
AWS
re:Invent
NOV. 28 – DEC. 2, 2022 | LAS VEGAS, NV

ADM101-L

Accelerating innovation in advertising and marketing technology

Tim Barnes

General Manager & Director, Solutions for Advertising and Marketing Technology
AWS

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Advertising & marketing face unprecedented disruption and transformation

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Advertising & marketing transformation



Exponential media growth



Unprecedented scale



Relevant ad experiences



Consumer privacy & security

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS for advertising & marketing

aws advertising & marketing

Purpose-built services, solutions and 150+ AWS Partner offerings



Innovate faster



Optimize performance



Collaborate more effectively

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Accelerating advertising & marketing innovation for 16 years



Amazon EC2



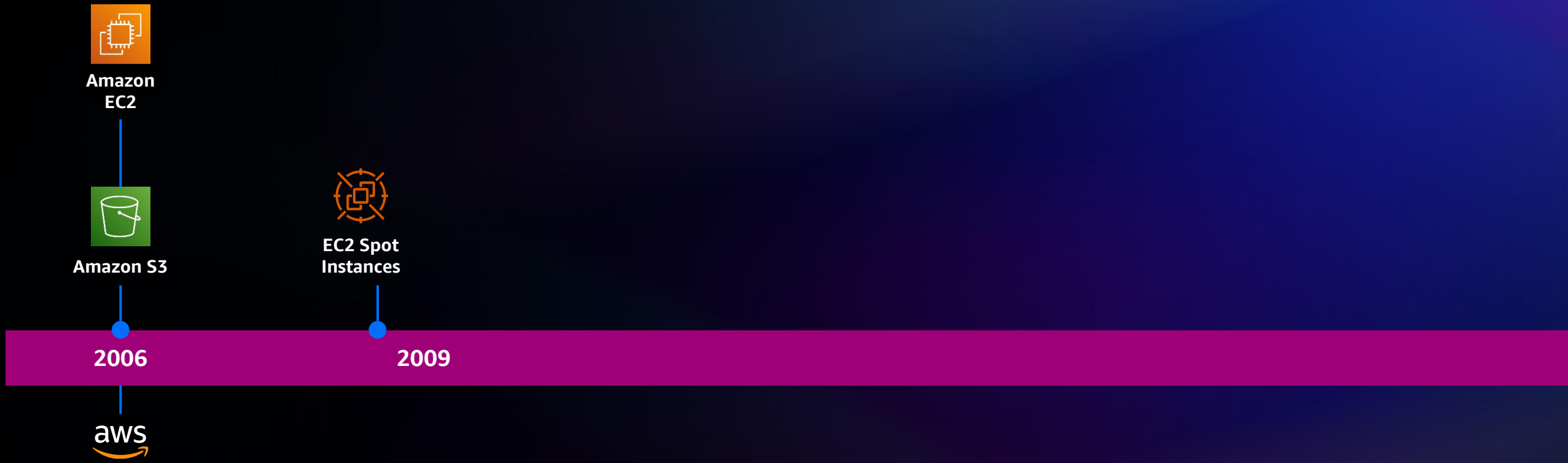
Amazon S3

2006

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Cloud infrastructure



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Quantcast

25% cost savings



EC2 Spot Instances

2009

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Quantcast

25% cost savings

gumgum

62% savings on real-time bidding and machine learning

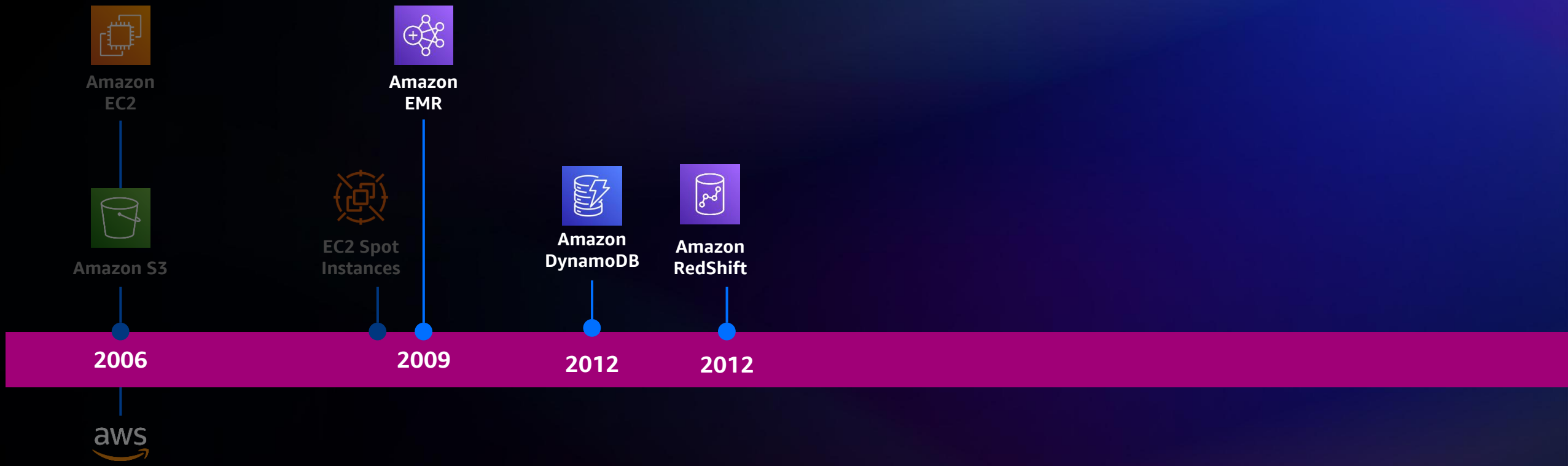


EC2 Spot Instances

2009

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Data & analytics



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ACXIOM

Reduced model inference time from days to hours



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ACXIOM

Reduced model inference time from days to hours

salesforce

Unified consumer data at exabyte scale



aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Serverless computing



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

nielsen

Processes 250 billion ad events daily



AWS Lambda

2014

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Machine learning



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

triplelift

Invented new ad units for real-time product placement in streaming TV using ML on AWS



aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

triplelift

Invented new ad units for real-time product placement in streaming TV using ML on AWS

FREEWHEEL

Built a predictive model for ad inventory, reducing development efforts by 60%



aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Compute networking



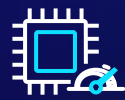
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

theTradeDesk

Launched RTB in 3 new regions, processing 800 billion queries daily at millisecond latency



AWS Global Accelerator



AWS Graviton instances

2018

2019+

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

theTradeDesk

Launched RTB in 3 new regions, processing 800 billion queries daily at millisecond latency

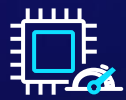
AEROSPIKE

New! Aerospike Cloud for AWS Graviton instances



AWS Global Accelerator

2018



AWS Graviton instances

2019+

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Accelerating advertising & marketing innovation for 16 years



aws © 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

As the industry evolves, AWS continues to solve our customers' biggest challenges

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS for advertising & marketing: solution areas



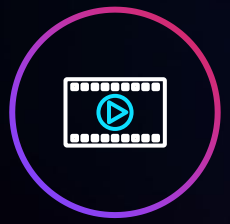
Audience and customer data management



Privacy-enhanced data collaboration



Ad intelligence and measurement



Ad platforms



Digital customer experience

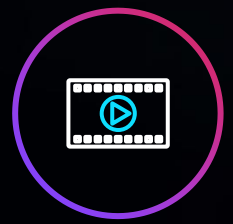
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Audience and customer data management



Ad intelligence and measurement



Ad platforms



Digital customer experience



Privacy-enhanced data collaboration

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

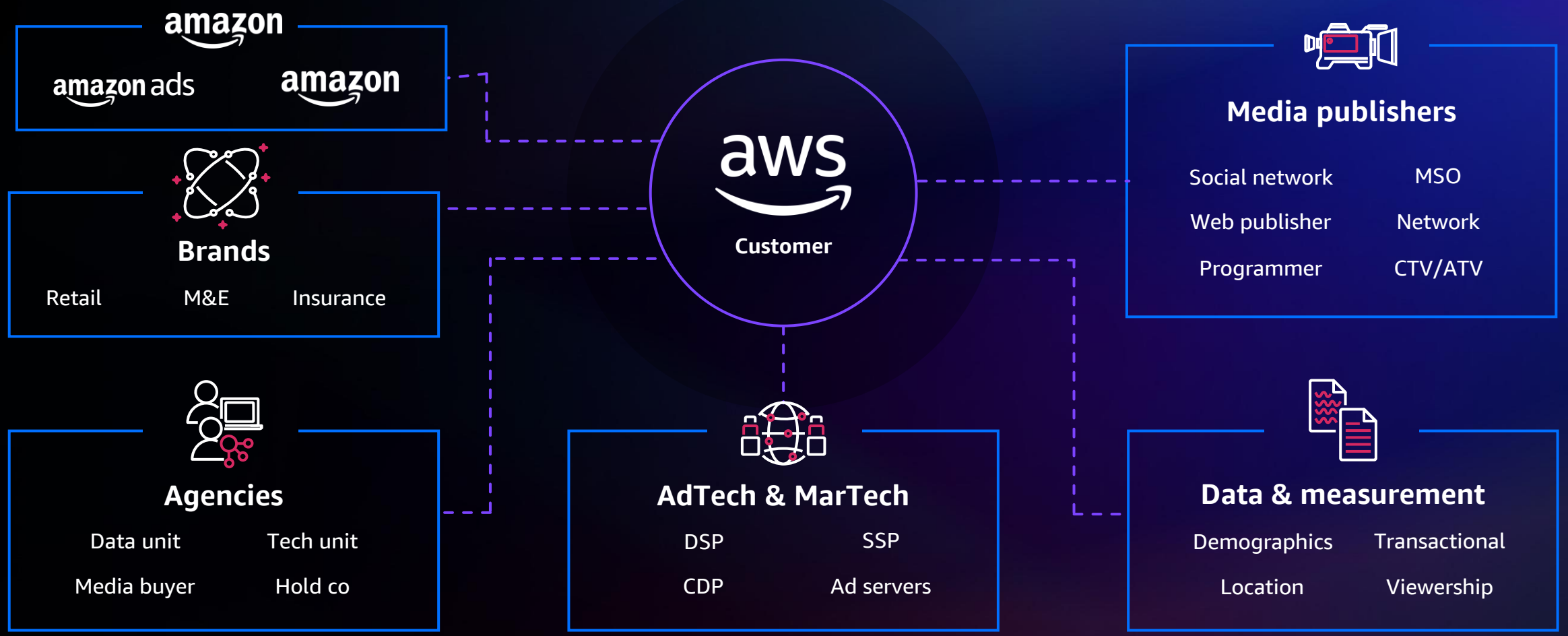
AWS Clean Rooms

Akram Chetibi

General Manager, AWS Clean Rooms

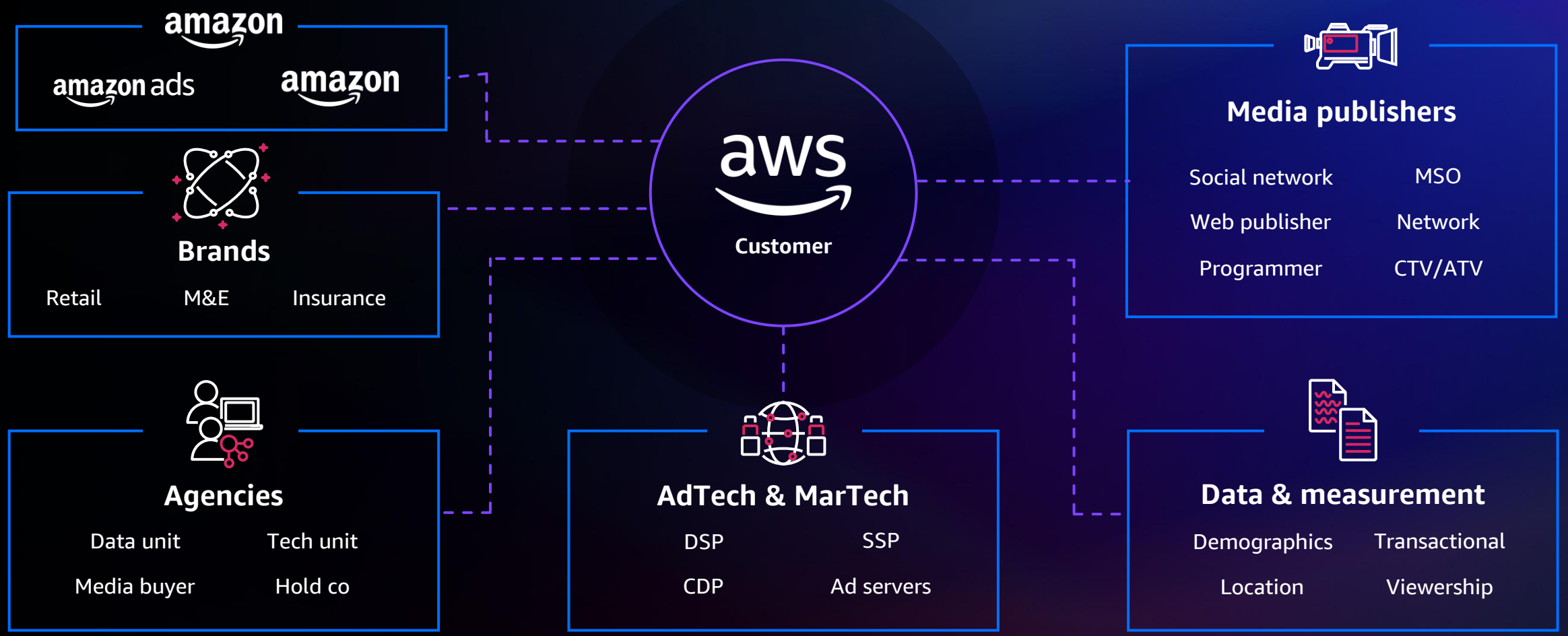
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Data is at the heart of advertising & marketing



