

ORACLE®

Oracle Digital Assistant

The Complete Training

Digital Assistant Skills Routing



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Topic agenda

- 1 ➤ Recap of chatbot anatomy, skills, routing intro
- 2 ➤ Routing terms and concepts, Implicit/Explicit routing
- 3 ➤ Built-in Digital Assistant intents/routing
- 4 ➤ Tuning the routing model

Topic agenda

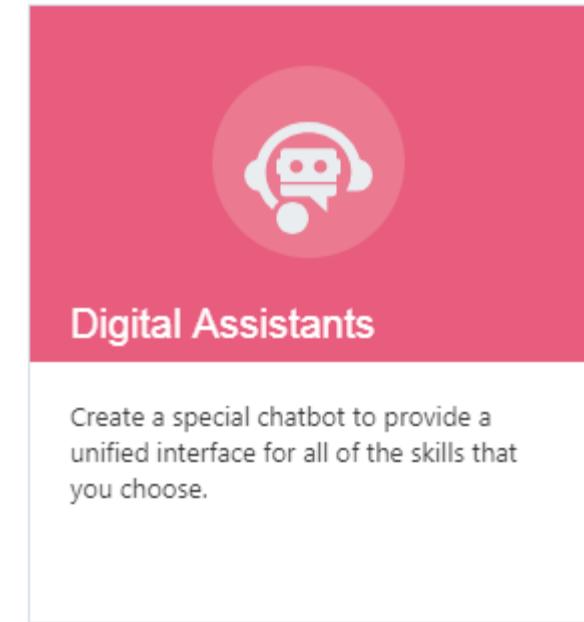
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What skills are

- Skills are **individual chatbots** designed to fulfill specific tasks, such as ordering food, making reservations, or changing contact information
- Each skill **helps a user complete a task** through a combination of text messages and simple UI elements like select lists

What digital assistant is

- AI-driven collection of skills
- Digital assistant advantages
 - Orchestrates multiple skills to a single bot solution
 - Automatically finds appropriate skill for user input
 - Upon request, lists what skills and use cases it supports
 - Handles interruptions to flows
 - Handles disambiguation
 - Supports explicit invocation
 - Handles exit and help requests



What is routing?

- A key aspect of Oracle Digital Assistant
 - Enables richer, more human-like interactions
- A “conversational air traffic control”
 - Controls the overall “flow” of a conversation between and within skills
 - Necessary for the orchestration of skillbots



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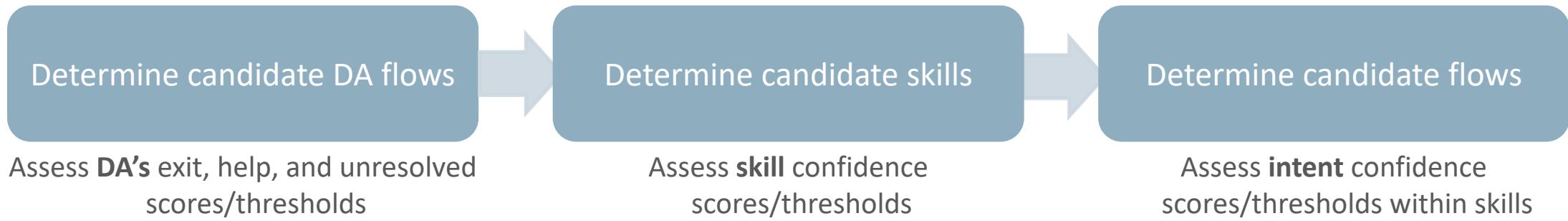
Routing terminology

- Implicit routing
 - Routing based on content in input (user utterance)
 - DA routing rules decide which bot will handle input
 - Inputs are automatically disambiguated (via “Smart Dialogs”), if needed
- Explicit routing
 - Occurs when a skill name is explicitly stated in the user’s input
 - The dialog flow within the skill determines how the input is handled
- Candidate skills
 - Skills that have matching intents for a user input message
- Candidate flow
 - Intent in a skill bot matching the user input message
- System intent
 - Built-in DA intents (e.g., exit, help, unresolved)

The digital assistant routing model – what it does

- The Digital Assistant evaluates each input (user utterance) to determine "where it belongs" to decide how to respond
- The options for routing an input are:
 - To a built-in Digital Assistant intent
 - To a new skill
 - To a different intent (state) within the current skill

