

# Network of Bots

Unified Interface and Intelligent Routing

December 2023







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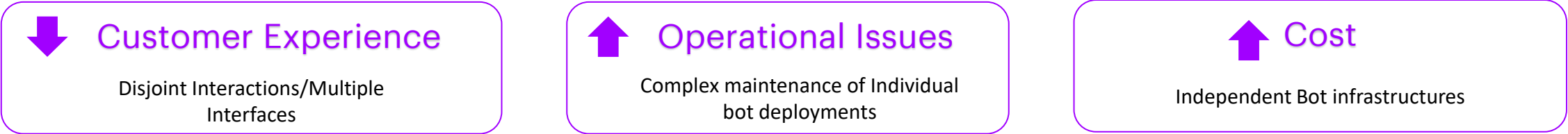


## Problem Overview

Enterprises often have bots for different set of use cases (e.g., auto insurance bot, home insurance bot). Switching between multiple chatbots for such use cases can introduce several challenges to the user experience.

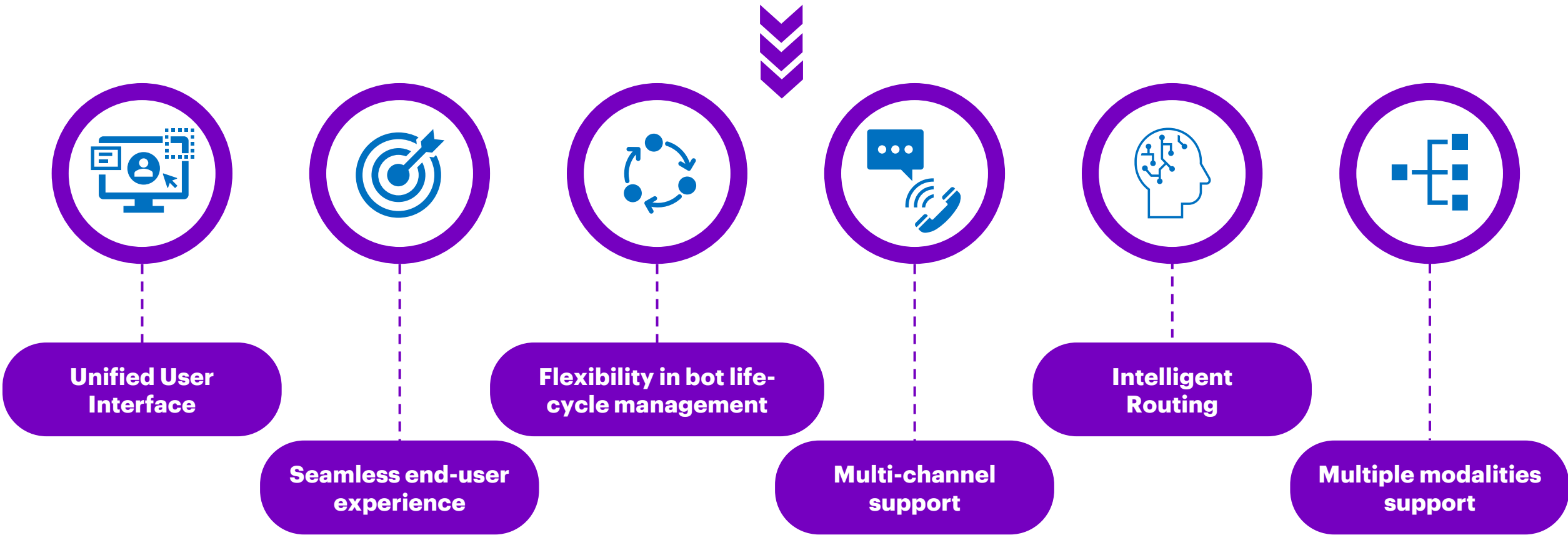


### Common Challenges with Independent Bots



Solution

Network of Bots is an approach which exposes a unified interface by integrating multiple use cases and provide a seamless end-user experience spanning different bots.







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## What is Network of Bots?

An AI powered solution with different In-House features which are required to address the current challenges most of the enterprises are facing with independent bots.



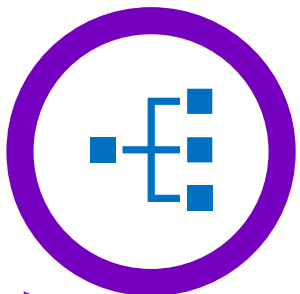
### Unified User Experience

Allows customers to interact with network of bots from a unified interface for all their different queries related to different use cases which will eliminate the issue with disjointed experiences.



### Intelligent Query Routing

Ensures that user interactions are directed to the most relevant bot within the network without requiring users to navigate through different interfaces or menus.



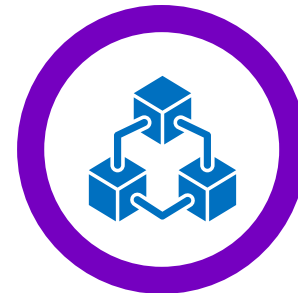
### Multiple bots in a single network

Enterprises can add different use cases which are contextually different from one another into a single network which can be accessed from a unified interface.



### Deployment on multiple channels and modalities

Network of bots can be deployed on multiple channels (e.g., SMS, Telephony, Chat) and modalities (e.g., audio and text).

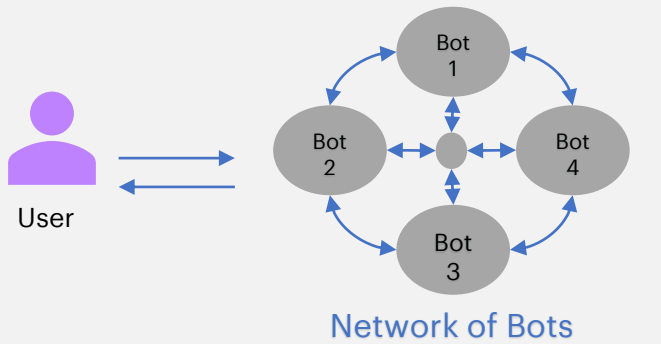


### Flexible and Independent bot lifecycle management

The Network of Bots allows for flexible and independent management of the lifecycle of each bot within the network.

