

Contact Center Business Planning Guide

Speech Recognition Solutions



Contact centers can offer faster, simpler, more customer-friendly self-service with Speech Recognition on Avaya Media Processing Server

Do You Face These Challenges?

- Callers to your contact center who opt for self-service have difficulty navigating through multiple or complicated menus to complete a single transaction. They frequently choose to speak with an agent instead.
- Callers responding to self-service prompts using their telephone touch pads find it awkward and confusing to complete transactions involving long lists of choices or very small phone keys.
- Callers must enter times, dates or alphanumeric account identifiers that are awkward with a key pad.
- Based on your contact center's current call volumes or traffic patterns, you could justify operating 24 hours a day – but this would drastically increase staffing costs.
- Your organization's reputation is suffering as customers encounter frequent busy signals or long delays in reaching an agent – which in turn leads to lost revenue as many callers hang-up in frustration.
- Your customers want the option to serve themselves for easy straightforward tasks instead of speaking to an agent – especially during peak hours when wait times are longer,
- Your agents spend much of their time repeatedly answering requests for basic information – such as locations, hours of operation, account status, change of address, appointments, and so on. This diverts your agents from more productive tasks – causing low staff morale – when they could be focusing on more complex services and providing superior customer care.
- Your touchtone self-service application has not been accepted by as many customers as you would like. In order to offer new services that are cost-effective, you require a higher percentage of customers to opt for self-service.
- You have too many options to accurately guide the caller on what to ask for with your current menu-based system. The only way to combat this is to automate fewer choices and transfer the call after they make a selection. Or you find you are coping with this by sending the caller to an agent first, and then transferring the caller into the correct application after caller states their needs.

- You need to improve your customers' experience to gain their loyalty, but you don't have the budget to hire extra staff to expand the contact center's service offerings.
- Customers don't want to share private information with an agent in situations where they'd prefer to provide information confidentially.

The Solution

Implement Speech Recognition in your contact center – on either the Media Processing Server (MPS) MPS 500 or MPS 1000 – to offer spoken self-service that is friendlier, more convenient and faster for your customers, while controlling staffing requirements, as well as telecommunications and other operational costs. Eliminate menus altogether with Avaya Natural Speech Navigator. Get the caller to the correct resource on the first try, whether it is a skilled agent or a self-service application.

Key Benefits

- With Speech Recognition, your customers take advantage of the most natural user interface – spoken words – to complete their transactions quickly and effortlessly.
- Straight forward and easy-to-use, self-service with Speech Recognition replaces the need for customers to respond to long lists of possible choices, or enter complex dates and/or times, money amounts or other alphanumeric data such as a change of address, using their telephone touch pads. The process is less demanding,

faster to route, and there is less chance of frustration or error.

- Convenient, intuitive spoken self service gives callers quicker access and enhanced privacy (though they are free to speak with an agent at any time during a transaction), which in turn builds loyalty and attracts new customers to your contact center.
- As more callers opt for self-service because of the simplicity of Speech Recognition, your organization's staff and operating expenses can be controlled and/or reduced.
- When callers opt for self-service during peak periods, your contact center can handle more calls with the same number of agents.
- Agents are freed from repetitive and mundane tasks, allowing them to focus on delivering superior service – and boosting their morale.
- Automated transactions take less time to finish using Speech Recognition, which lowers your contact center's telecommunications and other operational costs.
- Transaction accuracy is improved and information is delivered more consistently when customers can respond to verbal prompts via Speech Recognition.
- With staffing costs alleviated through improved self-service, you have the flexibility to offer new services round the clock, further increasing customer satisfaction and loyalty.

For detailed product information, please see features overview.

Sample Business Case

Answering the Call

This sample case looks at a major utility whose contact center experienced a rapid increase in calls from customers seeking increasingly personalized information. Increased call volumes were in two key areas: Volatile raw material gas prices, fluctuating quickly, can cause consumer price changes month to month resulting in increased call billing inquiries. New home construction resulted in increased demand for utility services.

