



SAP Customer Experience

Intelligent Customer Service with **SAP Service Cloud**

Intelligent SAP C/4HANA Experience

PUBLIC

Dr. Volker G. Hildebrand, Global Vice President, SAP
November 2018

THE BEST RUN **SAP**

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“By 2022, 72% of customer interactions will involve an emerging technology such as machine-learning applications, chatbots or mobile messaging.”

Source Gartner

First: Some context
Why it matters!

Key trends impacting the **digital transformation of customer service**

Customers



New rules of engagement:
Customer experience
matters

Digital beats phone:
Dramatic shift in channel
preferences

Technology



Rise of the machines:
Artificial intelligence (AI)
and machine learning

Everything is connected:
The Internet of Things (IoT)

Business



New business models:
- Products become services
- Crowd Service

New rules of engagement:
Customer experience redefined

Customer experience: **What customers really want**



CONVENIENCE



SPEED



RELIABILITY

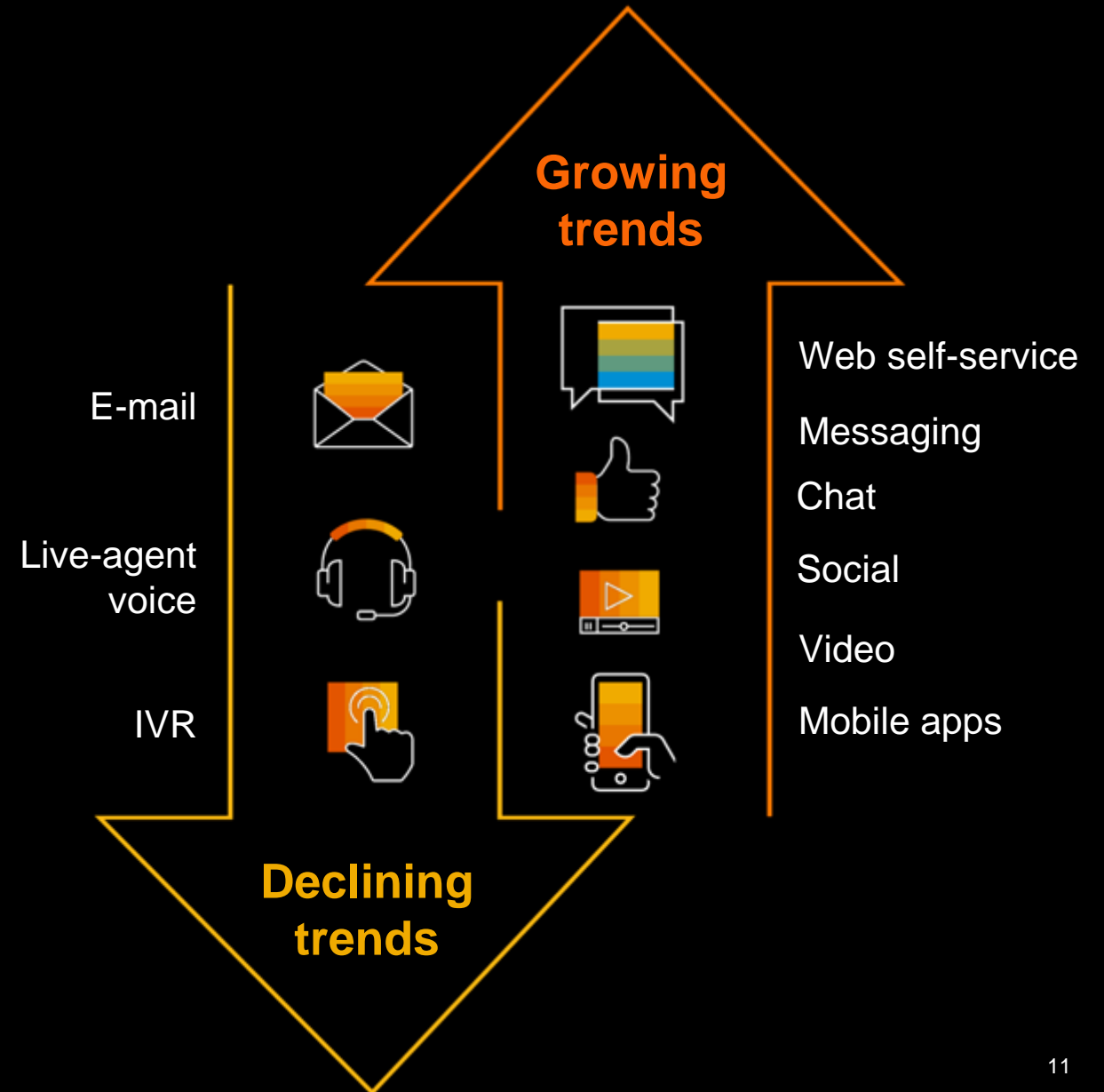
“New customer engagement methods are needed that are simpler, faster, and more satisfying.”

Source: Constellation Research - The Digital Transformation of Back-End Customer Experience by Dion Hinchcliffe

Digital beats phone:
Dramatic shift in channel preferences



Over the next five years,
phone conversation with
customer service reps
will make up merely 12%
of service interactions –
down from 41% today.



Source: "Why Humans Will Remain at the Core of Great Customer Service," Gartner, 2017