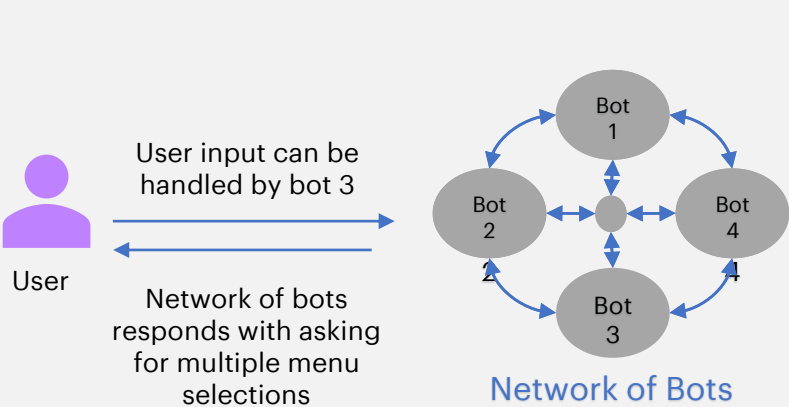
# What is Network of Bots?

## Unified CX

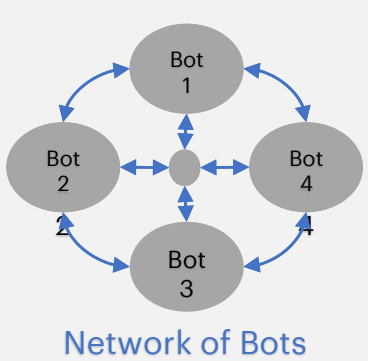


Users can communicate from the same interface for the queries related to all the bots in the network

## Intelligent Routing

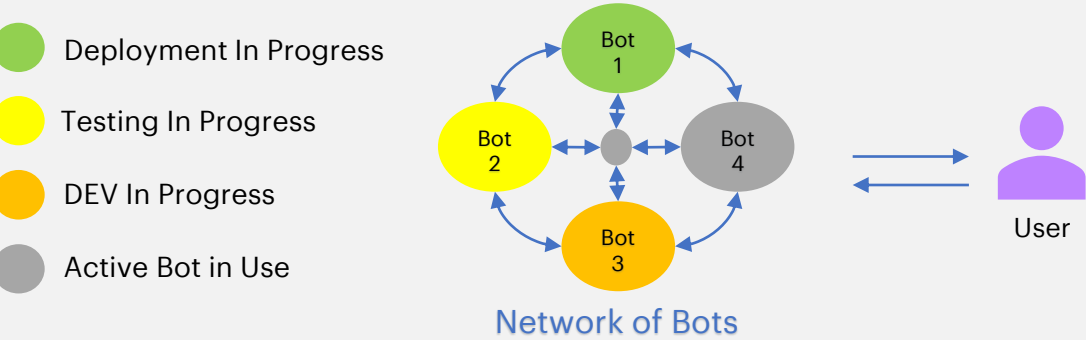


## Bot Orchestration



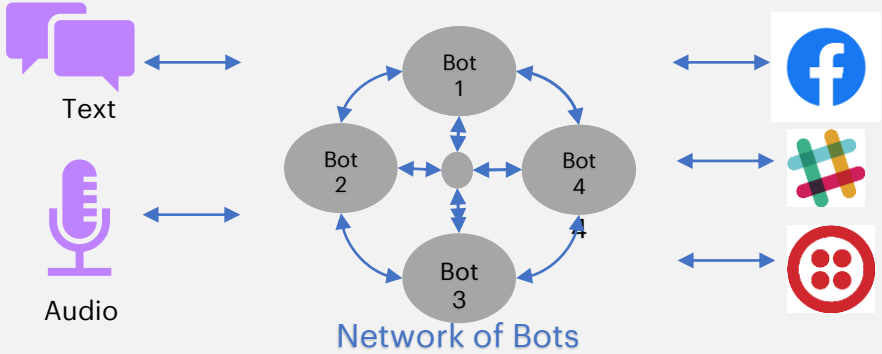
All the bots in the network are orchestrated as a network

## Independent Bot Lifecycle Management



Users can still communicate with active bots with out any downtime required for other bot deployments

## Multichannel / Modalities



Network of bots can be accessed from text, audio, native and custom channel integrations