The steady rise in utility costs caused an increasing number of calls regarding bill inquiries and usage amounts. Agents, already coping with customer inquiries for standard daily functions such as prioritizing gas leak emergencies, change in address, start and stop of service, credit customer inquiries, payment due dates and meter reading entries, had to deal with calls requiring research in order to explain why a customer's bill increased.

Since implementing Speech Recognition, the utility has achieved a huge gain in the number of callers choosing self-service, which has boosted productivity as well as customer satisfaction. Callers are now able to select the skill set of the agent they need to talk to – avoiding default transfers – or to complete the activity themselves without having to wait for an agent. This makes things such as a change of address, balance inquiry, bill payment, reviewing

the meter reading date, or making a service appointment much easier for callers.

The Challenges

Rapidly growing call volumes had challenged utility management for some time. An initial DTMF IVR solution was providing basic self-service and was not being used often due to cumbersome, awkward menu trees. The DTMF IVR gave callers the option to make selections and enter information via their telephone touch pads, but this proved more and more difficult with the growing use of cordless and mobile phone users.

Fifteen percent of all callers were using this option. While it worked well for simple requests, such as bill payment locations, it was not flexible enough to handle complex transactions such as making an appointment or start and stop service. In addition, functions such as change of address, which mixes letters and numbers, were difficult to enter quickly and accurately using a telephone touch pad.

Moreover, many customers were on the move, calling from mobile phones, which added to the difficulty of responding with touchtone commands. Overall, the contact center was challenged to deliver superior service in a highly competitive industry while keeping costs under control by not hiring and expanding the contact center. A flat operating budget was mandatory, so the solution to offset the challenges needed to stay within the pre-approved constraints.

The Solution

The utility augmented its MPS self-service applications with Speech Recognition for various transactions that were a natural fit

for a spoken interface. For bill pay, a Speech Recognition application now identifies each caller immediately and then customizes responses based on the caller's account type – commercial or residential. If a caller opts to speak with an agent in mid-call, all relevant information from the customer database, as well as previous data entered during the self-service session, are routed along with the call to the answering agent – dramatically improving the quality and speed of service.

The utility has also implemented Speech Recognition for start and stop of service, creating an application that can distinguish each caller's request by location, date and/or general time frame. Another valuable utility function was put in place to out-dial to customers and play a public announcement warning of gas leaks in the area of the affected customers. Because the utility manages important daily usage services, some of which could be life threatening without them, the persona of the voice representing the utility was carefully chosen to represent the utility's image. Market tests were performed to see which persona best was preferred by customers.

Usability studies were performed to understand caller profiles, tendencies for self-service selections, and creation of suitable grammars that increased customer acceptance and satisfaction ratings. Customization was offered providing customers their own choice in the self-service "path." Residential and business customers could select their own path. If implemented along with Contact Center 6.0, skills-based routing to contact center agents from the self-service system can increase

customer confidence that they can get help if and when they need it. This would also enable implementation of call prioritization for selections such as gas leak emergencies.

The Results

- Of the two million calls per month received by the contact center, 85% of them now opt for self-service – up from 15% before Speech Recognition was introduced. This represents a 567% increase in the use of self-service, which has had a dramatic impact on agent productivity and operating costs. The customer satisfaction rating improved by 5+ points.
- Since Speech Recognition was implemented for bill pay, the call length has been reduced by 30%.
- The average call length has been shortened by 6 seconds, with a resulting improvement in agent productivity yielding a potential value of \$22.4 million in the first year.
- The contact center's call volume capacity has increased significantly. Calls are being answered more quickly and the abandoned call rate has dropped. Consequently, the utility has been able to introduce diverse proactive marketing programs such as appliance rebates or storm and heat window upgrades. They have calculated a potential revenue increase of \$340 million in the first year. Previously, the expansion of self-service was hindered by a troubling error rate of nearly 30% as callers improperly keyed on their telephone touch pads. Speech Recognition has reduced the error rate to 5%.

