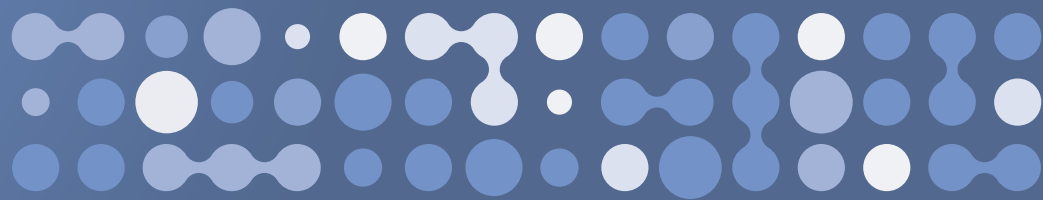


Microsoft



MICROSOFT[®] AUTOMATED SERVICE AGENT (ASA) SOLUTION

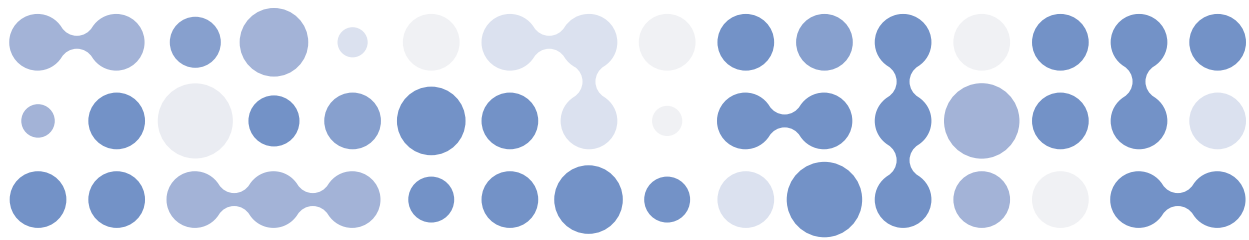


Microsoft[®]
Automated Service Agents



Table of Contents

I. EXECUTIVE SUMMARY	3
II. CORE FEATURES	5
III. KNOWLEDGE MANAGEMENT	8
IV. INTEGRATION	10
V. REPORTING AND ANALYTICS	12
VI. ABOUT THE MICROSOFT AUTOMATED SERVICE AGENT SOLUTION	16



I. EXECUTIVE SUMMARY

A Different Approach to Customer Care

The Microsoft® Automated Service Agent (ASA) Solution represents a significantly different approach to online customer support. Whereas conventional customer relationship management (CRM) solutions focus primarily on increasing the efficiency of attended support, an ASA aims to resolve customer issues without involving a human support representative at all, deflecting calls and e-mail messages, and dramatically reducing the burden on your support organization.

An Automated Service Agent delivers service that often matches or exceeds that provided by live support representatives—without the hold or turnaround times usually associated with attended support. Adding an ASA to your customer care team yields more satisfied customers and significant cost reductions.

What Is a Microsoft Automated Service Agent Solution?

A Microsoft Automated Service Agent Solution is a virtual support representative that lives online and provides customer support around the clock, interacting in a natural, conversational style. Customers use a text-chat interface to type questions in their own words and receive immediate responses.

A Microsoft Automated Service Agent Solution generally resides on your company's Web site, where it can push existing Web-based content along with its text-based responses. An ASA may also be accessed via other text-based communication channels, including instant messaging, wireless application protocol (WAP), and short message service (SMS). You may only deploy an ASA as a managed or hosted service.

ASAs vs. Other Forms of Self-Service: Quality is the Difference

What sets the Microsoft Automated Service Agent Solution apart from other self-service tools? In a word, quality. Whereas traditional self-service tools force customers to work for their support by guessing at search terms and poring over long lists of possible answers, a Microsoft Automated Service Agent behaves like a human support rep, answering questions directly and engaging customers in dialog to resolve issues. The results are predictable: faster resolution, less frustration, greater satisfaction, and reduced volume to your costlier attended support channels.

