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Amit Agnihotri

Shrutina Agarwal

Subrajit Dhal

Ananth Krishna Hegde

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AUTHORS:
Amit Agnihotri
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ABSTRACT

Currently, organizations rely on contact centers for a number of functions including, for example, servicing customer inquiries, conducting market research, and selling new products. However, due to poorly designed interactive voice response (IVR) scripts and flows (including multiple menu hops), speech recognition issues in conversational IVR flows, inefficient routing, poor agent skill sets, etc., contact centers often have a poor reputation for handling customer calls. Within a contact center, the ability to immediately respond to customer feedback is a great challenge, and a lack of such an ability often results in customer dissatisfaction. Techniques are presented herein that support a priority matrix-based solution that is based on customer feedback and a past call history that will swiftly address the above-described problems. Under the presented techniques, a call may be routed according to a recommendation that is based on the order of importance of an issue where it needs the utmost attention, thus boosting customer satisfaction. Such an approach will provide interim relief to allow a contact center to pursue the time-consuming task of finding a solution to the underlying problems.

DETAILED DESCRIPTION

Currently, organizations rely on contact centers for a number of functions including, for example, servicing customer inquiries, conducting market research, and selling new products. However, the contact center has developed a poor reputation. That reputation stems from a number of factors including badly designed interactive voice response (IVR) scripts and flows (including multiple menu hops), speech recognition issues in conversational IVR flows, inefficient routing, poor agent skill sets, etc.

According to one recent report, thirty percent of customers leave a call because the provided service lacks any sense of personalization for the caller. The inability of an organization to act upon customer feedback in a timely manner results in customer dissatisfaction. For example, when a caller has provided a very bad rating for an IVR flow, there is no point in again routing the same caller through that IVR treatment. Instead, the next time that the caller places a call, a direct agent transfer may improve the overall experience. Alternatively, if a conversational IVR facility has a poor recognition quality, routing a caller to a traditional dual-tone multi-frequency (DTMF) signaling-based IVR solution may help the caller.

Existing contact center solutions often provide mechanisms for routing a call to an agent if an IVR facility is not capable of solving an inquiry. Under such flows, agent routing algorithms will route the call to an agent based on an agent skill set and a combination of attributes that are associated with the agent and the caller.

In contrast, the techniques presented herein introduce a personalization element, using customer feedback and a past call history to make a feedback-specific routing decision. Additionally, the presented techniques introduce an automatic correcting feedback loop which continuously improves routing decisions based on real time, continuous feedback that is received from callers.

A common contact center workflow can certainly be designed to cater to all customers, but it is important to keep in mind that different customers may have different needs and preferences. Accordingly, customers may experience different satisfaction levels. The deployment of a contact center is a very complex operation and, as noted above, the contact center has developed a poor reputation. Fixing any of those issues will take time and that effort may introduce different problems. The ability to immediately respond to customer feedback is a significant challenge, and the inability of an organization to act upon that feedback in a timely manner results in customer dissatisfaction.

For example, when a caller has provided a very bad rating for an IVR flow and past call history attributes confirm the problem, there is no point in routing that caller through the same IVR treatment. Instead, the next time that the caller places a call, a direct agent transfer may help to improve the overall experience. For a customer who values convenience and speed and prefers to resolve issues quickly without having to wait on hold

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or navigate complex telephone menus, they may be routed to an artificial intelligence (AI)-based conversational IVR flow.

The techniques presented herein comprise a number of novel elements. For example, techniques herein provide for the ability to collect specific feedback attributes from a customer at the end of a call where such information may help with routing decisions. Using customer feedback and a past call history, a best suitable call path can be recommended between an IVR flow versus a live agent. For example, if a customer has provided a very bad rating for an IVR flow and past history shows that there are a significant number of menu hops, then the next time that the caller places a call that call may be directly routed to an agent or, if the rating for voice recognition quality is very bad, then a traditional DTMF-based IVR flow may be chosen an over AI-enabled conversational IVR flow.

Additionally, techniques presented herein may provide for correlating customer feedback with a past call history and taking a decision, where a customer rating may be reconfirmed through past call history. Routing decisions provided in accordance with the techniques presented herein can be applied across various stages (including the selection of an IVR flow, an agent selection, etc.) whereas existing solutions focus only on agent routing.