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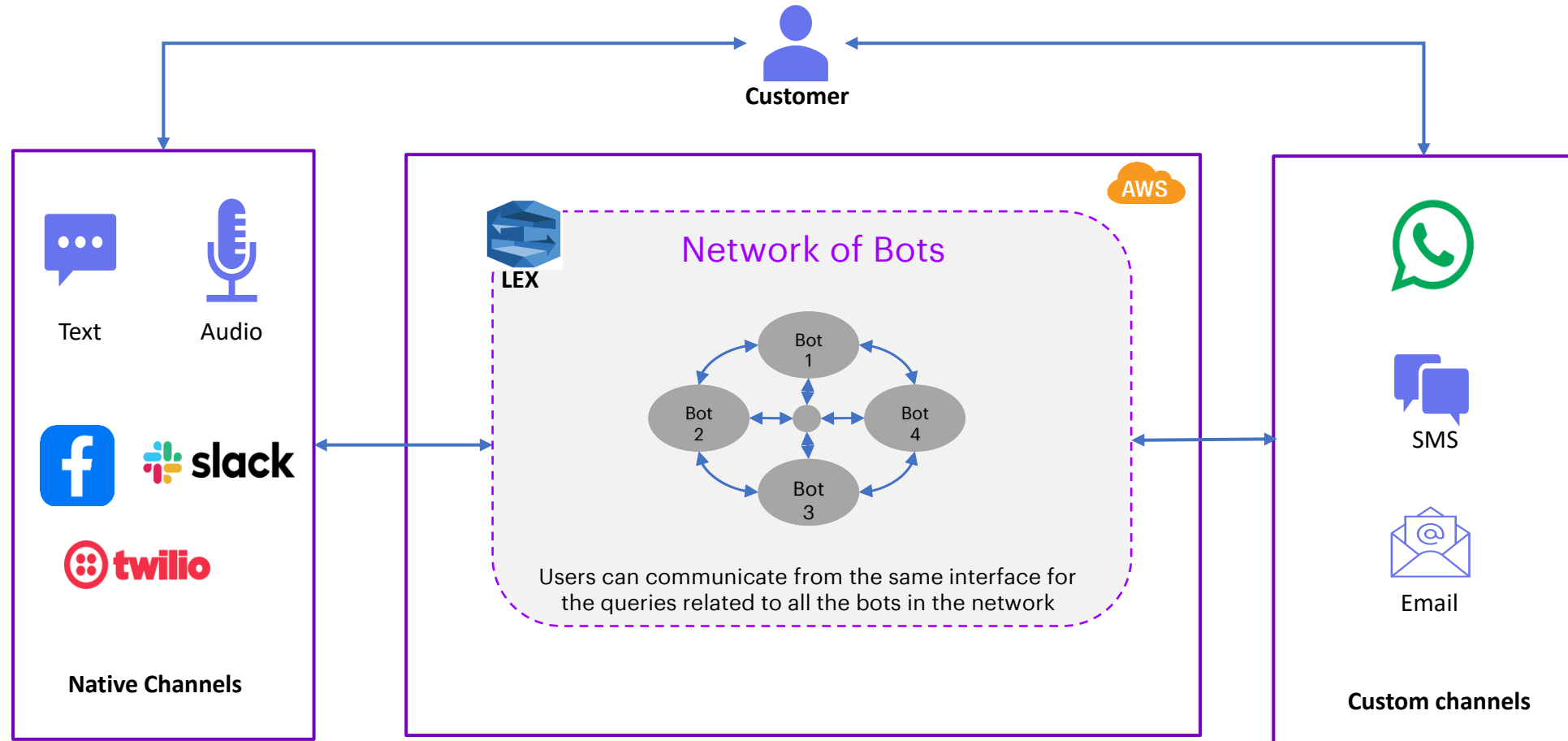
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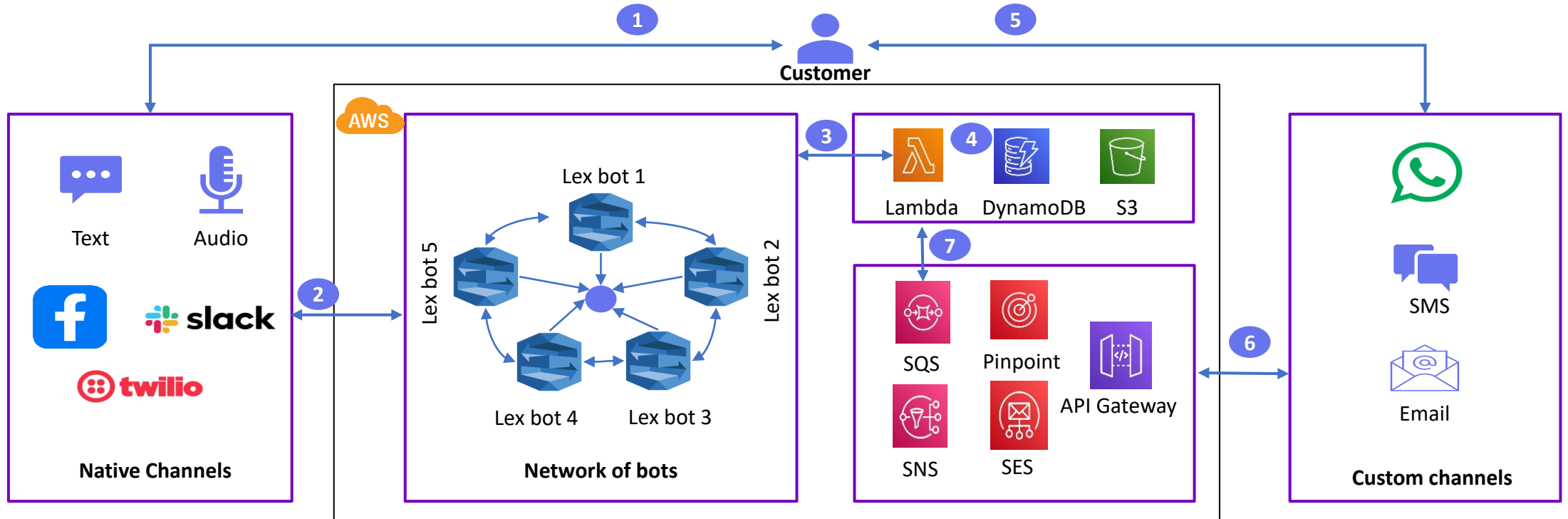
## Network of Bots with Amazon Lex

Amazon Lex comes with deep learning capabilities and flexibility of natural language understanding (NLU) and automatic speech recognition (ASR) enables Network of Bots as out of the box feature.