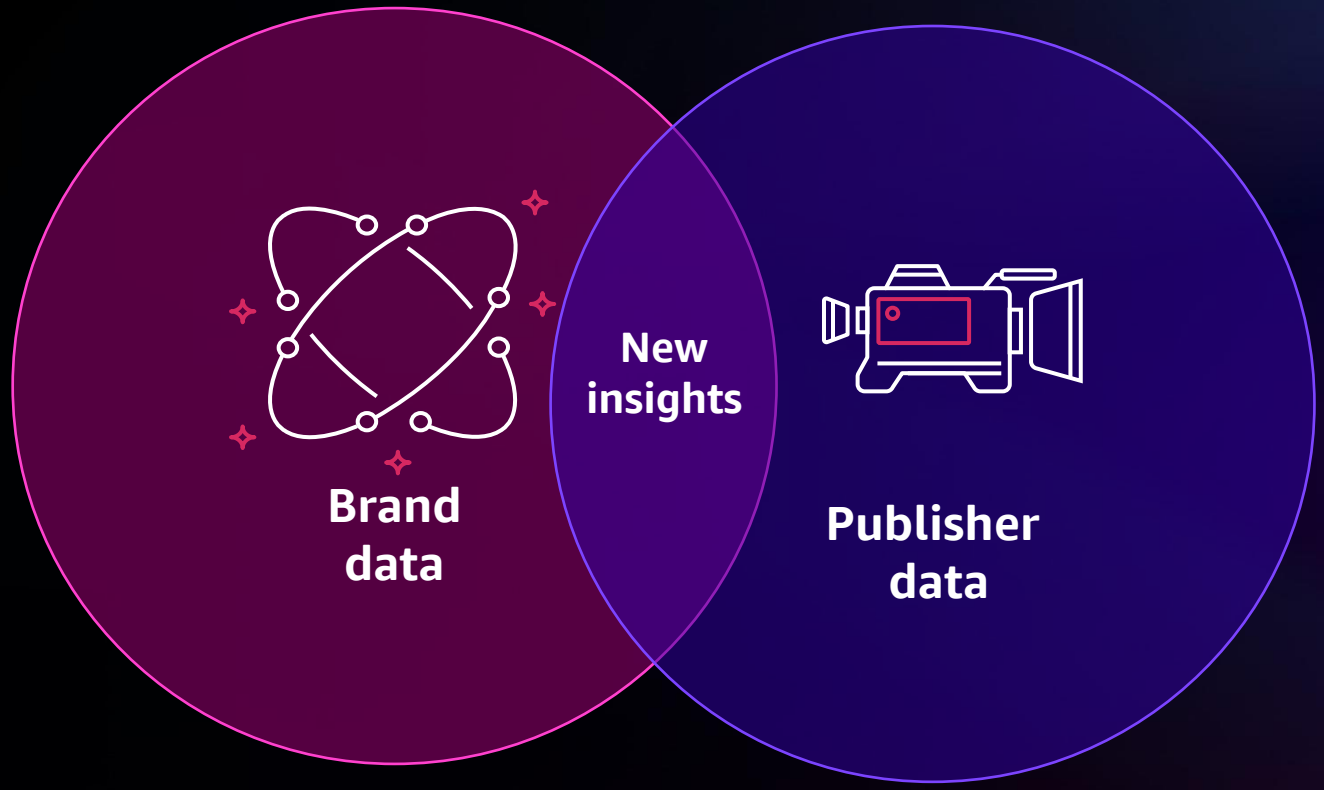
aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Data is at the heart of advertising & marketing



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Customers increasingly expect easy and secure data interoperability across partners



Extract new insights using collective data…

But, at the same time

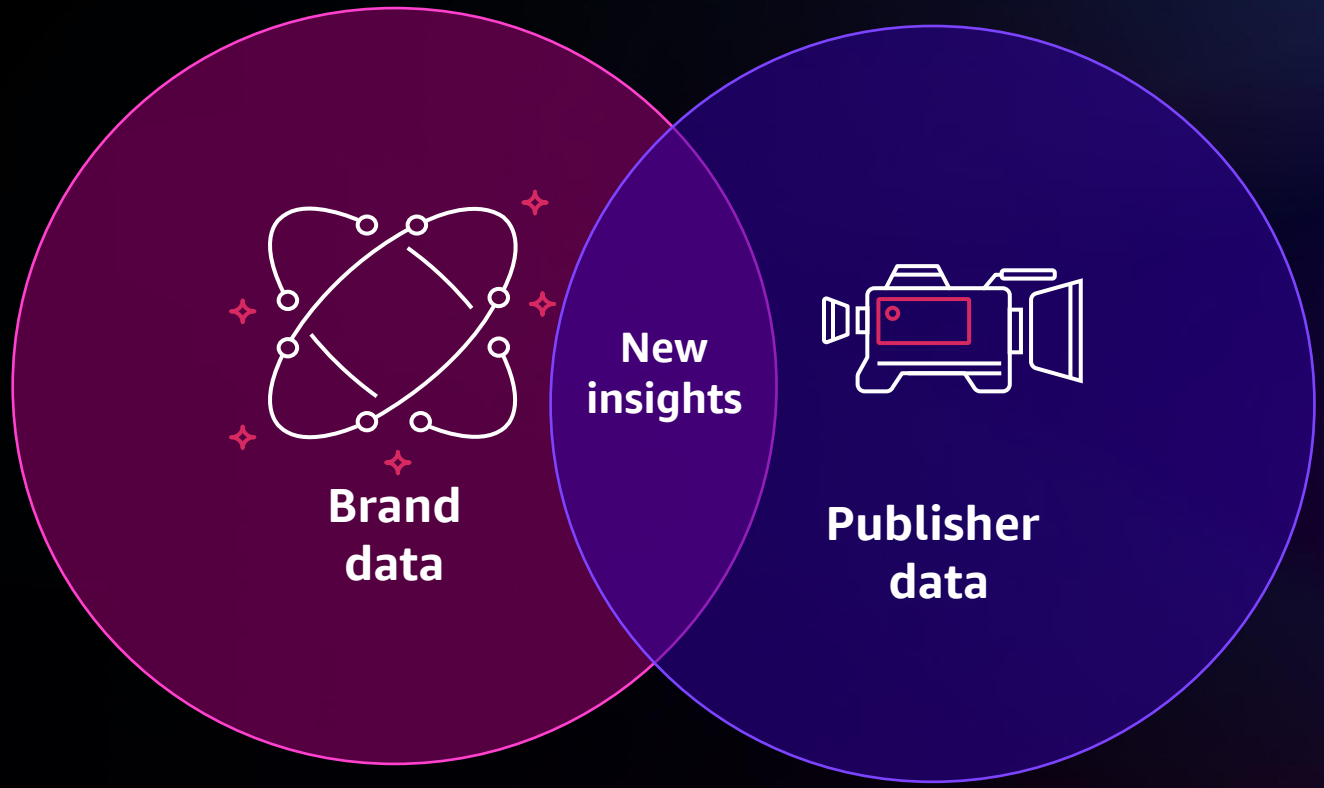
…Reduce data movement and copying

…Increase consumer data protection

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Customers increasingly expect easy and secure data interoperability across partners



Extract new insights using collective data…

But, at the same time

…Reduce data movement and copying

…Improve consumer data protection

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Clean Rooms

a new analytics service that helps customers easily and securely analyze and collaborate on their combined datasets – without sharing or revealing underlying data

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Scalable data clean room collaborations with minimal data movement



Programmatic access

Automate and integrate functionality into existing workflows and products; create white-labeled clean room offering



Minimal data movement

Leverage Amazon S3 data through direct permissioning and minimal data movement



Multi-party collaborations

Collaborate with up to 5 parties in a single collaboration; extract insights from multiple companies

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Scalable data clean room collaborations with minimal data movement



Programmatic access

Automate and integrate functionality into existing workflows and products; create white-labeled clean room offering



Minimal data movement

Leverage Amazon S3 data through direct permissioning and minimal data movement



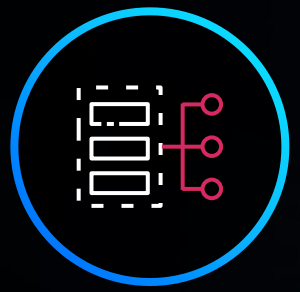
Multi-party collaborations

Collaborate with up to 5 parties in a single collaboration; extract insights from multiple companies

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Broad set of built-in advanced data access controls



Query restrictions

Easily configure analysis rules to restrict the type of analysis allowed on your data



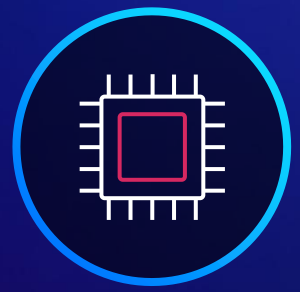
Output constraints

Set output constraints such as minimum aggregation thresholds



Query logs

Review logs of queries executed on your data in Amazon CloudWatch



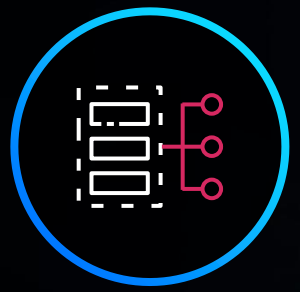
Cryptographic computing

Pre-encrypt data so that it is encrypted at all times, including during query execution

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Broad set of built-in advanced data access controls



Query restrictions

Easily configure analysis rules to restrict the type of analysis allowed on your data



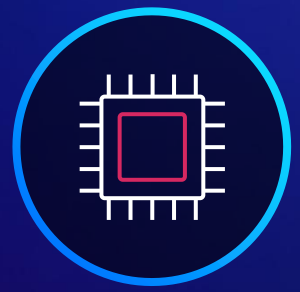
Output constraints

Set output constraints such as minimum aggregation thresholds



Query logs

Review logs of queries executed on your data in Amazon CloudWatch



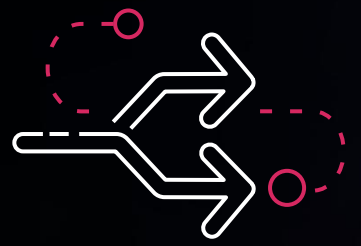
Cryptographic computing

Pre-encrypt data so that it is encrypted at all times, including during query execution

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Advertising & marketing use cases



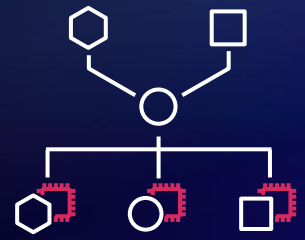
Plan campaigns more securely

Understand overlap, incrementality, and intersection of audiences across channels and partners



Enrich and personalize

Enrich first-party data with attributes and signals to better understand consumers and personalize experiences



Segment and activate

Run queries with your partners to build, match, and reach unique audience segments across channels and touchpoints with relevant advertising



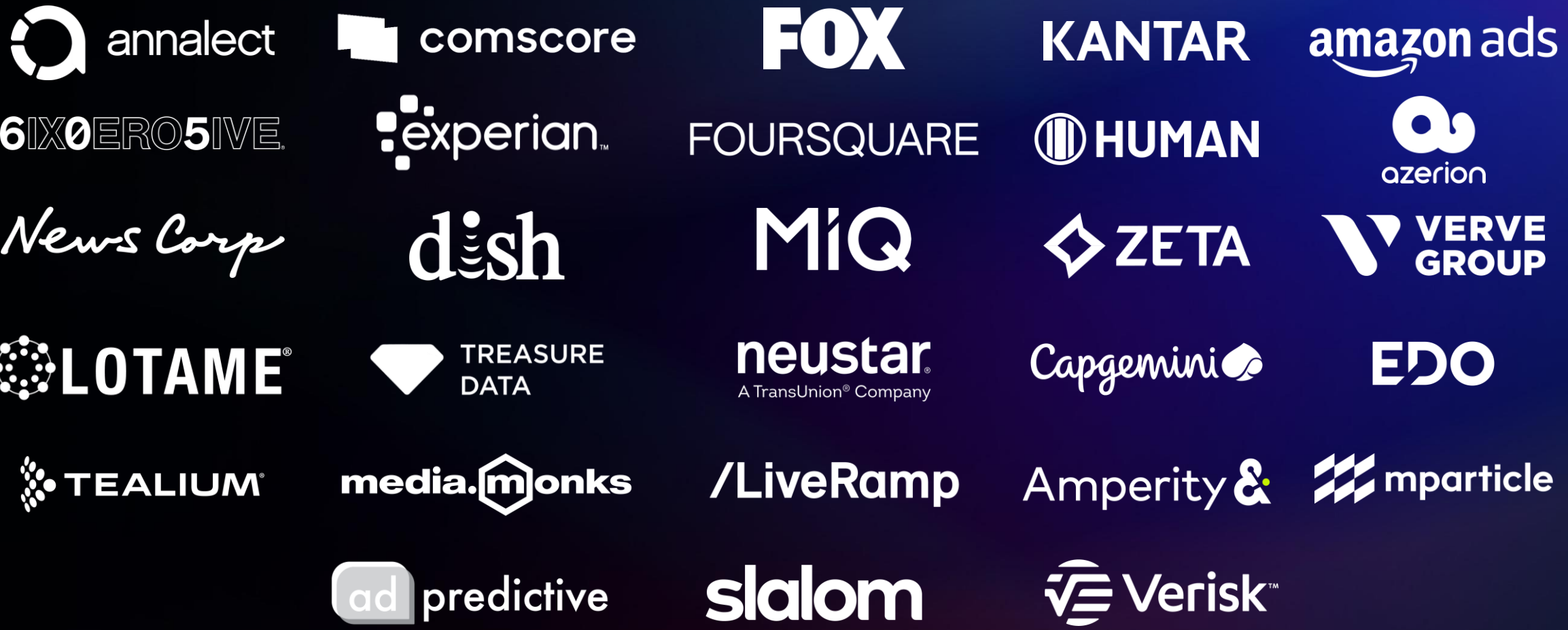
Attribution & measurement

Match impression data from media publishers with conversion events from advertisers

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Customers and AWS Partners excited to use AWS Clean Rooms



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

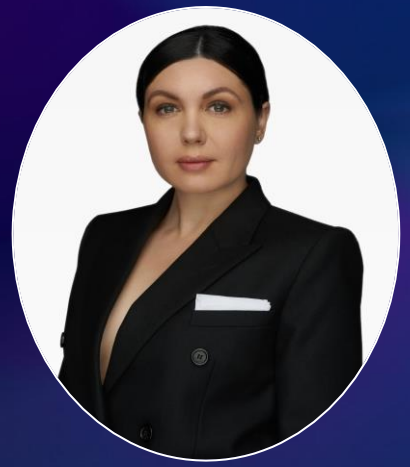
This is not a complete list. To view all AWS Partners for this category, visit AWS Partner Solutions Finder. This list of partners is current as of November 30, 2022.



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ADM101-L

Efficiency & privacy of marketing orchestration



Anna Nicanorova (she/her)

Chief Technology Officer, Annalect

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who is Annalect?