Should a customer require the intervention of a support professional, a Microsoft Automated Service Agent can seamlessly escalate the customer to a live representative. By passing along details of the customer's inquiry, the ASA can prevent unnecessary repetition and shorten the attended support session, yielding further cost reductions.

Understand Your Customers

As compared to other self-service solutions, Microsoft Automated Service Agents also offer you significantly better insight into your customers' needs. Browser-based self-service tools (like Frequently Asked Question sites, or FAQs) offer little insight, relying on rudimentary click-stream analysis. Search-based tools are somewhat better; they can at least compile lists of common search terms.

But no browser- or search-based tool can compare to an Automated Service Agent, which provides an unambiguous record of customer requests in the customers' own words. An ASA's complete, human-readable session transcripts also make it possible to assess the agent's success rate in resolving customer issues, a feat of analysis virtually impossible with other self-service solutions. An ASA's suite of reporting and analytics tools helps you extract full value from the recorded data, offering a range of standard reports, custom reports, and sophisticated quality analysis tools.

The Perfect Complement to Existing CRM Systems

Microsoft's ASA technology perfectly complements and integrates with "full-circle" CRM solutions. Our customers have proven the ASA solution yields immediate savings and a vast improvement in the quality of support currently available to customers.

Key Advantages of the Microsoft Automated Service Agent Solution

- Maximize initial contact resolution, deflecting unnecessary calls any time of day or week.
- Minimize costs.
- Free your support professionals to focus on higher-value customer cases.
- Enable customers to access even the most technical self-help using their own words.
- Capture customers' intentions with sophisticated ASA reporting and analytics tools.
- Detect high-value cases and seamlessly escalate to attended-support solutions.
- Deploy ASA without requiring customers to download any special software.
- Boost return on investment (ROI) of your existing CRM system with easy integration.



Deliver online self-help service that appeals to customers.



II. CORE FEATURES

A Microsoft Automated Service Agent is a virtual customer support representative (CSR) that provides your customers with online support 24 hours a day, 7 days a week. An ASA stands apart from other self-service solutions by closely simulating—and often improving upon—the service provided by live support representatives. ASAs have several key features that enable them to deliver superior automated service.

Conversational Abilities

The single most important feature of the Microsoft Automated Service Agent Solution is its ability to interact conversationally with customers. ASAs feature industry-leading natural language support with sophisticated semantic awareness, allowing for variations in the phrasing, accommodating abrupt subject changes, and using context to infer meaning where possible. An ASA can also take the lead in a conversation, prompting the customer for additional information, offering a suggestion, or guiding the customer through a multi-step process.

By interacting in a natural, conversational style, a Microsoft Automated Service Agent Solution reduces the burden on your customers, resulting in a much more satisfying experience and reducing the likelihood that they will resort to costly attended support channels.

The ASA's natural language system has been proven in the real world, where its agents have responded to more than 2 billion user queries. No other automated agent technology has been deployed to this level of usage.

Personalization and Dynamic Content

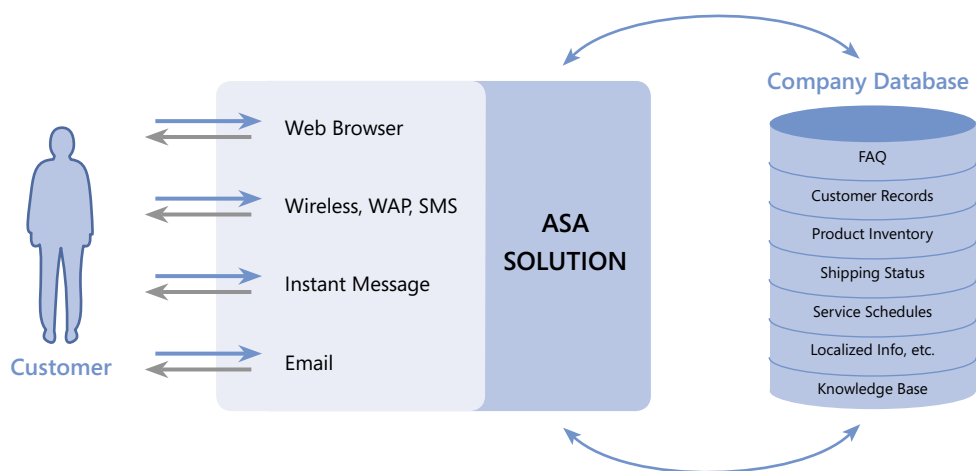
Simply by virtue of its conversational style, a Microsoft Automated Service Agent Solution provides a more personal, intimate customer experience than other forms of self-service. This experience can be augmented by taking advantage of an ASA's built-in personalization capabilities. An ASA can utilize its User Profile database to store user-specific information for retrieval in subsequent sessions (for example, "I hope that you successfully resolved your e-mail set-up last week. How can I assist you today?"). Of course, if privacy is a concern, you may configure an ASA so that it does not record individual user information.