Rise of the machines: **Artificial intelligence (AI)** **and machine learning**

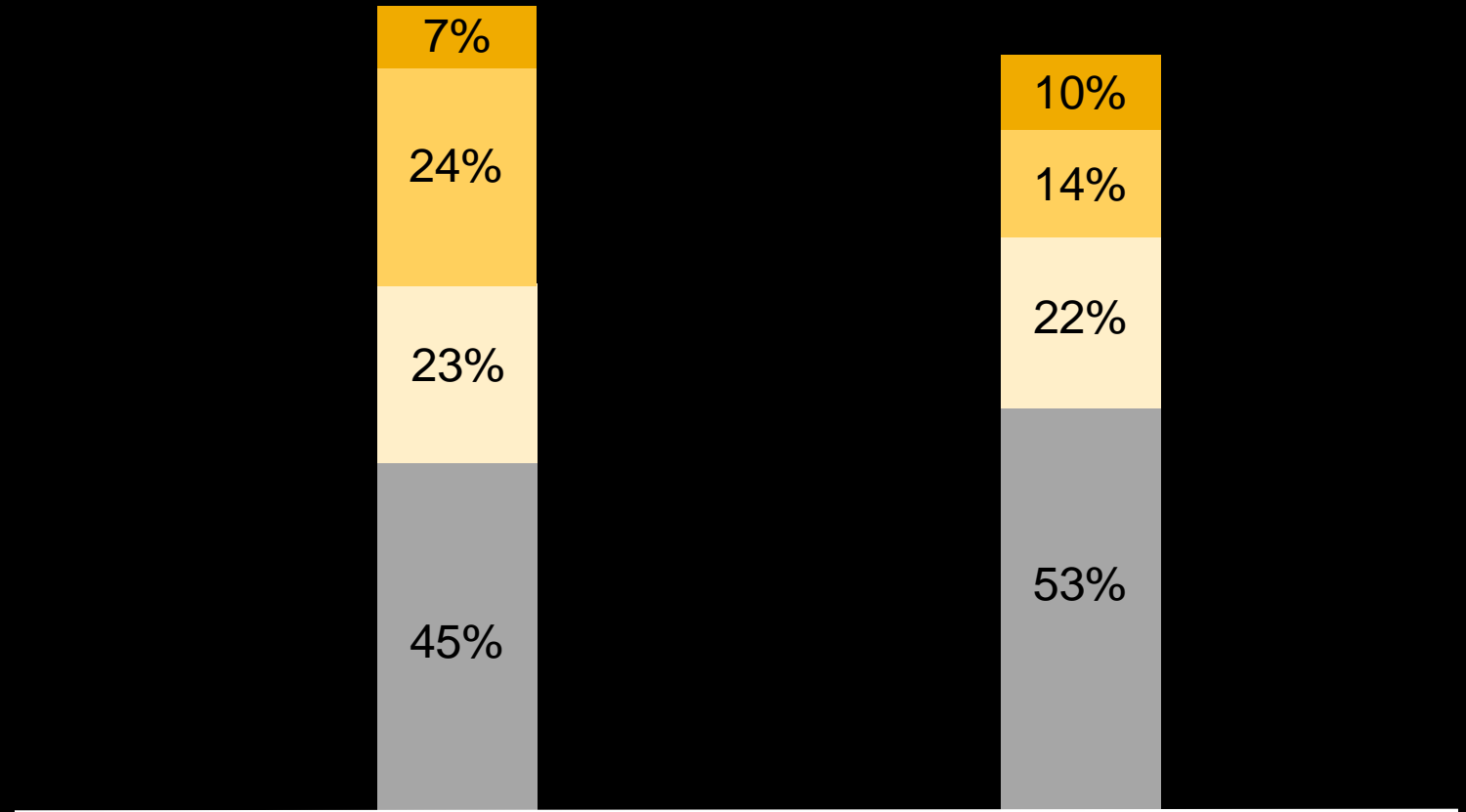
Rise of the machines

Implemented or plan to implement

- Have implemented in 2017
- Will implement in 2018
- Will implement by 2020
- No current plans
(as of end of last year)

55%

47%



Machine learning

Chatbots and virtual
customer assistants

Source: Gartner Survey Analysis: Customer
Experience Innovation 2017 — AI Now on the CX Map

Providing faster customer service with **AI-based service ticket management**

CuRT IS AWESOME

“**C**ustomer **R**equest **T**racking”

Dear CuRT

I've been telling the world about you for a long time. Honestly, I dreamt of you sometimes and I have been looking forward to this day totally thrilled, since it was not always clear you'll make it. My wife likes you, also my son does. But most important is, that your new colleagues like you. You will start working in the Water Chemicals department at BASF. [#WeLoveWater](#)! Amazing people who can't wait to welcome you to your new job. We all are happy, that it finally just took 10 weeks for you to join this wonderful team of people. I have no doubt, that you are the best choice for the challenges ahead...

<https://www.linkedin.com/pulse/curt-you-finally-pedro-miguel-ahlers/>



SFR



Offres box >



Forfaits mobile >



Téléphones + Forfaits >



Téléphones seuls >



Box + Mobile >



Sport, Ciné, Séries >



LA MUSIQUE EN ILLIMITÉ DANS VOTRE MOBILE

PRIX EXCLU CLIENTS SFR

→ **1€**
/MOIS

Pendant 3 mois puis 9.95€
Sans engagement

J'en profite

LANCEMENT

HOME SPEED HOME
DÉCOUVREZ LA BOX 4G

32,99€
/MOIS

1 mois d'essai
Satisfait ou remboursé
Sans engagement

Your Account Bot

Hi, how much data did I
spend last month?

In March, you used 4,6Go of
data.

How much did that cost?

3Go of data were included in
your subscription, and the
1,6Go extra cost 8€.

Can I see March's invoice?

Tapez votre message...

SFR's customer support bot handles 20% of all requests

“Chatbots expected to cut business costs by \$8 billion by 2022”

[Karen Gilchrist, @ karengilchrist](#)

Published 9:01 AM ET, May 9, 2017



Everything is connected:
The Internet of Things (IoT)

**“IoT will grow to over
20 billion connected things
by 2020.”**

Source Gartner

Using IoT sensor data for **predictive maintenance and service**

Know what tomorrow
will bring, today.

The powerful combination of trend recognition,
remote diagnostics and predictive maintenance
makes unpleasant surprises a thing of the past.

KAESER
KOMPRESSOREN

Intelligent control
delivers cost advantages.



Cutting customer's unplanned downtime by 60%

New business models:
Products become services

Air as a service

Forget the
compressor:
Sell the air

KAESER
KOMPRESSOREN



Crowd service in the “gig economy”

No more waiting for the cable guy

- 80% get onsite support within 1 hour
- Average rating 4.71 out of 5 stars
- Net promoter score went up by 15 pp
- Churn was reduced by 20%

The screenshot shows the Swisscom website's 'Neighbourhood support' page. At the top, there's a navigation bar with 'Residential Customers', 'Business', 'Bluewin', and 'About Swisscom'. Below this, the 'swisscom' logo is followed by 'Offers' and 'Help' links. A breadcrumb trail shows '← back to Services' and 'Neighbourhood support'. The main visual is a cityscape with a river and bridge, overlaid with location pins and icons for a globe, a smartphone, and a TV. A circular graphic on the right highlights three benefits: 'Inexpensive' (with a coin icon), 'From your area' (with a house icon), and 'Time flexible' (with a clock icon). The text 'Mila Friends (formerly Swisscom Friends)' and 'Technical support in your neighbourhood' is prominently displayed, followed by a description: 'Experienced users near you help you install your TV, Internet and fixed network.' A blue button labeled 'Book a Mila Friend' is positioned below. At the bottom, a hand holds a smartphone displaying the 'mila' app logo. To the right, text encourages downloading the Mila app for faster support, with buttons for 'Download now – App Store' and 'Download now – Google Play Store'.

