VoiceGenie

VoiceXML Platform for Advanced Speech Solutions

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Agenda

- Advanced Speech Marketplace
- The Business Case for Speech
- About VoiceGenie
- VoiceGenie VoiceXML Platform
- Our Customers
- Customer Case Study
- SMS Case Studies
- VoiceGenie/BMI Multimodal Application
- Additional VoiceGenie Case Studies
Advanced Speech Marketplace
Develop easier. Deploy sooner. Realize ROI faster.

Industry Projections
Advanced Speech to Surpass Legacy IVR

Sources: Kelsey Group and Datamonitor

Advanced Speech (Speech-Enabled and VoiceXML-Based)
Speech-Enabled Proprietary IVR
Touch-Tone Proprietary IVR
Industry Projections
Datamonitor July 2003

Figure 2: Supply-side voice business value chain revenues and yearly growth, 2001-2008

Revenues ($m)

Yearly growth rate

Source: Datamonitor

2001
2002
2003
2004
2005
2006
2007
2008
0% 5% 10% 15% 20% 25% 30% 35% 40%
0 500 1000 1500 2000 2500 3000 3500

Revenues
Yearly growth rate
The Business Case
The Business Case for Speech

- **Increased Automation of Self-Service Transactions**
  - Speech-enabled applications increase customer usage 20 to 60% over DTMF (Giga Information Group)

- **Higher Customer Satisfaction**
  - Natural Language Interface
  - Increased Call Completion rates
  - Provides mobile consumers with improved access to services and a significantly enhanced user experience over traditional touch-tone IVR or Web-based services.

- **Mature Technology**
  - Recognition & TTS technology is mature
  - CPU power and performance
Why VoiceXML?

- **Industry Acceptance**
  - AT&T, AIG, Air Canada, France Telecom, Merck, Mobilkom Austria, Orange, SBC Technology, Verizon, Vesta, Scotiabank and others.

- **Rapid Development and Deployment with VoiceXML**

- **Leverage infrastructure and knowledge around HTML**

- **Open Standards**
About VoiceGenie
VoiceGenie Facts:
Corporate Information

- **The Company**
  - Product development began in 1995; leading market today
  - Profitable VoiceXML firm (2 Years Running)
  - 200 “Blue-Chip” enterprise and carrier customers
  - 100 employees
  - 20,000 ports shipped in 2002
  - 300% Y/Y revenue growth for last 2 years
  - 25MM minutes answered per day on VoiceGenie
  - New VC funding (July 2003)
  - Global Footprint

- **VoiceXML Forum Membership**
  - Early standards work (1995)
  - Sponsor Member
  - Director representation on Forum
  - Direction; Early info on developments

- **Strong Industry Relationships**
  - IBM, Unisys, Sun
  - Customers
  - Strong Development and VAR Partners Network
  - Development Community/Developer’s Workshop
    - 15,000 Developer Community

Develop easier. Deploy sooner. Realize ROI faster.
VoiceGenie VoiceXML Platform

Developing Advanced Speech Solutions Easier
## Best-of-Breed Technology Value Chain

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Transport/DSP/VoIP</th>
<th>ASR &amp; TTS</th>
<th>VoiceXML Interpreter</th>
<th>Voice Rsrce Management Network I/F</th>
<th>Application Software Prof. Svcs.</th>
<th>Hosting</th>
<th>Installation/Professional Services</th>
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The Platform

Function

- Systems Management
  - Management
  - Operations
  - Configuration
  - Administration
  - Monitoring
  - Reporting

- VoiceXML Processing
  - VoiceXML Interpretation & Function Execution

- Advanced Speech Processing & Mgmt
  - Speech Resources Management
  - ASR, TTS
  - Authentication

- Telephony, CTI, VoIP Processing & Mgmt
  - PSTN
  - VoIP
  - PBX
  - CTI

VG Implementation

- Cluster Mgmt Platform (CMP)
  - VoiceGenie Mgmt Console (VMC)

- Voice Genie VoiceXML Interpreter

- Voice Resource Mgr (VRM)

- Call Manager (CM)

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Systems Management

- **Cluster Management Platform**
  - Administration
  - Operations
  - Configuration
  - Enhanced SNMP Management
  - Realtime Monitoring
  - Interval Reporting
- **VoiceGenie Management Console**
  - Browser-Based User Interface

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VoiceGenie Management Console (VMC)
Administration: Add Cluster/Server

Cluster Administration
- Cluster Manager
  - Add Cluster
  - Add Server

User Administration
- Change Password
- Manage Users
- View User Access Logs

Cluster Manager
Click on a Cluster, Server or Component to view its details.

