



Cisco and CrystalVoice Technical Integration Brief



Overview

Leading companies are transforming their call centers from “cost” centers to “revenue” centers. The new-generation call centers, referred to as *contact centers*, increase agent productivity, generate new revenue, and increase customer satisfaction by reaching a broader number of customers and enabling customers to contact the company in their own preferred ways. The new generation of contact centers is made possible by the many new media for customer communication such as e-mail, text chat, Web sites for self-help and, now, voice-enabled PCs and Web sites with click-to-talk Web links.

The Cisco CrystalVoice solution extends the Cisco IP Contact Center (IPCC) reach to include voice interactions over the Internet, allowing consumers to access the full features and benefits the IPCC provides to the contact center and its customers. This gives consumers on the Internet the flexibility and convenience to “click” to talk to a live agent.

New Contact Medium for the Contact Center Customer

With high-quality voice-over-the-Internet from CrystalVoice, it is possible to add a new contact medium for consumers—Web click-to-talk—to improve customer satisfaction and transform contact centers from cost centers to revenue centers. When completing an e-commerce transaction or retrieving online support, Web consumers can click a button to talk to a contact center agent, getting the help they need when they need it. Contact centers now have the ability to reach out to many more customers throughout the world, with tremendous cost savings, improved productivity, and significantly increased customer convenience and satisfaction. Businesses generate higher revenue with a larger and more accessible customer base and the opportunity for up-selling during customer interactions.

Cisco Overview

Cisco IPCC is an automatic call distributor (ACD) alternative based on Cisco AVVID (Architecture for Voice, Video, and Integrated Data). Cisco IPCC provides intelligent call routing, network-to-desktop computer telephony integration (CTI), interactive voice response (IVR), real-time and historical reporting, and multimedia contact management to contact center agents over an IP network. Cisco IPCC enables rapid deployment of contact centers and enables customer with legacy ACDs to evolve their existing call centers to virtual multimedia contact centers.



The Cisco IPCC solution is based on the proven products: Cisco CallManager and Cisco Intelligent Contact Management (ICM) software. Cisco CallManager provides location-independent public branch exchange (PBX) capabilities, while Cisco ICM provides virtual ACD features. Cisco IPCC also supports the Cisco Collaboration Server (CCS) to enhance the IPCC solution with real-time Web collaboration. With the Cisco IPCC solution, enterprises can build virtual contact centers and can take advantage of IP transport and extend the boundaries of the contact center to include branch and home offices.

Cisco IPCC integrates easily with legacy call center platforms and networks, enabling a contact center to continue to leverage its investment in legacy systems while providing a smooth migration path to an IP infrastructure. Whether a company is expanding an existing operation or establishing its first contact center, the Cisco IPCC solution can help organizations realize the cost and performance benefits of a converged network at their own pace. Cisco IPCC is designed for implementation in single-site and multisite contact centers as well as service provider hosting environments.

CrystalVoice Overview

CrystalVoice provides the following elements for integration with Cisco IPCC:

- *CrystalVoice Click-to-Talk (CTT)*: click-to-talk client application for consumers
- *CrystalVoice Internet Soft Switch (ISS)*: server software connects Internet calls to Cisco IPCC

CrystalVoice Click-to-Talk (CTT): This click-to-talk client application for consumers allows the Web-based consumer to talk to a call center agent over the Internet. Upon first invocation, there is a thin client download prior to connecting to the agent or ACD queue. Since many households do not have a second phone line, this allows a much higher customer retention and sales closure rate, as the consumer no longer has to disconnect their Internet connection in order to call an 800 number. With CrystalVoice's firewall solution, even Internet users behind a corporate firewall are able to click-to-talk.

