

## ASSOCIATE ARTICLES

# Call centers and the Internet

> The following two articles describe complementary approaches to the evolution of call centers in the Internet environment. The first highlights the “Genesys Internet Suite”, a solution which is suitable for integration in multi-platform configurations, including network-based environments. The second article described the Alcatel CCweb solution in some detail; this can be seamlessly combined with the Alcatel OmniPCX 4400.

# Redefining the call center: Customer service on the Internet

> In this new era of customer interactions, companies must prepare for Internet-based communications if they are to remain competitive.

## Introduction

The Internet is changing the way in which companies interact with customers. Its high-speed circuits are supplementing today's "bricks and mortar" businesses with Web sites that offer products and services on a 24 hour, 7 day a week basis. At the same time, established "dot-com" companies are realizing that customer acquisition and retention are best achieved through superior customer service and by providing a responsive, information-rich communication experience. In this new era of customer interactions, companies must prepare for the inevitable arrival of Internet-based communications and its implications on the competitive landscape.

For example, if a Web site is difficult to use, offers little capability, or is unresponsive to customer needs, it will not only be underutilized, but it will leave an indelible impression in the customer's mind. It is far too easy for Internet customers to select another Web site if they cannot accomplish their goals or get answers to their questions from the first company they select.

Indeed, the growth and evolution of the Internet as a customer contact channel has profound implications for all businesses today. Companies that do not conduct business on the Internet are losing customers to those that do. At the same time, companies who take advantage of the Internet are real-

izing that their ability to succeed hinges on their ability to properly support their Internet customers.

This article describes the core functionality and architecture of the Genesys Internet Contact Center Solution, including its relationship to the Genesys T-Server Framework and Applications. Ultimately, it describes how the Genesys Internet Suite can transform a call center into an Internet-enabled contact center. As shown in Figure 1, this may or may not include telephony integration – it is up to the contact center to decide. Whether a Web user chooses to communicate by e-mail, chat, Web call through (Voice over Internet Protocol; VoIP), Web collaboration or by telephone, the Genesys Internet Suite provides the capabilities to realize the full benefits of each type of communication. This includes intelligent routing, displaying customer information on the agent's screen, third party application integration, and real-time and analytical reporting – all within a single multimedia environment. Each of these capabilities can be introduced incrementally as a company's Internet-enabled customer base increases.

## Genesys Internet Contact Center Solution

The Genesys Internet Contact Center solution offers companies an integrated approach to customer interaction management. Building Internet

capabilities into the existing call center reduces duplication, introduces leading edge customer contact technology and ensures consistency for each transaction regardless of the communication channel. Customers are able to interact in the way that makes the most sense to them while receiving a consistent, unified level of service from the company. Companies can support a variety of Internet-based customer communication channels and gain the benefits of a single management infrastructure.

## Technical Architecture

The Genesys architecture comprises two integrated components: the T-server framework and the Genesys framework.

## T-Server Framework

This is an open, scalable, standards-based framework that forms a unified foundation for customer interaction. It integrates diverse media types – including phone, fax, e-mail, the Internet and VoIP – in real-time. The Genesys T-Server Framework delivers full Computer Telephony Integration (CTI) within a company's existing call center. Integration capabilities and call center configuration functions enable customized solutions to be developed as needed. The T-Server Framework scales to fit single-site and multi-site enterprises.

## Genesys Framework

This is an extensive suite of call center applications – including inbound

and outbound communications routing, and reporting – that sit on top of the framework (see Figure 1). The T-Server Framework is the foundation for the Genesys architecture, enabling applications to deliver advanced inbound, outbound, and real-time and historical reporting functions. Unlike traditional proprietary solutions, in which applications are often embedded in hardware (e.g. automatic call distribution and interactive voice response systems), the Genesys framework is software-based, utilizing a platform-independent, standards-based architecture. As a result, it integrates with the existing computing and telephony infrastructure, including hardware devices, software, public and private networks, corporate databases, desktop applications and call center processes.