+ Add Cluster
+ Add Server

Network
- Cluster 1
  - Excalibur
    - ASR Manager
    - Call Manager
  - Command Line Console
  - Management Console
  - TTS Manager
  - VoiceXML Interpreter
  - Galahad

Logout
VoiceGenie Management Console (VMC)
Interval Report: Call Length

- 0 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 70
- 70 - 80
- 80 - 90
- 90 - 100
- 100 - 110
- 110 - 120
- 120 - 130
- 130 - 140
- 140 - 150
- 150 - 160
- >150

- Inbound
- Outbound
VoiceXML Processing

- Interprets and executes functions across all ports
- Dynamic loading of VoiceXML pages and grammars
- VoiceXML 2.0
  - Anticipating VoiceXML 2.1
- Performance, Efficiency, Reliability
  - Customers say ‘snappy’
  - Proven stability in large deployments (8000 ports)
- Comprehensive set of Extensions to VoiceXML 2.0
  - Multiple Outbound Call Initiation and Control
  - Enhanced Transfer Capabilities
  - Call Recording
  - Audio Control (volume, speed, skip forward/backward, etc.)
Voice Resource Management

- **Wide ASR Support**
  - Speechworks/ScanSoft
  - Nuance
  - Telisma
  - BBN
  - AT&T Watson

- **Wide TTS Support**
  - Speechworks/ScanSoft
  - Rhetorical
  - AT&T

- **MRCP Support**

- **Speaker Authentication**

- **Multiple concurrent speech engines**

- **Load balancing, Error Recovery Management**

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Call Management

- **PSTN**
  - Analogue, T1, E1, Line-side T1/E1
  - PBX: Alcatel, Nortel, Aspect, others
  - Network/CO: AT&T 4ESS/5ESS, Nortel DMS 100/250/500, others

- **VoIP**
  - SIP, H.323
  - Concurrent VoIP and PSTN
  - Hybrid VoIP and PSTN
  - Codecs: G.711 u-law, G.711 A-law, G.726, GSM, DSR (Aurora)

- **CTI Support**
  - Genesys T-Server, CISCO ICM, IBM CallPath, others.

- **Dynamic Line Managers**
  - Load only hardware/protocol support required
Develop easier. Deploy sooner. Realize ROI faster.
Robust Development Tools

- **VoiceGenie IDE**
  - Syntax-directed editing for VoiceXML
  - Validation of VoiceXML
  - Logging with detailed error events for ASR and TTS development.
  - A VoiceXML editor and XML Grammar editor with coding assistance through tag, attribute and value suggestion.
  - A tag manipulation tool that reduces key strokes and increases developer productivity.
  - Built in project management capability that aids in project organization and facilitates deployment.

- **GUI-Based Development Tools**
  - **GenieBuilder™** provides an advanced Graphical User Interface for development of VoiceXML call flows, and for application deployment and management.
  - **GenieFactory™**, a graphical voice application management system that combines a complete IDE and proven voice application server architecture with the VoiceGenie platform.
Online Resource to Build & Test Your Own Voice Applications

- **VoiceGenie’s Developer Workshop**
  - Allows developers to freely register and test their applications on VoiceGenie’s VoiceXML platform
  - Over 15,000 developers in more than 150 countries have built over 15,000 voice applications to date
  - Valued source of product enhancements and acts as an extended Quality Assurance team, continuously real-world testing the VoiceGenie platform.
  - [http://developer.voicegenie.com](http://developer.voicegenie.com)
Current Activities

- **Independent Upgrade of Components**
  - Voice Resource Manager
  - Cluster Management Platform
- **Multiple Interpreter Support**
  - Multiple Interpreter Versions
  - Multimodal Interpreters
- **CCXML**
- **Multimodal**
  - Committed trials with Multimodal applications (BMI)
VoiceGenie Value Proposition

