



aws INNOVATE

DATA EDITION

AUGUST 30, 2023

Bringing machine learning to builders through databases and analytics

Pierre Semaan

GTM Strategy and Solutions – SMB, APJ
AWS



Transform customer
experience



Improve business
operations



Better and faster
decision-making



Innovation



NEXT GEN STATS

powered by 

"...AWS allows both **data experts** and **novices** to have a more seamless and intuitive experience within Next Gen Stats..."

Michael Chi, Director of NFL Next Gen Stats



Core elements of an end-to-end data strategy on AWS



Core elements of an end-to-end data strategy on AWS



Comprehensive



Governed



Integrated

Core elements of an end-to-end data strategy on AWS



Comprehensive



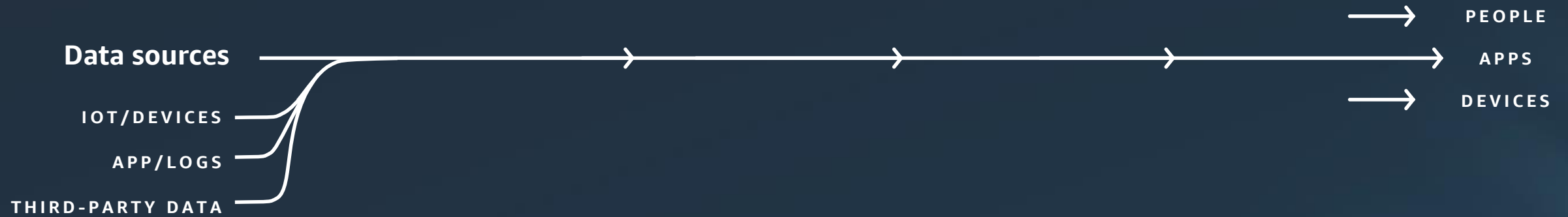
Governed



Integrated

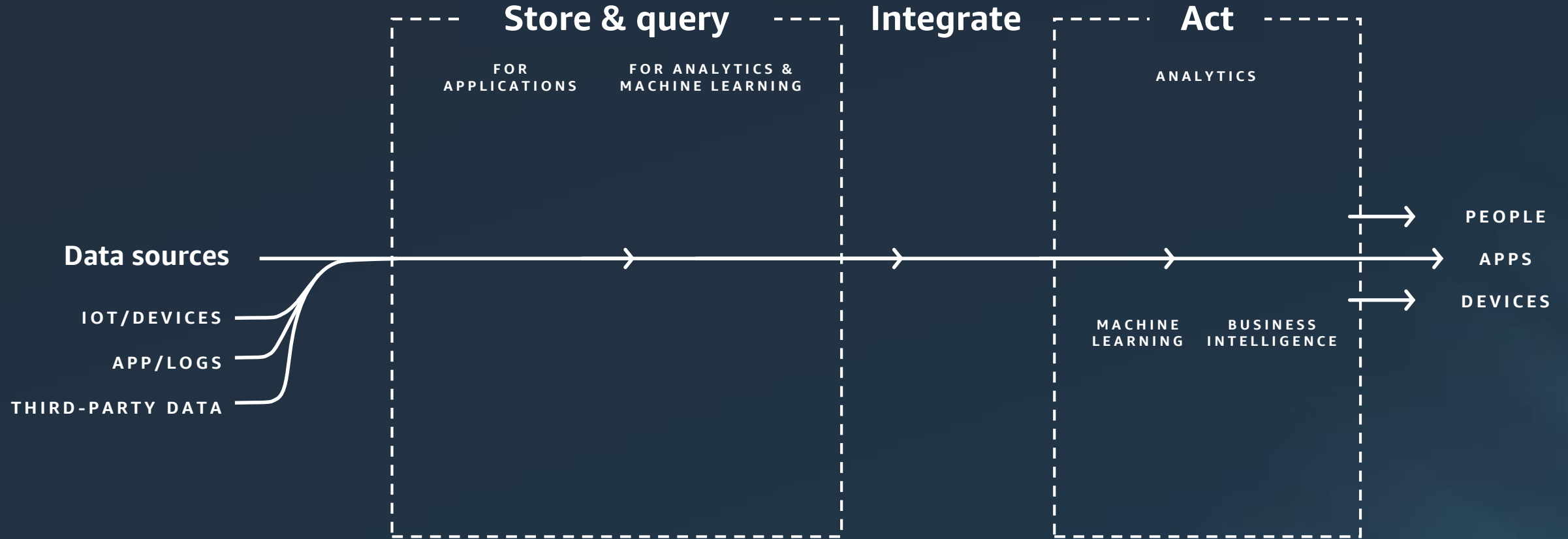
An end-to-end data strategy

Purpose-built data services | the most complete family



An end-to-end data strategy

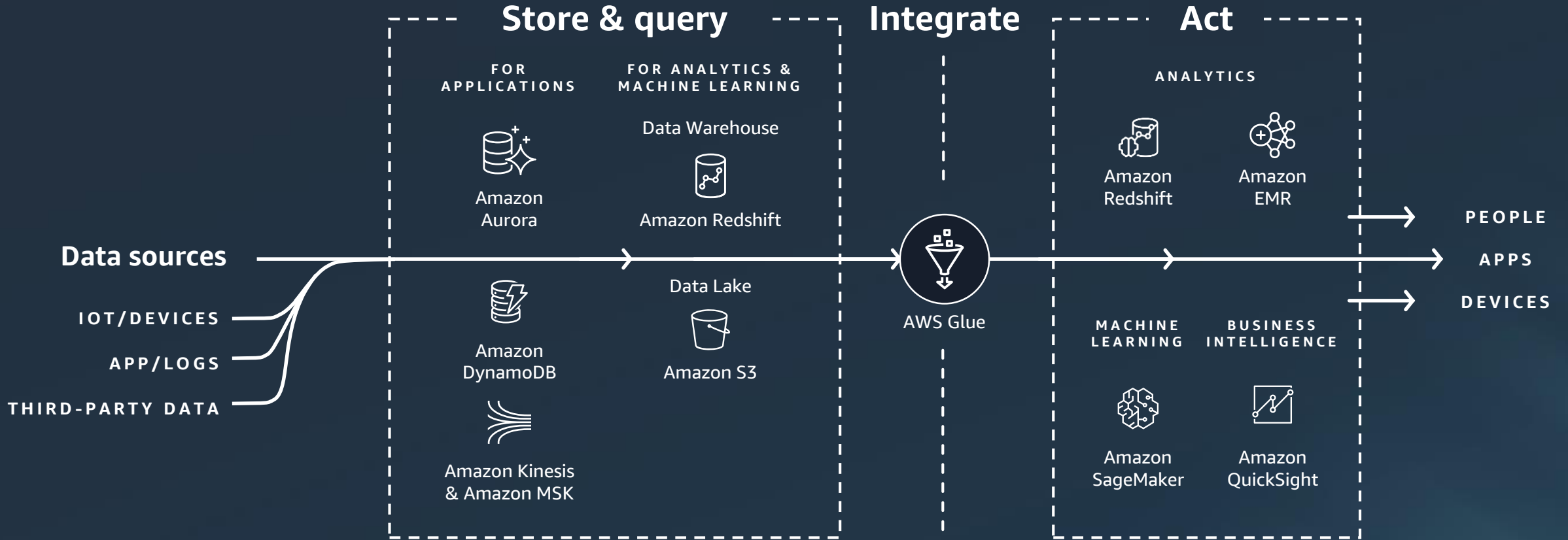
Purpose-built data services | the most complete family