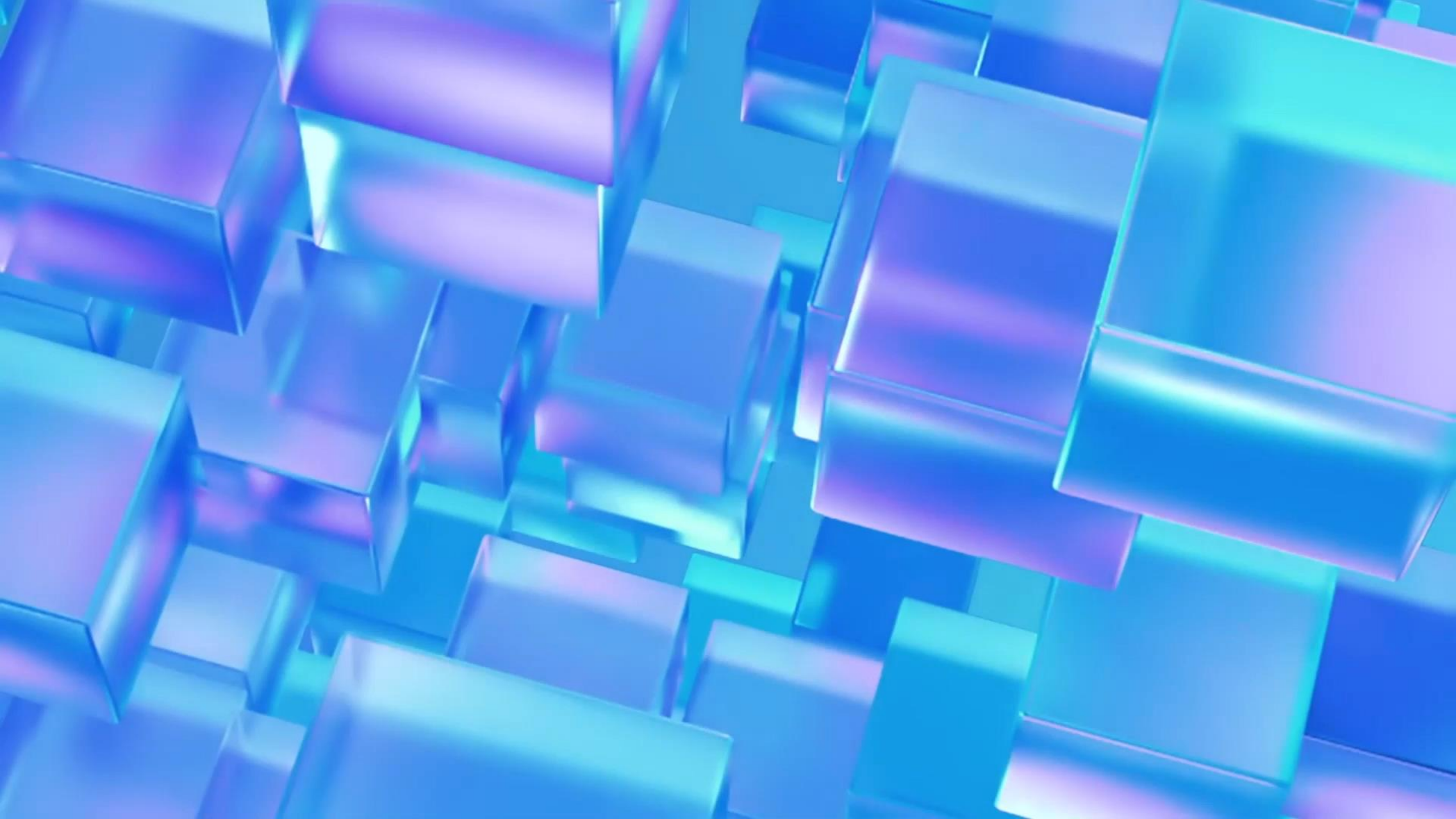
Over a decade ago, **Omnicom** created **Annalect** to **reimagine the future of marketing**, at the crossroads of **data** & **technology**

Annalect is the driving force behind **Omni**, Omnicom's unique **open operating system**, which works hand in hand with clients' and partners' data and tools, to **orchestrate better marketing outcomes**

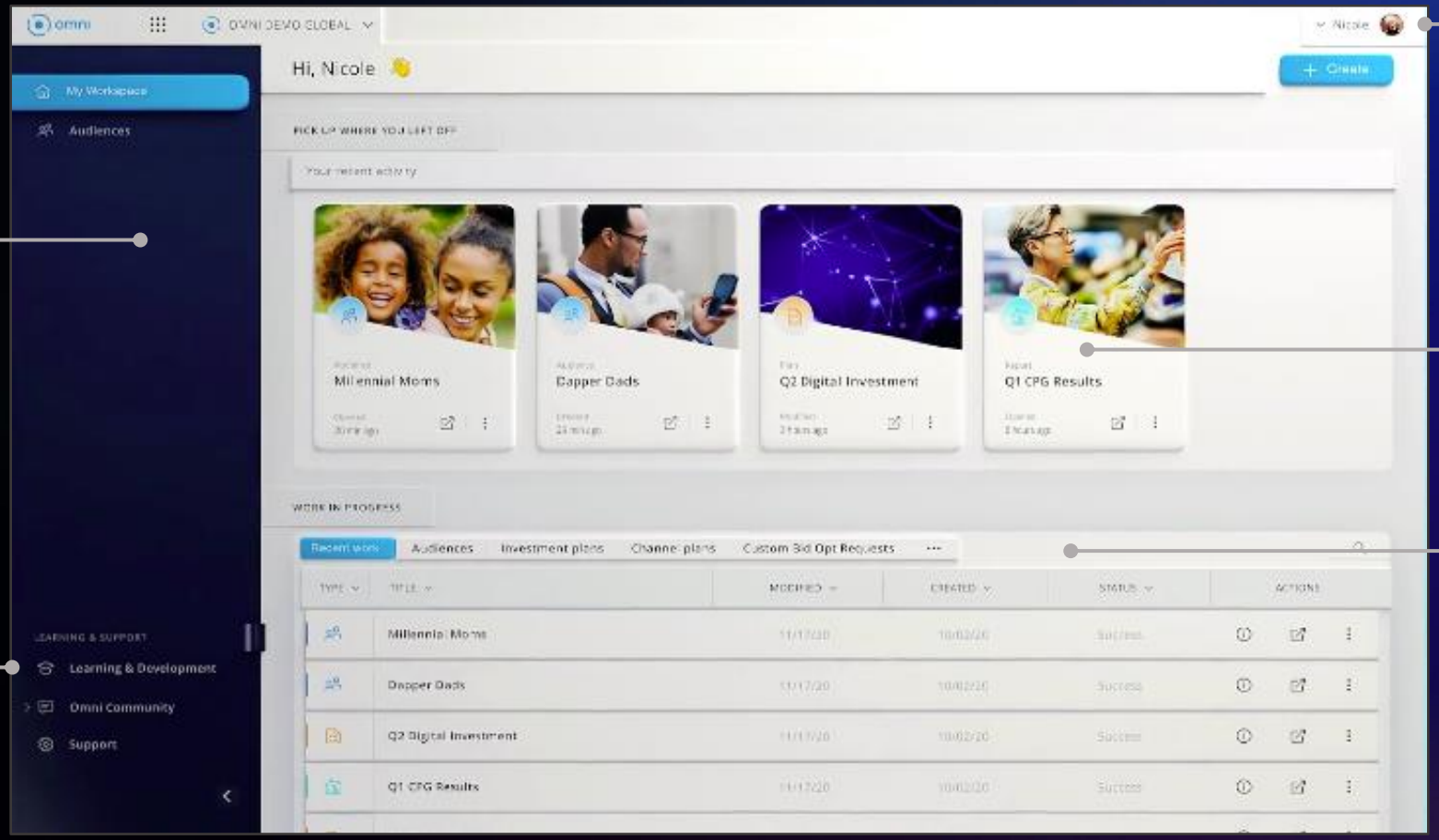


aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



Omni by the numbers



40,000+
active users

255
brand layouts

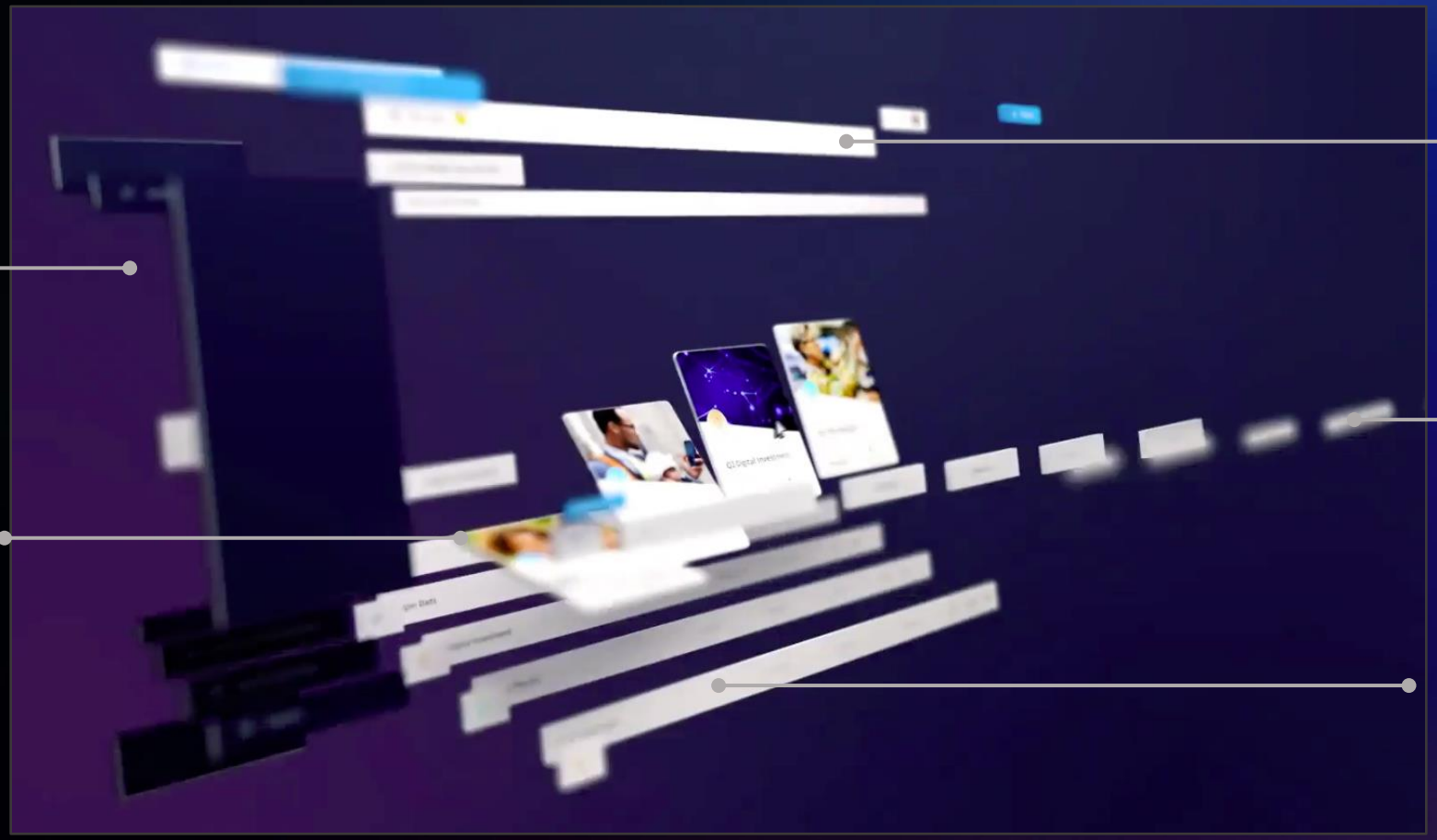
86,022
audience builds

454,120
sessions

495
L&D content pieces

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Omni tech by the numbers



11 PB
of data

16 x 10^{12}
attributes

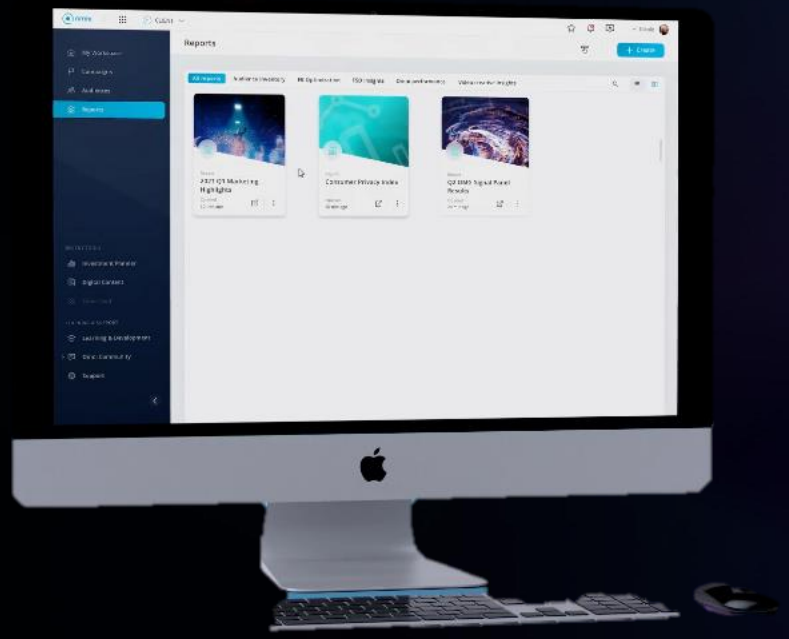
17,000
unique hits per month

462
active lambda functions

500M/sec
index audience attributes

aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Omni on AWS



Caching
- ElastiCache

Web & networking
- CloudFront
- API Gateway
- Route 53
- Transit Gateway
- AWS VPN services

Security
- Secrets Manager
- GuardDuty
- AWS KMS
- Parameter Store
- AWS WAF
- Security Hub

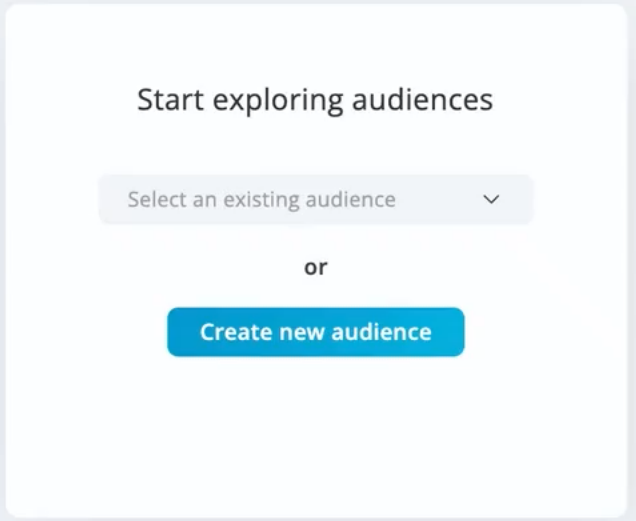
API & shared object layer
- API Gateway
- Lambda

Compute
- AWS Batch
- AWS Step Functions
- Amazon EC2
- AWS Fargate
- Amazon EMR

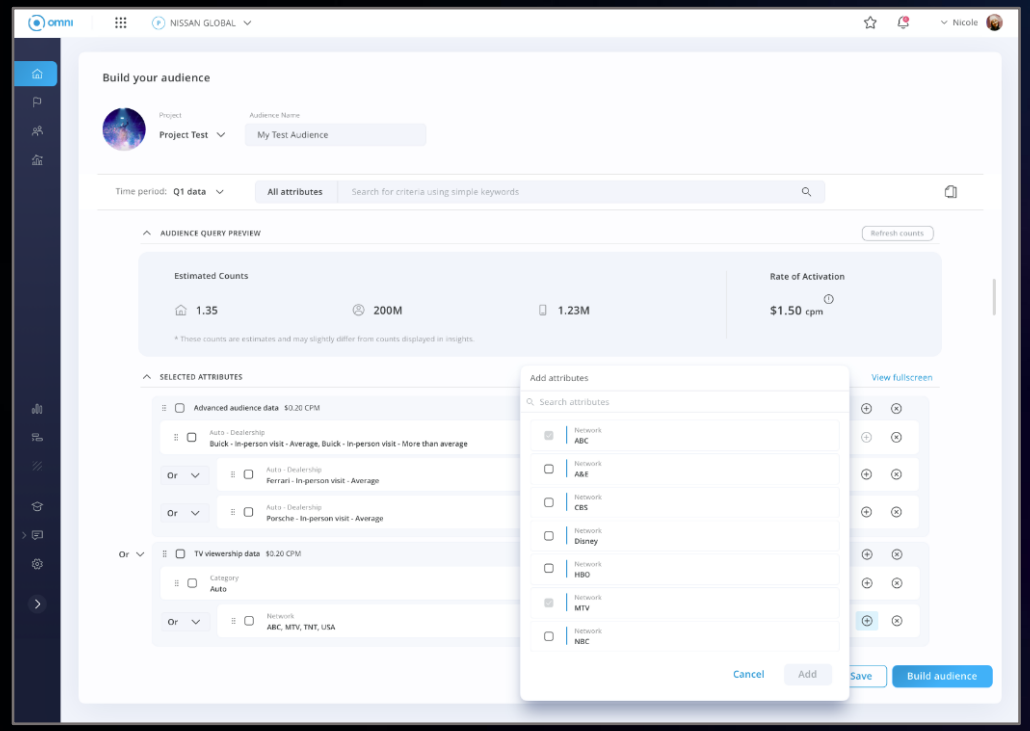
Data
- Amazon S3
- Amazon Redshift RA3
- Athena
- AWS Glue
- Amazon EMR
- DynamoDB
- Aurora
- Lake Formation