The Microsoft Automated Service Agent Solution may also integrate with your company's customer database to access personally relevant information. Likewise, it may draw upon other (non-customer-specific) information stores within your organization. For example, an ASA for an Internet Service Provider (ISP) might be able to answer questions about the current status of the network, or about a customer's account balance. See Section IV, "Integration," for further information.



Improve upon service provided by live support representatives.

Figure 1: The ASA Solution integrates seamlessly with company data.



Escalation

When a Microsoft Automated Service Agent Solution is unable to help a customer, the customer may be transferred to an attended support channel such as e-mail, Web chat, or a call center. This process is called escalation.

A Microsoft ASA may offer escalation in a variety of different circumstances, as specified by your customer care team. Common triggers for escalation are:

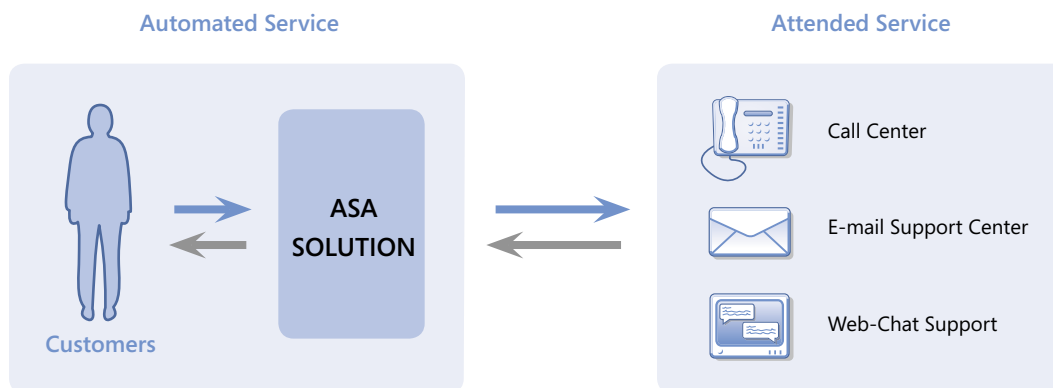
- When a customer asks a specific question (for instance, "How can I cancel my service?").
- When a customer repeatedly asks questions that the ASA cannot answer.
- When a customer expresses frustration.
- When a customer specifically requests to speak with a live representative.



"I hope that you successfully resolved your email set-up last week. How can I assist you today?" The ASA can be set up to remember users.



Figure 2: The ASA escalates unresolved cases based on company-set rules



The ASA Solution can be programmed to escalate issues that it cannot resolve automatically to an attended level of service according to a company's predetermined set of rules.

Your customer care team may also specify what information the Microsoft Automated Service Agent Solution should pass along to live support when an escalation occurs. The information passed may include a full session transcript, a summary transcript, the specific event that triggered the escalation, or answers to specific questions that the ASA has asked the customer. See Section IV, "Integration," for further information on escalation.

Easy, Flexible Deployment

A Microsoft Automated Service Agent Solution integrates easily with your existing Web site, and can be configured to push Web content along with its text-based responses. If your company wishes to utilize additional text-based channels for automated support, an ASA can be deployed simultaneously over one or more additional channels, including instant messaging, WAP and SMS.

