Cisco IP Interactive Voice Response (IVR) Solutions

Session CON-2050
The Next Chapter in Customer Service

The Customer Interaction Network

- Distributed IP-based control
- Agent location independence
- Contact treatment either at the edge or the center of the network
- Multi-channel services
- CRM integration
  (Siebel, PeopleSoft, SAP, Oracle, Others)
- Open integration with traditional applications
Agenda

- Voice Response Options
- Cisco IP IVR/Queue Manager
  - Product Overview
  - Mid-CY ’03 Plans
- Cisco Internet Service Node
  - Product Overview
  - Cisco ISN 2.0 Release
- Roadmap
  - Common Technology Base

Gathering Momentum—IVR Systems
Planned for Purchase: Cisco Leads

Plan to purchase IVR in the next 12 months. Q20 Which of the following providers of interactive voice response systems is your company planning to purchase within the next 12 months? (Report Page 25)
Cisco Voice Response Solutions Options

- Cisco IP IVR
  Easy to administer, automated solutions using IVR for mid-market and enterprise

- Cisco Queue Manager
  Queuing platform for Cisco IPCC solutions

- Cisco Internet Service Node (ISN)
  Web-based, highly scaleable platform that provides prompt/collect, queuing, and call control services for contact centers

- Cisco offers the customer a choice based upon their environment and requirements

Cisco IVR Solutions

All Options Support:

- No telephony equipment requirements
  Cisco gateways provide voice terminations (if needed)
  No special terminating equipment required

- Cisco IP IVR and Cisco ISN support VoiceXML

- Applications operate on Windows equipment

- Solutions support TDM and Cisco AVVID environments

Will See in the Future:

- Tighter integration of Cisco IP IVR and Cisco ISN
Voice Response Checklist
IP IVR, IP QM, or ISN

<table>
<thead>
<tr>
<th>Criteria</th>
<th>IP QM</th>
<th>IP IVR</th>
<th>ISN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call queuing and treatment for Cisco IPCC</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>Prompt and collect of caller entered digits</td>
<td></td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>Standalone provisioning/reporting</td>
<td>✗</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>Nuance ASR/TTS</td>
<td>✗</td>
<td></td>
<td>✗</td>
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<tr>
<td>Speechworks ASR</td>
<td>✗</td>
<td>✗</td>
<td></td>
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<tr>
<td>Tightly integrated with Cisco CallManager</td>
<td>✗</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>VXRLS Support</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tightly integrated with voice gateways</td>
<td>✗</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>Number of sessions (ports) supported per server</td>
<td>300</td>
<td>300*</td>
<td>400*</td>
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Cisco IP IVR Option
**IP IVR Value Proposition**

- Complete IVR for self-service or offloading agent tasks
- Cisco CallManager integration
- Designed from the ground up for ease of installation, use and maintenance
- Web-based administration
- Leverages web-based content

**IP IVR Deployment Model**

- Cisco CallManager cluster provides fault resilient PBX functionality
- Cisco IP IVR provides voice response capabilities
- PSTN calls arrive over a voice gateway
Cisco IP IVR 3.0
Feature Summary

- Ease of administration
- Supports up to 150 sessions
- Optional ASR and TTS
- VoiceXML support
- Java 2 compliance
- Multi-language support
- Access to web-based content (voice portals)
- Historical reporting
- Real-time reporting

- Fully integrated with Cisco CallManager
- Web-based administration
- Configuration information stored in standard LDAP directory
- Supports ODBC databases
- E-notification alert services
- Prompts stored on IVR server or accessible via Web content networking
- HTTP support

Customer Segmentation for Cisco IP IVR

- Customers requiring an extensible, easy-to-provision and troubleshoot IVR that supports VoIP and TDM
- Customers who have purchased; or are looking to purchase Cisco Call Manager
Cisco IP IVR Administration
Script Management

Cisco IP IVR Localization

<table>
<thead>
<tr>
<th>Language</th>
<th>IVR Base Prompts</th>
<th>ASR</th>
<th>TTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>English - UK</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>English - US</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>German</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>French - European</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>French - Canadian</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Spanish - Mexican</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish - Columbian</td>
<td>✓</td>
<td></td>
<td></td>
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<tr>
<td>Spanish - European</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese - Mandarin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Korean</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Portuguese for Brazil</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Hebrew</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Cisco IP IVR
Customer Usage Examples

- Cisco IPCC customers
  Wanted Cisco AVVID-enabled queuing platform
  Selected queue manager
  Using remote database capability

- City government
  Selected IP IVR
  Built automated permit system
  Had third-party integrator develop software for host connect
  Using ASR

Cisco IP IVR Planned Product Enhancements

- Mid-year 2003 (CY)
  Committed release
  Support for G.729
  Improved capacity (goal of 300 sessions)

