



voxeo

Prophecy Hosting

Hosted IVR and VoIP
Services

December 2010

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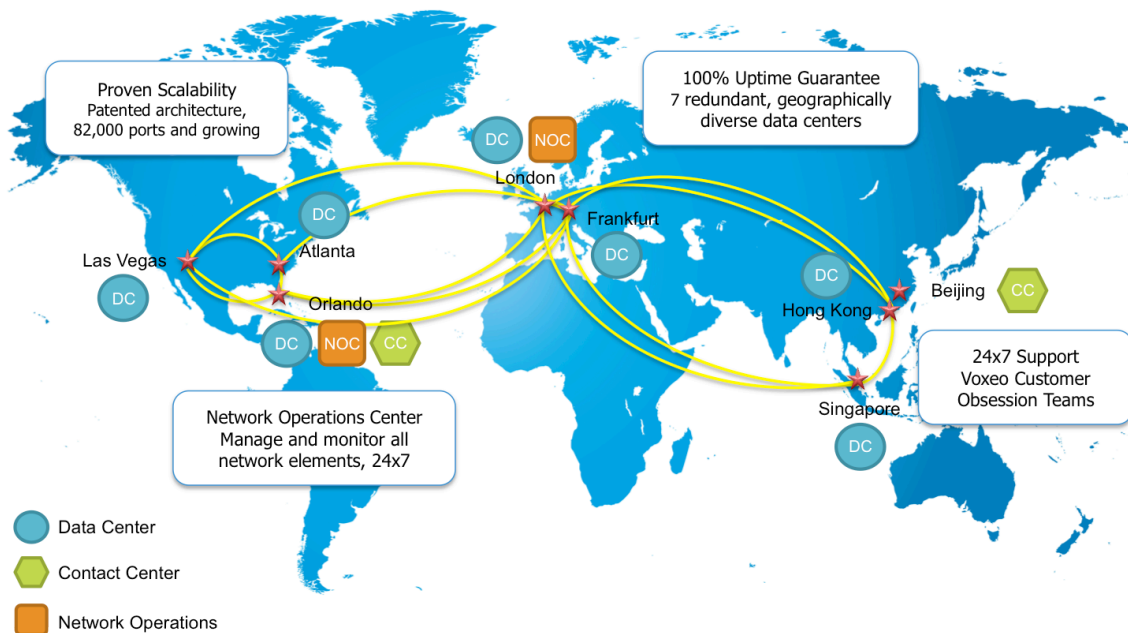
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1 Introduction

For decades, the deployment of proprietary IVR systems and telephony in general has been difficult, complex, and time consuming. Since 1999 Voxeo has been dedicated to making communications easier through the implementation of open standard XML-based systems and services. Voxeo frees developers from the headaches of telephony implementation and allows them to concentrate on building great communications applications.

Voxeo has helped pioneer open standards for interactive services and call control, and leads the industry in making robust implementations of these standards commercially and widely available. As a direct result Voxeo customers have deployed thousands of VoiceXML, CCXML, and CallXML applications, and Voxeo platforms have processed billions of calls. Voxeo is now paving the way for companies to leverage their investments in voice self-service to provide Unified Self-Service across multiple communication channels, including SMS, IM, and the mobile web.

Voxeo is the largest worldwide provider of standards-based IVR Hosting with data centers throughout the U.S., Europe, and Asia. The patented architecture not only delivers proven performance and scalability, but also provides customers a single global platform with a virtualized view of their multi-site and multi-tenant solutions. Voxeo hosting facilities interconnect with global carriers to transport calls to and from any country in the world.



Today, Voxeo serves hundreds of direct customers ranging from Fortune 500 companies to five person start-ups. Most of these customers are solution providers who build their offerings on Voxeo products and services – selling their Voxeo-powered solutions to thousands of end user individuals and enterprises. Voxeo customers cluster around a variety of application groups and vertical market solutions including healthcare, financial services, entertainment, government, retail, education, shipping and logistics, messaging, outbound notification, and HR services.

Voxeo is deeply committed to Unlocked Communications that are easier to develop, integrate, deploy, and manage – with no risk of vendor lock-in at any layer of the solution. At Voxeo, we keep our customers by providing them with better products and the very best customer service and developer support in the industry – never by locking them in. As a result, Voxeo's customer retention rate is over 99%.

2 Voxeo Offerings

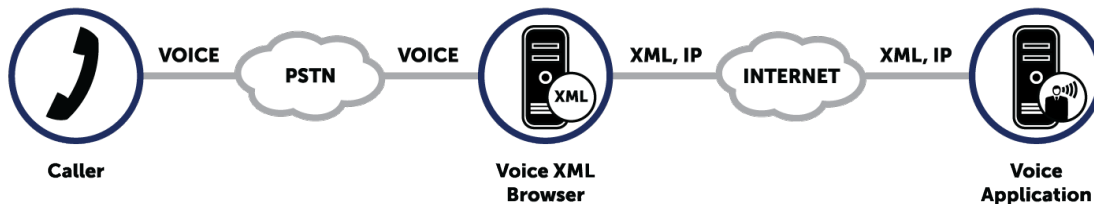
Voxeo is a voice platform company dedicated to making it easier for companies to develop and deploy communications applications. Our Prophecy IVR and VoIP platform can be delivered as an on-premise system or an on-demand hosted service. Voxeo's Application Lifecycle Management Suite, VoiceObjects, is also available for deployment on premise or in the Voxeo hosting network. This whitepaper addresses many of the common questions asked by prospective Prophecy Hosting customers, including:

- What is XML-based telephony?
- How does Prophecy Hosting work?
- What are the main features and capabilities of the Prophecy Hosting service?
- How does Prophecy Hosting ensure high availability of service?
- How can I build new applications that run on Prophecy Hosting?
- How can I access application content?
- Does Prophecy Hosting support more than voice?
- Can I get custom development and integration services with Prophecy Hosting?
- Can Prophecy Hosting support transfers and outbound calls?
- What kind of customer support does Voxeo provide?
- What does the Prophecy Hosting pricing model look like?
- Is there any way I can try Prophecy Hosting before I buy?

3 XML-based Telephony

In the same way that web pages send HTML to a web browser that presents a visible page on a computer screen, voice applications send XML (VoiceXML¹, CCXML, or CallXML) to a voice browser to present interactive services over the phone. XML-based voice applications run on a web server and deliver their XML pages upon request to a voice browser, just like web pages run on a web server and deliver their HTML upon request to a web browser. XML telephony applications are very web-like by design, enabling a broad base of developers to leverage familiar skills to create voice applications. The voice browser manages complex telephony interfaces and signaling on behalf of all the applications it runs, so developers can simply write an XML application and map it to a phone number in a voice browser routing table. Like web applications, XML telephony applications can be very dynamic, individually customized, and linked to one another to create a rich caller experience.