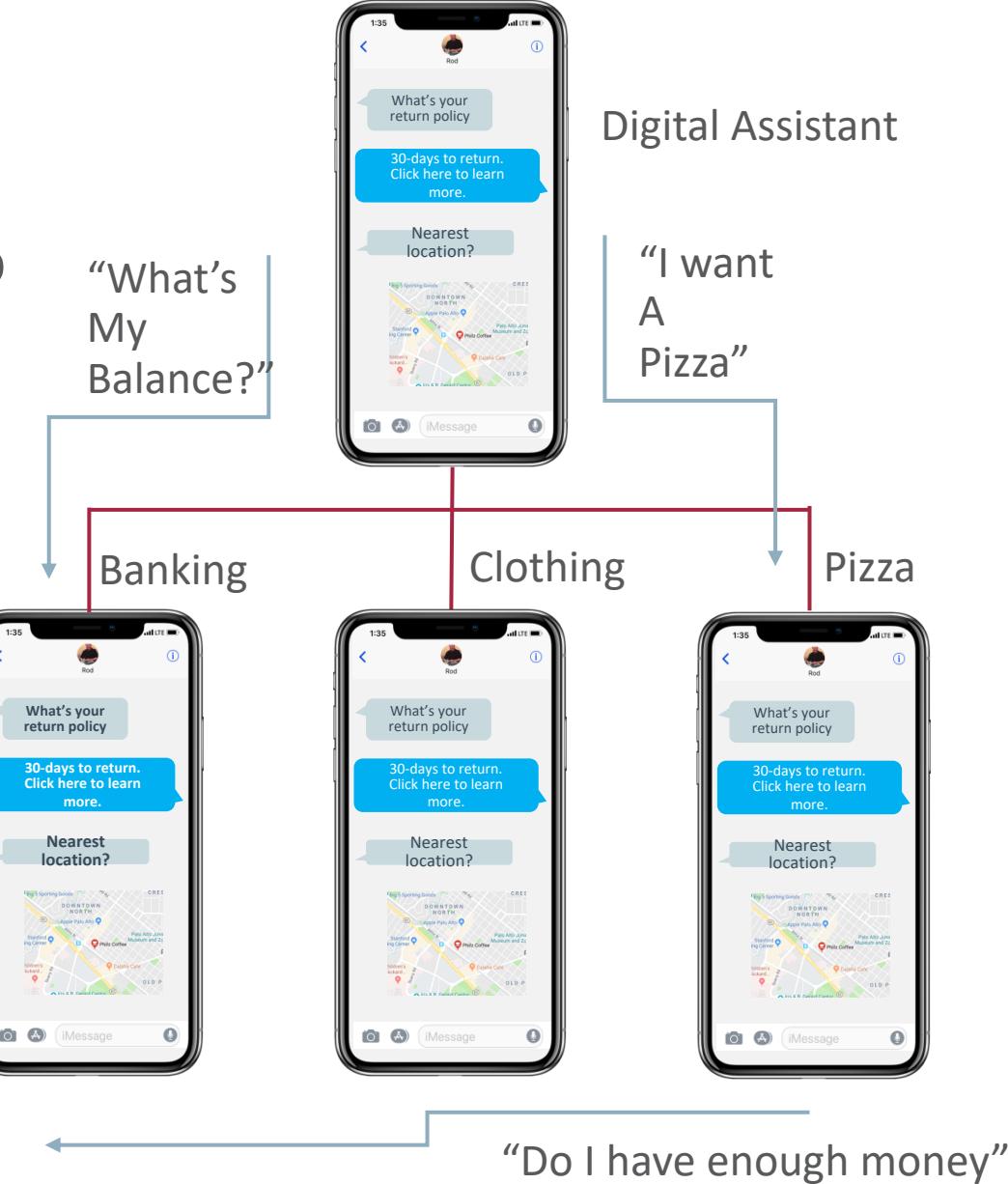
The base routing model layers



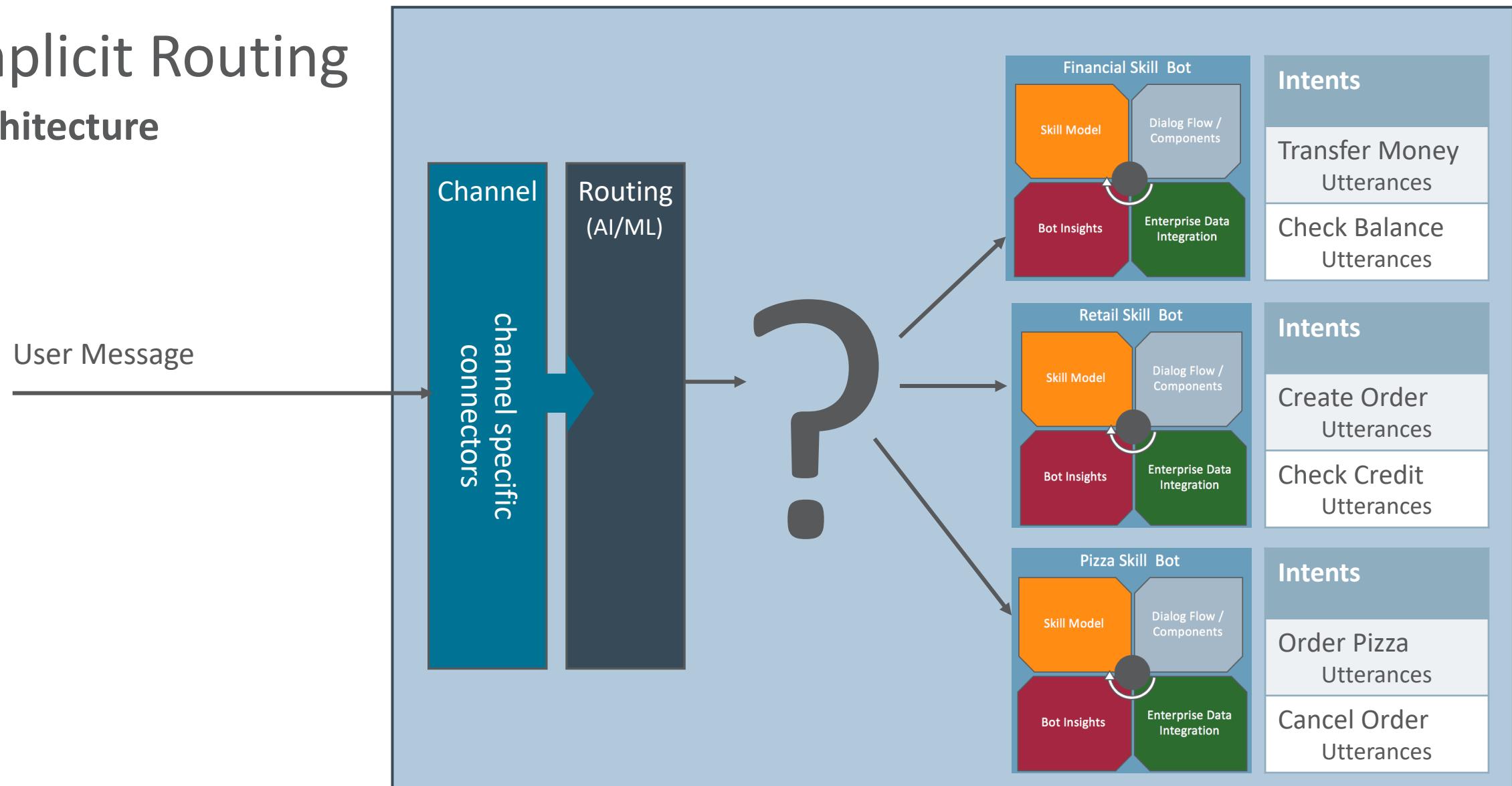
- *NOTE: There are special cases that impact the base routing model. (We'll cover them shortly)*

