

The background features a dark blue gradient with abstract, glowing shapes in shades of purple and pink. Two thin, light blue lines cross the scene diagonally. The text is positioned on the left side of the image.

AWS re:Invent

DECEMBER 2 - 6, 2024 | LAS VEGAS, NV

ADM201

How United Airlines transformed traveler experiences using unified customer data in AWS

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Customer Travel Experience
United Airlines

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(he/him)

General Manager, AWS
Entity Resolution & Connect
Customer Profiles
AWS

Natasha Templeton

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Global Business
Development Lead, AWS
Entity Resolution
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Today's speakers



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Connect Customer Profiles
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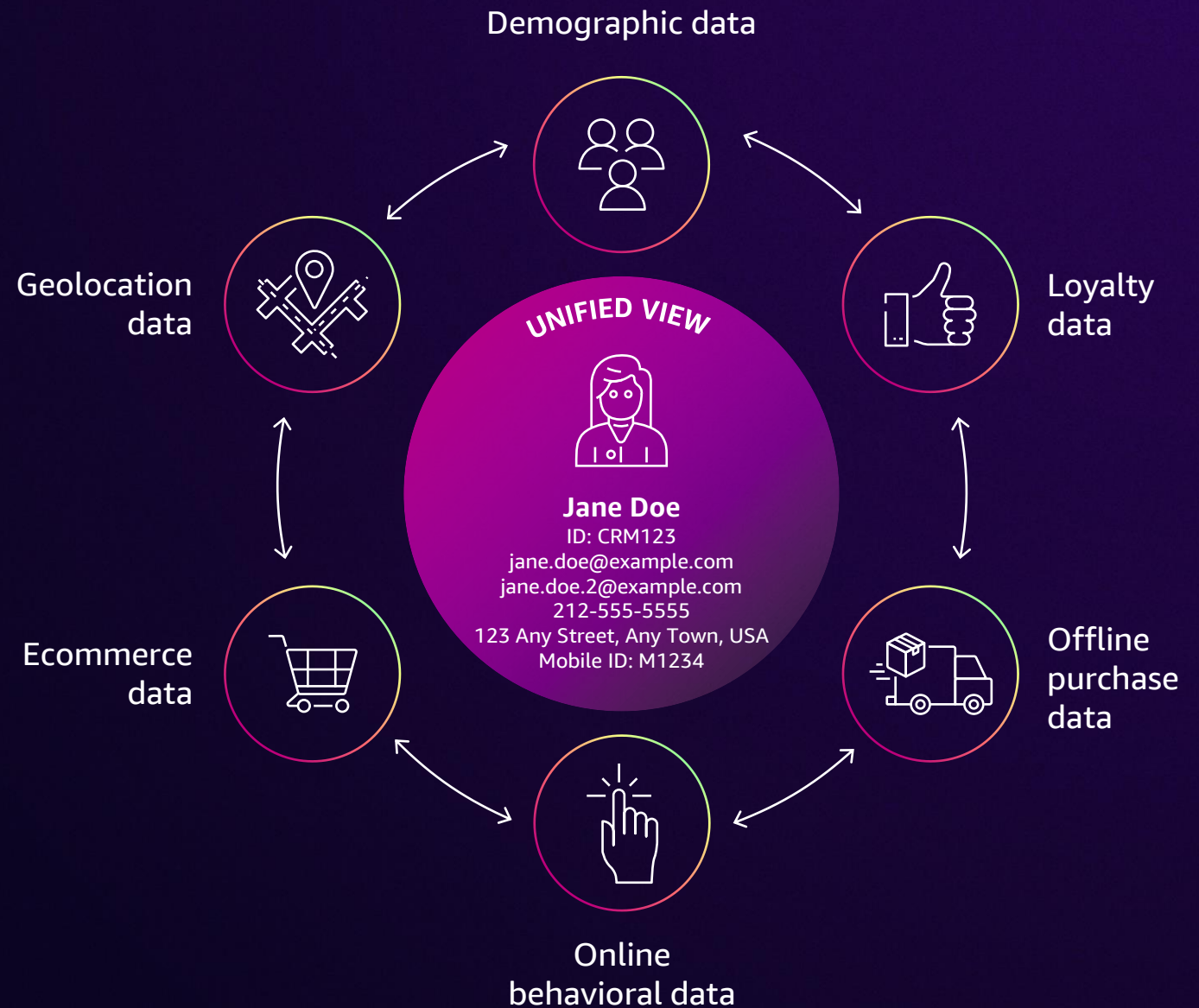
Agenda

- 01 Customer 360
- 02 Use cases and benefits of AWS
- 03 Customer story: United Airlines
- 04 Wrap up

