

**ORACLE®**

# Oracle Digital Assistant

## The Complete Training

### Oracle Digital Assistant Overview

# Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

# Topic agenda

- 1 ➤ About Oracle Digital Assistant
- 2 ➤ Skills
- 3 ➤ Digital Assistant
- 4 ➤ Channels

# Topic agenda

1 ➤ About Oracle Digital Assistant

2 ➤ Skills

3 ➤ Digital Assistant

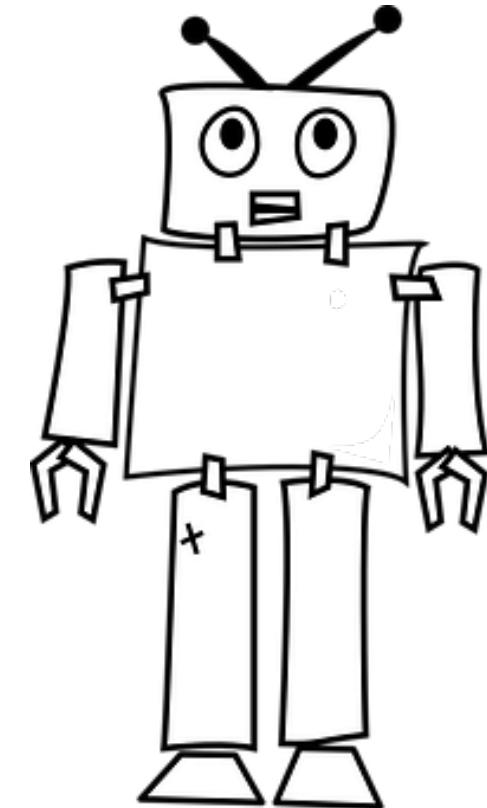
4 ➤ Channels

# Digital Assistant

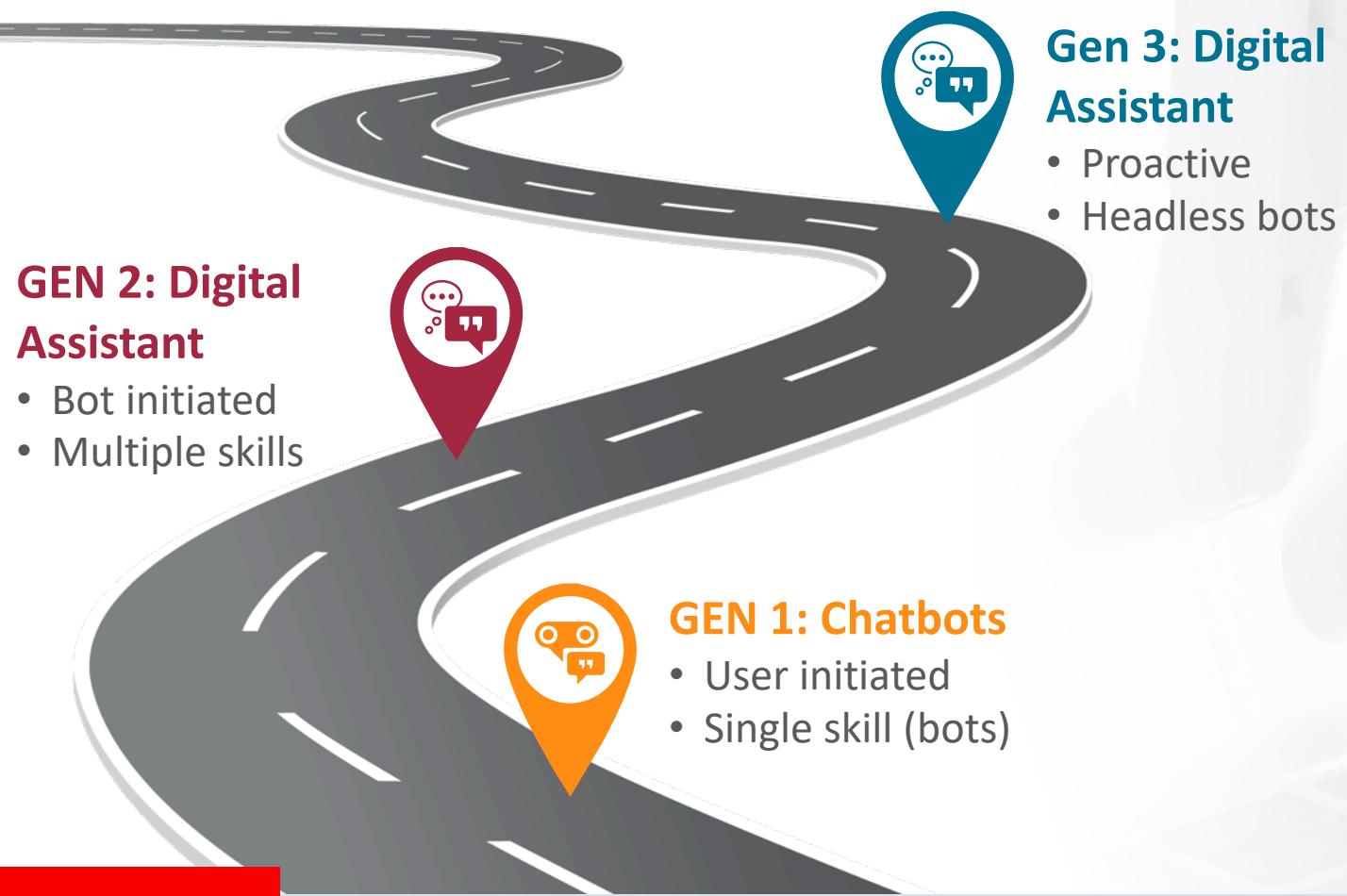
- Until now, chatbots solved simple business problems
  - Customer service automation
  - Automation of structured processes
  - Self-service
- Digital assistants are user oriented
  - Assist users with various related or unrelated tasks
  - Conversations are context aware
  - Assistants learn about the user
- Digital assistant is the future of chatbots



A digital assistant is a **computer program** that uses **artificial intelligence** and **machine learning** to combine independent chatbots into a single conversational interface that assists real users throughout their day



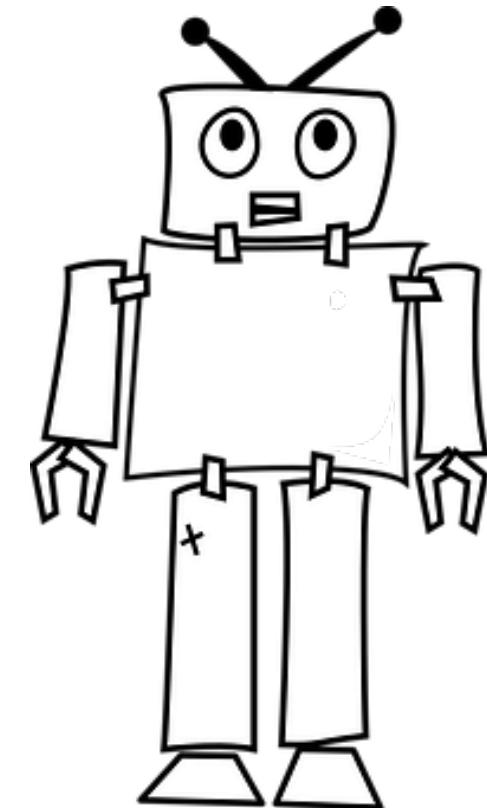
# From chatbots to digital assistants



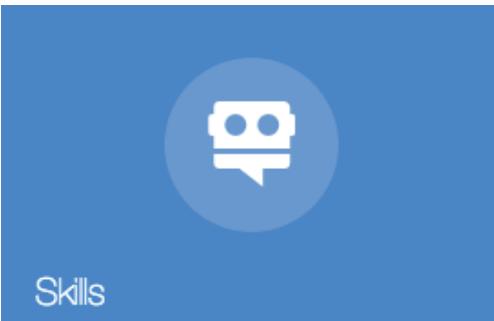
# Employee self service digital assistant example



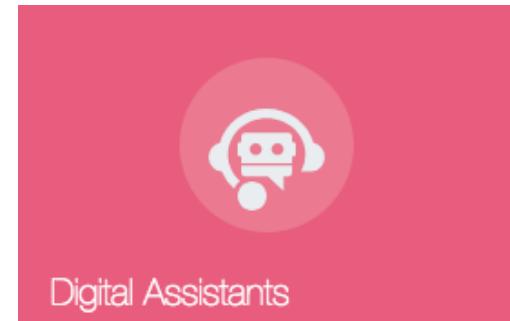
Oracle Digital Assistant is Oracle's 2nd generation intelligent bot platform for customers to **build composite chatbot solutions** from independent skills



