AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

TRV202

Building what's next in air travel

Massimo Morin
Head, Travel/Passenger Airlines
AWS

Mel Crocker
Vice President, Chief Information Officer
Air Canada

Jason Birnbaum
Senior Vice President, Digital Technology
United Airlines

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Digital transformation

dig·i·tal trans·for·ma·tion

/ˈdijidl/ /ˌtran(t)sfərˈmāSH(ə)n/

Digital transformation is the adoption of **modern digital technology** by a company to improve business processes, deliver value for customers, and accelerate innovation



AWS is transforming the travel & hospitality industry



Airlines



Ground transportation



Cruise lines



Entertainment venues



Airports



Accommodation/lodging



Restaurants



T&H services

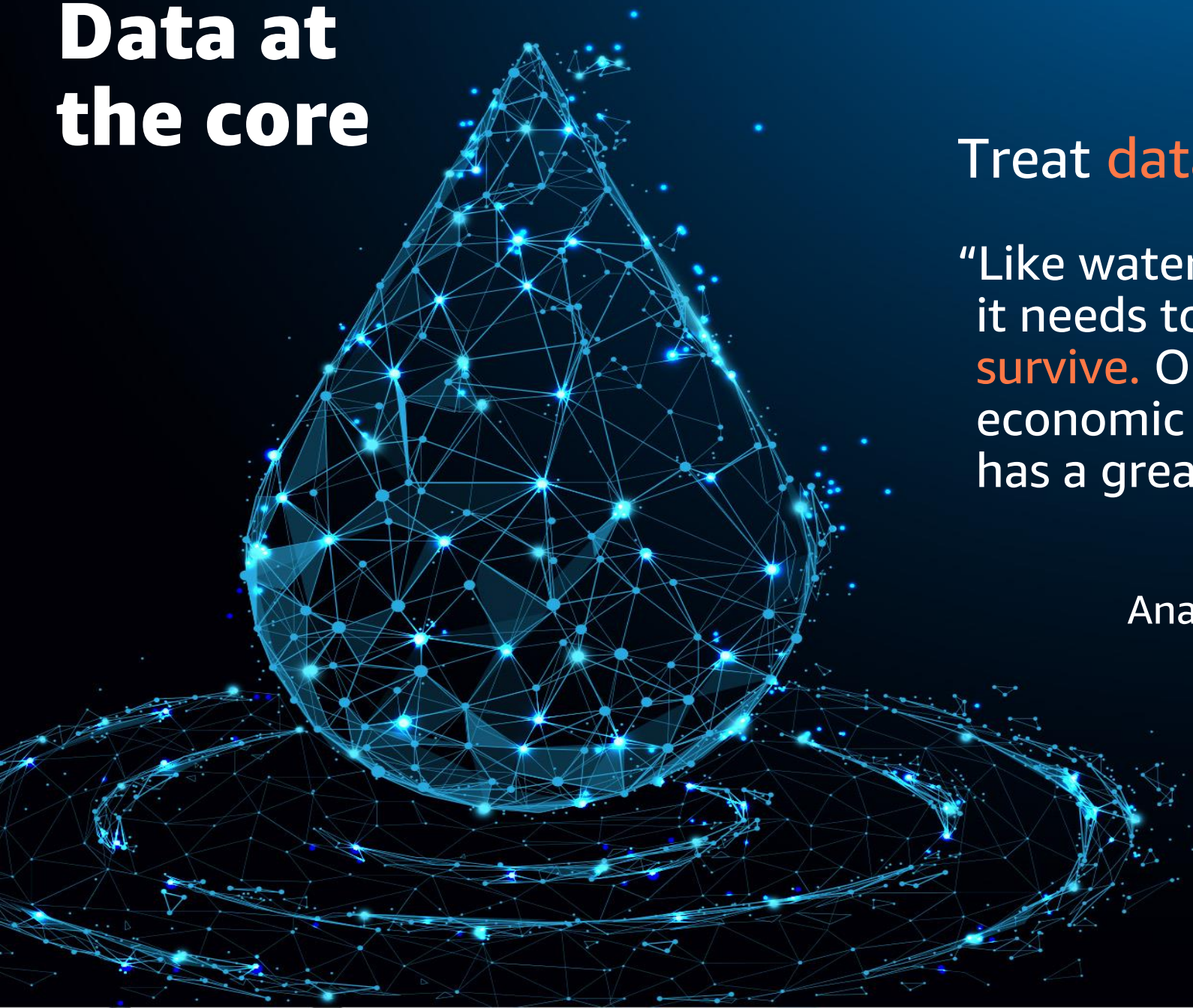
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How is travel & hospitality transforming?



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Data at the core



Treat data like water, not like oil

"Like water, data needs to be accessible, it needs to be clean, and it is needed to survive. Oil had its use and a lot of economic impact, but data is bigger, it has a greater economic effect."

Dan Vesset, Group Vice President,
Analytics and Information Management
IDC

THE DATA-DRIVEN ORGANIZATION

An organization that harnesses data as an asset to drive sustained innovation and create actionable insights to supercharge the experience for their customers so they demand more

Forbes online

New Vantage Partners – Big Data Executive Survey

… but what is this journey looking like?

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Air Canada: Improve customer experience



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United Airlines: Increase operational efficiency



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So, all aboard to start this journey together



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Building what's next for Air Canada

Mel Crocker

Vice President, Chief Information Officer
Air Canada

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Agenda

A little history…

Commercial transformation

Technical enablers

Where we are today: cases for digital backend as a service

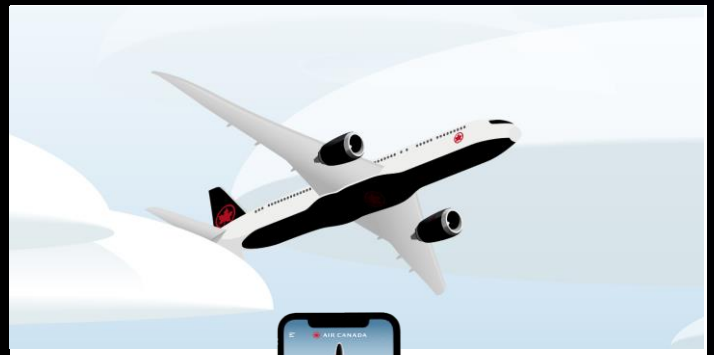
What our future looks like

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Air Canada and Aeroplan by the numbers

50M+ passengers/year[1]

1 of 4 Canadians travel with Air Canada at least once per year



12M
monthly web visits

11M
mobile app downloads

Largest e-commerce website in Canada (est.)

Preferred airline of **92%** of travelers for business travel within Canada

AIR CANADA AEROPLAN

Members' average household income is **~$120K**



AEROPLAN ELITE
51% have a household income over **$150K**

5M+ active members worldwide*



~$50B
Associated payment card annual spend

$1/$10
of all Canadian credit card spend is on an Aeroplan card

Greater than GDP of 140 countries

#2 most valuable currency in

1. 2019 figure

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Air Canada and Aeroplan's relationship status: "It's complicated"

1984



2005



2019



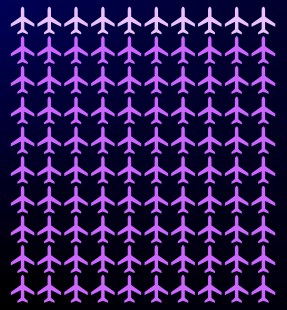
Why did AC reacquire Aeroplan?