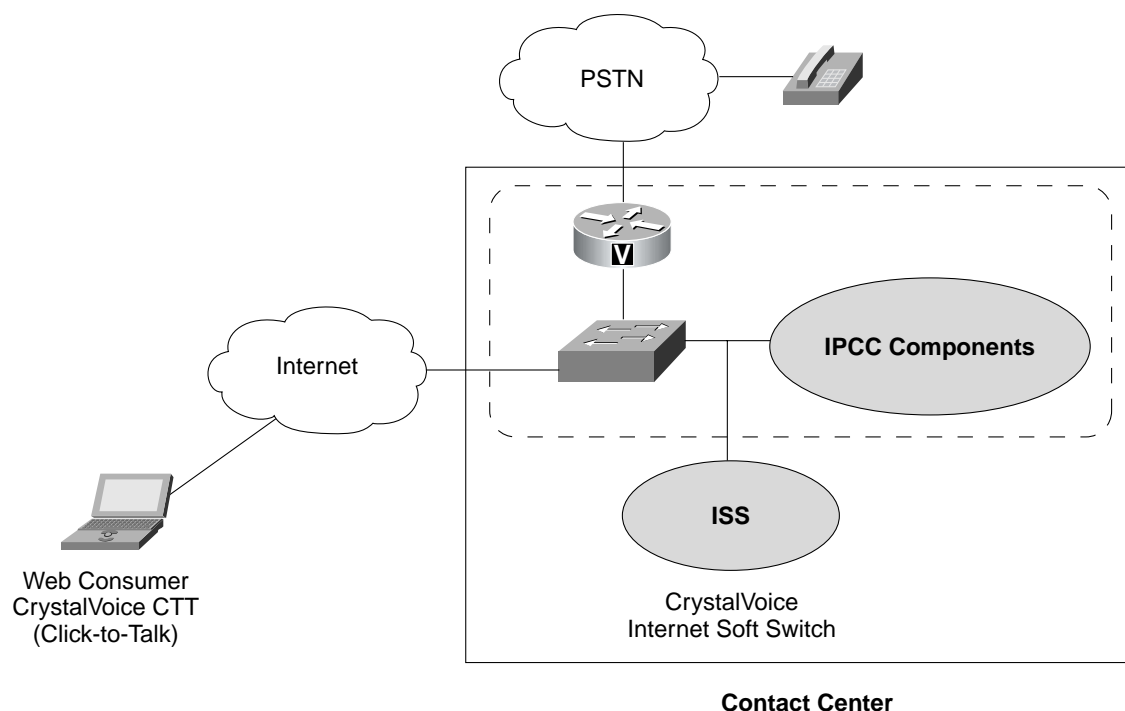
CrystalVoice Internet Soft Switch (ISS): In order to provide crystal-clear voice on the raw, unmanaged Internet, CrystalVoice's technology includes many proprietary and patent-pending technologies—not available in today's media and call-control standards. Therefore, once the Internet call arrives at the IPCC-powered contact center, the CrystalVoice ISS decodes the call into standards-based media and call control protocols for transmission over the LAN. This allows even existing IPCC installations using traditional voice-over-IP (VoIP) technologies to easily bolt-on CrystalVoice as a way of transforming a traditional call center into a fully Internet-accessible contact center.

Integration Overview

Figure 1 shows the architecture of a CrystalVoice-enabled IP Contact Center. The CrystalVoice ISS runs on a server in the IPCC network. The ISS is configured to accommodate the number of simultaneous VoIP session calls desired by the contact center. The CrystalVoice "Click-to-Talk" application is shown on the Web consumer's desktop.



Figure 1 Cisco and CrystalVoice IPCC architecture. The Web consumer (CTT) application and the soft switch (ISS) components are provided by CrystalVoice. Networking and contact center infrastructure are provided by Cisco Systems.



Cisco Components

Cisco Intelligent Contact Manager (ICM)—provides enterprise-wide intelligent contact management by distributing voice and data from multiple channels to enterprise resources such as ACD, IVR, and desktop applications.

Cisco Collaboration Server (CCS)—enables customers to request and engage in callback (PSTN or VoIP), text chat, and web-collaboration sessions with contact center agents. Web collaboration functionality includes sharing web pages, jointly completing online forms, and sharing Windows desktop applications.

Cisco CallManager (CCM)—provides traditional PBX telephony features and functions to packet telephony devices. Installed on a server-class PC, CCM software provides basic call processing, signaling, and connection services to Cisco IP Phones, voice over IP gateways, and software applications.

CallManager Peripheral Gateway (PG)—provides a connection from CallManager to the ICM. The PG informs the ICM of events at the Call Manager and provides a means for control.