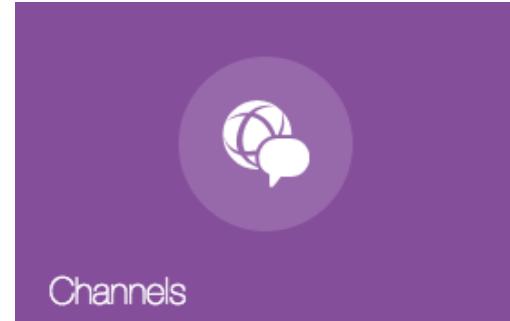
# Oracle Digital Assistant core modules



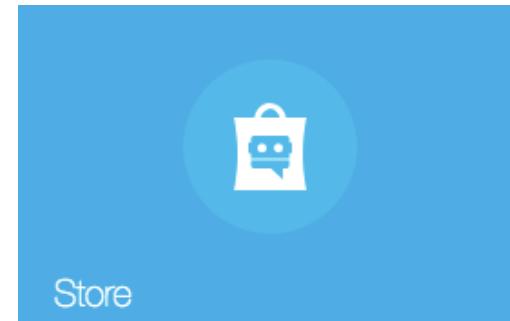
Skills



Digital Assistants



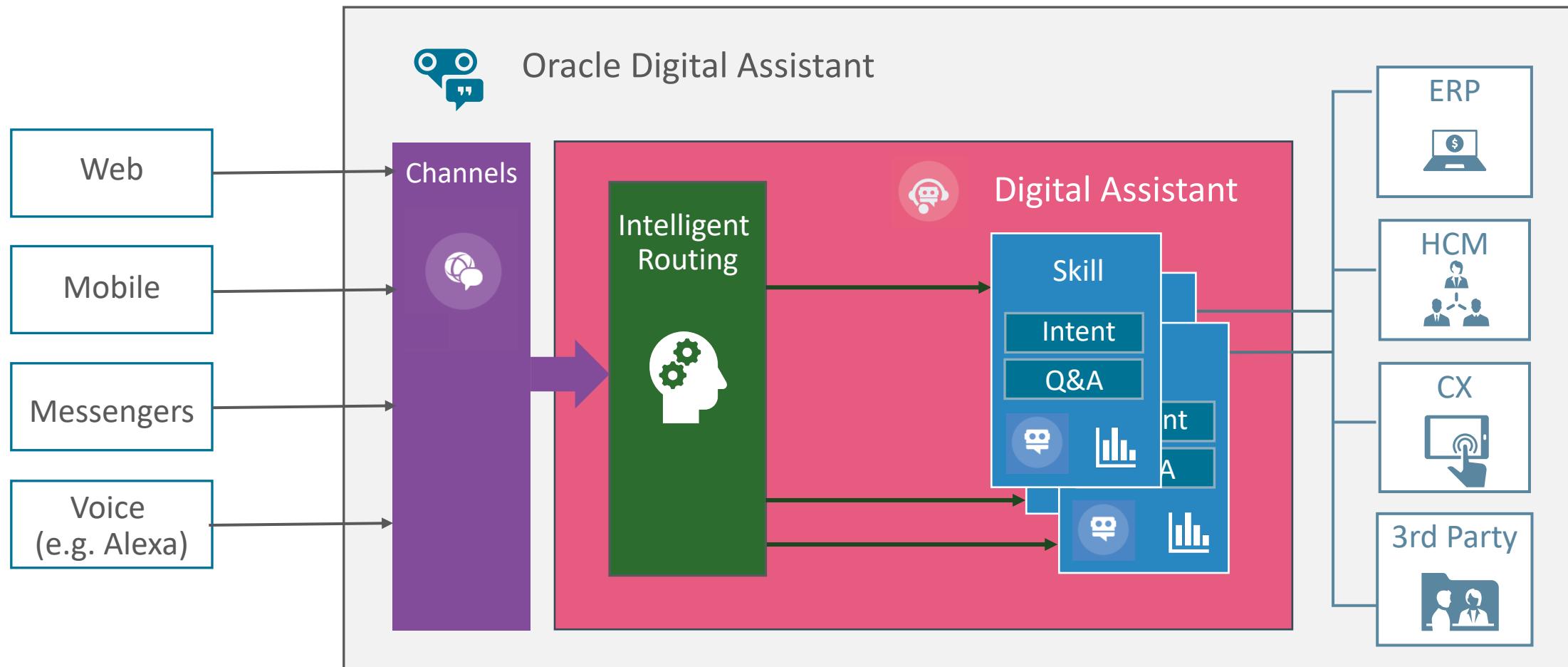
Channels



Store

- Individual chatbots
- Reusable
- Conversational AI and ML
- Work with any messenger
- "Master bot"
- Invokes skills
- Performs smart routing
- Disambiguates bot request if needed
- Messenger connectivity
- Webhook
- Native Channels
  - iOS, Android
  - Web
  - SMS
  - Facebook
  - WeChat
  - etc.
- Bot store
- Like App Store
- Contains bots from
  - Oracle SaaS

# Oracle Digital Assistant



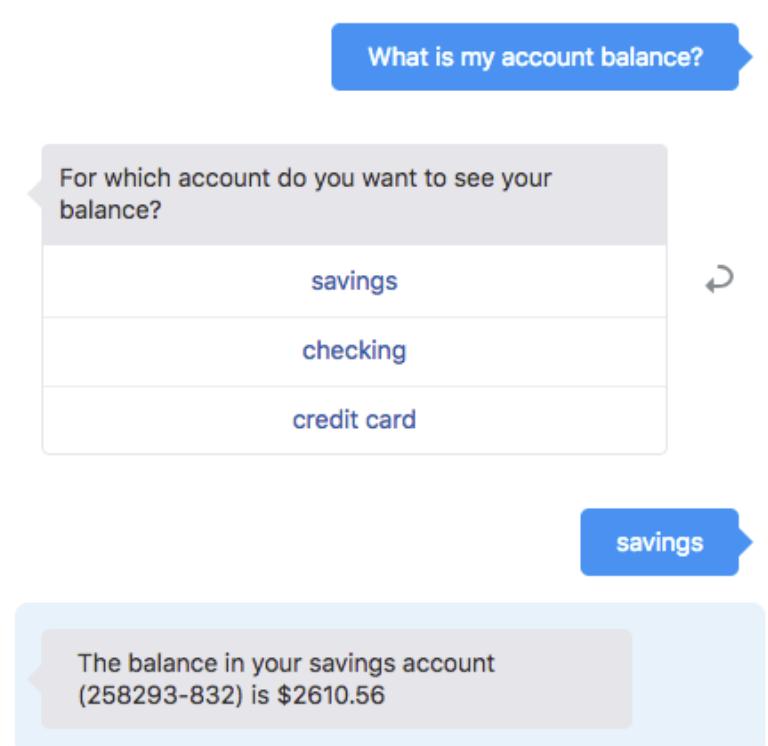
# Topic agenda

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# Skills

## Intent resolution and entity extraction

- Skills may or may not use natural language processing (NLP)
  - It's common practice though that they do
- User messages are interpreted by a trained model
  - Intents are resolved and mapped to a dialog
  - Entity values are extracted from user message
- Skills in digital assistant may use different training models

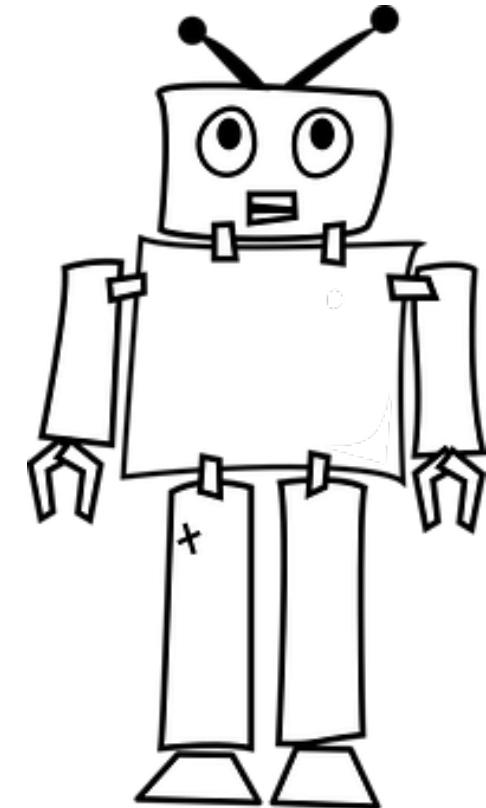


# Skills

## Conversation flows

- Conversation flows define "the chat"
  - The interaction between user and skill results in the completion of a task
- Conversation flow design
  - Dialog flows
    - Managed by dialog flow engine
    - Scripted interactions that may be skipped conditionally
  - Composite bag entities
    - Smart data objects that assemble information from NLP and user interaction dialogs
    - Don't require a written dialog flow