Residential Customers Business Bluewin About Swisscom

swisscom Offers Help

← back to Services

Neighbourhood support

Mila Friends (formerly Swisscom Friends)
Technical support in your neighbourhood

Experienced users near you help you install your TV, Internet and fixed network.

Book a Mila Friend

Download the Mila app for faster support from the Friends Community.

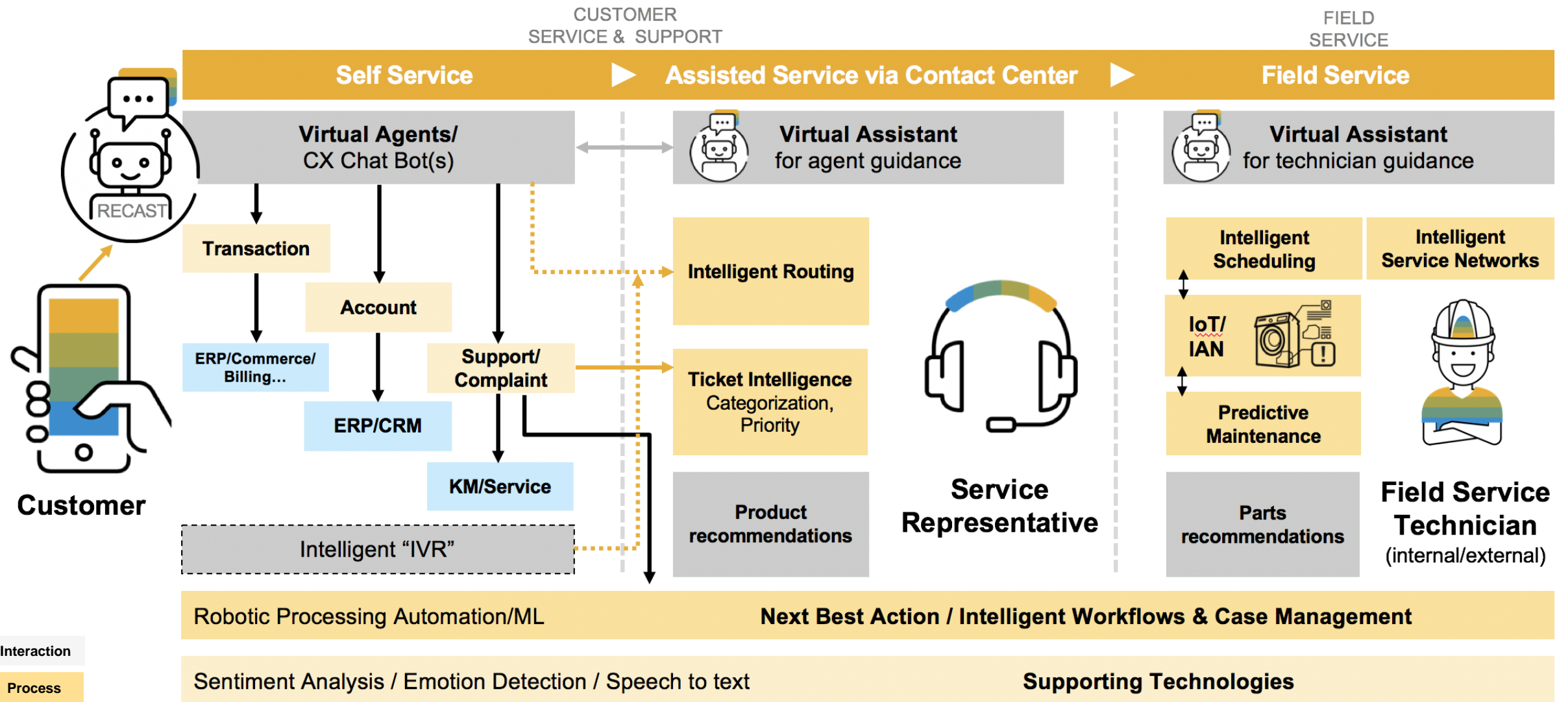
Download now – App Store

Download now – Google Play Store

Intelligent Service with **SAP Service Cloud**



Our Vision for intelligent customer service



SAP Service Cloud **AI/ML Solutions/Scenarios**

AVAILABLE



Ticket Intelligence

Predictive Maintenance



**Chat Bot Platform/
Conversational UI (Recast.ai)**

IN PROGRESS



Solution Intelligence



**Virtual Assistants
& pre-configured Chat Bots**

PLANNED



Field Service Intelligence



Account/Customer Intelligence

SAP Service Cloud: ML Capability Matrix

Available

In Progress

Planned



Ticket Intelligence



Solution Intelligence



Virtual Assistants



Account/Customer Intelligence



Field Service Intelligence

Ticket Categorization	KB Article Recommendation	Virtual Agent	Product Recommendations for Cross-Sell	Predictive Maintenance
Similar Tickets	E-Mail Template Recommendation	Virtual Assistant	Product Recommendations for Up-sell	Scheduling Optimization
Predictive Routing	Recommended Responses	Supervisor Assistant	Account Health Score	Parts Recommendations
...