Customization

The Microsoft Automated Service Agent Solution is built on the Colloquis Server, the company's proprietary, natural language application server. Because the Colloquis Server is specialized for conversational applications and employs a rapid, high-level development model, nearly any aspect of an ASA—including reports, escalation behavior, integration with external services, and the end-user interface—can be easily customized to suit your company's needs. Competing products developed on low-level, general-purpose platforms cannot match this ability.



Customers with issues that are not easily handled by the ASA are seamlessly escalated to attended support service.

III. KNOWLEDGE MANAGEMENT

A Microsoft Automated Service Agent Solution's knowledge base is not static—over time, it must evolve to keep up with the myriad changes that can affect your customer service organization. Maintaining and making incremental enhancements to an ASA's knowledge base increases the ASA's effectiveness, reducing the burden on other customer service resources.

The ASA Knowledge Management system:

- Allows an ASA to be "trained" by any number of non-technical contributors, using a simple Web-based interface.
- Ensures quality and compliance by providing a role-based workflow with editorial approval requirements.
- Supports continual updates to the knowledge base, while keeping the ASA up and running fulltime.

Knowledge Management Roles

A Microsoft Automated Service Agent's Knowledge Management system is similar to the content management systems used to publish large Web sites in that it distributes the work of maintaining an ASA across a potentially large pool of individuals with specialized roles:

- **Contributors** (typically senior customer service representatives) provide the questions and answers that constitute the ASA's knowledge base.
- **Editors** (typically subject matter experts or customer service managers) screen and approve content prior to publishing.
- **Knowledge engineers** perform initial setup of the ASA and ongoing tuning of the automated process that transforms contributed content into an executable script.

An ASA is always hosted by Microsoft and a Microsoft professional services team will perform the knowledge engineer role.

Knowledge Management Interface

An Automated Service Agent's Knowledge Management interface is part of the Colloquis Server Management Console, a secure, Web-based interface for managing all aspects of an ASA. The management console authenticates users and enforces workflow by granting role-based permissions to each user.

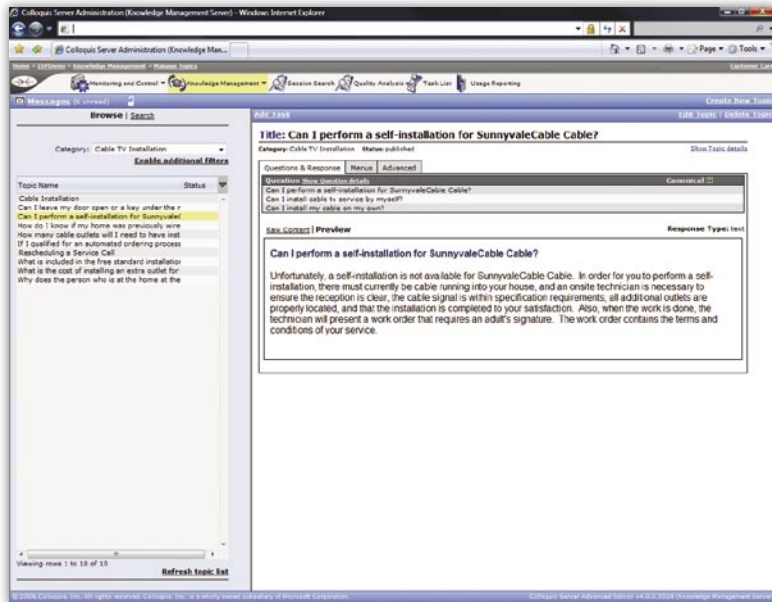
The Knowledge Management interface allows contributors and editors to:

- Browse and search existing questions and answers in the knowledge base.
- Create new questions and answers, and edit existing questions and answers.
- Ask test questions to verify that the ASA is responding correctly.
- Approve questions and answers for publication (editors only).



The Knowledge Management interface provides basic version control, preventing multiple users from simultaneously editing the same content and allowing changes to be rolled back as necessary.

