Oracle Digital Assistant
The Complete Training

Oracle Digital Assistant Overview

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Topic agenda

1 About Oracle Digital Assistant

2 Skills

3 Digital Assistant

4 Channels

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Topic agenda

1 ▶ About Oracle Digital Assistant

2 ▶ Skills

3 ▶ Digital Assistant

4 ▶ Channels

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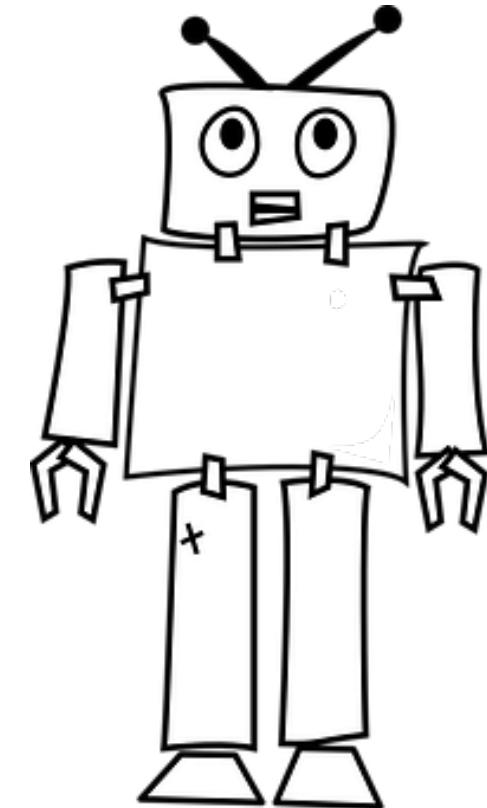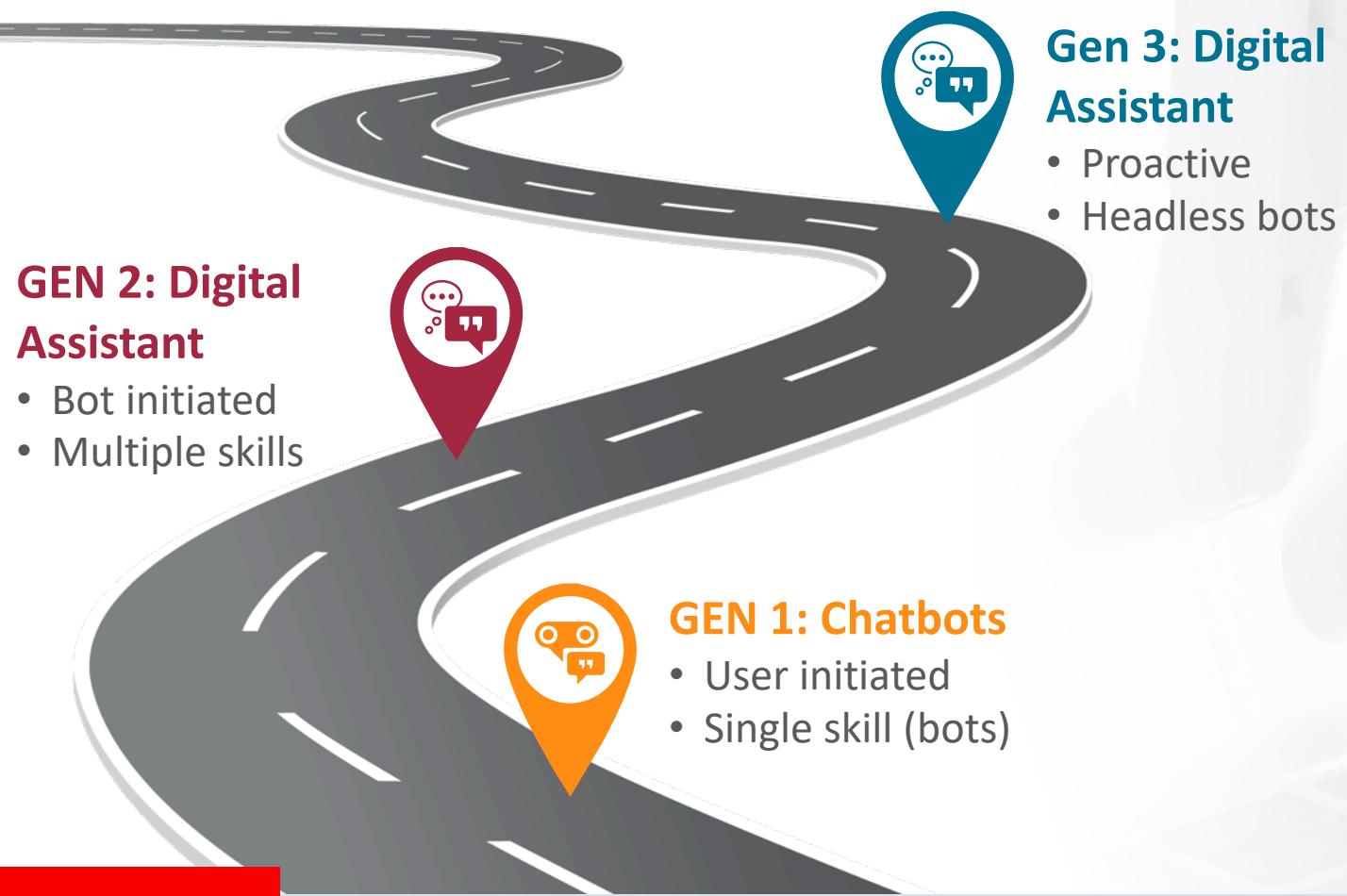
Digital Assistant

- 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

Image courtesy of pixabay.com
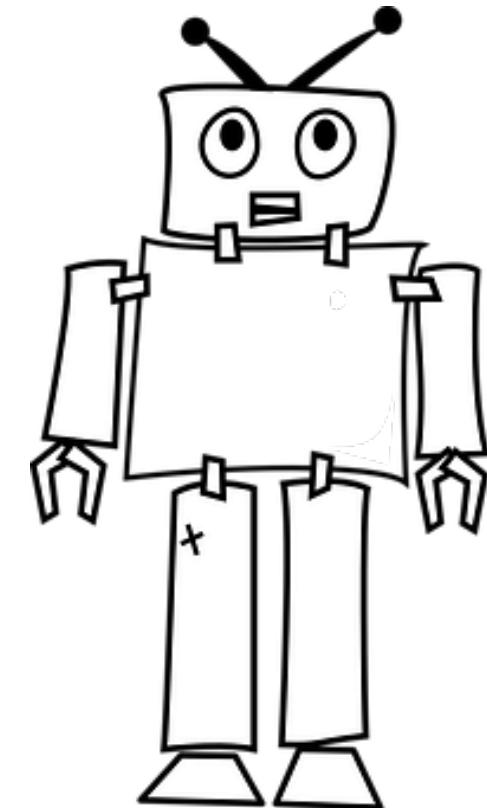
From chatbots to digital assistants