**Successful chatbots need to do more  
than just having a conversation**



# Skills

## Embedded intent tester

- Natural language understanding tester
  - Accessible from intent builder panel
- Confidence level to which an intent is resolved
- Displays extracted entities and values
- Allows batch testing
  - E.g. use data from the logs to frequently test the bot understanding
  - Helpful after model retraining

The screenshot shows the 'Try Out Intents/Q&A' interface. On the left is a vertical toolbar with icons for Intent, Entity, Entity Type, Entity Value, Entity Confidence, Entity History, and Entity Log. The main area has tabs for 'Intent' (selected) and 'Q&A'. A blue input field contains the text 'I like to order 12 red roses for overnight delivery'. Below it, a table shows the confidence levels for three intents:

Intent	Confidence
OrderFlowers	100%
TrackOrders	0.00%
OpenFranchise	0.00%

Below the table, there's a 'Show More' link. Further down, another table shows extracted entities and their values:

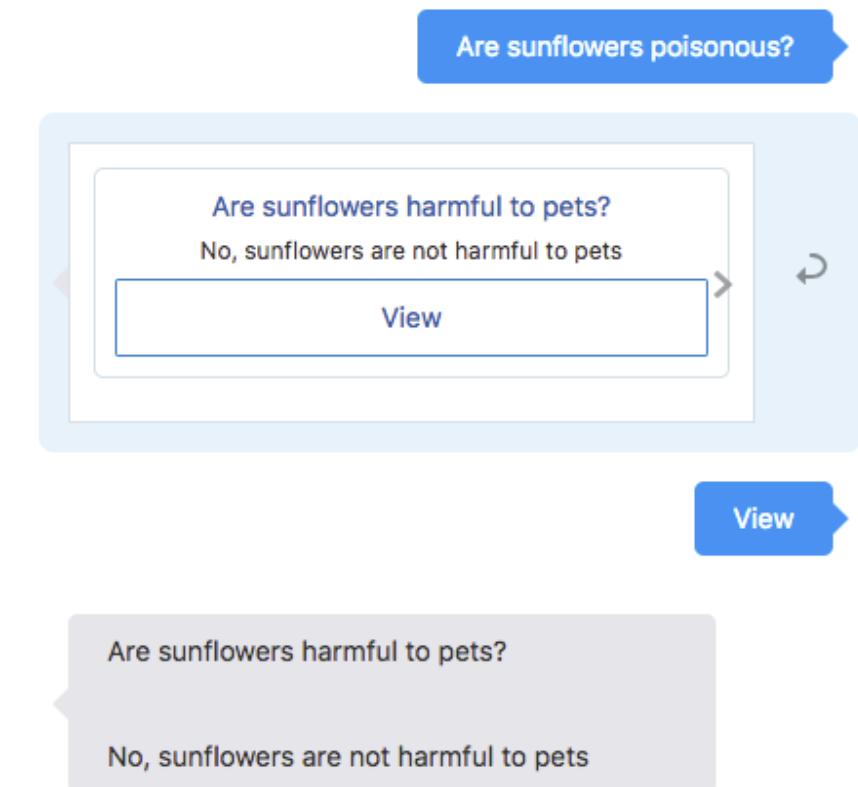
Entity	Value
DeliveryType	overnight, overnight
Flowers	Roses, Roses
NUMBER - number	12
NUMBER - type	Integer

At the bottom right are 'Add Example' and 'Send' buttons, and a 'JSON' button.

# Skills

## Q&A module

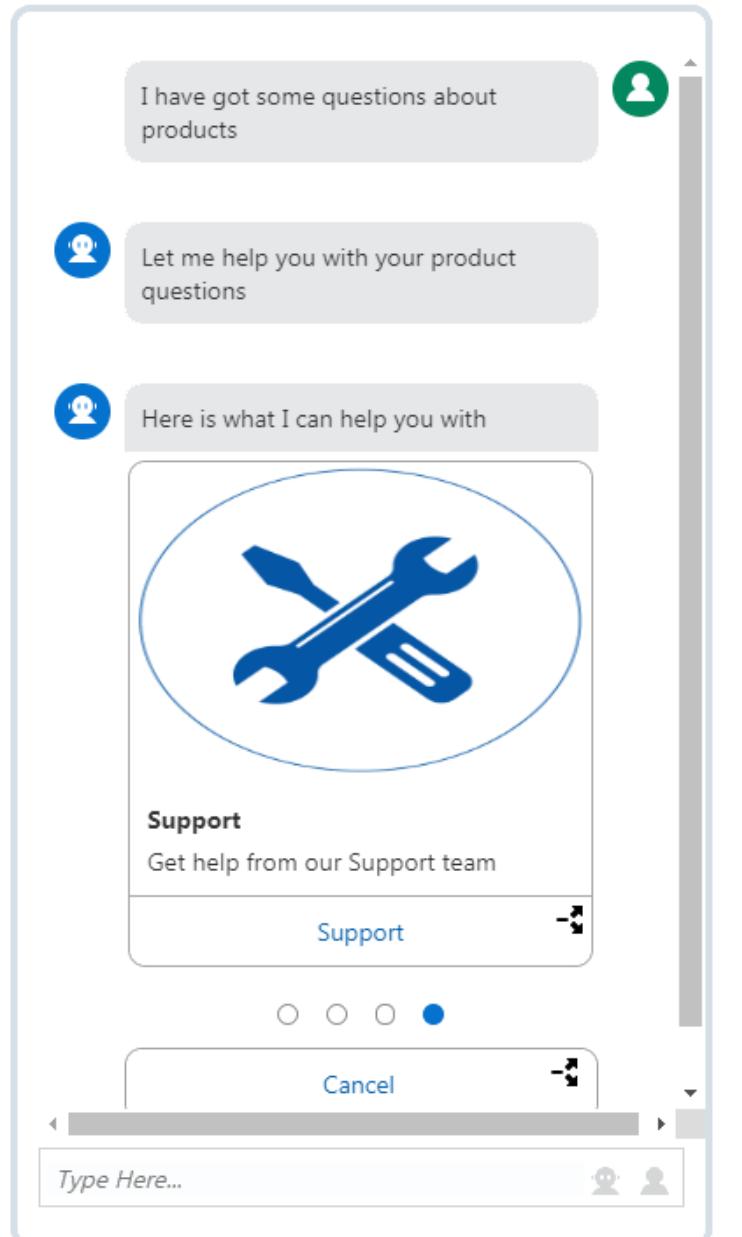
- Sometimes a question is what it is; a question
- FAQ is a top use case for digital assistant
- Natural conversation is a mix of statements and questions
- Oracle skills allow you to integrate Q&A in a bot conversation
  - More engaging than a pure Q&A bot
  - Q&A imported from CSV file



# Skills

## Conversation designer

- Build skill based on a sample conversation
- Allows user to mock up a conversation
  -  Define what the person says
  -  Define what the bot says
- Automatically detects intent and entities
- Conversation can be branched
- Generates a working skill