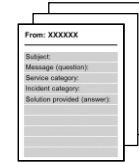
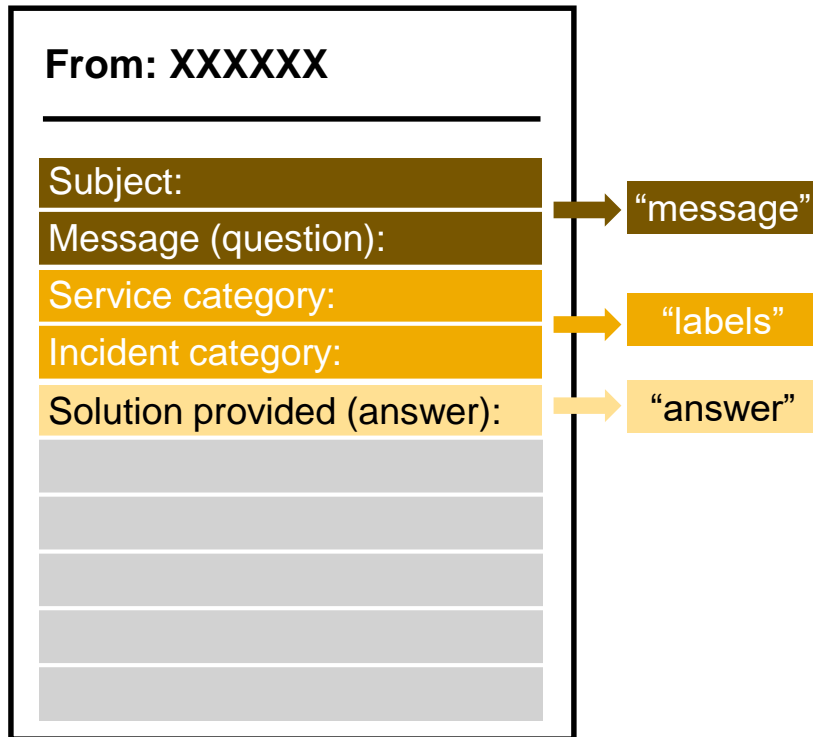
ML Business Solutions
ML Building Blocks (NLP, Speech to Text, Translation ...)
SAP ML Platform (MLF, PA, 3 rd Party)
SAP Analytics Cloud
SAP Datahub

Intelligent SAP Service Cloud **today**



SAP Service Ticket Intelligence predicts ticket categories and solutions based on modelling historical ticket data

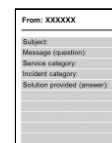
Typical customer support ticket attributes



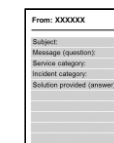
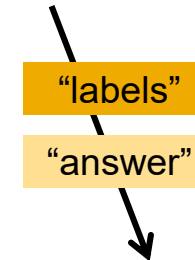
Historical ticket data with associated messages, labels and answers



Capture feedback for re-training



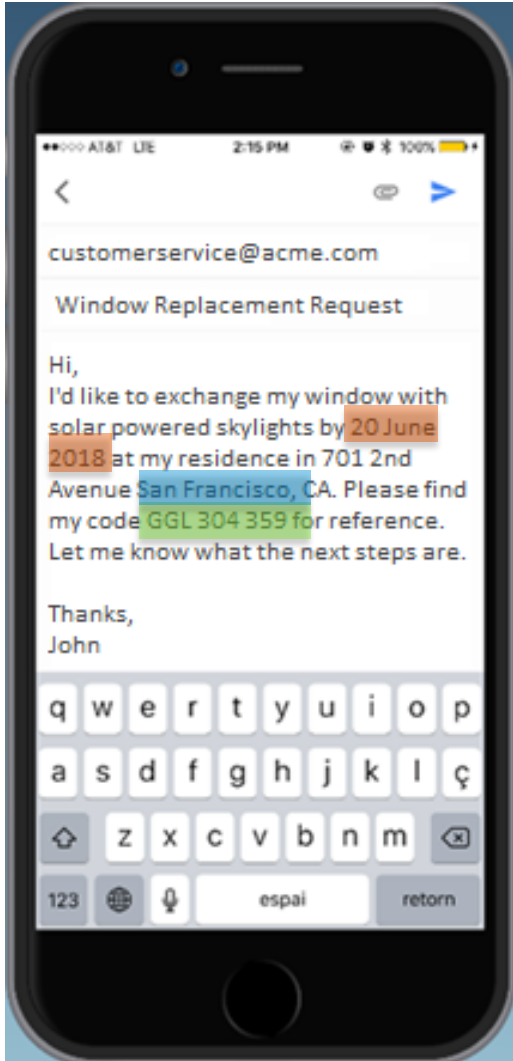
New ticket arrives via email, social platforms etc. in the CRM system



Ticket category predicted, suggested answers for service agent provided

SAP Service Ticket Intelligence

For Improved Agent Productivity



Category*:

Post-Purchase

Replacement

Skylights

Language:

English

Sentiment:

Neutral

Entities:

Product ID:

GGL 304 359

Date:

20 June 2018

Location:

San Francisco

- Uses Deep learning - character level convolution neural networks for ticket category classification and ticket prioritization
- Detects languages and network model works on multiple languages
- Predict customer sentiment using NLP and deep learning techniques.
- Extract Golden & Business entities automatically

SAP Service Cloud Ticket Intelligence Results

Number of Customer
Engagements

30+

Number of Models Deployed

20

Number of Live
Customers

10

Number of AI Assisted
Tickets

5.95M

Average Automation
Rate

69%

Average Time
Saved/Agent/Day

40 minutes

Sample Value Proposition for Ticket Categorization

Reduce Cost of Service Operations

Number of Agents	300
Average Number of Tickets/Month	10,000
Average Time Reading & Assigning Ticket Categories	5
Total Time Reading & Assigning Tickets/Month	50000
Total Time Reading & Assigning Tickets/Annually	600000
Estimated Ticket Automation	70%
Total Time Saved with Automation	420000
Total Time Saved in Hours	7000
Average Hourly Wage/Agent	\$15
Total Cost Savings/Annually	\$105,000

- Costs Savings are for a model company with 300 agents and 10K incoming service tickets via e-mail channel/month
- To check potential costs savings for customer, use Value Engineering Template

Categorizing and Routing through ML (Machine Learning)

Complaints - CMP

Missed appointment by your service team

Taylor Jones <taylor.jonesh@gmail.com>

to Customer

12:29 AM (7 hours ago)

Dear Sir/Madam,

last Monday we were expecting your service engineers to arrive at our home between 8am and 12 pm.

No one came until 2pm and after calling your service desk, we were told that there are no more service appointment slots possible for us this week.

We are very disappointed as this would mean a whole week with no fridge for our family.

Regards,
Taylor Jone

SAP Hybris

Tickets

6797 - Missed appointment by your service team

Overview Interactions Emails (Beta) Solution Finder Surveys Activities Attachments Notes IT

Priority Normal

Escalation Status Not Escalated

Status Open

Service and Support Team
Level 2 Escalation Support Queue

CUSTOMER

CATEGORY

Customer Taylor Jones

Service Category Complaint

Similar Ticket Recommendations

Based on Closed Tickets

The screenshot displays the SAP Service Cloud interface for a specific ticket. The ticket title is "69561 - Matt Bomer, Kristen Bell, and other celebs bought out movie theaters so people coul...". The subject is "Mashable Mailbot GUANZON VPN". The interface is divided into several sections: "OVERVIEW", "INTERACTIONS", "SOLUTION FINDER", "SURVEYS", "ACTIVITIES", "ATTACHMENTS", "NOTES", and "ITEMS". The "OVERVIEW" section is active, showing "ADDITIONAL INFORMATION", "PRODUCT", "CATEGORY", "CUSTOMER", and "TIMELINE". The "CUSTOMER" section shows the customer name "Mashable Mailbot GUANZON ..." and contact information. The "TIMELINE" section shows the ticket's history, including creation, changes, and reviews. On the right side, there is a "Similar Tickets (3)" section with a "RECOMMENDATIONS" tab. It lists three similar tickets: "65176 - Attack test - 170" with a 100% confidence score, "65197 - Attack test - 187" with a 94% confidence score, and "663235 -" with a 93% confidence score. The interface also includes a search bar, a notification icon, and a "Crm Ops" dropdown menu.