### Genesys Internet Suite

The Genesys Internet Suite consists of five products, each representing

an Internet-based customer communication channel:

- *Genesys E-Mail*: Allows contact center agents to respond to customer e-mail inquiries with the same personal care as traditional voice interactions. Compatible with a wide range of third-party e-mail servers, Genesys E-Mail can automatically respond and/or suggest responses to incoming e-mails based on business rules defined by contact center managers.
- *Genesys Chat*: Allows Web users to enter questions into their browsers and view responses from an agent in real-time. Genesys Chat consists of a lightweight browser-based interface that can be quickly and effortlessly downloaded to the customer's computer.
- *Genesys Web Call Back (voice over PSTN)*: Makes it possible for customers visiting a com-

pany's Web site to request a call back from a contact center agent either immediately or at a more convenient time. Using a "contact center enabled" Web site, inquiring customers can view real-time customer queue statistics, such as the average waiting time and the number of callers ahead of them.

- *Genesys Web Call Through (VoIP)*: Based on the H.323 standard, this allows Web users to speak to customer representatives via their computers. Simply by clicking a link on a company's Web site, customers preferring Web-based communications can be connected to a contact center agent using standard Internet communication software.
- *Genesys Web Collaboration*: Allows contact center agents and customers to automatically synchronize Internet browsers and simultaneously view and navigate a company Internet site. Thus it enables agents to assist customers to learn how to find solutions or use features on the company site. In addition, Genesys Web Collaboration can work with any of the Genesys real-time communication channels, including Web Call Back, Web Call Through, Chat and the telephone.

Though each communication channel a contact center encounters is fundamentally different, much of the technology and business workflow is the same. In fact, the Genesys Internet Suite takes advantage of many of the capabilities inherent to the Genesys architecture, including business routing, real-time reporting, and dynamic configuration. This section looks at the technologies required to support Internet customer contact via each of these five communication channels and the fundamental concepts introduced by this architecture. Figure 2 shows the Internet Suite architecture, including the technology components that play a role in managing e-mail, voice, chat,

