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SIMILAR TOPICS ROUTING FOR CALLS ON CONTACT CENTER

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ABSTRACT

One issue with contact or call centers is long wait times. Proposed herein is a solution that seeks to tackle or decrease customer wait times when calling a call center by implementing a routing system based on a graph algorithm. This advanced routing system can help to ensure that customers are directed to the most suitable available agent. Moreover, the system may facilitate cost optimization by offering a user-friendly platform for training the existing agents on new topics.

DETAILED DESCRIPTION

The perception of an organization by a customer is shaped by their experience with its call center. A customer unhappy with customer support can lead them to view the product negatively. A major factor that contributes customers being unhappy about their call center experience is the wait time to reach an agent. Studies have shown that customers contacting a call center feel that wait times are too long and would prefer a quicker resolution to their issues. However, adding more agents to tackle long wait times will increase costs for the organization.

Additionally, a customer may frequently face the problem where even when the customer finally connects with an agent, the agent does not have proper training to solve the customer's issues and the customer is rerouted to another agent. It is also possible that an agent is sitting idle because the topic they specialize in isn't in demand immediately, even though there are other customers in need of assistance.

Some call center systems try to route customers to the next available agent. If all the agents serving the queue are busy after a long time, the customer is routed to voice mail. This is a frustrating experience for a customer. Some call center systems may offer a mechanism to try and shorten customer wait times by routing calls to agents that can assist them immediately. However, this does not route them to the best agent that can assist them immediately.

The described challenges can be broadly classified into Work Force Optimization (WFO) and Work Force Management (WFM).

To improve the Work Force Optimization of a contact center, presented herein is a plan to tackle the following problems:

- Long waiting time for a customer to reach an agent.
- Extra hops needed for a customer to reach correct agent.

To improve the Work Force Management, presented herein is a plan to tackle the following problems:

- Low utilization of an agent.
- Improve knowledge base of an agent.

Figure 1, below, illustrates example call that requires multiple hops to reach the correct agent.

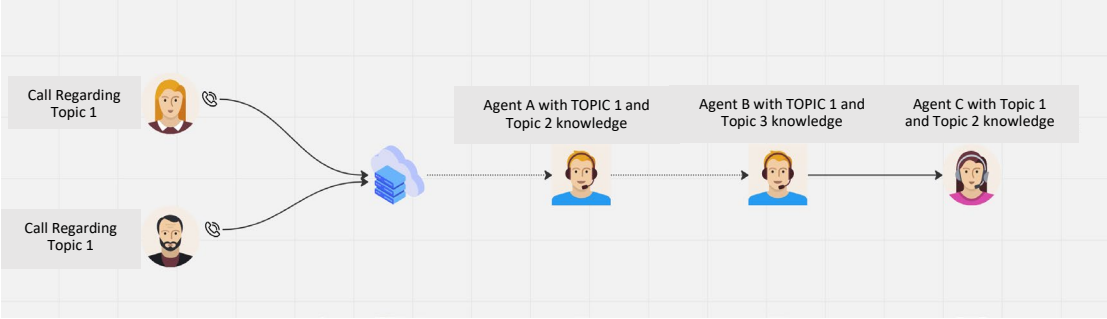

Figure 1: Before (Multiple hops required to reach correct agent)

The way a customer interacts with a call center can shape their overall impression of a company's product or service. One of the primary factors contributing to customer discontent is prolonged waiting time to connect with customer support agents. Nevertheless, hiring additional agents to manage these wait times can result in higher expenses for the company.

The system presented herein seeks to improve or decrease customer wait times by introducing a graph-based routing system. This graph-based routing system will route the customer to the next best available agent. To optimize operation costs, this system will help train existing agents on new topics in an effortless manner.

Thus, the system presented herein can be distinguished from other potential call center solutions by providing for the ability to find the best potential agent that is available in another queue instead of letting the customer wait for extended periods of time. This also prioritizes building up an agent's knowledge base over a period of time. Figure 2, below, illustrates how calls can be routed through a call center and how the knowledge base of an agent can be expanded.