Collapse the channels; unify the customer experience

Own customer data

Realize value from loyalty partnerships

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36,252 customers consulted

That would fill over 90% of all the seats across Air Canada's fleet



9 out of 10

Approximate proportion of members who knew their Aeroplan number by heart



38 competitive programs

We looked at travel, retail, and credit card programs across every continent

BCG accenture McKinsey & Company bond BRAND LOYALTY Deloitte.

5 consulting firms consulted

Engaged loyalty professionals to inform and verify strategy against competitive landscape



147 hours of interviews

We met customers in their homes and in our offices, individually and in groups



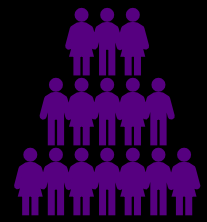
11,610 total hours of surveys

Long enough to circle the globe 273 times in a Boeing 787 at cruising speed



1,000+ questions and suggestions

Submitted to our microsite



Dozens of bloggers consulted

Voice of travel and loyalty experts integrated at every step of the transformation

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Our appeal is centered on the aspiration and relevance of travel



42%



54%



4%

- Enable the family dynamic
- Make exclusivity feel inclusive
- Balance the practical with the fanciful
- Simplify complexity

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Something like a revolution...

1. Acquire a multi-billion dollar business
2. Reinvent that business
3. Inject it seamlessly into an even bigger business

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Tech stack evolution enabling that cultural revolution

FROM	TO
Server-based platform	Serverless platform
Legacy systems	Event-driven architecture
Supplier product-based	Full product control

- ☑ Cheaper: operational and dev costs
- ☑ Faster: time to market and computing
- ☑ Better: innovation and lasting competitive advantage

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Customer interaction channels


AirCanada.com


AC mobile app


AC emails


AC apps for wearables


Skills for home voice assistants



IFE/Wi-Fi portal


Social media


Telephony

Staff interaction channels


Global contact centers


Airline employees

DBaaS – customer experience API

REST/GraphQL/streaming/sync APIS

- Content and offer management services
- Subscription and notification services
- Journey management services
- Customer profile services
- Device shadow services

DBaaS – backend (AWS)

Service and Background Orchestration

- Event-driven compute
- Complex/event processing
- Data caches
- Predictive models
- Journey management
- Real-time decision-making

Staff interactions


Content authoring/ campaign management

Marketing systems

- CDP
- CMS
- Email
- DAM
- Offers
- Event streams
- …

Enterprise systems

- EDW
- EIP
- Data lakes
- Res system
- Points bank
- Event streams

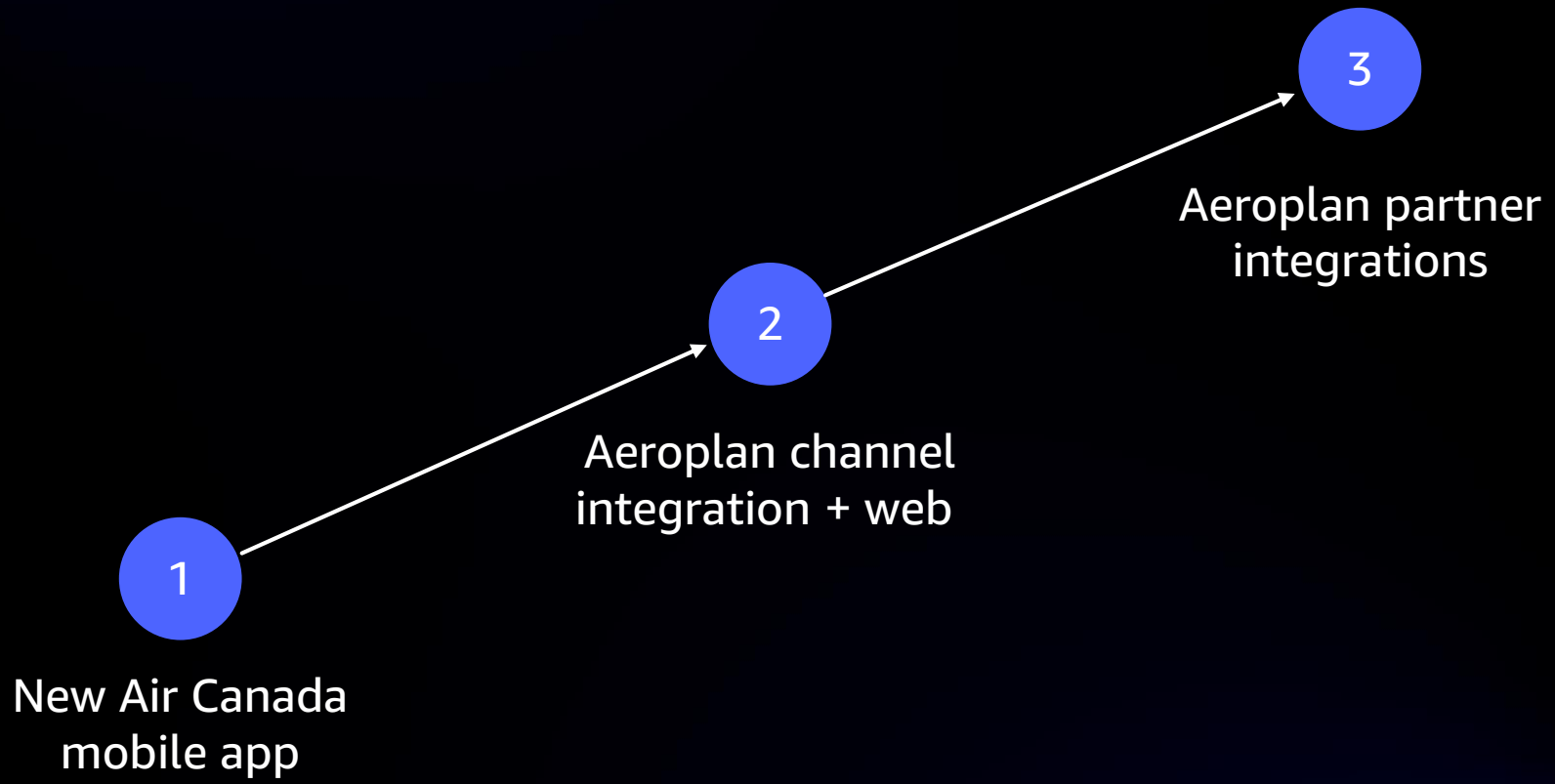
Third-party systems

- Weather
- Partners
- Banks
- Event streams
- …
- …

Public interfaces Digital owned

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Our AWS journey: Digital backend as a service