Today, VoiceXML and related open standards dominate new deployments of interactive telephone applications.



Generic XML-Telephony Architecture

When someone places a phone call to an XML telephony application, the call is routed to a voice browser. The browser sends a standard HTTP message to the URL address associated with the called number², asking the web server at that address to send the first XML page to the browser for processing. Once the page is delivered, the browser interprets the XML instructions that define the phone interaction with the caller.

Voice browsers can be deployed “on customer premise” in enterprise data centers or they can be deployed and managed by hosting service providers who sell voice browser access to multiple customers. Likewise, XML telephony applications can be deployed on web servers connected to the same LAN as the voice browser, or anywhere on the Internet as long as the voice browser has access to the application’s URL.

¹ First published in 1999, VoiceXML is a mature W3C standard based on work at Bell Labs dating back to late 1995. VoiceXML is a markup language for caller interaction; CCXML is a markup language for call control.

² The voice browser has access to a call routing table that maps phone numbers to application URLs.

This whitepaper concentrates on Prophecy Hosting, Voxeo's hosted XML-telephony service.

4 Prophecy Hosting Overview

Voxeo Prophecy Hosting customers gain access to one of the most advanced, mature, and reliable hosted IVR and VoIP platforms in the world. Applications are incredibly easy to create and run on the Prophecy Hosting service, and they can be deployed in production under the most extreme service level commitment in the industry: A 100% IVR Uptime Guarantee.

This promise from Voxeo is guaranteed in writing and backed by rebates should customers experience downtime in their Prophecy Hosting service.



Prophecy Hosting highlights:

- **High availability:** Fully redundant call processing across seven, geographically dispersed data centers
- **Standards:** Fully supports VoiceXML, CCXML, Voxeo CallXML, and SIP. The certified VoiceXML 2.0 platform passes every single certification test: both mandatory and optional. Voxeo also supports the latest VoiceXML 2.1 extensions and is the co-editor of VoiceXML 3.0.
- **Speech Recognition:** Prophecy Hosting comes with Voxeo speech recognition and synthesis (text-to-speech) engines included. Engines from other leading vendors are also available.
- **Applications:** Can be created using any tool that generates compliant VoiceXML or CCXML. Designer, Voxeo's web-based application development tool provides an intuitive GUI interface and is available free to Prophecy Hosting customers. For applications that require advanced functionality such as 1:1 personalization, multi-channel support, and deep analytics, Voxeo also offers the Eclipse-based VoiceObjects service creation environment.
- **Support:** Voxeo Customer Obsession Teams are available 24x7 to provide Prophecy Hosting customers with responsive, knowledgeable support. Each Voxeo support expert is a certified VoiceXML developer. Voxeo's web-based ticket and journal system gives customers easy access and real-time updates of ticket status.

- **Transport:** To deliver customer calls to Prophecy Hosting, Voxeo provides high availability transport from multiple long distance and VoIP carriers.
- **Free access to incredible resources:** Build and test applications for free using Voxeo's hosted Evolution developer portal (<http://evolution.voxeo.com>). The largest developer community of its kind in the world with over 100,000 members, Evolution has extensive tutorials, tools, developer resources, and free 24x7 support – all designed to help you build great applications and get them to production.

5 Routing Calls to Prophecy Hosting

Callers can reach the Prophecy Hosting service from any landline, wireless, SIP Voice over IP (VoIP) telephone, or via Skype. Voxeo can help customers route their inbound calls to Prophecy Hosting in several ways. Calls to toll-free (In North America 800, 888, 866, and 877) numbers are first routed by consulting nationwide Switching Control Points in the PSTN, which are linked to the toll-free Service Management System (SMS)³ database. This database is used by all domestic Long Distance (LD) carriers. The SMS/800 database contains data that specifies where, how, and by which LD carriers the call should be routed. Only “Responsible Organizations” – or RESPORGs – can directly access and alter the SMS/800 database.

Normally, IVR hosting providers do not have direct access to the SMS/800 database. Instead, they rely on their LD carrier to manage their database entries for them. This “carrier RESPORG” approach has two problems:

1. Should one of the IVR hosting providers' hosting facilities fail, calls must be quickly re-provisioned to go exclusively to other facilities. Such emergency re-routing is often delayed by 25 minutes to several hours by a carrier RESPORG, because those groups and their provisioning systems often have a long queue of toll-free routing change requests.
2. All LD carriers – from the largest to the smallest – typically experience regional outages from two to six times per year. In the event of such an outage, all toll-free numbers should be immediately re-provisioned by the IVR hosting provider to use alternate carriers. Unfortunately, these changes are less likely to occur quickly if the hosting provider relies on a carrier RESPORG. The carrier RESPORG experiencing the outage has little if any business incentive to re-route calls to its competitors. Even more troubling, carriers rarely have agreements in place that allow them to route calls to competitors if necessary.

³ Not to be confused with Short Message Service, a.k.a. wireless text messaging.

Unlike other IVR hosting providers, Voxeo is its own certified toll-free RESPORG. Voxeo has direct, instant access to the shared toll-free routing database. In the event of an IVR hosting facility failure, Voxeo is able to quickly re-route calls to its other hosting facilities. In the event of a regional LD carrier outage, Voxeo is able to quickly re-route calls via other LD carriers with whom we have pre-existing relationships.

Many IVR hosting providers claim to achieve similar results by using a load balance toll-free routing configuration across multiple sites and LD carriers. These claims should be thoroughly investigated and tested by IVR hosting customers, as they often deliver sub-optimal results. For example, consider “Smithco” an IVR hosting vendor with facilities located in California and Texas. Smithco relies on its LD carrier to configure a 50-50 load balanced route across the two facilities. When both facilities are working, half of all incoming calls will go to California and half to Texas. When the Texas facility experiences an outage, half of all calls (those routed to California) will succeed, but the other half (those routed to Texas) will fail with busy signals or network out-of-service messages. Even if Smithco has enough reserve capacity in California to handle all calls originally routed to Texas, they must wait potentially hours for their carrier RESPORG to re-route the calls. Similarly, half of all calls will fail during a single-carrier outage with a 50-50 load balanced route across two LD carriers, and Smithco would be at the mercy of its carrier RESPORG to re-route calls to a competitor before service could be fully restored.