Skill routing example

- Digital Assistant routes requests to the correct skill bots



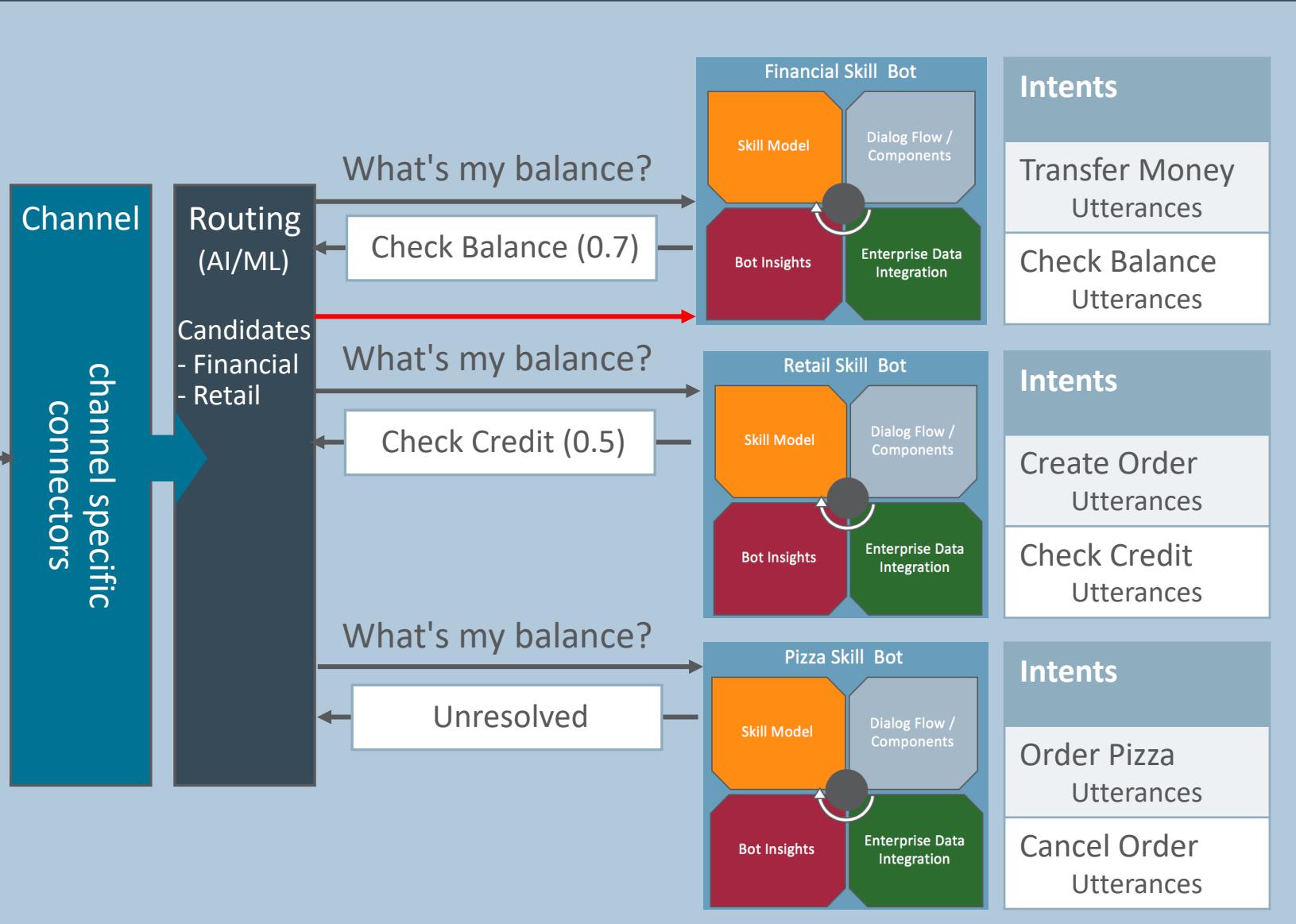
Implicit Routing Architecture



Implicit Routing

Example – Top Match
No active skill

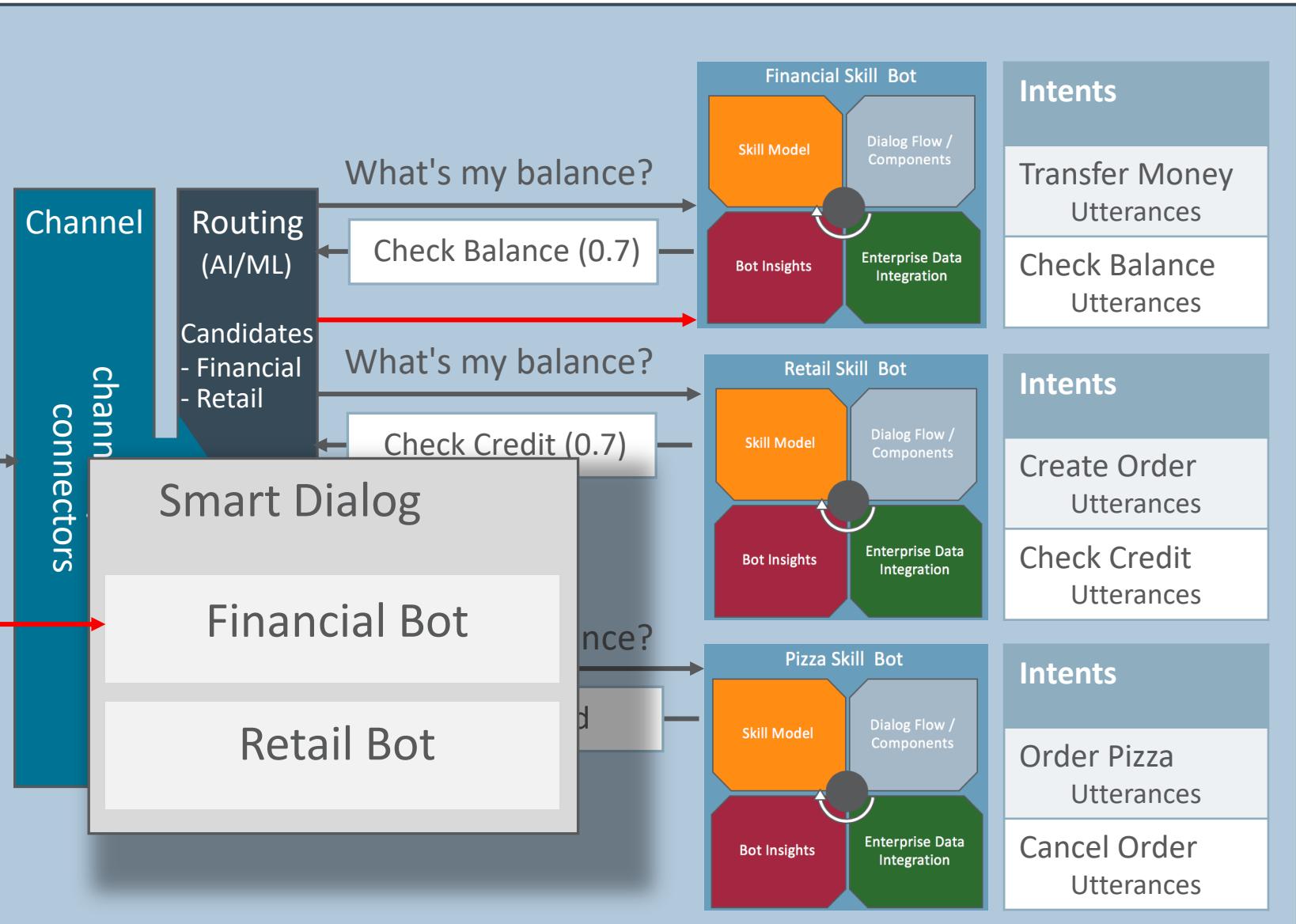
What's my balance?



Implicit Routing

Example – Multiple Matches
No active skill

What's my balance?



Implicit Routing

Example – Multiple Matches

Financial = active skill

What's my balance?

Channel

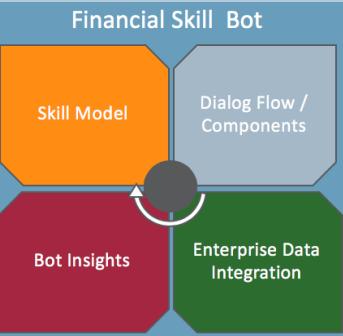
channel specific
connectors

Routing
(AI/ML)

Candidates
- Financial
- Retail

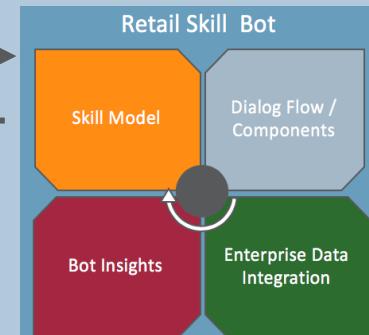
What's my balance?

Check Balance (0.7)



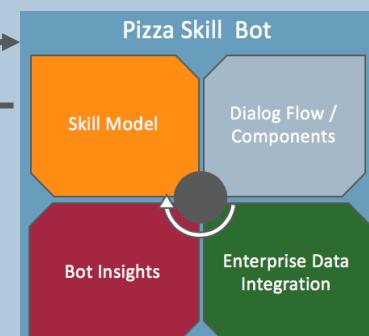
What's my balance?

Check Credit (0.7)



What's my balance?

Unresolved



Intents

Transfer Money
Utterances

Check Balance
Utterances

Intents

Create Order
Utterances

Check Credit
Utterances

Intents

Order Pizza
Utterances

Cancel Order
Utterances

Explicit invocation patterns

- [Phrase] + skill bot name + [utterance]
 - Pizzajoe
 - Ask pizzajoe when my pizza will be delivered
 - Pizzajoe ,I want to order a pizza
- [Utterance] + skill bot name
 - Order a pizza from pizzajoe
 - Can I place an order with pizzajoe?