Figure 3



Integration with Existing Knowledge Bases

In cases where a company has a knowledge base already in place, a Microsoft Automated Service Agent's Knowledge Management system can be integrated with the existing knowledge base via Web services. The most common form of integration is to store questions directly in the ASA's knowledge base (because questions are highly specific to the ASA's conversational mode of interaction), but to pull responses from the existing knowledge base (because the same content may be applicable across multiple support channels). This approach enables a company to avoid unnecessary replication of data and effort. See Section IV, "Integration", for further information.

About Knowledge Management and Natural Language

As discussed in Section II, "Core Features", the Microsoft Automated Service Agent Solution stands out from other types of self-service tools largely due to its ability to understand natural language—that is, to understand questions expressed in customers' own words. An ASA's natural language ability is not built into its knowledge base. Rather, it depends on the underlying platform's built-in functionality:

- **Semantic rules** enabling the ASA to recognize meanings and relationships within phrases.
- A **lexicon** of general-purpose and content-specific words that make up the ASA's vocabulary.

These components are tuned and maintained by the knowledge engineer. Contributors need only provide a few differently phrased questions for each answer added to the ASA's knowledge base. Given these basic questions, the ASA uses its natural language ability to recognize the virtually infinite number of variations that customers might employ when conversing with the ASA.

IV. INTEGRATION

While a Microsoft Automated Service Agent Solution may be deployed as a stand-alone application, it often makes sense to integrate an ASA with external services. Integration is most commonly employed when an ASA needs to draw upon an external data store (for instance, a central knowledge base, a customer database, or a live data feed), or “escalate” customers to an attended support service.

Connecting to External Data

As described in Section III, “Knowledge Management,” a Microsoft Automated Service Agent Solution generally stores information in its own knowledge repository, which is managed by the ASA’s Knowledge Management system. Certain customer-specific information may also be stored in the ASA’s User Profile database. Some types of information, however, are best accessed from external sources. Examples include:

- Knowledge base content that is not used exclusively by the ASA
- Customer-specific data that is not used exclusively by the ASA (such as account information)
- Dynamic data (such as order status)

Microsoft Automated Service Agent Solutions are built on the Colloquis Server platform, which provides a wide variety of integration options. Consequently, it is possible to integrate an ASA with virtually any type of external service—see the “Technical Integration Overview” section below for further information.

Escalating to Attended Support

As discussed in Section II, “Core Features,” a Microsoft Automated Service Agent Solution may be configured to escalate customers to attended support channels in certain cases. Most attended support solutions offer application programming interfaces (APIs) enabling integration with external systems, and ASAs are equipped to utilize virtually any such API. The next section provides a technical overview of ASA integration facilities, but first, we’ll examine a few hypothetical escalation scenarios at a high level.

Scenario 1: Web chat system exposing a server-to-server integration interface. ASA identifies the need for escalation and contacts the Web chat system behind the scenes, using some form of Hypertext Transfer Protocol (HTTP)-based communication. The ASA passes information about the customer’s session to the Web chat system, which stores the information and places the customer in a queue. In return, the Web chat system passes the ASA a unique identifier.

The ASA provides the customer with a hyperlink to the live support interface, containing the unique identifier. When the customer clicks the link and arrives at the live support interface, he is recognized by the identifier and immediately informed of his standing in the queue. When the customer reaches the head of the queue, he is assigned to a live support rep, who has access to the session information previously passed from the ASA to the Web chat system.



Scenario 2: Web chat system without a server-to-server integration interface. The ASA identifies the need for escalation and provides the customer with a hyperlink to the live support interface. When the customer clicks the link, he arrives at the live support interface and is placed in queue.

In this scenario, the ASA may still be able to pass session data to the live representative, provided that the Web chat system can be configured to accept data from the user's browser via the standard HTTP GET or POST methods. In this case, the link presented by the ASA to the customer can be constructed to pass the session data when the customer clicks the link.

Scenario 3: Phone support system exposing a server-to-server integration interface and offering outbound dialing. ASA identifies the need for escalation and asks the customer for his phone number. ASA contacts the phone support system behind the scenes, using some form of HTTP-based communication. The ASA passes the customer's phone number and session information to the phone support system, which stores the information and places the customer in a queue. In return, the phone support system passes the ASA an estimate of how long the customer will be in the queue based on current call volume.

