AWS
re:Invent
DECEMBER 2 – 6, 2024 | LAS VEGAS, NV

ANT206

Next-generation Amazon SageMaker: The center for data, analytics & AI

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Agenda

Why the next generation of Amazon SageMaker?

The next generation of Amazon SageMaker Platform empowers organizations

Amazon SageMaker Unified Studio empowers builders

Amazon SageMaker Unified Studio key concepts

Solving for the unique challenges of olympics.com

Demo

Conclusion

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Times are changing

Technology

Changing faster than ever

Work

Work and interact with technology

Organizations

Adopt and adapt

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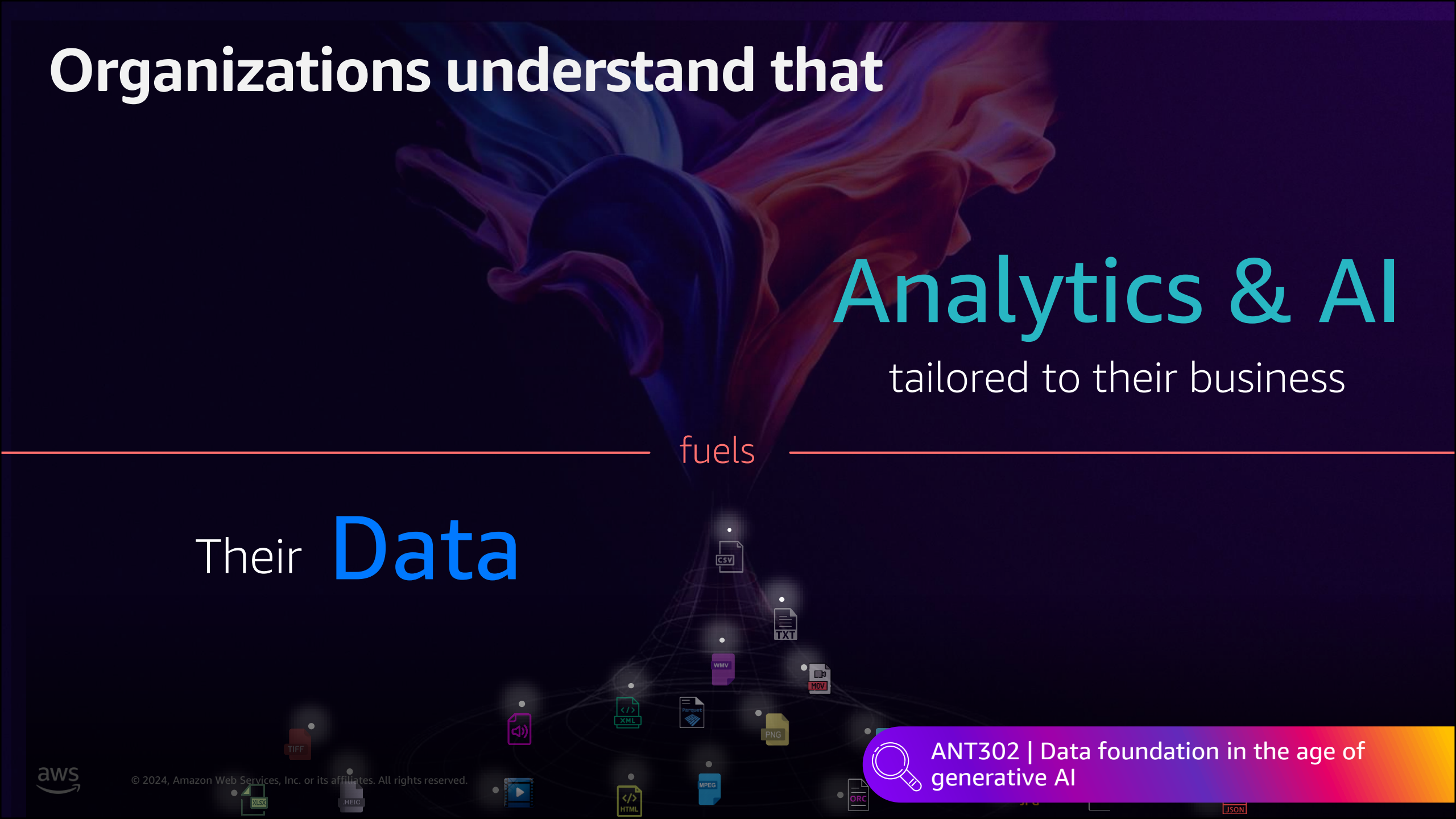
Organizations understand that

Analytics & AI

tailored to their business

fuels

Their Data



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Organizations are struggling

74% of businesses fail to turn data into insights

82%

of organizations have appointed a Chief Data Officer (CDO)

94%

of organizations increased data investments in 2023

20%

revenue growth seen by data-insights driven businesses

aws

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HBR: Why becoming a data driven org is so hard.
Forrester: Data into dollars.
2023 Wavestone survey.

Challenges in an evolving landscape

High effort AI/ML

AI and machine learning faces cost, speed, and efficiency barriers

Evolving personas

Converging personas and jobs to be done across AI/ML and analytics

Evolving tech environment

Data silos

Data silos that are not interoperable with the tools

Fragmented governance

Trust, confidence, and compliance in data management

Evolving data environment

Evolving technology is leading to complex tool-set

Organizations are struggling with data sprawl

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Organizations appreciate

Comprehensive set of purpose-built services

Optimized for performance and cost

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Organizations want

Leverage same rich set of services

through unified experiences across them

Experience

Act

Govern

Store

aws

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The next generation of Amazon SageMaker

THE CENTER FOR ALL YOUR DATA, ANALYTICS, AND AI

SageMaker

AI

Develop and scale AI use cases
with the broadest set of tools

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Persona and use case specific tools resulted in

Experience

Fragmented experience

Act

Switching between tools

Govern

Inconsistent access

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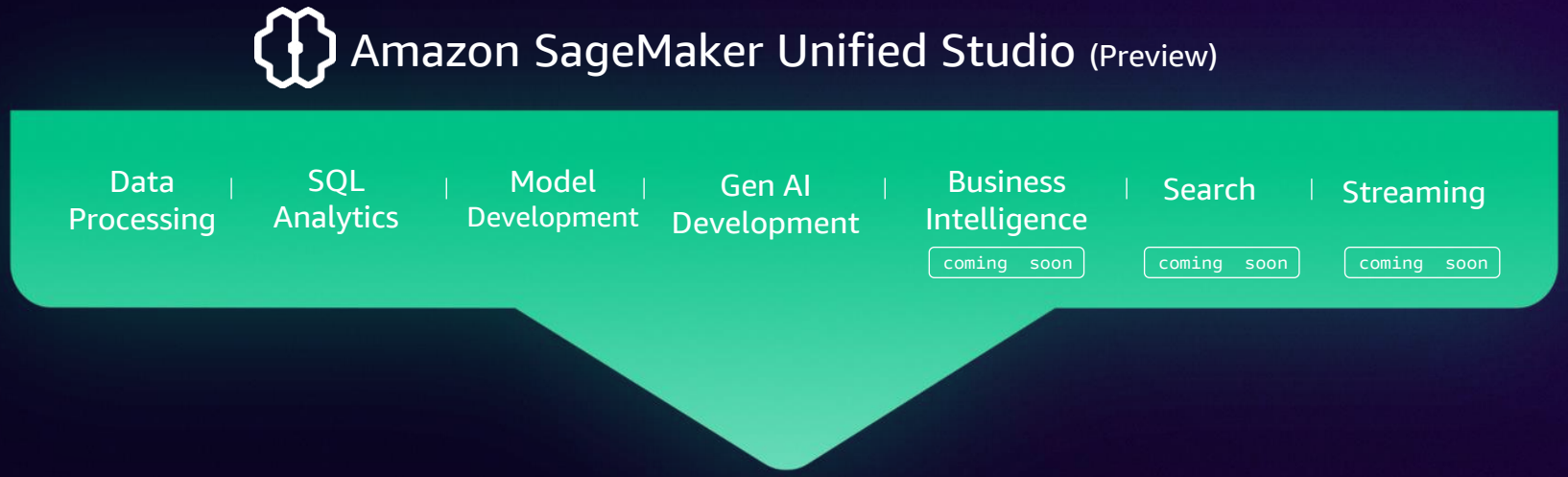
Amazon SageMaker Unified Studio

Preview

A SINGLE DATA AND AI DEVELOPMENT ENVIRONMENT



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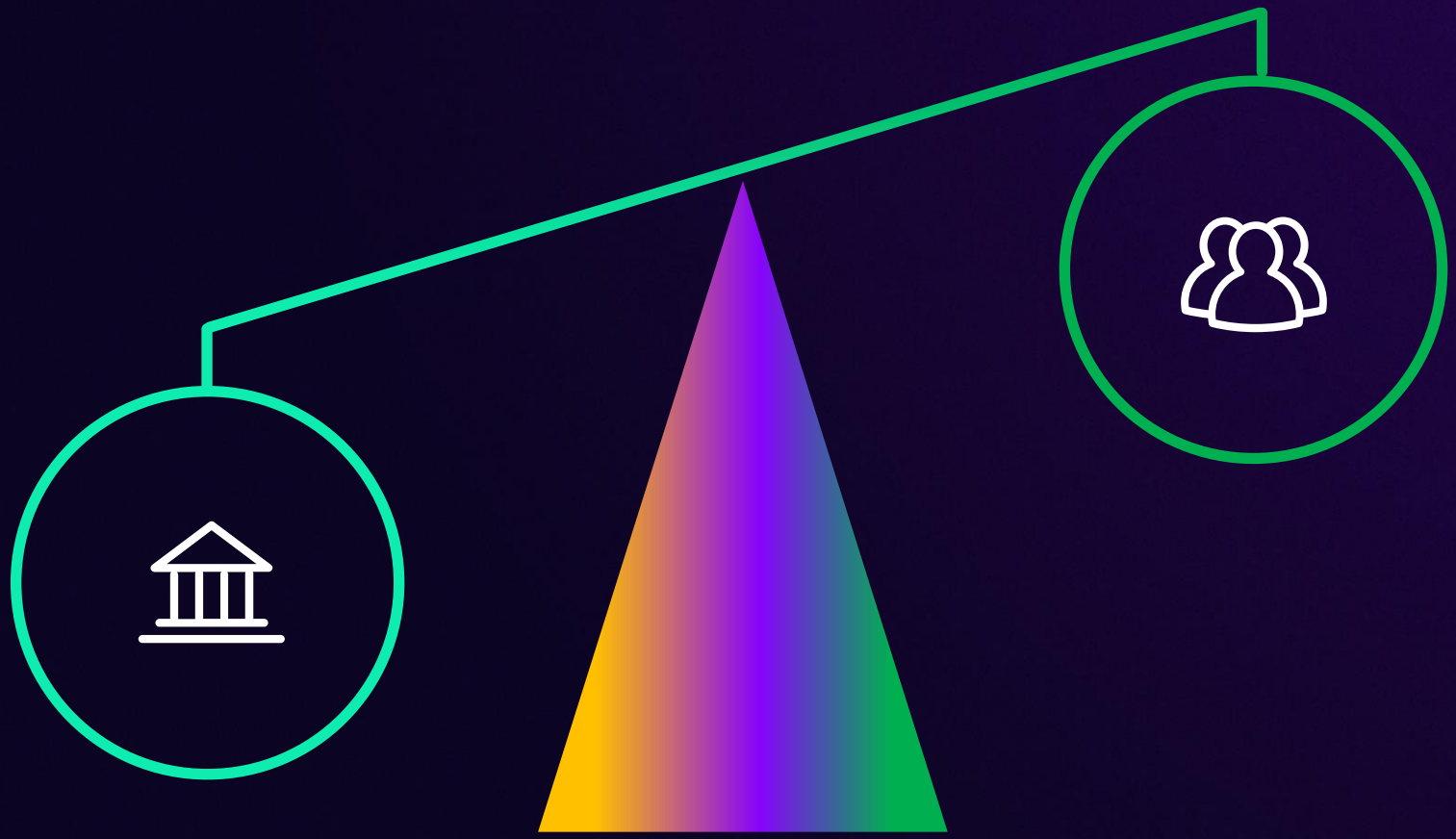
ANT204 | Beyond boundaries: Converging analytics and AI to reshape the future