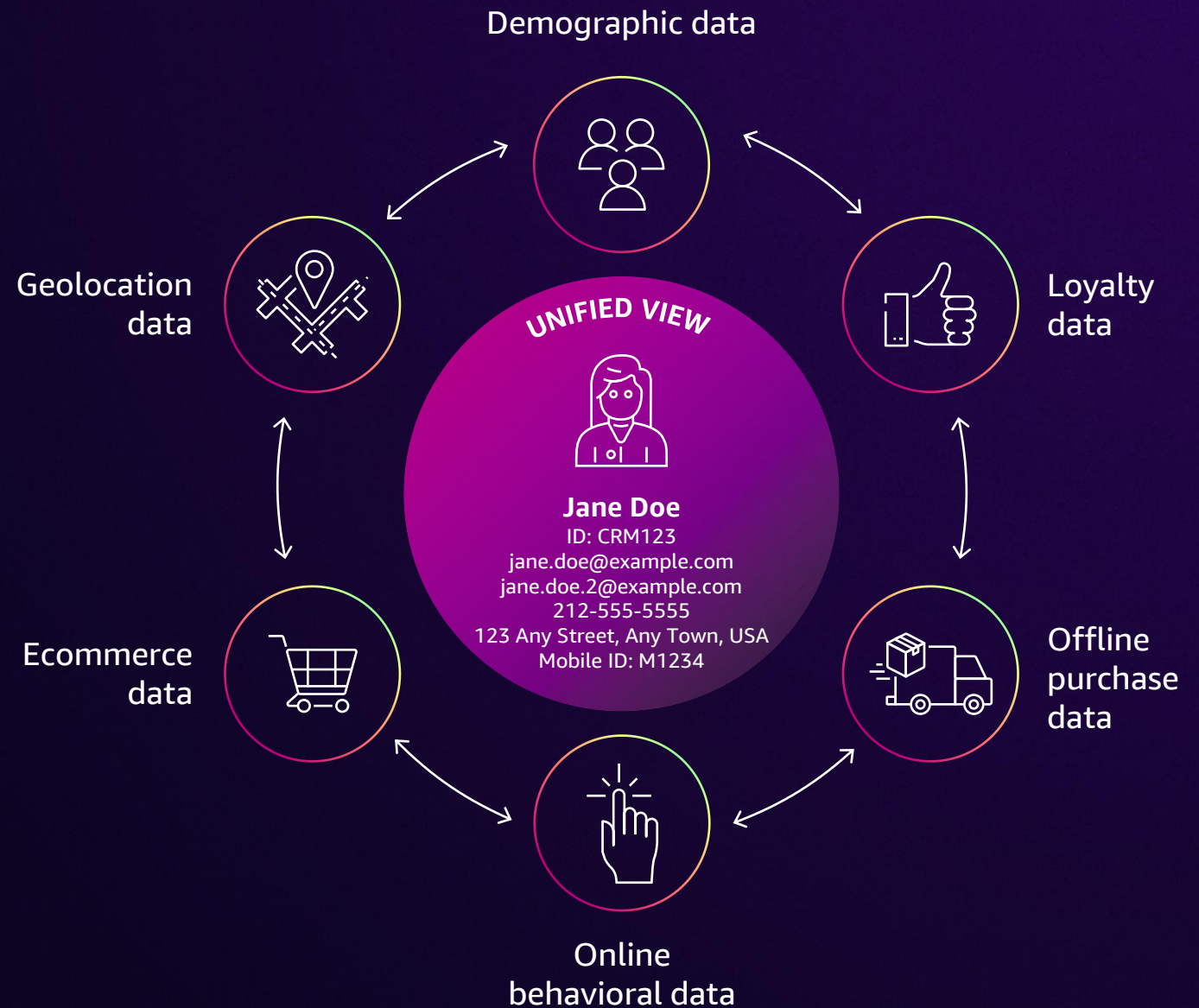
Unified customer profiles provide a foundation to understanding customers and personalizing experiences



Companies want to build on unified profiles to develop a 360 degree view



Companies want to build on unified profiles to develop a 360 degree view





Understanding our hotel guests and their preferences is incredibly important to delivering exceptional traveler experiences. To enable this, **we must consolidate our data into a unified view** of each guest, such that we can more effectively communicate, personalize, and provide support around the guest journey. However, consolidating disparate sets of data is challenging, as customer information is fragmented and lives across multiple repositories.

