



MIAMI LEARNING DAY  
DATA AND ANALYTICS TRACK

# AI/ML for Data and Analytics

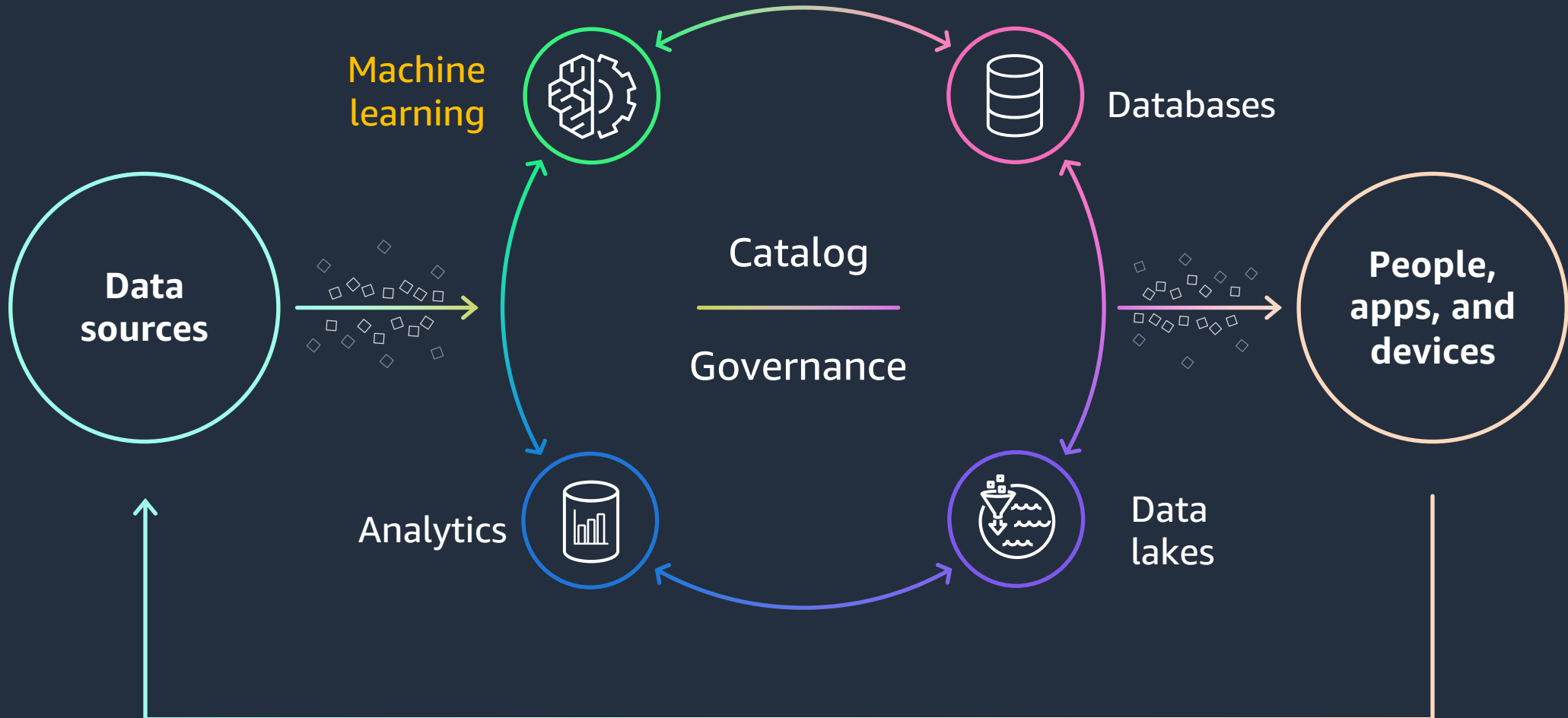
**Hiren Deliwala**

Solutions Architect Leader

State & Local Government/Education

[hdaws@amazon.com](mailto:hdaws@amazon.com)

# Modern data strategy in action



# AI/ML/Gen AI Hierarchy



## Artificial intelligence (AI)

**Any technique that allows computers to mimic human intelligence using logic, if-then statements, and machine learning**



## Machine learning (ML)

**A subset of AI that uses machines to search for patterns in data to build logic models automatically**



## Deep learning (DL)

**A subset of ML composed of deeply multi-layered neural networks that perform tasks like speech and image recognition**



## Generative AI

**Powered by large models that are pretrained on vast corpora of data and commonly referred to as foundation models (FMs)**

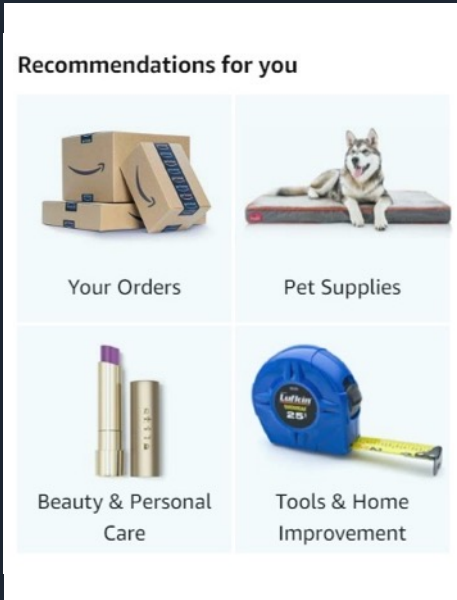


# AI/Machine learning (ML) is at an inflection point

**Key drivers:** Compute capacity increase | Data growth | Model sophistication



# ML innovation is in Amazon's DNA



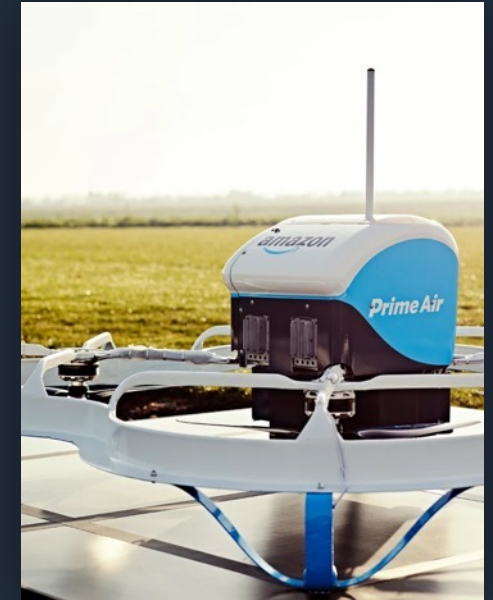
**4,000 products  
per minute** sold  
on Amazon.com