## Network of Bots with Amazon Lex

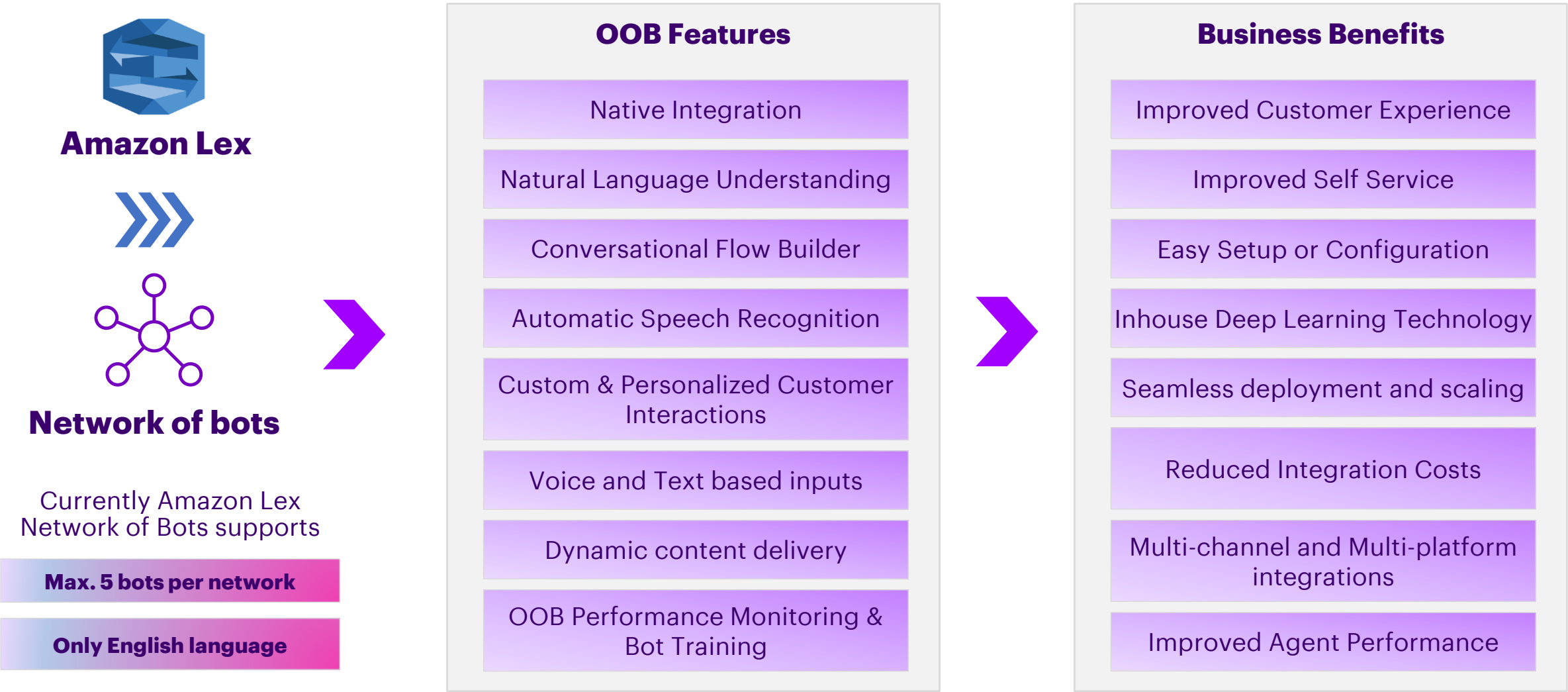
High Level Architecture explaining customer interaction process with Network of Bots through custom and native channels.



1. User initiates conversation with Network of Bots through one of the native channel.
2. Communication will be established maintain session with the network of bots.
3. Network of Bots will communicate with other lambda as a native integration for any feature.
4. Lambda will communicate with other AWS services as required.
5. User can initiate conversation with custom channels.
6. Connection will be established, and session will be maintained through custom integrations with AWS services
7. Lambda will enable the communication from different custom channels with network of bots.



Network of Bots natively integrates with Amazon Lex, allowing you to accomplish below features which are out of box.





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# Advantages of Network of Bots

Features	Standard bot	Network of bots
User Engagement	Pre-defined conversation	Dynamic across multiple specialized bots
Contextual Understanding	Complexities in Intent Switching	Supports Context Based Routing
Channel Integrations	Complexities in Intent Switching	Intelligent Bot Identification
Input Processing and Routing	Score-Based Routing	Intelligent Routing
Advanced Integrations	Limited to bot	Supports over for all independent bots
Scalability	Limits at Individual bot	Expands over 5 independent bots
Life-cycle management	Common Deployment for all Intents	Bot level deployment
Self-service	Pre-defined set of instructions	Enhanced Conversation flow
Analytics	Intent-level analytics ability	Use-case level analytics
<div><div><div>Customer Experience Intelligent Routing/Unified Interface</div></div><div><div>Operational Issues Independent use case deployment</div></div><div><div>Cost Shared Infrastructure</div></div></div>		







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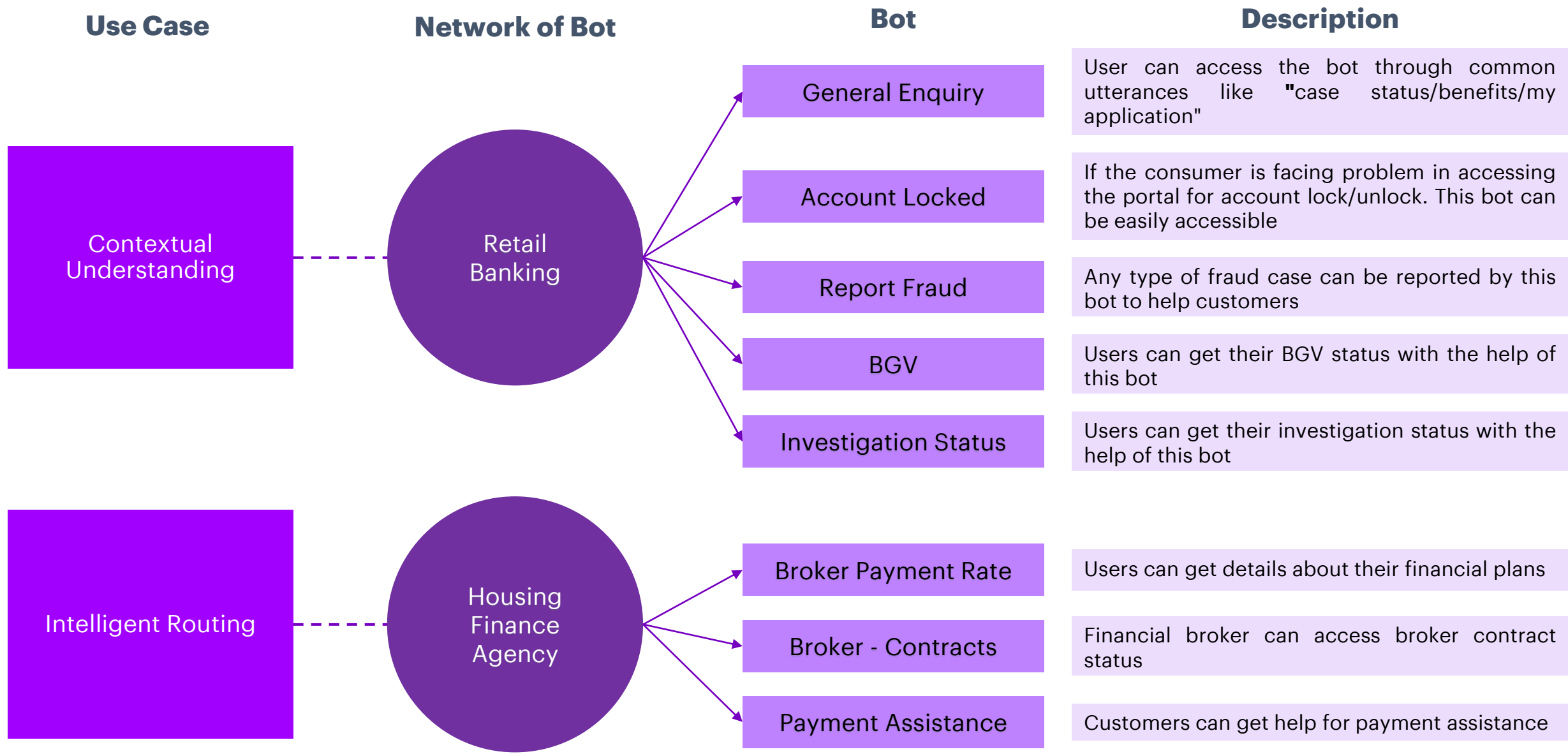
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# Use Cases of Network of Bots