Balancing democratization and governance



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Amazon SageMaker Catalog

GA

DISCOVER, GOVERN, AND COLLABORATE ON DATA AND AI SECURELY

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ANT303 | Explore what's new in data governance with AWS analytics

Workload-specific storage created data silos

Store

DATA WAREHOUSE

DATA LAKE

Data Owners

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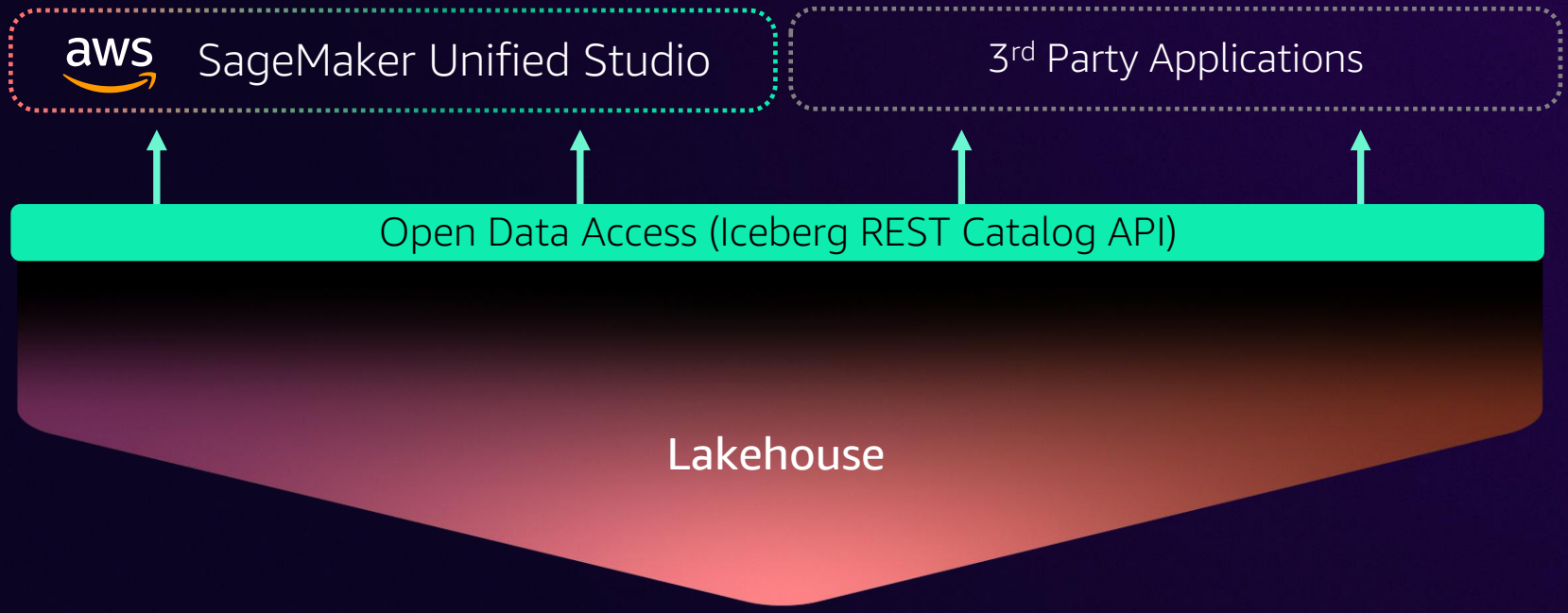
Amazon SageMaker Lakehouse

GA

SIMPLIFY ANALYTICS AND AI WITH AN UNIFIED, OPEN, AND SECURE DATA LAKEHOUSE



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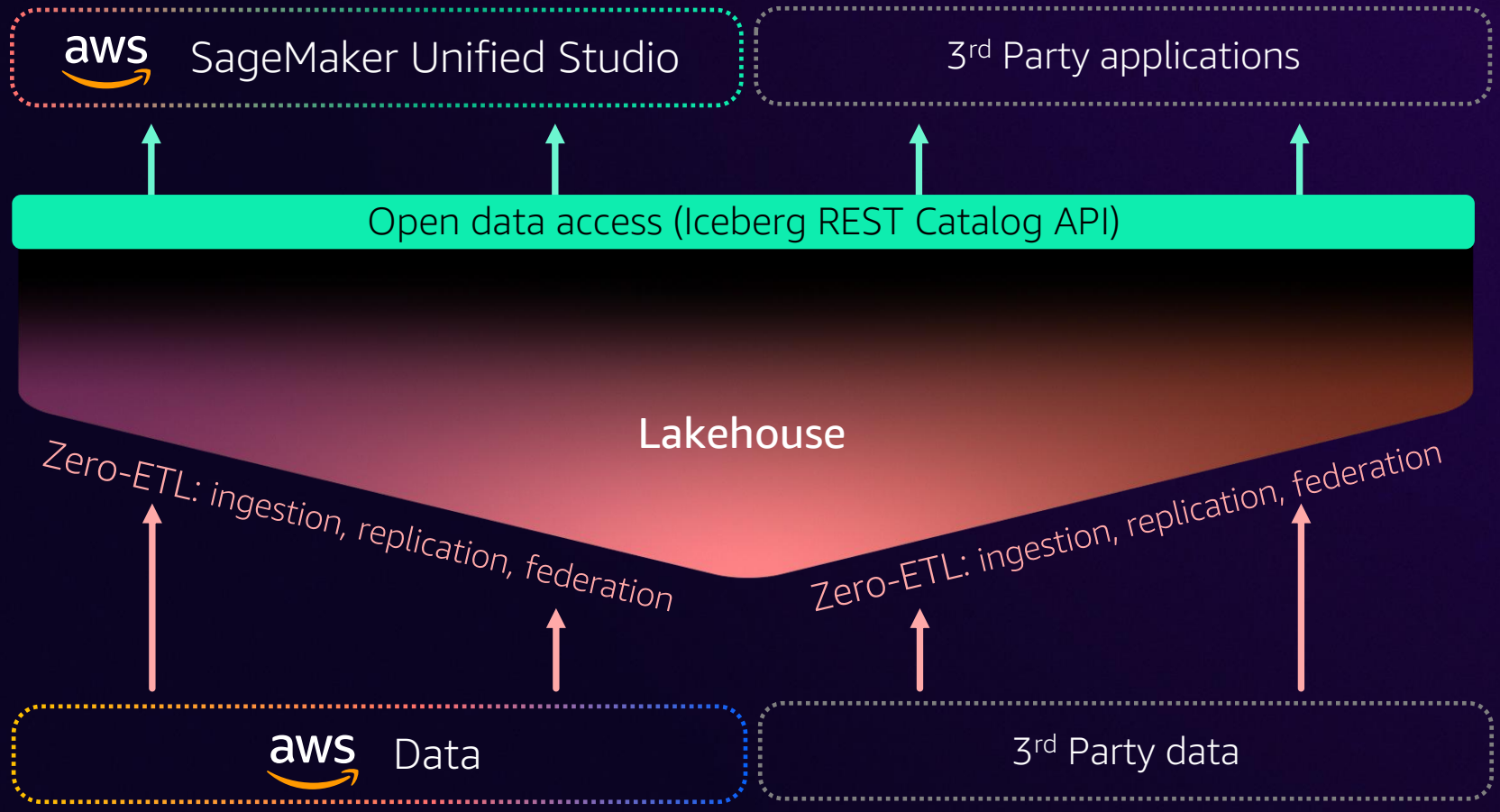
ANT354 | Accelerate your analytics and AI with a reimagined data lakehouse

Zero-ETL gives you access to all your data

SIMPLIFY ANALYTICS AND AI WITH AN UNIFIED, OPEN, AND SECURE DATA LAKEHOUSE



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ANT353 | Zero-ETL, zero hassle replication to the lakehouse from applications

The next generation of Amazon SageMaker

THE CENTER FOR ALL YOUR DATA, ANALYTICS, AND AI

SageMaker

AI

Develop and scale AI use cases with the broadest set of tools

Unified Studio

Collaborate and build faster with a single data and AI dev. environment

Lakehouse

Reduce data silos with an open lakehouse to unify all your data

Catalog

Meet your enterprise security needs with built-in data and AI governance

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Amazon SageMaker Unified Studio

Preview

A SINGLE DATA AND AI DEVELOPMENT ENVIRONMENT TO COLLABORATE AND BUILD FASTER

SageMaker Unified Studio

All of your data and tools for analytics and AI
in a single development environment

- Use best-in-class tools, no matter the job
- Train, customize, and deploy AI models at scale
- Rapidly build custom generative AI applications
- Accelerate your data journey with Amazon Q Developer

Embedded data and AI governance

aws

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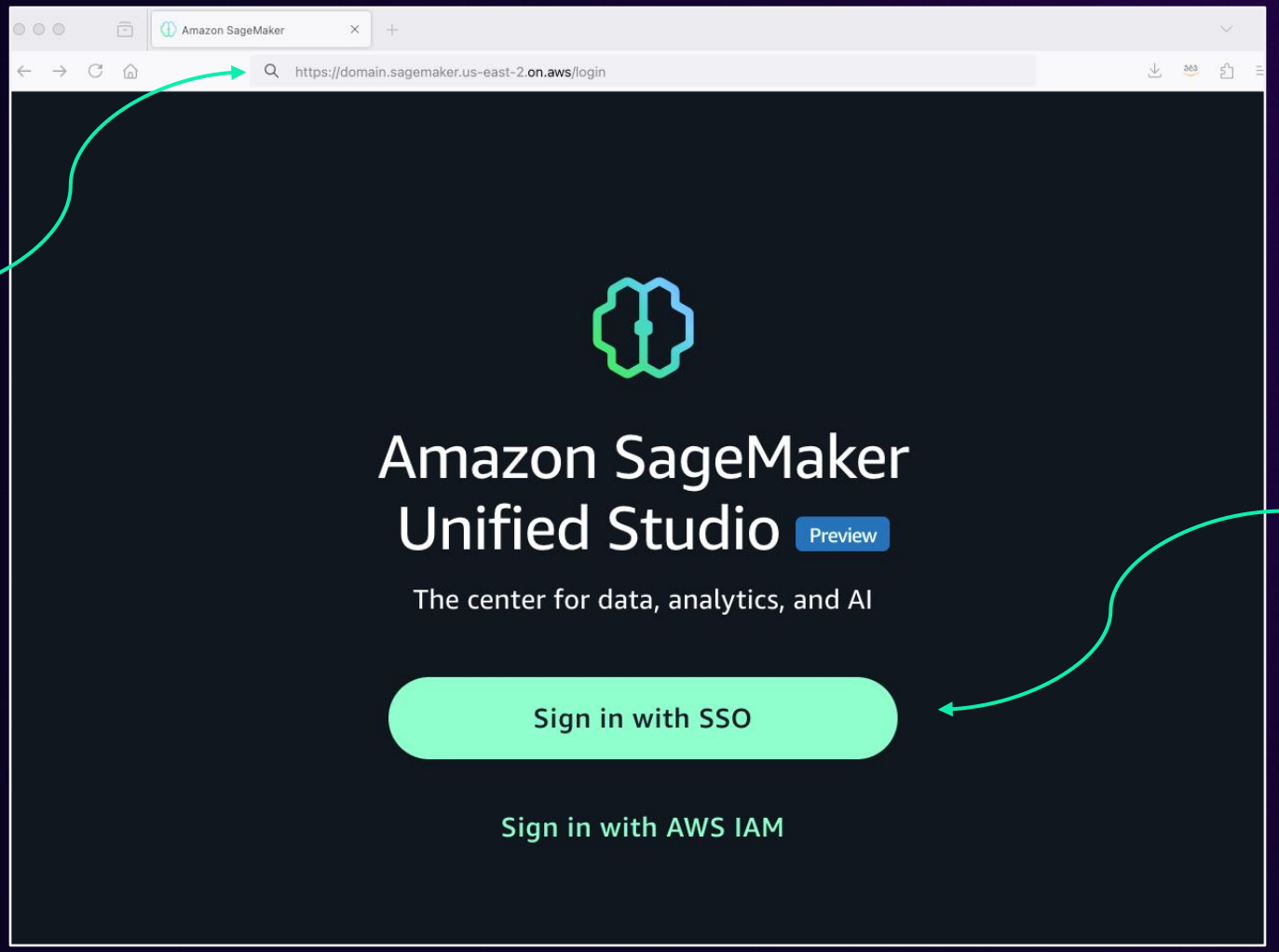
An integrated experience for all your data and AI