- Beyond mid-year (not committed)
  Redundancy
  VXML 2.0
  H.323 Endpoint
  MRCP support
    Standard interface for speech recognition
    Support for Speechworks
    Support of TN3270 and MQ Series interfaces
Cisco Internet Service Node

The Cisco Internet Service Node (ISN) is a Web-Based, Highly Scalable Platform that Provides Prompt/Collect, Queuing, and Call Control Services for Contact Centers

Cisco ISN Value Proposition

- Provide cost-effective IVR solution that provides
  - Enabling of VoIP services in traditional environments
  - Consolidated administration, provisioning and reporting
  - Justify replacement of ‘traditional’ IVR with VoIP solution
  - Support TDM ACD and IP Solutions
- Apply Web and VoIP Technology
  - Use Cisco Gateways for PSTN termination
    - Standard product replaces proprietary implementation
    - Eliminates multiple PSTN termination
  - VXML-based
  - Use Media Resource Control Protocol (MRCP) for ASR/TTS
  - Use Cisco Content Server Switches for availability
  - Use Cisco ICM for service creation environment
Cisco Internet Service Node

- Provides queuing, call control, and voice response capabilities in TDM and VoIP environments
  - Play message
  - Interruptible messages
  - Provide information to calling party
  - Collect information from calling party
  - Transfer capabilities
  - Call disposition information
- Open interface for ASR/TTS provides
  - Tighter integration with voice gateways
  - Streaming media support
  - External VXML support
- Cisco ICM/IPCC provides service creation, reporting and host connect (application/SQL gateway)
  - Cisco ICM adds “intelligence” to Cisco ISN

Customer Segmentation for Cisco ISN

- Service Provider and large enterprise customers who require IVR, queuing, and/or IP switching services, and whose call centers are not purely Cisco IPCC-based (such as a customer with some TDM agents)
- Cisco ICM Hosted/Cisco ICM Enterprise customers who wish to replace/augment their existing IVR systems
- Cisco IPCC Hosted customers, and Cisco IPCC Enterprise customers who need a large number of treatment/queue points
Cisco ISN Business Value

- Supports voice/data convergence (efficient)
- Support TNT in a Cisco ICM/VoIP environment
  - Supports ability to transfer call from one location to another
  - Reduces dependency on carriers
  - Switches are not required to play DTMF to transfer
- Enables toll bypass (lower 800# costs)
- Distributable
  - Calls can receive IVR treatment and be queued at locations independent of call centers
  - Reduces bandwidth demands

Customer Interaction Network
Cisco ISN: Components

Voice Browser
- Terminates the voice media to play message to callers and collect DTMF/Speech
- Provides H.323 call control
- Renders VXML content from App Server

Application Server
- Provides VXML instructions to Voice Browser under control of Cisco ICM

Media Server
- Any Web server
- Typically using web caching technology

ASR/TTS Server
- 3rd Party (Nuance/Speechworks/Others)
- Interfaces to Voice Browser using MRCP
- Controlled by Cisco ICM
Customer Interaction Network

Cisco ISN: Voice Call Flow

ISN Treatment...
- Call Arrives at Voice Gateway and is sent to Cisco ISN for call treatment
- Cisco ISN (via PG) processes call using Cisco ICM Routing Script to play menus, collect data, and queue calls at Cisco ISN

Routing Script:
- RUN VRU SCRIPT:INTRO
- RUN VRU SCRIPT:GET#
- LAA: VOICE:SALES
- QUEUE: VOICE:SALES
- RUN VRU SCRIPT:PLSHLD

Cisco ISN/Cisco IP IVR Convergence

- Products will leverage a common technology base with no loss of functionality
- Cisco IVR will be available as two options
  - Standalone/AVVID option (known as Cisco IP IVR today)
  - Cisco IOS Gateway/Cisco ICM option (known as Cisco ISN today)
- Goal is for customers to understand that Cisco offers one IVR solution with options that best fit their requirements
Decision Criteria for Cisco IP IVR or Cisco ISN

Which Solution?