# Retail Banking - Scenario - Contextual Understanding



How can we handle Retail bank's requirement with a solution which can work with contextual understanding in their self-service virtual assistants?

## Who is the customer?

Patrick, a middle-aged man has been a long-time customer with a retail banking institution

## What do they want?

His queries revolve around report fraud, case status and other general queries. He has been interacting with a system through a series of menus within a specific bot resulting in discontinuous conversations.

## Existing problem

Patrick has raised the same issue as a feedback to concerned department multiple times. The retail bank is getting similar feedbacks from most of its customers.

## Desired Solution

The bank is looking for a solution which can **provide unified CX**, avoid the generic process of **involving multiple business groups** to build the bots leading to difficulty in the development process and **provide intelligent routing capabilities** to maintain customer satisfaction.





# Contextual Understanding Solution with Network of Bots

## Network of bots

- With this solution, the organization has integrated multiple bots to a single network.
- Patrick was exposed to a UI where all his queries will get answered in a single conversational interface.

## Start Conversation

- Patrick will initiate a chat by clicking on the chat button displayed on the page.
- Network of Bots service will send the initial personalized greeting message to Patrick
- Patrick now will ask his actual query on Report Fraud.

## Process Customer Input / NLU / NLP

- Patrick's question will then get processed with the natural language understanding system to understand the intent behind the input.
- Amazon Lex will be used to provide NLU/NLP capabilities.

## Contextual Understanding

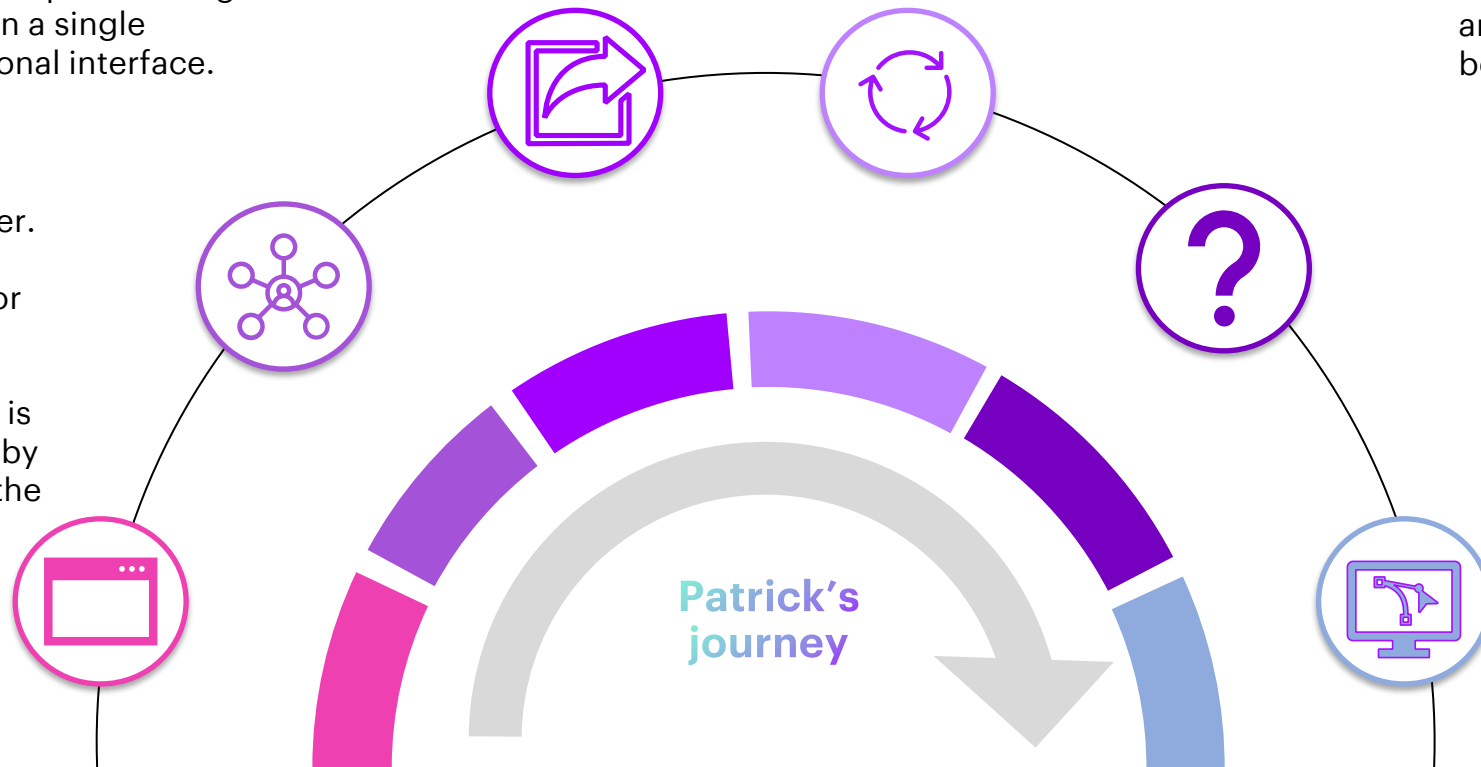
- The network exposes a unified interface by seamlessly integrating multiple use cases across various bots.
- Based on Patrick's input, the network can identify the context and route it to the appropriate bot.(Report Fraud Bot)