Gen 3: Digital Assistant
- Proactive
- Headless bots

GEN 2: Digital Assistant
- Bot initiated
- Multiple skills

GEN 1: Chatbots
- User initiated
- Single skill (bots)
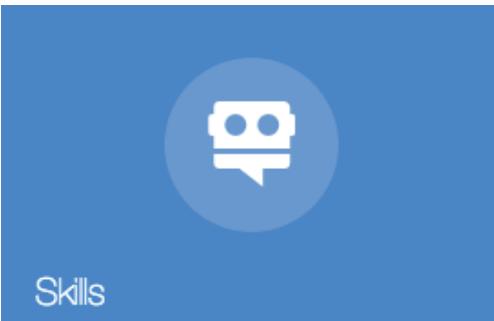
Employee self service digital assistant example
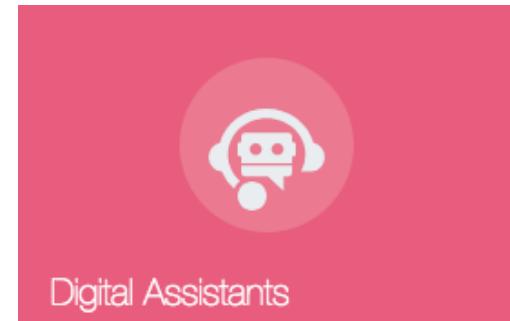
Oracle Digital Assistant is Oracle's 2nd generation intelligent bot platform for customers **to build composite chatbot solutions** from independent skills
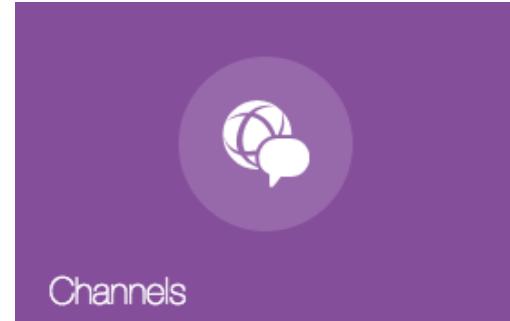
Oracle Digital Assistant core modules
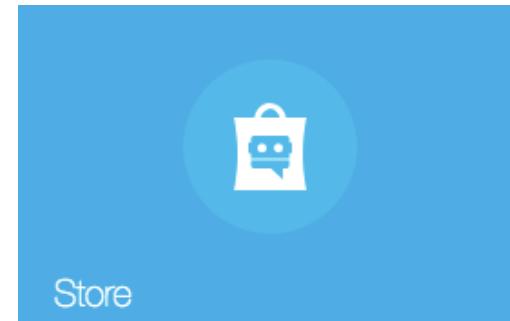
Skills
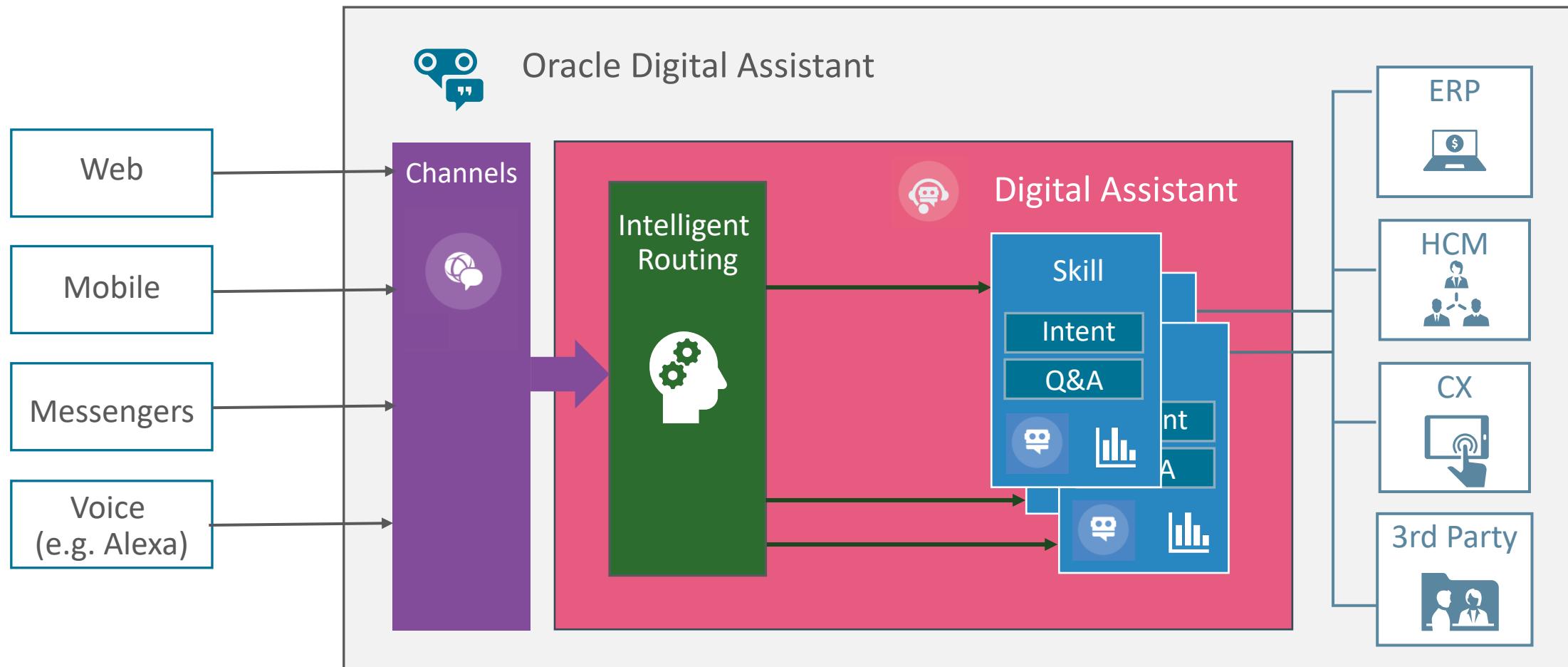
- Individual chatbots
- Reusable
- Conversational AI and ML
- Work with any messenger

Digital Assistants

- "Master bot"
- Invokes skills
- Performs smart routing
- Disambiguates bot request if needed

Channels

- Messenger connectivity
- Webhook
- Native Channels
  - iOS, Android
  - Web
  - SMS
  - Facebook
  - WeChat
  - etc.