Joseph W. Landucci

Director of Technology Management

BWH Hotels



But they are faced with inaccurate and fragmented data



Data is siloed across applications, channels, and data stores

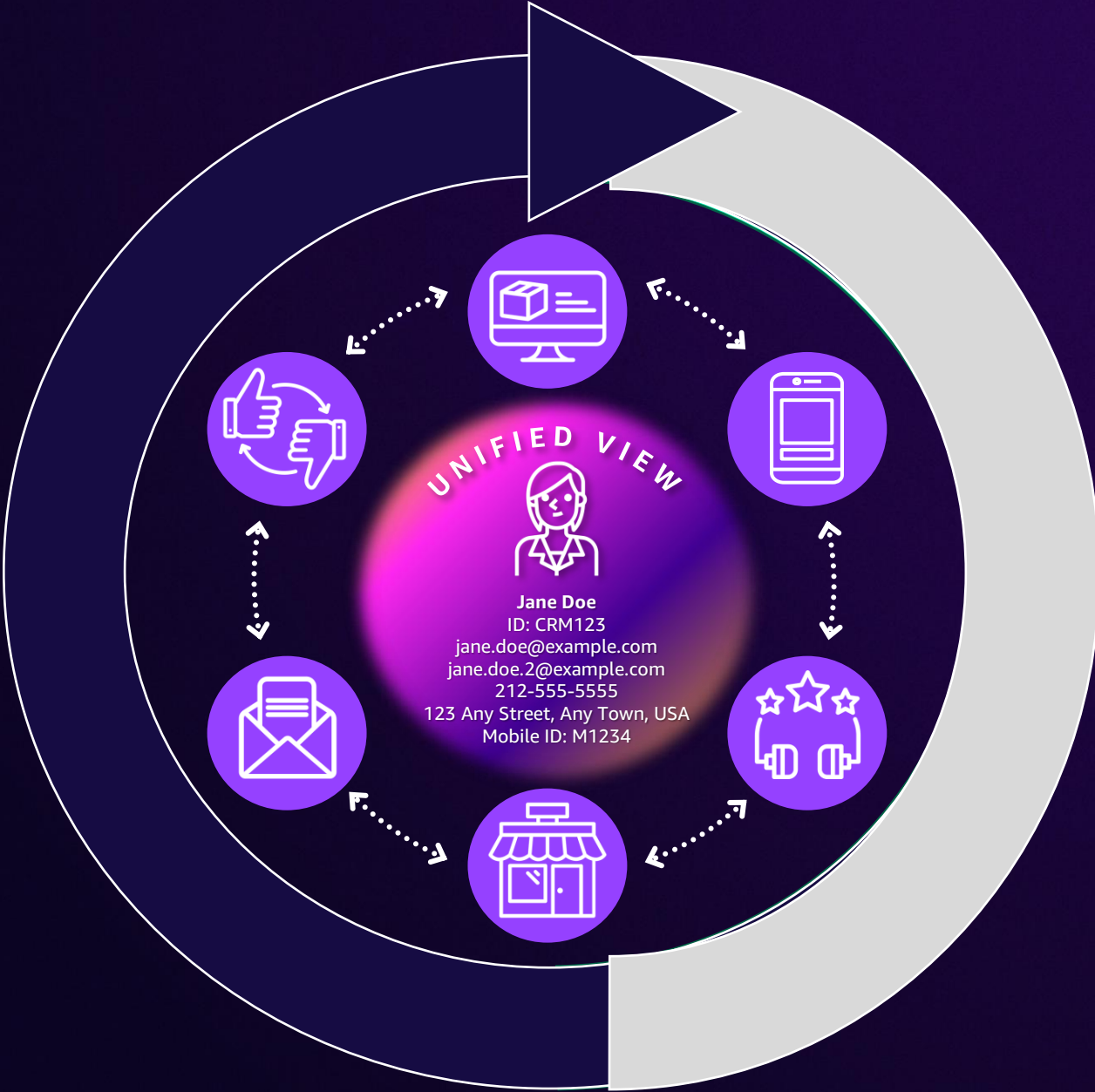


Data is often incomplete or contains conflicting information



Moving and copying data poses security threats

But often, first-party data alone is not sufficient to assemble complete views





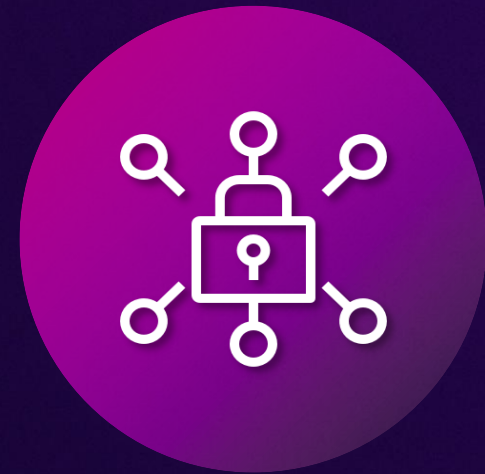
AWS Entity Resolution

Easy-to-configure, ML-powered entity resolution service



Amazon Connect Customer Profiles

Personalize customer experiences with a real-time view of your customers



AWS Clean Rooms

Collaborate with your partners without sharing raw data

Transformative Gen AI and Applications are built on a Unified Customer Data foundation



CUSTOMER ENGAGEMENT APPLICATIONS

- Customer service
- Proactive engagement
- Web/mobile
- Advertising

GENERATIVE AI & INSIGHTS

- Personalization
- Segmentation
- Measurement
- Analytics

UNIFIED CUSTOMER DATA

- Data sync
- Identity resolution
- Data enrichment
- Data collaboration



Customer trends and examples

1



Deliver relevant and timely customer experiences

An insurance company wants to greet every customer that calls them by first name when they use automated systems or are assisted by an agent to make a payment.

2



Anticipate customer needs and improve satisfaction

A healthcare facility wants their patients to self-serve and schedule an appointment for a specialist, and in the same interaction, proactively offer to schedule a visit with another previously prescribed specialist.

3



Integrated solution for outbound communication channels and inbound contacts

A bank wants their non-technical business users to create and manage campaigns to send SMS for payment reminders, offer self-serve options to make payments, and then use predictive dialing for debt recovery.

Unified Customer Profiles

Personalize customer experiences across engagement channels with a real-time view of your customers



Customer 360 – Real-time view of your customer

Customer profile

Search by: All [+ Profile](#)

Recently viewed profiles > Maria Garcia

Full name
Maria Garcia [Edit](#) Associated

Profile ID
1234abc... [Edit](#)

Phone number
+1 234-555-5400

Account number
233455

Birthdate
September 7, 1987

Additional Info
10+ years as a customer

Email address
maria.garcia@example.com

Gender
Female

Mailing Address
123 Any Street,
Any Town,
USA

Billing Address
123 Any Street,
Any Town,
USA

Cases | Orders | Contact history | More information

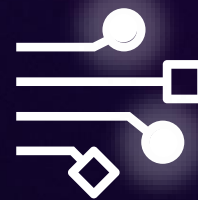
Recent cases [+ Connect case](#) [Refresh](#)

Status	Reference Id	Title	Source	Updated date	More
Open	795296 Edit	Fraud activity - transaction declined	Connect Cases	02/28/2024	Info
Closed	B23456 Edit	Add authorized user	Connect Cases	02/11/2024	Info
Closed	C34567 Edit	Cart lost	Connect Cases	01/29/2023	Info
Closed	YYYY10 Edit	Change of address	Connect Cases	01/05/2023	Info
Closed	EDD589 Edit	New card request	Connect Cases	12/02/2022	Info

[View more](#)



Unify information about your customers, their interactions across channels, and insights, in real-time to deliver relevant and timely experiences



Create calculated attributes to easily derive insights and high value actions from information in the customer profile

Generative AI-augmented data mapping for Amazon Connect Customer Profiles

Step 1
[Set up connection](#)

Step 2
[Map data](#)

Step 3
Review and customize mapping

Step 4
Review and integrate

Review and customize mapping

✔ **Mapping successfully generated**
You can customize the mapping or choose **Next** to continue.

✦ **How we mapped your data**
We reviewed 8 attributes in your data and created Order object, Profile object. We set **OrderId** as a unique key that uniquely identifies your source object. We set **CustomerId** as a profile key that uniquely identifies your profiles. We set **OrderId** as the unique key that links your orders to a customer.