Explicit routing Architecture

User Message
<addressing> <utterance>

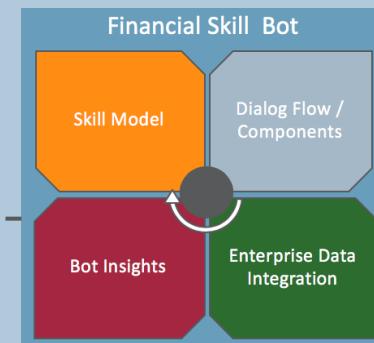
Channel
channel specific
connectors

CashBank

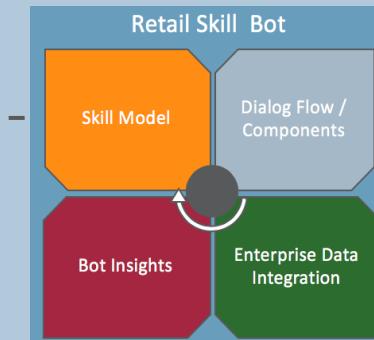
FashionKing

PizzaJoe

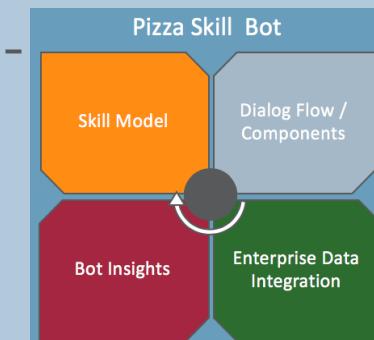
registered as



registered as



registered as



Intents

Transfer Money
Utterances

Check Balance
Utterances

Intents

Create Order
Utterances

Check Credit
Utterances

Intents

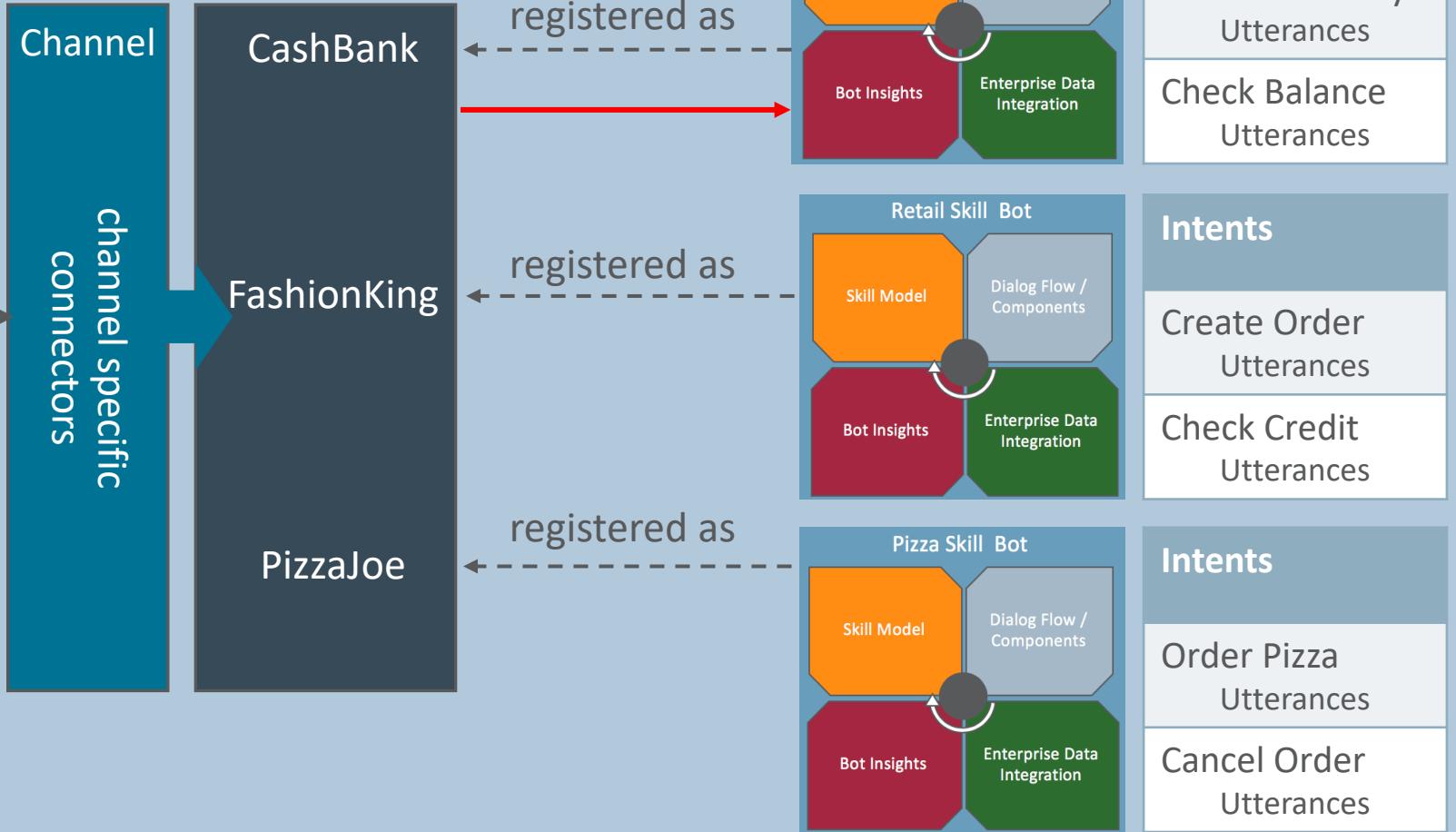
Order Pizza
Utterances

Cancel Order
Utterances

Explicit routing

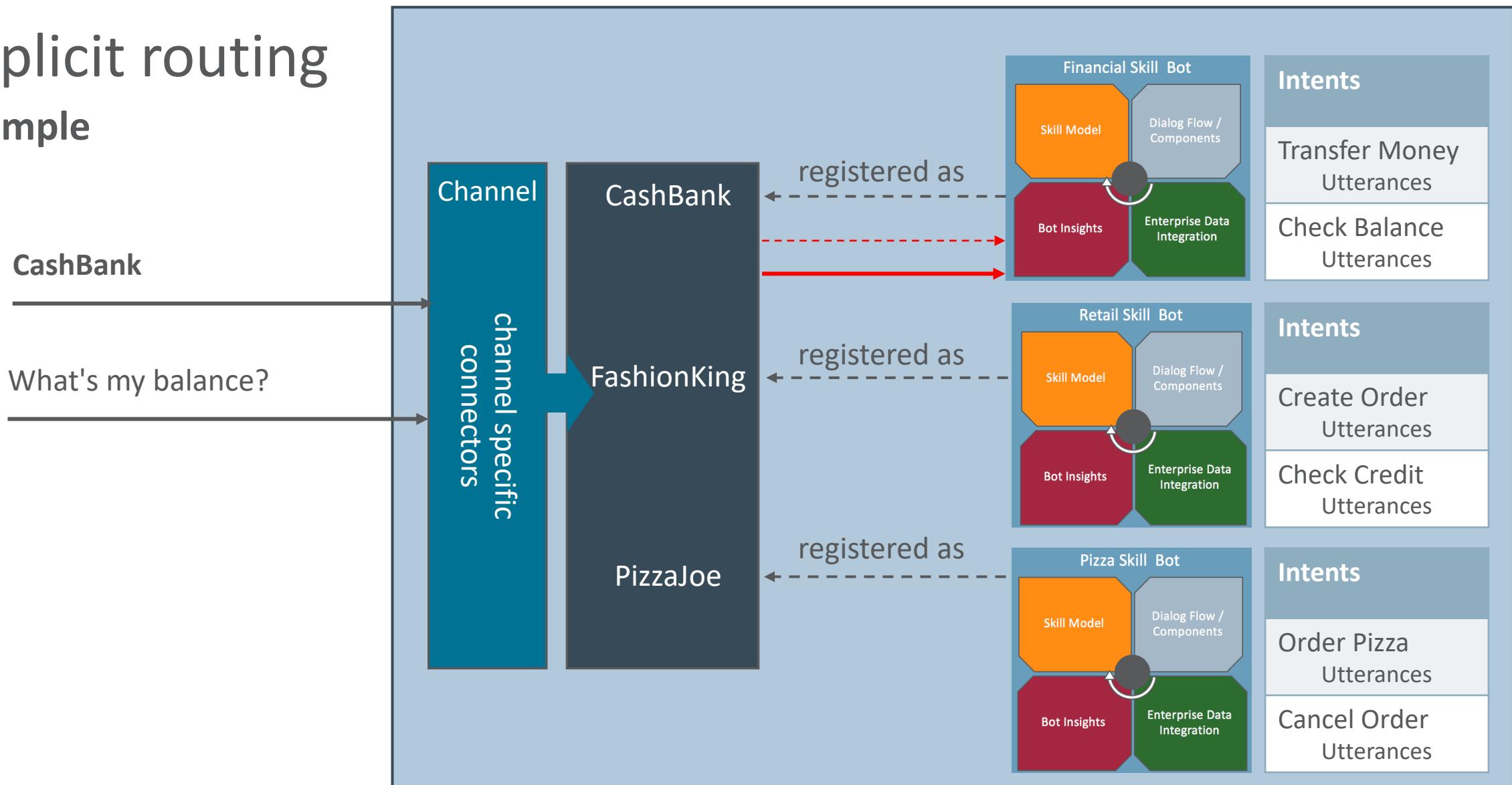
Example

Ask **CashBank** to check my balance



Explicit routing

Example



Explicit routing

Example

PizzaJoe, I want to order food