Store

- Bot store
- Like App Store
- Contains bots from
  - Oracle SaaS

Oracle Digital Assistant
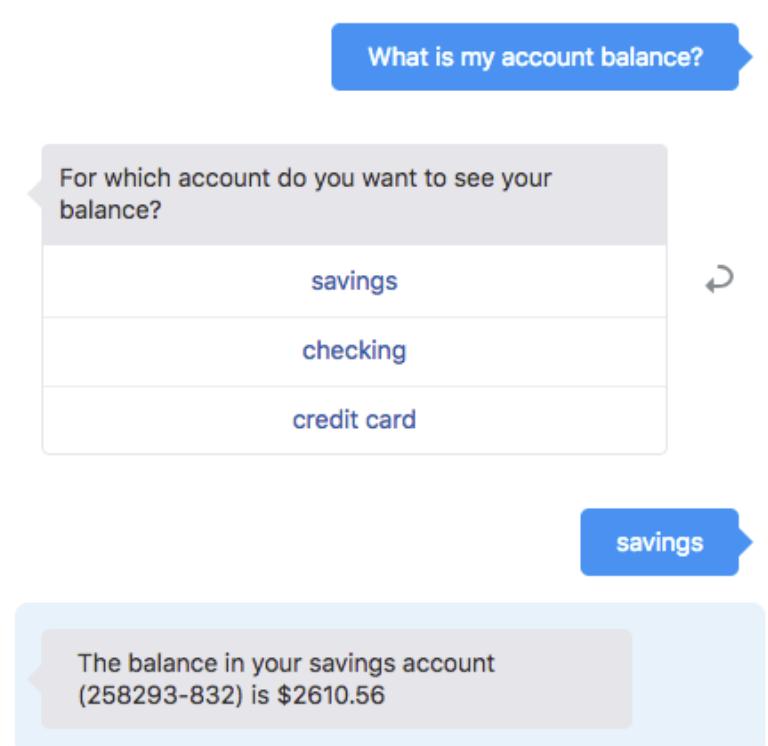
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Skills

Intent resolution and entity extraction

- Skills may or may not use natural language processing (NLP)
  - Its 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
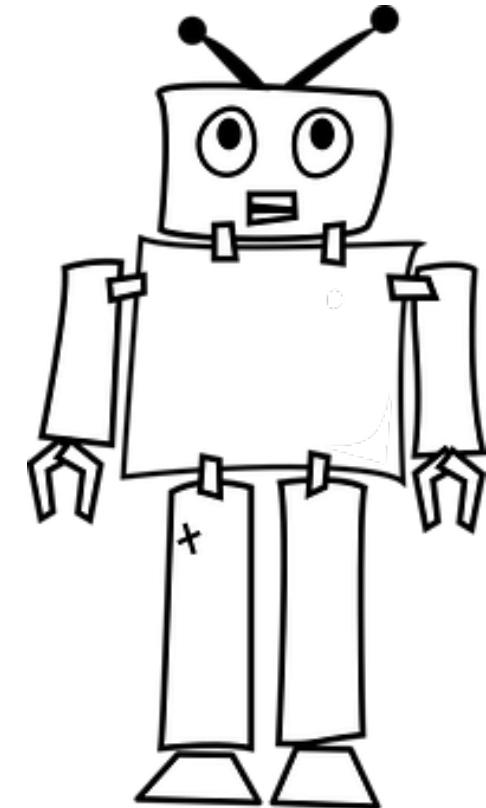
Skills

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 cnditionally
  - Composite bag entities
    - Smart data objects that assemble information from NLP and user interaction dialogs
    - Don't require a written dialog flow

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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
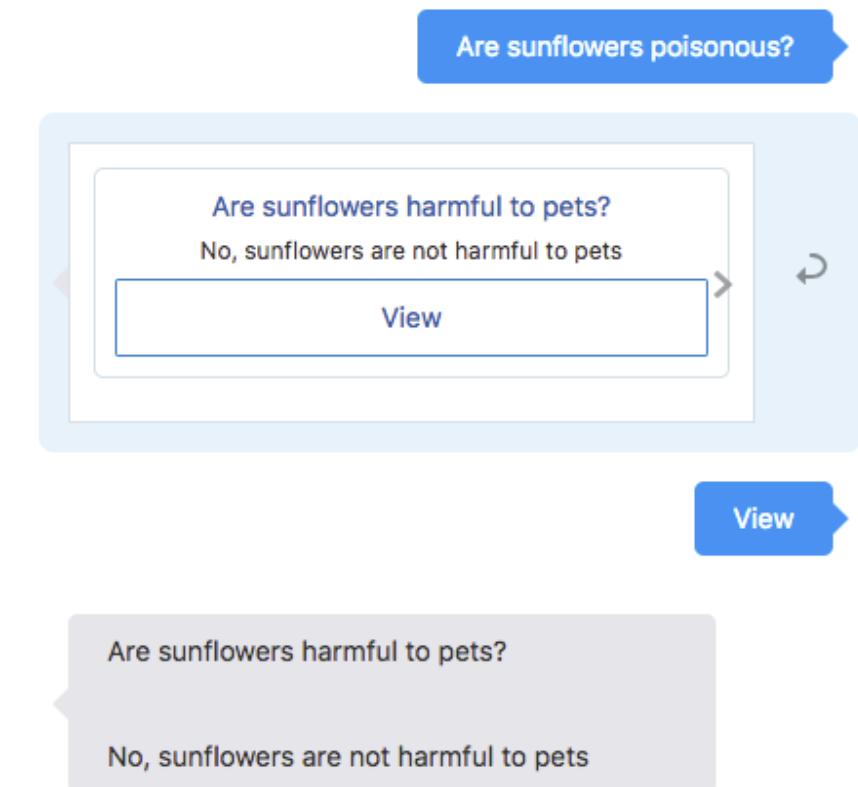
Skills