## Open a browser

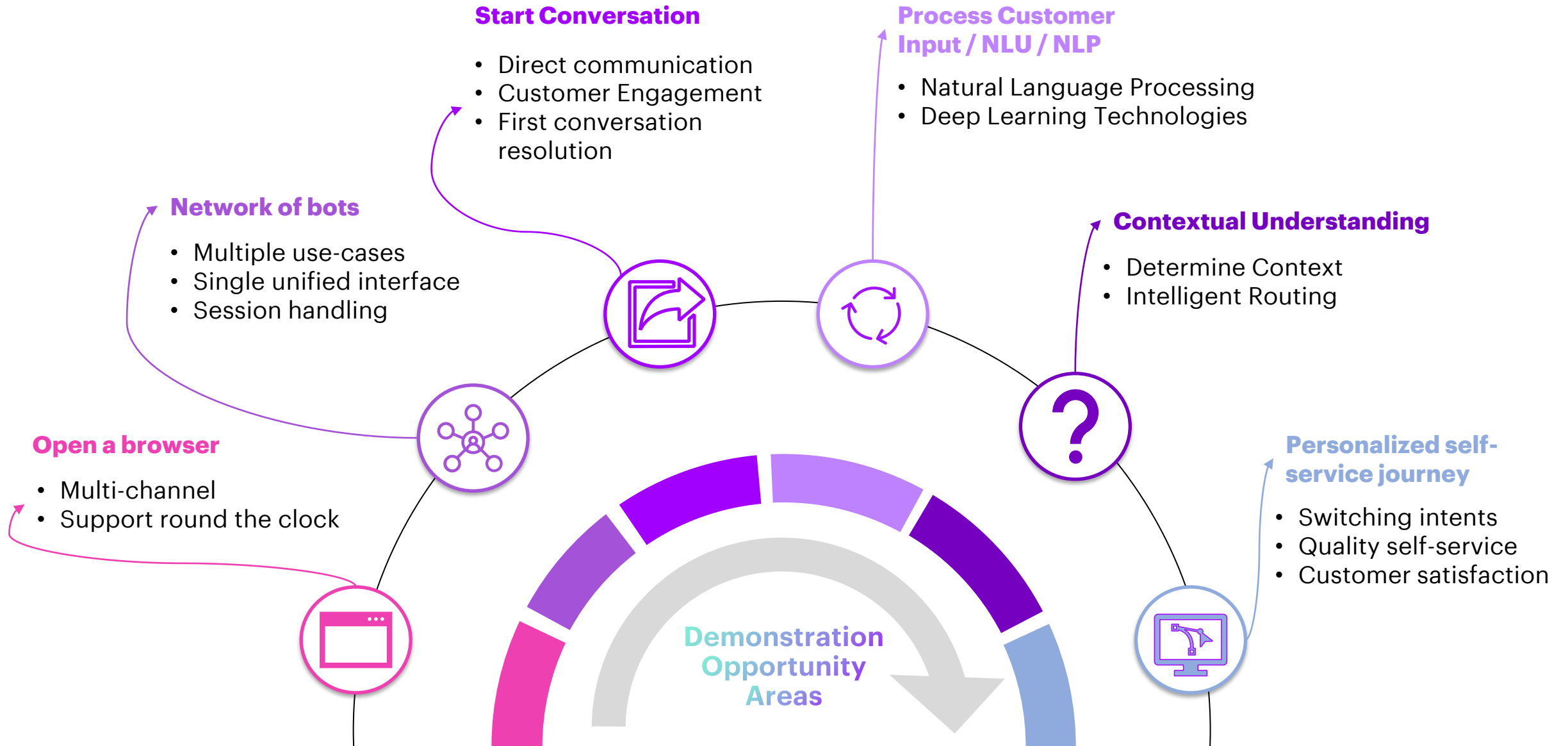
- Patrick will open a browser.
- He will find the web application URL hosted for network of bots by NDC bank.
- He will make sure that he is landed on the right page by verifying the content on the website.

## Personalized self-service journey

- Report fraud intent initiated - Patrick will then be asked to give consent to do the appropriate action for fraud report and upon confirmation the account gets locked.(Switched to Account Lock Bot)
- The case number will be shared with Patrick to know the status inquiry.(Switched to Investigation Status Bot)



# Contextual Understanding Solution Opportunity Areas



## Housing Agency - Scenario - Intelligent Routing



How can we handle housing agency's requirement with a solution which can work with unified platform and Intelligent routing with best customer experience as priority with their self-service virtual assistants?

### Who is the customer?

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Sara, who has recently moved to the city for her new job seeks help of a housing type agency.

### What do they want?

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She wants to understand the benefits available to her in the moving process (employment benefits, payment assistance, broker-support and general customer services).