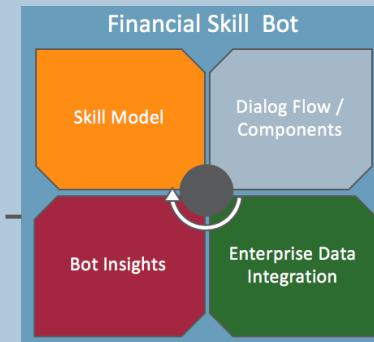
Channel
channel specific
connectors

CashBank

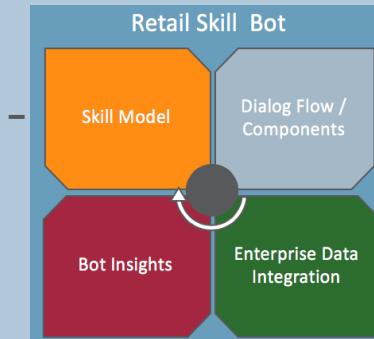
FashionKing

PizzaJoe

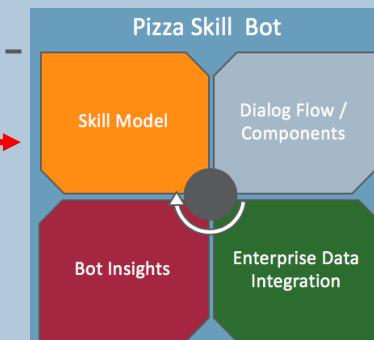
registered as



registered as



registered as



Intents
Transfer Money Utterances
Check Balance Utterances

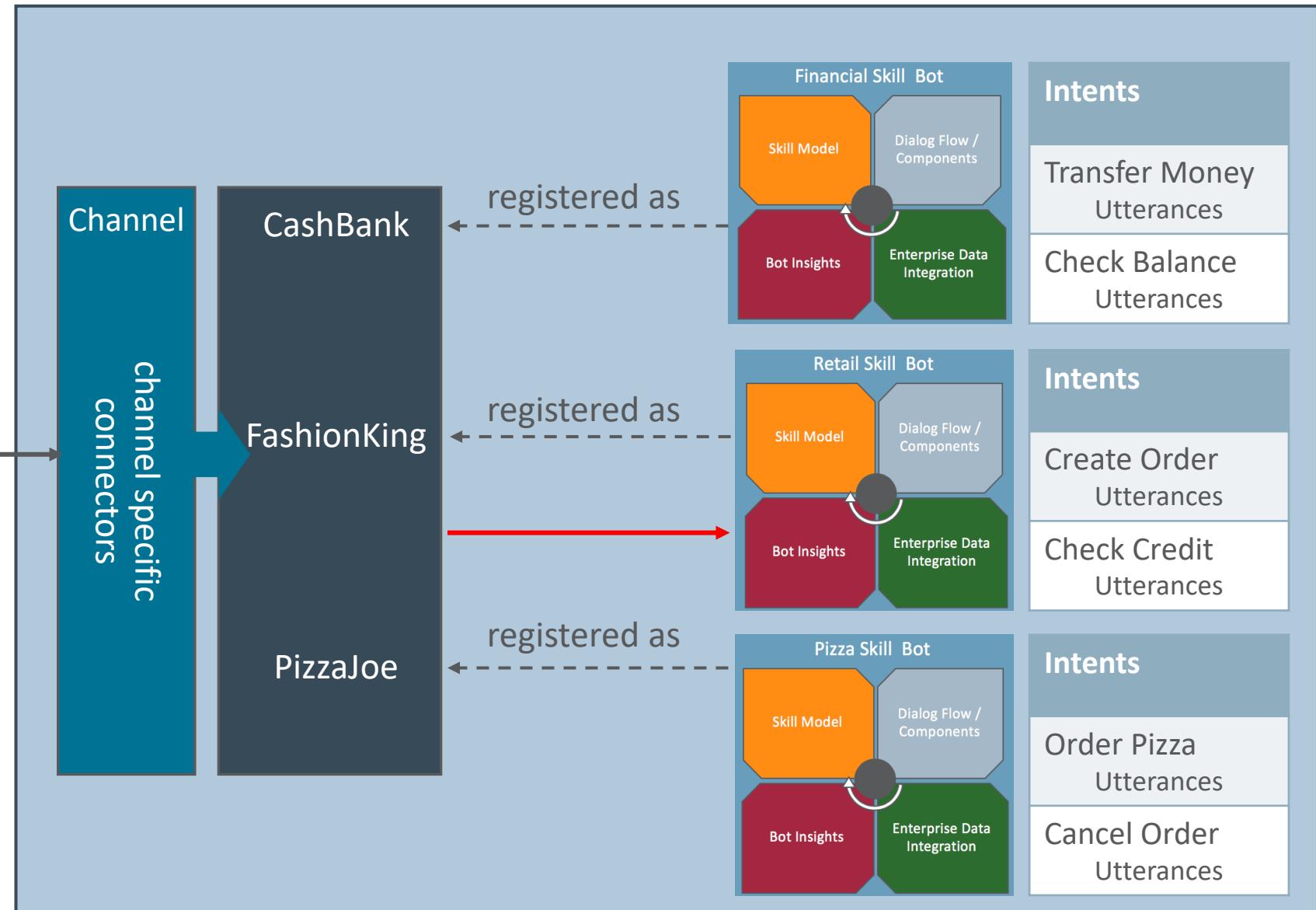
Intents
Create Order Utterances
Check Credit Utterances

Intents
Order Pizza Utterances
Cancel Order Utterances

Explicit routing

Example

check **FashionKing**, how
much money do I have?

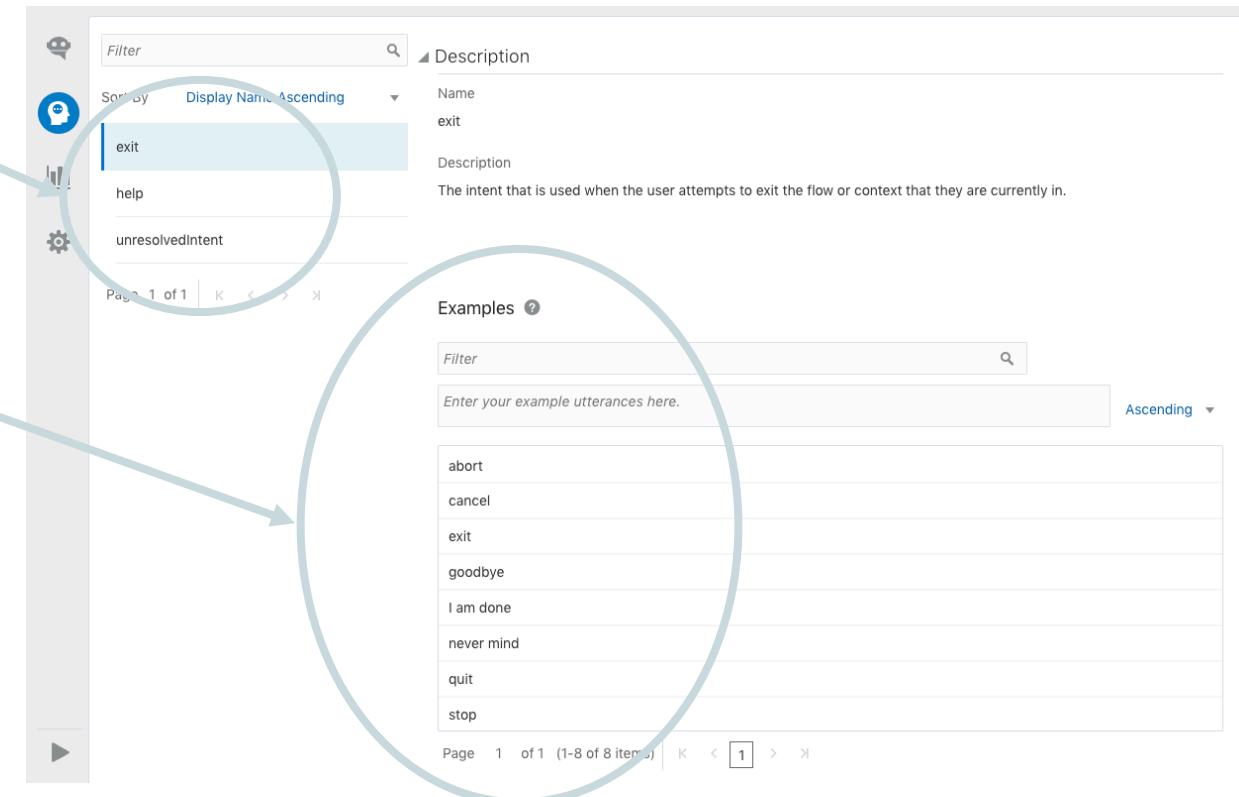


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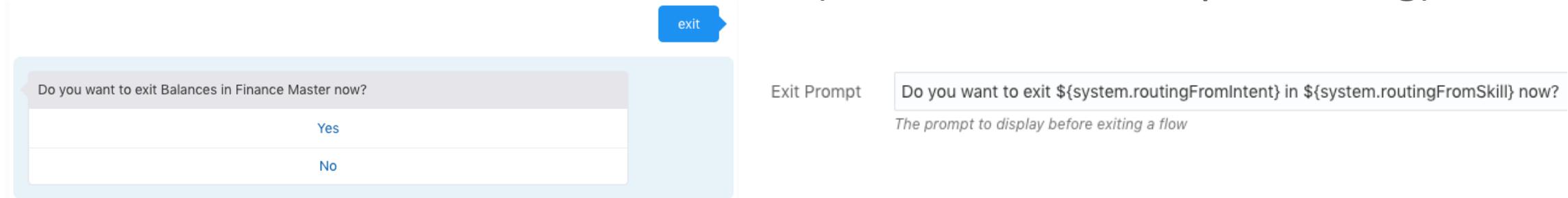
Built-in Digital Assistant intents