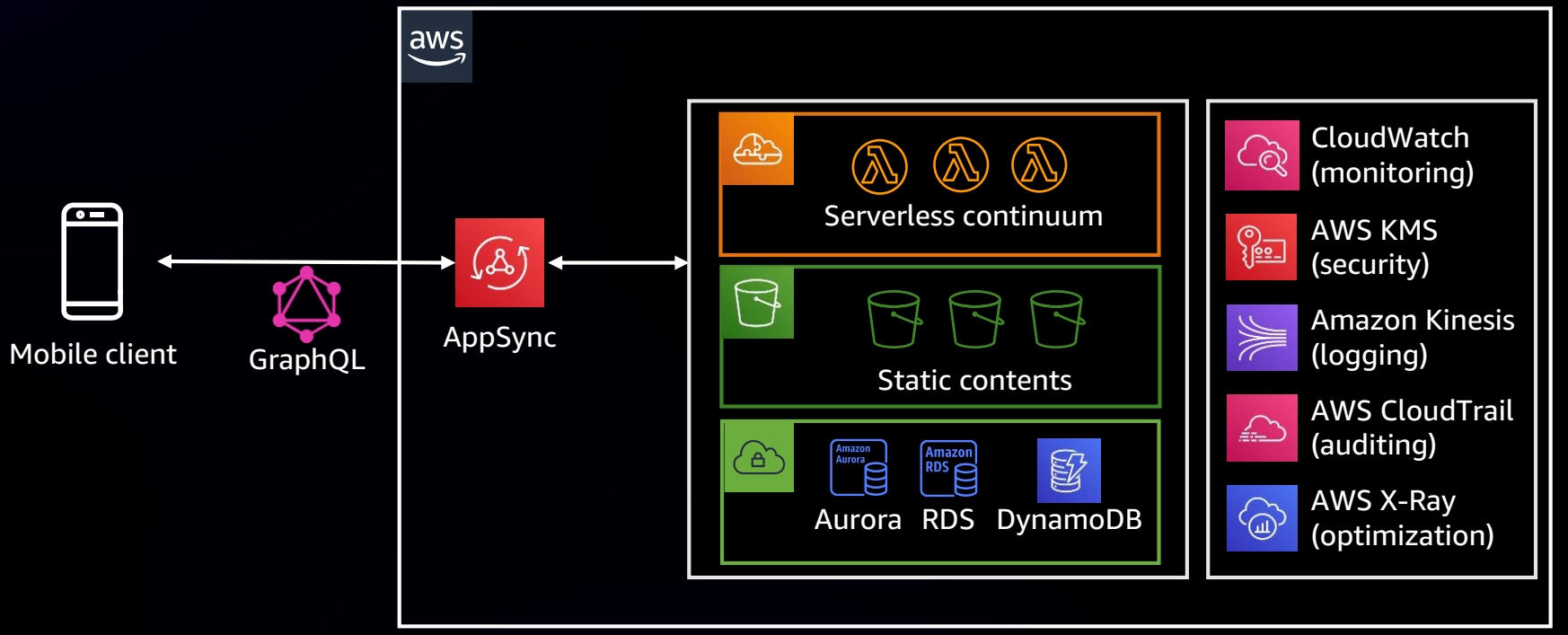


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Mobile 3: From pebble to boulder