What is it?

Recommend top 3 similar tickets for agents to discover best practices applied on previously closed tickets

Business Problem

- No visibility into solutions applied to other tickets in similar categories

Key benefits

- Increase agent productivity without having to sort through all closed tickets

Machine Learning Model Administration

Simplified setup, configuration and deployment of ML scenarios

MACHINE LEARNING SCENARIOS: ALL (4)

Name	Business Object	Area	Type	Created By	Created On
Account Intelligence	Account	Sales	Scoring		12/18/2017 11:50 AM PST_NA
Lead Scoring	Lead	Sales	Scoring	Xiaoqing He	09/15/2017 5:39 PM PST_NA
Opportunity Scoring	Opportunity	Sales	Scoring	Karthik S J	05/08/2017 12:02 PM PST_NA
Ticket Categorization	Ticket	Service	Classifier	Dongyan Zhao(General)	06/19/2017 8:51 AM PST_NA

MODELS (3)

Name	Status	Data Source	Actions	Accuracy
acconHL_20171218_0156PM_	Active	Auto Extraction		
acconHL_20171218_1210PM	Active	Auto Extraction		
acconHL_20171219_0954AM	Active	Auto Extraction		

Automated Responses

Based on the confidence level, responses will be automatically sent.

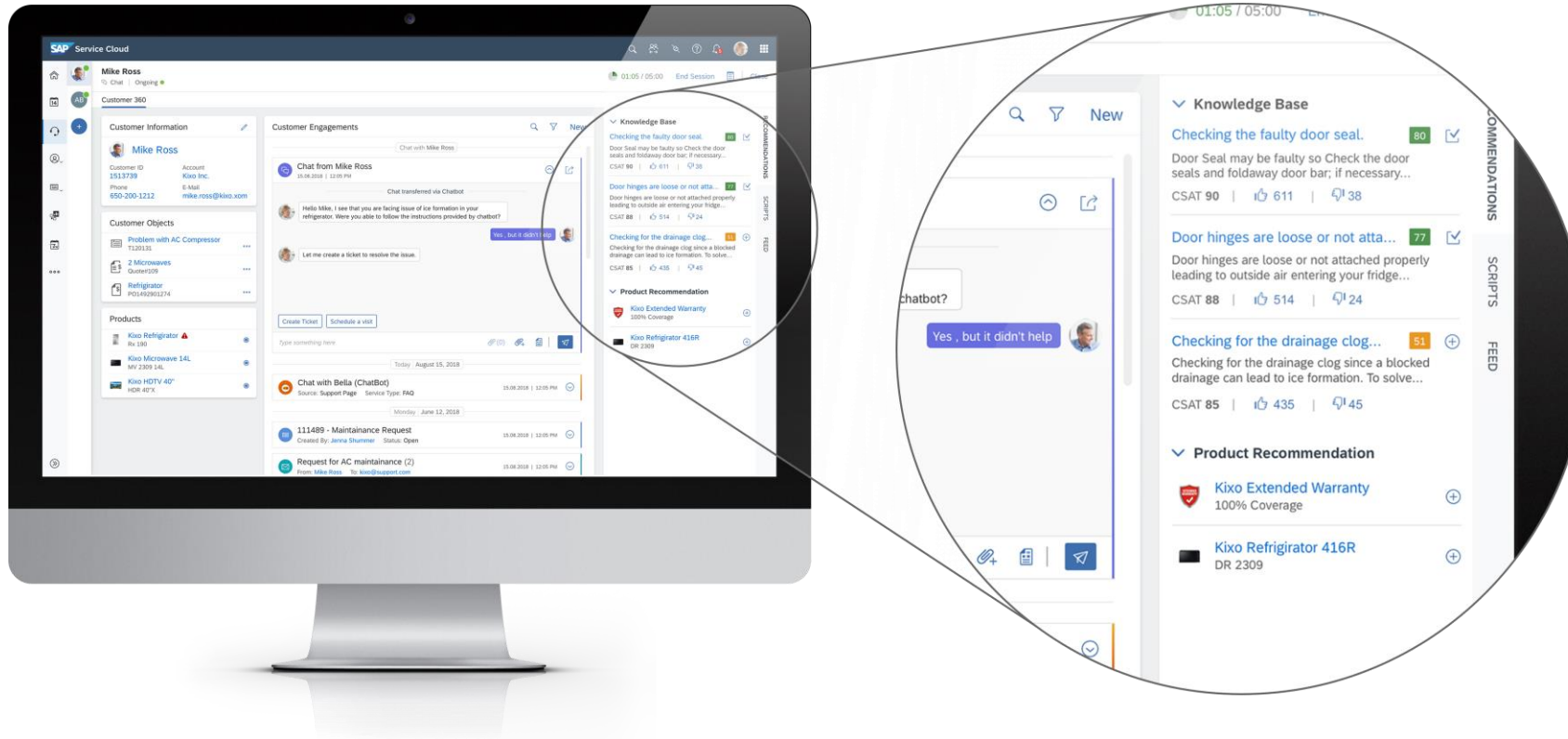
Confidence Level : 75

0 10 20 30 40 50 60 70 80 90 100

- Accuracy of model is visible under model table
- Customers can configure threshold for automating prediction of ML model (today only applicable for Ticket Categorization)
- Example: if confidence level is set to 80% then all predictions with confidence over 80% will be automated
- Users still have the option to change prediction value (e.g. ticket category)
- Capture prediction model feedback with implicit & explicit user behavior to improve model performance