- Oracle Digital Assistant globally handles common use cases
- *built-in global intents*
 - Exit
 - Help
 - Unresolved
- Each intent may be trained to suit specific needs

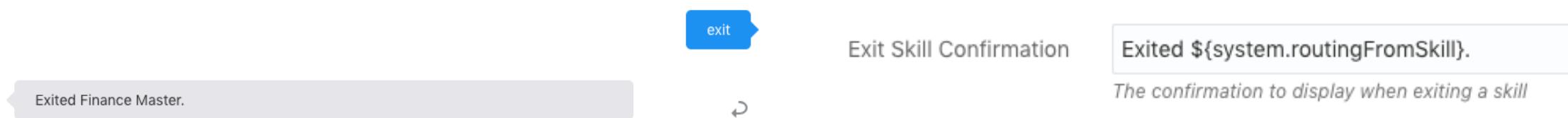


Built-in skills – exit

- Exit state applies when the intent engine determines user asking to exit
- If in a flow, DA will ask to confirm exit (via the “Exit Prompt” setting)

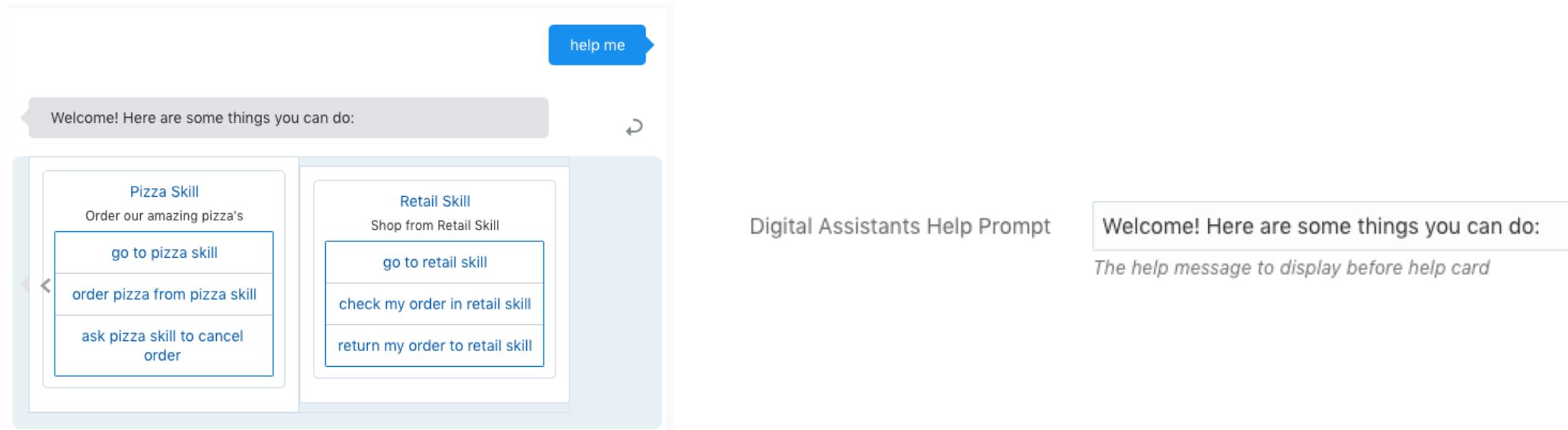


- If not in a flow, DA will confirm once it has exited (via the “Exit Skill Confirmation” setting)

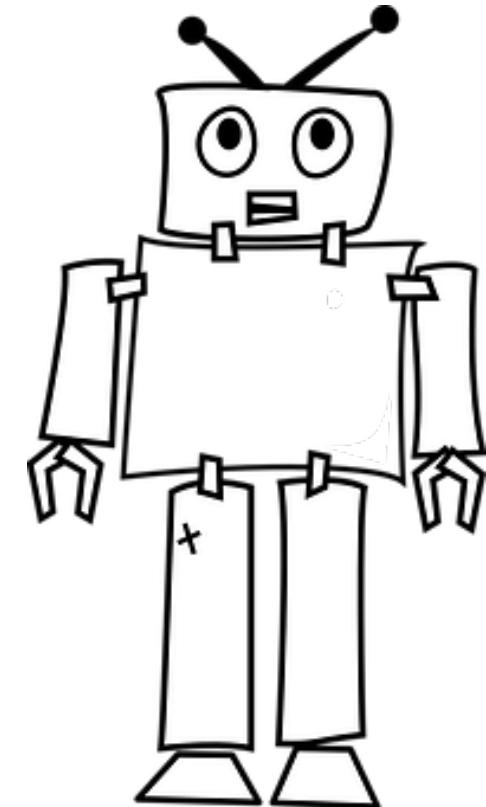


Built-in skills – help (user not in skill)

- Help state applies when the intent engine determines user asking for help
- When not in a flow/skill, the digital assistant will DA will offer a help prompt and a carousel of available skills