Preview

ACROSS REGIONS, ACCOUNTS, TOOLS, AND USE CASES

Global URL; No need to remember workload specific URLs for your projects



Login with IDC (preferred) support for Direct SAML & IAM

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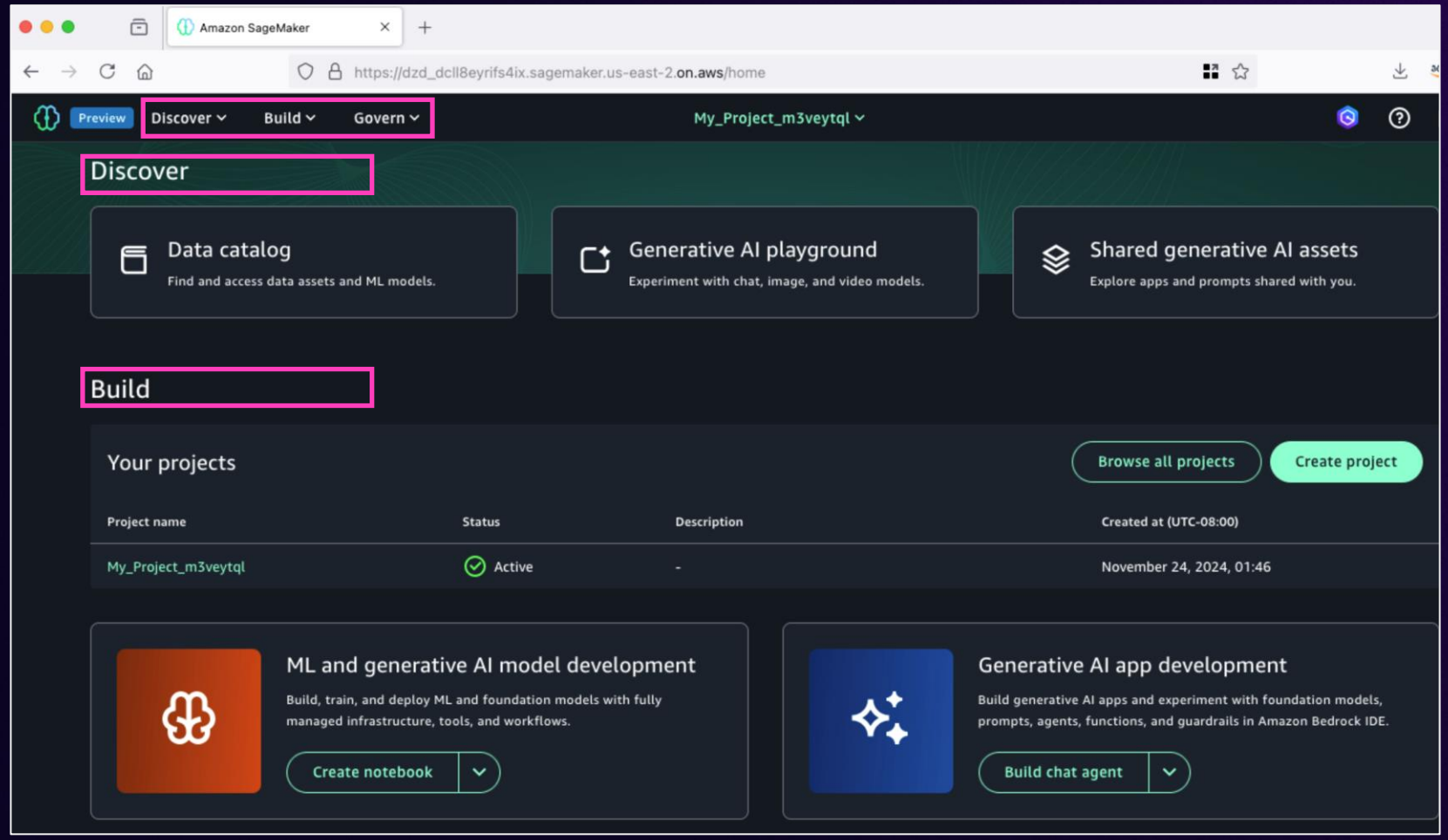
Discover, build, and govern data, analytics, and AI

Preview

DATA, AI/ML ARTIFACTS, TOOLS, CODE, AND USERS IN ONE PLACE



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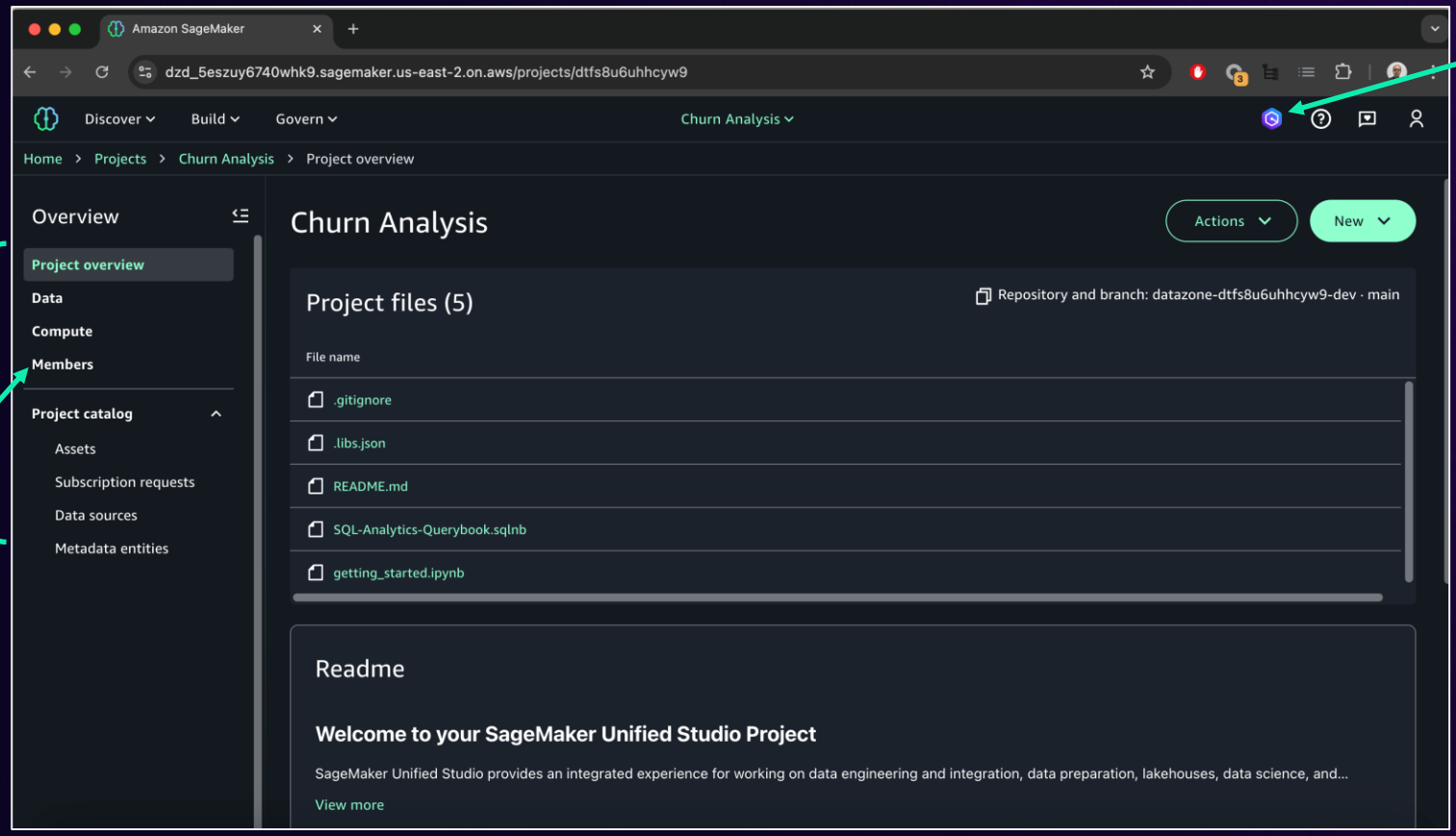
Builder experience is centered around projects