**1.6M packages**  
every day



**Billions** of Alexa  
interactions each week



First Prime Air delivery  
on **December 7, 2016**



More than **100,000 customers** use AWS for ML



# The Amazon Web Services AI/ML stack

Consumer

## AI SERVICES

### Generative AI

#### SCALING GENERATIVE AI

Amazon Bedrock

#### AMAZON BUILT FOUNDATIONAL MODEL

Amazon Titan

### 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

Tuner

## AMAZON SAGEMAKER

### JUMPSTART

Use pre-built models in SageMaker

### CANVAS

No-code ML for business analysts

### STUDIO LAB

Learn ML

### GROUND TRUTH

Label data

### STUDIO IDE

Prepare data  
Store features

Geospatial ML

Build with notebooks

Train models  
Tune parameters

Deploy in production  
Manage and monitor

----- CI/CD | GOVERNANCE | RESPONSIBLE ML -----

Provider

## ML FRAMEWORKS AND INFRASTRUCTURE

PyTorch, TensorFlow

Amazon EC2

CPUs

GPUs

AWS Inferentia

AWS Trainium

Habana Gaudi

FPGA



# Challenges we are hearing from state and local government customers



**Demand for government services is rising** while resources and capacity to deliver them **aren't keeping pace**



Citizens increasingly expect government to **provide modern digital experiences** for conducting online transactions



**Aging infrastructure** for data capture, storage, and management **creates friction** for leveraging data for analytics and machine learning



**Complex security, privacy, and compliance requirements** create barriers to change and block adoption of many SaaS solutions



**Risk averse culture** and institutional inertia slow innovation



# Machine learning is going mainstream in public sector



# Top AI/ML use cases for state and local government



Speech  
and language

SampleOutput.pdf (1 page)

Employment Application

This is a sample employment application form. and answer all questions.

Personal Information	
Full Name:	Jane Doe
Phone Number:	555-0100
Home Address:	123 Any Street, Any Town, USA
Mailing Address:	Same as home address

Work History	
Current Company:	Any Company (2018-Current)
	Any Role
Company#1:	Previous Company # 1 (2014-2018)
	Previous Role # 1
Company#2:	Previous Company #2 (2010-2014)
	Previous Role # 2

Intelligent  
document  
processing



Computer  
vision



Predictions  
and insights

# Top AI/ML use cases for state and local government



Speech  
and language

SampleOutput.pdf (1 page)

Employment Application

This is a sample employment application form. and answer all questions.

Personal Information	
Full Name:	Jane Doe
Phone Number:	555-0100
Home Address:	123 Any Street, Any Town, USA
Mailing Address:	Same as home address

Work History	
Current Company:	Any Company (2018-Current)
	Any Role
Company#1:	Previous Company # 1 (2014-2018)
	Previous Role # 1
Company#2:	Previous Company #2 (2010-2014)
	Previous Role # 2

Intelligent  
document  
processing



Computer  
vision

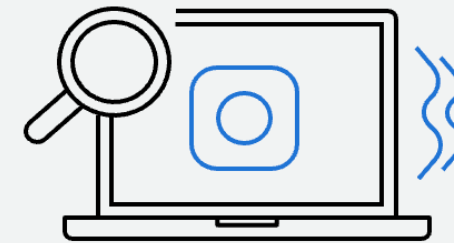


Predictions  
and insights

# AI/ML-Enabled Citizen engagement

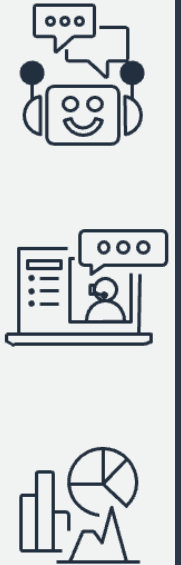
## Engage citizens and drive improvements in customer satisfaction

- **Improve contact center agent effectiveness with real-time translation and decision support using Amazon Connect and Contact Center Intelligence**
- **Analyze call and text interactions with citizens to spot issues and trends and drive improvement**
- **Improve self service**



### AWS CCI Solutions

*Add AI/ML to existing contact centers*





# Using AI to improve agent efficiency

“During peak hours, previously you’re 45-50 minutes on hold, and now that’s has been reduced to about three and a half minutes. One of the other benefits we’ve gotten from Amazon Connect is sentiment analysis. On a call, we get real-time feedback on whether or not the customer was happy, frustrated, or angry...”

—Benny Chacko, Deputy General – LA County Internal Services Department



# Top AI/ML use cases for state and local government



Speech  
and language

SampleOutput.pdf (1 page)

Employment Application

This is a sample employment application form. and answer all questions.

Personal Information	
Full Name:	Jane Doe
Phone Number:	555-0100
Home Address:	123 Any Street, Any Town, USA
Mailing Address:	Same as home address

Work History	
Current Company:	Any Company (2018-Current)
	Any Role
Company#1:	Previous Company # 1 (2014-2018)
	Previous Role # 1
Company#2:	Previous Company #2 (2010-2014)
	Previous Role # 2

Intelligent  
document  
processing



Computer  
vision



Predictions  
and insights

# Extract insights from unstructured content

## Extract insights from unstructured documents and forms, like images, PDFs, and audio

- Analyze text with natural language processing (NLP) to identify topics, extract entities, understand sentiment, and classify documents with Amazon Textract, Amazon Rekognition, and Amazon Comprehend
- Translate content at scale with Amazon Translate

-disagreed on T2Kw invasive ... with a 3.5 on L ... with a ...

-received neoadjuvant dose dense ... and ... to ... and then received ...

- ... She had no ... on the ... with residual disease 2.5 ...

- ... she had ...

- ... and then went on ... from ... when she was switched to ...

- ... when she was found to have ... and ... found to have a ...

- ... Her ... showed ...

- ...

- ... which showed a ... and ...

- ... While off all ... for week out and while waiting for ... she had worsening ... going to requiring ... weekly

- ... and a second on ... with ... She was found to be ...