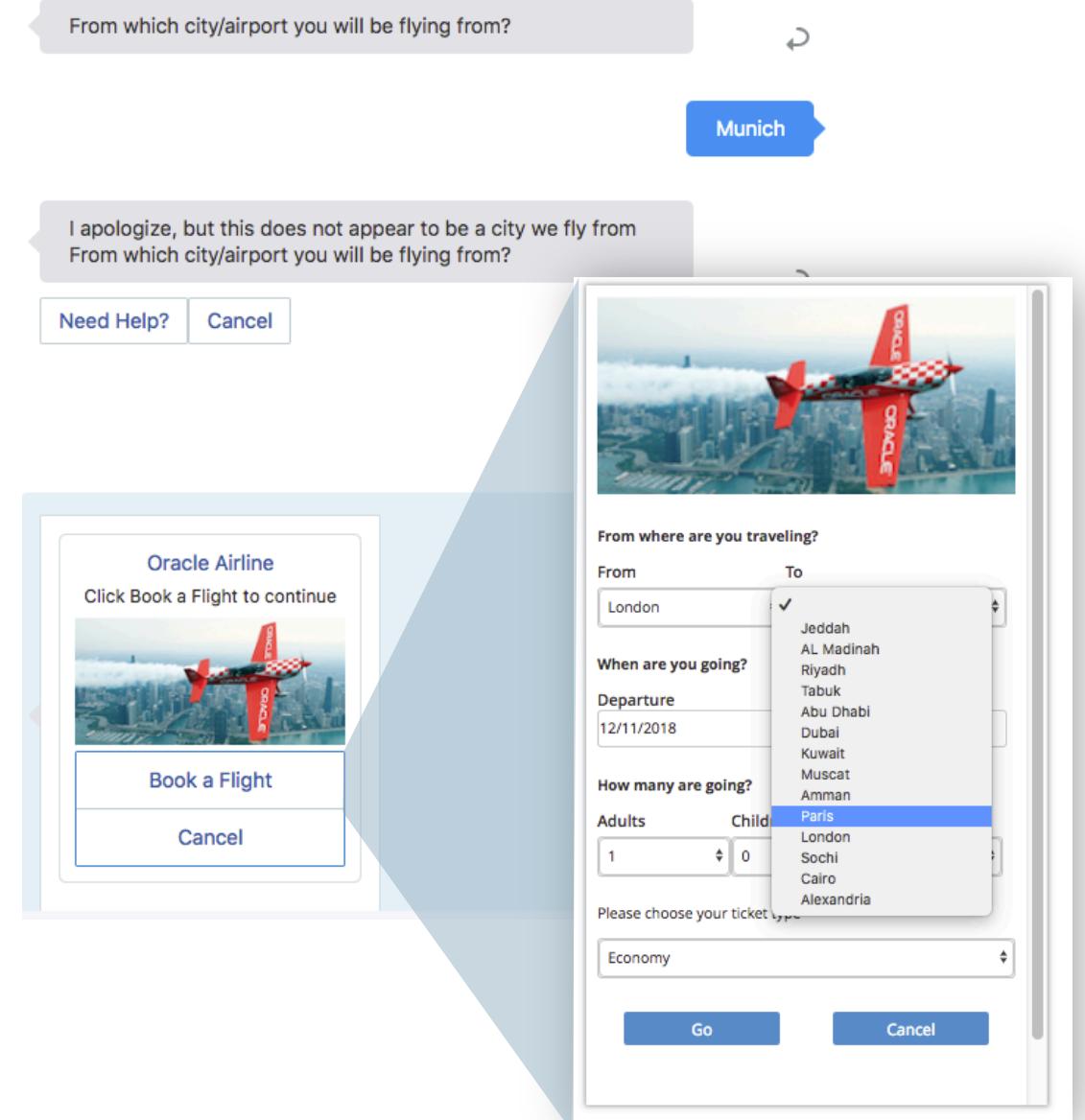


I like to book a flight

# Skills

## Structured data input

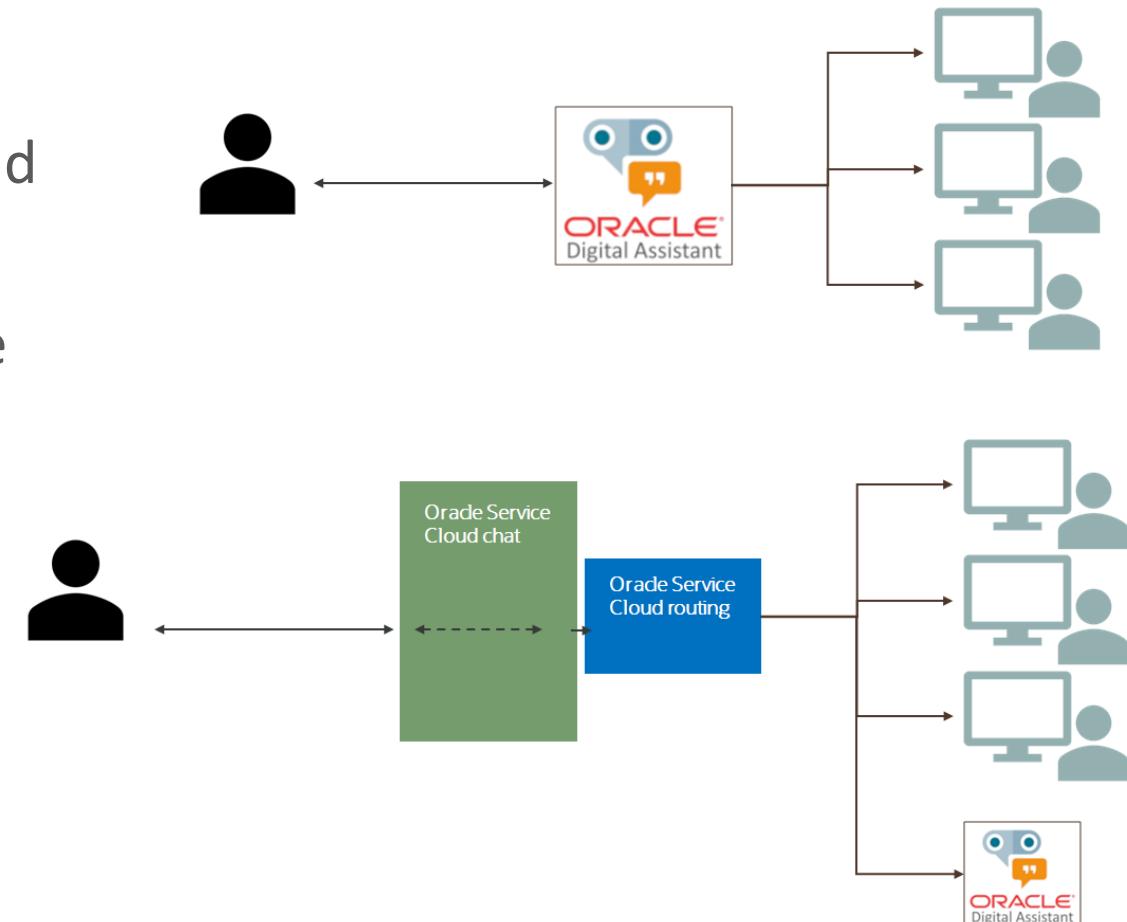
- Conversation design is a challenge
  - Heavy data entry
  - Users change their mind
  - Users get stuck
- Structured data input forms
  - Execute in a web view
  - Shorten conversations
  - Provide sophisticated UI controls
- System.Webview



# Skills

## Human agent integration

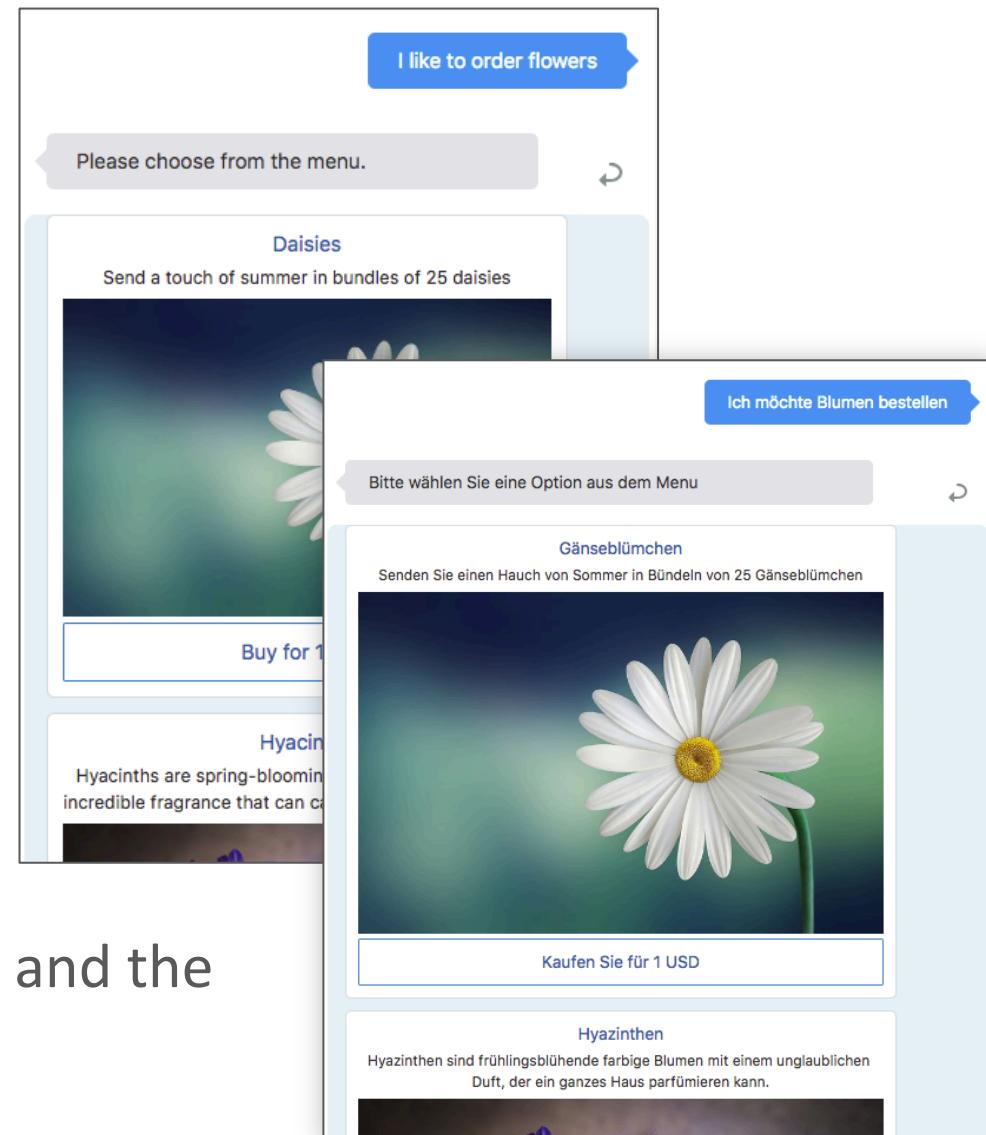
- Integrate ODA with call center
  - Digital assistant can help with call center load
  - Agents focus
  - Introduce agent as and when it makes sense
    - Escalation, high value call, complex question
- Architecture options
  - Digital assistant fronts call center
  - Digital assistant as an agent