- Open Standards Architecture
- Most experienced VoiceXML speech platform vendor
  - Over 8 years in development
  - Over 200 customer deployments
  - Very Large Deployments (8,000 ports)
  - VoIP Deployments
  - Over 15,000 applications on developer’s site
  - Seamless Integration with Leading Speech Technologies
  - Management of Speech Resources
- VoIP Ready
- Proven, Carrier-Class Performance
Sample Enterprise Customers
Carrier Customers

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Customer Case Study
Communications/Telecom

- **Company**
  - Fortune 10 company with over 221,000 employees
  - Global presence in over 30 countries
  - Local and long-distance services
  - 137 million access line equivalents; over 34 million wireless customers
  - $67B revenue (2002)

- **Project Objectives**
  - Speech recognition to front-end all Customer Response center service calls.
  - Increase transaction automation rates
  - Improve call routing capabilities
  - Improve CTI integration
  - Capacity expansion
  - Legacy VRU replacement (vs upgrade)

- **Approach**
  - Advanced Speech (Speech Recognition/ASR)
  - VoiceXML
  - VoIP (instead of TDM and interface hardware)

- **Deployments**
  - Across all LOBs and Call Centres
  - Repair
  - Retail
  - Corporate Dialers
Communications/Telecom

- **Results**
  - Advanced speech call completion rates: 7-fold improvement
  - Excellent Customer adoption: 100% attempt automated
  - More than 100K calls per day (last read)
  - Higher service levels, lower call hold times
  - Project commenced in March 2003 and was completely implemented across Eastern footprint by August 2003.
  - Currently over 8,000 ports (across the enterprise)

- **Beckie Bruso, SVP Customer Response:**
  - “Given the challenges of the New York blackout in August and hurricane (sic) Isabel in September, we would have probably taken an unrecoverable hit to our PUC service levels prior to voice portal. In my view, this technology has paid for itself already in so many ways.”

- **Futures**
  - Multi-lingual speech deployments planned for Spanish speakers
  - Replacement of all legacy VRU platforms
  - HR (Jobs)
  - Payroll, Employee Communications
  - Email access
  - Next generation unified messaging applications
SMS Case Studies
SMS Case Studies

- Mariah Carey Launch
- Grand Prix Racing Results
- Potential Application

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VoiceGenie/BMI Multimodal Application
Multimodal At VoiceGenie

- In progress one year with BMI under signed contract.
- The Platform
  - VoiceGenie VoiceXML Platform 6.0
  - DSR/Aurora via OSR 2.0
  - Other SIP based hooks and VoiceGenie extensions to enable simultaneous MM applications
  - Enables 3rd party Browser e.g. IBM’s X+V
  - Low bit rate CODEC (GSM, G.726) for compressed audio playback
  - Open Standards MultiModal Platform
Sequential and Simultaneous Applications

- **Application #1: Sequential**
  - Location Based Service (LBS): Film Finder
  - VoiceXML Session
  - SMS Message
  - Target all client devices currently shipping at Bell Mobility
  - Early Q1 2004 Availability

- **Application #2: Simultaneous**
  - Location Based Service (LBS): Restaurant Finder
  - Sample User Session
    - Stylus or voice input
    - Audio and/or visual output
  - Target PalmOS based devices
  - Q3 2004 availability

- **Technologies:**
  - SIP/RTP over 1xRTT
  - DSR/Aurora via OSR 2.0
  - TFCI and other VoiceGenie extensions to synchronize and to allow text/audio grammar matching
Multimodal Functional Demo (Simultaneous)

- **Using live 1xRTT network**
  - Bell Mobility (Canada)
  - Roaming Partner (US)
- **Connected to Servers Located in Toronto**
  - VoiceGenie 6.0 Platform (running OSR 2.0); and
  - Application Server
- **Application: Restaurant Finder**
Multimodal Functional Demo

- **Client Device:**
  - 5450 iPAQ or Audiovox Thera running PocketPC 2002 (Win CE 3.0)
  - For iPAQ (with Expansion pack and Sierra Wireless 1xRTT 555 AirCard);
  - For Thera, 1xRTT is built-in;
  - VoiceGenie Thin Client running on iPAQ (C++ code)
  - SpeechWorks Aurora Encoder running on iPAQ