1





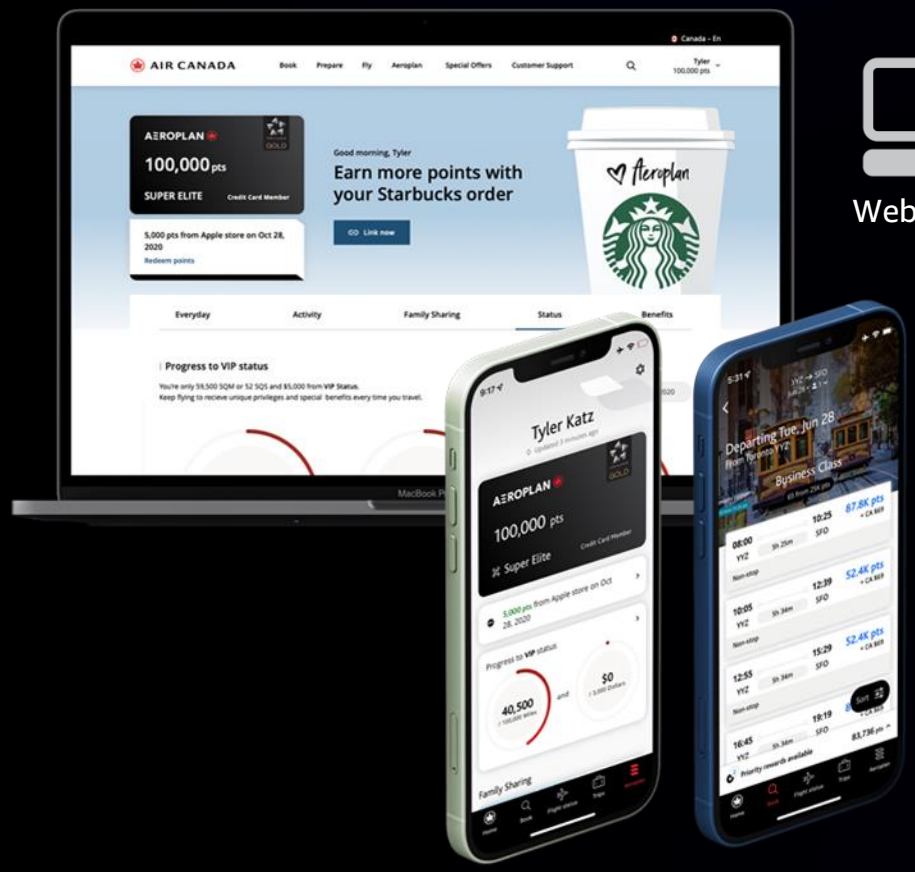
New reservation system

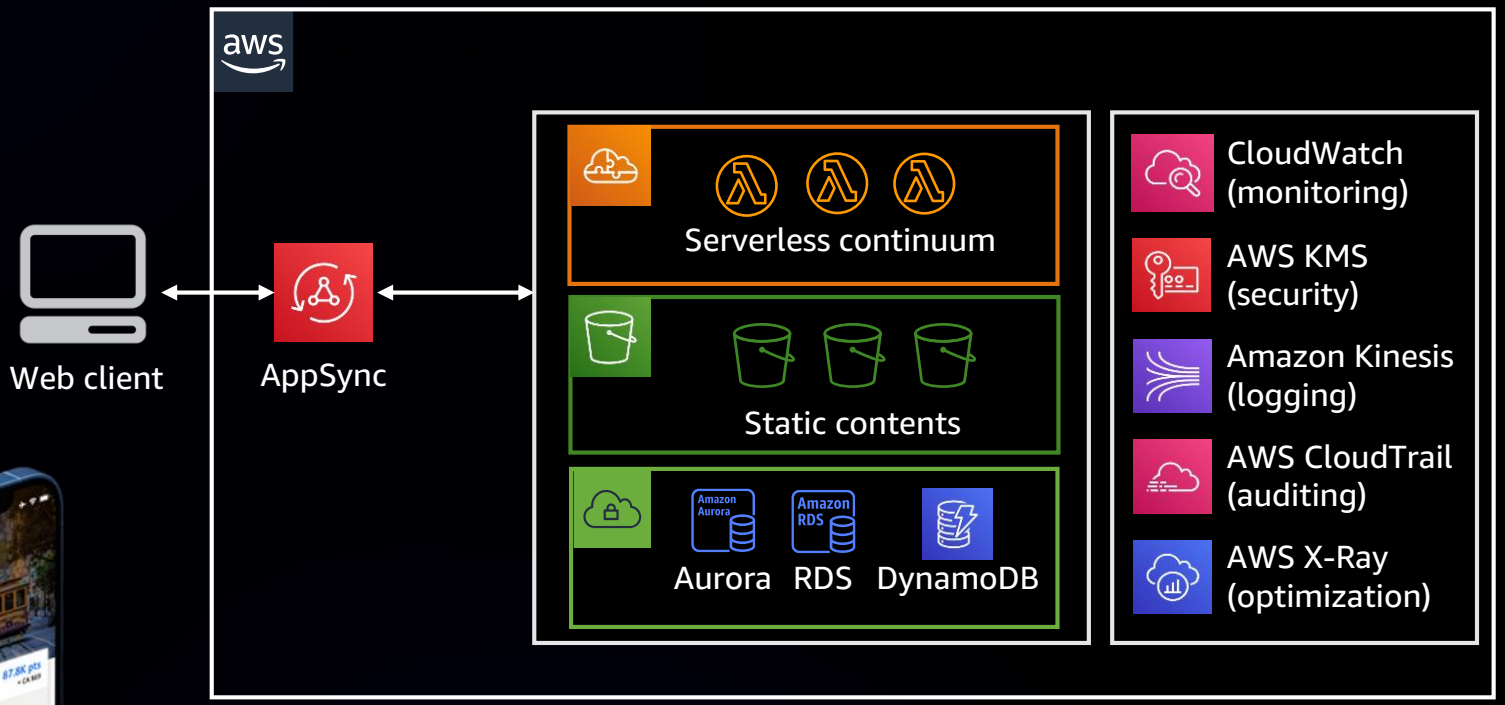
- ✓ More performant application
- ✓ Increased functionality
- ✓ Rich offline experience

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Web: All about member performance and rewards





- ✓ Cloud hosting elastic scalability accommodated significant customer traffic associated with program launch and COVID-19 ramp-up
- ✓ Rich set of tools to develop unique, data-intensive customer features

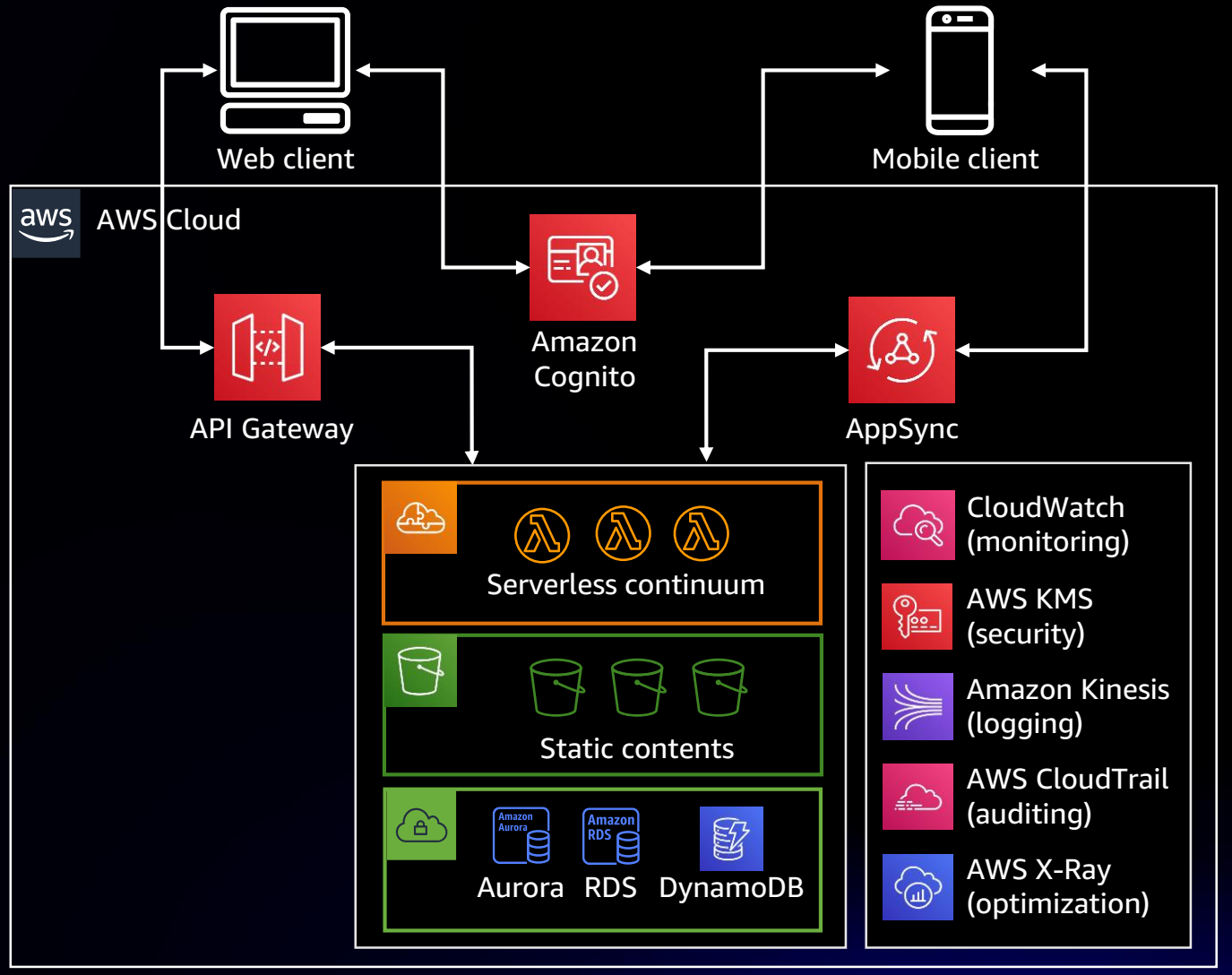
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Starbucks: First deep partner integration