Preview

DATA, AI/ML ARTIFACTS, TOOLS, CODE, AND USERS IN ONE PLACE

Gen AI-assisted experience powered by Amazon Q

See the code, data, ML assets, and compute for your projects in one view



Work with notebooks, queries, models, and more from familiar AWS tools

Efficiently onboard variety of users so they can easily collaborate

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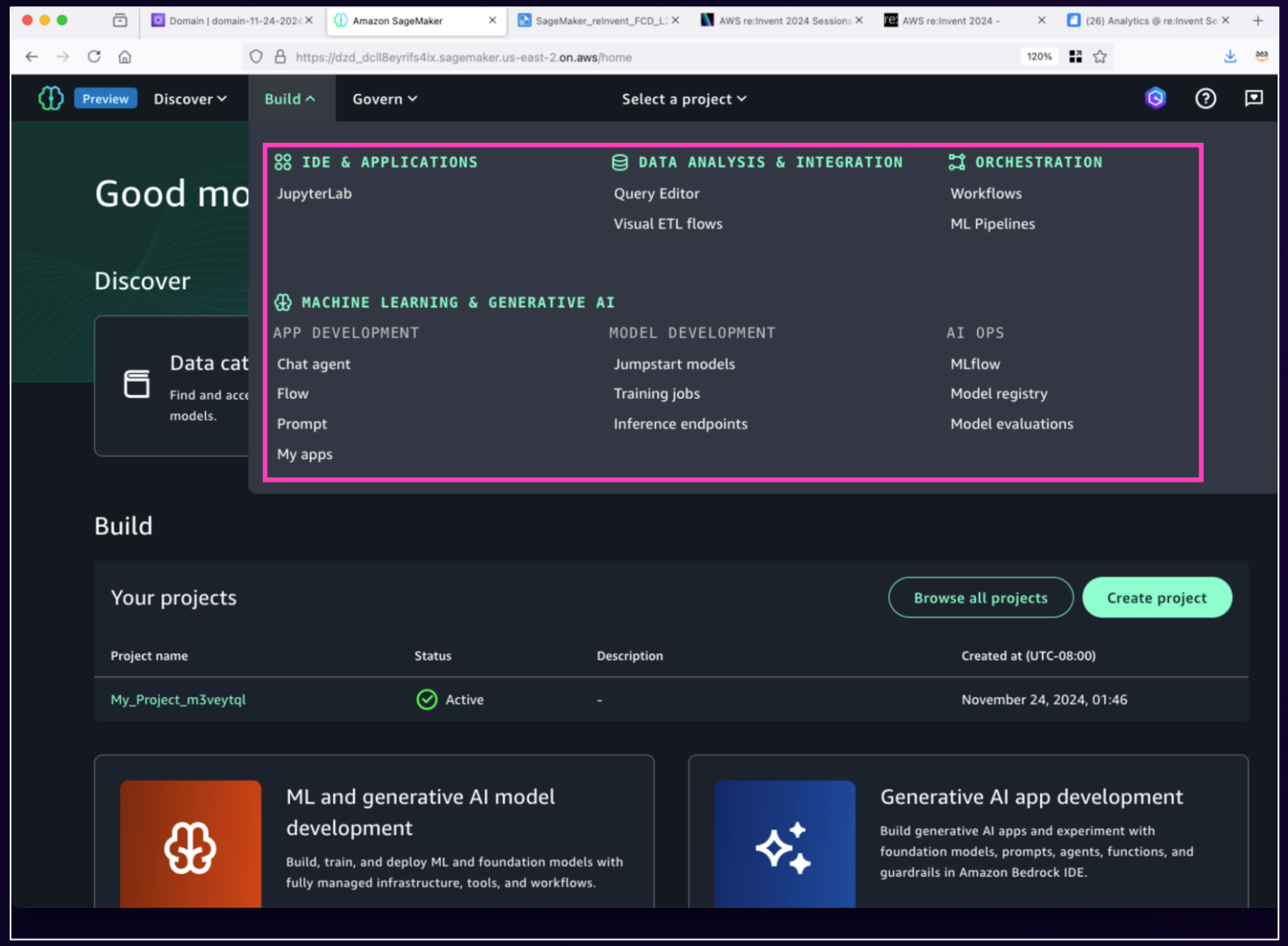
Specialized tools to support all your use cases

Preview



All the tools you need for data processing, SQL analytics, machine learning, and gen AI

Tools are integrated with git - you don't have to set up integrations

Tools share access to data; no need to configure tool specific permissions

Tools can connect to work with variety of AWS and 3rd party services

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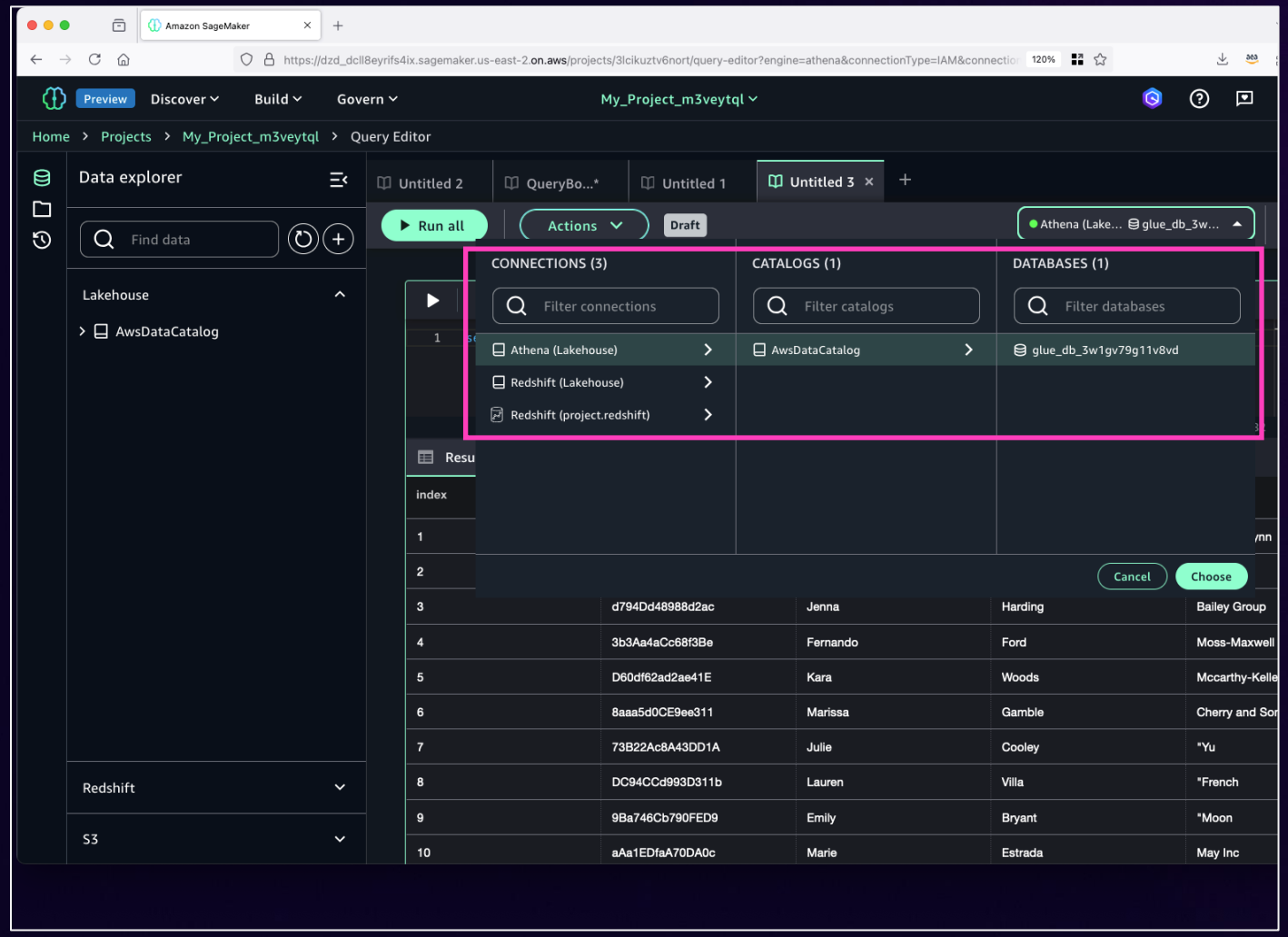
Unified Studio Query Editor

Preview

FOR YOUR DATA EXPLORATION AND SQL ENGINEERING WORKLOADS



Query data lakes, data warehouses, S3 buckets, and federated sources

Data explorer lets you explore all the datasets you have access to

Choice of Amazon Redshift or Amazon Athena engines

ANT349 | Innovations in AWS Analytics: Data warehousing and SQL analytics

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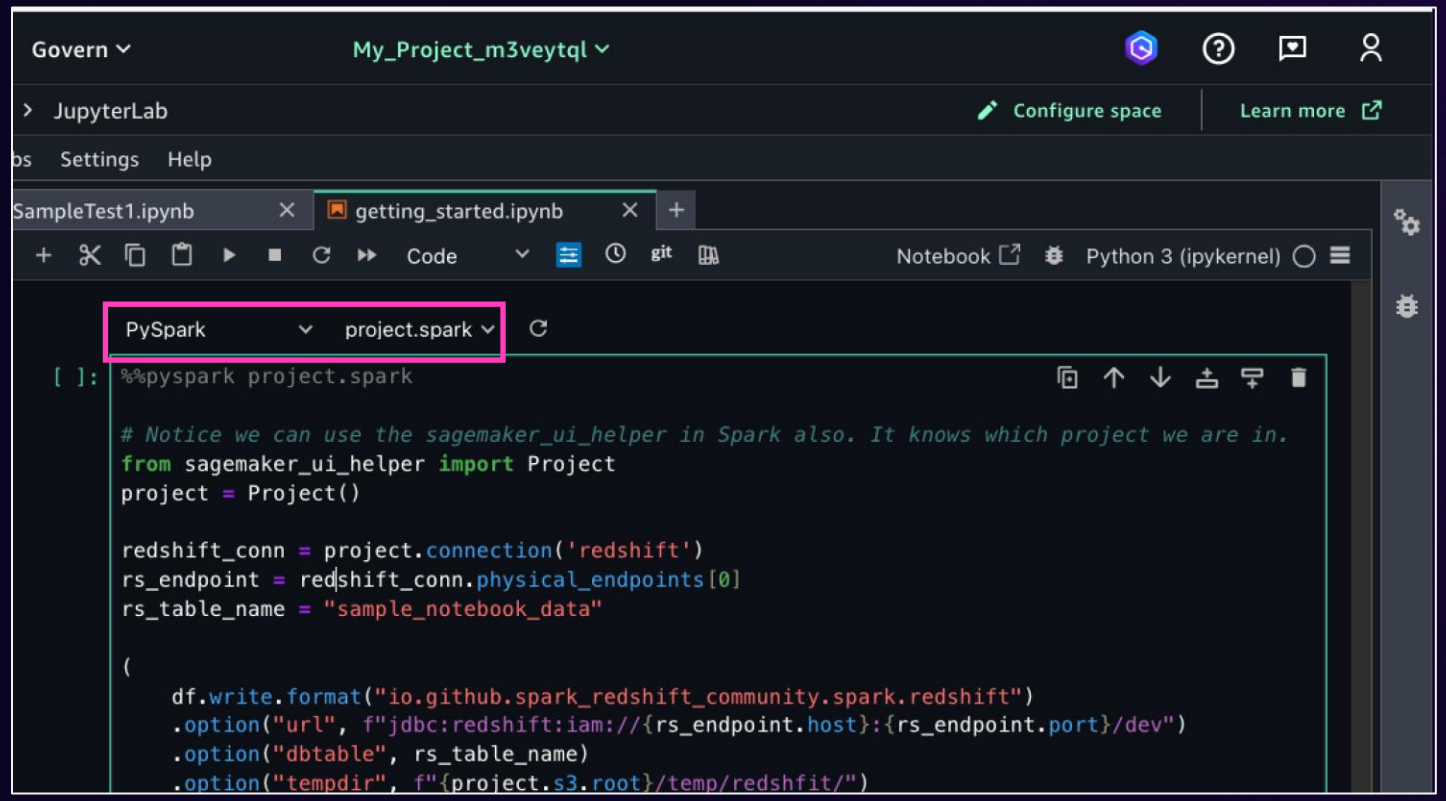
Unified Studio notebooks