- **Main functionality of Software on Client**
  - negotiate and maintain SIP sessions
  - capture, encode, receive and send audio data
  - display visual content and handle user-initiated and other events (I.e. clicking on a field)
Multimodal Functional Demo

- **Dialogs for Demo**
  - **Location to search in Boston (Grammar: 10 words)**
    Back Bay, Cambridge, Central Square, Chinatown, Downtown, East Boston, Financial District, Harvard Square, Kendall Square, Kenmore Square, North End, Waterfront, South End, South Boston
  - **Type of cuisine (Grammar: 34 words)**
    African, American, Asian, Bakery, Bar, Bistro, Brazilian, California, Cambodian, Caribbean, Chinese, Contemporary, Continental, Deli, Dessert, Ethiopian, European, French, Fusion, German, Greek, Indian, Irish, Italian, Japanese, Korean, Mediterranean, Mexican, Moroccan, Pizza, Portuguese, Seafood, Spanish, Steakhouse, Thai, Turkish, Vietnamese
  - **Restaurant (Grammar: 100 words)**
    The Dining Room, Union Oysters, Boston Beer Garden, Spinnaker, Bangkok Blue, etc.

**Audio stored locally on client**
Multimodal Functional Demo

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Multimodal Functional Demo

Develop easier. Deploy sooner. Realize ROI faster.

In Toronto

- SIP stack
- VG Application

- VXML 2.0
- VG/VXML Platform 6.0
- OSR 2.0

- JSP Application
- Apache
- Tomcat
- MySQL
- W2K

SIP/RTP
GSM
TFCI
Aurora

ROAMING PARTNER

BELL MOBILITY
Multimodal Functional Demo

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Questions?
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Additional VoiceGenie Case Studies
Financial Services

- **Company**
  - Fortune 100 global financial services company

- **Project Objectives:**
  - Automate trouble-ticket and password reset transactions for IT support group
  - Increase self-service
    - Reduce Cost
    - Reduce Staffing
    - Provide 24x7 Support
  - Improve Employee Productivity
    - Reduce Downtime
    - Improve Access
Financial Services

- **Results**
  - Application built by customer within 2 week period
  - Taught themselves VoiceXML over a weekend using a book as reference
  - Built application and tested it on VoiceGenie’s Developer Workshop, without contacting VoiceGenie directly
  - Application integrates seamlessly with existing customer Web-based Trouble Ticket System
  - Staffing dropped from 8 to 0.5 people (93% reduction)
  - Employee complaints significantly reduced
  - Planned worldwide roll-out
  - 100% ROI realized in less than 2 months
Entertainment

- **Company**
  - Ster-Kinekor, South Africa’s largest movie theatre chain

- **Project Objectives**
  - Increase self-service
    - Target 30% reduction in calls to an outsourced call center
    - Reduce call times
    - Increase “Movie Club” membership
  - Improve Customer satisfaction
    - Improve CRM with “Anywhere, Anytime, Anyhow” Access
    - Enable one-to-one relationship with customers
Develop easier. Deploy sooner. Realize ROI faster.

**Results:**

- 1.5 Million Calls per Year to Automated System
- 50% Reduction in Calls to the Call Center
- 5x Increase in Bookings to the Web Site
- 10x Increase in Informational Hits on Web Site
- Less than Six Month ROI
- Maximum Agents Reduced from 40 to 20
Payment Processing

- **Company**
  - TrustVesta manages CNP (credit card not present) transactions requiring real-time customer authentication and account recharge and has managed over 50 million transactions to date.

- **Project Objectives**
  - Roll-out VoiceGenie on 3 major IVR programs for wireless and calling card recharges.
  - Reduce call times for customers
  - Increase automation rates of IVR
Payment Processing

- Results
  - ROI achieved in less than 3 months
  - 50% reduction in call center staff
  - 60K calls per day managed on a handful of Linux boxes
  - Time of live operator calls reduced by 40%

"Through automation and CTI integration, our VoiceGenie deployment has allowed us to expand call center capacity by over 40 agents without adding any physical seats. “

- Senior IVR Engineer, Vesta