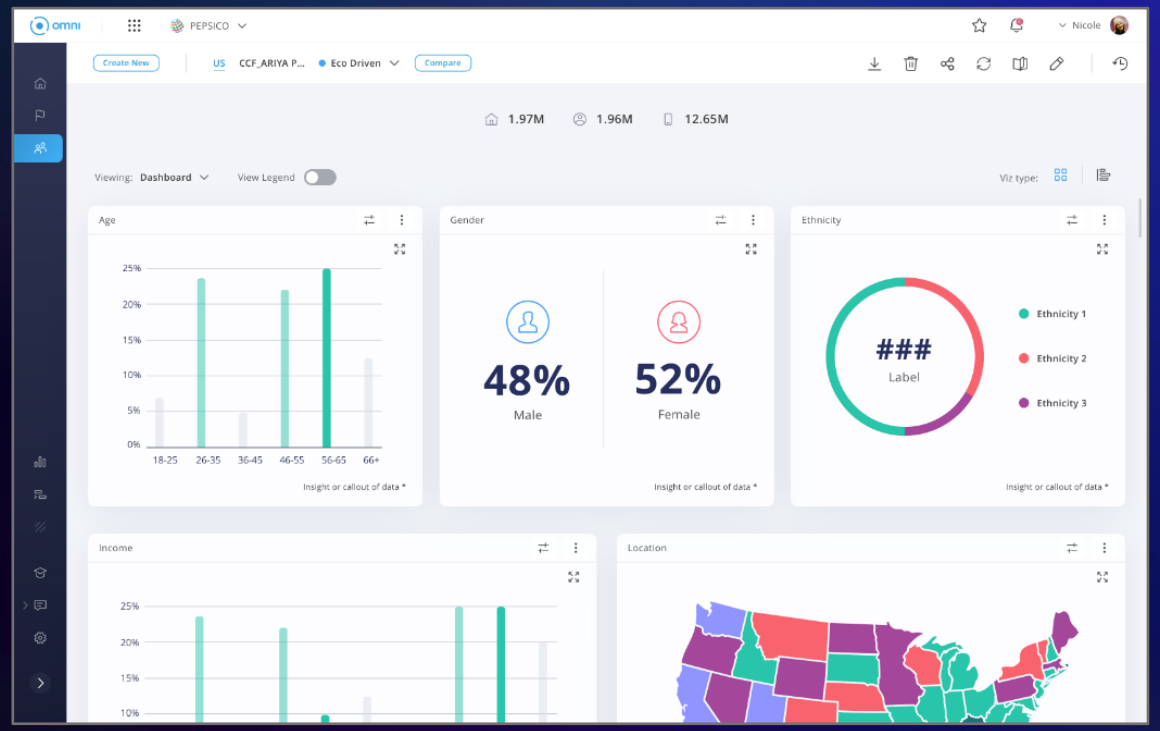
aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.


Start exploring audiences
Select an existing audience
or
Create new audience

Audience Explorer





We can evaluate audience sizes at rate

20,000,000

per second

Omni indexes audience attributes at a rate

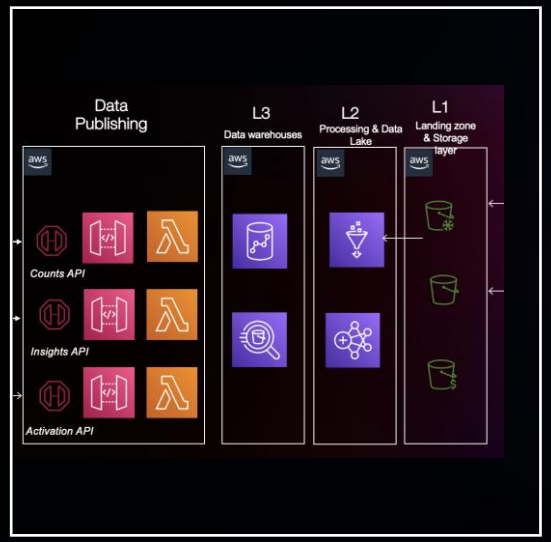
500,000,000

attributes per second

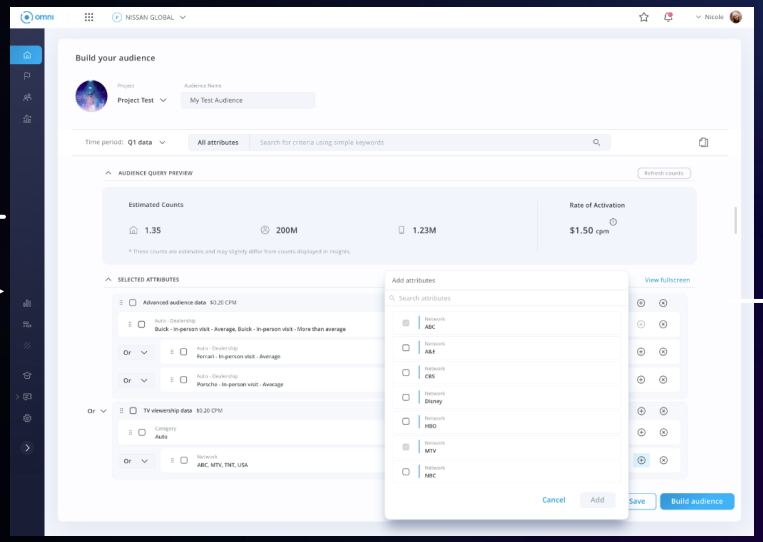
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

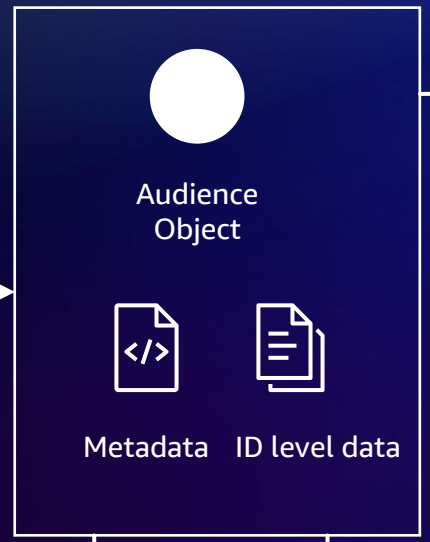
Audience Explorer: Data Routing

Audience Data Environment



Audience Explorer

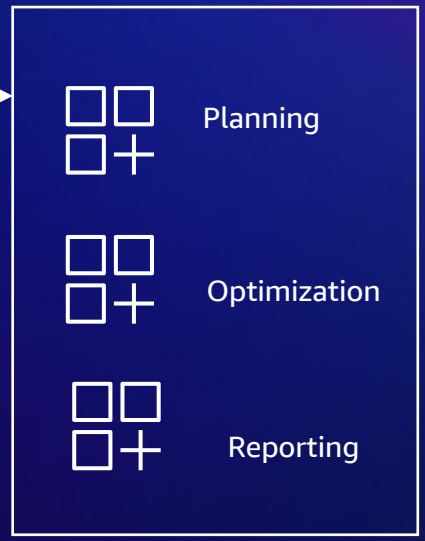




Activation

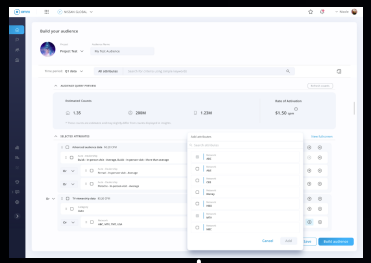
Clean Rooms

omni



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Audience Explorer: The Onion of Data



Data Publishing

L3
Data warehouses

L2
Processing & Data Lake

L1
Landing zone & Storage layer

L0

aws AWS Cloud

Counts API

Insights API

Activation API

aws AWS Cloud

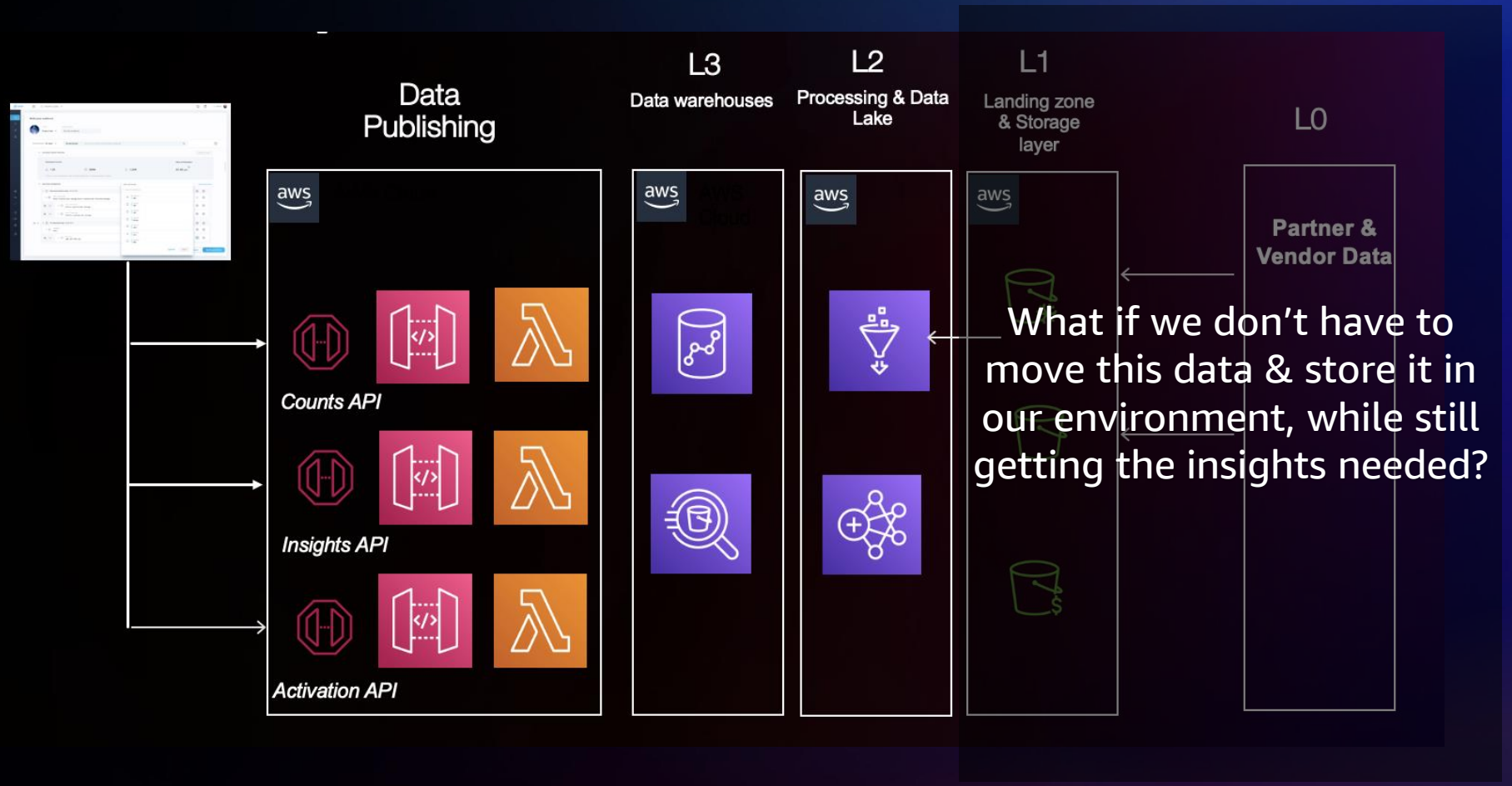
aws

aws

Partner & Vendor Data

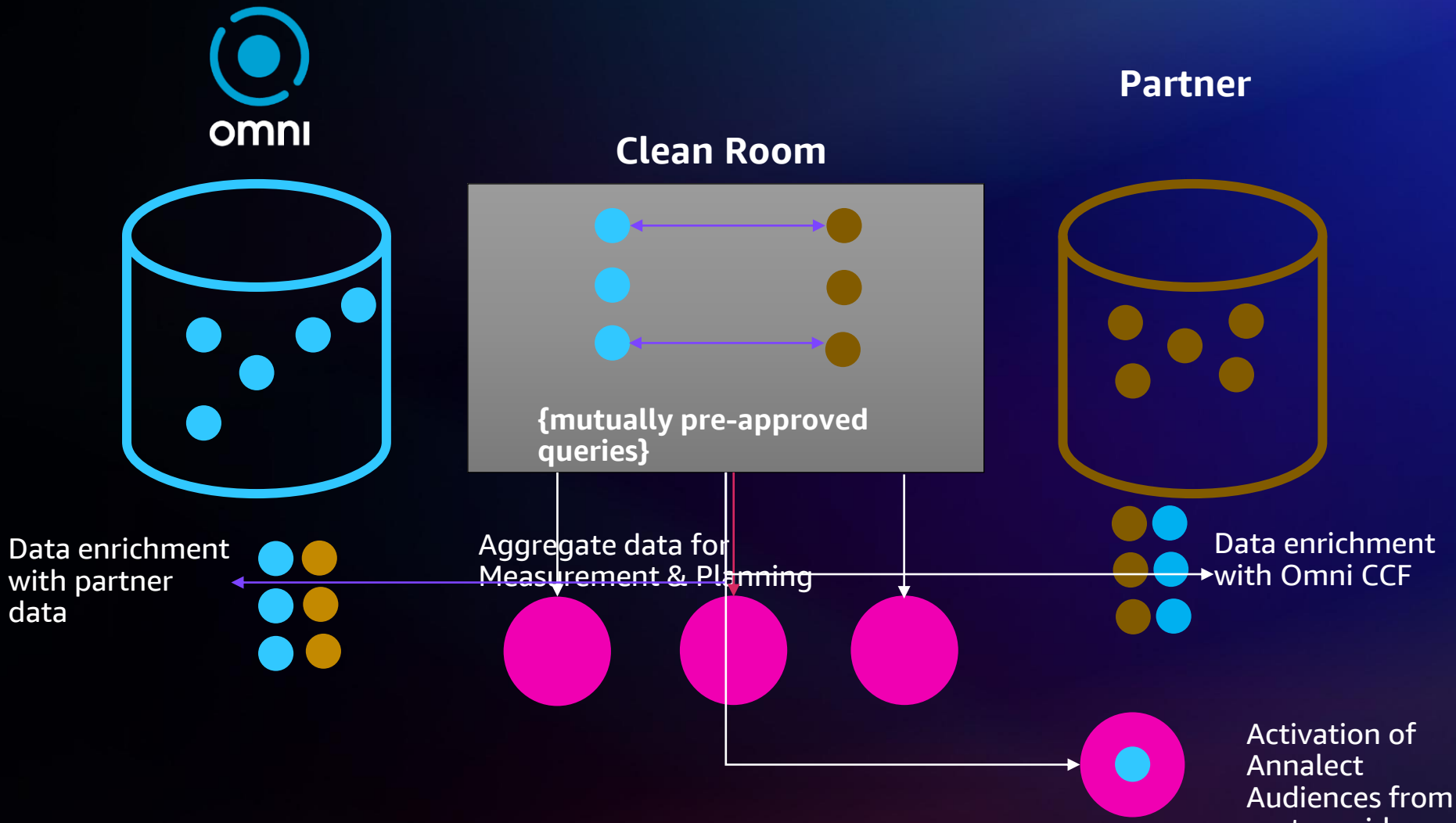
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The next frontier: No data movement & privacy compliance