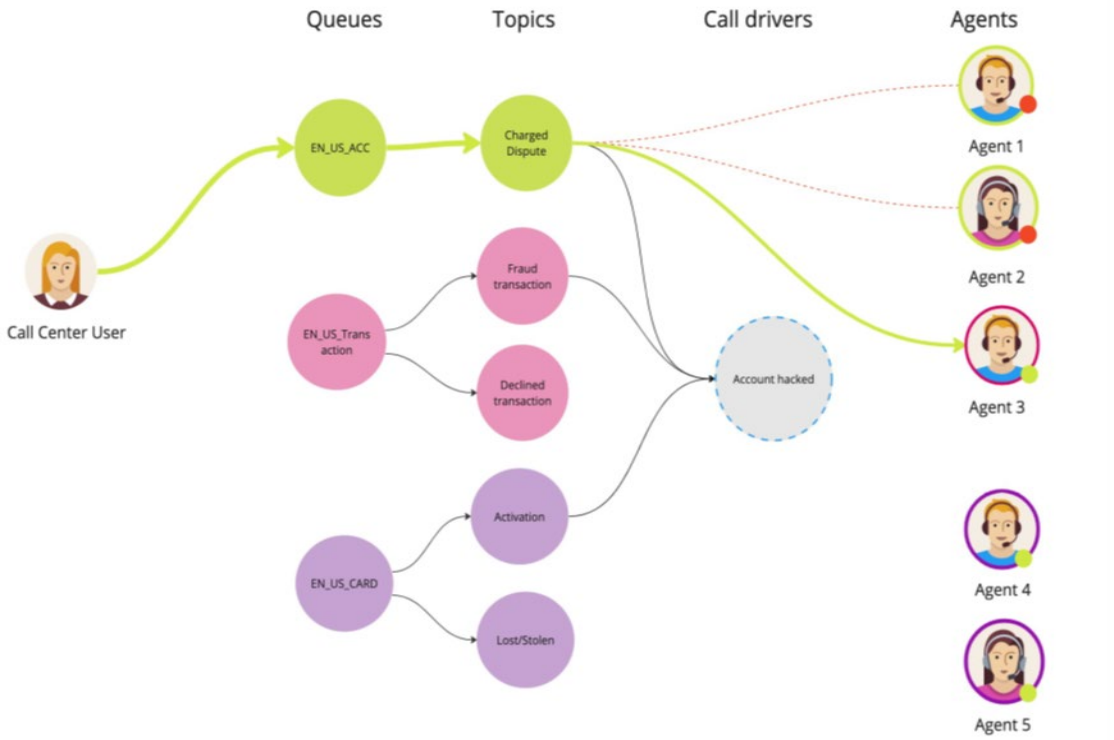

Figure 2: Example Graph-Based Call Routing

Consider various use cases that may be addressed utilizing the system as shown in Figure 2. A first use case may involve facilitating workforce optimizations in order to reduce the wait time for customers.

For example, consider a scenario for the system of Figure 2 in which there is a call center that is split into 3 queues (EN_US_ACC, EN_US_TRANSACTIONS and EN_US_CARD). A customer calling in is placed in the EN_US_ACC queue to discuss a charge dispute because of their account being hacked. There are 2 agents servicing the EN_US_ACC queue and they are both busy. However, there is an idle agent in the EN_US_TRANSACTIONS queue.

Now, consider that a customer is calling on the topic “Charge Dispute” specifically to discuss on their account being hacked. The proposed system determines that there is a high similarity score for topic “Charge Dispute” and call driver “Account hacked” and topic “Fraud transaction” and call driver “Account hacked”. The customer is routed to the available agent on queue EN_US_TRANSACTIONS instead of waiting for the busy agents on queue EN_US_ACC to be freed.

Next, consider another use case involving workforce management through which the knowledge base of agents can be effortlessly expanded. For example, agent knowledge base can be expanded by slowly introducing agents to new topics in small chunks through familiar topics. In the above scenario in Figure 2, an agent who was specializing in 'Transactions' is introduced to 'Accounts' by having the agent tackle an 'Account Hacked' case. Once the agent can tackle the 'Account Hacked' case successfully, the system will increase the similarity score between the topics 'Charge Dispute' and 'Fraud Transaction'. The agent can now be placed on the list of agents servicing the EN_US_ACC queue, thus increasing the number of available agents without increasing the cost.

Figure 3, below, illustrates a routing algorithm for routing a call through a call center.