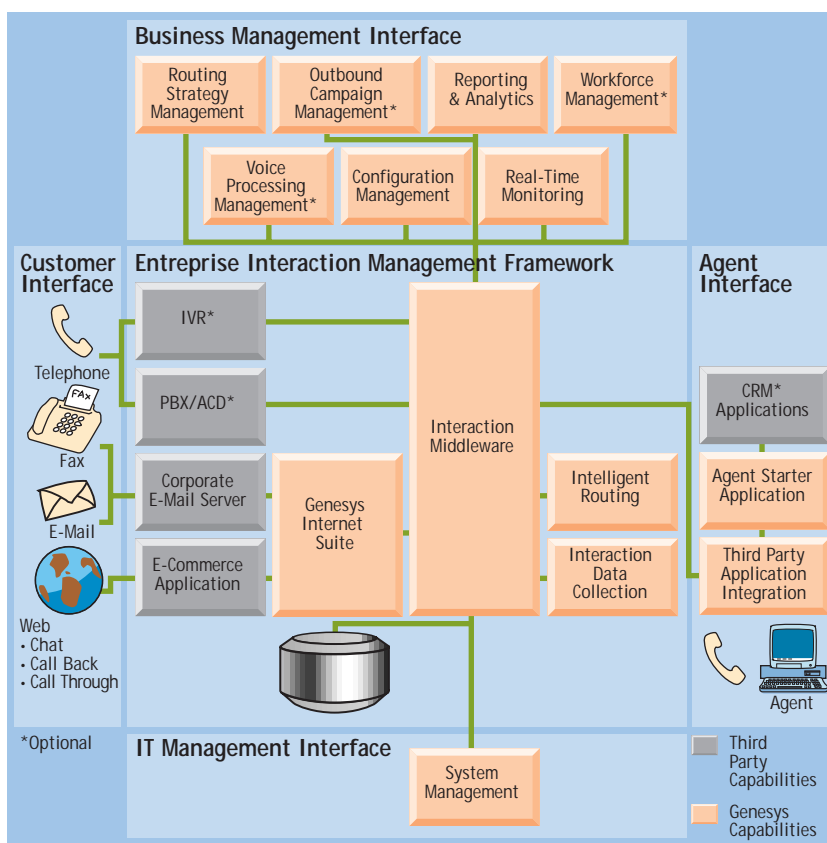


Figure 1 – Genesys framework

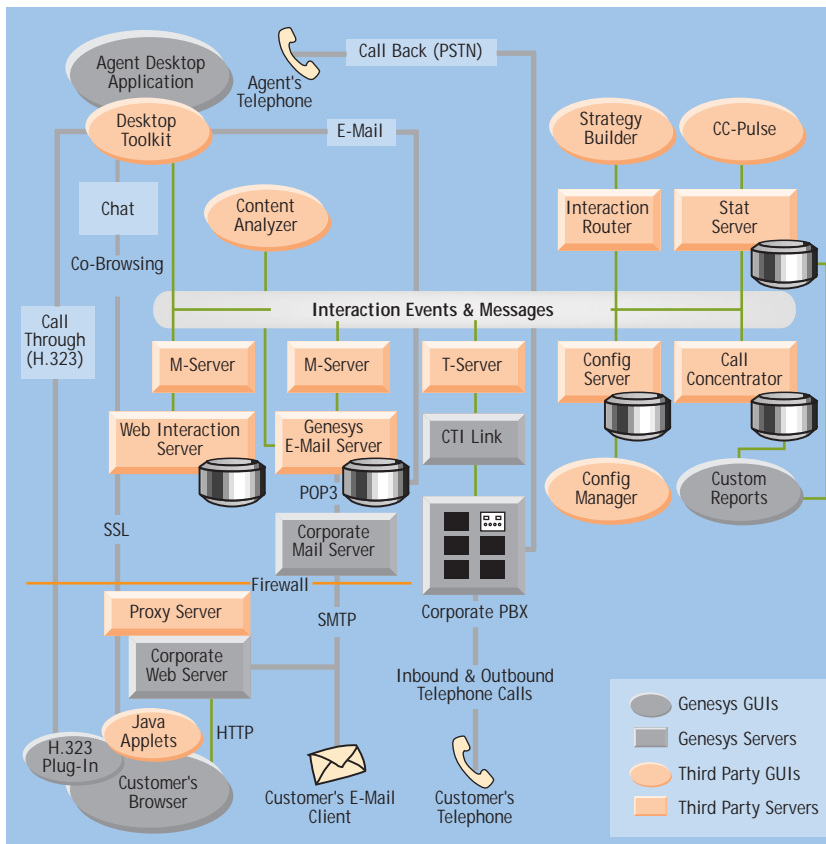


Figure 2 – Internet suite architecture

Web call back, Web call through, and Web collaboration interactions.

**Interaction Model**

The architecture uses an interaction model to set up a common language which is used by each of the applications in the Genesys framework. This language includes the dictionary of events and messages required to describe an interaction, as well as the grammar (i.e. order) by which these events and messages must be transmitted and received.

At the center of the interaction model are the T-Server and M-Server which interface sources of interactions, whether the source is a PBX, e-mail server, or Web server. Their role is to translate the source protocol into the protocol of the common interaction model, giving the Genesys management and control applications media independence.

**Interaction Bus**

T-Servers are used to interface tele-

phony devices, such as PBXs and interactive voice response units, which present telephone interactions to the Genesys framework. M-Servers are used to interface media servers, which present multimedia interactions, such as e-mail, chat, and VoIP. Whether used alone or in conjunction with others, T-Servers and M-Servers form a logical “interaction bus” to the Genesys management and control applications, which register with the interaction bus to receive events and transmit messages that describe and control an interaction. For example, when an e-mail arrives, the Genesys E-Mail server instructs an M-Server to issue a “route request” to all subscribing applications, such as the interaction router and call concentrator. The interaction router receives this event, executes a routing strategy, and returns a “route instruction” to the M-Server, which then passes the instruction back to the Genesys E-Mail server. At the

same time, the M-Server notifies the call concentrator, which stores a record of the transaction in the database. This scenario is depicted in Figure 3.

The interaction bus provides the Genesys framework with flexibility and scalability. Framework components can be deployed in hardware architectures ranging from a single server to multiple servers across a Local Area Network (LAN) or Wide Area Network (WAN). As traffic increases, T-Servers and M-Servers can be added to increase processing power without necessarily requiring additional interaction routers and call concentrators. The new T-Servers and M-Servers simply add to the interaction bus.