Solution Intelligence

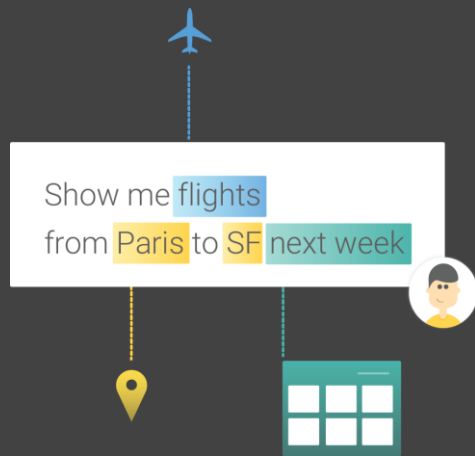
Improve Agent Productivity



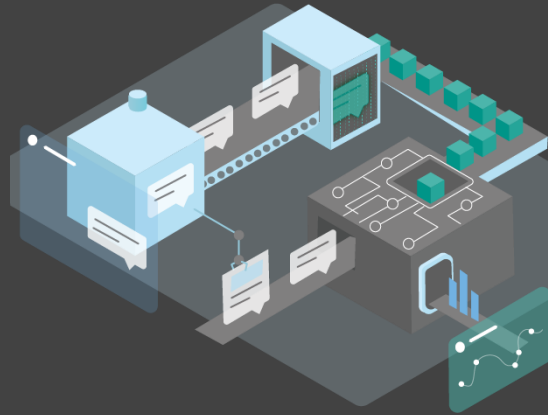
- Knowledge connectors to SAP JAM ensures relevant recommendations based on service categories
- E-Mail Template Recommendations to surface relevant solutions based on service categories
- Works on any text content across multiple languages
- In-line Translation capability to assist service agents and managers
- Product Recommendations for Up-Sell & Cross-Sell

SAP Conversational AI with SAP Leonardo

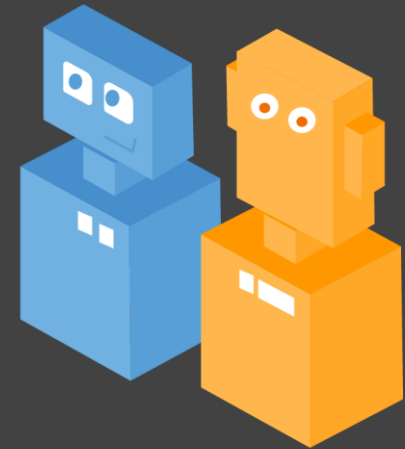
Chatbot Platform (Recast.ai)



A world-class NLP and NLU API



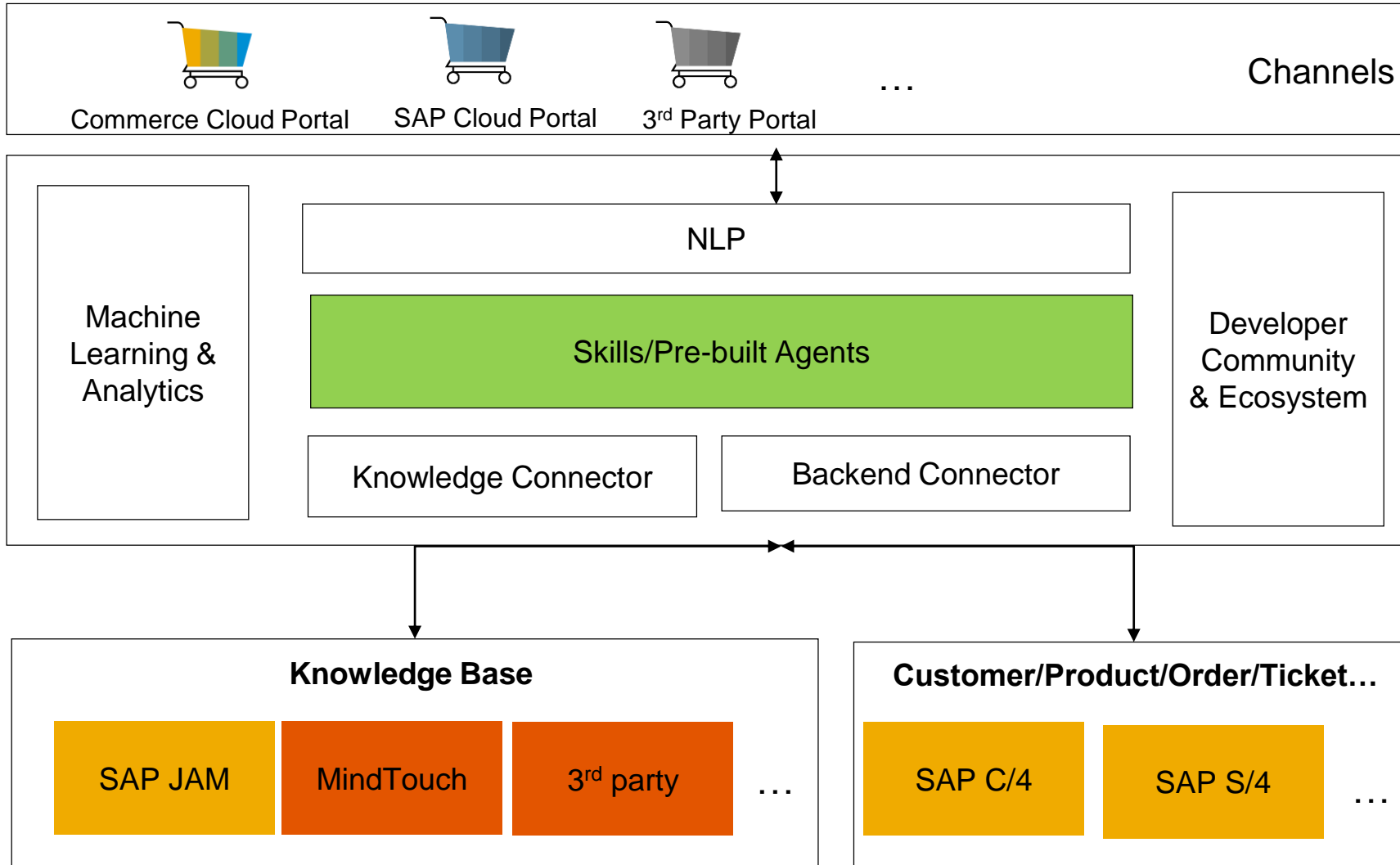
An end-to-end bot building collaborative platform