# Skills

## Multi language support

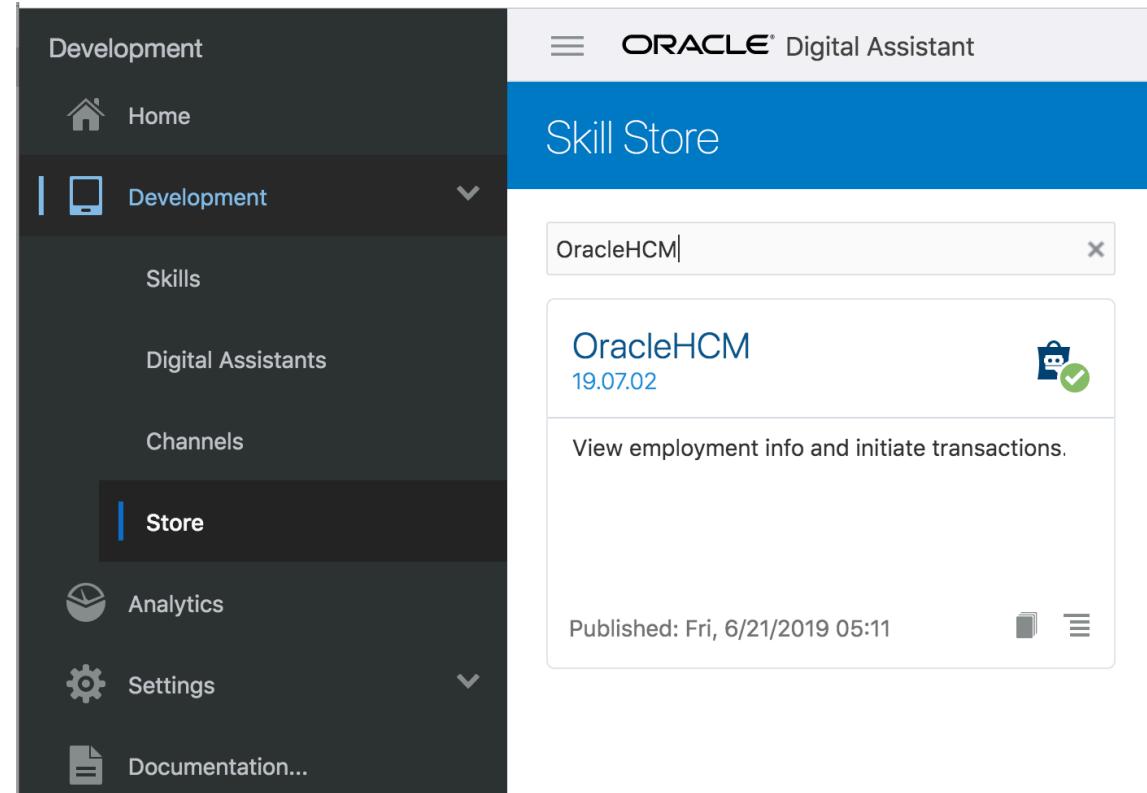
- One bot that supports multiple languages
  - Detect user language
  - Understand user language
  - Display messages in user language
- Support in skills
  - Build bot in English
  - Uses Translation service for other languages
  - Resource bundles allow you to control language and the bot's voice



# Skills

## Extending SaaS skills

- Oracle SaaS teams are developing skills
- Allows SaaS customers to:
  - Take advantage of Oracle Digital Assistant
  - Extend factory-built skills in order to adjust them to specific features, processes, terminology, culture, etc



# Skills

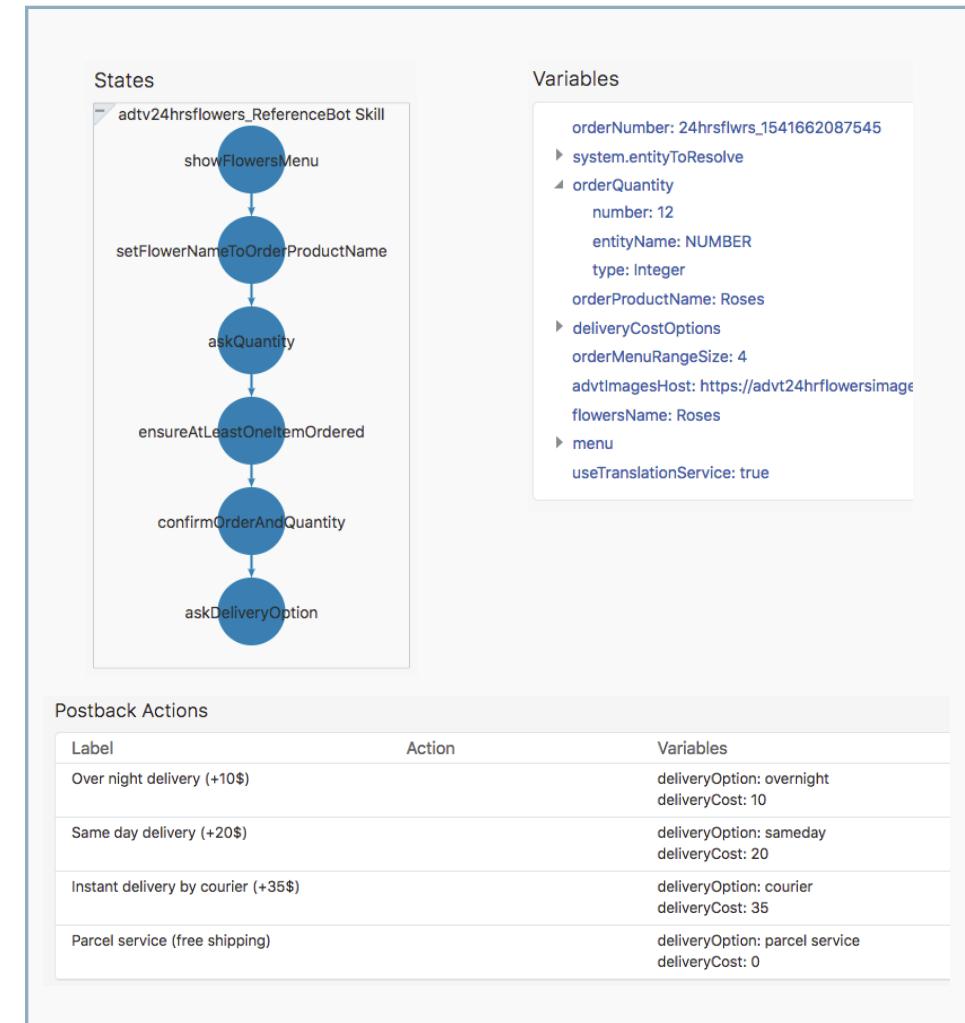
## Adding voice capabilities

- Ability to interact with skills in the most natural, expressive way
- Rise of voice assistants, wearables, hands free
- Specific challenges for Enterprise
  - Data security, privacy, compliance
  - Domain specific vocabulary
  - Voice should be “out of the box”
- Oracle provided SDK to add speech capabilities

# Skills

## Embedded tester

- Supports sensible developer workflow
  - Build – Test – Deploy
  - Conversation flow can be tested without messenger
- Displays the following information
  - Variables and their values
  - Postback actions
  - Resolved intents
  - Dialog flow states visited
  - Full bot response (JSON)



# Skills

## Embedded tester

Testing Skill

I like to order 12 red roses for overnight delivery.