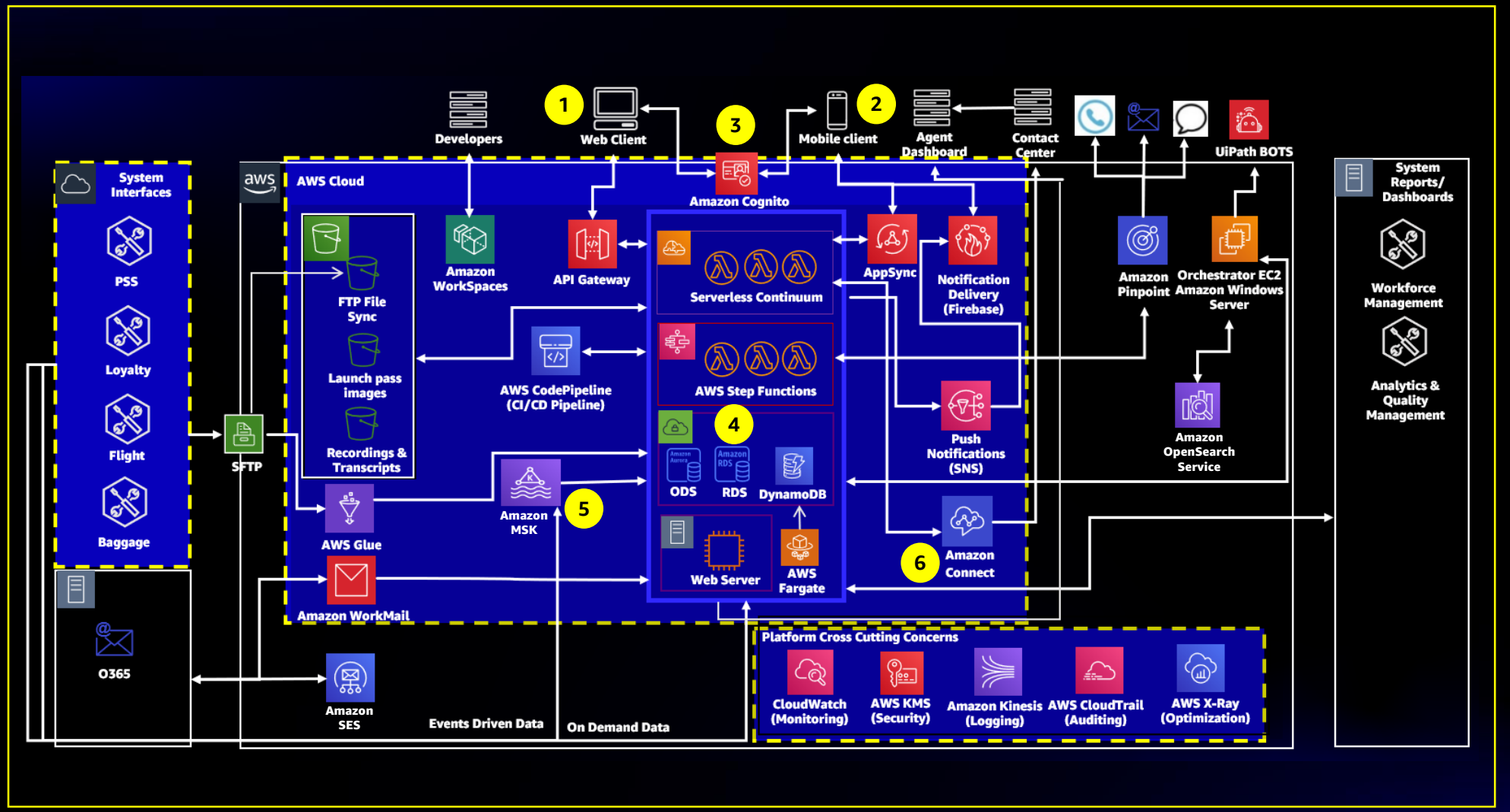


- ✓ Amazon Cognito critical for backend support of login and account linking capabilities



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Building blocks used for the given use cases



1. Web client invokes API Gateway to communicate with microservices in the serverless platform
2. Mobile client invokes AppSync to communicate with microservices in the serverless platform
3. Web & mobile clients use Amazon Cognito for user management
4. Operational Data Store (ODS) in Amazon Aurora used to store all the airline data as a cache to increase the application performance by retrieving the data faster
5. Amazon Managed Streaming for Kafka (Amazon MSK) used to process events-specific data to provide real-time data for mobile and web
6. Amazon Connect use for contact center service

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Cheaper, better, and faster in action



Cheaper

Cost-efficient billing model
Serverless platform



Better

Reliability
Modular and reusable



Faster

Agile enablement
From idea to production

We own our product: we have control of the customer experience

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New Aeroplan: Greater value for every type of traveler



- Every seat, every flight
- No fuel surcharges
- Flexible policies
- More ways to earn & redeem
- Family sharing
- Micro-redemptions

60%+
Website conversion improvement

27%
Higher-margin payment selections

19%
Rewards with upsells

-32%
Average handle time beats forecast

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Air Canada
Thank you!

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Let’s continue this journey together



Building what's next for United Airlines

Jason Birnbaum

Senior Vice President, Digital Technology
United Airlines

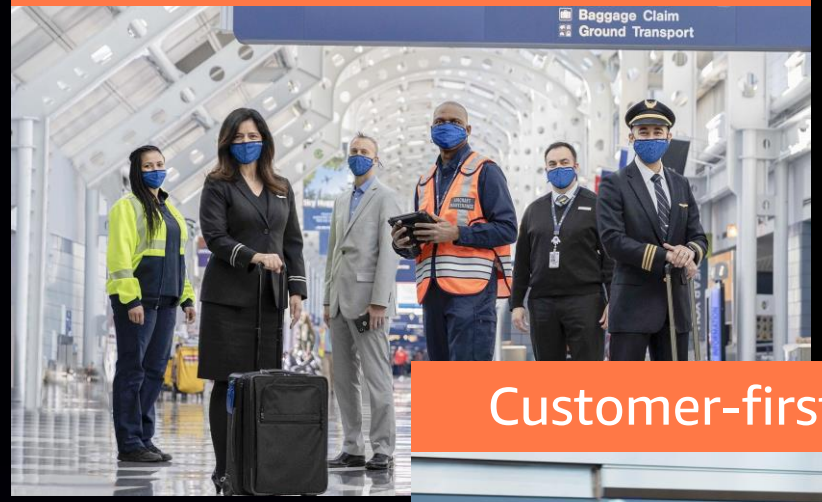
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Embracing a post-pandemic world

Sustainability



Diversity, equity, inclusion



Engaging the workforce



Customer-first experiences



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United Next: Technology takes the lead

United Airlines goes all in with 'Next' fleet renewal, promises $2 billion in savings

Published: June 29, 2021 at 11:53 a.m. ET

By Claudia Assis Follow

United Airlines is making a strong bet on a recovery in the travel business with its biggest aircraft order ever



A pilot walks by United Airlines planes as they sit parked at gates at San Francisco International Airport in April 2020.
JUSTIN SULLIVAN/GETTY IMAGES

United Airlines Plans a Record Fleet Expansion as Travel Rebounds

The carrier is ordering 270 single-aisle planes from Boeing and Airbus, signaling confidence that the pandemic is receding and travelers will spend on premium service.



United Airlines planes at Newark airport. United expects to add more than 500 aircraft to its fleet, and up to 5,000 jobs in Newark. Chris Helgren/Reuters

BUSINESS

United Airlines Bets on Return of Trans-Atlantic Travel

Some airlines say they expect international travel to rise as restrictions start to ease

United Airlines: Travel Expected to Surge in December

The airline is planning its largest domestic schedule since March 2020, with 3,500 daily domestic flights.