- Freed from more routine tasks, agents are now focused on solving more challenging customer problems, providing value-added services and handling revenue generating calls. Thanks to this expansion of the agent role, staff morale has improved and turnover has been reduced by 5%.
- Utility customers rave about the improved service, including the fast, friendly and accurate Speech Recognition interface. The solution's convenience was integral to gaining acceptance from customers initially and will help ensure long-term continued allegiance.

Features Overview:

Speech Recognition Solutions Offer faster, friendlier self-service with speech recognition, the most natural interface – the voice – helping customers complete transactions. Not only are all interactions friendlier, but transactions involving long lists, money amounts, times or dates, and various other alphanumeric information is simplified and available around the clock.

Avaya Media Processing Server, a platform available for building Speech Recognition self-service applications, helps make all of this possible.

Offload Routine Inquiries

Speech Recognition self-service offerings can handle routine inquiries, direct callers to the correct department or automatically dispense commonly requested information. Additional services provide call queue announcements, deliver fax-on-demand and enable callers to fill in forms, effectively empowering customers to help themselves.

Avaya Natural Speech Navigator eliminates the need for menus and directs the caller to the correct resource on the first try by word spotting caller utterances and responses. This makes routing the calls even faster and more accurate. Callers are less likely to opt out of self-service due to frustration when, for example, the caller responds to the self-service greeting, “Welcome to the world’s best utility company, how can I help you today?” with a phrase such as “ugh, ummm” or “I wanna know why my bill’s so expensive this month.”

Self-service word spotting is trained to recognize ‘bill,’ ‘expensive,’ and ‘this month,’ and will route the call to a customer service rep who can look at the caller’s usage history and discuss rate changes, volume increases, or ask for a meter reading to verify that the account was billed correctly.

Applications can also be developed to enable the caller to automatically input information to determine whether or not their usage increased in the current month versus the previous month – no agent assistance required.

Deliver 24/7 Access to Your Business

Provide around the clock service to your customers, even on weekends. Access to your business self-service applications is available every minute of every day even if you are not there. This reliability enables you to expand hours of operation for many services and to add new services cost effectively without hiring additional staff.

Easy to Manage and Maintain

MPS Manager, a software tools used for administration, control and operation, manages system administration. It provides detailed reports and screens to determine caller trends, paths taken through the application, port status, and other visual indications of the general function and health of the self-service applications. MPS Manager provides access to MPS Developer (application development) and MPS Studio (speech development and editing tool). MPS Manager eliminates multiple management systems requirements, centralizing and consolidating the management of up to 250 systems.

VoiceXML provides an industry standard application development program enabling users to take Web applications and easily convert them into speech applications for a uniform fit and feel that reinforces the business branding. Or, take advantage of Avaya’s WVADS development tool which enhances development possibilities by enabling VoiceXML applications to have debugging capability and a testing environment for code before going live. Avaya proprietary development language, MPS Developer, is also available for developing speech applications with advanced functionality not available with standards based VoiceXML for Speech Recognition.

Evolve Easily and Cost- Effectively

The modular design of Speech Recognition supports and integrates new functions and technology while protecting your investment in application software, systems platform operations and support training. The systems



platform and software environment keep pace with technology changes incrementally, thus fostering compatibility and providing state-of-the-art features and functionality. System features and functions can be upgraded based on your business needs and readiness for new applications. MPS systems are highly scalable: MPS 500 starts at 24-digital ports (30 IP or E1) and ranges to 192-digital ports (240 IP or E1) while MPS 1000 ranges to over 11,000 ports.

Keep Your Options Open

Speech Recognition provides support for powerful technologies designed specifically to enhance the efficiency of your organization, including Computer Telephony Integration (enabling customer information to display on the agent's desktop), Web

browser-based access to IVR applications, and remote system management. As your organization's needs increase, features and capabilities can be activated using software key-codes without field hardware expansions.

Integrate Seamlessly with Other Solutions

Designed with an open, standards-compliant call processing architecture, this solution can be easily connected to most PBXs (via standard telephony protocols) and application servers from any vendor. The selection of interfaces facilitates easy integration with existing data and communications infrastructures, reducing time required by systems integrators to add new applications. The scalable platform can also be easily networked on an as-needed basis to accommodate future growth.