**Universal Management and Control**

With a unified interaction model and messaging bus established, control applications, such as the interaction router, treat the interactions with different media in the same way. As an example, this gives the interaction router the ability to create queues consisting of telephone calls, e-mails, chat requests, etc. The interaction router does not necessarily care about what types of media are associated with the interactions in a queue. Thus, a common language and user interface are used to describe routing method-

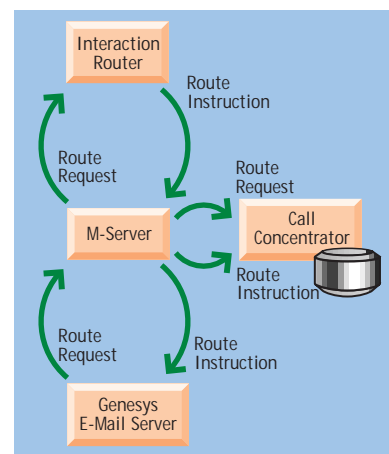


Figure 3 – Interaction bus for Genesys E-Mail

ologies across media types. Routing strategy designers can use this flexibility and ease of use to create a consistent customer communications experience over multiple media.

Genesys management applications, such as CC-Pulse and Call Concentrator, also behave the same with respect to different media. This gives call center managers the possibility of viewing statistics, such as the status of e-mails in queue, voice calls in queue, chat sessions in queue, and number of e-mails vs voice calls handled by a particular agent. All this information can be viewed on a single console or included in a common report.

### Agent State Model

When a human is required to handle a customer interaction, the agent state model is instrumental in determining where, when and to whom an interaction is routed. This model reflects the current status of each agent – busy, available, engaged in after-call work, logged out, etc. This information is vital to the interaction router, which identifies a list of agents qualified to handle a particular interaction, and determines which agents are available.

The introduction of non-real-time interactions, such as e-mail, fax, and even text chat (which can be considered near real-time), extends the agent state model beyond the person. For example, the fact that an agent is busy responding to a customer e-mail does not necessarily mean that he or she is unavailable to talk to an important customer. Genesys Stat-Server maintains agent state information and also tracks the status of the particular addresses assigned to an agent's place. As shown in Figure 4, Agent John Doe can still be considered available to answer a telephone call or engage in a chat session in view of the interruptible nature of e-mail. Agent Jane Doe should probably be considered unavailable to receive another interaction because a telephone call typically requires uninterrupted attention. Ultimately, the decision is up to the contact center manager and the design of the routing strategies.

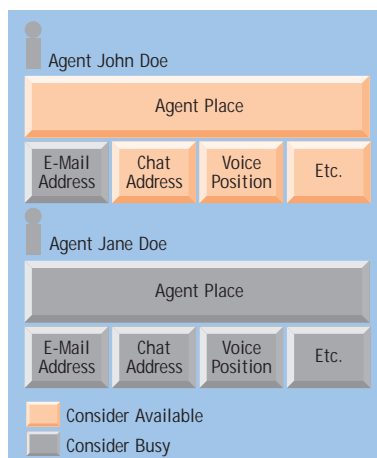


Figure 4 – Agent state example

### Virtual Interactions

Genesys Web Call Back best exemplifies a “virtual” interaction. Using this feature, an Internet user can ask to receive a telephone call from a contact center representative. On receiving this request, the Web interaction server initiates a virtual interaction with the Genesys framework. Just as a telephone switch notifies the T-Server when an inbound telephone call arrives, the Web interaction server notifies the M-Server that a virtual interaction has been created. The control and management applications, such as the interaction router and CC-Pulse, then process this interaction in the same way as a real telephone call. The interaction router executes a routing strategy and queues the interaction until a qualified agent is available; CC-Pulse displays real-time statistics to the supervisor. Only when an agent becomes available does the Web interaction server initiate a telephone call back to the customer. A Genesys Web Call Back interaction can be thought of as part virtual and part real.

This considerably benefits both the Web user and the contact center. The user does not need to tie up a phone line while waiting in a queue, and the contact center saves telecom charge because a call is only made when an agent is available; the cost of queue time is eliminated. A virtual interaction is the

precursor to a real interaction. It represents the period before real-time communication can occur.