- Scalability
- Reliability
- Efficiency
- Customer excellence

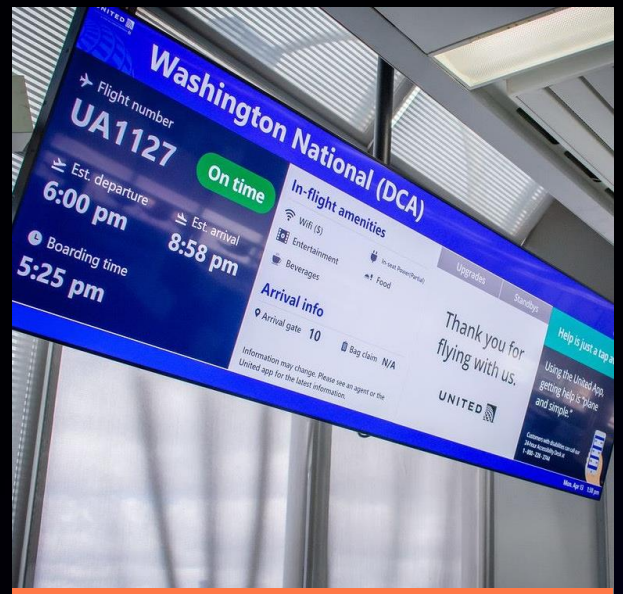
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Hitting the fast lane with AWS

United Airlines (UAL) and AWS are transforming every aspect of operations and customer experience



Baggage



Airports



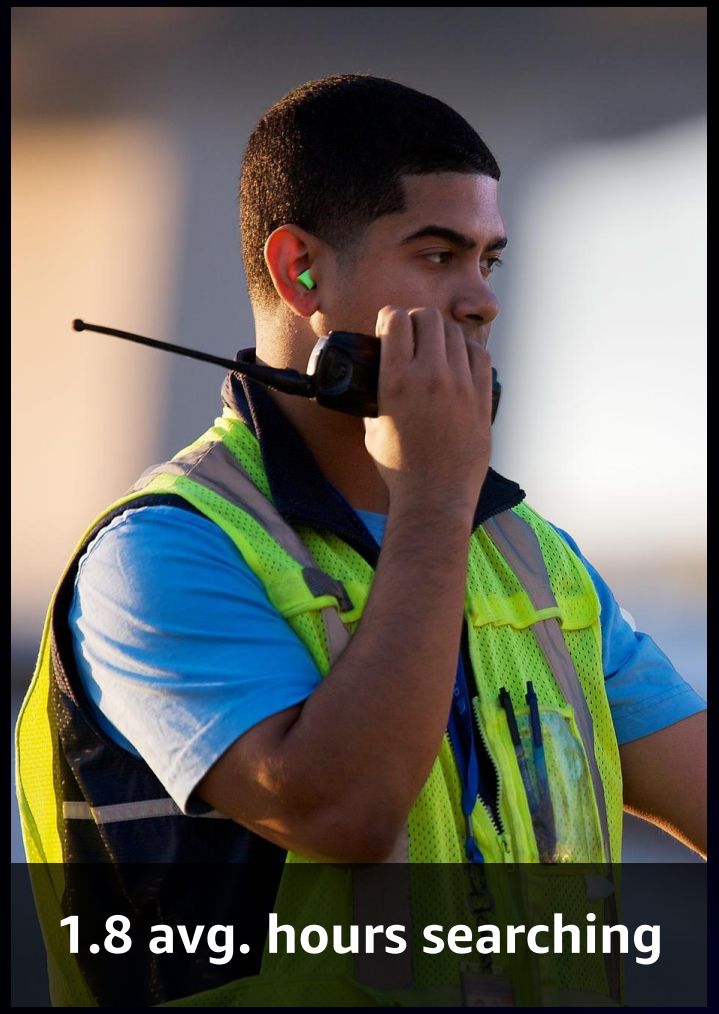
Operations

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The trouble with ground service equipment



36,000+ assets



1.8 avg. hours searching



$75M+ unused equipment

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Introducing the United intelligent airport

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Better experiences, efficient operations

Telemetry sensors identify GSE

Native platform creates a digital network

Facilitates

- Operational readiness
- Optimal maintenance
- Asset redistribution
- Cost savings



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Envisioning the United intelligent airport

IT'S LIKE ALEXA FOR AIRPORT OPERATIONS & CUSTOMER ENGAGEMENT



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How AWS is powering the intelligent airport

DELIVERING REAL-TIME DATA FOR INTELLIGENCE, LOGISTICS, AND OPERATIONAL ORCHESTRATION

AWS IoT Core and native services

- Connect GSE and the cloud
- Scalable to an infinite number of assets
- Facilitates action sequences
- Powers GSE360 app