Cisco CTI Server—provides the connection to the Agent's Desktop application. This application allows the agent to perform ACD functions (log in, available, wrap up, and so on) as well as call-control functions (answer, hold, transfer, release) from their desktop PC.

Cisco IP-IVR—provides announcements, prompting, gathering of caller entered digits, and a queue point for the ICM to provide call treatment to callers while all agents are busy.

Cisco VoIP Gateways—The appropriate Cisco voice gateway that meets the customer's needs.

Cisco Phone—the Cisco IP Phone (7960, 7940, 7910)



CrystalVoice Components

- CrystalVoice Click-to-Talk (9103-0000-16)
- CrystalVoice Internet SoftSwitch (9103-0000-26)

Integration Architecture

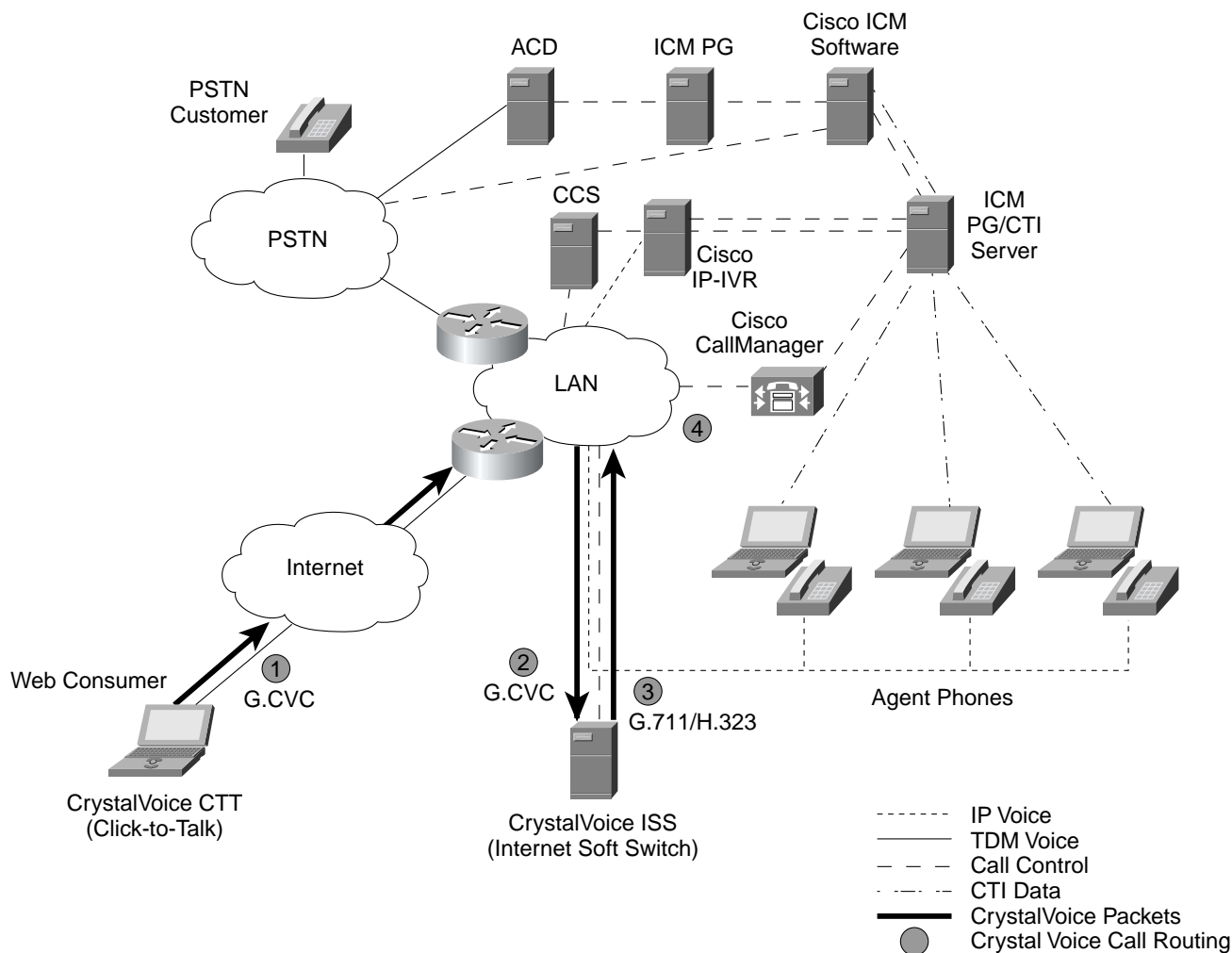
The CrystalVoice integration points within the Cisco IPCC is the Cisco Collaboration Server (CCS) for initiating the routing of the consumer request, and the Cisco Gateway and CallManager for connecting the VoIP call to the selected agent. Once the VoIP call is placed, it is presented to the CrystalVoice ISS, which in turn, communicates through the Cisco Gateway to Cisco CallManager.