Automated customer service solutions by industry

SAP Chatbot Architecture

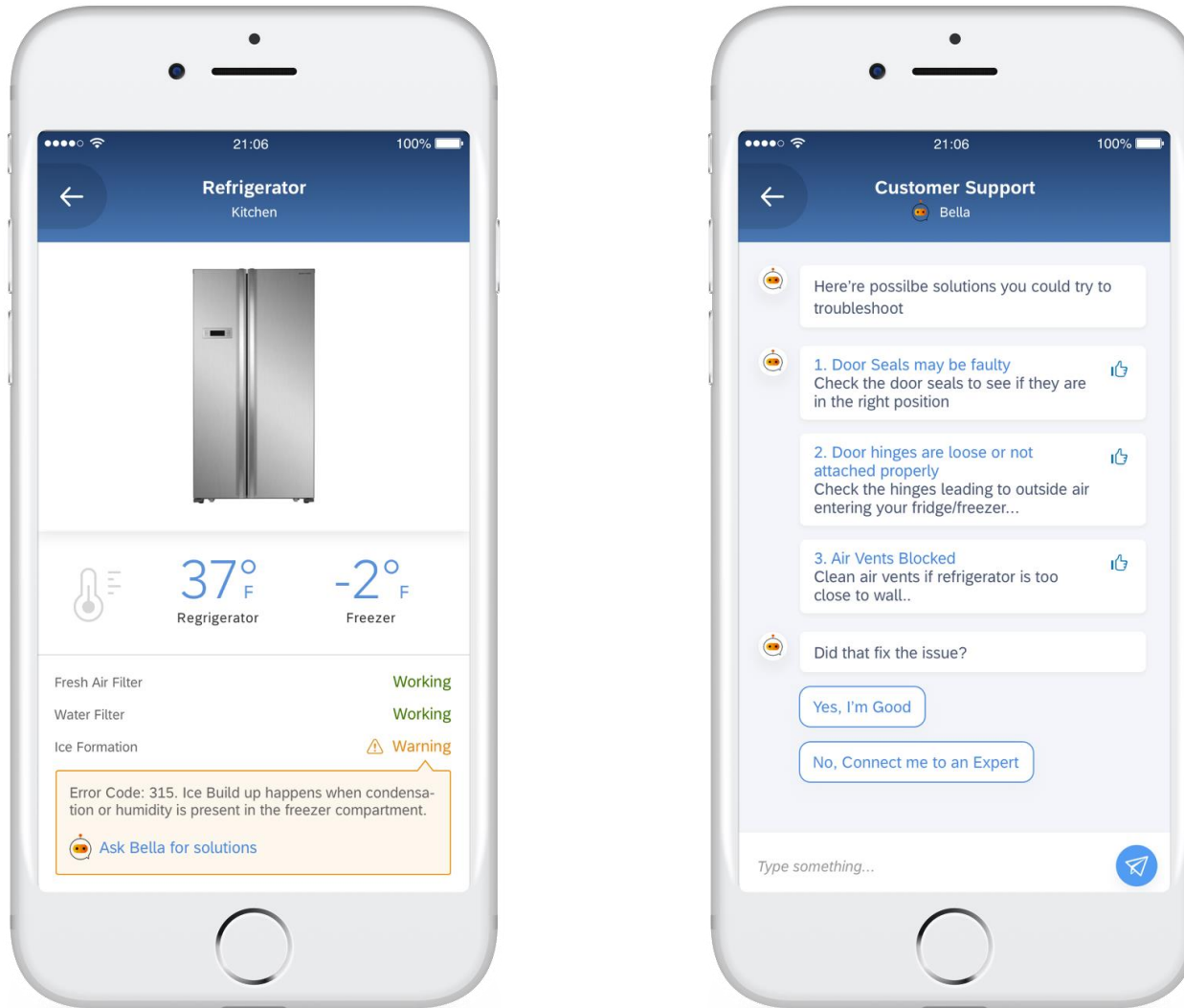
Highly Scalable & Robust Multi-lingual Natural Language Processing Platform



- Best in class NLP & NLU deep learning platform with support for 12 messaging channels out of the box
- Supports Rapid Deployment in weeks compared to months with graphical bot builder framework
- Industry Accelerators for Telco, Banking & Insurance, Transportation & Utilities
- Data Privacy & Security built-in for large organizations

Virtual Agents/Chat Bots

Deflect Incoming Engagements



- Deploy chatbots for customer Self-Service and employee assist scenarios
- Leverage SAP Recast & Co-Pilot for providing a comprehensive chatbot capability within your organization
- Pre-built SAP content for SAP data sources such as JAM Knowledgebase or S/4 Orders
- Customize & Extend SAP content using SAP Chatbot platform