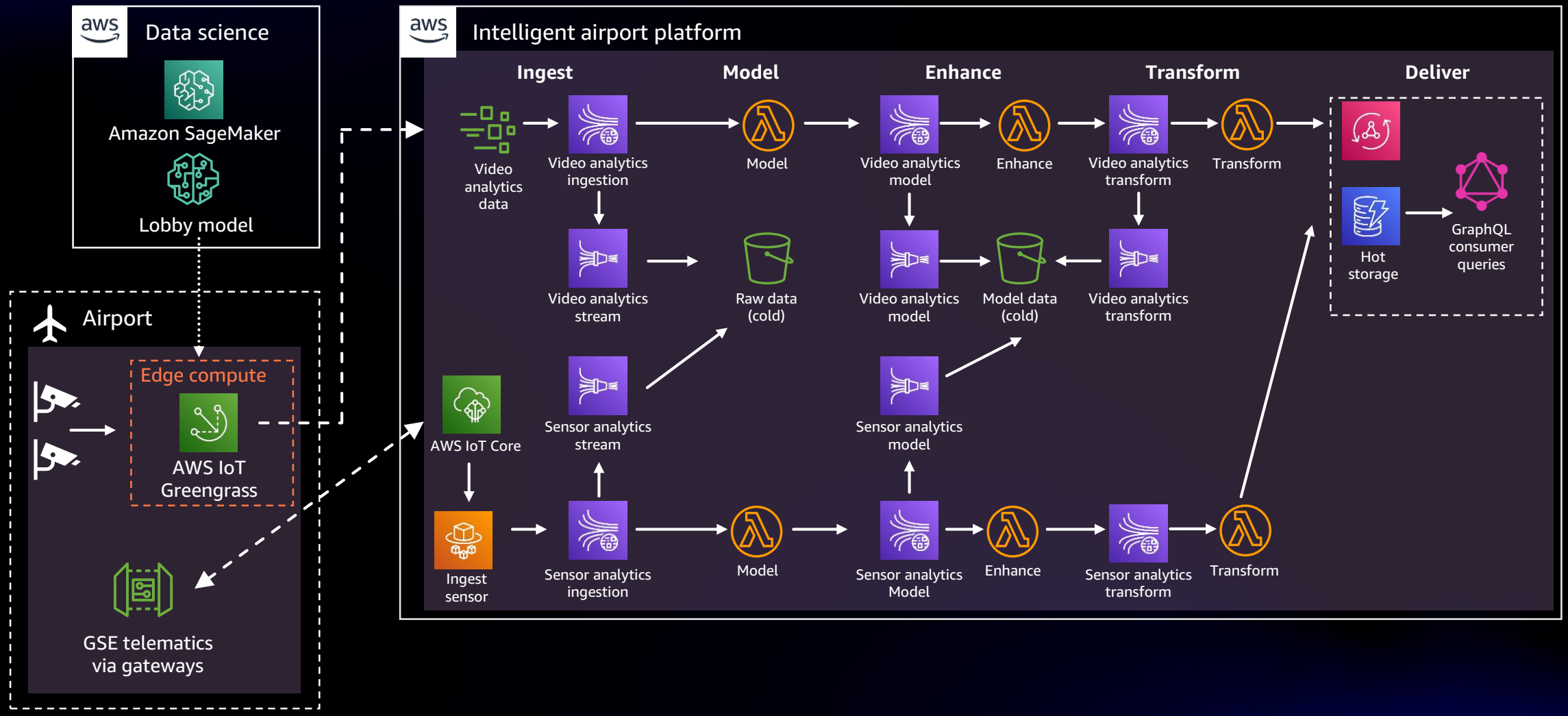
Sensor data

- Trackable beacons
- Onboard diagnostics
- Telemetry and GPS



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Data in motion = Intelligent airport via AWS



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Building the United intelligent airport

Alliance with AWS was critical

- Provided practice leads
- Connected UAL with certified build partners
- Located sensors that were proven with AWS IoT Core
- Helped stand up SageMaker as the foundation



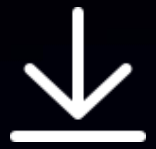
<$10M invested



$15-$150/sensor



20k+ sensors placed



Processing 28 gb per minute



<24 months from start

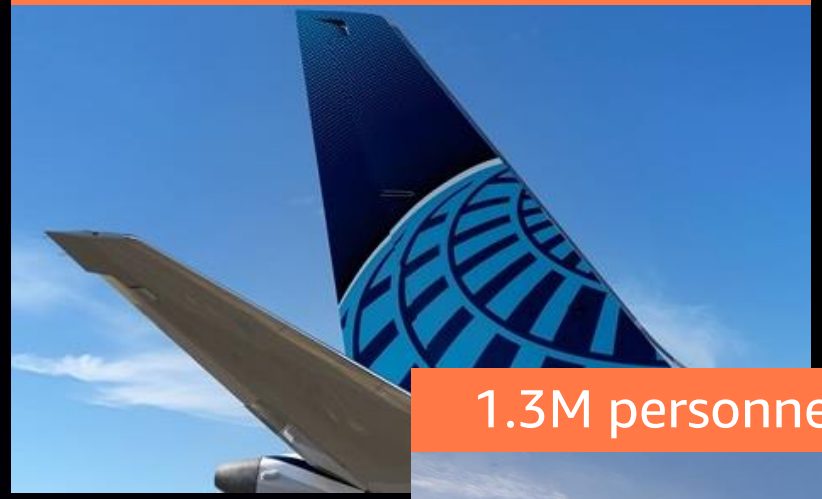
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Measuring impact