FOR YOUR DATA ENGINEERING AND SPARK WORKLOADS

Preview



Use Spark, SQL, Python, and PySpark to process data

Choice of Amazon EMR (serverless and EC2), AWS Glue, and local engines

Configure instance and memory sizes based on your needs

Advanced debugging capabilities like SparkUI included

ANT346 | Innovations in AWS Analytics: Data processing

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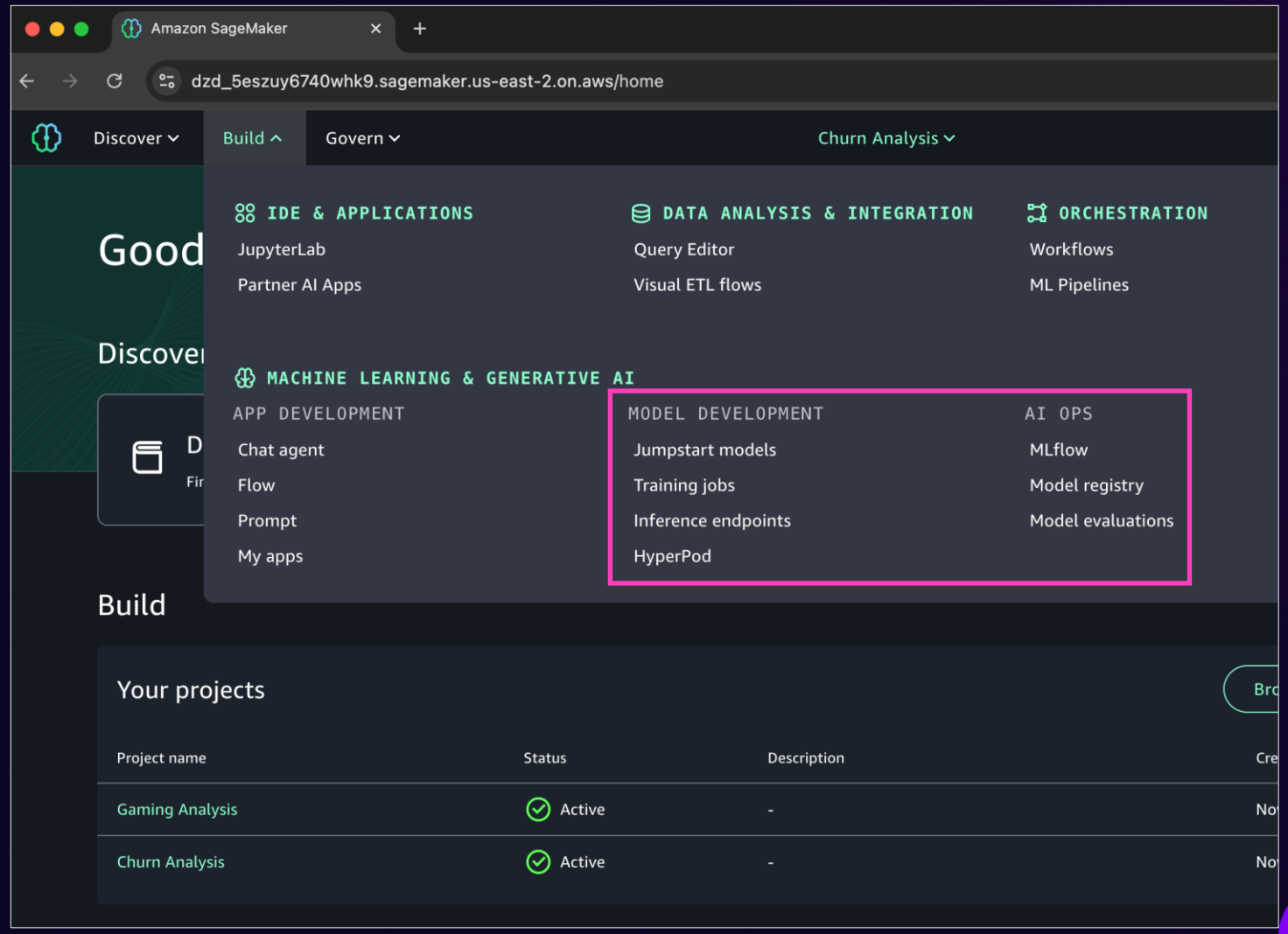
Unified Studio machine learning

Preview

FOR YOUR MODEL DEVELOPMENT AND MACHINE LEARNING WORKLOADS



Existing SageMaker AI tools in a unified data, analytics, and ML env.

Felxible and powerful: customize 400+ foundation models or deploy models on 70+ instance types

Hyperpod for largescale distributed training and model tuning

Integrated ML governance tools

AIM357 | Customizing models for enhanced results

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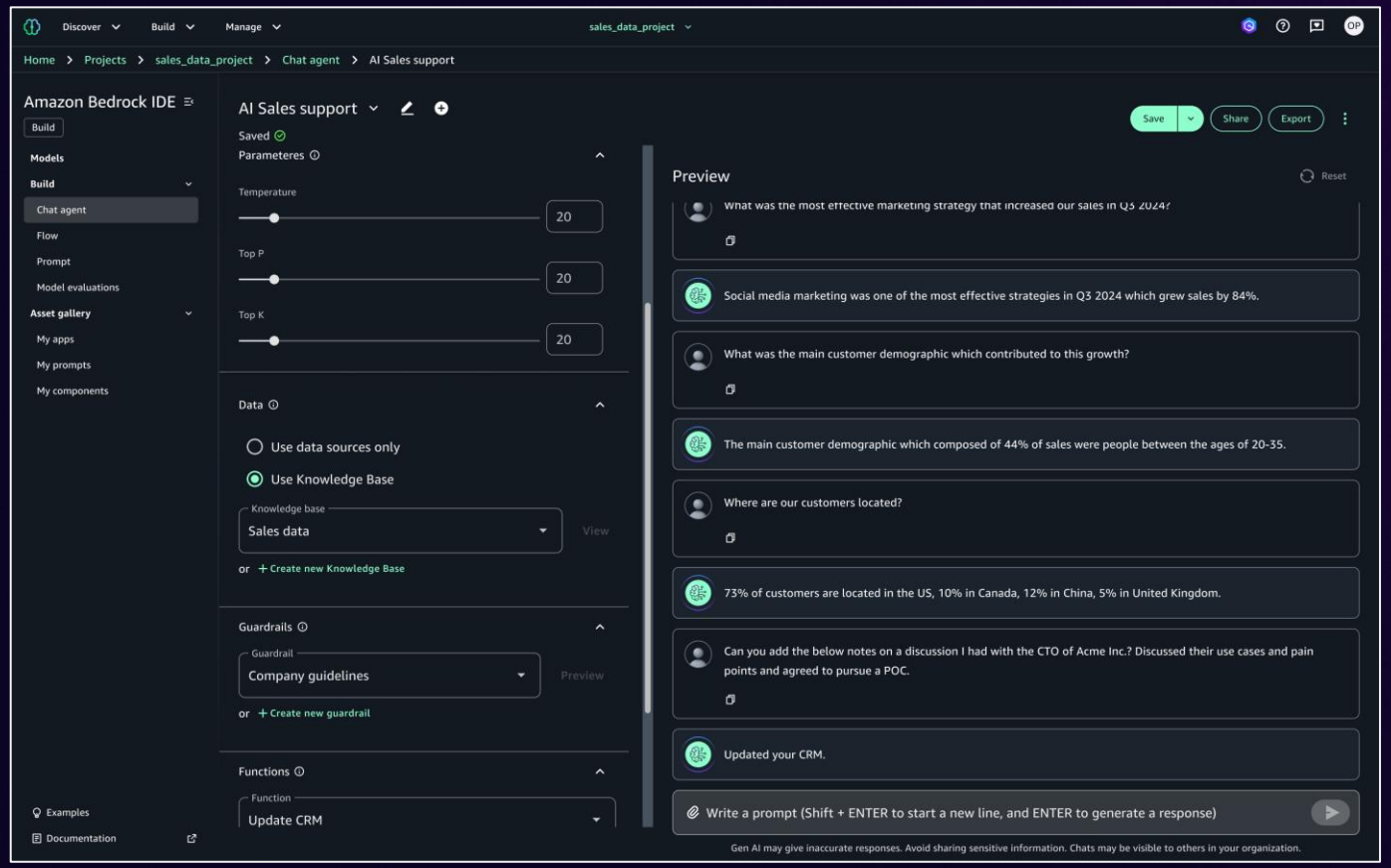
Unified Studio includes Amazon Bedrock IDE

Preview

ACCELERATE GENERATIVE AI APPLICATION DEVELOPMENT



Collaboratively build gen AI apps with stakeholders of all skill levels

Quickly compare text, image, or video foundation models

Visually create apps with a drag-and-drop flow designer

Customize with your data for your use cases with knowledge bases

Ensure responsible responses with guardrails and filters

ANT355 | Accelerate generative AI app development with Bedrock IDE

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Amazon Q integrations to boost productivity

Preview

USE NATURAL LANGUAGE TO DISCOVER, BUILD, AND GOVERN

Q & A

Ask questions about SageMaker, understand best practices, quickly get info about your AWS resources, and more!

Data discovery

Search and discover data from your BDC using natural language

Code authoring

Generate code snippets or entire functions, identify and fix errors, upgrade apps to newer versions

SQL querying

Simplify query authoring and increase productivity. Express queries in natural language and receive SQL code recommendations

AMAZON Q ASSISTANT FOR AWS PRODUCT DOCUMENTATION, HELP, AND RESOURCES

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ANT352 | AI-Powered Data Integration and Governance with Amazon Q Developer

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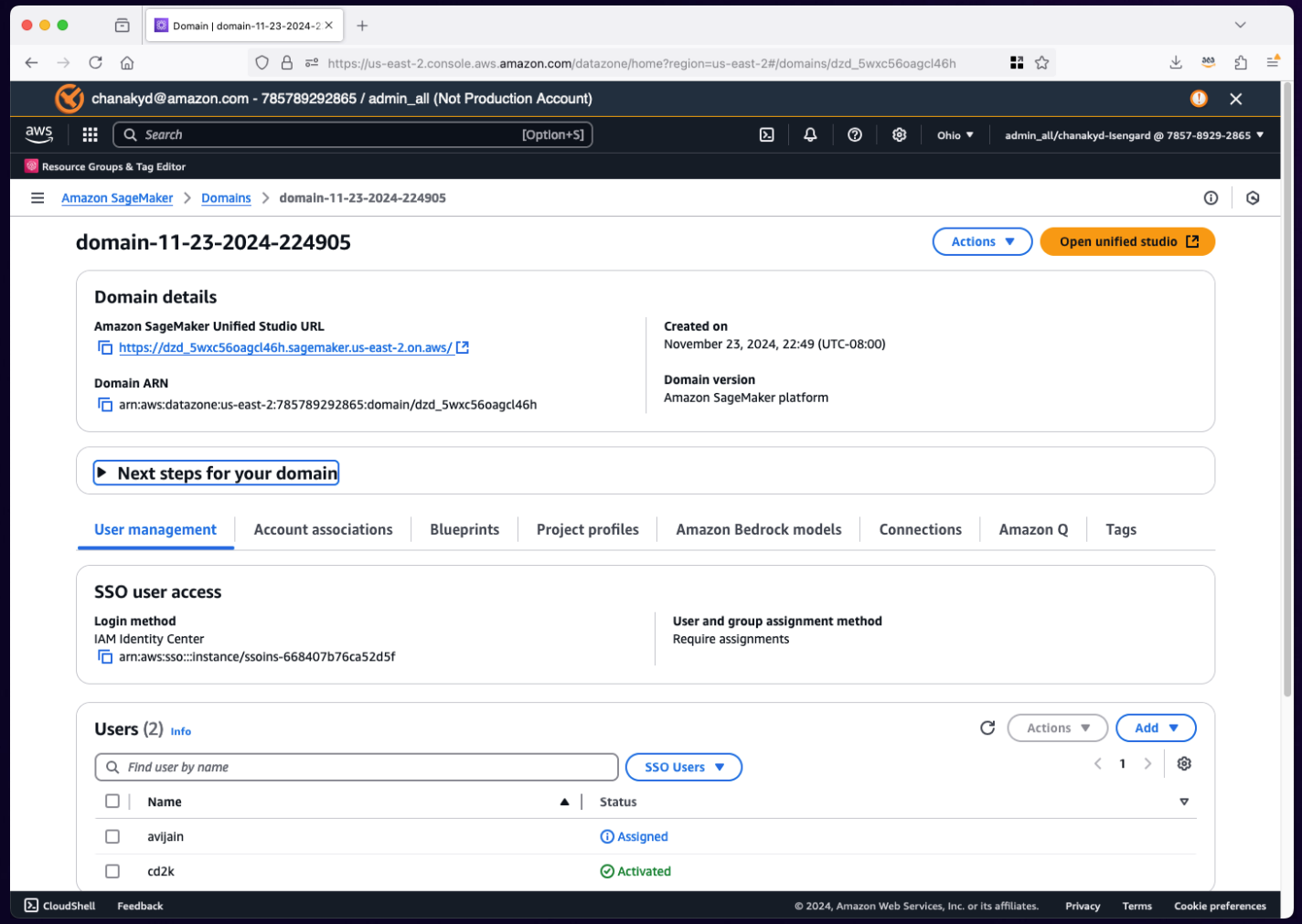
Domains: Model your organization