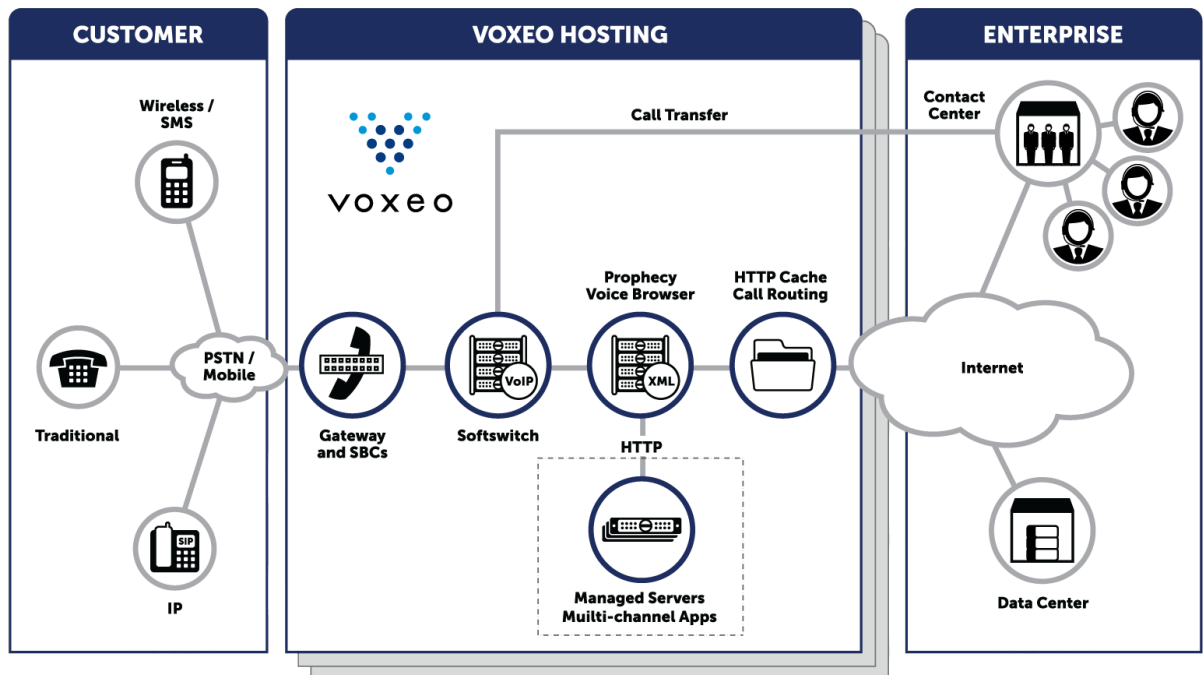
Voxeo’s status as a certified, independent RESPORG enables it to deliver enhanced levels of redundancy and reliability to avoid these problems. As a RESPORG Voxeo has total control over calls both before and after they arrive at its Prophecy Hosting facilities, enabling us to be the only hosting provider in the industry willing to guarantee 100% uptime in writing.

Voxeo can provision **local phone numbers** in a very large number of North American markets. These local numbers can be routed to Voxeo Prophecy Hosting, and even load balanced across multiple Voxeo data centers.

In the UK, Voxeo can provision a variety of phone numbers including all major NGN types (0800, 0845, 0870, 0871) and DDIs in London. Through our London and Frankfurt data centers we also have access to major European markets for DDIs and toll-free numbers.

Voxeo is able to order **international toll-free numbers** for a variety of countries around the world, and provision those to be routed to Prophecy Hosting. Depending upon the country in which the number is requested, the international toll-free number may be available immediately or may require between two to six weeks to arrange. Customers able to deliver calls to a SIP endpoint from international locations via local VoIP carriers can easily route their calls to Prophecy Hosting.

By managing call routing and guaranteeing 100% service uptime, Voxeo relieves developers of telephony worries they would otherwise encounter when deploying their applications into commercial service.



Voxeo Prophecy Hosting High Level Architecture

6 Call Routing within Prophecy Hosting

Voxeo's Prophecy Hosting facilities can receive both circuit-switched and VoIP calls directly from multiple carriers. Native SIP calls from VoIP carriers are first processed by Voxeo's multiple, redundant, carrier-class Session Border Controllers (SBC.) Prophecy uses SIP as its internal "lingua franca" – a common, IP-based protocol that all components in our hosting environment speak. Therefore upon arrival at a Prophecy hosting facility, all circuit-switched calls are immediately converted to standard SIP VoIP telephony by multiple, redundant, carrier-class Cisco Call Gateways.

Each call is then routed to a load-balanced set of Prophecy Softswitches (PSX). The Voxeo PSX is a proven, highly reliable and scalable SIP softswitch. Voxeo has been running production, carrier-grade VoIP telephony at the core of its facilities since 1999. In the event a Call Gateway or SBC fails to contact a specific PSX as planned, the call is seamlessly routed to another PSX.

Voxeo's PSX uses a DNS⁴ standards-based ENUM⁵ directory to determine where calls should be routed within the Prophecy Hosting facility. The ENUM directory instructs the PSX

⁴ DNS: Domain Name Server

to route calls to the appropriate VoiceXML, CCXML, or CallXML Browser resources and provides the Browser with the initial URL associated with each called application.

Voxeo's ENUM data are stored in the most proven directory server in the world — BIND. BIND is used daily by enterprises and service providers worldwide to successfully complete billions of internet directory requests. Voxeo's BIND-based ENUM directory runs on a set of eleven distributed, fire walled, internal DNS servers spread across the hosting facilities. When routing changes are made by Voxeo or its customers, the resulting ENUM records are instantly replicated across all eleven BIND servers. If an ENUM DNS query to a specific BIND server fails, it is automatically re-issued by Voxeo's PSX to a sibling BIND server.

7 Voice Browser Platforms

Once Voxeo's PSX has obtained internal call routing and application URL information from its ENUM directory, it instructs the Call Gateway tier to route the call to a voice browser platform server capable of interpreting the application's VoiceXML, CCXML, or CallXML pages. Voxeo's hosting facilities contain hundreds of such servers supporting thousands of concurrent callers. If the PSX is unable to route the call to a chosen server, it seamlessly reroutes the call to another.