- ... removed 1600 ml found to be malignant ...

- ... removed 1500 ml fluid found to be malignant ...

- ... moved to ... because of ...

- patient presented with ... on the week of ... removed ... fluid found to be ...

- ... and found 2.5 on velvety ... on ...

- ... (but not consistent with her primary ... from ...)

- ... admitted with worsening ...

- ... added ... on ... but on ... she got ... no ... held and on ... got ... only

- on admission had ... for ... but ...

- ... she had ... at ... and ... after ... on ... yo. She has ... and had first ... at ... yo. She took ... from ... yo until her ...

- mother had ... but no other history of ... or ...

- patient states ... in ...

2. ... improved with course of ...

3. ... disease control gained weight to ... her ... back down to ...

4. ... she was admitted on ... because ...

She had her ... and ... now down to ...

admitted. ... and enterococcus faecalis growing in the urine and port.

REVIEW OF SYSTEMS:

... has not had any ... since day 2 of her admission but has severe ... She is very ... and came in a wheelchair. She has had rapid accumulation of her ... and is very ... therefore not eating well. She also is having ... to the bathroom. ... has ... but mostly clear. No ... in her ... to ... Complete review of systems otherwise negative in detail. Patient is ...

Current Concerns:

Mr. ... reports severe ... She reports ... but is still having ... around the house and to the bathroom. She did not get blood in the hospital and continue to drop. She also has ... from her ... She is ... because she was ... until she had the ... held. She is also worried about the ... making her feel ... and not able to live her life. She does understand the ... but wants to keep trying.

Allergies:

No Known Medication Allergies

- Demographics
  - Geography
  - Gender
  - Age
  - Health history
- Disease indicators
  - Anatomy
  - Symptoms
  - Diagnosis
  - Treatment
  - Test Name
  - Test Result
- Rx
  - Medication Name
  - Strength
  - Route



## State Compensation Insurance Fund Intelligent Document Processing (IDP) for Claims Forms

### Business Challenge:

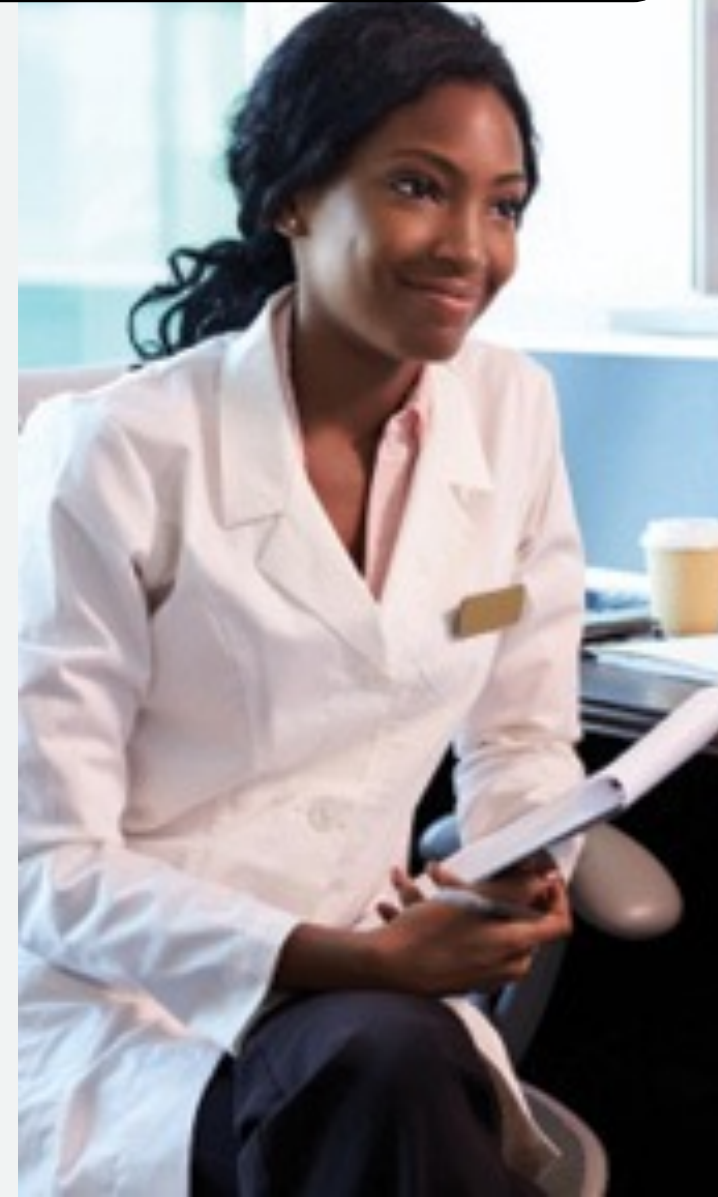
Customer processes 10 million documents per year using manual and semi-manual processes that are inefficient, inaccurate and inflexible. The current OCR platform are insufficient with an accuracy rate of approximately 65% resulting in significant manual intervention and costs.

### Approach:

Develop a modern IDP solution based IDP Solutions Guidance to automatically ingest claims forms, properly classify them and ingest form data for processing for up to 6K claims forms per month and expand to support 10M documents per year. Trained models and deployed to Textract and Comprehend using Lambda to control process flow.

### Result:

Successfully demonstrated the ability to identify & classify individual (7) claim form types with 100% accuracy and ingest data into a usable format for customer while routing low confidence ( $<.9$ ) forms for human-in-the-loop processing at a processing rate of 1,578 per hour. Demonstrated cost/performance benefits of batch vs on-demand processing.