The CrystalVoice integration will work in any of the standard Cisco deployment models, including:

- Cisco Collaboration Server and Cisco IPCC with agents on Cisco IP Phones
- Cisco Collaboration Server and Cisco ICM in a multi-site environment with agents behind TDM ACDs
- Cisco Collaboration Server and Cisco Media Blender with agents behind TDM ACDs

The following diagram shows a general layout of components for CrystalVoice integration with Cisco IPCC. In a legacy ACD (TDM) scenario, Cisco CallManager and Cisco IP-IVR would be replaced with a legacy ACD and TDM IVR; also, the agents would be using proprietary ACD phones, not IP phones.

Figure 2 Cisco CCS/ICM CrystalVoice integration details. CrystalVoice call routing is shown with darker lines.





Call Flow

Simplified call flow (Figure 2) is outlined as follows:

- The consumer clicks on the Click-to-Talk button on the Web site, and the request is routed over the Internet to the Cisco Collaboration Server, which queues the request for an available agent.
- When the request is assigned to an agent, CCS automatically connect the agent and consumer in a Web collaboration session and launches the CrystalVoice softphone on the consumer desktop
- The CrystalVoice softphone routes the call over the Internet to the LAN within the contact center to the CrystalVoice Internet Soft Switch.
- The CrystalVoice Internet Soft Switch performs any needed transcoding to other standard-based encoding and call-control protocols, then routes this to the Cisco Gateway. The Cisco Gateway passes this call to the Cisco CallManager (or TDM ACD) which connects the call to the selected agent

Implementation

System Requirements

Hardware requirements

- Consumer:
 - Pentium 166 MHz (minimum)
 - Full-duplex sound card
 - Multimedia headset with microphone or RJ-22 handset with multimedia adapter cable
 - Minimum hard disk space of 5 MB
 - Minimum connectivity 14.4 kbps (dialup)
 - 8 kbps minimum delivered throughput (bandwidth of connectivity)
- IPCC Network
 - Server Technical Specifications:
 - Windows NT (SP4 or higher) or Windows 2000
 - Minimum hard disk space 10GB
 - Network Interface Card (Ethernet)
 - Pentium—1GHz (minimum recommended CPU)

Software requirements

- Windows 95 (requires Winsock2), 98, ME, NT SP4 (or higher), 2000 (or successors)

Networking requirements

- CrystalVoice ISS—to reside on a server in the network

Installation Process

Skill requirements:

- Consumer: no skills required
- Internet Soft Switch: Network Administrator

Installation process

- Consumer: automatic download.
- Internet Soft Switch: Network familiarity. Configuration settings optional.

Customization

- Network setting of CrystalVoice ISS
- Call logging at ISS

Ongoing Administration

None

Availability

September 2001

- Cisco IPCC (ICM Version 4.6 or higher)
- CrystalVoice Revision 1.1 (or higher)

Resources

Training

CrystalVoice will provide training on as-needed basis. Send e-mail to Support@CrystalVoice.com for all training inquiries.

Support

- 8 AM–6 PM (Pacific) Monday through Friday. Technical support available via the following:
 - Telephone 408.350.2008 x200
 - Click-to-Talk via customer login: www.CrystalVoice.com/login.html
- E-mail: Support@CrystalVoice.com

Documentation

To learn more about the Cisco Contact Center solution, please visit http://www.cisco.com/warp/public/180/prod_plat/cust_cont/.

To learn more about CrystalVoice applications, please visit <http://www.CrystalVoice.com>.



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