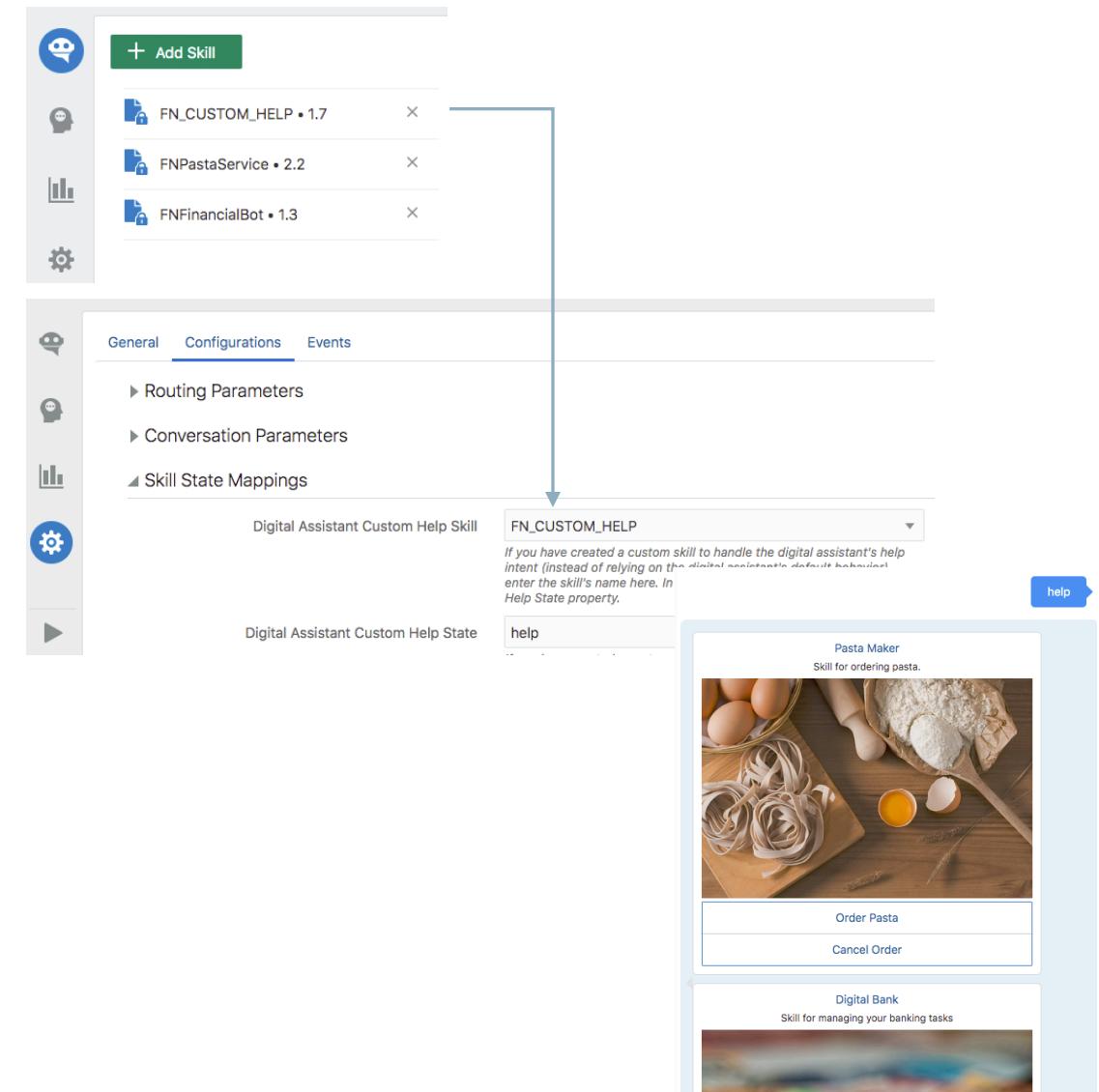


Technically, the built-in help that is triggered by the system help intent works great. But what if you could make it look good too?



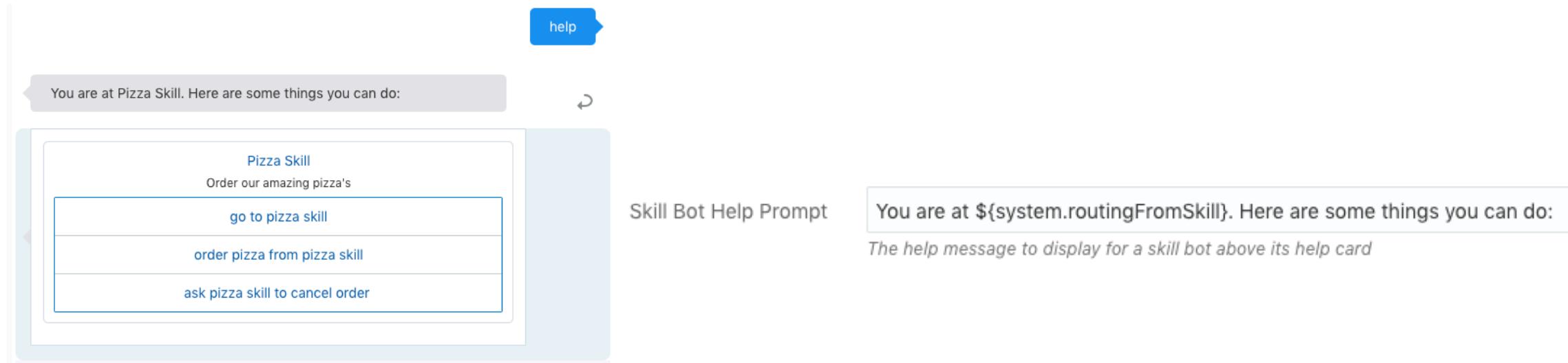
Customizing the built-in help

- Create a skill to display the help
 - Define state to be called by digital assistant
 - E.g. use System.CommonResponse component to build a menu that navigates to specific task in a skill
- Add skill to digital assistant
- Configure skill as help in digital assistant configuration
 - Set help state



Built-in skills – help (user in skill)

- Help state applies when the intent engine determines user asking for help
- When in a flow/skill, the DA will first try to route to the skill's help state (as specified in the skill's configuration)
- If no help state has been defined at the skill level, the DA displays a prompt and a card



Skill-level settings and DA default responses

- Individual skills may contain specific Start, Welcome, and Help states
 - Skill-level settings determine which state in a skill's dialog flow handles each state

The screenshot shows the Oracle Digital Assistant configuration interface. The top navigation bar includes tabs for General, Configuration, Digital Assistant (which is selected), Events, and Q&A Routing Config. Below the tabs, there are two main sections: Interaction Model and Parameters.

Interaction Model:

- Invocation: Config_test
- * Example Utterances: Enter your example utterances here. Ascending ▾
- An example utterance

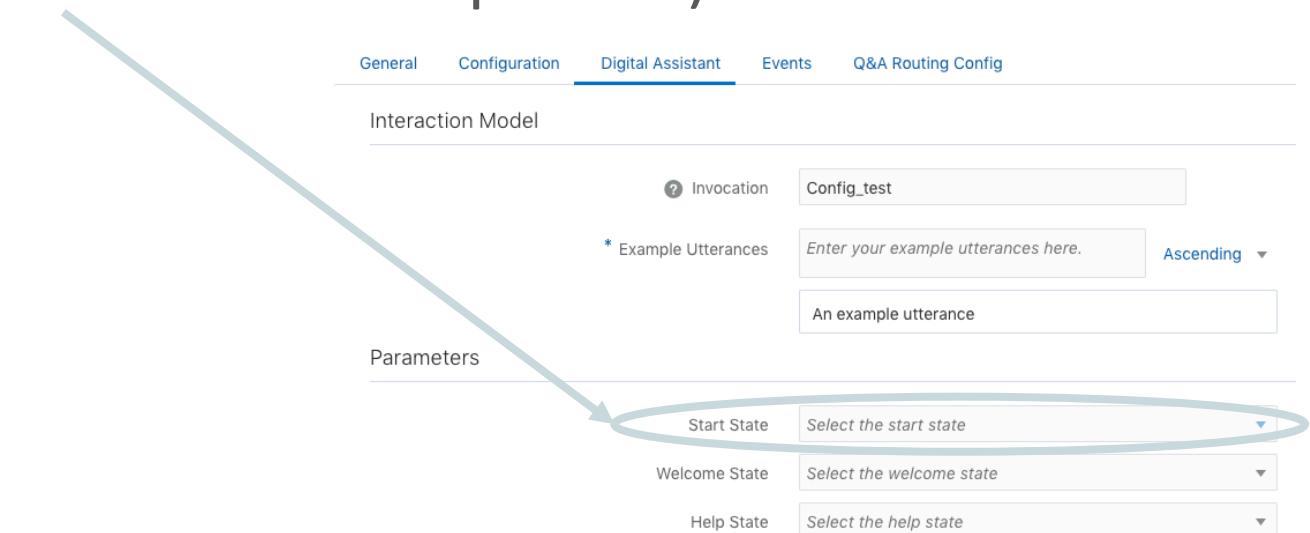
Parameters:

- Start State: Select the start state ▾
- Welcome State: Select the welcome state ▾
- Help State: Select the help state ▾

A large light blue oval surrounds the three dropdown menus under the Parameters section, specifically highlighting the Start State, Welcome State, and Help State fields.

