



CCXML & the Power of Standards-Based Call Control

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The Call Control Challenge

Advanced call control functionality enables companies to more efficiently and effectively communicate with customers, employees and partners. Capabilities such as conferencing, outbound calling, intelligent call routing, and call center integration are important components of a company's Interactive Voice Response (IVR) and contact center solution. The challenge is integrating these capabilities without introducing unwanted complexity and cost.

Open standard VoiceXML solutions are now replacing older generation, proprietary IVR systems. Analyst statistics indicate that the number of deployed VoiceXML ports worldwide has surpassed that of proprietary installations. Datamonitor has reported that in 2009, nearly 70 percent of IVR ports shipped to companies are VoiceXML-based. However, VoiceXML was specifically created to define the voice user interface, such as what content to present to callers. It lacks the ability to deploy robust call control solutions in a standalone environment.

Open standards markup language helps developers easily build complex call control functionality into voice services applications.

Traditionally, proprietary platform-specific programs have handled call routing including interaction with the telephony system and enterprise back-end systems. Unfortunately, these solutions are complex to design, require specialized, platform-specific developer skill sets, don't leverage existing investments and integrations, and promote vendor lock-in... something we really dislike at Voxeo.

An Open Standard Solution

To solve the advanced call control challenge, the World Wide Web Consortium (W3C), assisted by Voxeo and others, introduced the Call Control eXtensible Markup Language as an open standard for answering, redirecting and transferring phone calls. Voxeo heads the committee responsible for developing and enhancing the standard. Since CCXML's launch in 2002, many IVR vendors have integrated CCXML into their VoiceXML platforms, and more and more who do not currently offer standards-based call control features have CCXML on their product roadmaps.

CCXML is based on XML, the same markup language used to create applications for the Web. As a result, companies can tap into existing Web tools, integrations and readily available developer resources to quickly and easily build sophisticated voice applications that reduce contact center operating costs and enhance customer satisfaction. With CCXML, application

time-to-market is reduced from several months using previous proprietary methods to just weeks in most cases – helping to deliver projects with a measurable ROI.

The Power of CCXML

CCXML works “behind the scenes” to govern how calls get connected, providing sophisticated, event-based asynchronous call control and tighter integration with the telephony platform. While the standard was designed as an adjunct to VoiceXML, neither language is mutually exclusive of the other. CCXML, for example, can also be used as a standalone solution or integrated with traditional IVR systems.

CCXML enables developers to quickly incorporate valuable call control features into voice-enabled applications, helping to lower the cost of providing streamlined self-service, proactive outbound communications and integration contact center solutions.

CCXML functionality includes:

- New and alternative interaction options to heighten the customer experience
- The ability to notify the application of incoming calls and access information related to the call
- Call routing to the next available agent or phone line in a queue; or find me/follow me functionality to try a contact at multiple possible locations
- Multi-party conferencing and audio control
- Call recording
- Merge or bridge calls in the telephone network with technologies such as SIP REFER, ISDN ECT and 2BCT
- Outbound calls and notifications with VoiceXML interpreters dedicated to every active call leg
- The ability to pass and retrieve control to and from VoiceXML applications, enabling voice dialog execution on any call
- Handling of asynchronous external events like CTI messages, call signaling and status
- Processing requests from outside elements like external data servers or non-native call queues
- Send data and receive data from any server that supports standard Internet protocols
- Whisper messages to agents during call transfers

- Continue to interact with callers during hold times either to collect additional information from the caller or to present customized queue and account status.
- Create complex call flows that include features such as call hold, park and retrieval
- Enable the development of virtual hold applications
- Develop outbound call and notification applications leveraging Voxeo's rich call progress analysis (CPA) engine

Voxeo was the first company to offer CCXML and today has the most widely-use, feature-filled CCXML engine in the world – it's even licensed by other leading IVR providers. With its CTO serving as Editor and Chair of the W3C Call Control subgroup, Voxeo continues to lead the industry in designing and implementing the CCXML specification.

Voxeo CCXML features fine-grained call control, including the ability to accept or reject calls based on caller-id, comprehensive call redirection and transfers, full call conferencing, the ability to initiate VoiceXML dialogs on demand, and advanced call progress analysis for outbound calling. Voxeo's VoiceObjects service creation and analytics environment seamlessly integrates with CCXML, allowing companies to combine sophisticated voice self-service applications with powerful call control capabilities.

Using CCXML makes it simpler for developers who might have limited knowledge of telephony to create outbound call campaigns, manage telephone connections, deploy find-me follow-me solutions and more.

Voxeo's CCXML engine also includes enhancements that give CCXML applications complete control over SIP calls, including control over every SIP transaction, message and header. These extensions were co-developed in conjunction with other industry leaders and have been proposed to the W3C for inclusion in CCXML 1.1 or 2.0.

Using Java Specification Requests (JSR-289) and CCXML, Voxeo customers can create intelligent, dynamic SIP applications that screen, route, transfer and initiate SIP VoIP calls – including SIP redirect, proxy and Back-to-Back User Agent (B2BUA) applications.

CCXML and CalXML – Complementary Solutions

Long before the release of CCXML, Voxeo recognized the market need for an open-source call control markup language and developed CalXML. CalXML is an extremely simple-to-use

markup language that delivers both robust call control and traditional IVR functionality – like audio prompts and menus – in relatively quick fashion.

Voxeo CallXML supports audio playback and recording, speech synthesis, advanced call control, conferencing, and more in an integrated, simple, easy to learn markup language. Built-in conditional logic operations further extend CallXML's capabilities. CallXML features built-in XPath support, allowing developers to build robust IVR applications using only static content. Additionally, CallXML's two-way recording capability enables developers to record both sides of a call, capturing the human and application interaction to a wav file that can be used for tuning or compliance requirements.

CallXML particularly excels when companies directly port traditional IVR applications to a standard Web technology-based voice services platform such as Voxeo Prophecy or Prophecy Hosting. Developers may also find CallXML preferable when designing sophisticated call control applications that have less complex speech requirements. CCXML, in contrast, is a more complex markup language for comprehensive call control and the management of VoiceXML script execution. Companies needing robust speech-enabled applications and call handling find CCXML an important solution.

Learn more today!

Voxeo is a leading authority and pioneer in call control technology. We are the creator of CallXML, editor of the W3C's CCXML specification, and the first company to offer a hosted implementation of CCXML.

Visit <http://www.voxeo.com/ccxmlbriefing> to learn more about CCXML and call control from the experts. From here you can access our CCXML, VoiceXML and CallXML tutorials, then design, test and deploy applications of your own for free using the Voxeo Prophecy platform or hosting. Get started with Voxeo today and realize the power of Unlocked Communications.™

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