# Automate form-based workflows

## Reduce human effort for data entry

- Extract data and key value pairs from documents and forms with Amazon Textract
- Automate repeatable workflows to improve efficiency
- Redact PII/PHI from sensitive documents with Amazon Comprehend

aws Change Document Log Out

Preview Raw Text Key-Value Pairs Tables Entities Medical Entities Discovery Compliance Workflow Automation

MEDICAL HISTORY FORM TEMPLATE

PATIENT NAME: Jane Doe DATE of LAST UPDATE: 02/03/2020

CURRENT PHYSICIAN NAME: Dr. Sarah Smith PHONE: 888-000-1234

CURRENT PHARMACY NAME: Seattle Pharmacy PHONE: 888-987-1234

CURRENT and PAST MEDICATIONS

MEDICATION NAME	DOSEAGE	FREQ.	PHYSICIAN	START DATE	END DATE	PURPOSE
Tarflexicam	20 mg	2/day	Dr. Sarah Smith	02/03/20	02/13/20	Pain relief prior to surgery
Mudthotox	10 mg	3/day	Dr. Sarah Smith	02/30/20	02/13/20	Help with blood flow circulation

SURGICAL PROCEDURES

PROCEDURE	PHYSICIAN	HOSPITAL	DATE	NOTES
Non-small lung carcinoma	Dr. Sarah Smith	Seattle Hospital	02/14/20	Primary surgery scheduled

Key-Value Pairs : 6 Found

PATIENT NAME  
Jane Doe

DATE of LAST UPDATE  
02/03/2020

CURRENT PHYSICIAN NAME  
Dr. Sarah Smith

PHONE  
888-000-1234

CURRENT PHARMACY NAME  
Seattle Pharmacy

PHONE  
888-987-1234

Download CSV

# Machine learning-powered enterprise search

Increase employee productivity by quickly and easily finding accurate information and answers with Amazon Kendra

- Understand the intent of queries, not just the keywords
- Return answers, not links and documents
- Index documents and unstructured content at scale

The image shows a side-by-side comparison of a search interface. On the left is the 'Intranet Search' interface. It has a search bar with the text 'it support desk'. Below the search bar, it says 'Your recent searches' and 'Not finding relevant r'. Under 'SEARCH IN:', there are filters for 'Everything (21)', 'Wiki (17)', 'Email List Archive (3)', and 'Show more...'. Under 'REFINE:', there are filters for 'CATEGORIES' (Service (1), Team (1)), 'CREATOR' (admin (1), abcde (1), it (1), corp (1)), and 'Displaying results 1 - 10 of 21'. The results list includes 'IT\_Support\_Training\_Program.W', 'Com\_Support\_Wiki.Web', 'OperationalBestPractices.EventM', and 'Corp\_Wiki\_Pending.Web'. On the right is the 'RESULTS PAGE'. It has a search bar with the text 'Where is the it support desk?'. Below the search bar, it says 'Kendra's suggested answer' and '1st floor'. The suggested answer text says: '... our IT help desk, deskside, which are located all around our buildings and open for support at most hours. The one in Seattle is on the 1st floor and is open from 12:30 to 5 p.m. daily.' Below the suggested answer, there is a 'Frequently asked questions' section with three questions: 'Where do I get IT help?', 'What are the IT support hours?', and 'Where can I get IT help corporate campus?'. A circular arrow icon points from the 'Com\_Support\_Wiki.Web' result in the left interface to the '1st floor' suggested answer in the right interface.

# Top AI/ML use cases for state and local government



Speech  
and language

SampleOutput.pdf (1 page)

Employment Application

This is a sample employment application form. and answer all questions.

Personal Information	
Full Name:	Jane Doe
Phone Number:	555-0100
Home Address:	123 Any Street, Any Town, USA
Mailing Address:	Same as home address

Work History	
Current Company:	Any Company (2018-Current)
	Any Role
Company#1:	Previous Company # 1 (2014-2018)
	Previous Role # 1
Company#2:	Previous Company #2 (2010-2014)
	Previous Role # 2

Intelligent  
document  
processing



Computer  
vision



Predictions  
and insights

# Content analysis and object detection

**Extract insights and identify objects of interest from large volumes of images and videos with Amazon Rekognition**

- **Detect personal protective equipment (PPE) to improve worker safety**
- **Analyze vehicle traffic and pedestrian and bicycle safety**
- **Detect objects of interest in video and reduce human effort required to review footage**





# Assessing damage from natural disasters

EagleView runs deep learning models on AWS to make quicker, more accurate assessments of property damage within 24 hours of a natural disaster. Amazon Elastic Inference makes those workflows more cost effective at scale.



# Top AI/ML use cases for state and local government



Speech  
and language

SampleOutput.pdf (1 page)

Employment Application

This is a sample employment application form. and answer all questions.

Personal Information	
Full Name:	Jane Doe
Phone Number:	555-0100
Home Address:	123 Any Street, Any Town, USA
Mailing Address:	Same as home address

Work History	
Current Company:	Any Company (2018-Current)
	Any Role
Company#1:	Previous Company # 1 (2014-2018)
	Previous Role # 1
Company#2:	Previous Company #2 (2010-2014)
	Previous Role # 2