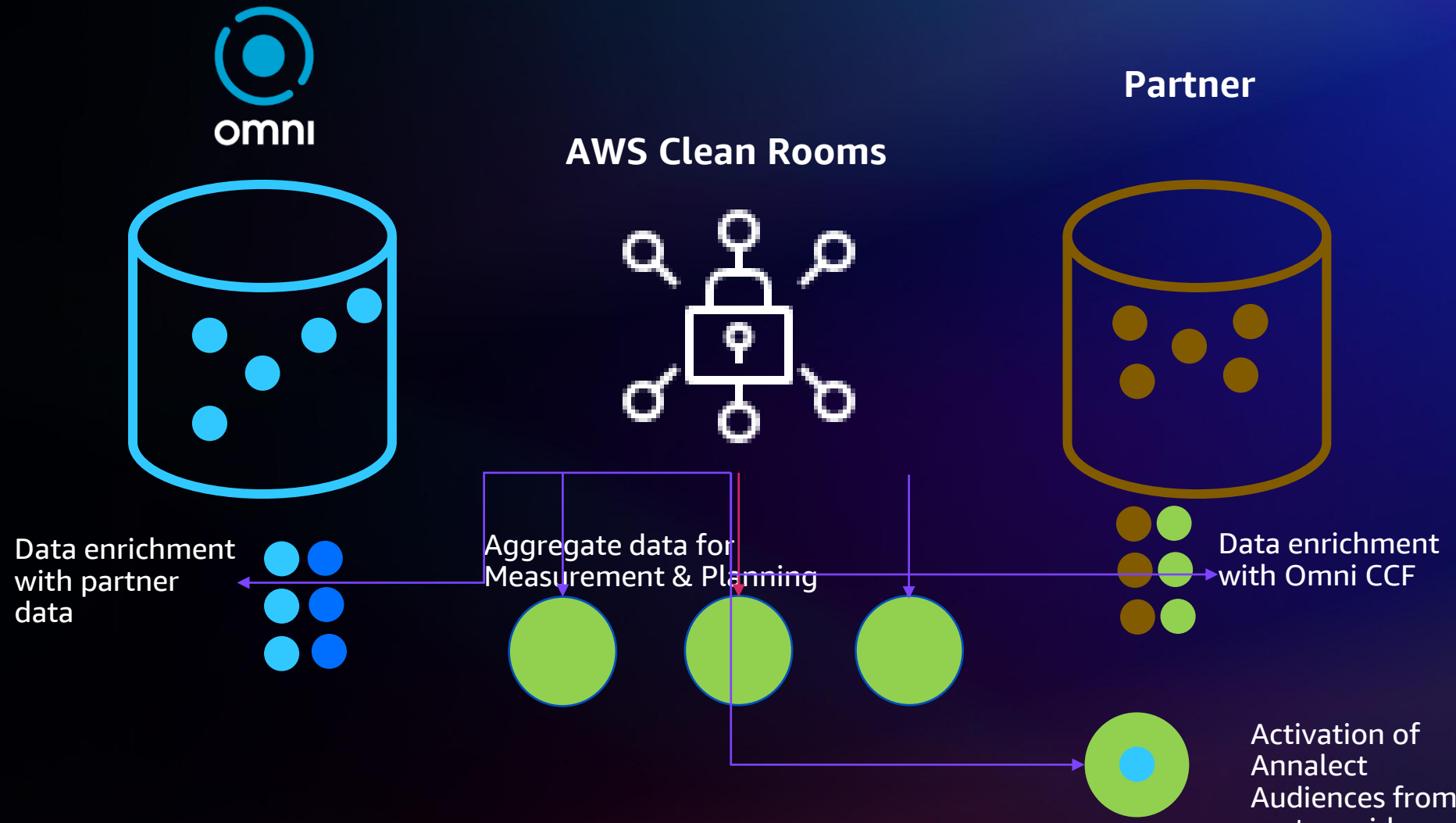
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Omni Clean Rooms overview



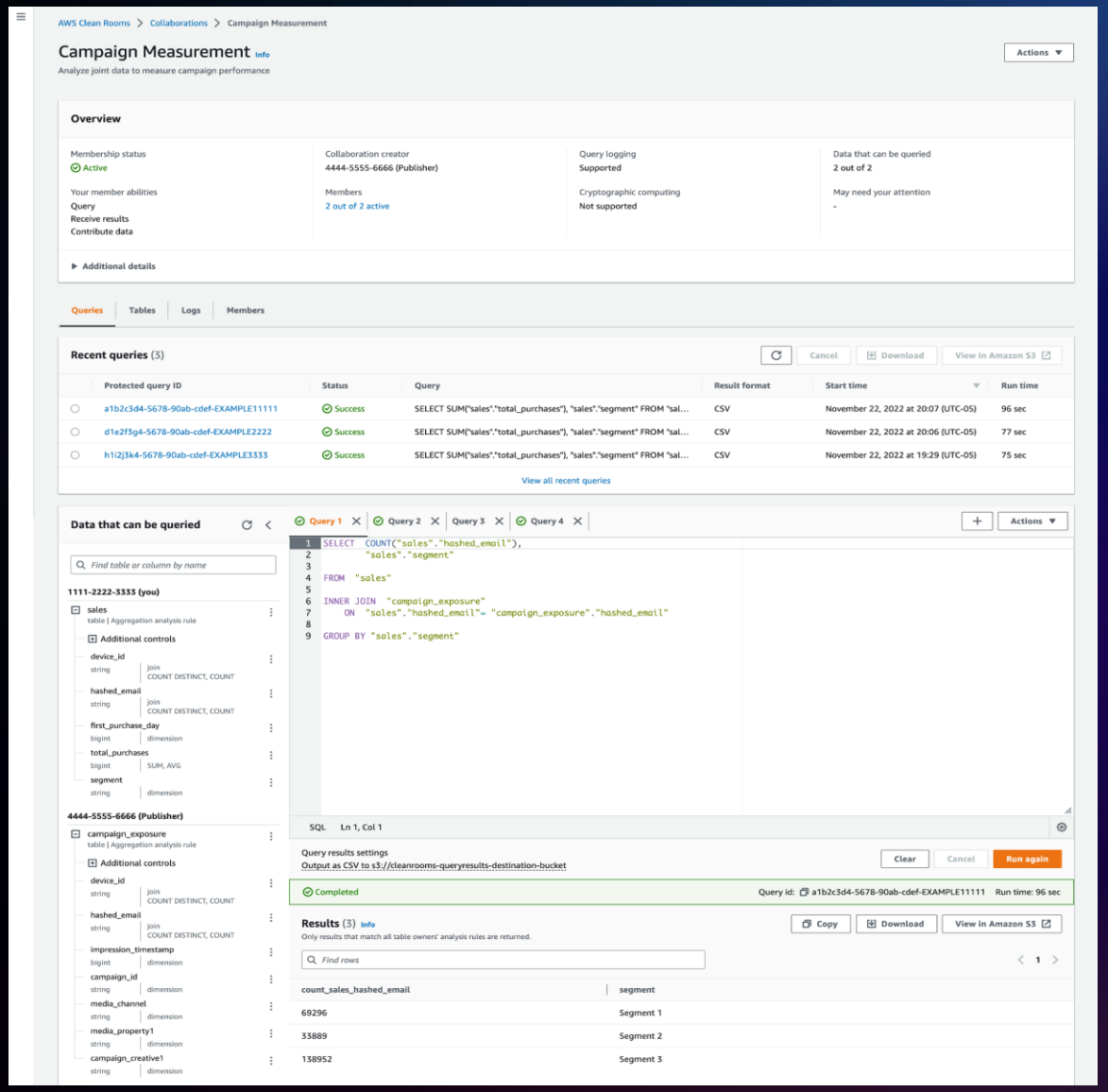
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Clean Rooms



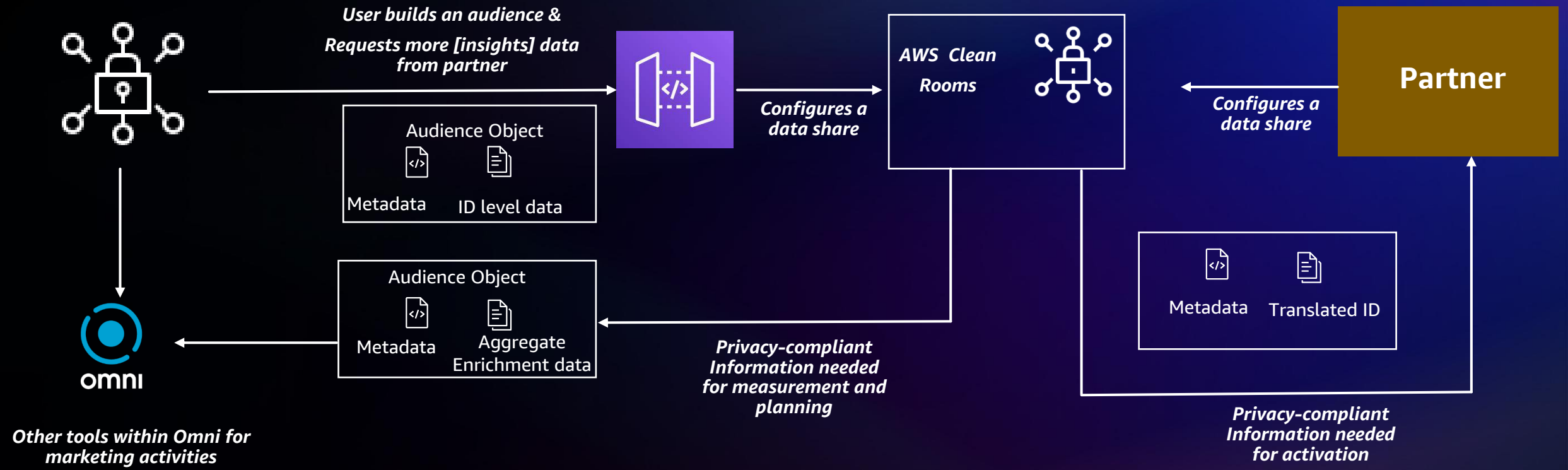
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

AWS Clean Rooms



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Omni integration with AWS Clean Rooms



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Marketing Cloud x AWS Clean Rooms



Tony Crider

Sr. Principal Engineer, AMC
Amazon Ads

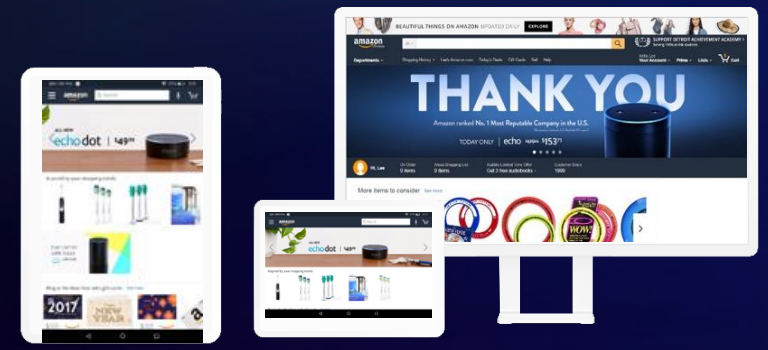
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Ads

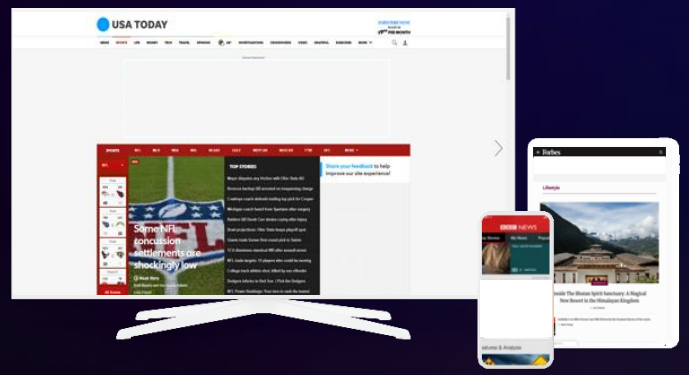
OUR ADVERTISING SOLUTIONS HELP BRANDS REACH AUDIENCES AT SCALE

freevee twitch amazon music FREE

Hundreds of millions of active customer accounts worldwide



On Amazon properties



Across third-party publishers

Source: 1) Amazon Q3 2022 quarterly earnings report;. Active customer accounts represent accounts that have placed an order during the preceding twelve-month period

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

The Origin of Amazon Marketing Cloud

Advertisers care about:

- Understanding the impact of cross-channel media investments
- Gaining a holistic view of audiences and path-to-conversion
- New customers

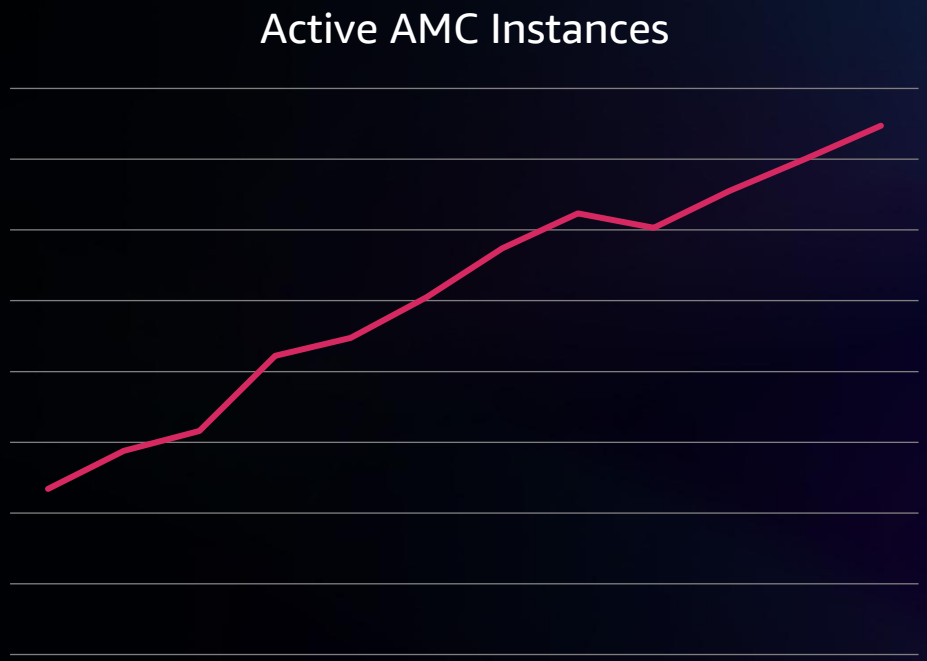
They're looking for:

- ✓ Signal unification across publishers and advertisers
- ✓ Safe methodologies of measurement and planning
- ✓ Tools to understand media attribution

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Amazon Marketing Cloud



↑4x

AMC use

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Source: Amazon Internal, Sep 2022

Amazon Marketing Cloud (AMC)



Anonymous and aggregated outputs

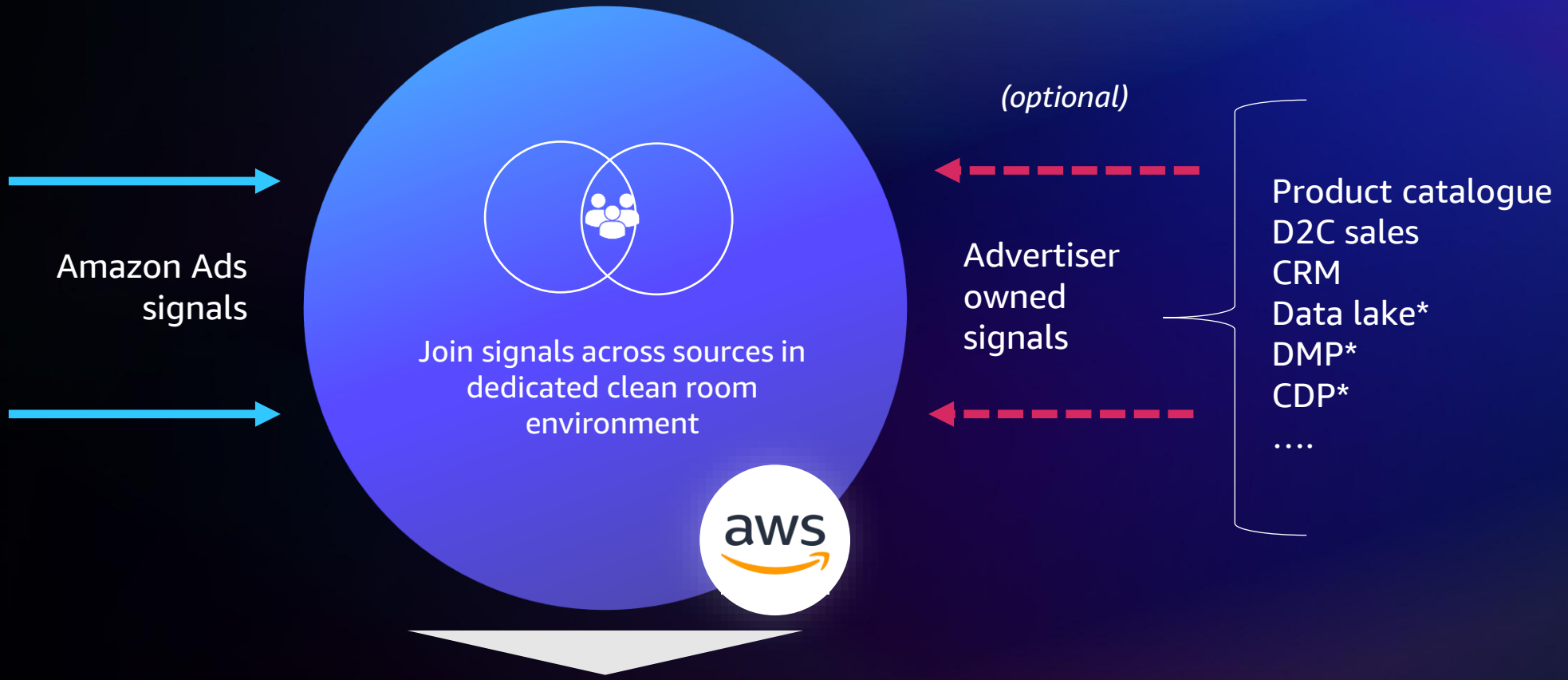


Advertiser maintains full control of the signals they add to their AMC instance

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Unifying signals with AMC

AMAZON ADS SIGNALS + ADVERTISER SIGNALS

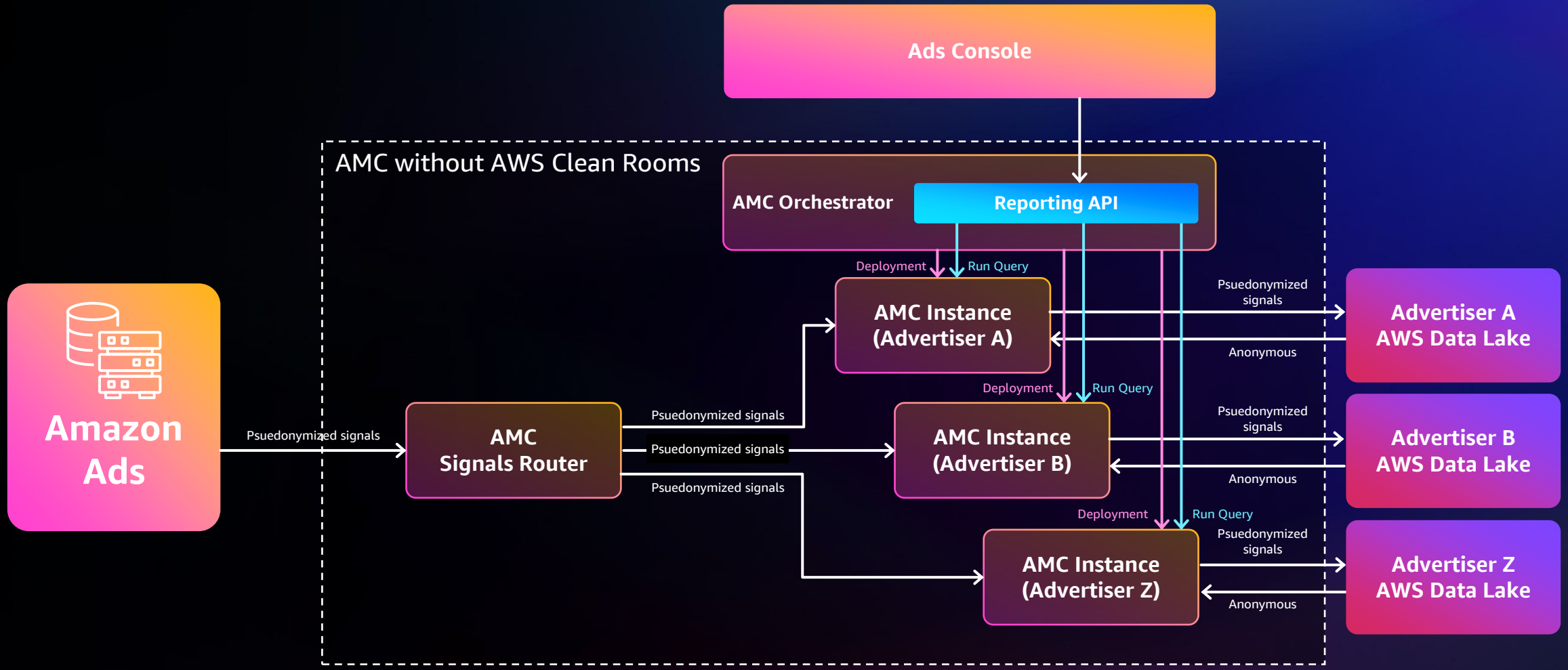


© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

*Notes: Capability on the roadmap

How AMC works

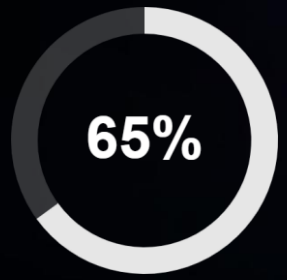
CURRENT ARCHITECTURE



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Engineering Opportunities

HOW WE CAN ITERATE



Capacity Limitations



Advertiser Signals



Deployment

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

How AWS Clean Rooms will help

AWS CLEAN ROOMS PROVIDES A MULTI-PARTY COLLABORATION SERVICE THAT MAINTAINS THE SECURITY, EFFICIENCY, AND UTILITY OF SIGNALS ANALYZED IN AMC

Stationary signals
Signals stay in the collaborator's AWS account

Privacy is still built in
Event-level signals unified while query results are still aggregated and anonymous

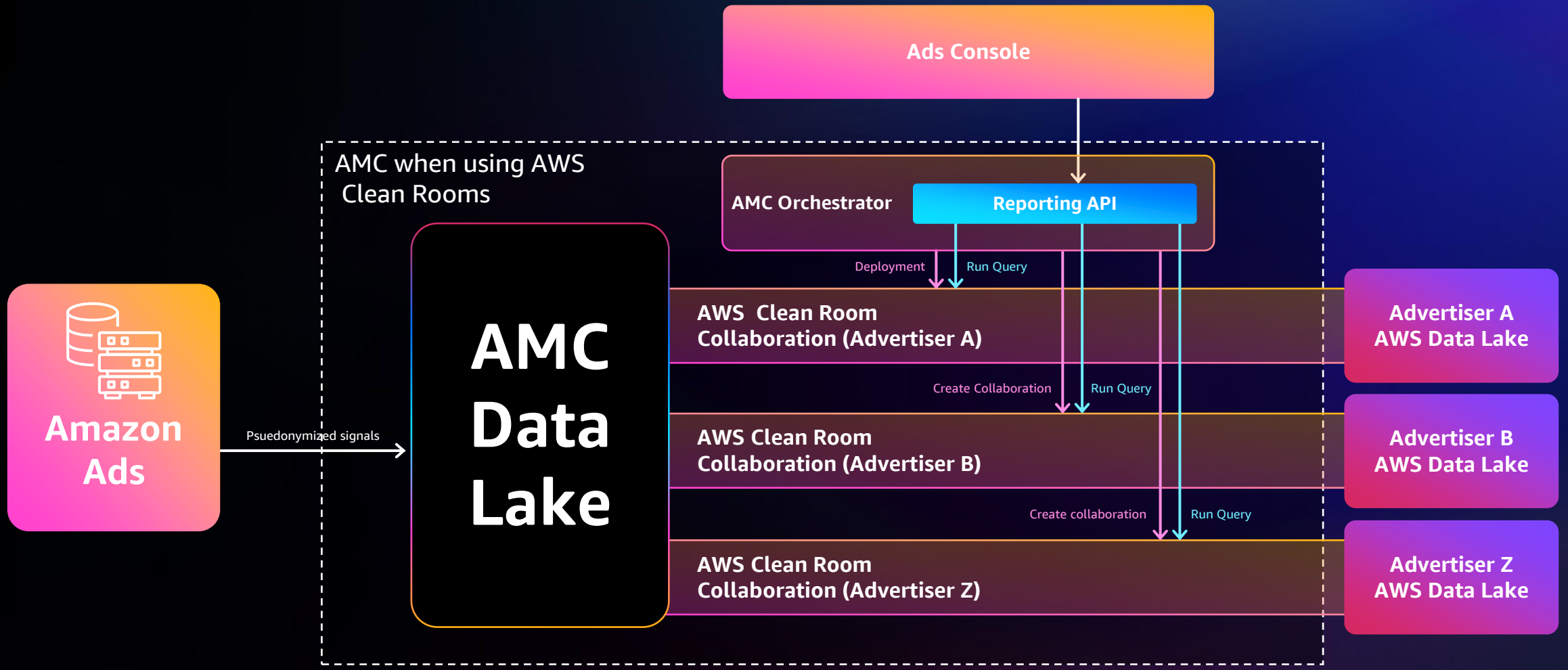
Scalable solution
More flexibility in how queries are processed, improving query efficiency



aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

How AMC + AWS Clean Rooms works

FUTURE ARCHITECTURE



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ADM101-L

Building a collaboration-first, enterprise-scale data platform @ FOX



Lindsay Silver

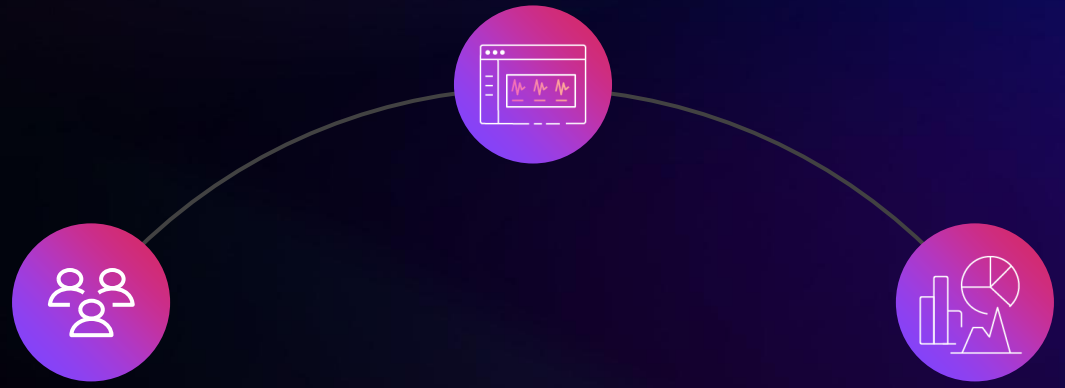
SVP Data Platforms and Commercialization

aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who am I?

Engineer, builder of large-scale data “things” since around 2005 (lover of Lua)



Dad

Head of Data & Commercial Technology at FOX

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Who is FOX?

FOX is a publicly traded Fortune 500 media company that includes several properties you know and a few you probably don’t





















aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What do we “do” here?