Understood. I noted 12 item(s) of "Roses" for you.

How do you like your order to be delivered?

- Over night delivery (+10\$)
- Same day delivery (+20\$)
- Instant delivery by courier (+35\$)
- Parcel service (free shipping)

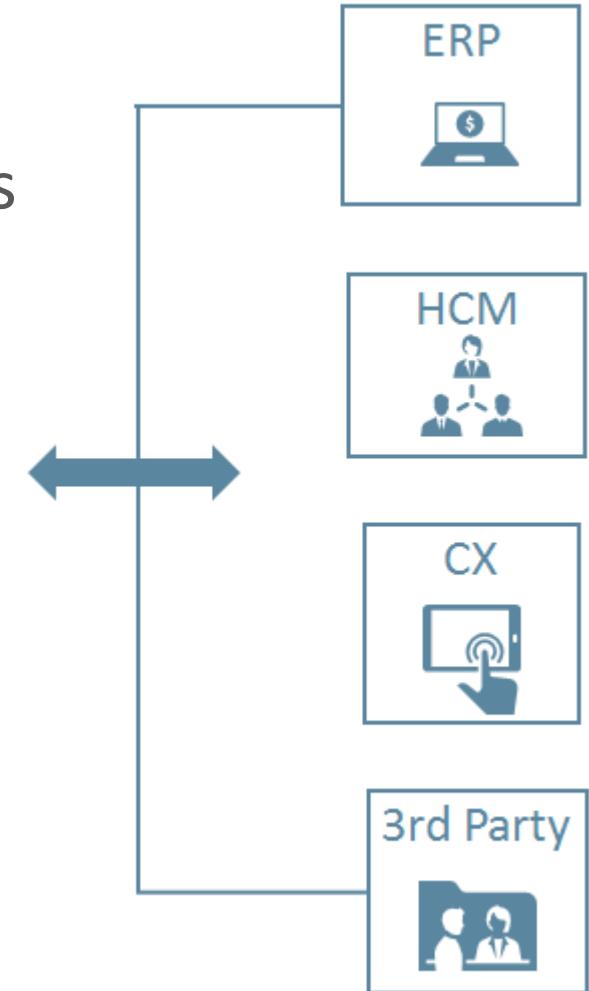
Reset



# Skills

## Backend integration

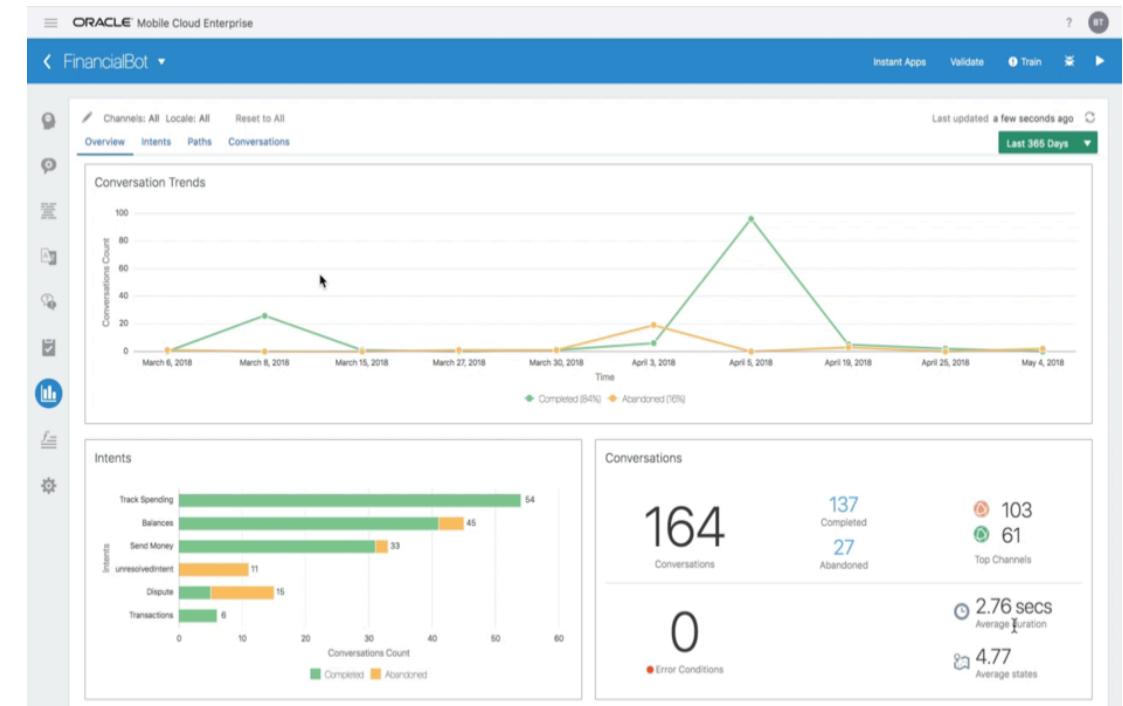
- Remote services integration through custom components
  - Component based approach
  - Integrates with data and business services
  - "Write Once Use Anywhere"
- Custom components
  - Write direct response messages
  - Save data in variables
  - Influences conversation flow



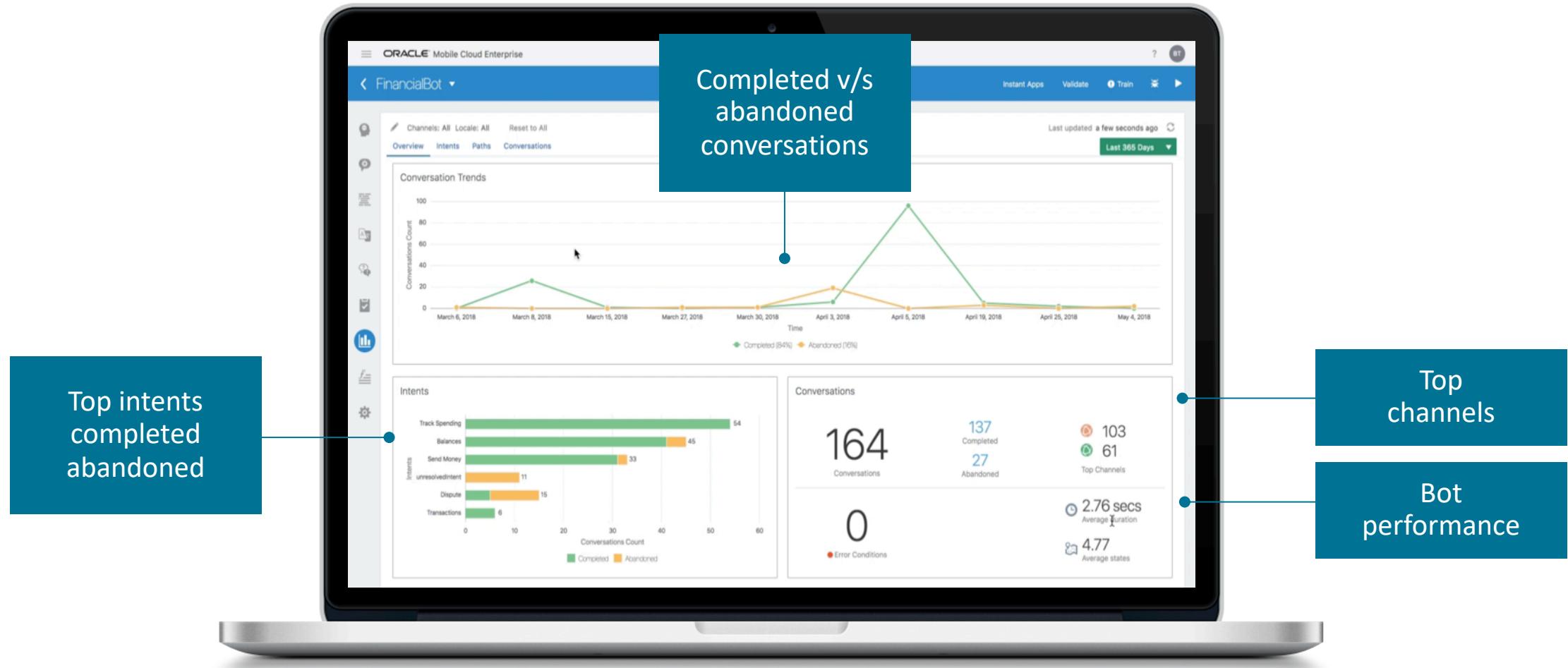
# Skills

## Bot insights

- Identify problems
- Developer and business oriented analytics
  - Track conversation trends, intent resolution accuracy
  - Identify most/least popular paths
  - Conversation debugger with transcripts
- Moderated self learning
  - Retrain bot through dashboard



# Insights: keeping our chatbot journey on the right path



# Topic agenda

- 1 ➤ About Oracle Digital assistant
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- 4 ➤ Channels

# Digital Assistant

## Adding skills

- Published skills are displayed in skill catalog
- Configured skills indicate when a new version is available
  - Update to new version keeps digital assistant level configurations

The screenshot illustrates the Oracle Digital Assistant Skill Catalog interface. At the top, there's a sidebar with icons for adding a skill, managing skills, and settings. Below the sidebar, a list of published skills is shown, each with a delete icon:

- RetailBot • 1.0-DA
- PizzaBot • 1.0-DA
- FinancialBot • 1.0-DA

The main area is titled "Skill Catalog" and contains a search bar, filter options, and a sorting dropdown set to "Created Ascending". It displays two skill cards:

- CbPizzaBot 1.0-DA**: A pizza ordering skill using composite bag entities. Created on Wednesday, 1/30/2019 22:11.
- Wine Skill 1.0-DA**: A wine ordering skill. Created on Wednesday, 1/30/2019 22:11.