Intelligent  
document  
processing



Computer  
vision

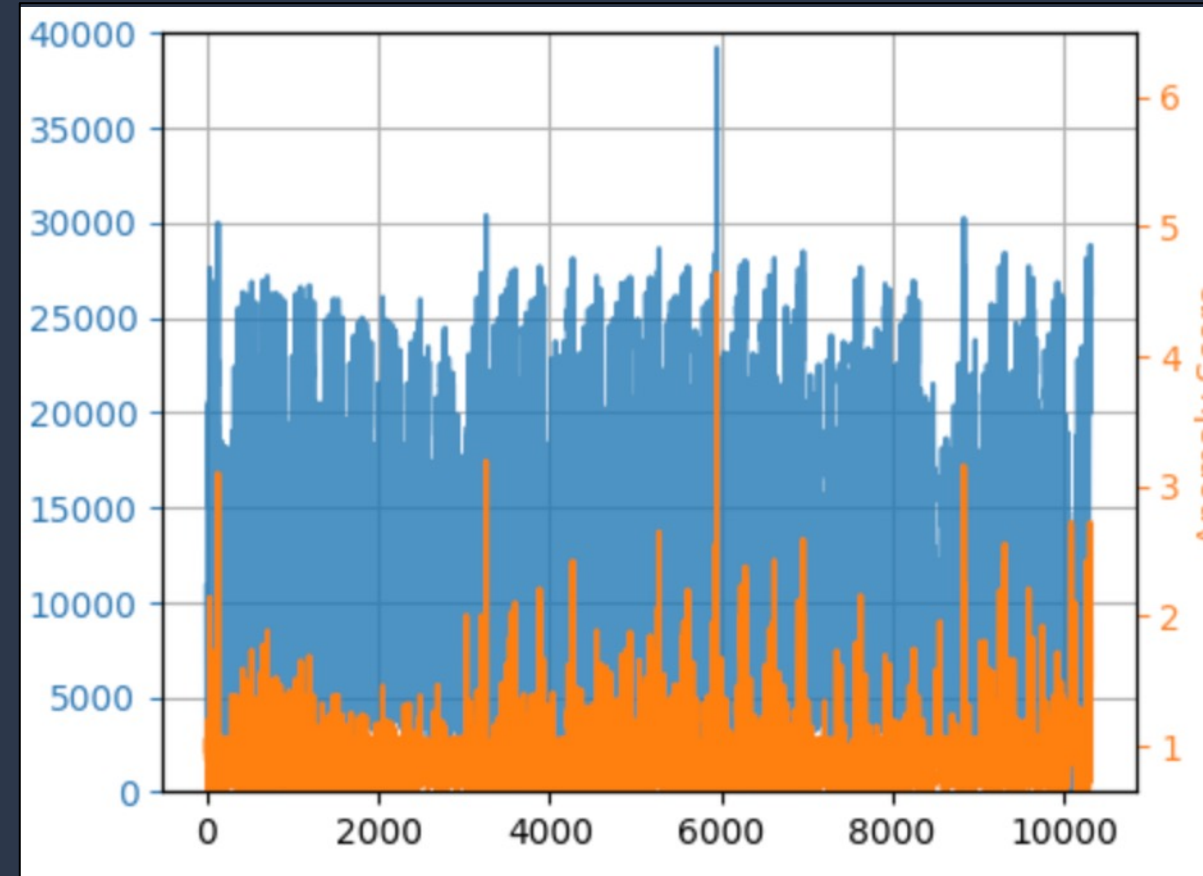


Predictions  
and insights

# Fraud detection and prevention

## Detect and prevent fraud, waste, and abuse

- Enhance accuracy and speed to help detect and prevent waste fraud and abuse
- Managed service approach with prebuilt ML models for fraud detection
- Supervised and unsupervised models for developing highly targeted models to utilize customer data as part of fraud prevention efforts



# Arizona Department of Revenue uses AI to prevent fraud

## Challenge

Identifying fraudulent refund requests was a manual review process based on legacy business rules. This led to slower overall income tax return processing times and legitimate returns inaccurately marked for review.

## Solution

Invested in an income tax fraud prevention solution using Machine Learning. Results from Fiscal Year 2016 to Fiscal Year 2023 were \$251.3M in fraud prevented, W-2s verified, and restitution received (61 criminal convictions).

**Zac Sharp**

Deputy Assistant Director, Arizona Department of Revenue



© 2024, Amazon Web Services, Inc. or its affiliates.





# Predictions and forecasts from IoT and sensor data

## Leverage data from smart cities and facilities

- **Smart cities**
- **Predictive maintenance**
- **Facility management**

Learn more about  
Amazon Monitron



© 2024, Amazon Web Services, Inc. or its affiliates.





Innovation can  
**transform industries**



GENERATIVE AI



# Question: What is generative AI?

- Creates new content and ideas, including conversations, stories, images, videos, and music
- Powered by large models that are pretrained on vast corpora of data and commonly referred to as foundation models (FMs)



## Enhance Customer Experiences



CHATBOTS

VIRTUAL ASSISTANTS

AGENT ASSISTANCE

CONTACT CENTER

ANALYTICS

PERSONALIZATION

## Boost employee productivity & creativity

CONVERSATIONAL SEARCH

SUMMARIZATION

CONTENT CREATION

CODE GENERATION

DATA TO INSIGHTS

## Optimize business processes

DOCUMENT PROCESSING

DATA AUGMENTATION

CYBERSECURITY

PROCESS OPTIMIZATION

ANOMALY DETECTION

# Generative AI Stack



.....**APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs**.....

.....**TOOLS TO BUILD WITH LLMs AND OTHER FMs**.....

.....**INFRASTRUCTURE FOR FM TRAINING AND INFERENCE**.....

# Generative AI Stack

APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs

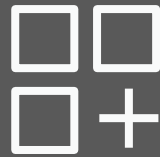
TOOLS TO BUILD WITH LLMs AND OTHER FMs

INFRASTRUCTURE FOR FM TRAINING AND INFERENCE

- GPUs
- Trainium
- Inferentia
- SageMaker
- UltraClusters
- EFA
- EC2 Capacity Blocks
- Nitro
- Neuron



- Customers have questions...



Which model  
should I use?



How can  
I move quickly?



How can I keep  
my data secure  
& private?

# Generative AI Stack

APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs

TOOLS TO BUILD WITH LLMs AND OTHER FMs

INFRASTRUCTURE FOR FM TRAINING AND INFERENCE

- GPUs
- Trainium
- Inferentia
- SageMaker
- UltraClusters
- EFA
- EC2 Capacity Blocks
- Nitro
- Neuron

# Amazon Bedrock

The easiest way to build and scale  
generative AI applications with LLMs and other FMs