Preview



Unified Studio with a unique URL per domain

Provide consistent management of studio, accounts, users, network…

Start simply with single account and associate accounts to expand

Flexible to support your account and data sharing architectures

ANT351 | Accelerating data and AI development with the next gen SageMaker

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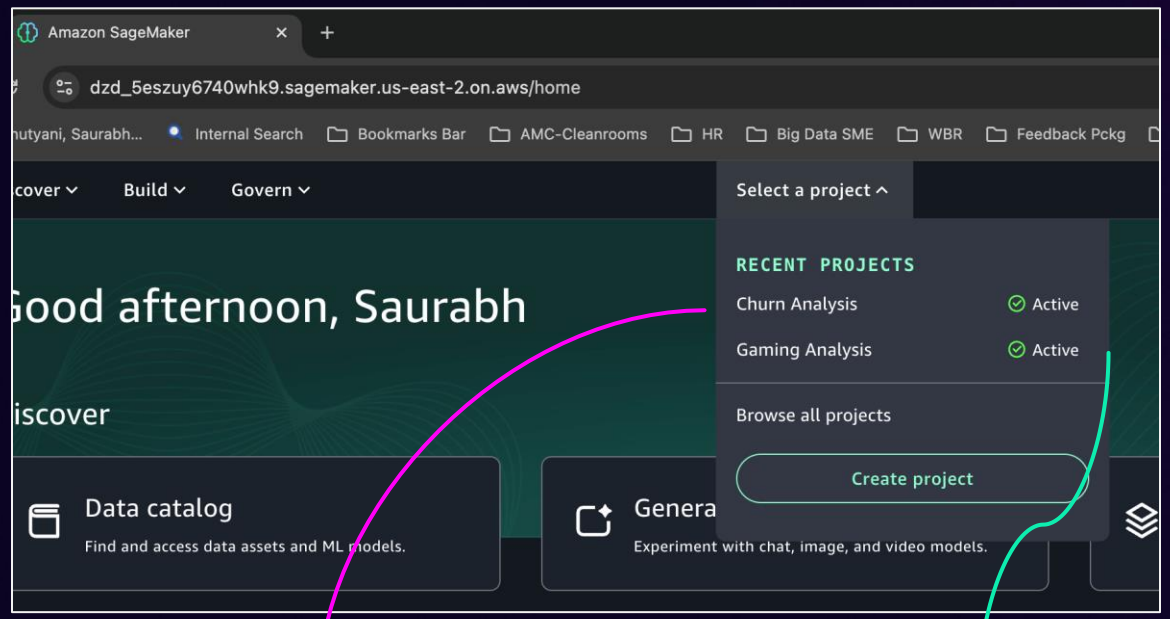
Projects: Simplify development and collaboration

Preview

ACROSS REGIONS, ACCOUNTS, TOOLS, AND USE CASES



Churn Analysis

Region A

Account 1 | Account 2 | Account 3

Project metadata: git repo, users, permissions, etc.

Gaming Analysis

Region B

Account 1

Project metadata: git repo, users, permissions, etc.

Access projects across regions and accounts from the Unified Studio

Mental model: you are federating into different accounts in different regions and assuming a role

Project metadata includes regions, accounts, users, and git repo

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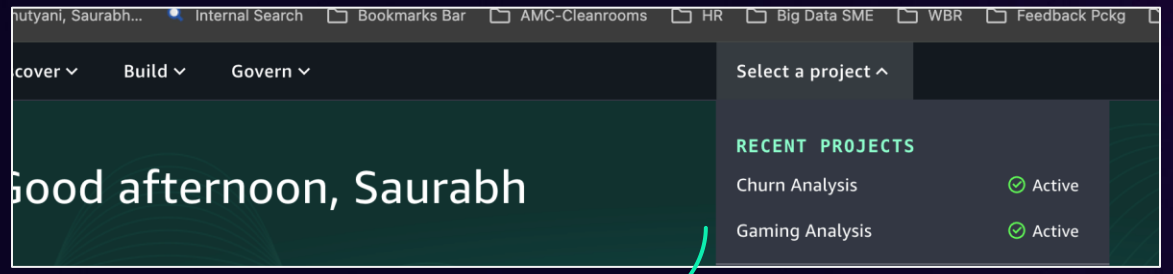
Project Roles: Provide access to resources

Preview

ACROSS REGIONS, ACCOUNTS, TOOLS, AND USE CASES



Projects contain one of more project roles

There is at least one project role per account the project is in

This role has access to tools, compute, data, and ML assets

To deploy environments use blueprints

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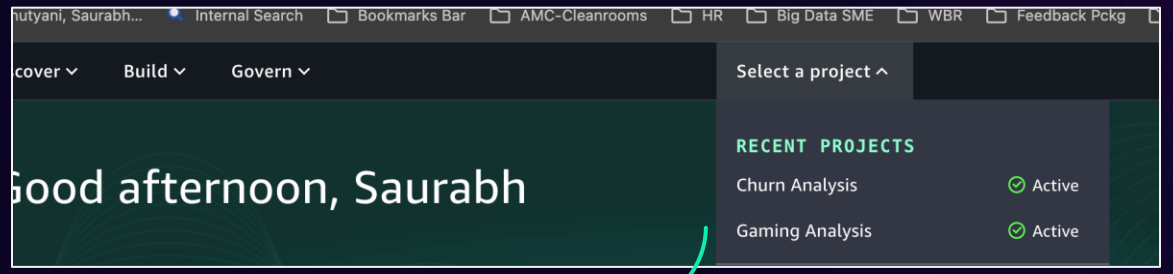
Project Roles: Provide access to resources

Preview

ACROSS REGIONS, ACCOUNTS, TOOLS, AND USE CASES



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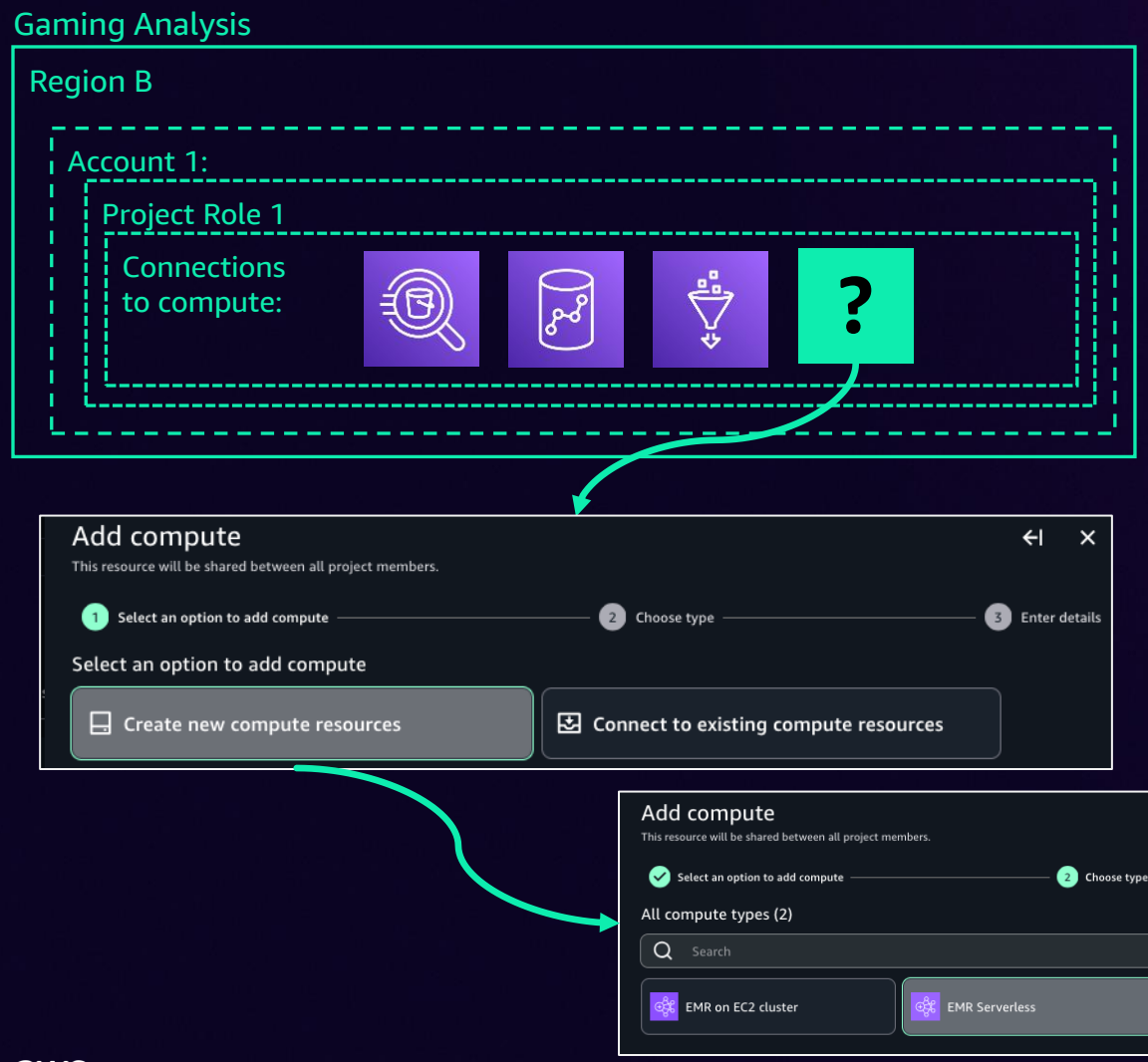
Blueprints: Enable responsible self-service