Mapping summary

Data objects	Profile attributes	Attribute properties
2	9	2

▼ **Profile object (1)**
Attributes mapped to the [standard profile object](#) [🔗](#)

Source	Attribute	Properties Info	Actions
CustomerId	Attributes.CustomerId	Profile key	⋮



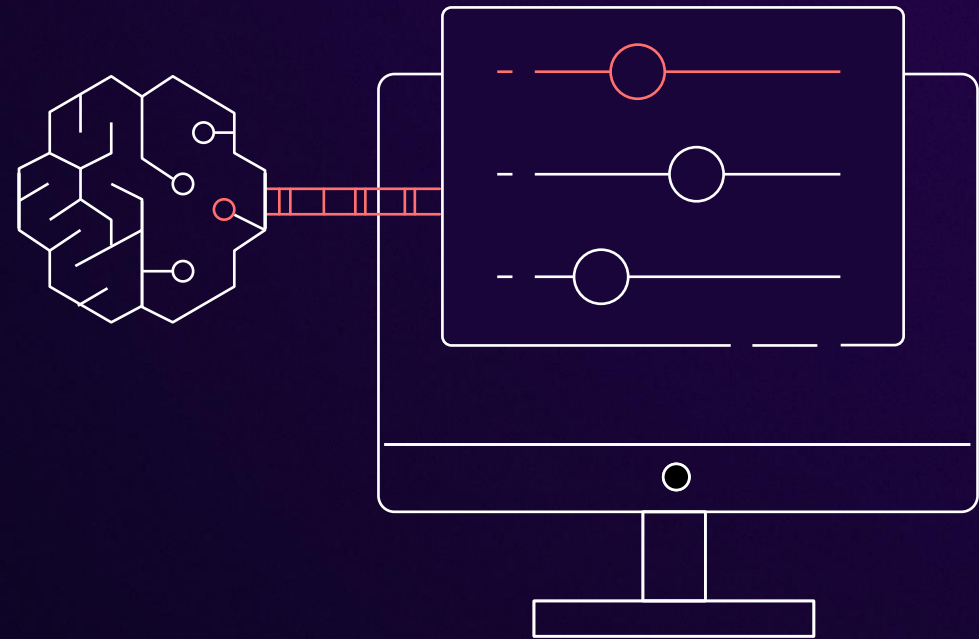
Accelerate customer data onboarding by automatically mapping data from sources such as Salesforce, ServiceNow, Zendesk, and homegrown apps



Reduce onboarding time from weeks to hours with a gen AI powered, no-code data mapping solution

Intelligent segmentation

New enhancements for
Amazon Connect Customer Profiles



Amazon Connect Customer Profiles segmentation

Amazon Connect

Agent Application Contact Control Panel LoginName

Customer Profiles: Customer segments > Create segment

Create segment

Define an audience to provide personalized customer experiences. Start with all profiles in Customer Profiles or from existing segments. Apply attribute based filters for precise targeting.

Cancel Create segment

Segment name

Name

Eligible rental upgrade

Valid characters are a-z, 0-9, - (hyphen), and _ (underscore). Character count: xx/128

Description - optional

Enter description

Character count: xx/500

Audience 1 Info

Define who to include in this audience.

Starting audience

Start with all profiles from Customer Profiles or choose up to 3 existing segment.

Q All profiles from Customer Profiles X

Filter audience - optional

Apply attribute based filters to the starting audience for precise targeting. Profiles that meet the filters will be included in this audience.

Filter group 1

Attribute	Operator	Value
Q Country X	is	USA, Mexico
Q frequent customer X	greater than	5
Q reservation X	time range	within next 48 hours
Q membership program X	is	Q. Avis preferred X
Q upgrade offer status X	is not	claimed

+ Filter

Add filters to define AND relationships between each filter.

+ Group

Add groups to define OR relationships between groups of filters.

AND OR EXCLUDE

Select AND, OR, EXCLUDE to define relationships between multiple audiences.

Estimated audience Info

May include duplicate profiles.

6% of starting audience

~8K out of 1.2M

Calculate

Last updated [timestamp]



Simple, business user UI to create segments based on hundreds of customer attributes and real-time events



Design cross-channel communications across inbound and outbound customer experiences

Generative AI segmentation

The screenshot displays the Amazon Connect 'Create segment' interface. At the top, it shows navigation options like 'Agent Workspace', 'Contact Control Panel', and 'Customer name'. The main section is titled 'Create segment' and includes a 'Cancel' button and a 'Create segment' button. A 'Segment generated by AI' box lists filters: Membership status is bronze, Length of reservation greater than 3 nights, Booking form opened time range within last hour, and Booking form submission is false. Below this is an 'Estimated audience' section with a bar chart showing 'Profile matches ~99.1K out of 430.9K' and a 'Refresh' button. The 'Segment name' section has a text input field containing 'Premium customers with incomplete bookings within last hour'. At the bottom, there's an 'Inspired by customer trends' section with three cards: 'Support' (10% increase in support cases), 'Promotion' (2% increase in orders), and 'Retention' (27% increase in spending). A 'Segments (1)' table at the bottom shows a single entry with columns for Name, Description, Creation date (11/26/2024), and Actions.