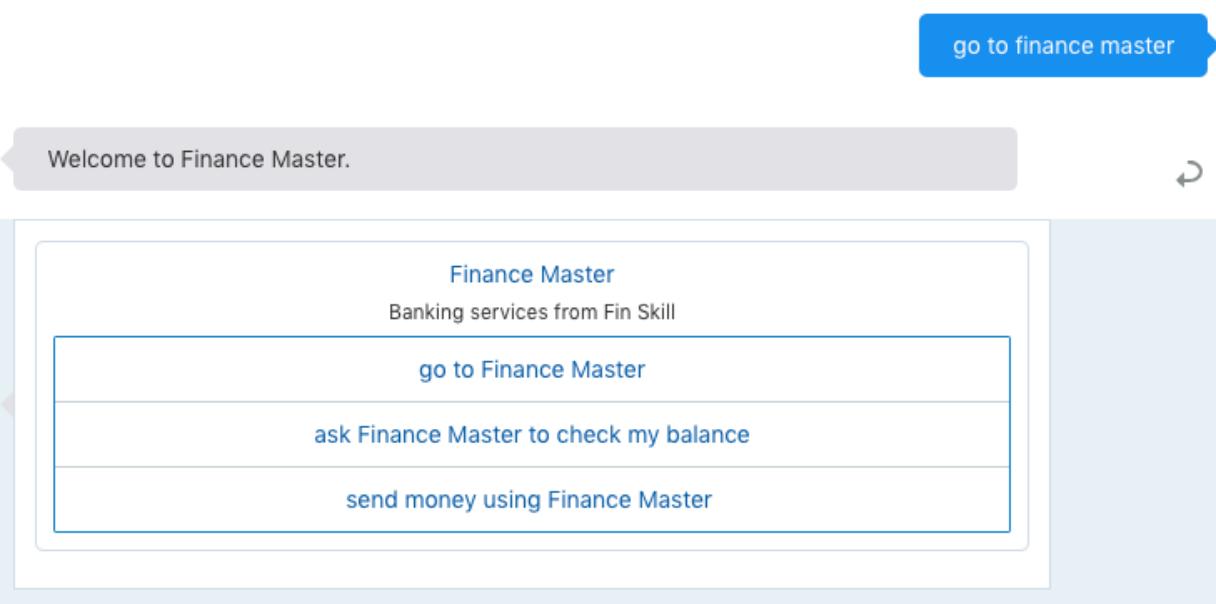
Default responses - start

- The Start state occurs when the intent engine determines that the user wants to start using a given skill
 - Generally when the user expresses an intent that is related to a skill
- If a start state hasn't been specified in the skill, the DA invokes the first state in the skill (typically the System.Intent component)



Default responses - welcome

- Welcome applies when user enters the invocation name without an intent
- If a welcome state is not defined for a skill, DA provides one automatically
 - Default welcome is a prompt and card showing the skill's display name, one-sentence description, and a few of its sample utterances.



Skill Bot Welcome Prompt

Welcome to \${system.routingFromSkill}.

The welcome message to display for a skill bot

5



Maximum skill flows to be offered for selection.

System unresolvedIntent

- Intent trained by bot designer with what the bot should not attempt to handle
- Default implementation displays a carousel layout with skills provided by digital assistant
- System unresolved intent handling can be customized
 - Configure skill and state to handle unresolved intent messages instead of default implementation

The screenshot shows the Oracle Digital Assistant configuration interface. On the left, there is a sidebar with icons for Home, Skills, Events, and Settings. The main area has a search bar at the top labeled 'Filter' with a magnifying glass icon. Below it, a dropdown menu says 'Sort By' followed by 'Display Name Ascending'. The results list includes 'exit', 'help', and 'unresolvedIntent', with 'unresolvedIntent' highlighted in blue. At the bottom of the results list, there are navigation buttons: 'Page 1 of 1' and arrows for navigating through pages. Below the results list, there is a detailed configuration panel for the 'unresolvedIntent' skill. It has tabs for 'General', 'Configurations' (which is selected), and 'Events'. Under 'Configurations', there are sections for 'Routing Parameters', 'Conversation Parameters', and 'Skill State Mappings'. For each section, there is a 'Digital Assistant Custom Help Skill' or 'State' entry with a description and a text input field. The descriptions explain that if a custom skill is created, the name should be entered here instead of relying on the digital assistant's default behavior.

Filter

Sort By Display Name Ascending

exit

help

unresolvedIntent

Page 1 of 1

General Configurations Events

► Routing Parameters

► Conversation Parameters

△ Skill State Mappings

Digital Assistant Custom Help Skill

If you have created a custom skill to handle the digital assistant's relying on the digital assistant's default behavior), enter the skill addition, fill in the Digital Assistant Custom Help State property.

Digital Assistant Custom Help State

If you have created a custom skill to handle the digital assistant's relying on the digital assistant's default behavior), enter the name help here. In addition, fill in the Digital Assistant Custom Help State property.

Digital Assistant Custom UnresolvedIntent Skill

If you have created a custom skill to handle the digital assistant's (instead of relying on the digital assistant's default behavior), enter the name here. In addition, fill in the Digital Assistant Custom UnresolvedIntent Skill property.

Digital Assistant Custom UnresolvedIntent State

If you have created a custom skill to handle the digital assistant's (instead of relying on the digital assistant's default behavior), enter the state to handle unresolvedIntent here. In addition, fill in the Digital Assistant Custom UnresolvedIntent State property.

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DA routing configurations overview

- Important terminology:
 - *Confidence level* is the intent engine's "score" for utterance classification
 - Range is 0 – 1.0
 - *Threshold* is a value that's compared to the confidence level to define next action
 - *Margin* is the difference between confidence levels
- Routing behavior is tuned by adjusting the thresholds of routing parameters

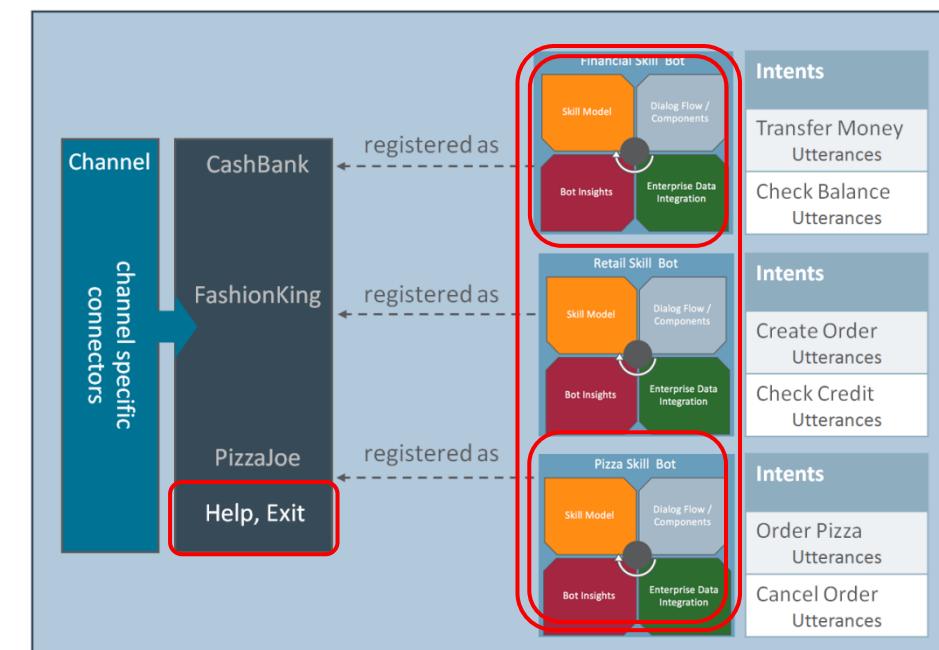
General Configurations Configurations Events

▲ Routing Parameters

Built-In System Intent Confidence Threshold	0.6	▼ ▲
Threshold for identifying built-in system intents, like help and exit. (Minimum value 0, maximum value 1)		
Candidate Skills Confidence Threshold	0.4	▼ ▲
The minimum confidence score required to a match a candidate skill. (Minimum value 0, maximum value 1)		
Confidence Win Margin	0.1	▼ ▲
Used to help determine which candidate skills and candidate built-in system intents are matched with user input. Only the top candidate that exceeds the confidence threshold is matched if its confidence score exceeds that of other candidates by this value or more. If other candidates that exceed the confidence threshold have scores that are within that of the top candidate by less than the win margin, these candidates are also matched. (Minimum value 0, maximum value 1)		
Consider All Threshold	0.8	▼ ▲
Threshold above which a candidate intent or flow will match, regardless of the win margin and whether there are higher scoring candidates. (Minimum value 0, maximum value 1)		
Consider Only Current Context Threshold	0.8	▼ ▲
If the confidence score for an intent in the current context exceeds this threshold, matches from other intent resolution models are not considered. (Minimum value 0, maximum value 1)		
Explicit Invocation Confidence Threshold	0.8	▼ ▲
Confidence threshold that an utterance has to reach to be considered an explicit invocation. (Minimum value 0, maximum value 1)		

DA routing configuration details

- Built-In System Intent Confidence Threshold
 - Threshold for identifying built-in system intents (e.g. help and exit)
- Candidate Skills Confidence Threshold
 - The minimum confidence score required to a match a candidate skill
- Confidence Win Margin
 - If a candidate's confidence score exceeds that of other candidates by this value or more, it will be matched



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