Catalog & govern

An end-to-end data strategy

Purpose-built data services | the most complete family



Catalog & govern | AWS Lake Formation, Amazon DataZone

Machine learning development is complex



Label
data



Data
collection
prep



Store
features



Detect bias
and explain
predictions



Visualize in
notebooks



Pick
algorithm



Train
models faster



Tune
parameters



Deploy in
production



Manage
& monitor

The AWS AI/ML Stack

ML FRAMEWORKS & INFRASTRUCTURE

PyTorch, TensorFlow

Amazon EC2

CPUs

GPUs

NEW

AWS Inferentia

NEW

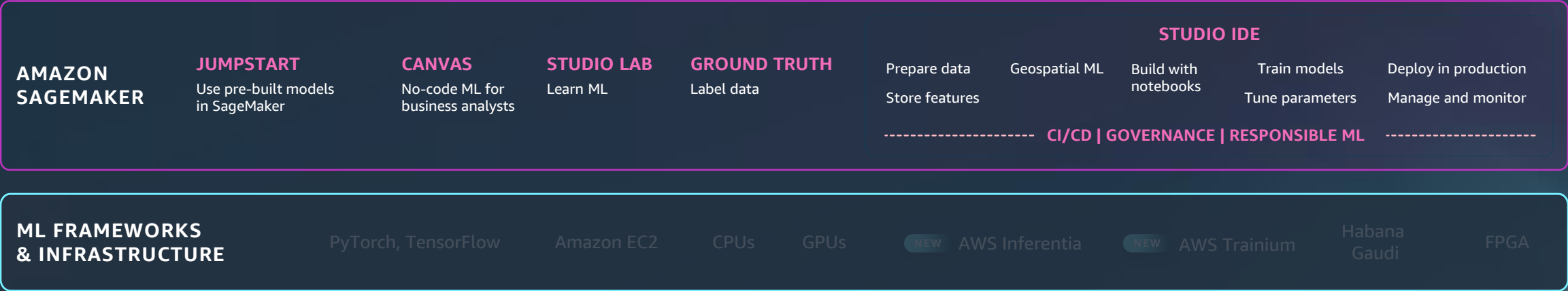
AWS Trainium

Habana
Gaudi

FPGA



The AWS AI/ML Stack



The AWS AI/ML Stack

AI SERVICES

Generative AI

SCALING GENERATIVE AI
Amazon Bedrock ANNOUNCED

AMAZON BUILT FOUNDATIONAL MODEL
Amazon Titan ANNOUNCED

Specialized AI Services

BUSINESS PROCESSES
Amazon Personalize
Amazon Forecast
Amazon Fraud Detector
Amazon Lookout for Metrics

SEARCH
Amazon Kendra

CONVERSATION
Amazon Lex
Contact Lens
Voice ID
Amazon Transcribe Call Analytics

CODE + DEVOPS
Amazon CodeGuru
Amazon CodeWhisperer
Amazon DevOps Guru

INDUSTRIAL
Amazon Monitron
Amazon Lookout for Equipment
Amazon Lookout for Vision

HEALTH
Amazon HealthLake
Amazon Comprehend Medical
Amazon Transcribe Medical
Amazon Omics

Core

TEXT
Amazon Translate
Amazon Comprehend

SPEECH
Amazon Polly
Amazon Transcribe

VISION
Amazon Textract
Panorama
Amazon Rekognition
AWS

AMAZON SAGEMAKER

JUMPSTART NEW
Use pre-built models in SageMaker

CANVAS
No-code ML for business analysts

STUDIO LAB
Learn ML

GROUND TRUTH
Label data

Prepare data
Store features

Geospatial ML

STUDIO IDE
Build with notebooks
Train models
Tune parameters
Deploy in production
Manage and monitor

CI/CD | GOVERNANCE | RESPONSIBLE ML

ML FRAMEWORKS & INFRASTRUCTURE

PyTorch, TensorFlow

Amazon EC2

CPU

GPU

NEW AWS Inferentia

NEW AWS Trainium

Habana Gaudi

FPGA



Machine learning is becoming accessible to all



Practitioner



Analyst



App Developer



Business User

AWS brings ML closer to data



Databases



Data warehouses
+ data lakes



Business
intelligence tools

AMAZON
AURORA ML



AMAZON
NEPTUNE ML



AMAZON
REDSHIFT ML



AMAZON
ATHENA ML



AMAZON
QUICKSIGHT ML





Analyst

Amazon Redshift ML

CREATE, TRAIN, AND DEPLOY ML
MODELS USING FAMILIAR SQL
COMMANDS



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Analyst

Amazon Redshift ML

CREATE, TRAIN, AND DEPLOY ML
MODELS USING FAMILIAR SQL
COMMANDS

TRAIN



```
CREATE MODEL customer_churn
FROM (SELECT c.age, c.zip,
c.monthly_spend, c.monthly_cases,
c.active AS label
FROM customer_info_table c)
TARGET label
FUNCTION predict_customer_churn
```




Analyst

Amazon Redshift ML

CREATE, TRAIN, AND DEPLOY ML
MODELS USING FAMILIAR SQL
COMMANDS

TRAIN



```
CREATE MODEL customer_churn
FROM (SELECT c.age, c.zip,
c.monthly_spend, c.monthly_cases,
c.active AS label
FROM customer_info_table c)
TARGET label
FUNCTION predict_customer_churn
```

PREDICT



```
SELECT n.id, n.firstName, n.lastName,
predict_customer_churn(n.age,c.zip,..)
AS activity_prediction
FROM new_customers n
WHERE n.marital_status = 'single'
```



“...We were immediately struck by the fact that Amazon Redshift ML makes fitting an XGBoost model or feed-forward neural network as easy as writing a SQL query...”