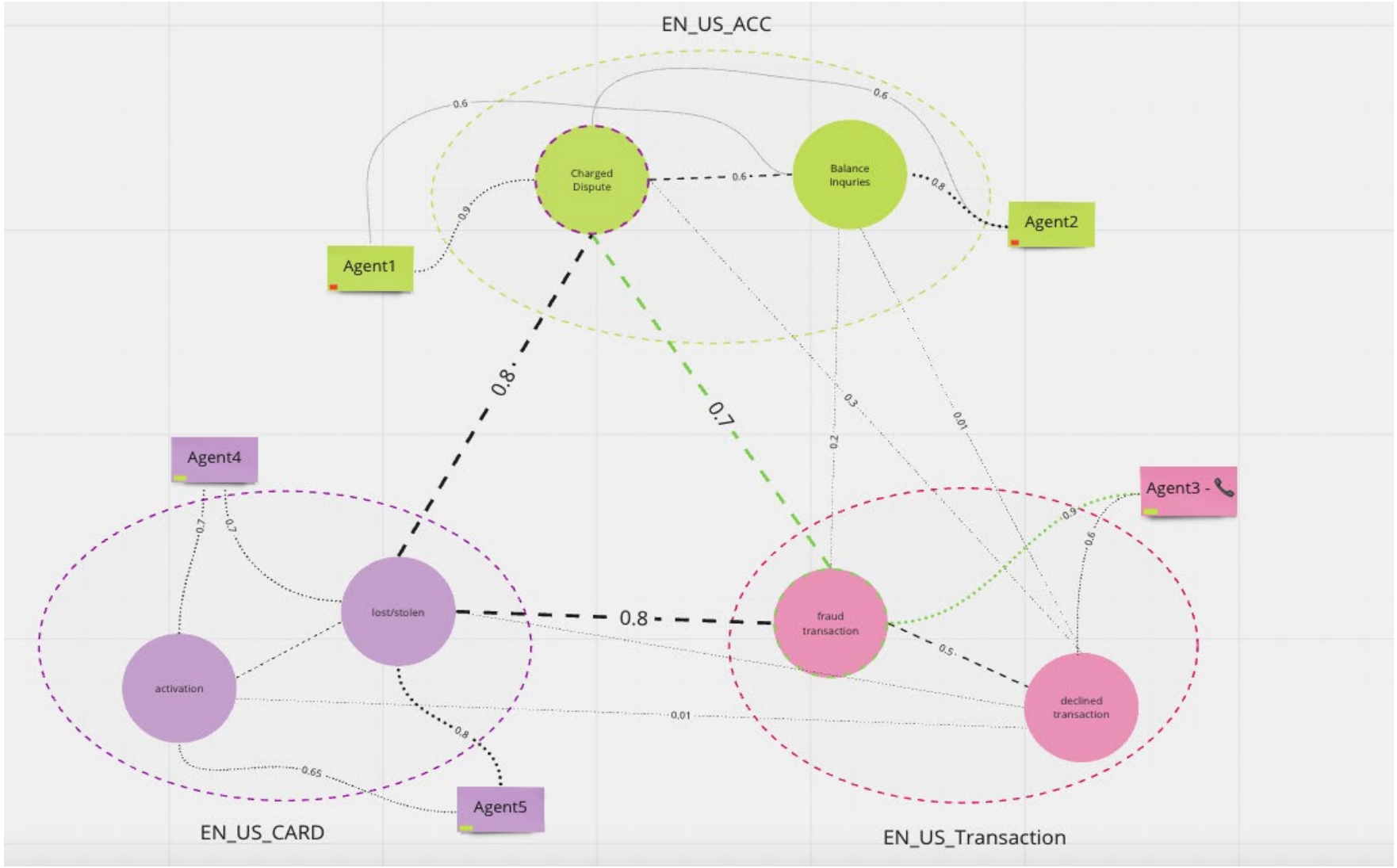

Figure 3: Example Routing Algorithm

The system's graph illustrated as shown in Figure 3 is made of topics and agents as the nodes. The edges between the topics denote the similarity scores between the topics. The edges between a topic and agent denotes the affinity score between topic and agent. Each of the nodes is clustered into the call queues. The similarity between the topics in each cluster is high and each agent has a topic within each call queue that they are more comfortable working on (an affinity towards).

From a topic, the algorithm will traverse the graph by summing up the edges to find the available agent that has the highest total score. The total score is comprised of the similarity score and the affinity score.