$120M savings



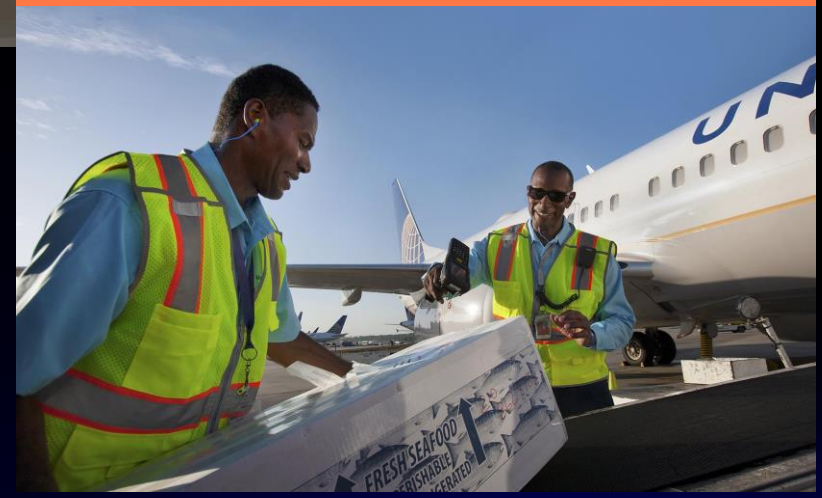
20,000+ assets marked



5–7% reduced emissions



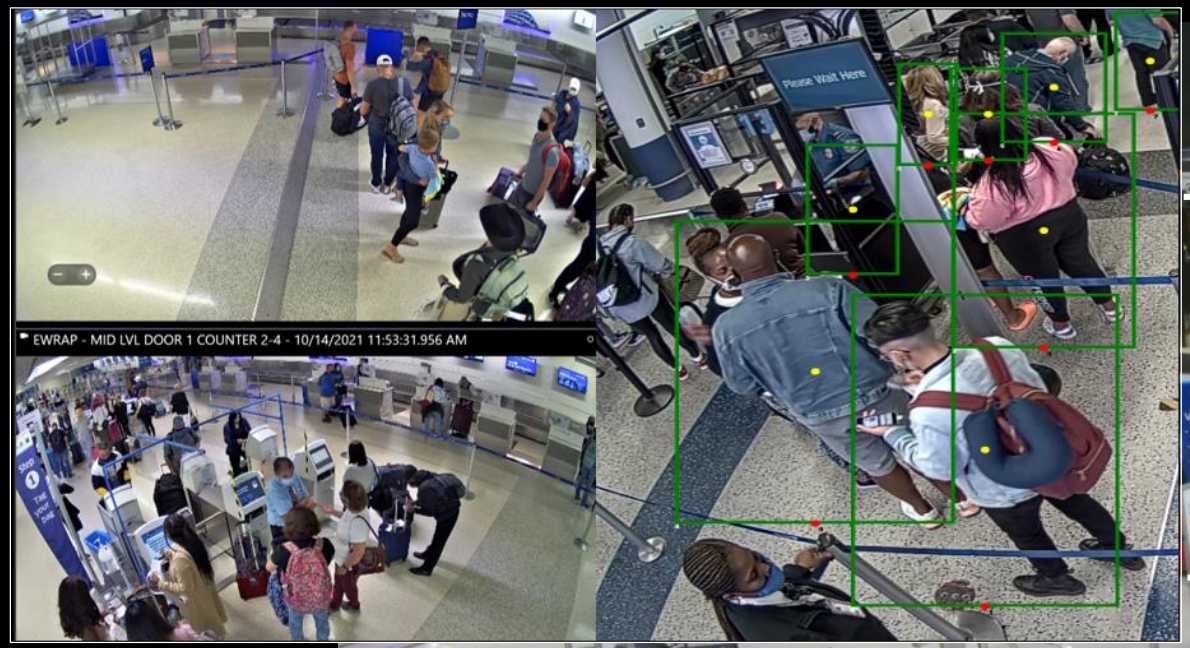
1.3M personnel hours saved



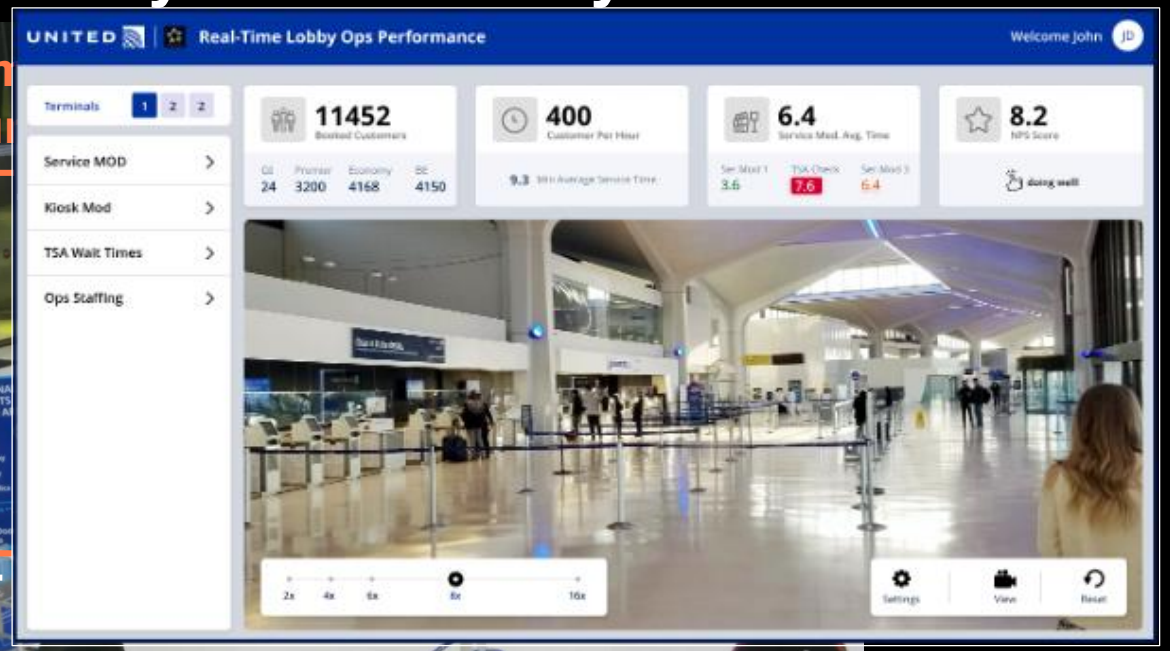
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Preparing the next evolution

Geo-fences deliver digital eyes in the lobby



Computer vision

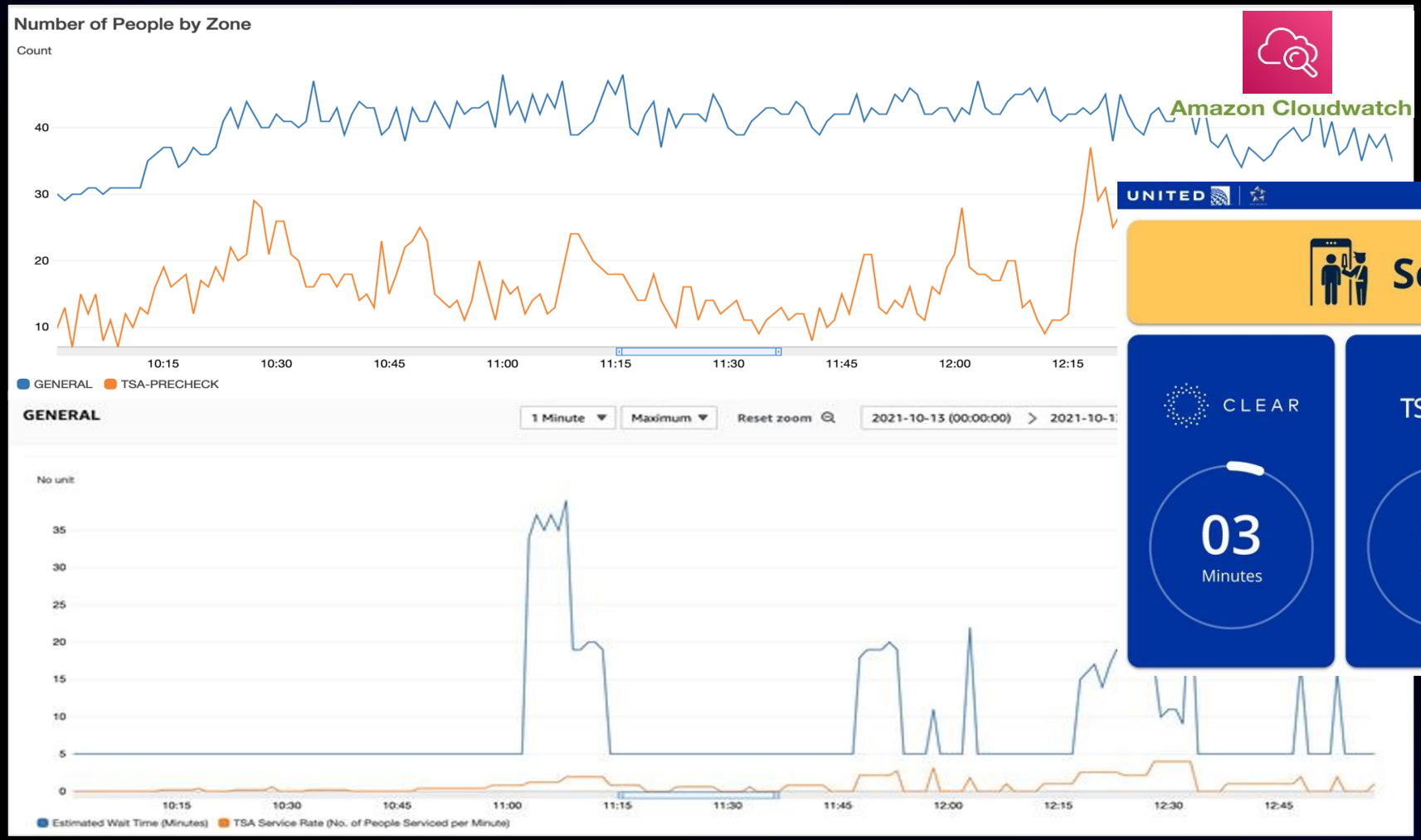


Lobby ops dashboard



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TSA wait times at Newark airport



Amazon Cloudwatch



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In summary: UAL and AWS

- Build your core platform and unleash the use cases
- Safer, more efficient operations = cost savings and quality experiences
- Transforming real-time operational data into data-in-motion
- Future implementations will orchestrate customer actions



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United Airlines
Thank you!

© 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.

And welcome to your destination



Thank you!

Follow us on aws.com/travel

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