Preview



Bring existing resources: Redshift, EMR, SageMaker AI, and Amazon Bedrock

Create ad-hoc resources as needed within projects

Redshift & EMR endpoints, Amazon Bedrock components, federated connectors

With appropriate governance guardrails and lifecycle management

ANT351 | Accelerating data and AI development with the next gen SageMaker

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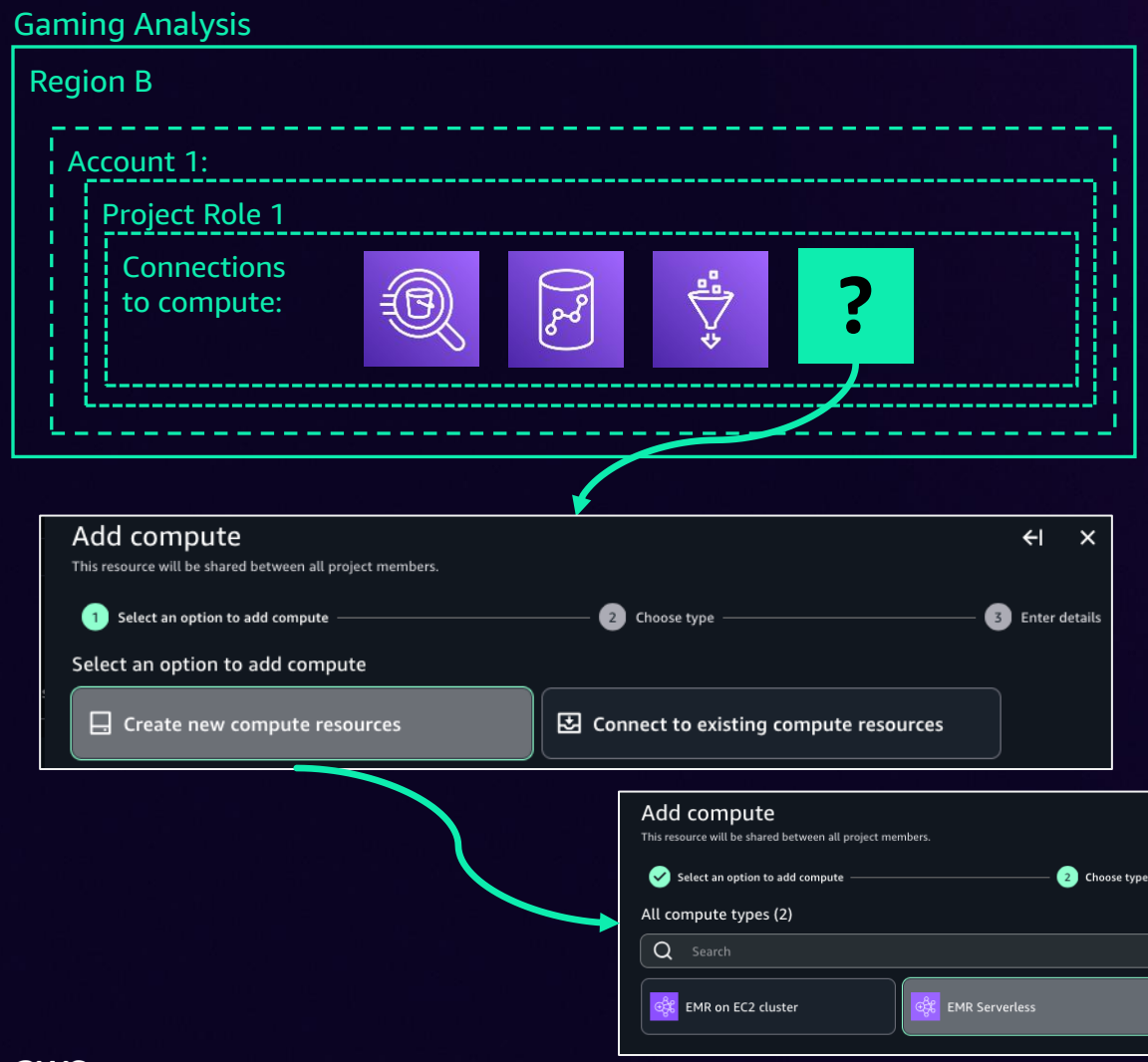
Blueprints: Enable responsible self-service

Preview



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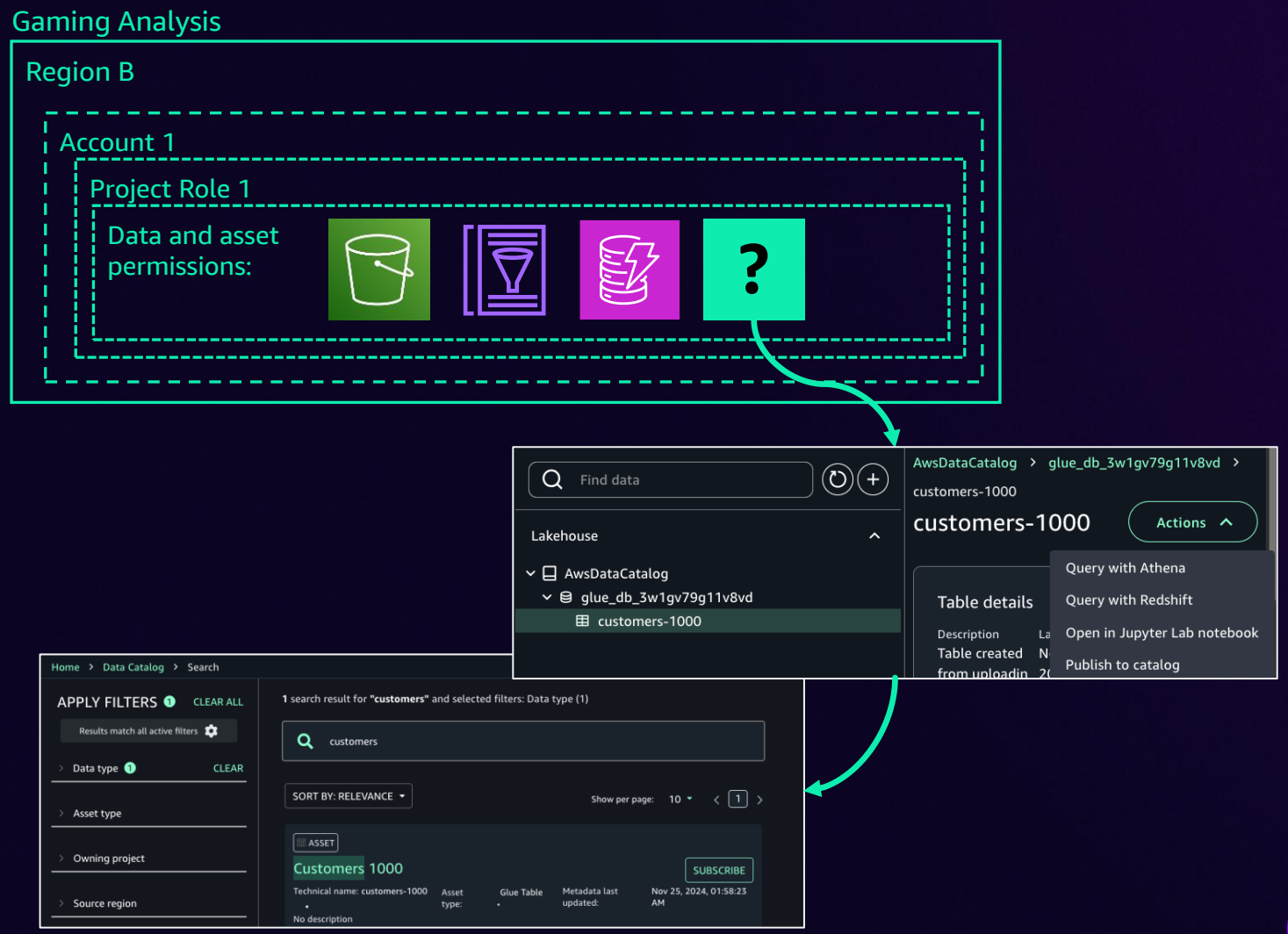
Catalog: Asset discovery and permissions mgmt.

Preview



Add IAM, LF, or resource policies to provide the env's role access to assets

Managing these permissions can be cumbersome and error prone

Publish to catalog and allow data workers to subscribe to assets

SageMaker Catalog orchestrates and automates permissions mgmt.

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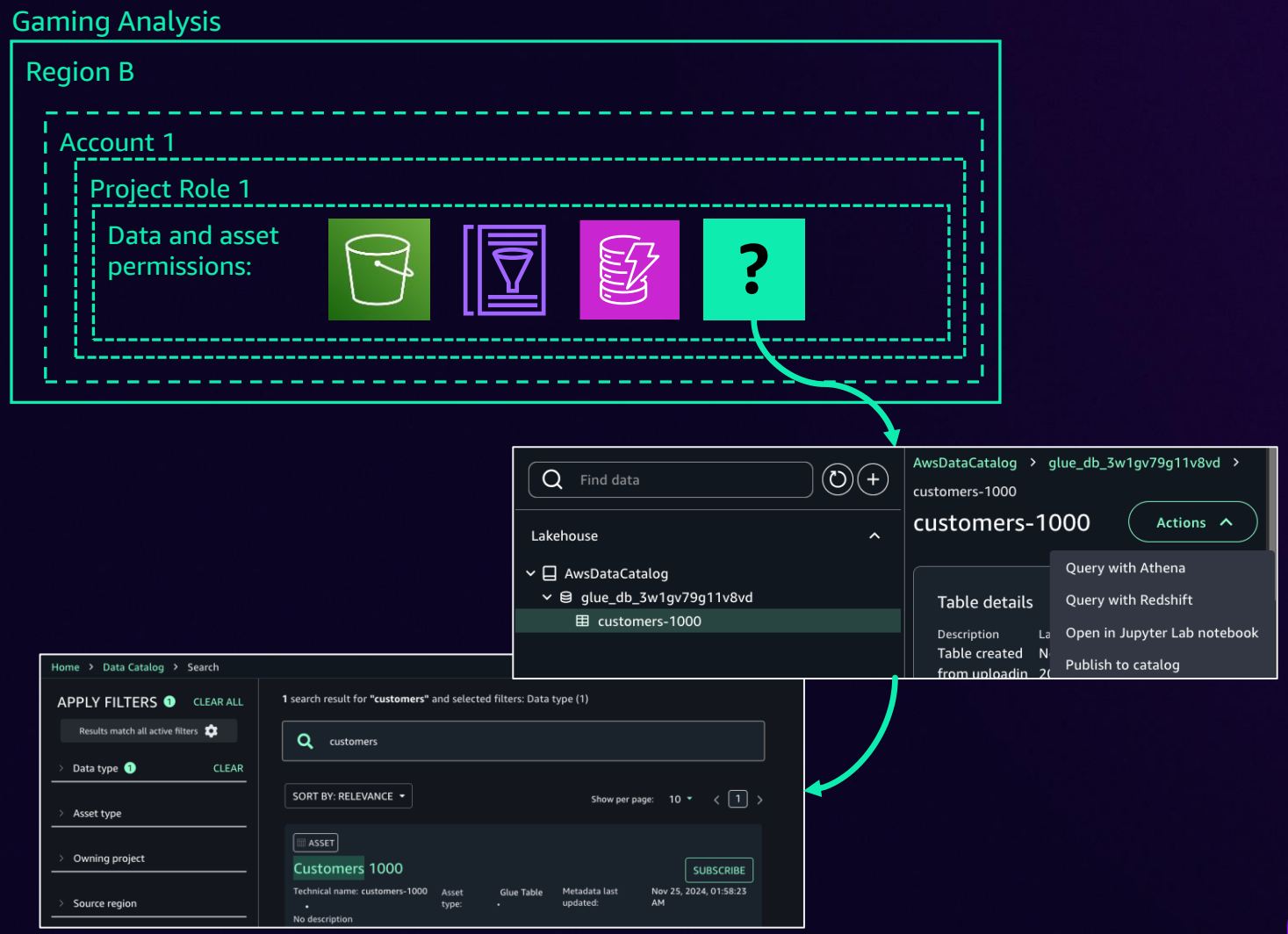
Catalog: Asset discovery and permissions mgmt.