The Speech Recognition self-service platform, which is open standards based, supports seamless integration of new features and technologies while protecting your current investment in application software, systems and training. Both the platform and software environments are specifically designed to help accommodate the most recent technological innovations, enabling your organization to adopt more advanced solutions at your own pace. This integration strategy has clear bottom line benefits: faster implementation cycles, reduced cost of ownership and faster investment return.

Harness the Power of Data

Speech Recognition self-service delivers the timely, accurate and consistent data

you need for enhanced contact center applications. A suite of digital call control interfaces provides dialed number identification service (DNIS) and automatic number identification (ANI) information. In various CTI scenarios, the Avaya Communications Control Toolkit (CCT) provides an open yet integrated environment for enhanced voice processing to your self-service applications, call/data delivery, and various other contact center applications.

Speech Recognition

Speech Recognition includes advanced speech technologies supported on industry-leading Windows-based speech servers, enabling seamless interface to MPS solutions. Speech Recognition capabilities include:

- Large Vocabulary Speech Recognition (including natural language capability)
- Text to Speech
- VoiceXML
- Speaker Verification
- Natural Speech Navigator
- Capability to support Nuance, IBM and other recognition engines

All speech recognition resources are accessible from any port on the self service platform.

Media Processing Server

Recognizing the competitive drive to offer enhanced self-service solutions, including Speech Recognition, Avaya has developed Media Processing Server, a carrier-class,

self-service platform designed for both enterprise and service provider environments ranging from small to very large. MPS is highly suitable for hosted solutions. Media Processing Server MPS 500 and MPS 1000 integrate a wide range of call processing functions with programmable call handling capabilities. Plus, the system supports comprehensive networking, data communication and transaction processing functionality, including common, industry-standard Computer Telephony Integration interfaces.

An Intelligently Engineered Platform

The Media Processing Server MPS 500 can be configured to support installations from 24 ports to 192 digital ports (30 to 240 SIP or E1). MPS 1000 can be configured to support installations from 96 ports to 9,216 digital ports (11,530 SIP or IP ports) in a single system cluster. It requires much less floor space than other high-end systems, supporting up to 1,536 T1 or 1,920 E1 channels in a single telco-grade cabinet.

Smaller systems can easily be expanded over time, providing a growth path to match the needs of your business. The MPS 1000 features an extremely flexible, non-blocking call handling architecture that enables applications to acquire, employ and bridge any ports within the system. It can be expanded by adding or changing internal components, or by installing cabinets and networking MPS 1000 Telephony and Media Server (TMS) modules over an ATM network that is internally managed. TMS hardware provides the basic media processing functions, switching and telephony interface.

Meet Your Needs with a Flexible Solution

A powerful and flexible solution, the MPS 1000 can be easily configured to meet specific contact center requirements. The system itself supports a variety of IVR applications, and is optimized for multi-application environments typical of the enterprise and service provider marketplace. The applications can range from simple information delivery services to more complex transaction processing services, as well as Web-based transactions with local databases. Telephony and host computer connectivity interfaces facilitate the easy integration of automated functions into IT/communications environments. The system software also features conference bridging and fax support.

Dynamically Allocate Resources

The MPS 1000's TMS modules support sharing of resources that are not required by a port for the full duration of a call, or are not required by all lines at any given time. The system is unique in its ability to dynamically allocate such resources to help ensure maximum utilization, reducing the hardware required and ultimately reducing system cost.

Resiliency

Don't let interruptions cause you to lose business/revenue. With Media Processing Server enhanced resiliency, you can architect your self-service business to suit your needs. N+1 Application Processor Media Processing Server offers N+1 Application Processor resiliency enable one pair of processors to provide improved

recovery and business continuity in case of server failure.

Call Protect

In conjunction with N+1 AP, Call Protect keeps callers connected. Media Processing Server maintains all call connections performing IVR functions, or calls bridged to a Contact Center Agent in the event of a system interruption.