- Decision factors
  - Is Cisco CallManager in my environment?
  - Is Cisco ICM in my environment?
  - Is VoiceXML 2.0 a requirement?
  - Do I want a complete, all inclusive environment, or a distributed environment?
Customer Interaction Network
Cisco IP IVR/Cisco ISN Positioning

<table>
<thead>
<tr>
<th></th>
<th>Cisco IP IVR</th>
<th>Cisco ISN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Market</td>
<td>Enterprise</td>
<td>SP and large enterprise</td>
</tr>
<tr>
<td>Scalability</td>
<td>100s of ports</td>
<td>1000s of ports</td>
</tr>
<tr>
<td>Media Environment</td>
<td>VoIP/CallManager</td>
<td>Mixed TDM/VoIP</td>
</tr>
<tr>
<td>Call Processing</td>
<td>Cisco CallManager</td>
<td>ISN Voice Browser</td>
</tr>
<tr>
<td>ASR/TTS</td>
<td>Yes, integrated</td>
<td>April '03 through MRCP</td>
</tr>
<tr>
<td>Reporting</td>
<td>Built-in</td>
<td>NAM/ICM reporting</td>
</tr>
<tr>
<td>IPCC Integration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Voice Prompts</td>
<td>Local Server or Web content Networking</td>
<td>Web content Networking</td>
</tr>
<tr>
<td>IP Switching</td>
<td>Cisco CallManager</td>
<td>H.323 Gateways</td>
</tr>
</tbody>
</table>

Customer Interaction Network
IVR Selection Rules

- **Use Cisco IP IVR:**
  - In 100% Cisco IPCC environment (no TDM agents)
  - For easy-to-use, complete environment

- **Use Cisco ISN:**
  - Need IVR/queuing/IP switching integrated with Cisco ICM
    - Either for support of TDM agents or
    - Hybrid TDM/IPCC environment
    - Require support for Cisco ICM blind transfer

- **Both solutions can support hybrid environment**
  - Choice is if one wants Cisco CallManager
Roadmap Overview

- **Solution will be open and web-centric**
  VoiceXML 2.0 and MRCP will be supported
- **Cisco ISN and Cisco IP IVR will utilize a common technology base**
  Cisco ISN components are based on CRS
- **Resulting products will be a superset of product features**
  No functionality will be lost
  Possible to build features desired for your business requirements (e.g. CRS support from other voice browsers, software voice browser
  Feature compatibility may be supported by license features
Market Leading Cisco Voice Web IVR

Product Goals

- Open standards based solution that is scalable from a single server solution (1-50 ports) to very large deployments (10K+) and tracks the Pentium Performance curve
- VoiceXML 2.0
- Media Resource Control Protocol (MRCP)
- Use of a Telephony VoIP gateway to facilitate speech enabled IVR today to increase Customer Satisfaction with a demonstrative ROI and upgrade path to full IP contact center with h/w and s/w re-use
- Support for IP originated calls
- Customer choice of Operating System (Linux, Windows) and PC Server Hardware (IBM, Dell, HP, AMD)

- Fault, Provisioning and Content Management integrated with Customer’s Network Management solution
- Distributed tiered architecture that facilitates independent scaling of signaling, browser and media functions
- Ease of provisioning (server load balancing, session persistence, processor occupancy)
- VoiceXML / Workflow Application Development Environment that supports heterogeneous multi-site contact center solutions
- SS7 for Telecom and Wireless Network Managed Service Providers and core network voice services
Requirements for a Market Leading Cisco Voice Web IVR Product

- Media layer that supports ASR, TTS, speaker verification, conference bridging, MOH, FoIP, etc.
- Integrated with a wide range of Voice Gateways
- Resilient solution for business continuity integrated with Cisco Global Resilient IP
- Secure
- Support of speech recognition as a pervasive technology and integral to the IP Multimedia Communications Strategy (SIP)

- Prompts, Grammars, etc. integrated with Cisco Content Caching Switches and Storage Area Networking (SAN) solutions
- Upgrade path to multi-modal solutions
- Integral component of the Virtual Contact Center and Customer Interaction Network, IP Unity, IP PBX and Service Provider Application Solutions
- Packaged applications to increase the attractiveness of the solution and reduce implementation risk
- Support of Speech Application Language Tags (SALT)

Internet Service Node: Highlights from the Field

Ron Minto
Outline

• As Cisco’s newest IVR product, many potential customers ask what differentiates Cisco Internet Service Node from Cisco’s other IVR products

• Drawing from field experience, this presentation will address:
  
  For which key features of Cisco ISN have customers selected Cisco ISN?

  Cisco ISN Case Study

  Challenges

Key Features

From Field Experience, Customers Have Selected Cisco ISN for the Following Features:

• IVR “at the edge”
• IP switching “at the edge”
• ACD flexibility
• Ease of scalability
• Cisco ICM as IVR scripting tool
• ASR/TTS
Key Feature: IVR “At the ‘Edge’”

- Customers required IVR treatment at their network ingress points, while multiple contact center sites were remote
- Cisco ISN was the solution because of its ability to front-end calls “at the edge” of the network
- Many self-service calls finish in Cisco ISN, never traversing the WAN; only calls transferred to contact center agents need to tie-up network bandwidth

Key Feature: IP Voice Switch “At the ‘Edge’”