Each of Voxeo's voice browser platform servers is capable of running multiple browsers (VoiceXML, CCXML, CallXML) simultaneously, and has demonstrated the ability to scale to thousands of concurrent calls per application in an $n+k$ production configuration. Each browser supports standard and enhanced IVR features including:

- Inbound and Outbound calls
- Audio playback and recording
- Multi-language speech recognition and text-to-speech
- Call routing
- Conferencing
- CTI
- Call recording and logging
- Intelligent outbound call progress analysis

⁵ ENUM is rapidly becoming a core component of any forward-looking telephony solution. Additional information about ENUM can be found at:

- The IETF ENUM working group: <http://www.ietf.org/html.charters/enum-charter.html>
- The IETF ENUM specification: <http://www.ietf.org/rfc/rfc3761.txt>
- The ENUM FAQ: <http://www.enum.org/information/faq.cfm>
- The ITU ENUM site: <http://www.itu.int/osg/spu/enum/>

Voxeo's VoiceXML browser has been fully certified VoiceXML compliant by the VoiceXML Forum. It was the first platform⁶ to pass *every single* VoiceXML 2.0 conformance test, and fully supports all VoiceXML 2.1 enhancements, ensuring complete conformance to the latest standards. Voxeo's Director of Speech Technology, Dan Burnett, is the co-editor of VoiceXML 3.0. Voxeo's VoiceXML browser also supports W3C SRGS grammar markup (as well as Nuance GSL and many others⁷), W3C SSML text-to-speech markup, and CCXML integration.



Voxeo offers one of the most mature VoiceXML browsers available today. In 2009, Voxeo acquired the source code and all rights to Motorola's VoxGateway VoiceXML browser. Voxeo and Motorola began working together in 2004 to advance the VoxGateway platform under a shared development agreement. With over a half-dozen large OEM licensors and more than a thousand end-enterprise customers, VoxGateway is the most proven and widely used OEM VoiceXML browser in the world. The browser's extensive deployment history and flexible integration capabilities make it the ideal foundation on which any company can deliver enhanced VoiceXML solutions. Since Voxeo owns the source code, we can respond in hours or less to issues, and deliver continuous long-term browser feature and functionality enhancements.

Voxeo's CCXML browser. Whereas VoiceXML is a W3C standard markup language for *interaction*, CCXML (Call Control XML) is a markup language for *call control*. Voxeo's CTO, RJ Auburn, is the editor and chair of the W3C committee that created CCXML.

Voxeo's CCXML browser is the most proven and reliable implementation of the W3C CCXML specification in the world. Voxeo's internally developed CCXML platform has been in production with live customers since 2002 and has processed more than a *billion* calls. Voxeo's CCXML platform uniquely supports 100% of the CCXML standard's capabilities, including intelligent call progress analysis, call conferencing, and CTI. Largely due to Voxeo's CCXML implementation experience, Voxeo's Prophecy Hosting enjoys a very high rate of adoption among customers with advanced call control and outbound calling requirements.

Voxeo's CallXML browser is a unique Voxeo capability that makes implementing applications -especially outbound applications- much simpler and more efficient than what is possible with VoiceXML. CallXML combines the most frequently used features of VoiceXML and CCXML into an easy-to-learn telephony markup language. Many Voxeo customers choose to build their applications in CallXML because of its simplicity, and some have

⁶ Vendors must pass all required certification tests administered by an independent testing organization to order to earn VoiceXML 2.0 certified platform status. In addition to required tests, the certification test suite also includes many optional tests that demonstrate additional functionality under the standard. Voxeo was the first and -at the time of this writing- the *only* platform to pass every single VoiceXML 2.0 certification test.

⁷ Grammar formats supported: W3C SRGS-XML, W3C SRGS-ABNF, Nuance GSL, JSGF, IBM BNF. Semantic Interpretation formats supported: W3C SISR, Scansoft SISR, GSL, JSGF-Strings

claimed CallXML allowed them to build their applications in a quarter of the time it would have taken to build a similar application in VoiceXML and CCXML. Voxeo's CallXML platform shares a common underlying implementation with Voxeo's CCXML platform and has successfully completed hundreds of millions of XML-driven IVR calls.

8 Application Content Retrieval and Caching

Customer applications run on web application servers that are accessible to Voxeo's voice browser platforms. These platforms act just like a web browser, requesting application content and logic from enterprise web servers and web applications via HTTP(s). The retrieved instructions, prompts, and data are interpreted and executed by the voice browser to guide the caller through various IVR menus, selections, and forms, and/or provide call control as required by the application.

This clean separation between application and execution environments enables Voxeo to run core telephony infrastructure at its Prophecy Hosting facilities, while giving customers the ability to control the IVR application, database, back-end logic, and integration requirements from pre-existing web infrastructure. Prophecy Hosting customers have the choice of running their applications in their own facilities, or to have Voxeo manage their application infrastructure for them in our Prophecy Hosting facilities under Voxeo's managed server offering.

When a call first arrives at one of Voxeo's VoiceXML, CCXML, or CallXML browser platforms, that platform will request initial call handling instructions from the customer's web-based IVR application via HTTP. This request is made through a tier of redundant content caching servers. Based on headers from the customer web server responding to the request, the caching servers may cache the returned content. Subsequent requests for that content may then return directly from the content cache to the browser.

This caching both reduces the number of HTTP requests issued to the enterprise's back-end web servers and increases the performance and reliability of the system as a whole. Because required content can now be retrieved from an on-LAN server, any WAN transport delays are eliminated. If a temporary WAN connectivity failure should occur, the cached content can be used until such connectivity is restored.

9 Transfers and Outbound Phone Calls

Voxeo's Prophecy Hosting offering supports three types of outbound calls from its IVR hosting facilities: bridged transfer calls, network transfer calls, and token initiated calls. These outbound calls utilize the same platforms, facilities, call routers, call gateways, ENUM directory servers, voice browsers, and content caching systems as inbound calls.

Bridged call transfers enable customers to receive a call at the Prophecy Hosting facilities, provide automated IVR self-service to the caller, place a second concurrent call (known as a second leg) to a new destination, and then "transfer" the inbound caller to the new destination by conferencing both calls together.

Network call transfers are similar to bridged calls, but instead of using a second call leg Voxeo works with various long distance carriers to transfer the original call to the new destination. Network transfers can provide the advantage of reduced costs in exchange for incurring a variety of flexibility and pricing limitations imposed by each long distance carrier.

Token initiated calls allow customer applications to place an outbound call to any phone at any time by issuing an HTTP-based call request (a token) to the Prophecy Hosting services. This capability can be used to deliver important notification calls, provide outbound customer surveys, collect customer payments, and implement outbound call center services such as predictive dialers. Voxeo has become one of the nation's largest providers of XML-based automated outbound IVR infrastructure, largely due to Prophecy's ability to accurately determine if outbound calls are answered by people, answering machines, or voicemail.