Q&A module
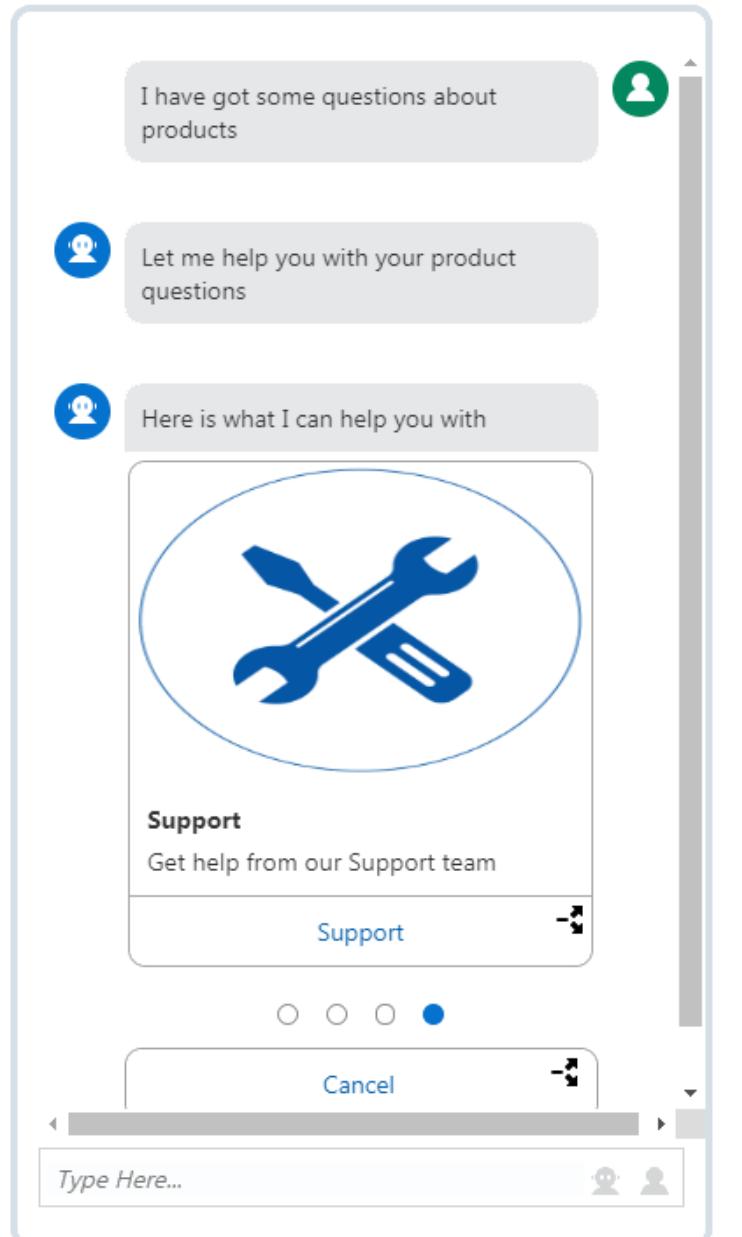
- Sometimes a question is what it is; a question

- 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

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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
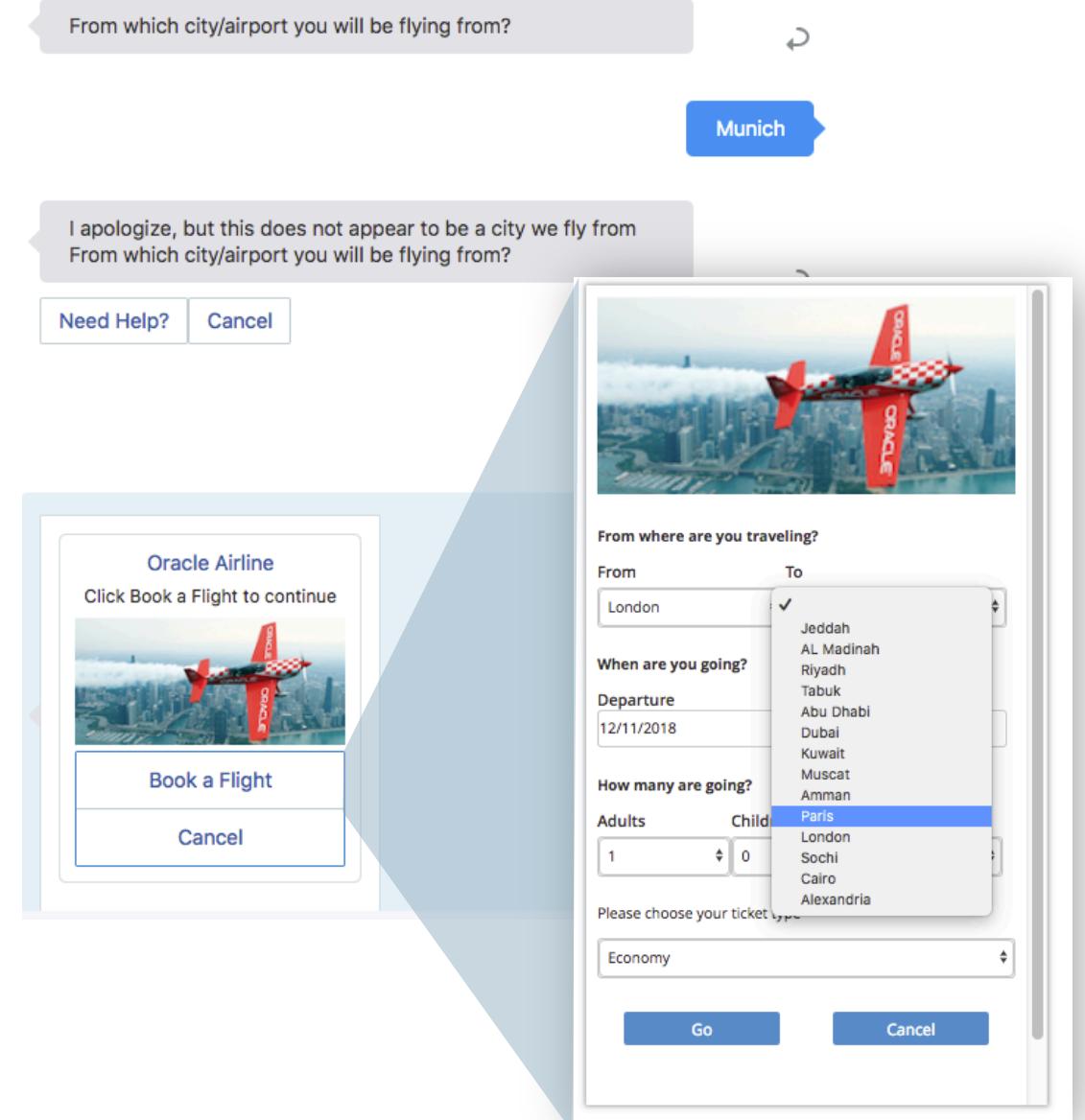
Skills