Blending Automated Self Service with Assisted Service

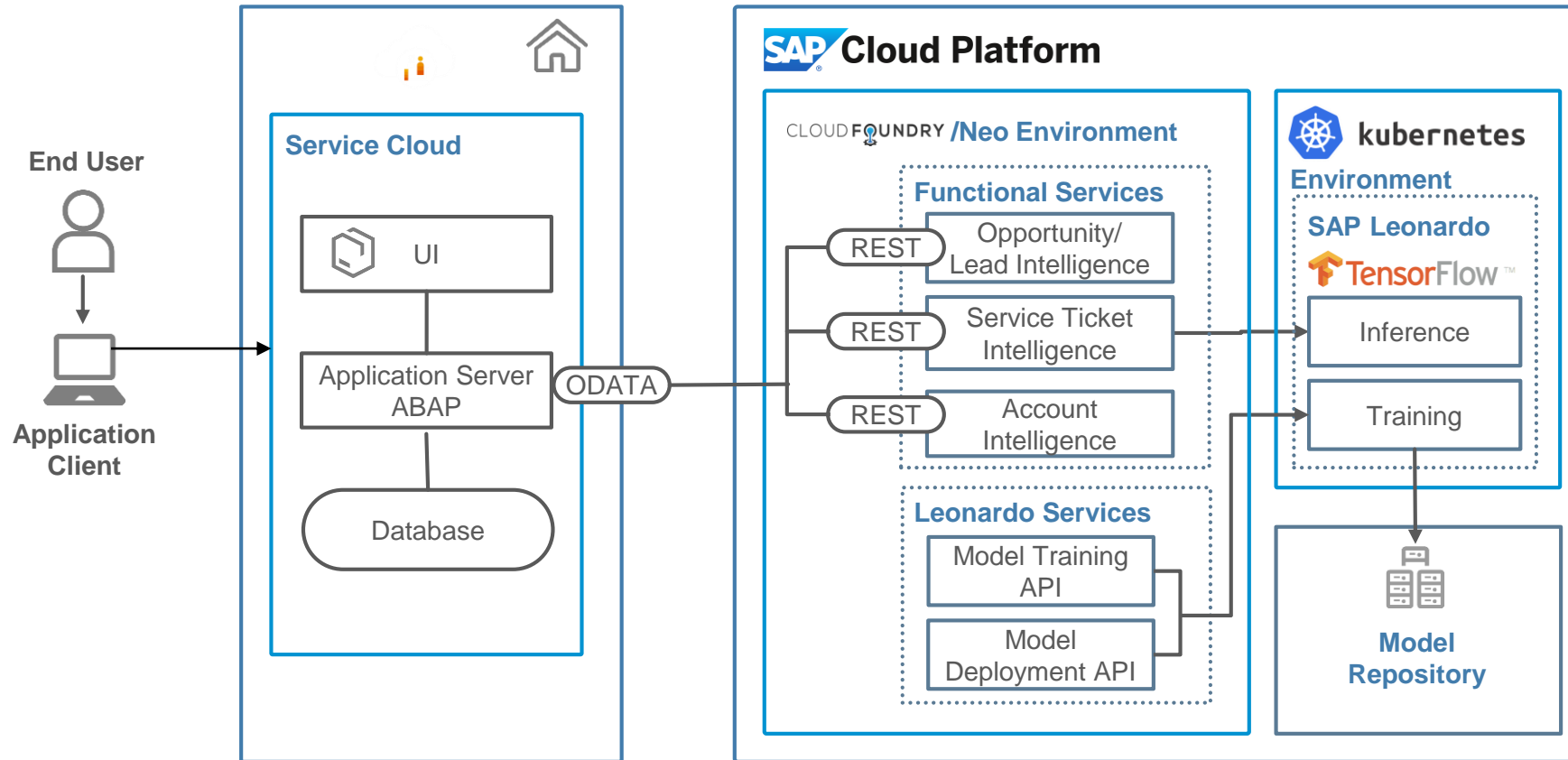
Agent Desktop with Chatbot Integration

The screenshot displays the SAP Agent Desktop interface. On the left, a customer profile for Lisa James is shown with fields for First Name, Middle Name, Last Name, Country (United States of America), House Number / Street (542 W. 27th Street), City (New York), and State / Zip Code (NY 10001). In the center, a chat window titled 'Chat with Lisa James' shows a conversation about a dress size. The chat history includes a bot message asking if the user has checked the size chart, a user response, and a bot response offering to connect to a service representative. A 'Yes.' button and an 'End Chat' button are visible at the bottom of the chat window. On the right, the 'Interaction Log' and 'Knowledge Article' tabs are active. The 'Interaction Notes' section has a text input field and a '300 Characters Left' indicator. Below this, there are sections for 'Tags' (with an 'Add tags' button), 'Linked Documents (0)', and 'Interaction History (2)'. The interaction history shows a 'Manual Session' on April 30, 2018, at 11:08 AM, handled by 'Secenter User', with a note 'Online store purchase'. At the bottom of the interface, a blue button labeled 'Save and Close (59 seconds ago)' is visible, along with 'Interaction', 'Cancel', and 'Hide Side Panel' options.

- SAP Customer Engagement Center is available as a fallback-channel in SAP Conversational AI
- A virtual agent (chatbot) assists the customer with solutions, order status, or other information
- The conversation can be transferred (fallback) to a live agent when needed
- Agent has full visibility of the chatbot/customer conversation
- The conversation is saved in Interaction History for future reference

SAP Machine Learning Architecture

Highly Scalable & Distributed Model Training & Prediction Platform



- Data is extracted from SAP C4C into SAP Leonardo Platform (on SCP) for Model training and prediction
- Model training can be only initiated by customer via C4C Administration Settings
- Model training can take approximately 1 hr. for 100K records (actual times may vary)
- SAP Leonardo is running on the same Data center as SAP C4C
- Data is transferred using ODATA API

Field Service Intelligence



- Work ticket classification using deep learning techniques
- Estimated time to completion of jobs and scheduling optimization based on historical data
- Scheduling optimization
- Technician matching based on skills
- Parts recommendation based on service history data

Intelligent Crowd Service



Crowd Service helps meet customers expectation for real-time service. With the Coresystems FSM solution, you can build your own pool of technicians and rely on powerful AI tools to automatically plan service requests in real-time.

Crowd Service Capabilities:

- Configurable Onboarding Platform to invite partners and others to become a part of your service crowd
- Intelligent scheduling to determine the best qualified technician by taking into account expertise, location, and availability
- Crowd workers have ability to accept or reject assignments within a set timeframe
- Crowd workers are empowered with all the capabilities of Coresystems Mobile Field Service

Key Aspects of a Machine Learning Project

1 Data Exploration



Understanding baseline metrics

- Opportunity to close metrics – win rate, win/loss analysis etc.
- Service ticket metrics – ticket count distribution by categories, ticket volume trend etc.
- Benchmarking to peers, anomaly detection, data quality detection, business process customization

2 Readiness Check



Understanding ML maturity

- Business process adoption maturity or organization
- Adherence to company specific sales and service process discipline
- Uncovering bias and bad data quality before deploying ML

3 Model Activation



Ready-to-train models

- Turnkey model activation catered to LOB departments rather than data scientists
- Fully based on customer's data to avoid assumptions on business process and data quality
-

4 Model Explanation



Explainable AI to build trust

- Key factors that statistically influence targets
- White-box of ML models for business owners and data scientists to understand model metrics
-

5 Model Fine-tuning



Last mile ML

- Optimizing model to reach business goals by reducing false positives and false negatives
- Additional feature engineering to improve model performance
- Avoid model overfitting and underfitting

Automated Today

Key Lessons **Learned**

- **Identify & Articulate Business Problem before applying ML**
Focus on clearly defined use-cases that impact your core metrics and spend time on data exploration
- **Clean Data beats More Data & More Data beats Better Algorithms.**
Focus more on data quality and process maturity then type of algorithm used
- **Model is never perfect but it can be useful.**
Optimize on business goal and try to minimize loss/false positive & negatives from model
- **Think about when ML cannot be a “black box”.**
Explainable AI is key to build trust and make transparent the reasoning behind the prediction

Thank you.

Contact information:

Dr. Volker G. Hildebrand

Global Vice President SAP Service Cloud

SAP Customer Experience

volker.hildebrand@sap.com



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