10 Scalability and Reliability

Voxeo's Prophecy Hosting service is backed by the industry's best service level agreement: a 100% Uptime Guarantee. For every minute of Prophecy Hosting service downtime a customer experiences under this SLA, Voxeo refunds a portion of that customer's monthly hosting fee. Voxeo is able to both scale rapidly and offer such an aggressive guarantee for several reasons:

- Prophecy Hosting has an $n+k$, modular, tiered architecture
- Native-host high performance SIP telephony
- Pre-deployed redundant telephony capacity
- Redundant power
- Abundant cooling
- Redundant component deployment and call routing both within and across seven geographically separate hosting facilities



Every tier in the Prophecy Hosting platform supports an $n+k$ architecture utilizing multiple Cisco call gateways and Rackable servers. Voxeo can increase core platform capacity simply by adding gateway and server components to the existing system. Call routing at each tier can seamlessly detect failures and follow multiple call paths, and there is no single point of failure in any tier of any hosting facility.

Prophecy's servers utilize Voxeo's own innovative SIP-based "native host" voice signal processing and routing software highly optimized for Intel CPUs. This "native host" solution delivers a pure-software VoIP and IVR platform architecture and avoids using expensive, less ubiquitous computer telephony (CT) cards. In contrast to many other IVR hosting vendors who have recently begun transitioning to SIP from CT card based deployments, Voxeo has accumulated eight years of real-world SIP and native host experience resulting in several generations of improvements and optimization.

Voxeo's patented hosting architecture was designed from the beginning to easily scale. Voxeo can increase core platform capacity simply by adding gateway and server components to the existing system.

Voxeo's softswitch routes, tracks and load-balances all calls into and out of the Voxeo IVR hosting infrastructure. The softswitch is built on Voxeo's high performance CCXML engine and ENUM. ENUM is a standard for telephone or SIP call routing based on Domain Name Services (DNS), the same standard used to accurately route billions of web requests every day. For example, Voxeo's unique approach of using DNS to underpin routing means Voxeo's voice hosting architecture is able to scale to 150,000 call routing transactions per second.

Voxeo's server and call gateway components are interconnected via standard Ethernet and IP links. Like most distributed systems, the scalability of Voxeo's platform is limited only by the performance of those links. To address this limitation Voxeo uses state-of-the-art Cisco Supervisor Engine-series Ethernet routing and switching technology. When combined with the Voxeo Softswitch, this technology can route and switch over one million concurrent VoIP calls (72 million packets per second) with Voice Quality of Service (QoS) enabled. The Supervisor Engine V product supports 100mbit, 1gbit, and 10gbit Ethernet links, providing Voxeo and its customers ample room for platform expansion.

While Moore's Law continues to increase capacity of new Evolution call gateways and servers, the power requirements and heat output of those components continue to grow. In response, Voxeo has deployed an overabundance of data-grade cooling and power infrastructure to accommodate future growth. Voxeo's Orlando hosting facility, for example, has 200 tons of cooling and a 10,000 amp-capacity power plant.

Protecting customer data is paramount to running a successful hosting operation. The Voxeo hosted platform was designed from the beginning to support the deployment of applications

that contain sensitive data and to allow the management of the platform without compromising access to this data.

Voxeo supports SSL encrypted IP sessions, encrypted call initiation, and RADIUS authentication. Unique among hosting companies, Voxeo achieved compliance in April 2007 with the Payment Card Industry (PCI) Data Security Standard, Service Provider Level 3. Voxeo contracts with two third party security companies for daily vulnerability scans on all externally facing IP addresses. The scans produce five levels of vulnerability; the three top levels (“critical” and “severe” and “moderate”) are corrected per the PCI specifications.

Voxeo Hosting customers typically maintain customer data on their own premise. For customers transmitting sensitive data, customers can choose to protect transmissions through site-to-site IPSEC VPNs. For customers who want to protect transient data, customers have the option to have dedicated, encrypted IPSEC data streams.

Additionally, Voxeo platform includes a large number of features, such as encrypted call recording and secure input modes, designed to allow full control over access to sensitive data.

11 Voxeo Customer Obsession Teams

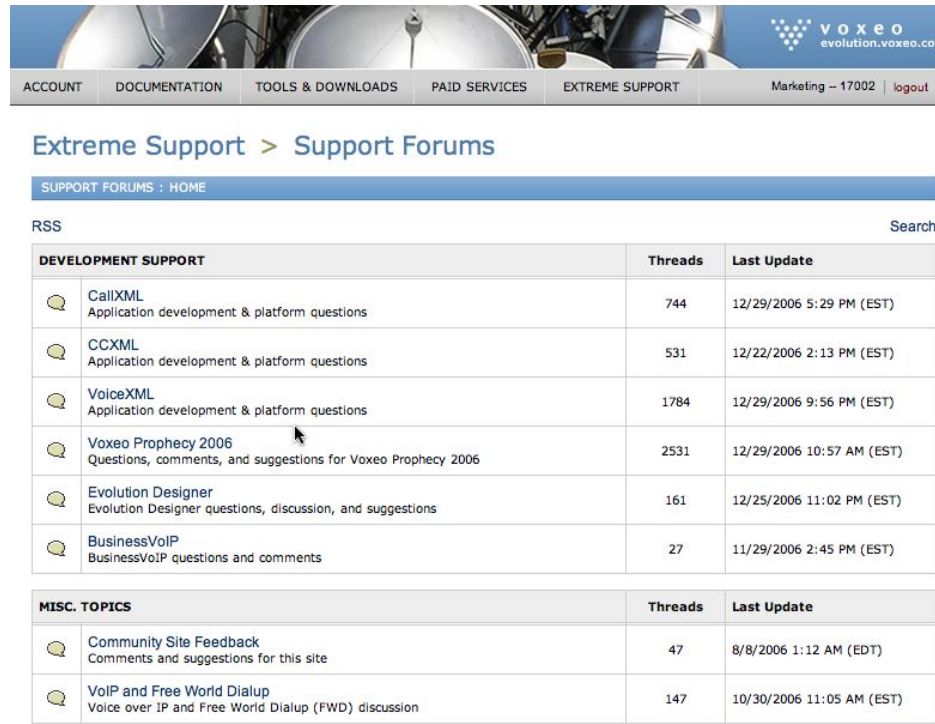
From the CEO down through the entire organization, customer support is the highest priority at Voxeo. All customers receive 24x7 support from experts who are certified in VoiceXML application development. Support is available via phone, IM, email, live web chat, and via the web-based ticket system in Voxeo’s Evolution customer and developer portal.