### Existing problem

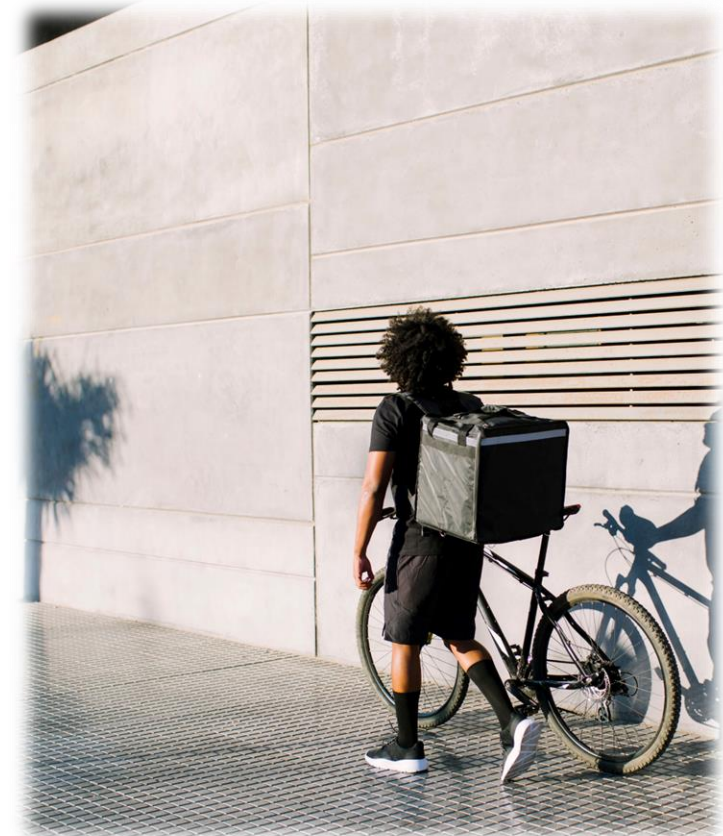
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Sara has been facing trouble interacting with multiple virtual assistants at different sites of Agency. Most of the other customers have also been experiencing the same.

### Desired Solution

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Agency wants to address this situation and are looking for a **unified platform** with a virtual assistant which can answer their customer questions with **intelligent routing capabilities**.





# Intelligent Routing Solution with Network of Bots

### Start Conversation or Send Query

- Sara will initiate the dialogue by clicking on the chat button displayed on the page.
- Network of Bots service will send the initial personalized greeting message to Sara
- Sara now will ask her actual query about broker services.

### Process Customer Input / NLU / NLP

- Sara's question will then get processed with the natural language understanding system to understand the intent behind the input.
- Amazon Lex will be used to provide NLU/NLP capabilities

### Intelligent Routing

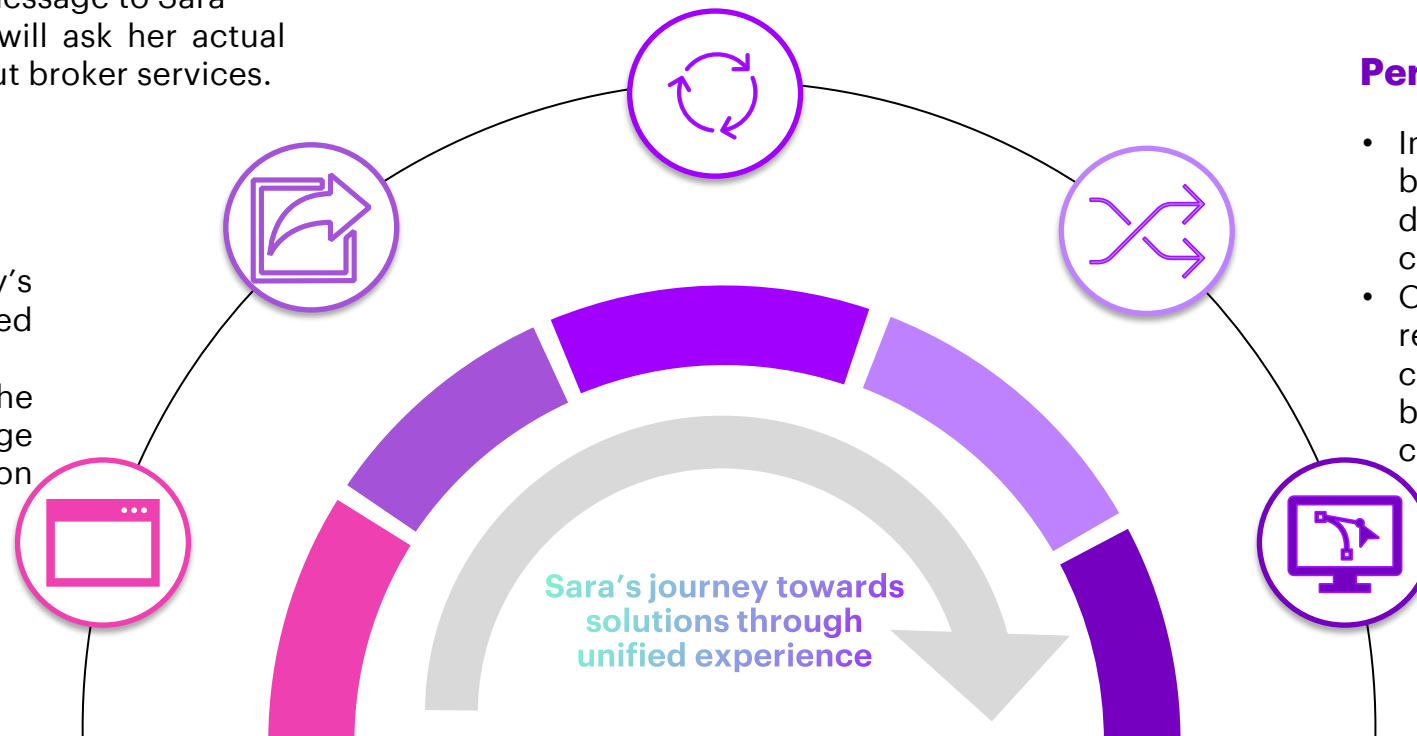
- The network exposes a unified interface by seamlessly integrating multiple use cases across various bots.
- Based on Sara's input, the network can intelligently route the query to the appropriate bot.(Respective Bot)