To the right, under "Registered Skills", are three entries:

- RetailBot • 1.0-DA
- PizzaBot • 1.0-DA
- FinancialBot • 1.0-DA

# Digital Assistant

## Skill configuration

- Invocation name
  - Used with explicit routing
  - Inherited from skill
  - customizable
- Example utterances
  - Provide hints of how to invoke skill
  - Displayed when help system intent is invoked

The screenshot shows the Oracle Digital Assistant Skill configuration interface. At the top, there is a list of skills: RetailBot • 1.0-DA, PizzaBot • 1.0-DA, and FinancialBot • 1.0-DA. The FinancialBot skill is highlighted with a blue border. A large arrow points down from this section to the 'Interaction Model' section below.

**Interaction Model**

**Invocation:** Fin Skill

**\* Example Utterances:**

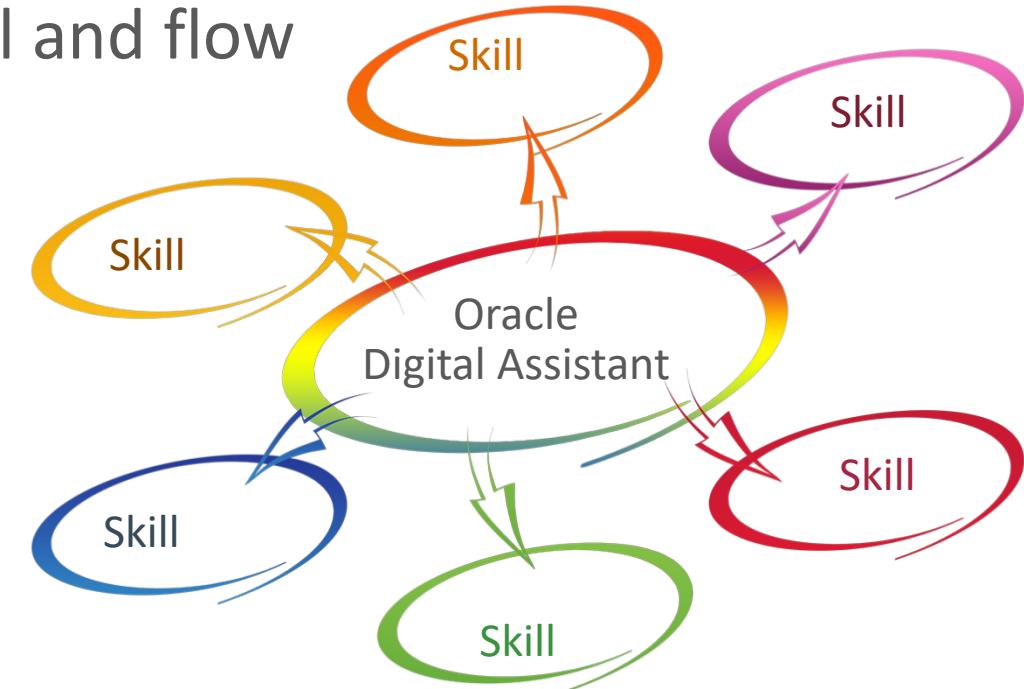
- Enter your example utterances here.
- ask fin skill to check my balance
- go to fin skill
- send money using fin skill

Ascending ▾

# Digital Assistant

## Intelligent routing

- Requests are routed to best-fit skill model and flow
- Disambiguates if needed
- Implicit invocation
  - Uses intents and utterances of skills
- Explicit invocation
  - Named reference for skills is used
  - 'Ask AMCE bank, what is my balance?'
- Configurable



# Digital Assistant

## Routing configuration options

General    **Configurations**    Events

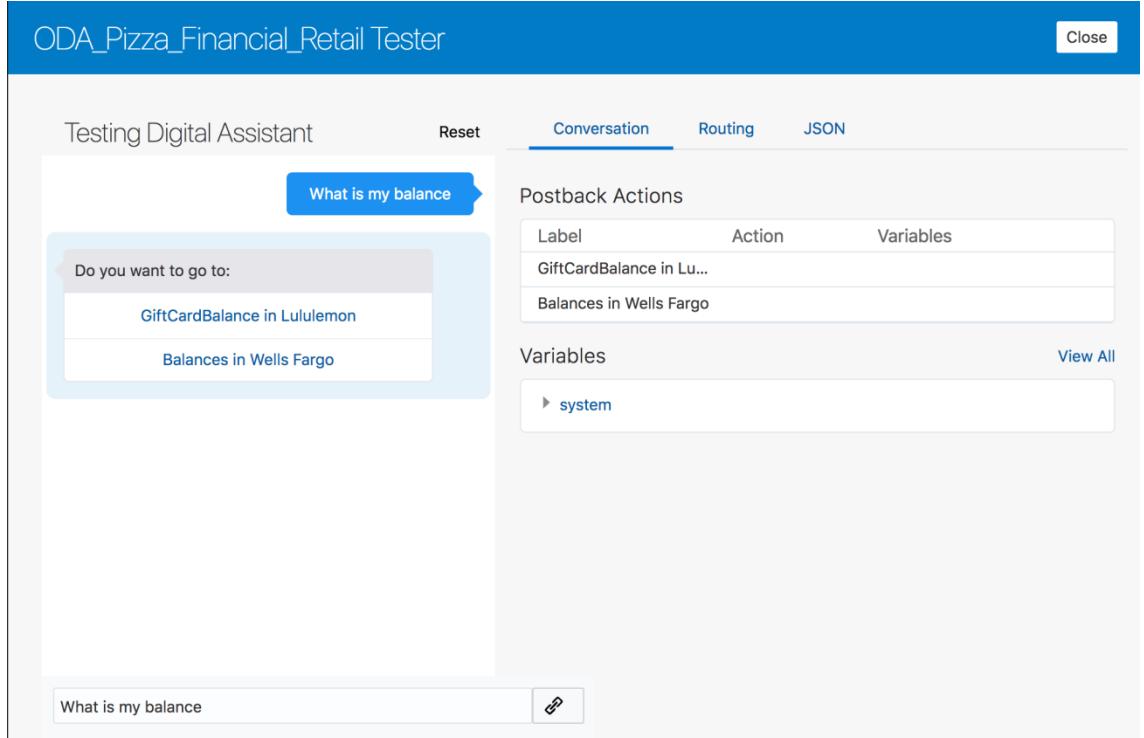
### Routing Parameters

Built-In System Intent Confidence Threshold	0.6	<input type="button" value="▼"/> <input type="button" value="▲"/>	<i>Threshold for identifying built-in system intents, like help and exit. (Minimum value 0, maximum value 1)</i>
Candidate Skills Confidence Threshold	0.4	<input type="button" value="▼"/> <input type="button" value="▲"/>	<i>The minimum confidence score required to match a candidate skill. (Minimum value 0, maximum value 1)</i>
Confidence Win Margin	0.1	<input type="button" value="▼"/> <input type="button" value="▲"/>	<i>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)</i>
Consider All Threshold	0.8	<input type="button" value="▼"/> <input type="button" value="▲"/>	<i>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)</i>
Consider Only Current Context Threshold	0.8	<input type="button" value="▼"/> <input type="button" value="▲"/>	<i>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)</i>
Explicit Invocation Confidence Threshold	0.8	<input type="button" value="▼"/> <input type="button" value="▲"/>	<i>Confidence threshold that an utterance has to reach to be considered an explicit invocation. (Minimum value 0, maximum value 1)</i>
Skill Name For Processing Message With Image Only	<input type="text"/>		
Skill Start State For Processing Message With Image Only	<input type="text"/>		