Voxeo’s web-based ticket and journal system provides a powerful way to quickly and efficiently report, track, and resolve support issues. The ticketing system maintains a list of users, roles, and group contacts associated with each Voxeo customer and developer portal account. Both customers and Voxeo employees are empowered to create tickets and journal entries, and entries can also be created by automated monitoring systems within the Evolution portal. The ticketing system automatically notifies⁸ all contacts associated with an account whenever new updates are posted, so customers are continually informed of ticket status and resolution progress. For issues that affect many customers, Voxeo can open global account tickets that are visible to all Evolution portal accounts. This saves developers time by making them aware of known product issues and possible workarounds before they “reinvent the wheel.”

The Voxeo ticketing system is monitored 24 hours a day by Voxeo’s Customer Obsession Teams to ensure rapid response and resolution of customer questions and issues. Prophecy Hosting customers like the ticketing and journal entry system because it makes them more

⁸ Notification can be by any preferred combination of email, telephone call, pager, instant messaging, or fax.







productive. With the ability to easily review all their open tickets, each ticket's history, and get instantly notified when new updates are posted, developers spend minimal time on the mechanics of getting support and resolving issues.





Extreme Support > Support Forums

SUPPORT FORUMS : HOME

RSS Search

DEVELOPMENT SUPPORT		Threads	Last Update
	CallXML Application development & platform questions	744	12/29/2006 5:29 PM (EST)
	CCXML Application development & platform questions	531	12/22/2006 2:13 PM (EST)
	VoiceXML Application development & platform questions	1784	12/29/2006 9:56 PM (EST)
	Voxeo Prophecy 2006 Questions, comments, and suggestions for Voxeo Prophecy 2006	2531	12/29/2006 10:57 AM (EST)
	Evolution Designer Evolution Designer questions, discussion, and suggestions	161	12/25/2006 11:02 PM (EST)
	BusinessVoIP BusinessVoIP questions and comments	27	11/29/2006 2:45 PM (EST)

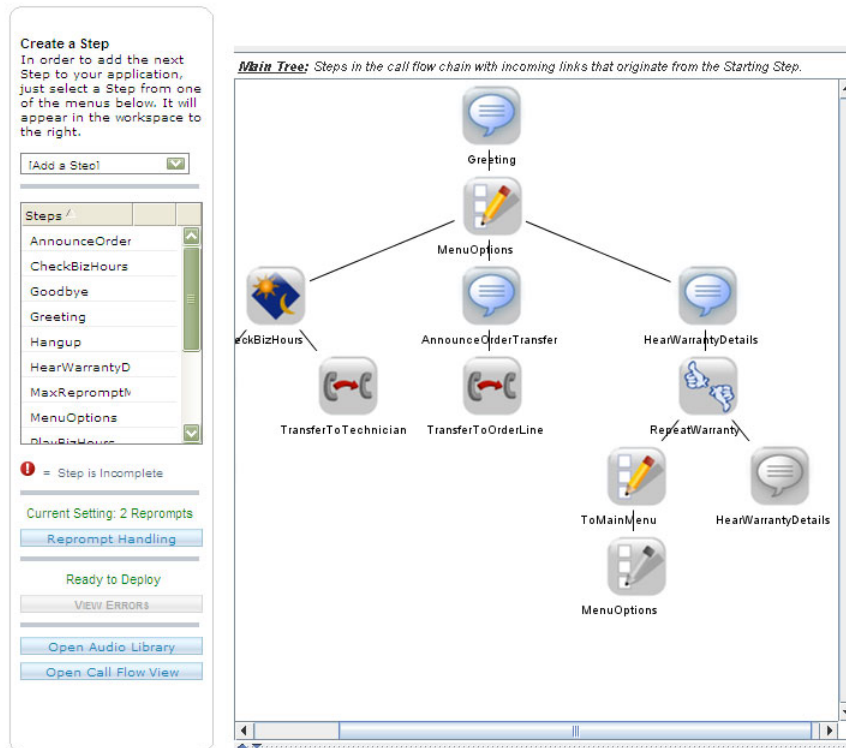
MISC. TOPICS		Threads	Last Update
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	VoIP and Free World Dialup Voice over IP and Free World Dialup (FWD) discussion	147	10/30/2006 11:05 AM (EST)

Voxeo Ticketing and Support Forum

12 Application Development

Prophecy is an open standards-based platform that allows developers to create applications using any development tool as long as it generates standard VoiceXML, CCXML, or CallXML. Prophecy Hosting customers are developing applications using .NET framework, J2EE application servers and tools, as well as speech application-centric tools such as Voxeo VoiceObjects and third-party solutions.

Voxeo's own web-based GUI development tool, **Designer**, is free to all Prophecy customers. Designer enables rapid development of voice applications without the need to write code.



Voxeo Designer VUI Development Tool

Voxeo VoiceObjects is a robust Application Lifecycle Management environment used by some of the world's largest companies to develop, deploy, analyze and refine self-service applications. VoiceObjects eases service creation and maintenance, simplifies backend integration and enables management of distributed, multi-tenant environments. Productivity is increased with functionality such as team collaboration, reusable application building blocks, built-in best practices, on-the-fly prompt changes, and the ability to automatically generate and update documentation.

VoiceObjects features a unique "Design Once, Deploy Anywhere" architecture that enables delivery of a single self-application that can be accessed using IVR, text messaging (SMS), IM, the mobile web, social networks and Smartphone apps.

VoiceObjects integrates out-of-the-box with Business Intelligence solutions such as IBM Cognos, MicroStrategy, SAP BusinessObjects and Oracle, providing more than 60 out-of-the-box reports in the areas of Administration and Maintenance, Application Development and Tuning, and Business and Caller Analysis. The solution consistently helps increase automation success rates and customer satisfaction, based on its capabilities for call flow personalization and integrated analysis of customer behavior and success.

VoiceObjects is available for deployment on premise or on demand. **Voxeo On-Demand** is backed by the power of Voxeo's multi-site, global hosting platform.