Structured data input
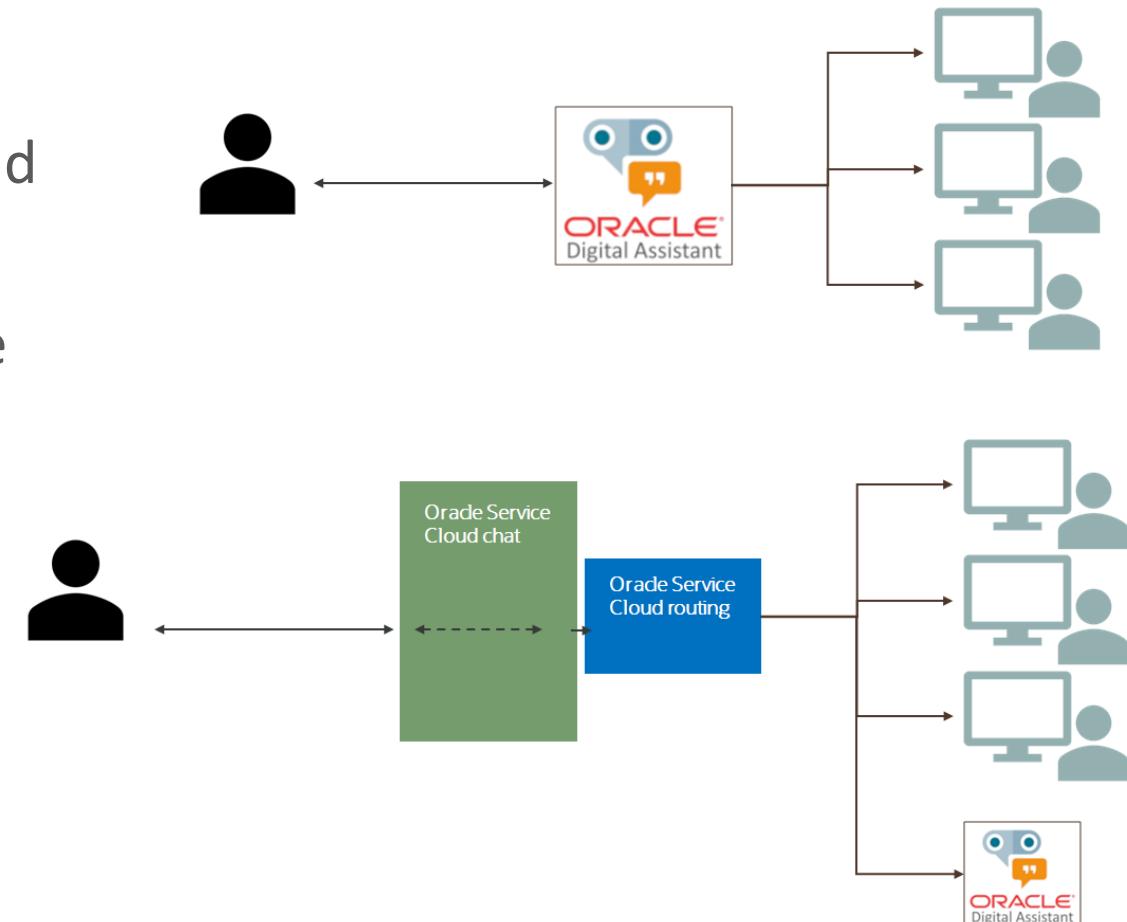
- Conversation design is a challenge
  - Heavy data entry
  - Users change their mind
  - Users get stuck

- Structured data input forms
  - Execute in a web view
  - Shorten conversations
  - Provide sophisticated UI controls

- System.Webview

Skills

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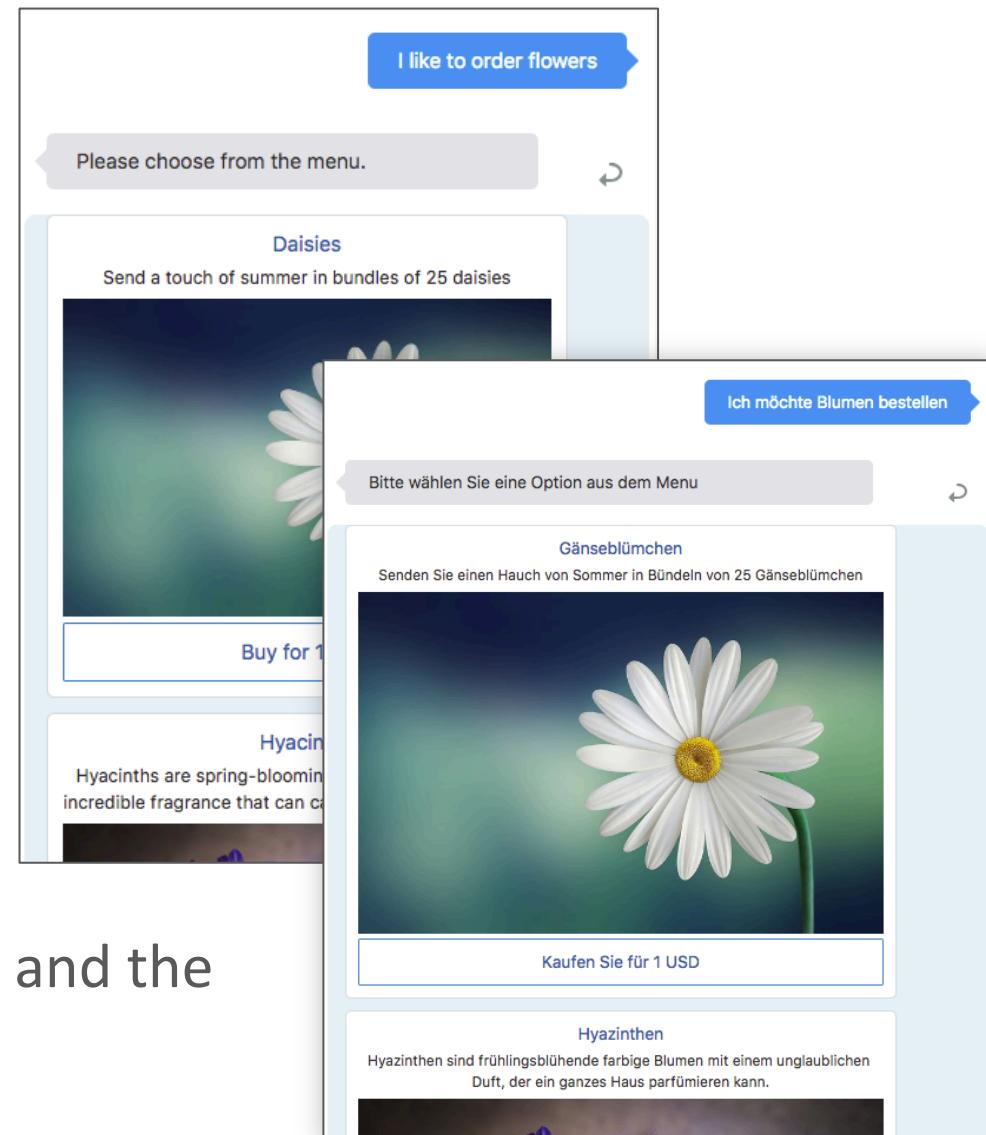
- Integrate ODA with call center
  - Digital assistant can help with call center load
  - Agents focus
  - Introduce agent as and when it makes sense
    - Escalation, high value call, complex question
- Architecture options
  - Digital assistant fronts call center
  - Digital assistant as an agent