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

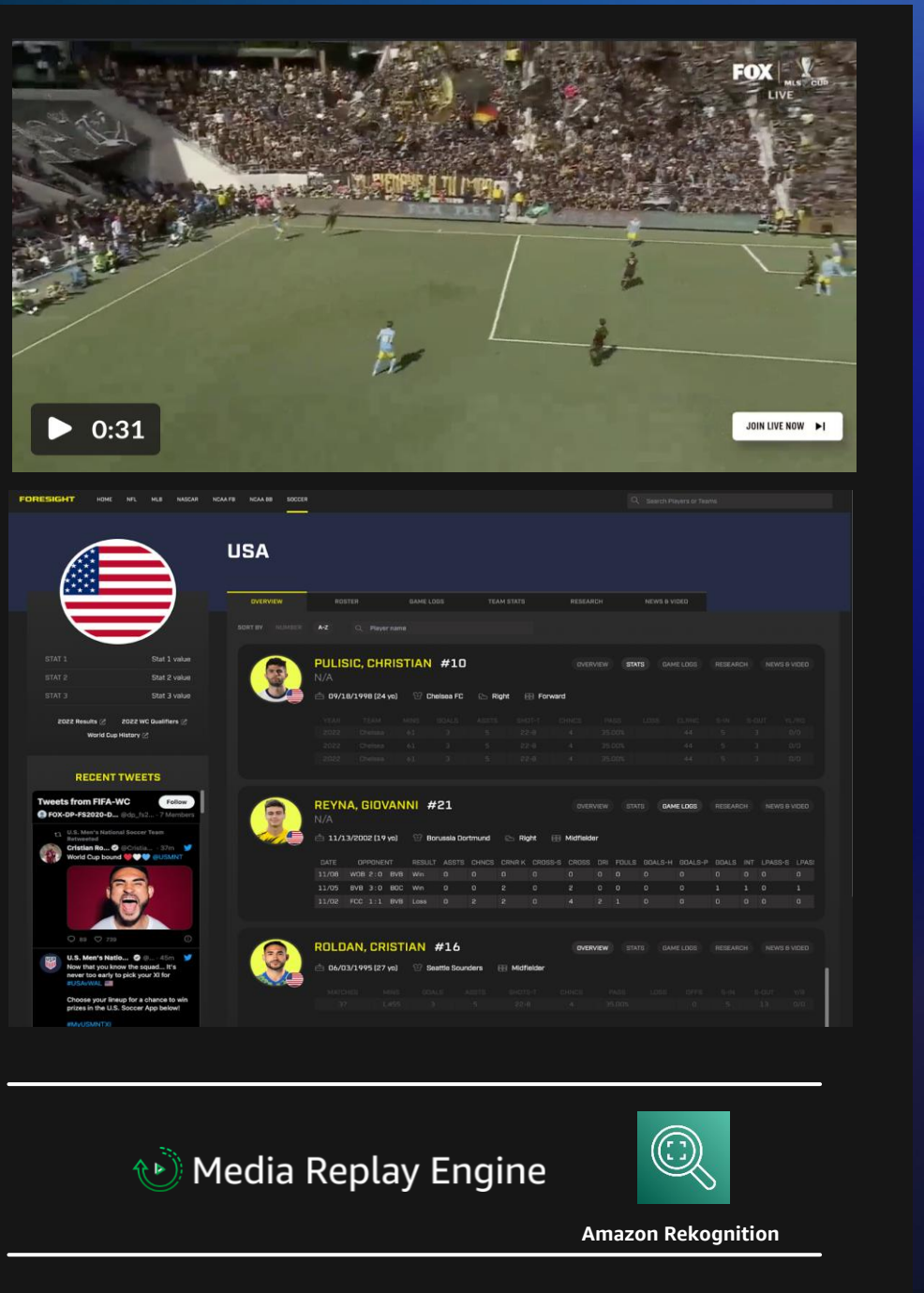
SportSuite

AI Catch-up Auto-summarization

Game catch-up segment generated and run prior to joining stream for all digital experiences. Featured in press with Amazon.

Foresight Heads-up Tools

150+ on-the-ground users expected for Foresight during FIFA World Cup.

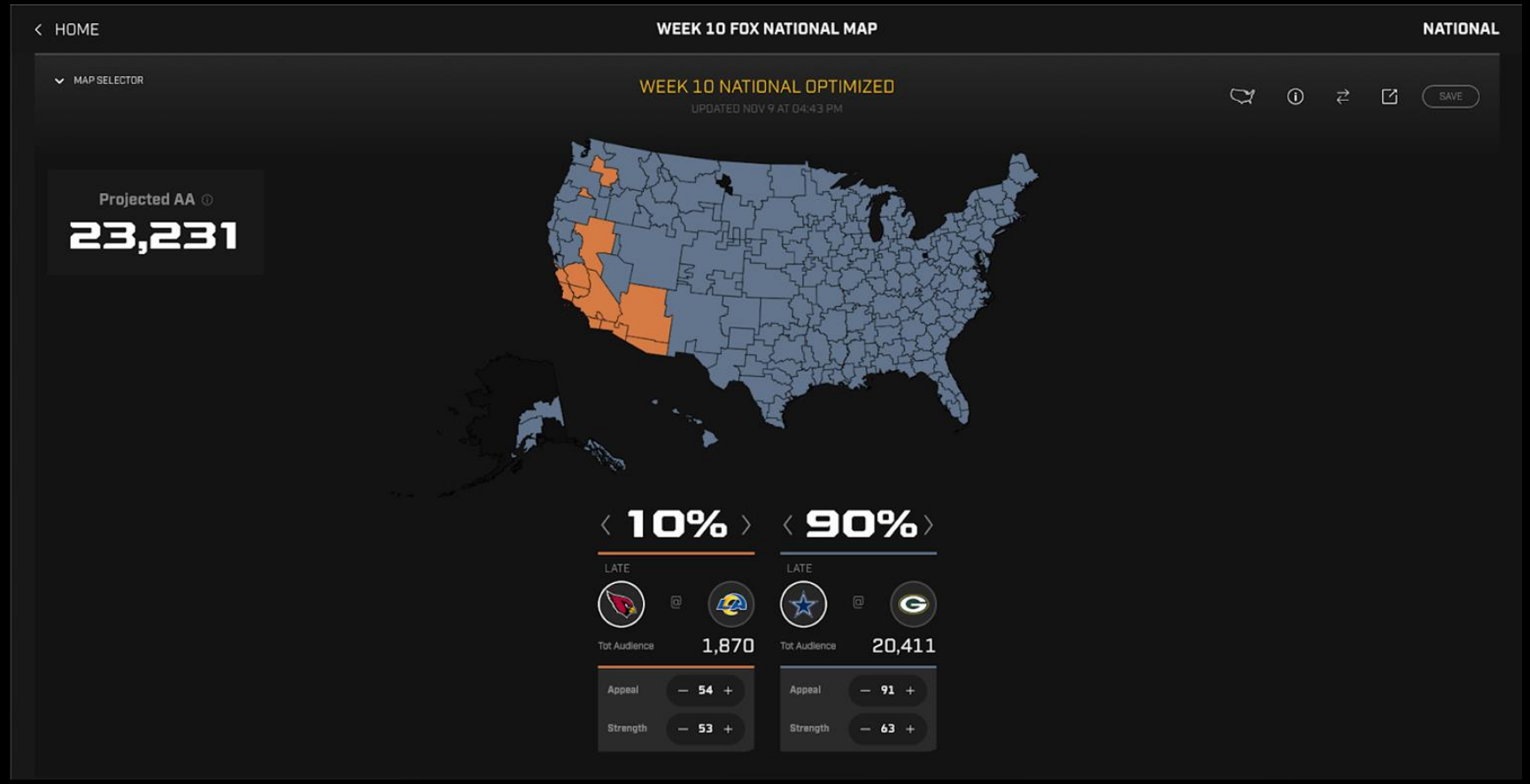


aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

ADVANCED DATA PRODUCTS

NFL Market Optimization Platform

Improve on human forecasting with AI and ML-based market-optimization technologies



Amazon DynamoDB

Amazon Redshift

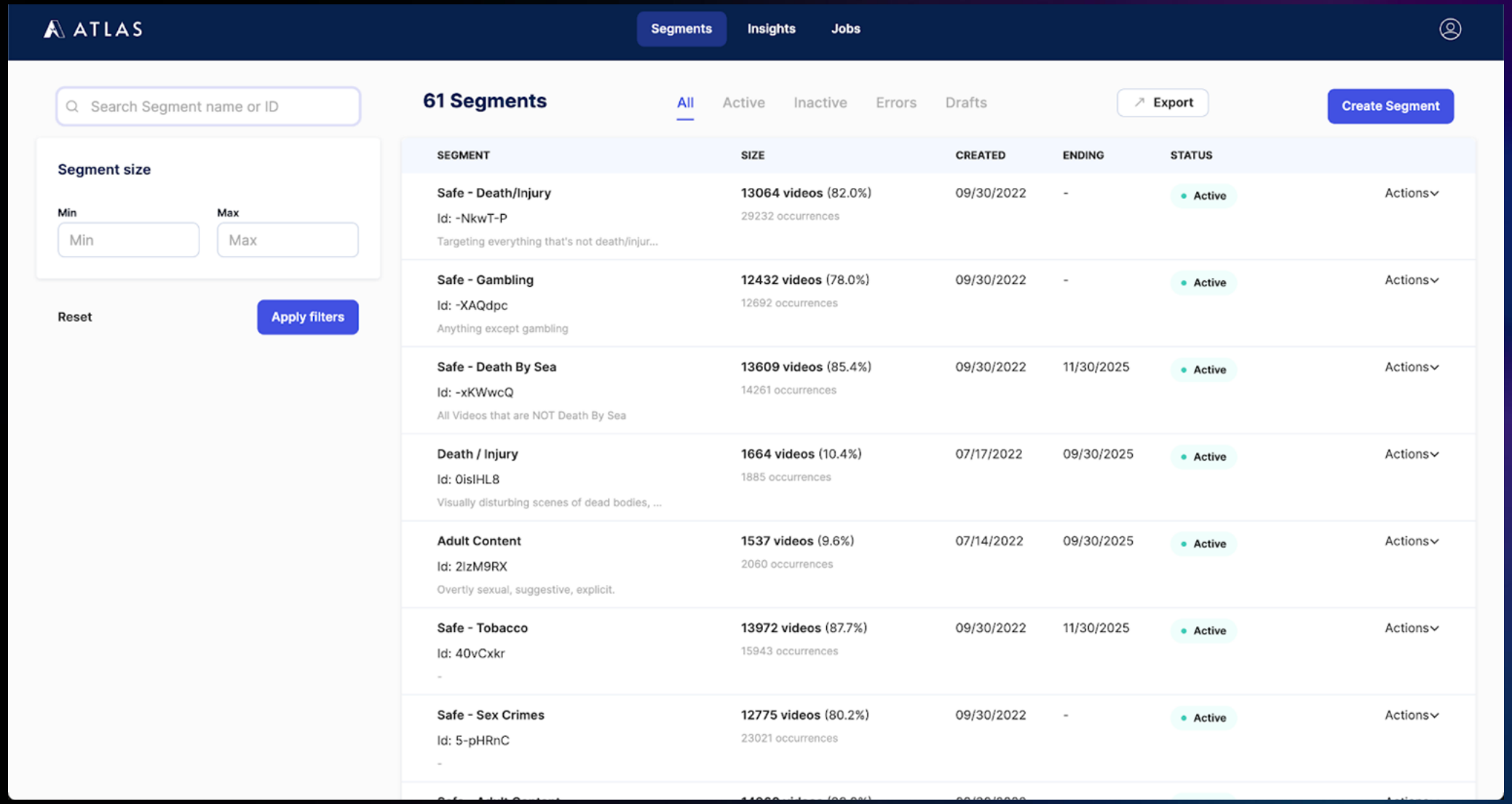
AWS Lambda

Amazon SageMaker

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

FOX ATLAS:

Next-generation contextual segmentation

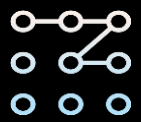


© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

UNIFIED AUDIENCE

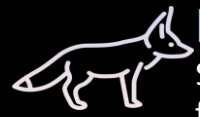
XF: FOX Unified Audience Pixel

XF provides a single first-party data platform for all digital behavioral data across FOX



Pyxis

FOX high-scale behavioral data ingestion APIs.



Fennec

Standard FOX behavioral tag for web, mobile & CTV apps.



X.ID

Simple first-party ID solution available on all FOX properties.



AWS Lambda



Amazon Kinesis Firehose

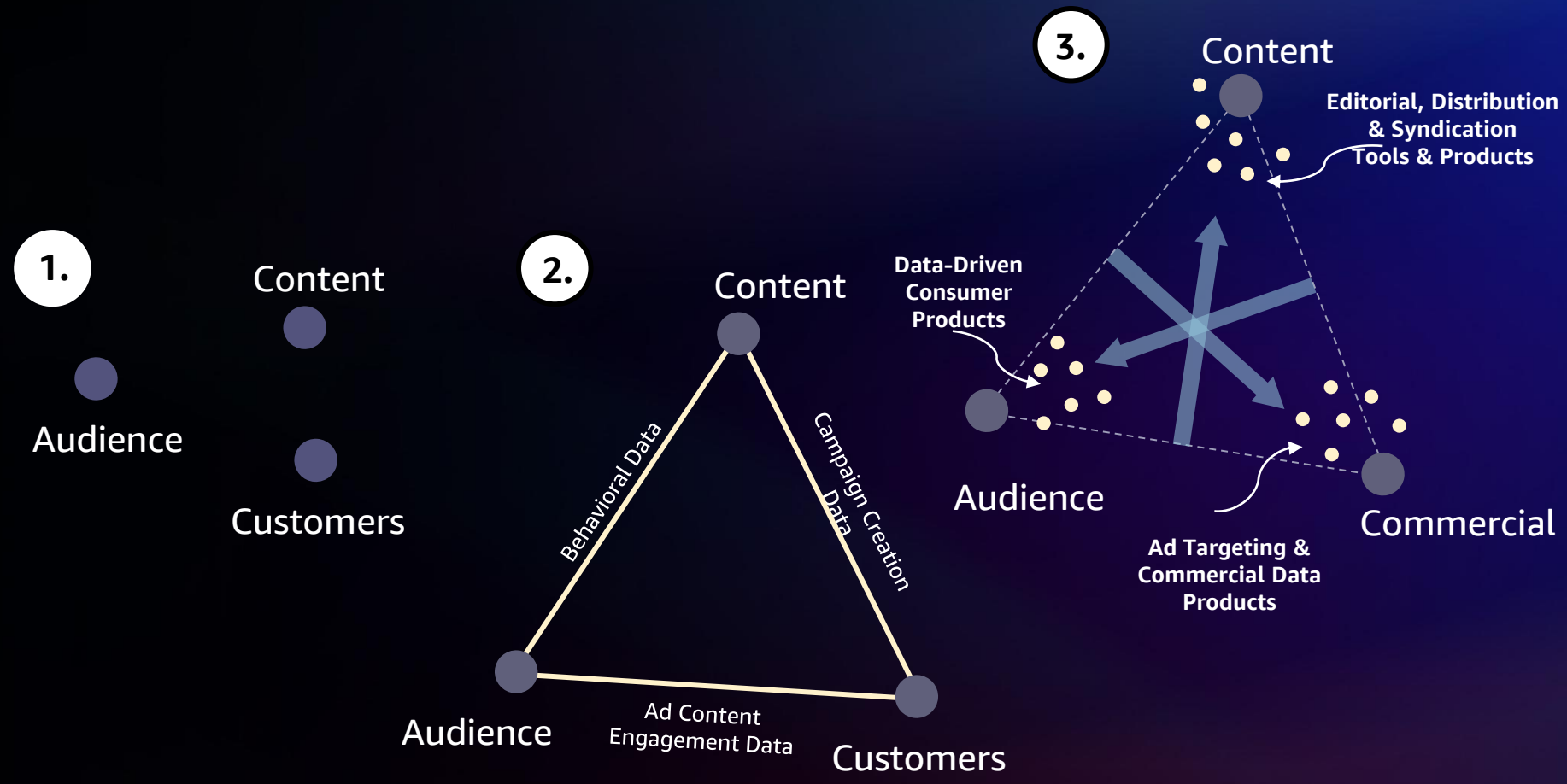
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Our approach to data