The similarity score between topics can be derived from the following factors:

- Number of related call drivers between topics;
- Actions taken to resolve a case;
- Post call feedback from agent on the topic out of their domain; and
- Tools used to resolve a case;

The affinity score for an agent’s comfort level with each topic is derived from following factors:

- Number of calls taken on topic;
- Turnover rate (how long does he take to handover call to another agent);
- Post call feedback from customer on agent tackling new topic;
- Agent feedback on affinity to topic;
- Agent skillset;
- Agent experience; and
- Individual agent customer satisfaction (CSAT) scores.

The system proposed herein may provide various advantages over existing solutions, such as:

- Reducing the Average Speed of Answer (ASA);
- Finding the best suited agent to answer the call;
- Providing a self-learning system (e.g., the graph system can self-learn by using previous customer and agent feedback);

- Building agents' knowledge base by introducing them to new topics. This will lead to more well-rounded agents who can tackle multiple topics;
- Reducing the number of transfers a customer can face while calling an agent who is unfamiliar with the topic;
- Reducing the turnaround time for resolving an issue; and/or
- Facilitating enhancement of the similarity score and the affinity score depending on the use-case.

Figure 4, below, illustrates an after diagram meaning a call center "after" implementing the system presented herein.

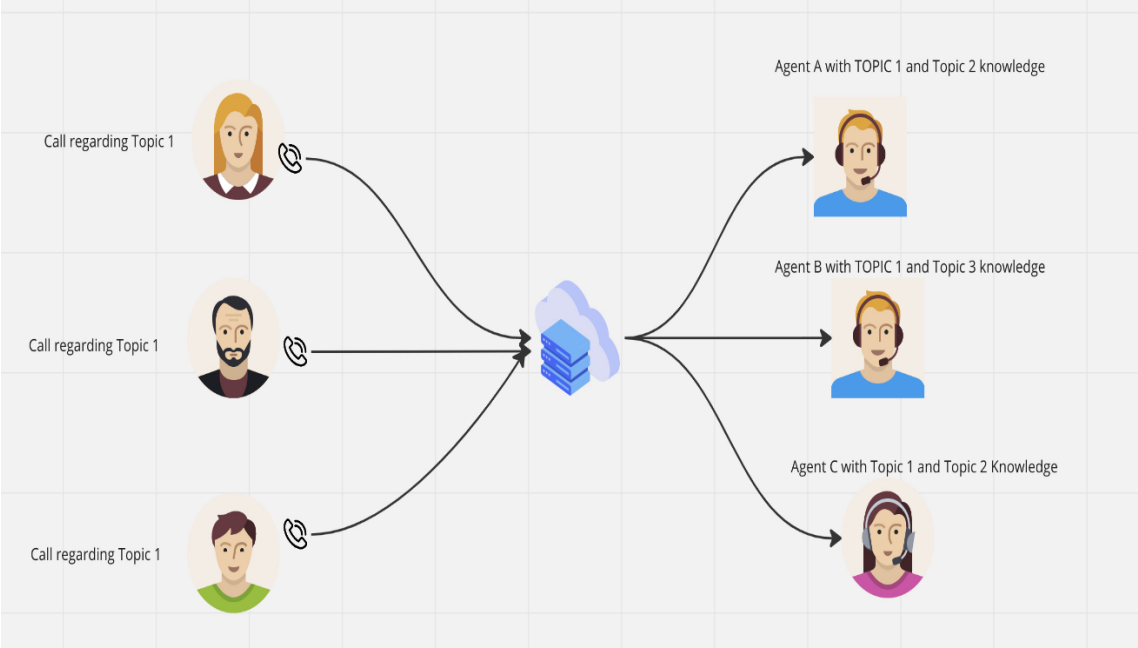

Figure 4: After Diagram (more customers are routed to same number of agents)

In some instances, the system proposed herein can be integrated into a routing mechanism for a contact center. For example, the proposed system can be implemented into a routing mechanism known as skill-based routing, in which it tries to match an agent to a customer based on skill requirement configurations. The proposed system can come into play if wait-time for the best available agent passes a configurable threshold.

In still some instances, the system proposed herein may also be integrated into a portal. For example, a portal can allow admins to analyze a set of transcriptions to see the top topics and call drivers. The proposed system introduces a new and unique visualization for analytics in the portal. The graph visualization of the topics and how they are connected, along with the agents' affinity to each topic will be useful for letting an organization know which areas they are lacking.

In summary, a routing system based on a graph algorithm is provided herein. This advanced routing system can help to ensure that customers are directed to the most suitable available agent. Moreover, the system may facilitate cost optimization by offering a user-friendly platform for training the existing agents on new topics.