The ASA informs the customer that he will receive a call and indicates the expected wait time. When the customer reaches the head of the queue, the phone system assigns him to a live representative, dials his number, and displays his ASA session information to the representative.

Technical Integration Overview

As noted above, a Microsoft Automated Service Agent Solution is built upon the Colloquis Server platform, from which it inherits its integration functionality. The Colloquis Server's integration model is primarily a disconnected, Web services-based model. Out of the box, the Colloquis Server integrates easily with any service accessible via HTTP; services that don't support HTTP access can be accommodated via a middleware gateway or a custom connector developed using the Microsoft Datasource API.

The types of services that may be integrated with an ASA include:

Web services. HTTP-based Web services are increasingly being used for integrating applications and processes, both within and across organizational boundaries. The Colloquis Server can access all types of services over HTTP, providing special support for services that utilize Simple Object Access Protocol (SOAP) and other forms of XML.

Web pages. Sometimes, an existing Web site is the best available source of data or content. The same facilities used to access Web services can also be used to extract information from Web pages, a process commonly known as "scraping."

Databases. Like Web and desktop applications, ASAs commonly need to access data stored in a structured database of some kind. There are several ways to integrate an agent with a database:

- Many database management systems (DBMS's) now provide the ability to publish data via Web services.
- If a company's DBMS does not support a Web services interface, a company can access it via a gateway—a thin layer of middleware running on a Web server or an application server. A gateway accepts an HTTP request from Colloquis Server, accesses the DBM's to execute the requested transaction, and returns the results in the HTTP response. Microsoft provides reference gateway implementations for various application environments and DBMS's, and guidance to developers who wish to develop their own gateways.
- If a company prefers not to use a middleware solution, Microsoft provides a C/C++ API which allows the development of custom adapters.

Applications. An ASA can easily access functionality exposed in an existing application. The options for integrating with an application are the same as those for integrating with a database, described above.

Files. An ASA can access data from text files. These files may reside locally or remotely, and may contain data compiled by hand, manually exported from an external source, or automatically output by an external application.

V. REPORTING AND ANALYTICS

As compared to other forms of online self-service, a Microsoft Automated Service Agent Solution offers substantially greater insight into your customers' needs and intentions. An ASA's secure, Web-based reporting and analytics tools play an integral role in the ASA system, enabling your organization to:

Monitor and analyze service volume. Statistics such as the number of customers served and the number of inquiries handled are key metrics not only for the customer service organization, but also for the company as a whole. Microsoft's ASA reporting and analytics tools make it easy to track and analyze an ASA's service volume.

Assess service quality. Microsoft's ASA reporting and analytics tools help a company ensure that its ASA is meeting customers' needs and leaving them satisfied.

Gain valuable customer insight. An ASA's session log provides a completely transparent view of the customer's issues, expressed in his or her own words. Microsoft's reporting and analytics tools let you extract this valuable information and put it to use.

Continually improve the ASA. You can use the data gathered by an ASA to enhance the ASA itself, leading to increased deflection rates and higher customer satisfaction. Microsoft's ASA reporting and analytics tools help to identify problems and opportunities for improvement, and integrate directly with the ASA's Knowledge Management interface, enabling non-technical personnel to make improvements on-the-fly.



An ASA's reporting and analytics tools are accessible via the Colloquix Server Management Console, a secure Web interface. The Management Console includes three distinct tools for usage reporting, session viewing, and quality analysis.

Usage Reporting

The Usage Reporting tool provides detailed statistical reports that enable a company to track and analyze an ASA's usage over time. Out of the box, the Colloquix Server reports the number of sessions, messages, unique users, and new users, and reports on the distribution of customer questions across the ASA's various knowledge categories. A company can also take advantage of the Usage Reporting tool's powerful customization features to track and analyze virtually any aspect of an ASA's interactions with customers—the frequency of escalation, or customer responses to survey-style questions, for example. Reports are automatically generated on a daily, weekly, monthly, quarterly, and yearly basis, and custom reports can be generated for specific date ranges.