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

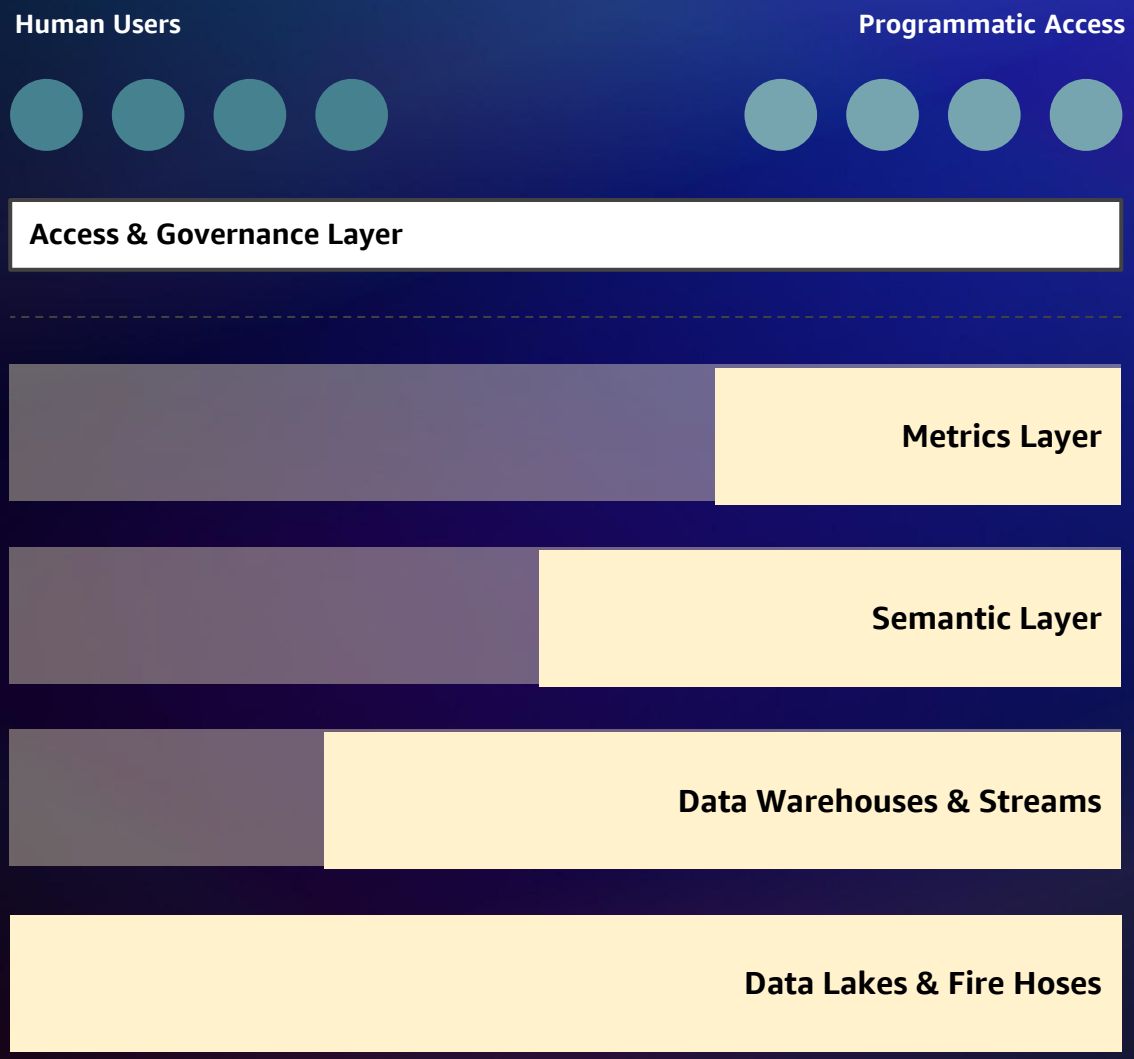
Start with a Domain Graph

Our approach to information architecture has centered on the major domains existent within the media industry

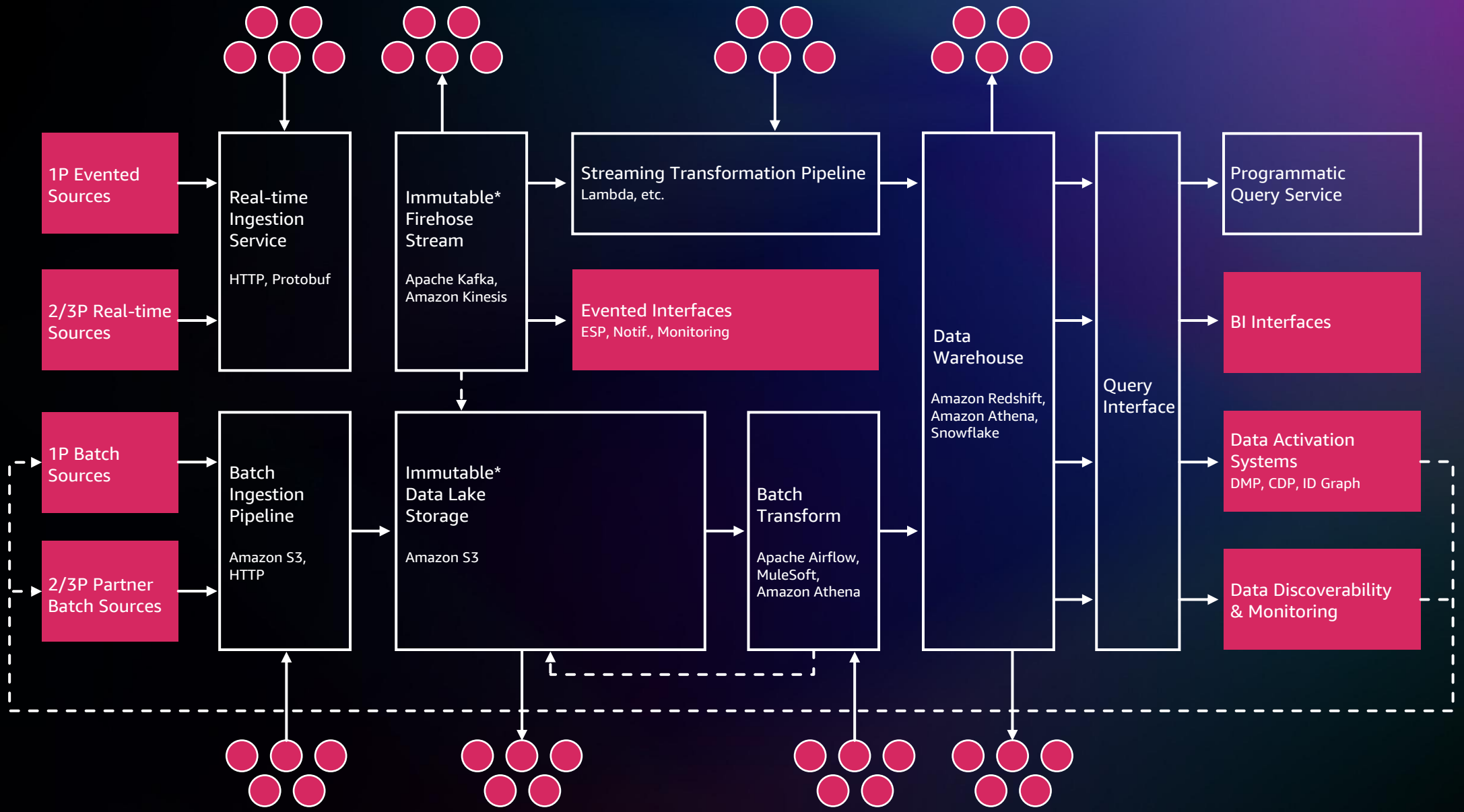


© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Design an architecture that democratizes access

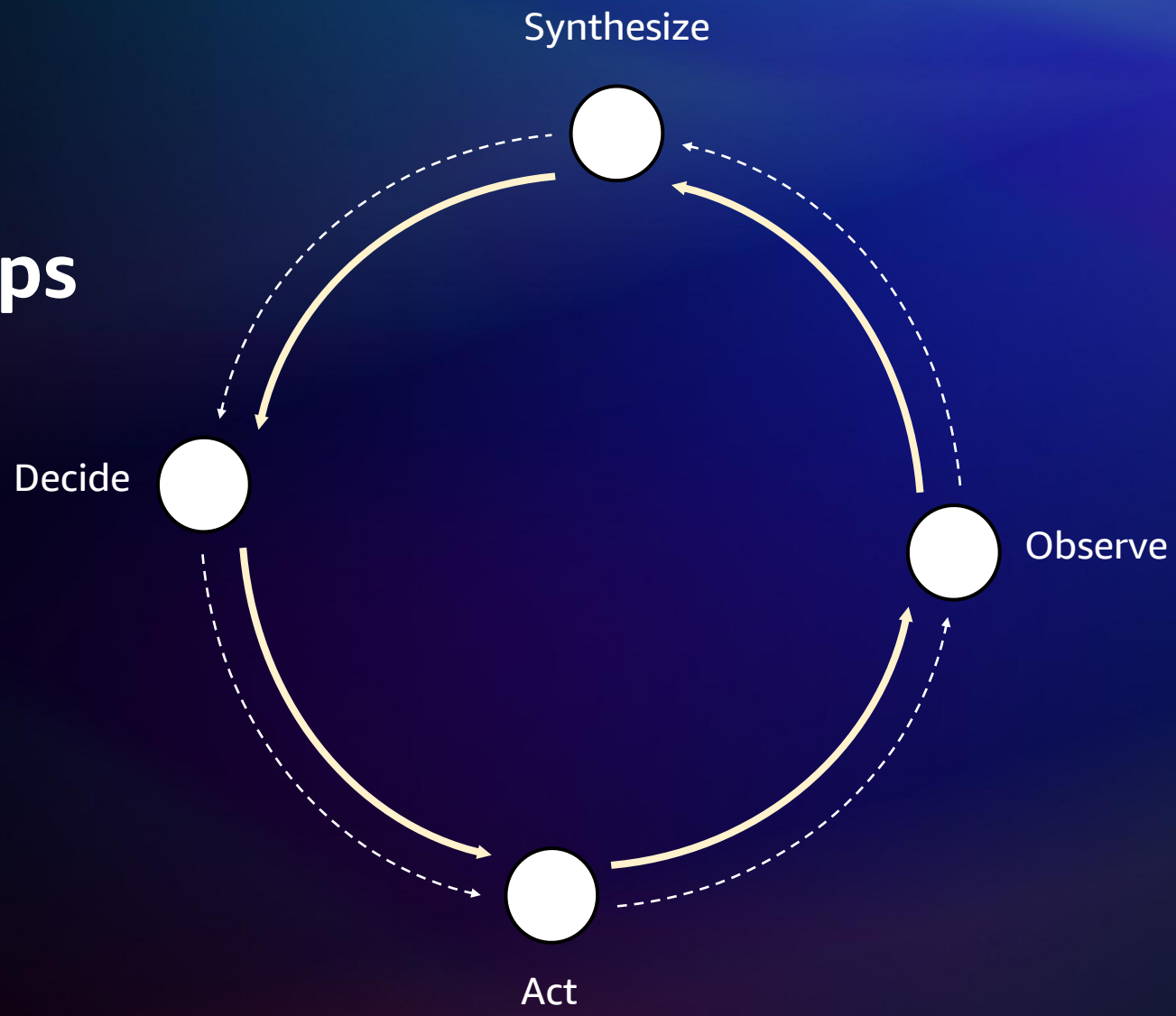


© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Provide services & products that complete feedback loops



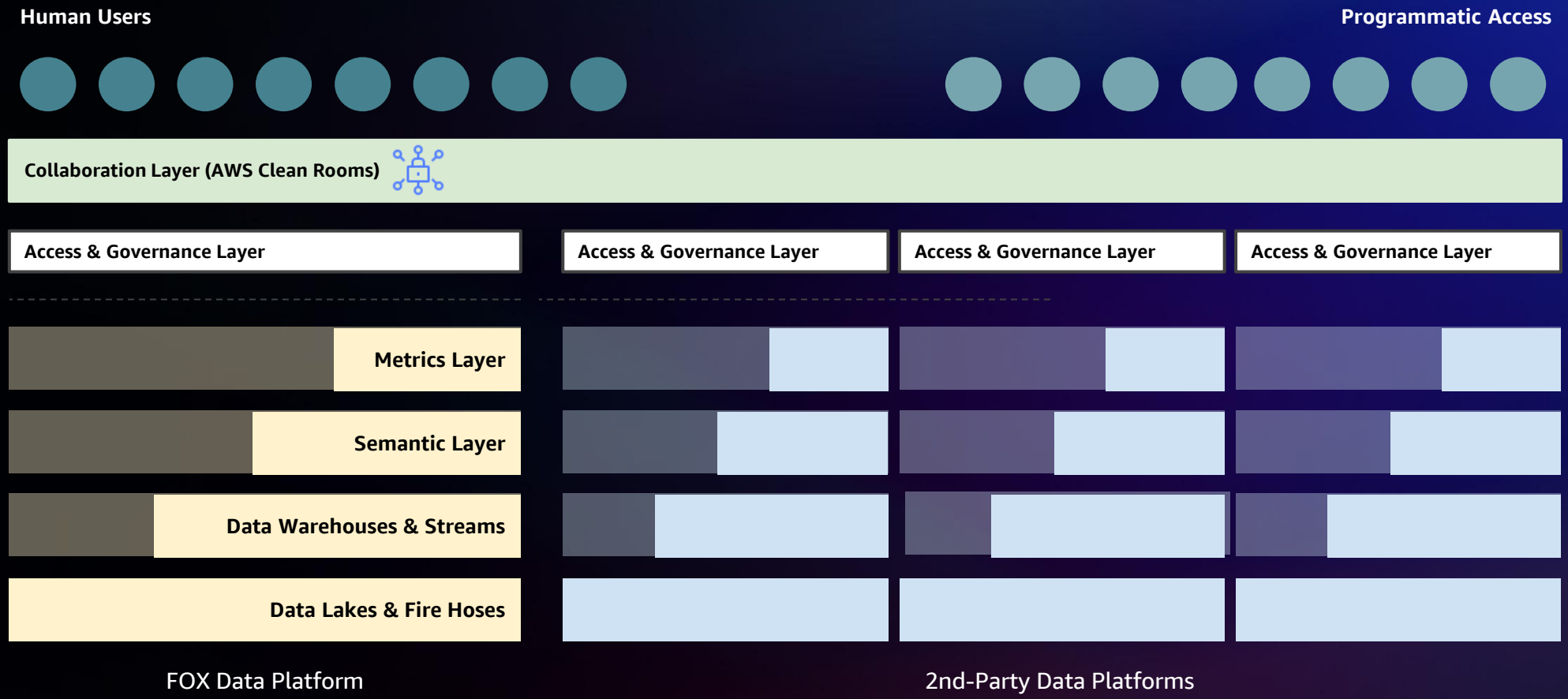
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

What’s next?

Extending beyond a our own platform

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Apply the same strategy across second parties with the same security & privacy



© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Looking ahead

NEW AWS CLEAN ROOMS FUNCTIONALITY WILL ENABLE FOR FOX...

For Fox's brand and agency customers

- Data co-ops & marketplaces
- Advanced audience activation
- Aggregate measurement enablement

For Fox's internal business units

- Identity spine infrastructure
- New insights between Fox Sports & Editorial
- 2nd party commercial data collaboration



aws

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.



https://aws.amazon.com/advertising-marketing/

© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.

Thank you!

Anna Nicanorova
linkedin.com/in/annanicanorova

Tony Crider
acrider@amazon.com

Lindsay Silver
linkedin.com/lindsaysilver
@gonewandering



Please complete the session survey in the **mobile app**

aws
© 2022, Amazon Web Services, Inc. or its affiliates. All rights reserved.