Skills

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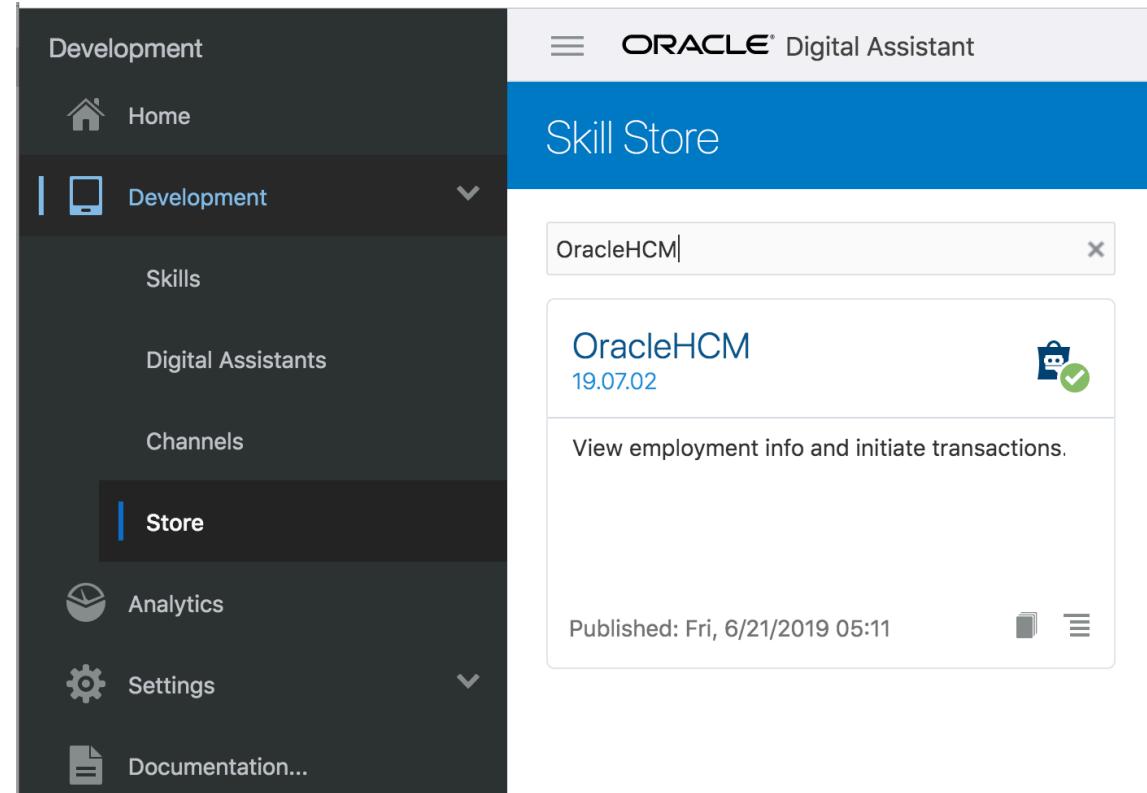
- One bot that supports multiple languages
  – Detect user language
  – Understand user language
  – Display messages in user language
- Support in skills
  – Build bot in English
  – Uses Translation service for other languages
  – Resource bundles allow you to control language and the bot's voice

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
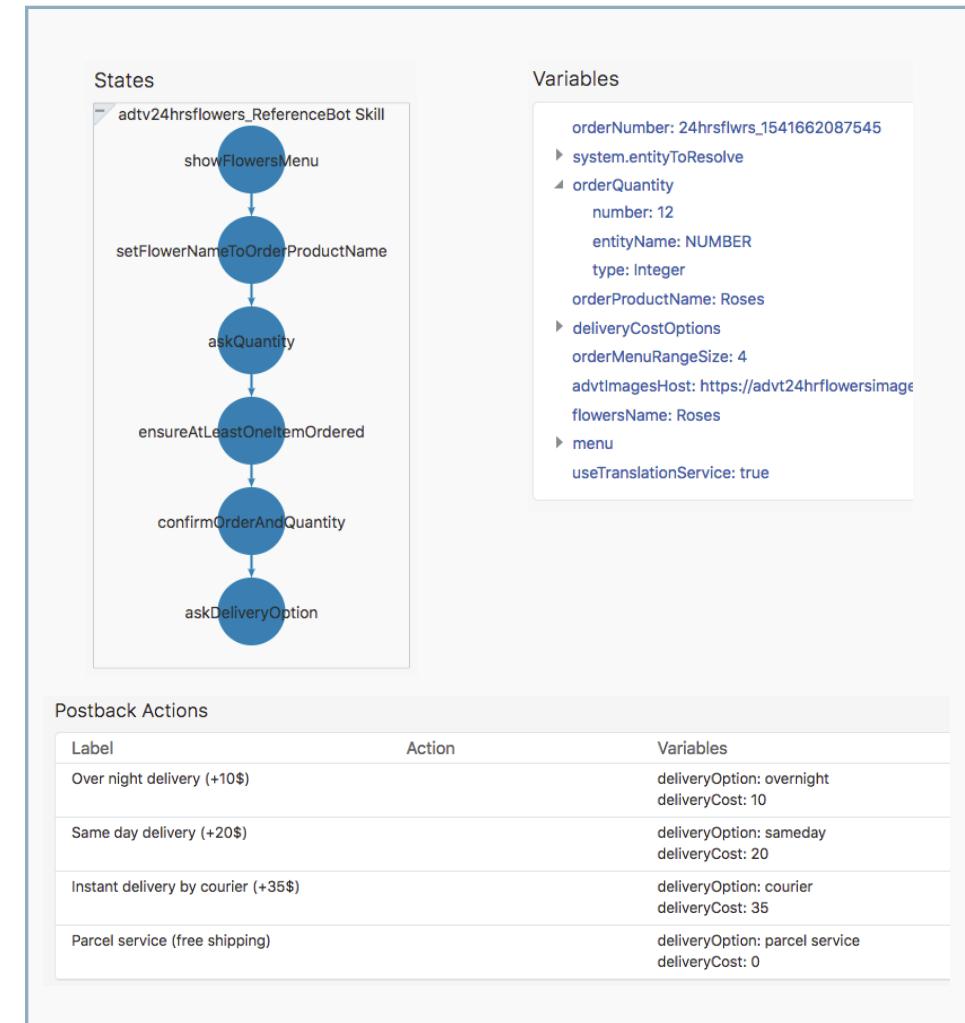
Adding voice capabilities

- 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
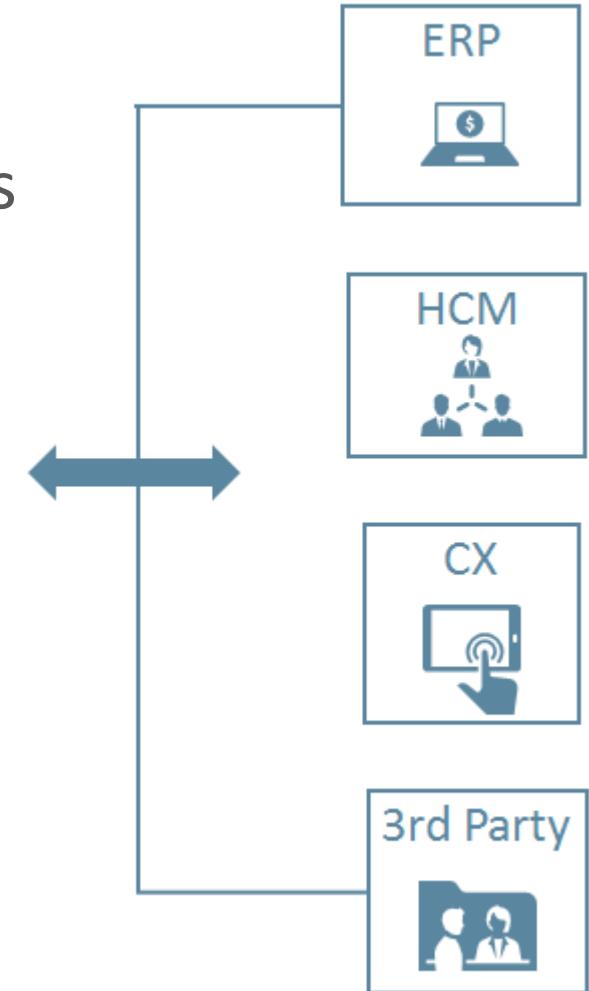
Skills