Figure 4

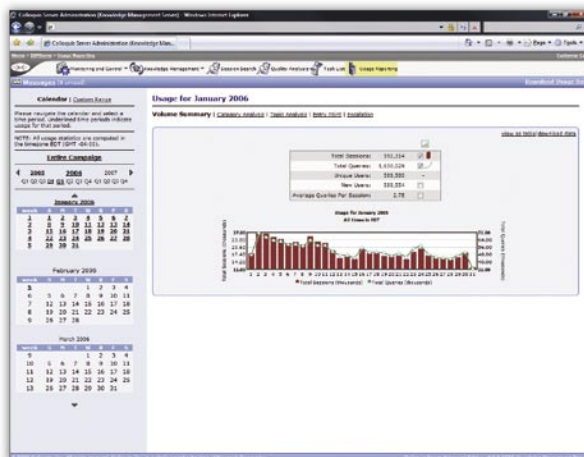
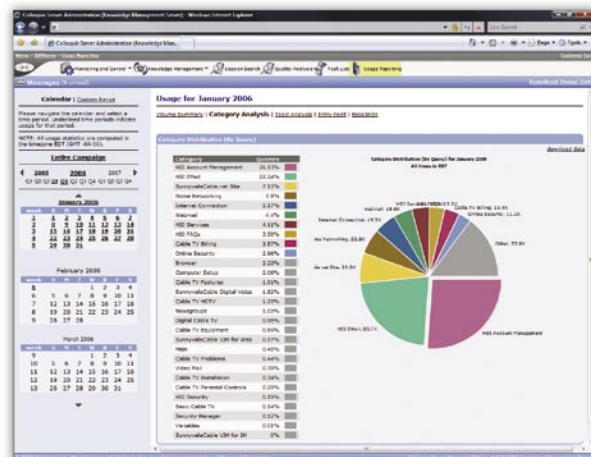


Figure 5



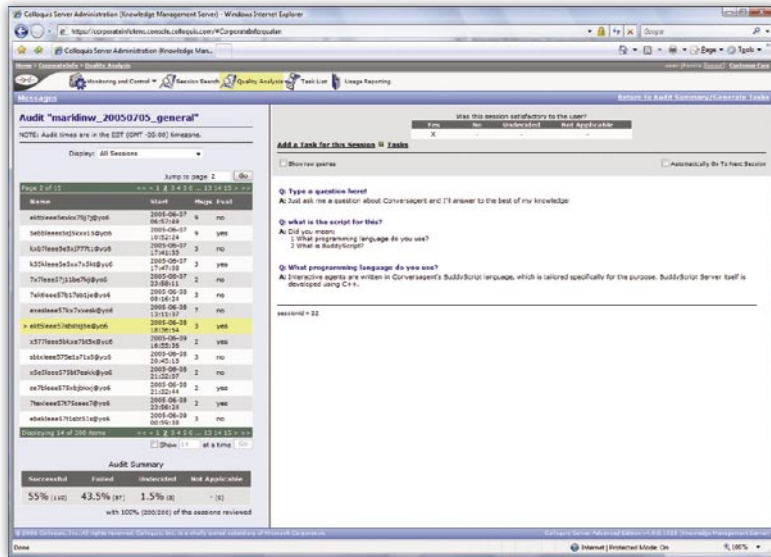
Data is presented both numerically and graphically, providing a visual representation of usage trends within the selected time period. Totals for the period are automatically calculated and displayed as well.

The Usage Reporting interface is a perfect complement to the Session Viewing tool (described in the next section), enabling a company to “drill down” from usage data to the actual session transcripts for a given period.

Session Viewing

The Session Viewing tool allows a company to view session transcripts representing each conversation between a customer and the ASA.

Figure 6



In addition to a verbatim record of the conversation, each session transcript displays the date and time, the number of messages, and an identifier representing the customer. This identifier enables session transcripts for a given customer to be associated with one another, but need not reveal the customer's actual identity should privacy issues be a concern.