VoiceObjects On-Demand offers:

- Instant expansion.
- Zero hardware costs and affordable pay-as-you-go pricing.
- Full control over application integration and lifecycle management with no vendor lock-in.
- Mission-critical infrastructure including multi-site redundancy, business continuity, and proven scalability.
- Direct access to Voxeo's worldwide hosted VoiceXML IVR platform, deployed in seven sites around the world.
- Connectivity to existing on-premise VoiceXML IVR platforms from Avaya, Cisco, Genesys, Interverse, and more.
- Voxeo's 100% Uptime Guarantee

13 Additional Service Offerings

Voxeo offers several additional supporting services that complement the core Prophecy Hosting offering:

Transport Services. Voxeo aggregates long distance transport services from multiple carriers, and routinely resells this service to its hosting customers. Voxeo is able to leverage its volume and multiple carrier routing to get better rates and higher reliability than most individual customers would get on their own.

Toll-Free, Local Phone Number Provisioning. As a RESPOG Voxeo can provision and manage North American toll-free numbers on behalf of its customers.

Voxeo's File Manager provides a web- and FTP-based storage solution for customers' call recording, application logging, billing details, VUI tuning data, and static or "fail-over" application content and audio prompts. The storage solution is built on a replicated, geographically redundant RAID and fiber-channel-based storage platform. Customers can access the solution from a standard FTP file transfer client or via a web-based user interface within the Evolution customer portal. Voxeo customers' IVR applications may also access this storage platform via internal HTTP web requests.

CTI Integration Services. Voxeo's platform has middleware that enables its CCXML browser to integrate to CTI solutions from Cisco, Genesys, Avaya, Nortel, and others. Via CCXML, these CTI capabilities can also be accessed by VoiceXML applications. For custom CTI integration services, Voxeo has several partners with deep CTI integration experience.

Co-Location and Managed Server programs give Voxeo customers the ability to host web application servers, and databases if desired, on-LAN at Voxeo's Prophecy Hosting facilities. These programs eliminate the potential for delay, failure, or interception of communications between these servers and Prophecy Hosting facilities, and are increasingly being used by customers who have mission critical IVR integration requirements.

VPN and Direct Access services provide encrypted and/or enhanced network connectivity to customers who require additional security or reliability beyond what can be achieved via standard Internet connections. They are most often used by customers who cannot host their back-end servers at Voxeo's IVR hosting facilities. Voxeo's VPN services enable IPsec or PPTP VPN connectivity to customer facilities. Its direct access services enable dedicated point-to-point T1, Frame Relay, or T3 data connectivity to those same facilities.

Application Monitoring services can be provisioned to regularly test Voxeo's platform and its customers' IVR applications, web platforms, routers, and back-end servers on recurring intervals of 1-60 minutes. The application monitoring service uses a combination of ping, protocol, and content testing to determine if monitored resources are functioning properly. When a problem is detected, both Voxeo's Network Operation Center and specified customer contacts can be automatically notified by any combination of email, pager, instant messaging, or phone call.

Application Load Testing. Over the course of deploying thousands of voice applications for customers since 1999, Voxeo has learned that almost every voice application initially experiences performance or reliability issues under load. Many of these issues are difficult to identify without putting the applications under actual or simulated load. Voxeo's multi-line test system can subject any voice application to large, rapid, and sustained inbound or outbound call tests using application-specific call flows, prompt detection, text-to-speech monitoring, and voice recognition or DTMF control. Testing exposes hidden performance and reliability issues in the entire chain of voice application layers, including database performance, application server performance, web server performance, internet connectivity bandwidth and latency, voice recognition responsiveness, prompt caching and playback, and more. By subjecting your application to these tests prior to launch, you can significantly reduce the risk of application failure and ensure performance under load.

Access to Nuance Speech Recognition and Text-to-Speech. While Voxeo ASR and TTS are included for free with Prophecy, some customers have complex speech requirements or simply prefer third-party speech engines, such as those offered by Nuance. Voxeo integrates with multiple speech engines to support 52 languages across the Americas, Europe, and Asia. Prophecy can also support other MRCP-compliant speech engines upon request.

Name and Address Capture from TARGUSinfo. Voxeo's partnership with TARGUSinfo provides its customers with a packaged solution for name and address capture. The solution determines a caller's name and address by comparing their 10-digit telephone number against a name and address database covering the majority of U.S. residents. When a given phone number does not exist in the database, a tuned and comprehensive set of name and address grammars are used to obtain the caller's contact information. These grammars are pre-deployed on the Voxeo platform.

Voice User Interface Design, Tuning, and Utterance Capture solutions enhance customers' ability to use call recording and logging to improve IVR application usability. Voxeo's VoiceObjects service creation environment delivers market-leading analytics to highlight "problem spots" within each IVR application. VoiceObjects provides more than 60 pre-defined, customizable reports covering the areas of administration and maintenance, application development and tuning, and business and caller behavior analysis. Companies use this information to implement alternative or improved menu options, and to improve the customer experience. The solution is available for deployment on-premise or on-demand in Voxeo Hosting. Voxeo also partners with voice architects to offer deep expertise that is perfectly aligned with client needs.

Voice Talent and Prompt Recording. Voxeo multiple partners, including GM Voices and The Great Voice Company, can deliver your voice prompts on time, on budget, and in any language with top-notch native voice talent. Most prompt requests can be recorded and delivered within 48 hours.

Multi-Channel Support. Voxeo maximizes the ROI of speech application investments and lowers support costs with multi-channel capabilities. Voxeo uniquely enables you to design an application once and deploy it across multiple customer contact channels, including voice, text messaging (SMS), instant messaging (IM), social networks and the mobile web.

14 Pricing Model

Prophecy Hosting has a simple pricing model consisting of a one-time setup fee, per-minute usage fees, and a minimum monthly usage commitment. Customers who commit to higher monthly minimums receive lower per-minute rates. Priority support is included for all hosting customers.

Prophecy Hosting services can also be provided on an OEM basis to qualified partners willing to commit to Voxeo's high standards of customer service. The OEM offering includes completely brandable Prophecy Hosting services as well as the Evolution customer and developer portal and ticketing system.