### Personalized self-service journey

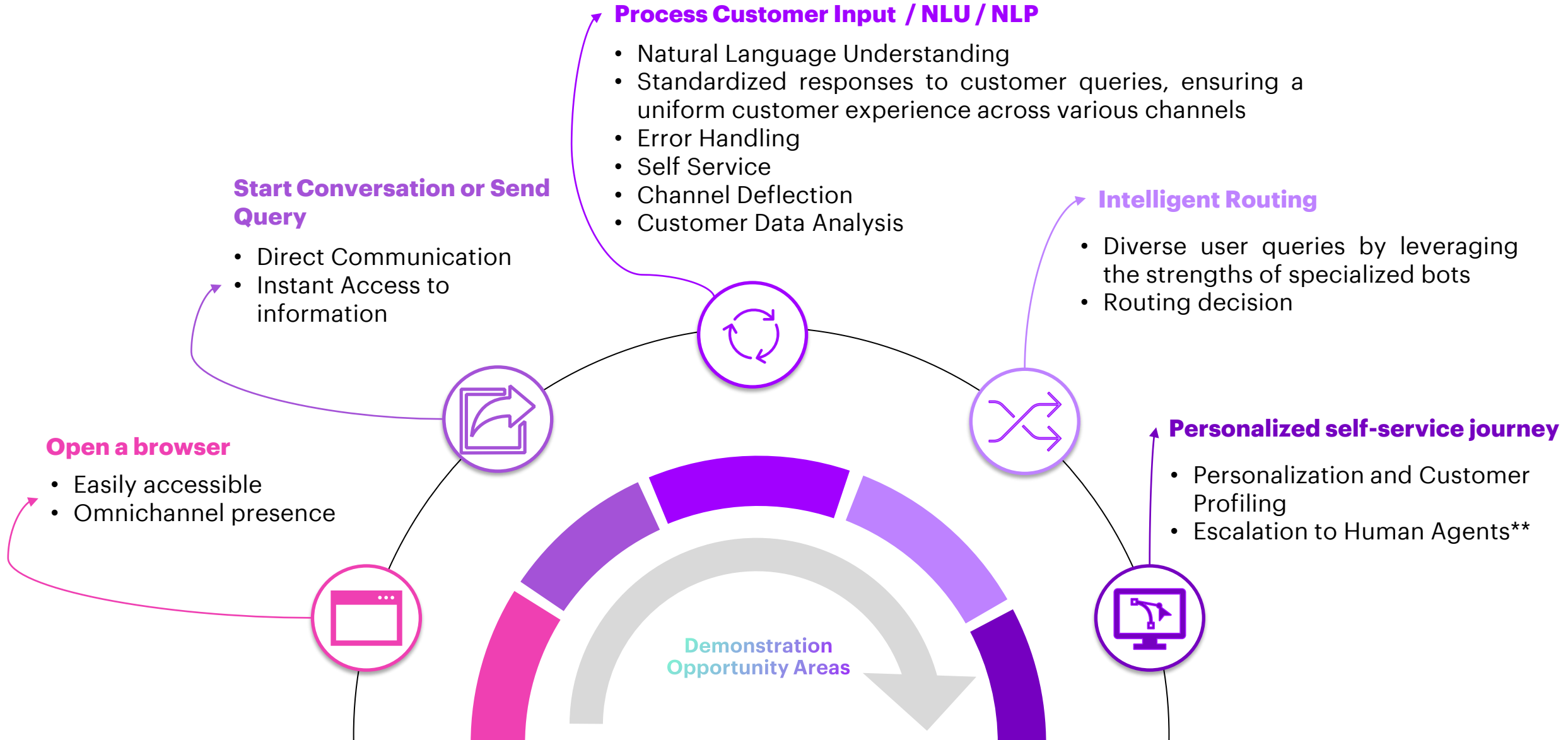
- Intent will then get identified for the broker related services and further details will be asked as per the bot conversation design.
- Once Sara selects services as per her requirement then she will be asked to consent to taking appropriate action to broker payment rates and upon confirmation the rates will be filled.
- The case number will be shared with Sara for future reference.
- Sara shall be given option to end the chat or if she selects connect service agent , she will receive a callback.

### Open a browser

- Sara will open a browser.
- Sara will find the agency's web applications URL hosted for network of bots.
- Sara will make sure that she is landed on the right page by verifying the content on the website.



# Intelligent Routing Solution Opportunity Areas





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## Our Point of View – Business Outcomes



### Collaboration

Bots can collaborate by sharing information and insights, leading to improved problem-solving.



### Enhance User Experience

Contribute to seamless and personalized user experience using a unified user interface and avoid disjoint interactions.



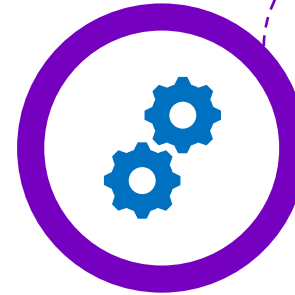
### Specialization

Different bots within the network can specialize in specific functions, allowing for a more targeted approach to diverse tasks.



### Data Processing

Process and analyze large volumes of data from multiple bots, providing valuable insights and supporting data-driven decision-making.



### Task Automation

Bots within the network can be designed to automate specific tasks, ranging from simple to more complex and cognitive processes.



### Improved Efficiency

By distributing tasks among multiple bots, a network of bots can enhance overall efficiency and reduce the time required to complete certain processes.



## Our Point of View – Key Considerations

Network of Bots with Amazon Lex implementation have few considerations which should be known by any organization to get started using this solution.

### No Voice Channel Enablement

Network of Bots has not been enabled in Amazon Connect Instances. So, we will be not able to utilize this feature with in IVR systems for now.

### Single Language Support

Network of Bots supports only English Language for now to initiate a conversation from a unified interface.

### Maximum 5 bots in a single network

Network of Bots allows adding only five bots maximum into the network which are defined over different use cases.

Note: All the above consideration are subjected to change, and we might get them addressed in later release from Amazon LEX. These details are latest as on 18<sup>th</sup> December 2023.

# Key Contacts



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# Thank You