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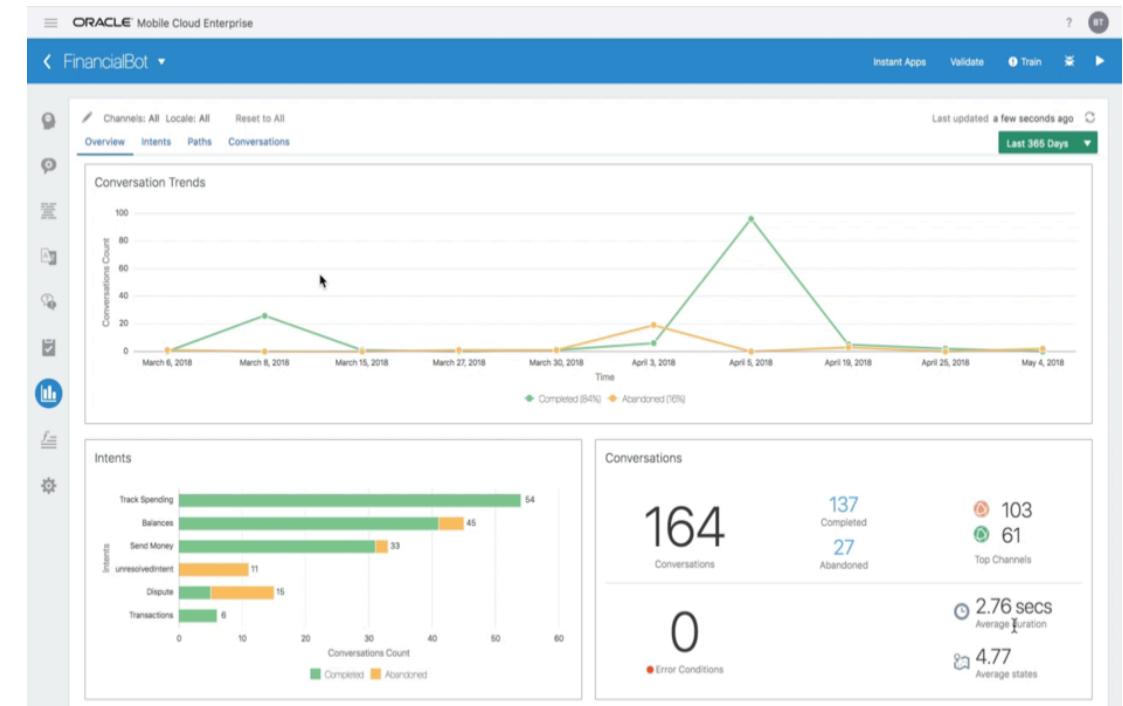
- Remote services integration through custom components
  - Component based approach
  - Integrates with data and business services
  - "Write Once Use Anywhere"
- Custom components
  - Write direct response messages
  - Save data in variables
  - Influences conversation flow

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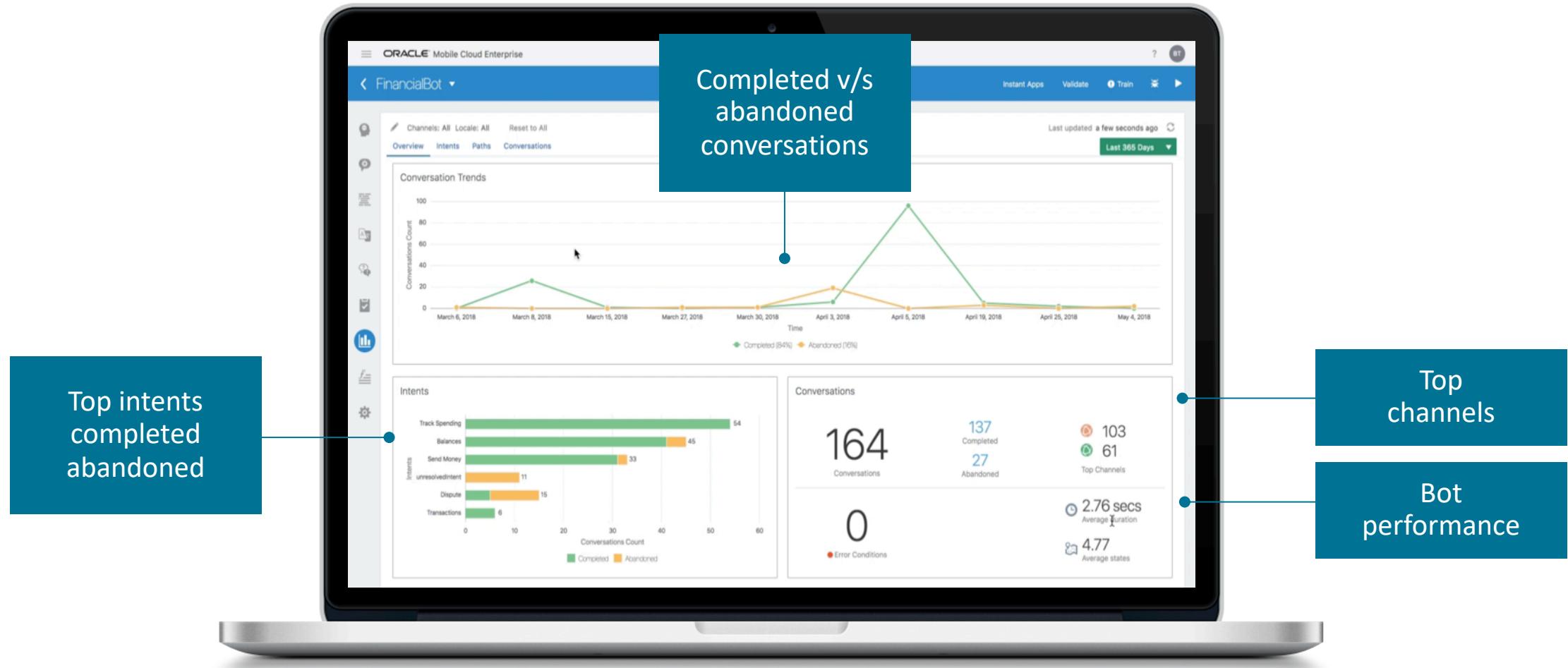
Skills