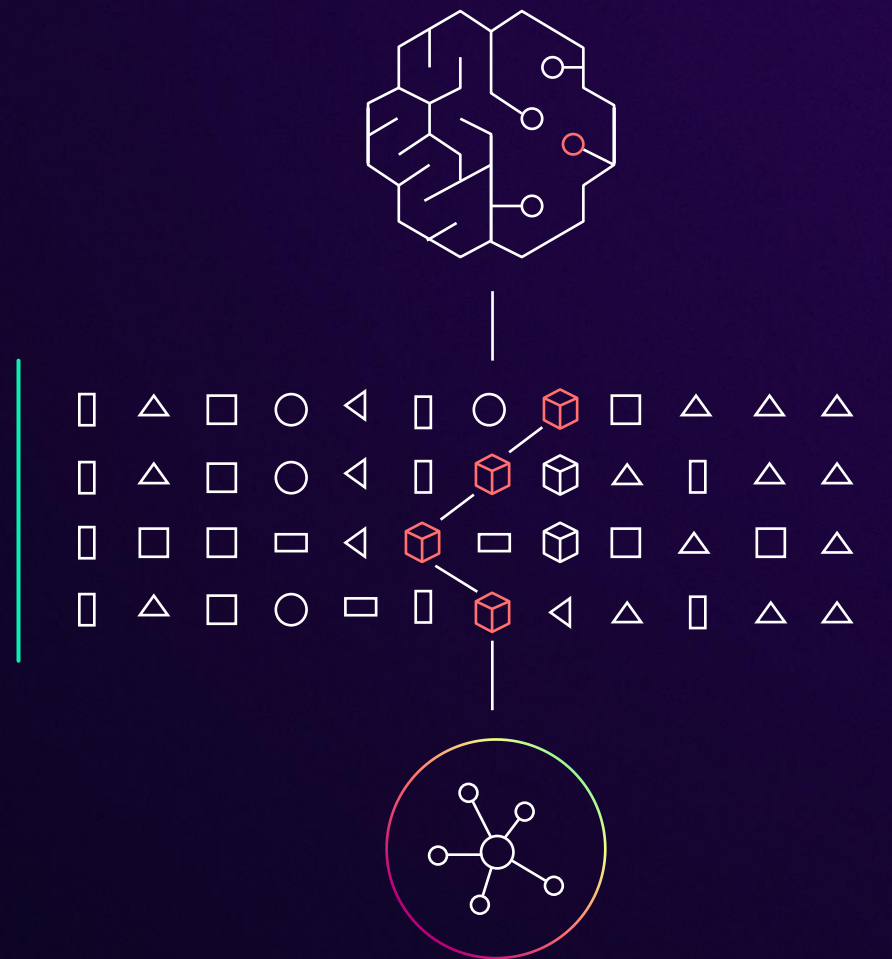
Use generative AI to enable business users to define customer segments in plain English



Get segment recommendations based on real-time trends and insights from Amazon Connect Customer Profiles data

AI-based entity resolution

A preconfigured ML/AI model to find matches across all your customer data



92%+ match rate

Over 8 models with billions parameters combined to deliver industry leading matching accuracy



Blocking
model

Similarity
model

Ensemble
model

Clustering
model

Name
model

Address
model

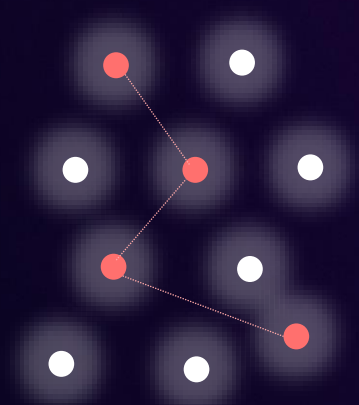
Email
Model

Jonathan Davis
 jon.davis@outlook.com
 202-555-0123
 1234 Oak Ridge Ln,
 Arlington, VA 22207
 1985-09-12

Jon R. Davis
 J.davison@hotmail.com
 1-415-789-6543
 789 Pine Hill Rd,
 Atlanta, GA 30318

Jon Davis
 jon.d8@protonmail.com
 (202) 555-0123
 Oak Ridge Ln, Arlington

Jon R. Davis
 +1 (415) 901-2381
 Atlanta, Georgia
 3/22/1990



Jonathan Davis
 jon.davis@outlook.com
 J.davison@hotmail.com
 202-555-0123
 1234 Oak Ridge Ln,
 Arlington, VA 22207

90% Match Confidence
 Name - partial match
 Phone - exact match
 Address - partial match

Jon Davis
 jon.d8@protonmail.com
 (202) 555-0123
 Oak Ridge Ln, Arlington

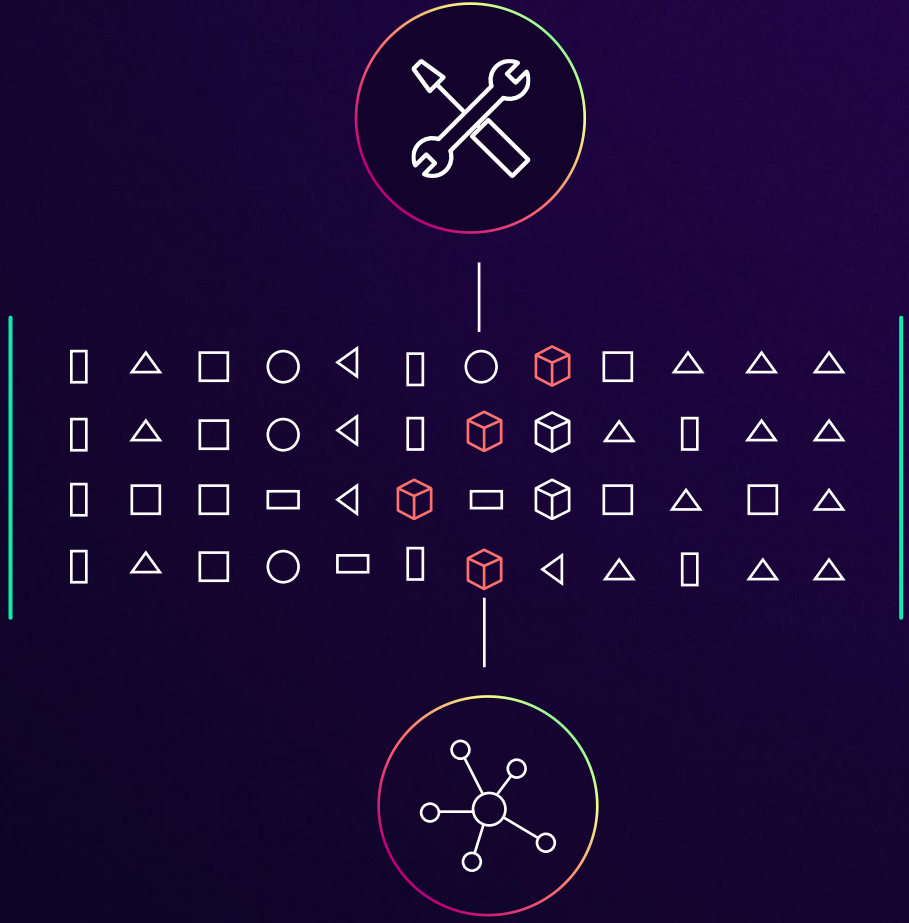
Unique Record

Jon R. Davis
 +1 (415) 901-2381
 Atlanta, Georgia
 3/22/1990

Unique Record

Deterministic matching

Configure matching rules and algorithms to deterministically match records



Advanced rule-based matching



Matching Method	Rule Examples
EXACT MATCH	Exact(ADDRESS1) OR Exact(ADDRESS2)
LEVENSHTEIN <i>String similarity</i>	Levenshtein(FIRST.NAME, 2)
SOUNDEX <i>Sound similarity</i>	Soundex(LAST.NAME)
COSINE <i>Vector similarity</i>	Cosine(EMAIL, 0.8)