15 FREE Development Accounts

Developers can create and test Prophecy voice applications for free on the Evolution customer and developer portal



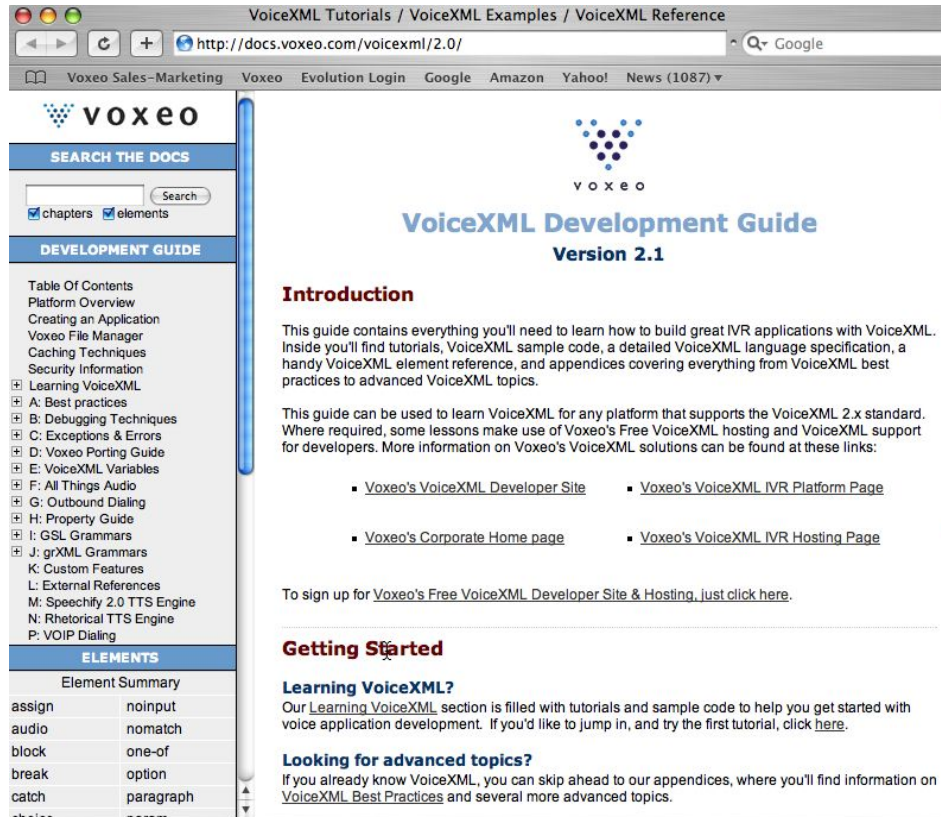
(<http://evolution.voxeo.com>). This is the largest voice application development community of its kind in the world, with over 200,000 developers who have built thousands of applications. This portal contains massive amounts of documentation, tutorials, and tools designed to help developers create great voice applications. It also provides Free accounts even come with free 24x7 support. Voxeo offers this service to developers for two reasons:

- *It's good business.* As a platform company, the more great applications that get deployed on our platform, the more we grow our business. We want to enable as many developers as we can and make them as productive as possible.
- *It's sticky.* Customers who open a free Evolution portal account can experience what it's like to do business with Voxeo before they buy. We do everything we can to make this a great experience, and as a result most customers stick with us for a long time.

Customers with free Evolution developer accounts gain access to resources and services that are nearly identical to that of paying Prophecy Hosting customers — the primary difference being that developer account applications run on servers that are physically separate from those running production applications. Voxeo has continuously invested in this customer and developer portal since early 2000 to grow its developer community. Evolution resources and tools include:

Free tools to accelerate learning and application development

- Quick start guides and over 50 tutorials that cover VoiceXML, CCXML, and CallXML, ranging in complexity from the basics to advanced topics such as speech recognition, database integration, conferencing, caching and performance optimization.



The screenshot shows a web browser displaying the 'VoiceXML Development Guide Version 2.1' on the website <http://docs.voxeo.com/voicexml/2.0/>. The page has a blue header with the Voxeo logo and navigation links. A sidebar on the left contains a search bar and a table of contents. The main content area is titled 'VoiceXML Development Guide Version 2.1' and includes an 'Introduction' section, a 'Getting Started' section, and several links to related resources.

- Pre-recorded audio and VoiceXML grammar libraries, code examples, best practices, and an application debugger with real time call trace and logging.
- Reports and logs of full call trace details, including caller ID, call time and date, voice commands issued, DTMF keys entered, and platform level actions and events for audio playback, recording, speech synthesis, hang-ups, and more.
- Several complete open source applications that you can download, deploy, and customize or extend, including auto attendant, voice mail, and conferencing applications.
- Voxeo Designer, a web-based VoiceXML application development tool with an intuitive graphical interface. Both experienced and novice developers can use Designer to rapidly create VoiceXML applications without having to write code.
- VoiceObjects Developer Edition, including an easy-to-use Eclipse-based development environment for creating, analyzing, and managing voice, SMS, IM, video, and mobile web applications.

Tools to manage applications you build

- An application manager that contains settings for all of your voice applications, including URLs, mapped phone numbers, and outbound dialing tokens. From the

application manager it's a simple task to add an application, map it to a URL, and get a direct dial phone number provisioned and assigned to it. In seconds, your new application is ready to take calls.

- File and Web hosting. You can host your applications and related files on space allocated to your account for free on Voxeo web servers. If you prefer, you can run your application on your own web server and still cache content on hosted Evolution developer servers.

Free 24x7 support

- Even free developer accounts get free 24x7 support from Voxeo's Customer Obsession Teams. This is extremely rare both among hosted IVR vendors and across all technology vendors in general, but to us it just makes sense. Unlike most companies we consider this support an investment, not a burden.

Easy migration to production deployment

- Once your applications are ready to go live, you can simply fill out an online production request. We'll send you a service agreement, and once you sign it, we can transfer your application to a live Prophecy Hosting production server in minutes. For accounts with special requirements such as dedicated servers or very high call volumes, we can ramp up and deploy very quickly — usually in less than 30 days even if hardware must be purchased.

16 Conclusion

Voxeo has been at the forefront of standards-based XML telephony since 1999. Our Prophecy IVR and VoIP Hosting service is the largest standards-based global hosting platform and is among the most reliable in the world, backed by Voxeo's **100% Uptime Guarantee**. Voxeo reliably processes millions of minutes of calls each week for leading service providers and enterprises in a range of verticals, including healthcare, financial services, insurance, manufacturing, retail, and more.

Voxeo continues to invest in making tools, resources, and services available remove the complexity from creating and deploying great communications applications. **Over 100,000 developers** have chosen to build XML telephony applications on Voxeo platforms, representing the largest development community of its type in the world. The very same platform is now enabling developers to seamlessly deliver self-service applications across multiple channels, including SMS and IM.

When selecting a Hosted IVR vendor, customers must usually rely on a vendor's *promise* of service, support, and platform capabilities at the time of commitment. Voxeo is different. Customers considering Prophecy Hosting can try it for free at <http://evolution.voxeo.com> and experience first hand what it's like to do business with Voxeo. It's a faster, better way to buy.

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