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

Completed v/s abandoned conversations

Top intents completed abandoned

Top channels

Bot performance

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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

Digital Assistant

Skill configuration

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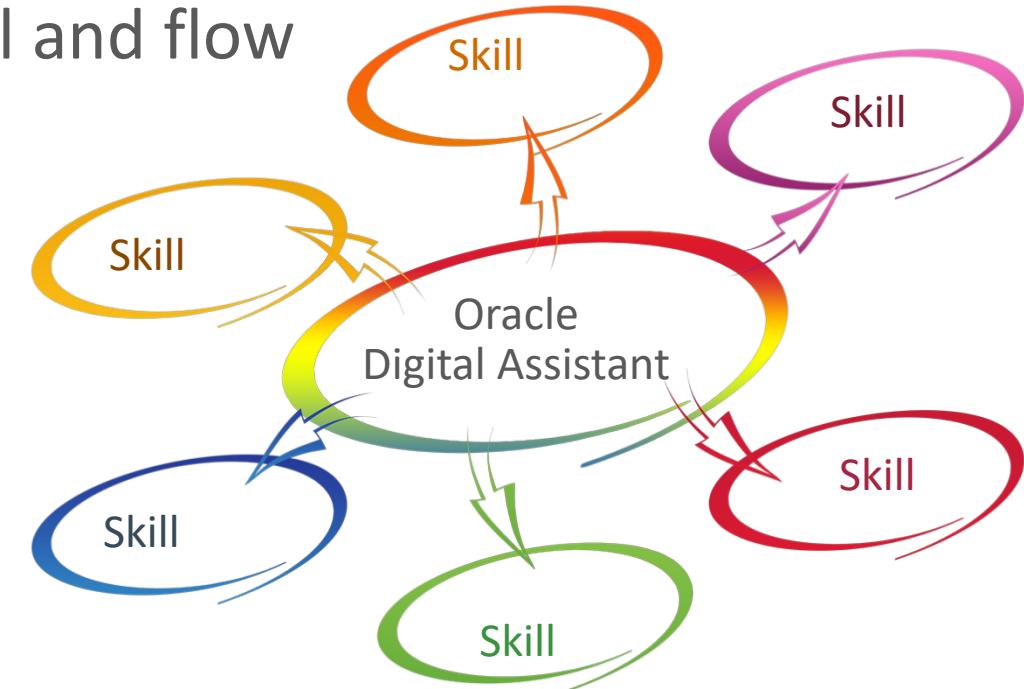
- Example utterances
  - Provide hints of how to invoke skill
  - Displayed when help system intent is invoked

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

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

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

Digital Assistant

Smart dialog
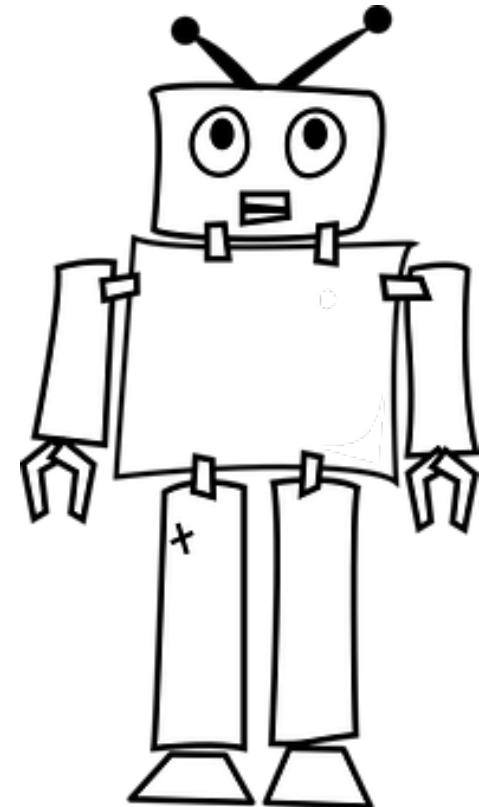
- System dialogs

- 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

send money

From which account do you want to make a payment?

savings

checking

credit card

what is my balance

Do you want to switch to Balances in Wells Fargo now?

Yes

No

Yes

For which account do you want your balance?

savings

checking

credit card

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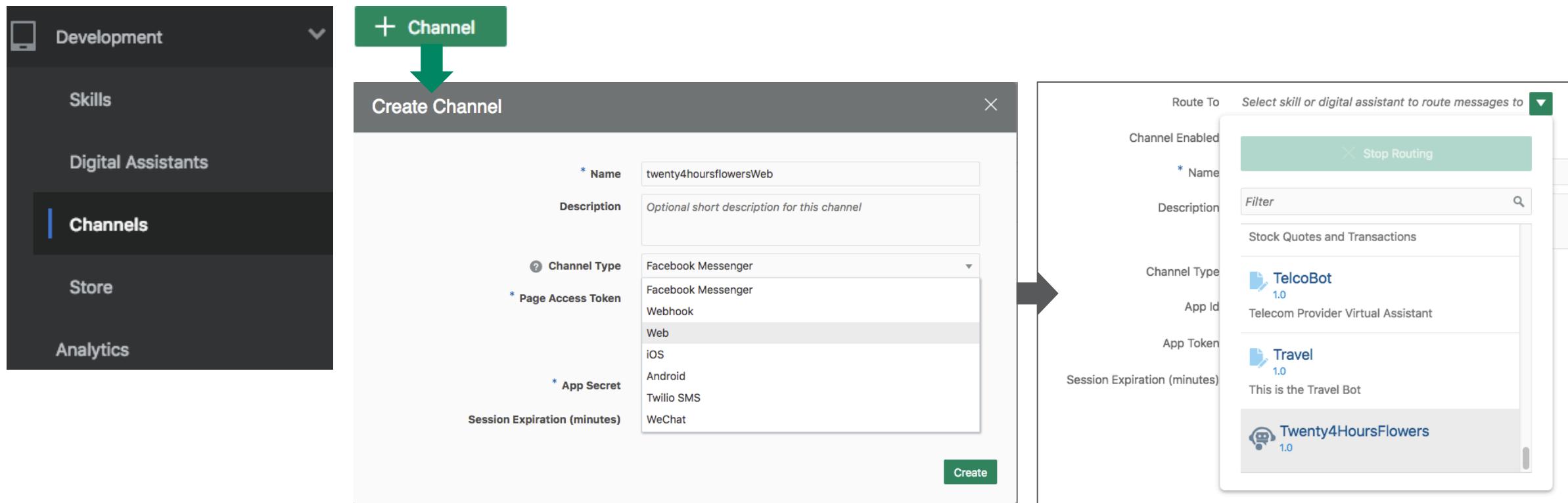
4 Channels

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Channels connect skills and digital assistants to messenger clients

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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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