictions.

VoIP eliminates constraints imposed by special purpose hardware considerations, telephony cards and Telecom switches. Special purpose hardware notions are replaced by commodity based X86 server considerations. Yes, there are some hardware considerations, such as:

- how much CPU processing power and how much memory is required, but you have lost all restrictions/dependencies on cards
- card modifications over time to accommodate parts obsolesce
- drivers required to support cards
- available server card slots
- number of trunks per card, card imposed DSP restrictions
- hardware busses to transfer audio between cards, ...**and more**

SIP/VoIP itself has another benefit; it enables SIP Trunks, where multiple VoIP calls arrive at an establishment's IVR over a packet-switched (Ethernet) data pipe, instead of as multiple channels in a traditional ISDN PRI/BRI or T1 link. That SIP trunk can either come to the enterprise from a SIP Trunk Service Provider, or from a Media Gateway at the establishment. These are appliances provided by many manufacturers (typically telephony card manufacturers) which convert the TDM world (traditional signaling) to the SIP/VoIP world. Since they are specialists in TDM signaling, they allow IVR manufacturers to focus solely on SIP.

Netting it out, the combination of SIP telephony and Media Gateways replaces the legacy IVR interfacing directly with TDM telephony with a commodity x86 server running IVR software and an increasingly commodity Media Gateway. Direct fallout is:

- enabling integration into the corporate IT infrastructure
- reducing/removing technology barriers
- reducing on premises hardware needs
- enabling services "in the cloud"
- simplifying complications of integrating applications
- enabling new services and increasing customer retention
- allowing business to focus efforts on running their business, not their infrastructure

Next, since over 50% of calls are mobile and web based (today) and social media is very much a prime consideration, the technology takes advantage of this allowing call centers (for example) to receive customer contacts from any media, interact with the customer and the enterprise database and provide timely satisfactory information back to the customer. Voice is a more natural medium in responding to prompts on mobile phones in particular, easier than taking the phone from your ear to find the appropriate key to press.

Easy modifications of VoiceXML and CCXML scripts make maintaining VUI currency simple, which in turn eliminates the need for quick fixes, patches and workarounds. Dynamic capture and updating user databases means smoother hand off when an agent is appropriate.

5 Customer Retention

Since voice is a more natural interface than pressing buttons, why subject customers to old technology? And if the IVR interaction is 100% voice bi-directional, the customer receives information more quickly. After all, talking is second nature to most users. With over 50% of calls being generated on cell phones, voice responses eliminate wrong keyed selections and further frustrations. And by using VoiceXML and in particular CCXML, the enterprise can accept all means of customer input – voice, SMS, and web.

During periods of expected heavy load, additional server resources can easily be brought to bear, and then reallocated until needed next time. Customer aggravation is significantly reduced by avoiding slow system response. And a happy customer is more likely to be a retained customer.

6 CAPEX and OPEX

Upgrading to a modern IVR positively affects CAPEX and OPEX in a variety of ways:

- A legacy IVR may actually cost more to maintain than to replace (hardware obsolescence, application currency, specialized skills)
- Soft IVRs (need for special purpose hardware is eliminated) means lower costs to add capacity.
- Lower TCO (total cost of ownership) is reduced when not locked into either an IVR vendor or a speech engine vendor
- Soft IVRs allow for flexibility in scaling, expanding as the needs require
- Soft IVRs can mean usage pricing (per minute, per call, per channel) in place of fixed pricing based on maximum port capacity
- Portable standards based script languages (VoiceXML, CCXML, ECMAScript) allow outsourcing peak needs, or total needs, to a hosting service provider
- VoIP technology means lower phone bills
- Faster call resolution/shorter duration calls means less agents required to handle a given call load (and possibly lower phone costs as well)

Even with the advent of on premise technology, companies are still challenged to contain and lower costs even more. There is another option. Today, a number of IVR and data hosting providers give businesses the alternative to outsource their IVR needs at even lower internal costs. They can outsource the creation of their voice applications; outsource the execution of their voice applications to external sites, or do both. Outsourcing makes absolute sense when companies do not have in-house technical expertise to manage speech solutions and the routing and virtualization that accompanies such applications.

7 Summary

VoiceXML and CCXML technologies have changed the traditional thinking of automated telephony and voice systems, bringing standardization flexibility, and interoperability to telecommunication and networks. Because of the integration of text-to-speech, speech-to-text and web enabled functionality, IVRs are evolving to serve much broader applications and markets. At the same time, modern soft IVRs are driving costs and infrastructure dramatically lower; a win-win for developers and users alike.

Speech processing software (ASR/TTS) provides the option for user input with high recognition accuracy – 95% range and quality speech output gives a human-like interaction.

IVR manufacturers that are compliant with the VoiceXML and CCXML standards bring the additional benefits of industry standards: ease of porting applications, a cadre of trained application programming specialists, protection from reliance on a single vendor, and in time, availability of “off the shelf” voice applications.

The evolution and value doesn't stop there. By the end of 2013 (according to T3i Group) 95% of all IVR systems shipped support VoiceXML and 90% of those will use SIP-based VoIP telephony, both of which add features while lowering costs. This is further proof that the use of VoiceXML and CCXML when paired with SIP/VoIP is the correct choice for the future.

The overall values and benefits of upgrading your IVR are plentiful. Upgrading to a soft IVR means more dollars to the bottom line for enterprise companies. Integration with back end databases is easy yielding more intuitive customer experiences. With this goes a reduction in agent interaction, yielding more calls with the same number of agents. Voice integration and VoIP technology means shorter call duration which leads to less channels and port, more calls serviced with the same or fewer personnel and less hardware overhead.

In the end, higher customer satisfaction means retained and grown customer bases; the new IVR technologies get you there! That's clearly a win for your bottom line.

About Interact Inc., Software Systems

Interact has been in the IVR industry with proprietary, VoiceXML-based, and now fully compliant VoiceXML solutions for about 30 years.

Interact custom IVR applications integrate new and advanced technology to provide customized applications helping to streamline operations for virtually any industry. Our services are designed to help global partners reduce communications and hardware costs. Our goal is to provide a one-stop solution for IVR, SMS, geo-location, ASR, VoiceXML, CCXML, SIP, web integration and other advanced features, integrating them all together. Our solutions can be deployed as standalone, integrated into existing infrastructures and/or hosted in any number of centers around the United States.

Regardless of whether you are an Enterprise, Voice Application developer, Integrator, VAR or Hosting Solutions Provider, Interact has the right voice application engine, tools and support for you. At the end of the day, Interact is here to provide you more value, reduce your costs and to “future-proof” your investment. We welcome the opportunity to serve your IVR needs.

For more information and technical detail refer to www.iivip.com/solutions/spot-sip-engine/ where you can find a SPOT SIP Engine Product Brief or a Performance White Paper. You can register there to use our SPOT Test Portal, where you can test out the SPOT SIP Engine on your application, or register for a software download of the SPOT SIP Engine itself.

We are always available for a personal consultation by calling 512.501.2685 or 402-476-8786 x383.