Quality Analysis

The Quality Analysis tool serves two important functions: it enables a company to assess an ASA's effectiveness, and to identify specific improvements and additions that will make the ASA increasingly effective over time.

With respect to assessment, the Quality Analysis tool helps a company answer questions like:

- What percentage of customer questions are correctly understood by the ASA, and what percentage are misunderstood?
- What percentage of sessions result in:
 - Successful resolution of the customer's issue?
 - The customer leaving without resolution?
 - "Appropriate" escalation (for services the ASA cannot provide)?
 - "Inappropriate" escalation (for services the ASA could have provided)?



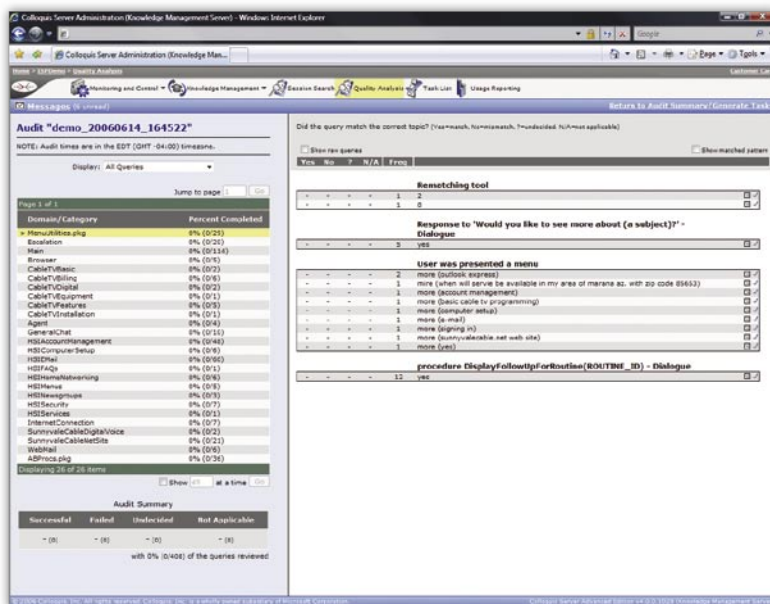
For the purpose of improving the ASA, the Quality Analysis tool helps a company answer questions like:

- What specific questions are customers asking most often?
- What specific questions are customers asking that the ASA cannot answer?
- What specific questions are customers asking that the ASA misunderstands?

The Quality Analysis tool is based on an audit methodology. An audit is a software-driven, human-assisted review of the ASA's effectiveness within a specific time period. Depending on its needs, a company may choose to perform audits on a regular schedule or on a selective basis.

For a given audit, a manager chooses whether to analyze data on a per-session basis (to assess the ASA's effectiveness globally) or on a per-question basis (to assess the ASA's "understanding" abilities and to identify specific improvements). The manager also specifies the range of dates to be analyzed, chooses whether to analyze all available data or a representative sample, and assigns a reviewer.

Figure 7



Once an audit has been created, the Quality Analysis tool presents the reviewer with a set of sessions or question/answer pairs to evaluate, employing an interface designed to facilitate rapid assessment. For example, in the case of question/answer analysis, similar questions are automatically grouped so that they can be assessed in batches rather than one at a time.

Based on the reviewer's input, the Quality Analysis tool automatically compiles a statistical summary of the audit's results, which can be monitored in progress as soon as the audit has begun. To facilitate tracking over time, the results of completed audits are stored permanently for later access.

VI. ABOUT THE MICROSOFT AUTOMATED SERVICE AGENT SOLUTION

The Microsoft Automated Service Agent Solution improves the way companies serve their customers and employees by enhancing service quality at greatly reduced costs. The Automated Service Agent Solution enables users to engage in typed natural-language conversations, and delivers useful and accurate answers in real time. Many Fortune 100 companies use the Microsoft Automated Service Agent Solution to greatly improve customer service accuracy and response. Microsoft's innovations included in the Automated Service Agents Solution are protected by issued and pending patents. Microsoft is based in Redmond, Washington.

For more information, please visit www.microsoft.com/asa.

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