AI21labs

amazon

ANTHROPIC

cohere

Meta

Mistral AI

stability.ai

JURASSIC-2

AMAZON TITAN

CLAUDE

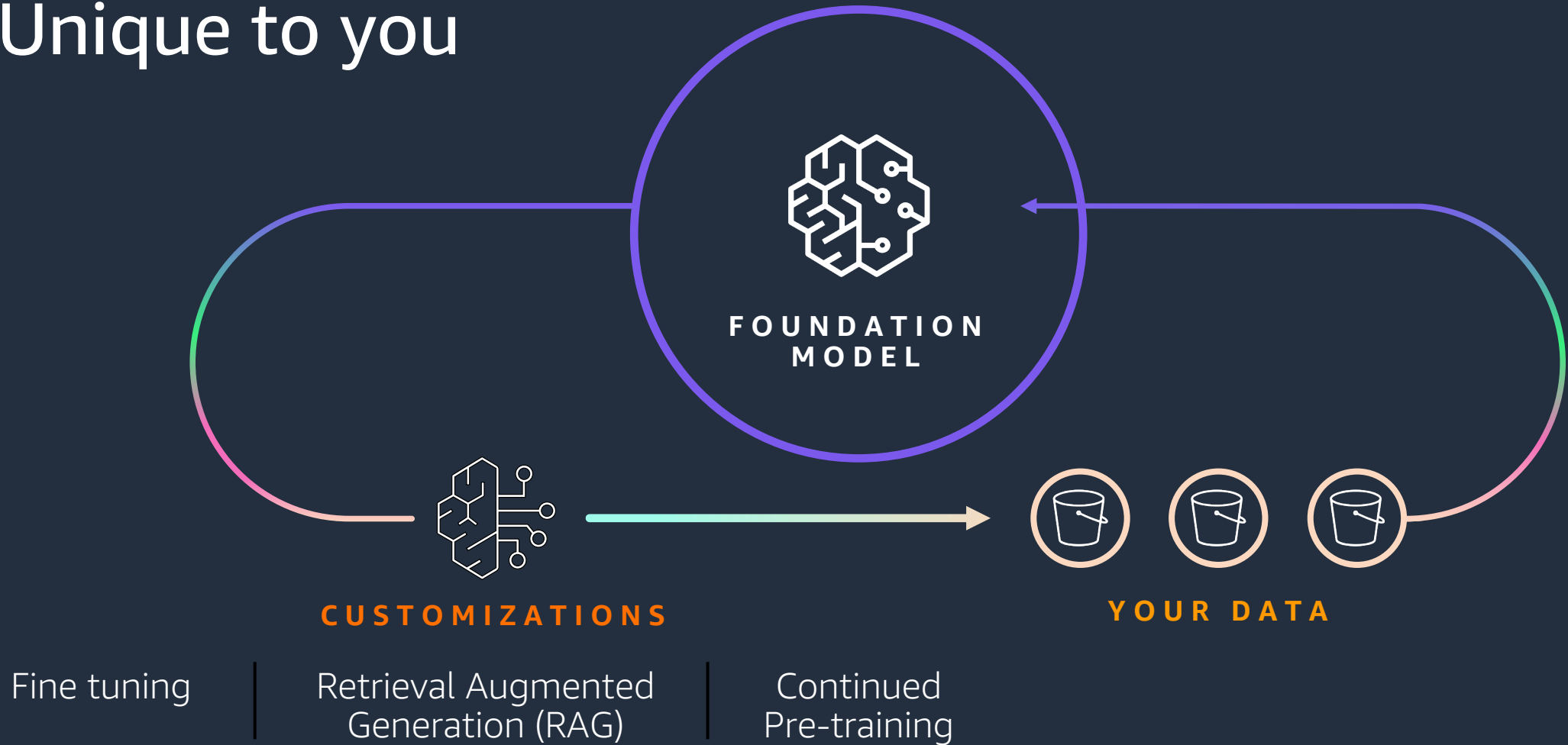
COMMAND + EMBED

LLAMA 2

MISTRAL 7B  
MIXTRAL 8x7B

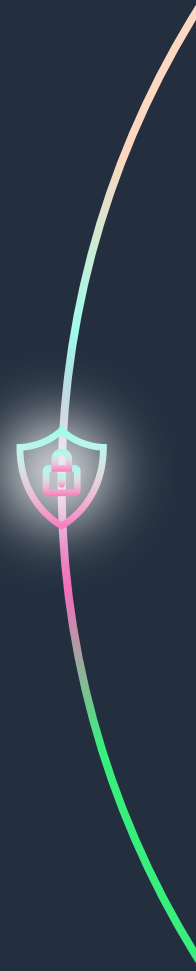
STABLE DIFFUSION XL

# Unique to you



# Amazon Bedrock

keeps data secure  
& private



None of the customer's data is used to train the underlying model

All data is encrypted in transit and at rest

Data used to customize models remains within your VPC

Support for standards, (GDPR, HIPAA) and guardrails



NEW

# Guardrails for Amazon Bedrock

Safeguard your generative AI applications  
with your responsible AI policies

Easily configure harmful content filtering  
based on your responsible AI policies

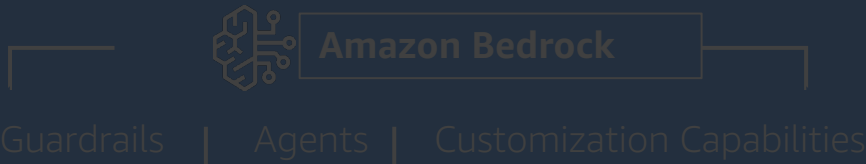
Apply Guardrails to any FM or agent

Redact PII information in FM responses  
(coming soon)

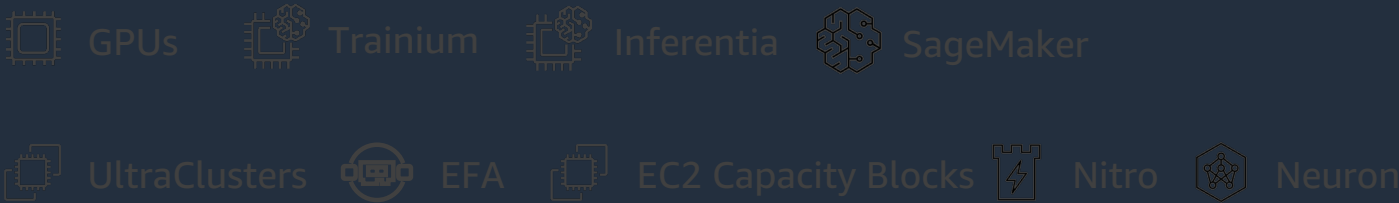
# Generative AI Stack

## APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs

## TOOLS TO BUILD WITH LLMs AND OTHER FMs



## INFRASTRUCTURE FOR FM TRAINING AND INFERENCE



# The challenges of AI chat applications at work

# Amazon Q

AMAZON Q BUSINESS



AMAZON Q DEVELOPER

EMBEDDED

Amazon Q  
In Connect

Amazon Q  
In QuickSight

Amazon Q  
In AWS Supply Chain

The background of the slide features a large, stylized hexagonal logo for Amazon QuickSight. The logo is composed of several concentric, slightly offset hexagons in shades of purple and blue, creating a 3D effect. The text 'Amazon Q' is in white, bold font, and 'in Amazon QuickSight' is in a smaller, white, sans-serif font below it.

# Amazon Q

in Amazon QuickSight

A thin vertical line with a gradient from purple at the top to red at the bottom, separating the title area from the features list.