Techniques of this proposal can be explained through a set of core building blocks. A first building block encompasses customer feedback. A second building block encompasses a customer relationship management (CRM) facility storing customer information and important data points about past call history. Those building blocks, along with other elements of the routing strategies prescribed in accordance with this proposal, are depicted in Figure 1, below.
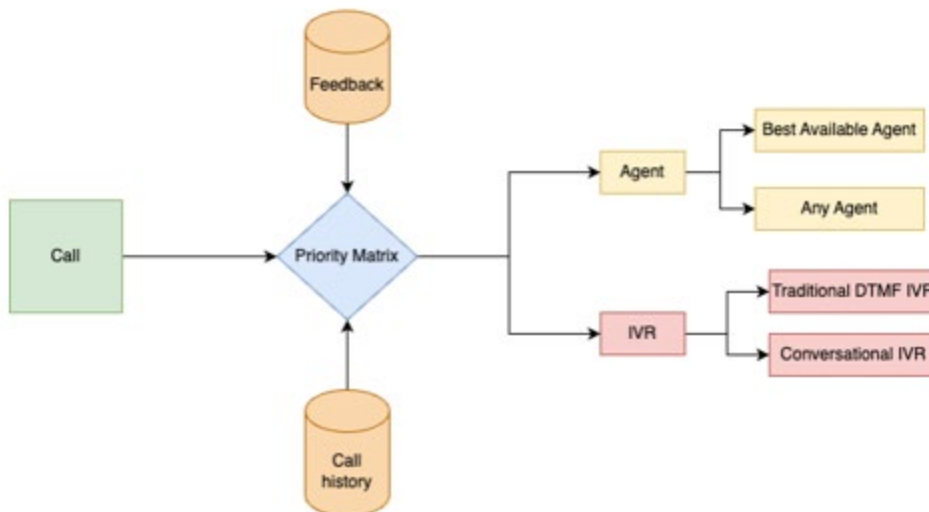
Figure 1: Exemplary Routing Strategy

As indicated above, a core building block of the techniques presented herein encompasses customer feedback. Customer feedback is of paramount importance in a contact center as it provides valuable insights into customer preferences, expectations, and satisfaction levels. Contact centers need to improve their performance, enhance customer satisfaction, and stay competitive in today's marketplace.

A contact center may offer several methods for gathering customer feedback, two examples of which are described below.

A first method encompasses the use of surveys. Contact centers often employ surveys to collect customer feedback. A survey may be conducted after a call or an interaction with an agent and can be delivered by telephone, email, or Short Message Service (SMS). A survey may include questions about a caller's experience with an agent, the quality of a call, and a caller's overall satisfaction.

A second method encompasses IVR-based feedback whereby an IVR system can be used to collect feedback from a customer. An IVR-based survey can be included in a call flow, and callers can respond to questions using their telephone keypad or through voice commands.

According to the techniques presented herein, a range of customer feedback data may be collected through the above-described methods. A first type of collected data may

encompass feedback attributes. Figure 2, below, presents a number of such attributes that are possible according to the presented techniques.
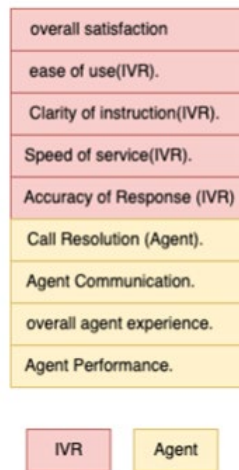
Figure 2: Customer Feedback Attributes

The customer feedback attributes that were depicted in Figure 2, above, may be quantified using a scale. Under one such scale an attribute may range in value from one (1) to ten (10).

A second type of collected data may encompass call attributes. Figure 3, below, presents a number of such attributes that are possible according to the techniques presented herein.
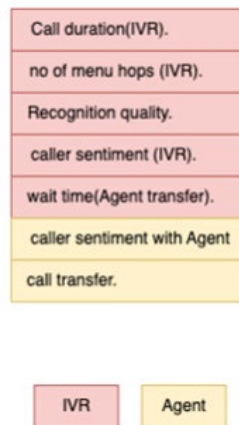
Figure 3: Call Attributes

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As introduced previously, aspects of the techniques presented herein encompass a routing strategy. Figure 4, below, depicts elements of an exemplary priority matrix that is possible according to the presented techniques.

Figure 4: Priority Matrix for Routing Call to IVR or Agent

The optimum call flow among the choices that are listed in Figure 4, above, may be chosen as soon as a call reaches a contact center's priority matrix-based recommendation engine. Such a flow may encompass the delivery of a call to an IVR treatment or the transfer of a call to an agent.

As shown in Figure 4, above, the x-axis of the matrix includes past call attributes (in the order of importance) while the y-axis includes customer feedback ratings (in the order of importance).

In the matrix that is depicted in Figure 4, above, the order of importance of the call attributes is a conversational IVR treatment first, then a traditional IVR (e.g., a DTMF-based) flow, then an agent transfer, and finally an agent transfer to a best agent. It is important to note that the order of importance that is shown in the above matrix is for illustration purposes only and such an order may be rearranged based on what an organization believes is important.