Source	FIRST.NAME	LAST.NAME	EMAIL	ADDRESS1	ADDRESS2
Shopping cart	John	Smith	jon.smith@email.com	78950 Oak St.	78950 Oak St., Los Angeles, CA
Direct mail	John	Smyth	jon.smith@email.com	78950 Oak St.	78950 Oak St., Los Angeles, CA
Mobile	Jonh	Smith	jon.smith@email.com	78950 Oak St.	78950 Oak St., Los Angeles, CA
Customer Service	Jon	Smith	john.smith@email.com	78950 Oak St.	78950 Oak St., Los Angeles, CA


Power customer engagement with real-time data and AI

Billions of data points at scale

Your data, secure in your own AWS account

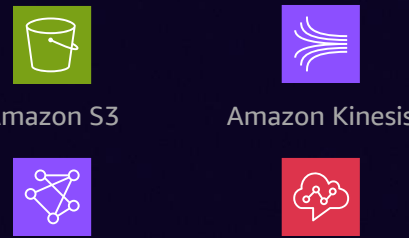
Millisecond access to customer data

Your applications and sources



servicenow.

80+ connectors to applications & AWS Services



Amazon S3 Amazon Kinesis
AWS Entity Resolution Amazon Connect

Real-time events

Minimal data movement

UNIFIED CUSTOMER DATA



Sync customer data



Merge data into a unified customer profile



Govern access

Real-time calculated attributes



Generative AI & ML models

Customer insights: propensity scores, audiences

Real-time events

Minimal data movement

Proactive engagement



Voice



Email



SMS



Social

Customer service, retail, sales



Connect

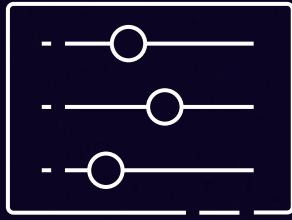


Advertising, paid media

amazon ads



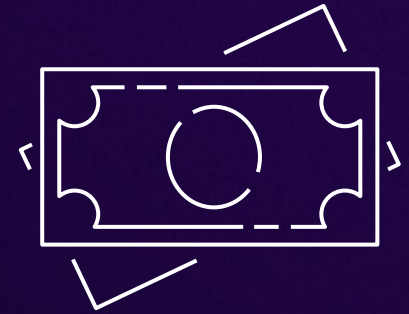
Benefits: Deliver exceptional customer experiences



Easy setup



Minimal data movement



Pay-as-you-go pricing

UNIFIED CUSTOMER DATA

GENERATIVE AI

APPLICATIONS

United Airlines: Customer 360 story



Mahesh Veda

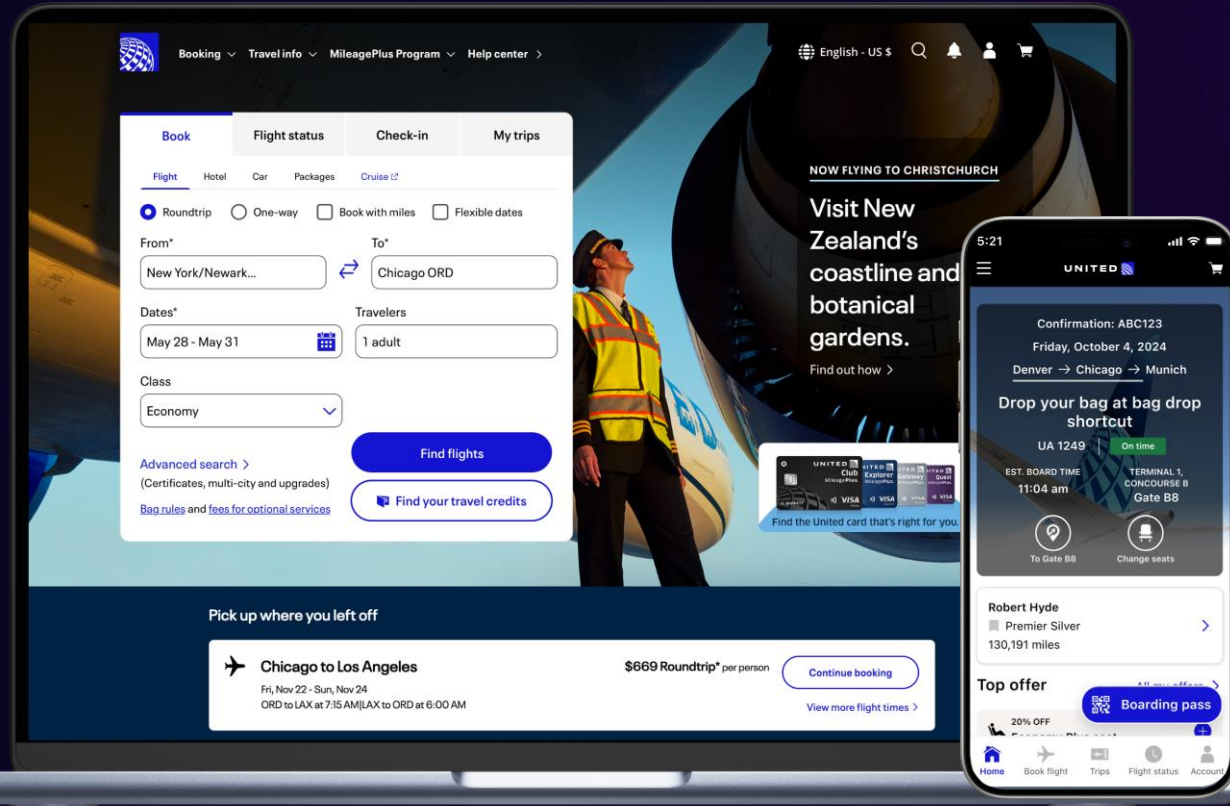
(he/him)