# Digital Assistant

## Embedded routing tester

- Menu icon in left side menu bar 
- Shows conversation information
  - Post back actions and variable settings
  - Context and system variable states
- Routing
  - Shows decision process for which skills to launch
- JSON
  - Shows returned bot payload



ODA\_Pizza\_Financial\_Retail Tester

Testing Digital Assistant Reset

Conversation Routing JSON

Postback Actions

Label	Action	Variables
GiftCardBalance in Lu...		
Balances in Wells Fargo		

Variables View All

system

What is my balance

# Digital Assistant

## System intents

- Pre-defined intents
  - Exit
  - Help
- unresolvedIntent
  - Disambiguates help and exit intent resolution
- Utterances for help, exit and unresolvedIntent intents can be customized

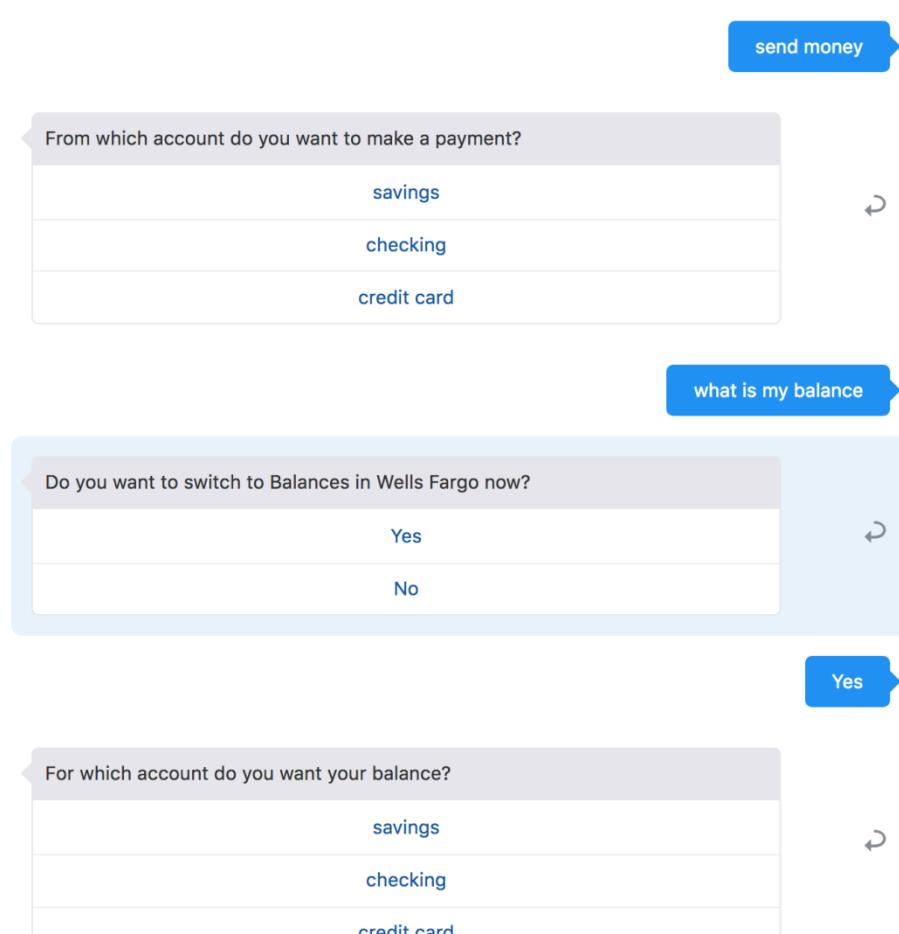
The screenshot shows a digital assistant interface with a sidebar containing icons for message, profile, chart, and gear. The main area has a 'Filter' search bar and a 'Sort By' dropdown set to 'Display Name Ascending'. A list of intents is shown: 'exit' (selected), 'help', and 'unresolvedIntent'. At the bottom, it says 'Page 1 of 1' with navigation icons.

Intent
exit
help
unresolvedIntent

# Digital Assistant

## Smart dialog

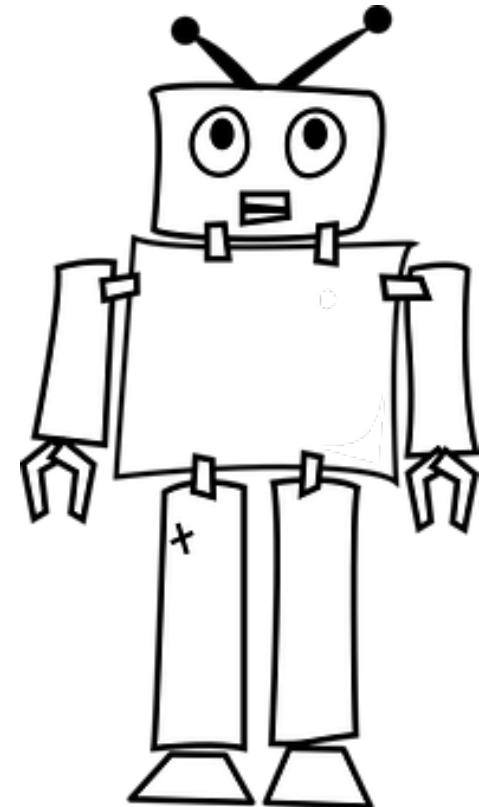
- System dialogs
- Helps to disambiguate user requests
  - Displays the name of skill candidates
  - User selects skill to go with
- Handles non-sequitur requests
  - If a user message does not match an intent in the current skill
  - If user provided value is invalid for a state
  - Suspends and resumes current flow



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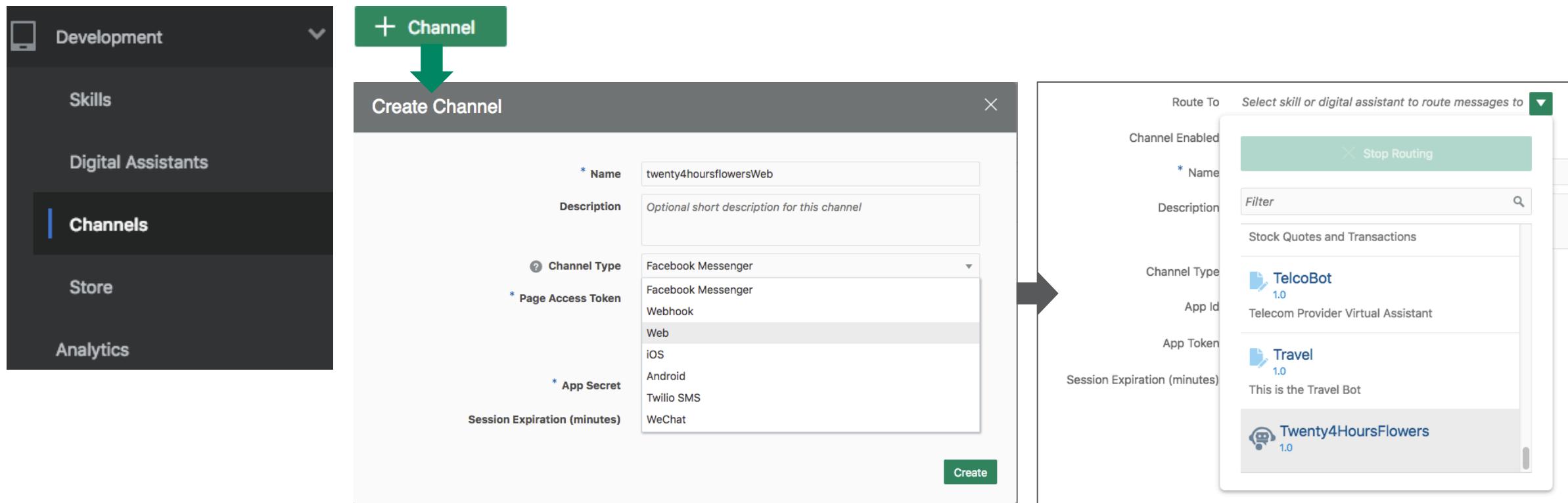
# Channels connect skills and digital assistants to messenger clients



# About channels

- Declaratively created in Oracle Digital Assistant
- "Native" channel support provides configuration for specific messengers
  - Ensures message payloads are defined as needed by channel
  - Provides and handles message server interactions
- Webhook channel
  - Allows messengers with no native channel support to interact with ODA or skill
  - Message payload is MessageModel format
  - Custom message server needed to dispatch between messenger and bot

# Channel creation steps



# Integrated Cloud Applications & Platform Services

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