Preview



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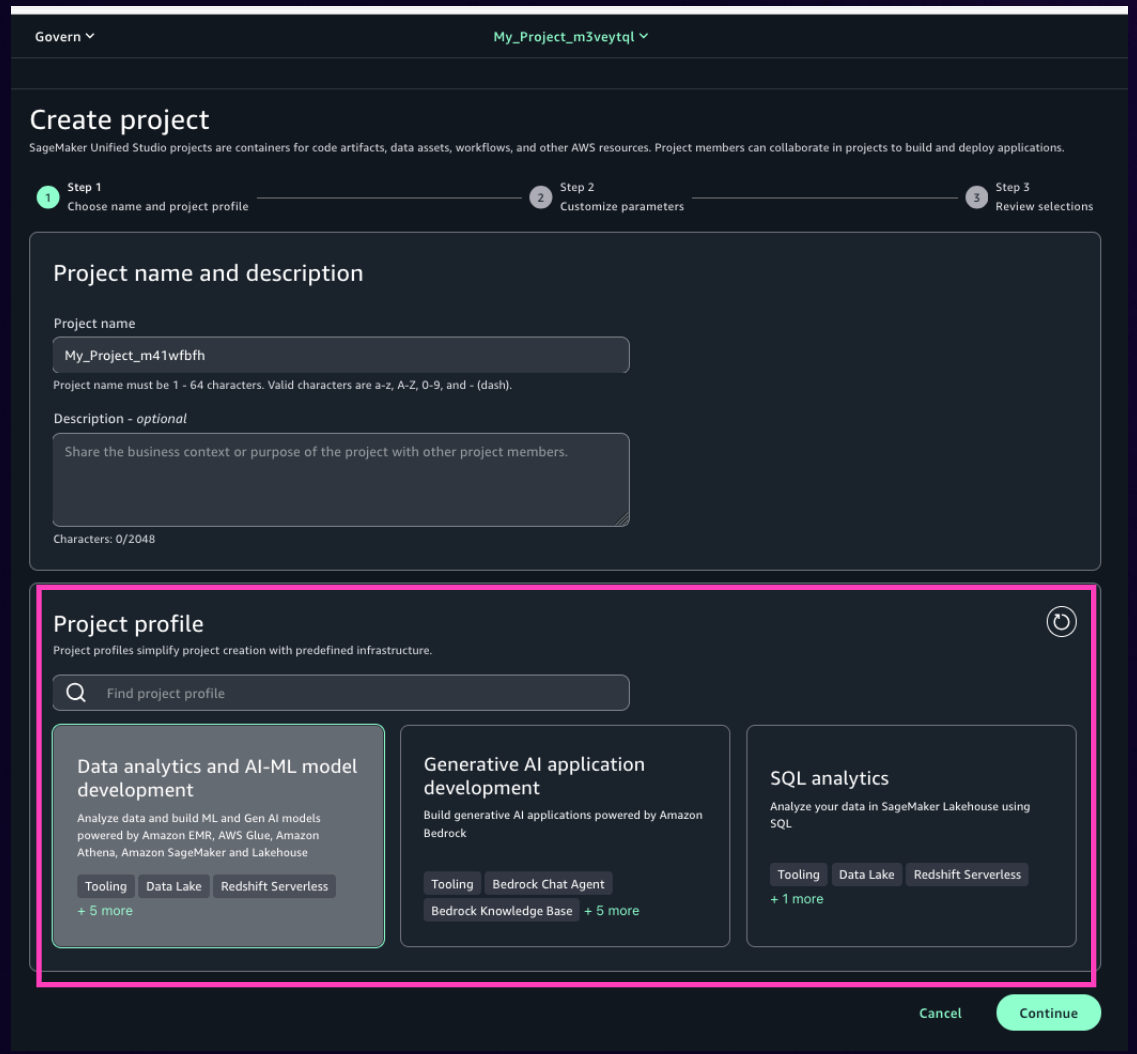
Project profiles: create projects

Preview



Quickly create projects for specific use cases with project profiles

Project profiles are templates that:

- set up environments
- provision and connect to compute
- enable Blueprints for self-server resources

Use one of the 3 included profiles of create your own

ANT351 | Accelerating data and AI development with the next gen SageMaker

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> We want to streamline the process of data assessment, so our data analysts, ML scientists, and data engineers can work efficiently . . . we are excited about the launch of Amazon SageMaker Unified Studio and its ability to simplify data access and enhance collaboration.

Oscar Chang

Chief Development Officer, Trend Micro

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Why the next generation of Amazon SageMaker?

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Intro — Chris Jackson

Head of Digital Data and Analytics for the Olympics

- Across olympics.com, @olympics and Olympics apps
- Leads teams responsible for Analytics, AI, and Data Management

Before the Olympics

- Strategy: Manager at McKinsey, Head of Strategy at the BBC
- Tech: Founded a data startup an, engineer on early speech to text AI
- Sport: Produced sports radio shows
- *And inadvertently the first person to tweet the term "Big Data"*

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Paris Olympics in numbers

THE BIGGEST DIGITAL SPORTING EVENT EVER

24,000+ media personnel

1,200+ cameras

32 sports

39 venues

205 territories represented

91 territories won a medal

300M+ users on olympics.com

12B+ engagements on @olympics

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Behind the scenes

ORGANIZATIONAL COMPLEXITY

- Host cities
- Official partners
- Sports federations
- Media rights holders
- National teams
- Other media

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Behind the scenes

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Data complexity

TWO WEEK PEAK EVERY FOUR YEARS

x3 ⇧
Users

X1.7 ⇧
Frequency

x2 ⇧
Actions

Writes x150

x40 ⇧
Users

x3.75 ⇧
Actions

Read capacity x10

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Our approach

SERVERLESS FROM BIRTH

Sources

40+ Additional Data Sources

INGEST

API Gateway

Quicksight

Databrew

Step Functions

Storage Gateway

PROCESSING

Kinesis

Lambda

Cloud Formation

Glue

Flink

Storage

Redshift

S3

Athena

Lake Formation

OpenSearch

Use

AI & ML

SageMakers

AI Tools

Power BI

Personalization

API Gateway

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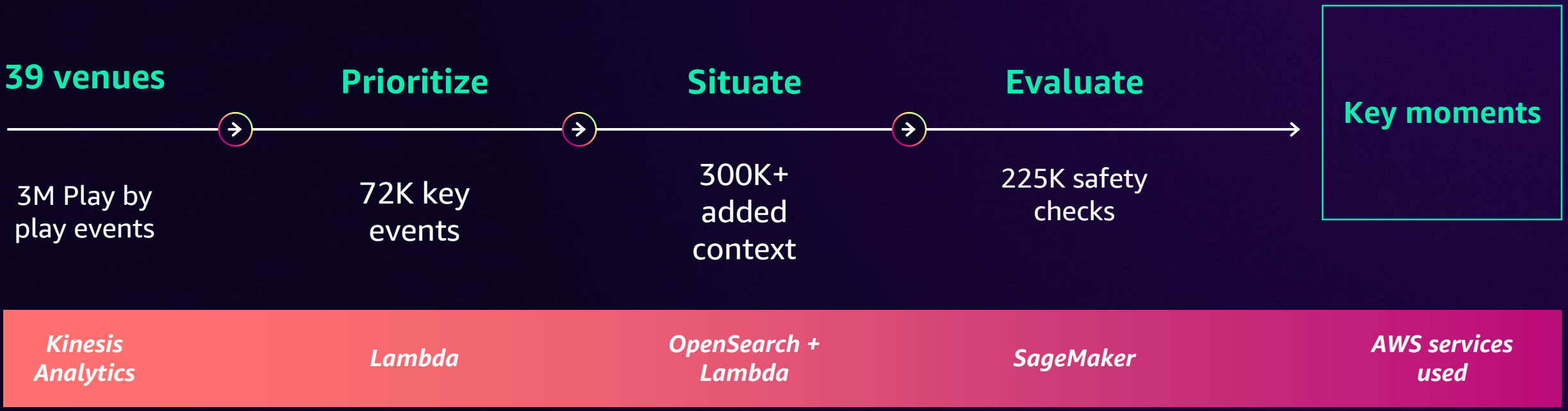
AI at Olympic scale

INTRODUCING OUR MOST DEMANDING USER



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Towards LA 2028 — Our needs

- Fast and effective onboarding of data workers
- Adding resource fast to meet unexpected demands
- Across a complex web of organizations
- … while complying with media rights and regulations

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Amazon SageMaker Unified Studio empowers builders

Amazon SageMaker Unified Studio key concepts

Solving for the unique challenges of olympics.com

Demo

Conclusion

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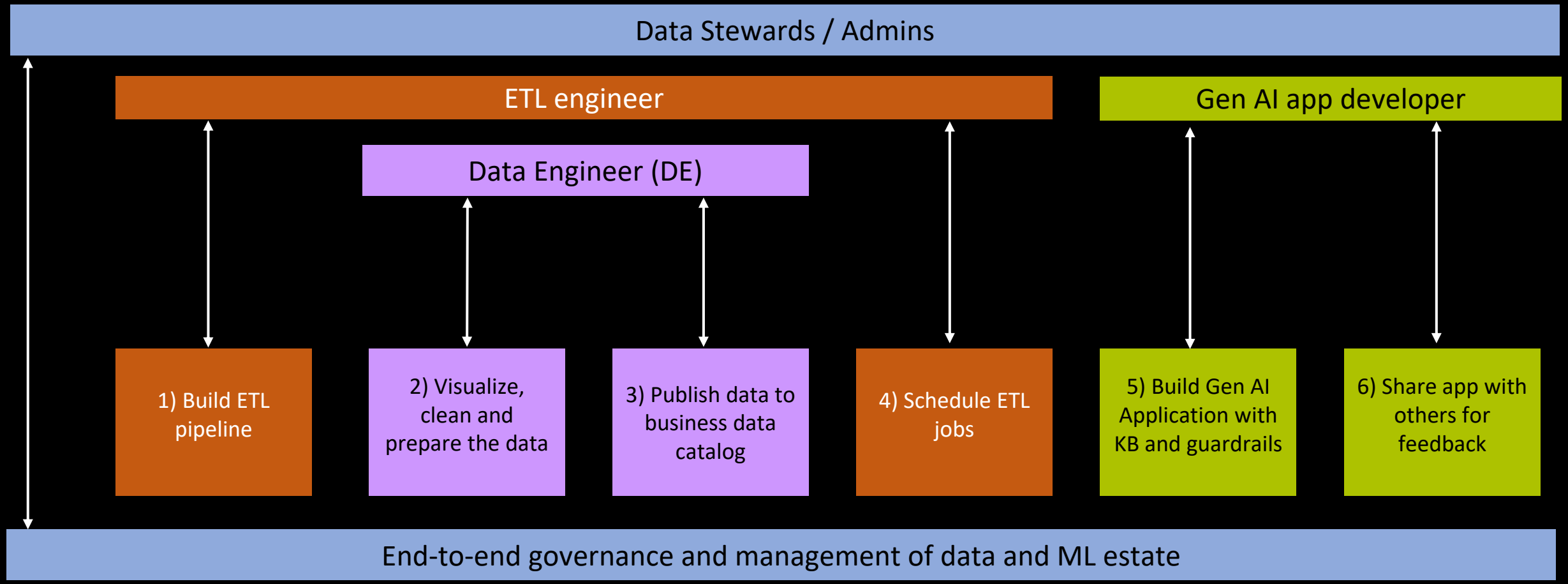
SageMaker Unified Studio – SportsVision Demo



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Good afternoon, Rachel

Discover

Data catalog
Find and access data assets and ML models.

Generative AI playground
Experiment with chat, image, and video models.

Shared generative AI assets
Explore apps and prompts shared with you.

Build

Browse all projects | Create project

ML and generative AI model development
Build, train, and deploy ML and foundation models with fully managed infrastructure, tools, and workflows.

Create notebook

Generative AI app development
Build generative AI apps and experiment with foundation models, prompts, agents, functions, and guardrails in Amazon Bedrock IDE.

Build chat agent

Data processing and SQL analytics
Analyze, prepare, and integrate data for analytics and AI using Amazon Athena, Amazon EMR, AWS Glue, and Amazon Redshift.

Create SQL query

Data and AI governance
Publish your data products to the catalog with glossaries and metadata forms. Govern access securely in the Amazon SageMaker Catalog built on Amazon DataZone.

Publish data

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Help and documentation

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Good evening, Nina

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Your projects

Browse all projects | Create project

Project name	Status	Description	Created at (UTC-08:00)
SportsVision_chat_app	Active	-	November 30, 2024, 17:43

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THE CENTER FOR ALL YOUR DATA, ANALYTICS, AND AI

SageMaker

AI

Develop and scale AI use cases with the broadest set of tools

Unified Studio

Collaborate and build faster with a single data and AI dev. environment

Lakehouse

Reduce data silos with an open lake house to unify all your data

Catalog

Meet your enterprise security needs with built-in data and AI governance

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Chanu Damarla

Chris Jackson

Anchit Gupta

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