Managing Director, Customer
Travel Experience
United Airlines



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United's digital footprint



6M daily digital sessions

90% travelers use digital channels on day of travel

#1 downloaded airline app



Our customers

108M

United-wide US Adult traveler profiles

39M

MileagePlus program members with rich data

....and growing by 3-4% per annum

50%

fliers are non-members

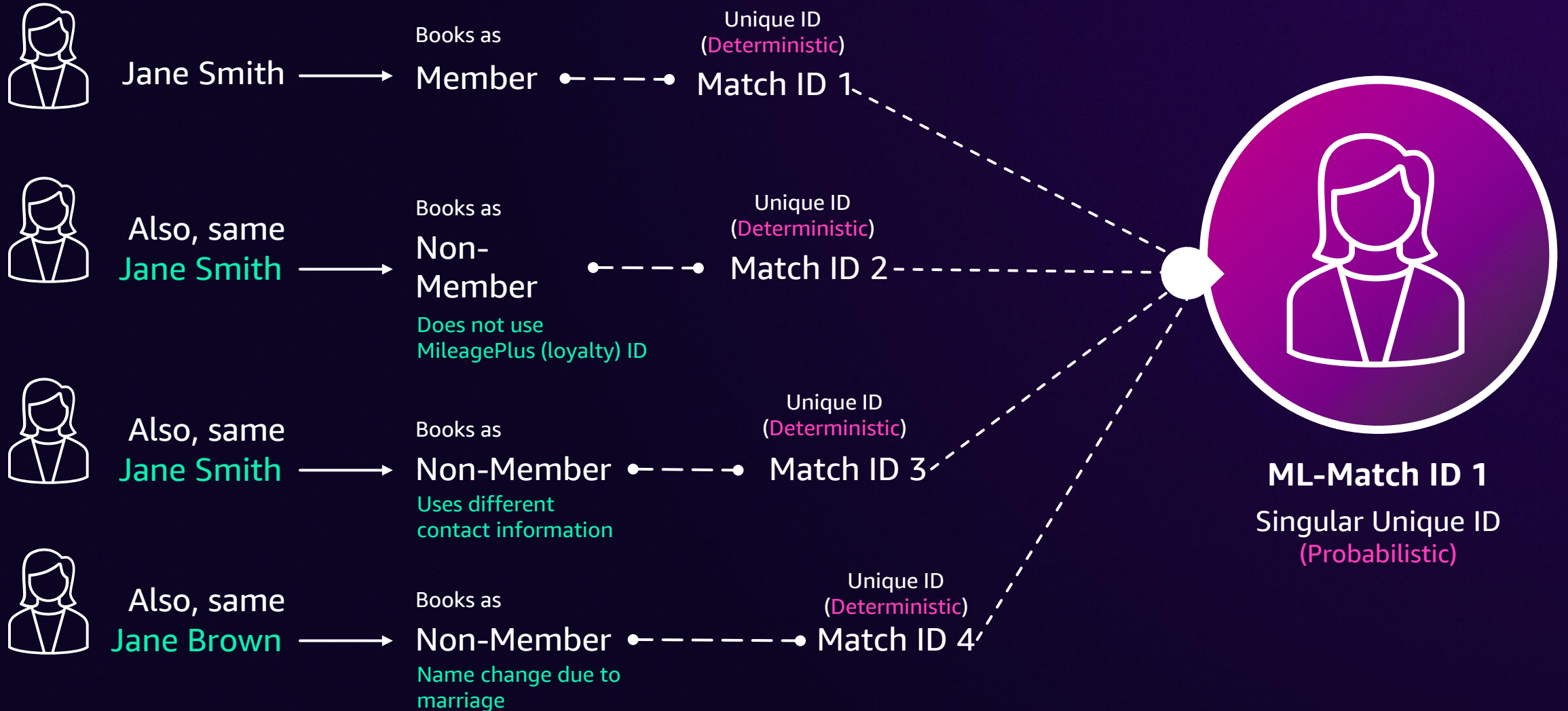


165M

passenger segments annually, centered around key markets



Managing identities for 108M customers



The importance of singular IDs in airline operations



Personalized and
seamless experience



Operational
efficiency



Improved marketing
revenue generation



Regulatory compliance
and data security

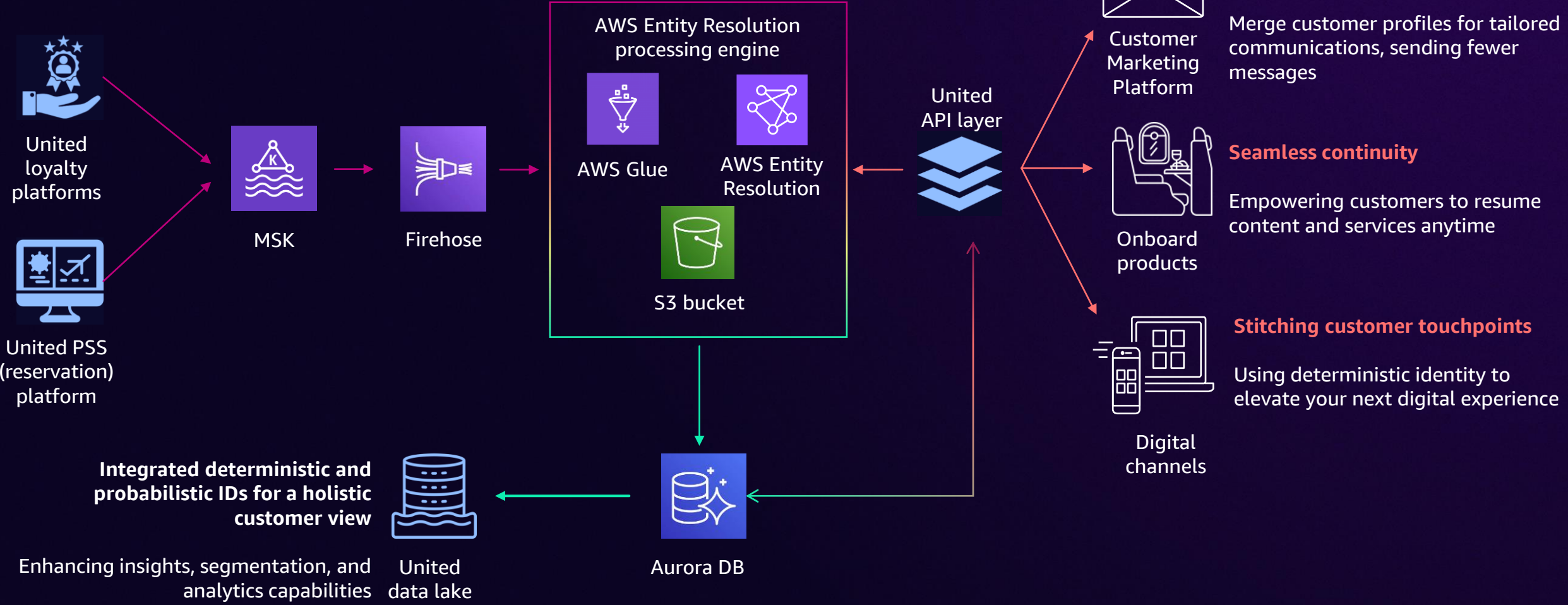


In-flight and
post-flight
engagement



Partnership and
cross-industry
integration

Architecture: Optimizing customer experience with identity resolution



Personalized marketing with ML-powered IDs

Merge customer profiles for tailored communications, sending fewer messages

Seamless continuity

Empowering customers to resume content and services anytime

Stitching customer touchpoints

Using deterministic identity to elevate your next digital experience

Enhancing insights, segmentation, and analytics capabilities United data lake

AWS Entity Resolution: ID resolution by numbers

35%

Reduction in total number
of duplicate customer
records

15%

of loyalty members had
duplicate profiles that
resulted in inconsistent
experience and lower NPS
score

30%

Cost savings due to