- Several customers needed to maintain call control at network ingress points
- One customer was paying their IXC for Take-back and Transfer and wanted to bring the functionality in-house
- Cisco ISN was the solution because it maintains call controls “at the edge,” removing the need for IXC take-back or to switch IP Voice at contact center sites
- Cisco ISN can “pull back” and re-direct RTP streams across the network
- NO TROMBONING!
Key Feature: ACD Flexibility

- One customer we worked with needed to simultaneously support both Cisco IPCC and legacy TDM ACDs
- Cisco ISN was the solution because it is ideally suited to serve as a “queue point” for any ACD supported by Cisco ICM
- This ability has facilitated phased migration approaches from legacy TDM environments to IP Voice

Key Feature: Ease of Scalability

- Larger customers needed large numbers of IVR ports, and desired the ability to easily add capacity as necessary
- Cisco ISN met these needs because increasing its capacity can be as easy as adding Gateways and servers, such as Cisco ISN Voice Browsers and Application Servers
- Minimal Cisco ICM configuration required; to Cisco ICM, additional servers can appear as part of existing ‘logical VRU’
- Usually, only small VoIP routing configuration changes are required
Key Feature: ICM as Scripting Tool

- Most customers desire a simple application-building interface for an IVR
- Cisco ISN meets this need because it uses existing Cisco ICM tools, Configuration Manager and Script Editor to write IVR applications
- Existing Cisco ICM and Cisco IPCC customers find scripting for Cisco ISN to be very simple
- Customers new to Cisco ICM still find scripting for Cisco ISN easy to learn

Key Feature: ASR/TTS

- Two customers needed Automated Speech Recognition (ASR) and high scalability
- Cisco ISN utilizes existing ability of VXML-enabled Cisco Voice Gateways to use MRCP for Third-party ASR/TTS
- Third-party ASR/TTS software vendors Nuance and Speechworks are supported
Cisco ISN Case Study

Enterprise Customer Integrating Cisco ISN

One Enterprise Customers
Had the Following Business Needs:

- Replacement for legacy TDM IVR and ACD with expiring leases
- Reduce labor costs by moving contact center operations overseas
- Stop paying the IXC for Take-back and Transfer
- Phased migration to a converged IP solution, including overseas contact centers
- Keep WAN traffic between U.S. and overseas facilities low
Cisco ISN Case Study—Phase 0

- Completely legacy TDM environment
- All calls delivered from PSTN to TDM ACD

Cisco ISN Case Study—Phase 1

- Robust VoIP network provisioned
- Cisco CallManager installed overseas; uses simple hunt groups
- Calls front-ended by TDM ACD, overflows transferred to Cisco CallManager
- Inter-site transfers using IXC Takeback-and-Transfer
Cisco ISN Case Study—Phase 2

- Cisco ISN, Cisco IPCC installed and operated in parallel to TDM
- All incoming calls now front-ended by Cisco ISN, which serves as IP voice switch and queuing platform for all sites; only calls that must go to contact center agents overseas traverse the VoIP WAN, using G.729
- Cisco ISN now conducts inter-site transfers; IXC T-and-T eliminated
- TDM IVR still used for self-service

Cisco ISN Case Study—Phase 3

- Self-service IVR application replicated in Cisco ISN
- Cisco ISN now conducts IP Voice switching and all IVR functions
- TDM IVR decommissioned
Cisco ISN Case Study—Phase 4

- Additional Cisco IPCC site installed
- TDM ACD decommissioned, leaving pure VoIP solution

Challenges

What We’ve Encountered...
Challenges

• Software dependencies
  Cisco ISN is dependent on very specific versions of Cisco IOS and Cisco CallManager (e.g. 12.2(13)T3, 3.2(2c) spH)
  We’ve encountered problems in the past when using the wrong versions; had to be very careful in selecting versions

• Design methodology
  Cisco ISN is much more VoIP-centric than Cisco’s other IVR products
  Cisco ISN “sits” in the network much more like a Voice Gateway than Cisco IP IVR
  We’ve had to approach the network and call-flow design like it is much more like traditional IP than a TDM voice or even an IP-IVR environment

Challenges (Cont.)

• Skill requirements
  An end-to-end environment containing Cisco ISN requires strong Cisco ICM, Cisco IOS and VoIP skills
  Sometimes an interesting challenge with customer personnel; have to carefully gather the right people

• Large-scale ASR applications
  Scripting for complex ASR applications is challenging, and requires much up-front design
  Engaging the vendors (Speechworks and Nuance) has been useful, utilizing their expertise in developing XML-based ASR “grammar” files, for example
  Cisco Partners have become the leading experts in scripting ASR applications for Cisco ISN
Cisco ISN: Highlights from the Field

- Questions?

Please Complete Your Evaluation Form

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