In connection with the above, a set of priority levels may be employed. Such levels may include, in descending order, P1 (i.e., priority 1, a highest priority), P2 (i.e., priority 2, a second highest priority), P3, … Pn (i.e., priority n, a lowest priority).

Each cell in the above matrix may include a priority (p) and may produce an output (which may be defined by an organization) regarding a routing strategy that is based on a correlation between an x-axis attribute and a y-axis attribute. The output at each cell may be one of the following – a traditional IVR treatment, a conversational IVR flow, a transfer to an agent, a transfer to a best agent, or a move to priority p+1 for further evaluation.

It is important to note that for a very first call, assuming that the caller has no call history and no feedback details, the order of the call's treatment may include an IVR flow first, a transfer to an agent next, and the collection of feedback last. Then, when the contact center receives a subsequent call, a priority level of P1 may be used to evaluate the call. According to the matrix that was presented in Figure 4, above, such a priority level is associated with two parameters – an IVR recognition quality (which is a call history attribute) and an overall IVR satisfaction (which is a feedback attribute).

A priority level of P1 may be taken into consideration and routed to a conversational IVR if the recognition quality for that caller, based on prior interactions, is good and the overall IVR satisfaction level is good. Table 1, below, identifies the different scenarios that are possible at position 1.

Table 1: Possible Scenarios

Scenario	Strategy
Recognition quality is good and overall IVR satisfaction is low	Check p2
Recognition quality is bad and overall IVR satisfaction is high	Traditional IVR (DTMF-based)
Recognition quality is good and overall IVR satisfaction is high	Conversational IVR
Recognition quality is bad and overall IVR satisfaction is low	Check p2
No correlation between x and y attributes	Check p2

In the event that a priority level of P1 is not met, a priority level of P2 may be reviewed, in accordance with different attributes as depicted in the above matrix, and an appropriate action may then be taken. At a priority level of P2 the same process may be repeated, and if it is not met then a priority level of P3 may be evaluated, where the process may repeat accordingly.

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The techniques presented herein offer a number of novel elements, several of which are described below.

A first element encompasses the idea that based on a set of defined priorities, a call may be evaluated in the order of priority which will yield a better experience.

A second element encompasses the idea that routing feedback that is based on a priority matrix is only a recommendation. Such information may be based on a confirmation that is received from a caller.

Under a third element, a recommended option may be prompted to a caller. Such a caller may respond by pressing a key on their telephone keypad (i.e., through a DTMF tone). For example, a DTMF tone that corresponds to the keypad key 1 may indicate a confirmation while a DTMF tone that corresponds to the keypad key 0 may indicate that the caller wishes to ignore a prompt.

A fourth element encompasses the idea that tracking progress and customer satisfaction may allow a customer's subsequent feedback and rating to improve.

Through the techniques presented herein (including a priority matrix-based solution) a quick fix may be implemented without having to immediately change a contact center. However, such an approach will not address the underlying issue. To improve the solution at the point where customers are experiencing the issue, action must be taken at the solution level. When those suggestions are taken into account and rectified at the solution level, the whole experience will improve.

By employing the techniques presented herein, customer feedback may be swiftly addressed, and calls may be routed based on recommendations according to a strategy that yields the best results and boosts customer satisfaction. Without having to make any immediate adjustments to a contact center, the instant priority matrix-based solution provides a quick fix for the above-described issues. With such an approach, a contact center may discover the priority level under which most of their customers are impacted. Armed with that information, action may be taken to enhance things in order to increase customer satisfaction.

A personalized contact center that is based on customer feedback and past call history (as supported by the techniques presented herein, as described and illustrated above) is highly relevant in today's competitive business landscape. That relevance stems from an

ability to enhance customer experience and improve customer satisfaction. With the proliferation of digital channels and the rise of social media, customers are increasingly expecting personalized support that addresses their individual needs and preferences. Accordingly, such a personalized contact center enables companies to deliver customized support that meets each customer's specific requirements, leading to higher customer satisfaction and retention rates. This is particularly significant for service-oriented industries such as banking, insurance, and e-commerce. Those industries are heavily dependent upon customer satisfaction and loyalty, making it crucial for them to offer personalized support that meet their customers' specific needs. Overall, a personalized contact center (as described above) is highly relevant in today's market, as it enables companies to deliver exceptional customer experiences that set them apart from their competitors, leading to increased customer loyalty and improved business outcomes.

In summary, techniques have been presented herein that support a priority matrix-based solution that is based on customer feedback and a past call history that will swiftly address the above-described problems. Under the presented techniques, a call may be routed according to a recommendation that is based on the order of importance of an issue where it needs the utmost attention, thus boosting customer satisfaction. Such an approach will provide interim relief to allow a contact center to pursue the time-consuming task of finding a solution to the underlying problems.