Pooled Speech Resources

The Media Processing Server Speech Server is arranged in pools. This enables speech applications to continue running if a speech server fails so the overall application cannot be affected by the failure of an individual server.

Multiple Host and Database Access

With open access to multiple databases, the Media Processing Server can simultaneously access different types of information required to handle an inquiry. For example, it can draw on customer relationship management (CRM) systems, financial databases and warranty information and use that information to recognize preferred customers and to deliver prioritized services to these individuals for optimum customer care. The Media Processing Server connects to host computer systems and database servers via LAN interfaces. These interfaces are provided by Application Processor(s) resident in the Media Processing Server. Each host link in the Media Processing Server can support a different protocol and device emulation. Device-independent message formats can also be used to communicate with host applications.

Call Control eXtensible Markup Language (CCXML)

CCXML is designed to provide telephony call control support for dialog systems such as VoiceXML. While CCXML can be used with any dialog systems capable of handling media, CCXML has been designed to complement and integrate with a VoiceXML interpreter. VoiceXML and CCXML are separate and are not required in an implementation of either language. CCXML handles telephony states such as hold or conference.

Speech Synthesis Markup Language (SSML)

Text-to-speech is sounding more natural than ever before and TTS can be improved even further by simply adding easy-to-use speech synthesis markup language (SSML) tags. SSML, an XML-based markup language, is easy to use and enables application developers to create expressive output to modify volume, speed and pronunciation.

Leverage the Potential of Multimedia

The advanced multimedia features of the MPS 500 and 1000 include standard digital T1/E1 or IP interfaces that can be configured for both ISDN and Common Channel Signaling (CCS7). Moreover, the system architecture supports voice over IP (VoIP) networks running H.323-compliant or SIP software to initiate or receive calls.

Combine Digital and VoIP Networks

Because the MPS supports both digital and IP voice protocols, customers who require a hybrid Digital/VoIP environment have a

smooth migration path designed to protect existing hardware investment. Organizations can gradually replace expensive leased lines by shifting telephony traffic onto the IP network. This eliminates the need to forklift switch replacements as VoIP technology continues to mature, providing an IP-enabled IVR solution for the future.

Uninterrupted Service

To help ensure total availability, the MPS has been designed with a redundant hardware and distributed software architecture. Redundant hardware can be configured for the continuous operation of critical components. Standby units can be installed or replaced with no system or manageable system interruption.

Redundant Ethernet

Redundant Ethernet enables two physical links to be organized as a redundant pair with both links functioning at once while carrying traffic. If one link fails, the remaining link carries traffic to the fullest bandwidth capacity. Redundant Ethernet prevents a single point of failure in a switch from a cable going bad. Using transparent switchover to the backup Ethernet switch, caller input is never lost.

Count on Our Expert Help

If your contact center plans include custom solutions – whether it's the design of self-service menus or an elaborate “screen pop” application using CTI – you can count on full support from Avaya's highly-skilled and trained Professional Services team. Around the globe, we can complement your in-house experts with specialists who have the in-depth technical knowledge and practical

experience required to turn your broad strategies into specific implementations. As a leader in the deployment of speech applications, our expertise makes Avaya the right choice for successful customer care.

Grow Your Business Anywhere, Anytime

Speech Recognition supported by the MPS is one of many Customer Contact Voice Solutions designed by Avaya to help your business increase customer loyalty and profitability. These innovative solutions reflect a broad-based and fully integrated approach aimed at delivering seamless customer interactions – anywhere, anyway, anytime.

Learn More

To learn more about Avaya Speech Recognition Solutions, contact your Avaya Account Manager, Avaya Authorized Partner, or visit us at www.avaya.com.

About Avaya

Avaya is a global leader in enterprise communications systems. The company provides unified communications, contact centers, and related services directly and through its channel partners to leading businesses and organizations around the world. Enterprises of all sizes depend on Avaya for state-of-the-art communications that improve efficiency, collaboration, customer service and competitiveness. For more information please visit www.avaya.com.



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