[Learn more](#)





Analyst

Amazon Athena ML

INVOKE ML MODELS FOR
INFERENCE DIRECTLY FROM A
SQL QUERY



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Analyst

Amazon Athena ML

INVOKE ML MODELS FOR
INFERENCE DIRECTLY FROM A
SQL QUERY

PREDICT



```
USING EXTERNAL FUNCTION  
predict_customer_churn (age INTEGER)  
  RETURNS DOUBLE  
  SAGEMAKER 'xgboost-2019-09-20-04-  
49-29-303'  
  
SELECT n.id, n.firstName, n.lastName,  
predict_customer_churn(n.age)  
AS activity_prediction  
FROM new_customers n  
WHERE n.marital_status = 'single'
```



App Developer

Amazon Aurora ML

SIMPLE, OPTIMIZED, AND
SECURE INTEGRATION BETWEEN
AURORA AND AWS ML SERVICES
USING SQL



3

49 rows affected.



Practitioner

Amazon Neptune ML

MAKE PREDICTIONS ON GRAPH
DATA WITHOUT ML EXPERTISE



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Practitioner

Amazon Neptune ML

MAKE PREDICTIONS ON GRAPH
DATA WITHOUT ML EXPERTISE

TRAIN



```
neptune_ml.train_model (  
    export_file_location,  
    TRAINING_JOB_NAME,  
    PROCESSING_PARAMS,  
    TRAINING_PARAMS,  
    ENDPOINT_PARAMS  
)
```



Practitioner

Amazon Neptune ML

MAKE PREDICTIONS ON GRAPH
DATA WITHOUT ML EXPERTISE

TRAIN



```
neptune_ml.train_model (  
    export_file_location,  
    TRAINING_JOB_NAME,  
    PROCESSING_PARAMS,  
    TRAINING_PARAMS,  
    ENDPOINT_PARAMS  
)
```

PREDICT



```
%%gremlin  
  
g.with (  
    "Neptune#ml.endpoint", "<ENDPOINT_NAME>".  
    V().has('title', 'MOVIE_NAME(YEAR)').properties  
    ("genre").with("Neptune#ml.classification").value()
```