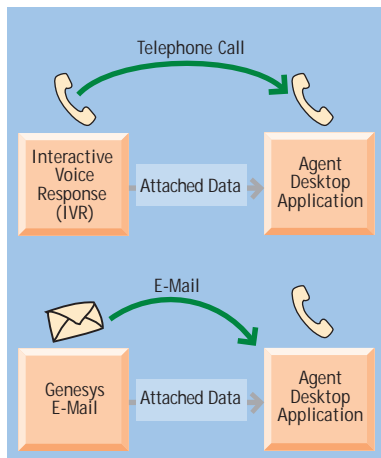
### Attached data

One of the most important concepts of the Genesys framework is “attached data”. This represents information, associated with a customer interaction, which can be used to make routing decisions, associate contact center traffic to business metrics, and more importantly, provide the receiving agent with customer information that will help to provide a better customer service. The Genesys framework synchronizes the arrival of the attached data at the agent's desktop with the arrival of the interaction. Figure 5 illustrates this concept in the case of a telephone call and an e-mail. In both cases, the agent desktop application can “pop” a screen that formats and displays the attached data associated with the incoming interaction.

The Genesys framework allows a contact center to attach any type of data to an interaction. For example, as shown in Figure 5, an interactive voice response system can be used to collect data from a customer calling by telephone. In the case of customer e-mail, the Genesys E-Mail server can be used to attach the relevant topics identified during content analysis.

### Security

Most companies doing business on the Web deploy a firewall to prevent unauthorized access to their back-end systems. In order to provide maximum protection, most firewalls are very selective, only accepting specific data transmitted via certain protocols bound for specific places. For example, firewall managers will typically “open” port 25, which is the standard Simple Mail Transport Protocol (SMTP) mail server port to allow incoming e-mail. Opening additional ports increases exposure and the number of potential “holes” in the firewall. With this in mind, the Genesys Internet Suite accommodates firewalls in several ways.



**Figure 5 – Synchronization of attached data and interaction content**

**Proxy servers**

A proxy server is a common approach in cases where a firewall manager does not want to expose a server port through the firewall. The proxy server sits outside the firewall in a LAN segment, serving as an intermediary between the server and the client. Both the server and the client connect *out* through the firewall to the proxy server. Consequently, there is no need for the client to connect *in* through the firewall and, as a result, no need to expose a server port. Nonetheless, the proxy server approach requires the firewall to be configured to allow outward access.

As shown in Figure 2, the Genesys Internet Suite uses a proxy server as an intermediary between

the Web interaction server and the Web interaction client, which is a Java applet based Application Programming Interface (API). This allows, for example, Genesys Web Call Back to display real-time queue statistics to Internet customers before they request a call back or as they wait in queue. Note that the proxy server resides on the same host as the HyperText Transfer Protocol (HTTP) server that transmitted the Java applet to the customer's browser. This is a security measure enforced by Java.

**Encryption**

The Genesys Internet Suite supports 56-bit Secure Socket Layer (SSL) encryption to securely pass attached data, text chat, and cooperative browsing information from the customer's browser to the Web connection server. Encryption used within the Genesys Internet Suite is subject to the distribution requirements of the United States Bureau of Export Administration.

**Conclusion : Putting it All Together**

The Internet-Enabled Contact Center transcends the call center and offers communications through some or all of these media. It is not just about taking phone calls or answering e-mail, but about communicating with customers in the way they choose while making a consistent impression.

Recognizing that in most cases it is difficult to achieve major changes overnight, it is important to consider the foundation required to support an evolutionary approach to implementing an Internet-enabled contact center. From a people and process standpoint, the foundation consists ultimately of the contact center agents and the methods by which they serve customers. These resources should be leveraged, with new tools being added to support new customer interfaces, such as e-mail and the Web. From a technology viewpoint, the foundation must consist of an IT infrastructure that is flexible enough to accept change. This entails an infrastructure layer that abstracts the particulars of a customer interface or communication channel and presents a unifying "interaction model," enabling common business applications to be used. In the end, customers benefit by receiving an improved service and a more personal communications experience. Businesses benefit from increased opportunities to reach more customers, and features that enable the company to win their business and retain it over the long term. ■

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