Generative dashboard authoring

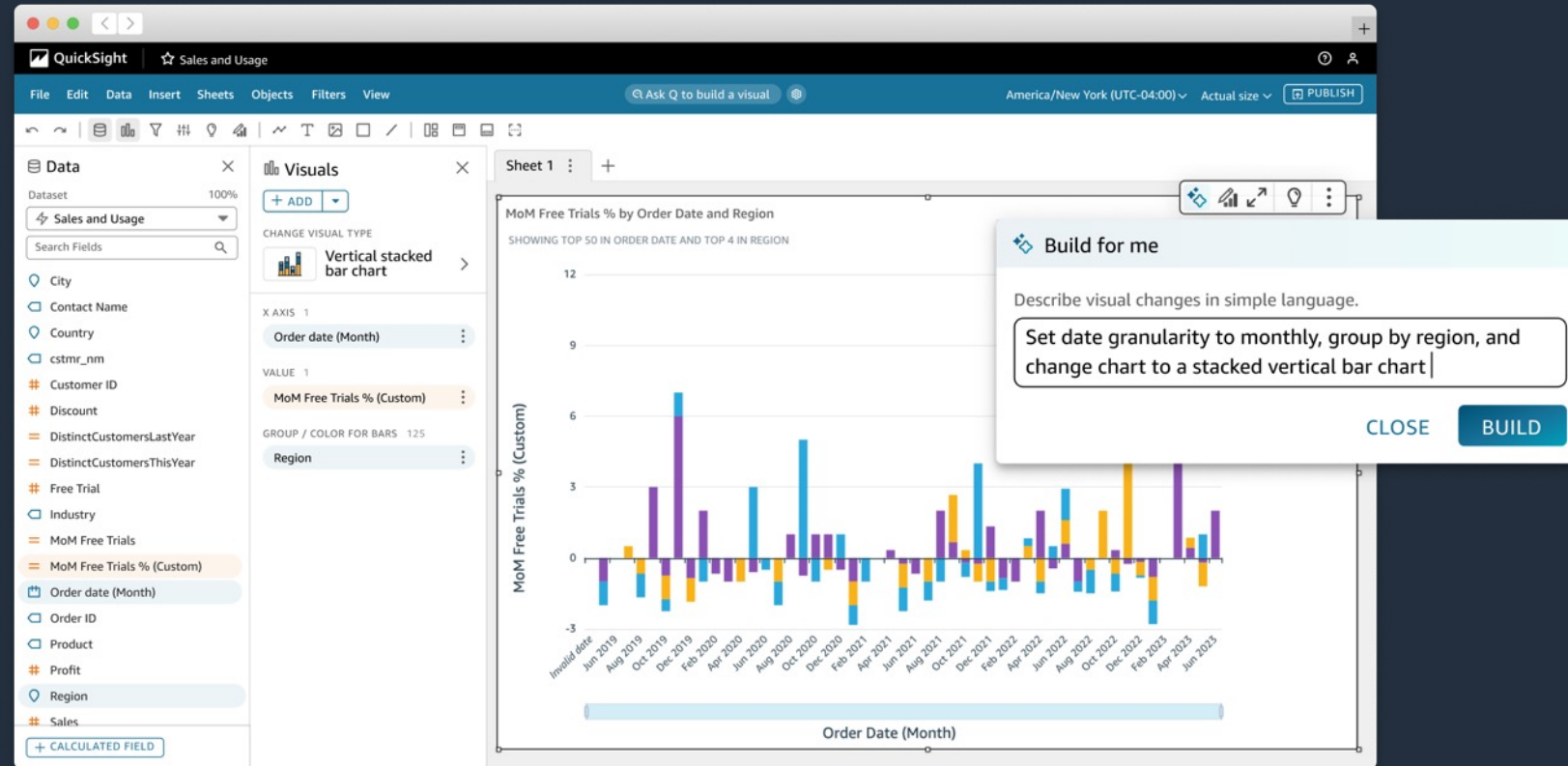
Visually compelling data stories

Reimagined Q&A experience



# Visual authoring in QuickSight

Use everyday language to generate and fine-tune visuals in seconds



Sheet 1 : +

YTD sales

\$189,948

Sales last quarter

\$81,908

Month-over-month sales

Sales for Jun 2023 increased by 97.41% (\$22,188.88) from (\$22,779.48 to \$44,968.36.

Quarterly sales trend

The chart displays quarterly sales from Q1 2019 to Q2 2023. The y-axis represents sales in dollars, ranging from \$0.00 to \$300,000. The x-axis shows quarters from Q1 2019 to Q2 2023. The sales trend is as follows:

Quarter	Sales (Approximate)
Q1 2019	\$75,000
Q2 2019	\$85,000
Q3 2019	\$140,000
Q4 2019	\$180,000
Q1 2020	\$70,000
Q2 2020	\$90,000
Q3 2020	\$130,000
Q4 2020	\$185,000
Q1 2021	\$95,000
Q2 2021	\$135,000
Q3 2021	\$145,000
Q4 2021	\$240,000
Q1 2022	\$120,000
Q2 2022	\$130,000
Q3 2022	\$200,000
Q4 2022	\$285,000
Q1 2023	\$85,000
Q2 2023	\$105,000

Product	Sales (Sum)
ContactMatcher	~450.00K
FinanceHub	~380.00K
Site Analytics	~350.00K
Marketing Suite ...	~240.00K
Big OI Database	~200.00K
Data Smasher	~180.00K
Alchemy	~150.00K
Support	~140.00K
Marketing Suite	~120.00K
OneView	~115.00K
SaaS Connector P...	~100.00K
ChatBot Plugin	~30.00K
SaaS Connector P...	~20.00K
Storage	~5.00K

SHOWING TOP 255 IN CITY AND TOP 2 IN SEGMENT

Segment

- Premium
- Standard

A Sankey diagram illustrating the distribution of 1000 projects across 10 industries and 3 regions. The industries on the left are Finance, Healthcare, Manufacturing, Communications, Tech, Energy, Misc, Retail, Consumer Products, and Transportation. The regions on the right are EMEA, AMER, and APJ. The flows show that EMEA receives the largest number of projects, primarily from Finance, Healthcare, and Manufacturing. AMER receives projects from a wide range of industries, with a notable flow from Energy. APJ receives projects from most industries, with a significant flow from Consumer Products.