consolidated
infrastructure

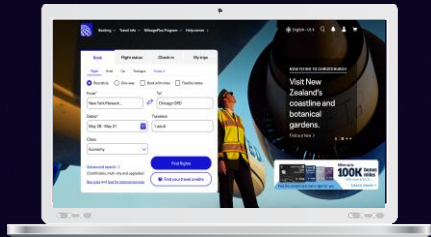
Omnichannel personalized experience

 Pre-Flight

Researching flights

Digital booking site

500M monthly web page views



Managing booking

Email

100M monthly emails sent



 At the airport

Day of travel

Clubs & lounges

12M United Club visits



Digital OOH across assets in United Clubs, jet bridges, and gate information displays at airport



 In the air

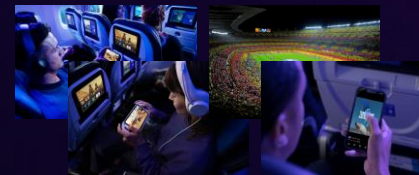
During flight

In-Flight

200M passengers with IFE by 2027



Redefining the in-flight, where every seat becomes addressable

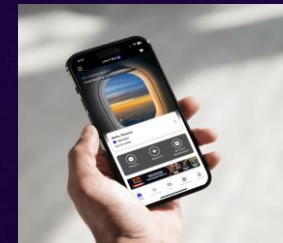


 Wherever they go

At arrival

Mobile App

200M monthly app page views



After trip

Offsite CTV

50M+ matched marketable profiles



Key learnings from using AWS



**Define the
business problem**



**Start small.
High impact**



Evangelize

Wrap up



Davor Golac

(he/him)

General Manager, AWS
Entity Resolution &
Connect Customer Profiles
AWS

Bringing it all together

Create a unified view of your customers



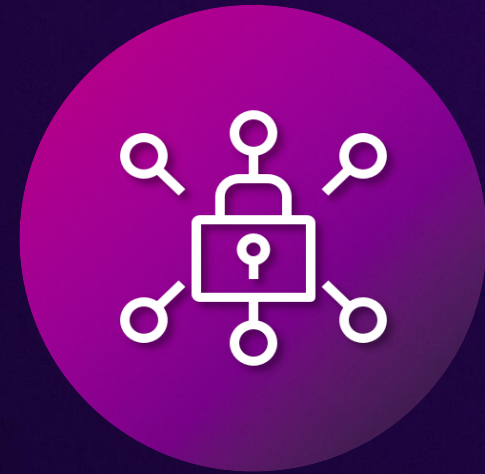
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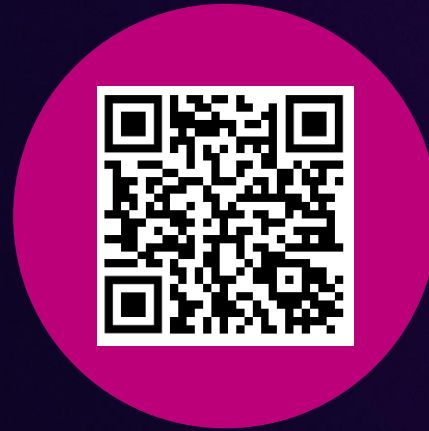
AWS Clean Rooms

Collaborate with your partners without sharing raw data

Learn more



**Read more about
AWS Entity
Resolution**



**Read about
Amazon Connect
Customer Profiles**




**Read more
about AWS
Clean Rooms**

Thank you!

Mahesh Veda

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Please complete the session survey in the mobile app

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