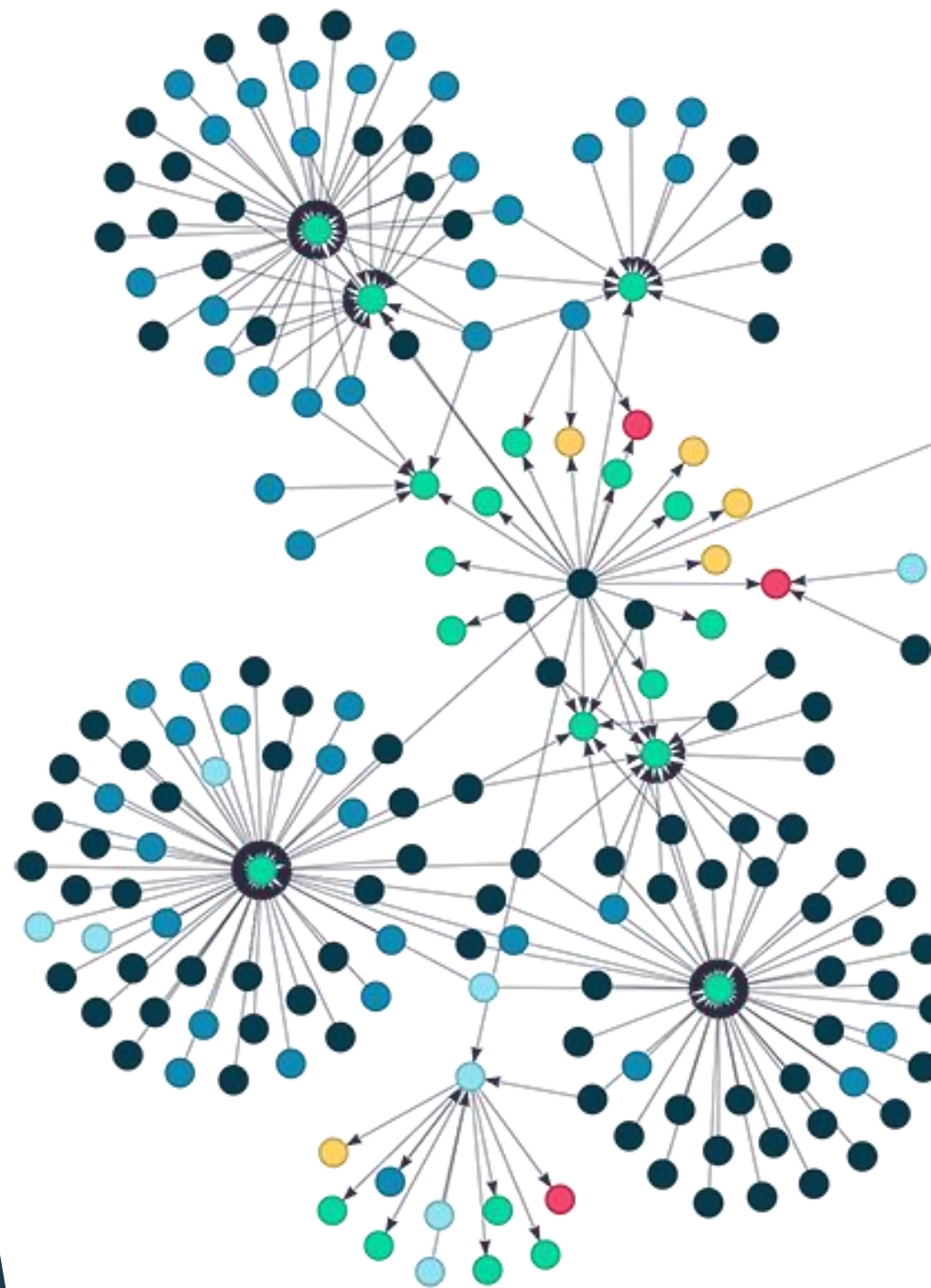


Detecting identity fraud using Amazon Neptune ML

[Learn more](#)



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Business User

Amazon QuickSight ML

ML-POWERED INSIGHTS AND
DATA VISUALIZATIONS



ML predictions



Machine learning powered insights



Natural language querying
capability



Auto narrative



MoM Sales

\$2,609 

MoM Customer Orders

-26 ↓

Anomalies Detected

The top anomaly detected on Mar 2022 was:

- **Sales** for **Mondelez International** at \$14,052, which was **higher** than the expected \$505

Region

All

Customer Segmentation



Sales by Industry



Forecast

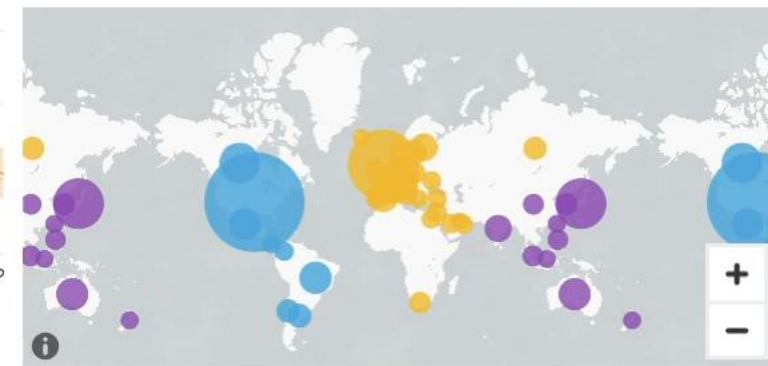
Total sales is forecasted to be **\$48,657** for Aug 2023

Period over period

Total sales for Jun 2022 **increased by 5.71%** **(\$2,609)** from \$45,651 to \$48,260.



SHOWING TOP 48 IN LONGITUDE, LATITUDE AND TOP 3 IN REGION



Quarter	Strategic	SMB	Enterprise
Q2' 2022	\$51,000	\$49,292	\$33,731
Q1' 2022	\$33,551	\$63,530	\$21,814
Q4' 2021	\$94,031	\$100,846	\$41,016
Q3' 2021	\$43,915	\$79,942	\$20,757
Q2' 2021	\$42,418	\$69,477	\$23,475
Q1' 2021	\$26,578	\$46,031	\$19,987

Top 25 Customers



Putting **machine learning** in the hands of **every builder**



Practitioner



Analyst



App Developer



Business User

AWS brings **ML** closer **to the data**



AMAZON
AURORA ML



AMAZON
NEPTUNE ML



AMAZON
REDSHIFT ML



AMAZON
ATHENA ML



AMAZON
QUICKSIGHT ML

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A modern data strategy can help you manage, act on, and react to your data so you can make better decisions, respond faster, and uncover new opportunities. Dive deeper with these resources today.

- Maximizing business value with data: 6 essential data-driven use cases for leaders
- The ultimate guide to developing an end-to-end data strategy
- 5 key elements of a data-driven culture
- A builder's guide to AWS analytics services
- ... and more!



<https://tinyurl.com/data-hub-aws>

[Visit resource hub](#)



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Thank you!