Industry	EMEA	AMER	APJ
Finance	150	50	20
Healthcare	100	50	20
Manufacturing	120	50	20
Communications	80	50	20
Tech	70	50	20
Energy	30	100	20
Misc	20	50	20
Retail	30	50	20
Consumer Products	30	50	120
Transportation	20	50	20

<b>Usage</b> MTD usage sessions	<b>Active customers</b> MTD	<b>Trial sign-ups</b> MTD	<b>Month-over-month usage</b>  Total Usage Sessions for Jun 2023	<b>Product usage by industry</b>
------------------------------------	--------------------------------	------------------------------	--	----------------------------------

# How the NFL uses Generative AI to get instant answers

QuickSight

Player Offense Type a question about your data

mike.band@nfl.com

Undo Redo Reset (DB2) Passing - Multi-Season Export Data Save as Share View Alerts

Summary Tendencies QB-WR Duos Teammate On/Off

Controls Passer Name All Min Season 2016 Max Season 2021 Season Type REG Week All Quarter All Team All Opponent All Down & Distance All Field Position All Score Diff

Passing - Summary

Passer Name	TTT	Comp	Att	Yards	TD	INT	Rating	Comp %	xComp %	CPOE	Y/A	AY/A	Total EPA	EPA/DB	DB	QBP	QBP %	Sack	Sack %	Blitz %
Russell Wilson	3.48	165	405	5,744	60	17	110.2	40.7%	30.7%	10.1%	14.2	30.5	262.3	0.65	405	124	30.6%	0	0.0%	36.5%
Matthew Stafford	3.37	122	318	4,649	35	13	105.8	38.4%	32.5%	5.8%	14.6	30.8	216.3	0.68	318	103	32.4%	0	0.0%	24.5%
Kirk Cousins	3.17	135	336	4,713	49	12	112.4	40.2%	33.4%	6.7%	14.0	29.3	215.5	0.64	336	119	35.4%	0	0.0%	29.5%
Patrick Mahomes	3.77	107	273	3,750	43	12	108.1	39.2%	35.7%	3.5%	13.7	30.5	198.4	0.73	273	103	37.7%	0	0.0%	19.4%
Matt Ryan	3.27	134	336	4,646	33	13	104.0	39.9%	35.7%	4.2%	13.8	29.4	178.1	0.53	336	124	36.9%	0	0.0%	32.7%
Aaron Rodgers	3.54	125	390	4,546	42	10	102.6	32.1%	32.8%	-0.8%	11.7	30.1	174.2	0.45	390	86	22.1%	0	0.0%	26.4%
Derek Carr	3.25	108	288	3,980	33	15	101.9	37.5%	32.7%	4.8%	13.8	29.7	169.9	0.59	288	81	28.1%	0	0.0%	30.9%
Tom Brady	3.34	127	357	4,331	36	14	99.6	35.6%	34.3%	1.3%	12.1	29.8	154.6	0.43	357	133	37.3%	0	0.0%	23.2%
Dak Prescott	3.39	98	265	3,415	32	11	107.3	37.0%	32.1%	4.8%	12.9	29.3	152.6	0.58	265	95	35.8%	0	0.0%	34.0%
Drew Brees	3.00	88	203	3,009	25	8	113.5	43.3%	35.8%	7.5%	14.8	27.4	143.1	0.71	203	49	24.1%	0	0.0%	25.1%
Kyler Murray	3.41	67	152	2,429	19	6	114.0	44.1%	32.8%	11.2%	16.0	29.0	124.0	0.82	152	27	17.8%	0	0.0%	25.7%
Deshaun Watson	3.80	90	217	3,132	29	18	93.8	41.5%	34.5%	7.0%	14.4	30.3	120.9	0.56	217	85	39.2%	0	0.0%	25.3%
Ben Roethlisberger	3.03	105	356	3,801	44	15	93.6	29.5%	31.2%	-1.7%	10.7	29.9	109.0	0.31	356	107	30.1%	0	0.0%	27.0%
Jameis Winston	3.33	85	280	2,924	34	18	83.7	30.4%	30.6%	-0.2%	10.4	30.9	103.2	0.37	280	96	34.3%	0	0.0%	29.3%
Baker Mayfield	3.64	87	205	2,774	24	12	104.2	42.4%	34.4%	8.1%	13.5	28.7	97.3	0.47	205	51	24.9%	0	0.0%	32.2%
Philip Rivers	3.10	97	292	3,566	32	31	77.6	33.2%	33.2%	-0.0%	12.2	30.4	87.2	0.30	292	102	34.9%	0	0.0%	23.6%
Alex Smith	3.11	54	143	2,104	15	4	108.9	37.8%	33.7%	4.1%	14.7	29.3	85.4	0.60	143	50	35.0%	0	0.0%	20.3%
Andrew Luck	3.24	62	135	1,988	17	8	107.3	45.9%	35.1%	10.8%	14.7	27.2	83.5	0.62	135	58	43.0%	0	0.0%	32.6%
Carson Wentz	3.45	96	315	3,416	31	22	76.4	30.5%	30.6%	-0.1%	10.8	31.0	79.8	0.25	315	117	37.1%	0	0.0%	
Jared Goff	3.27	78	237	2,736	15	9	82.9	32.9%	37.2%	-4.3%	11.5	28.6	76.7	0.32	237	76	32.1%	0	0.0%	
	3.30	3,654	10,893	127,985	1,095	627	88.5	33.5%	32.5%	1.0%	11.7	29.6	3,587.6	0.33	10,893	3,667	33.7%	0	0.0%	




(Play video)

# Generative AI stack










## APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs

 Amazon Q  Amazon Q in Amazon QuickSight  Amazon Q in Amazon Connect  Amazon CodeWhisperer

## TOOLS TO BUILD WITH LLMs AND OTHER FMs

 Amazon Bedrock  
Guardrails | Agents | Customization Capabilities

## INFRASTRUCTURE FOR FM TRAINING AND INFERENCE

 GPUs  Trainium  Inferentia  SageMaker  
 UltraClusters  EFA  EC2 Capacity Blocks  Nitro  Neuron

# Bedrock Studio (In Preview)

BUILD GENAI APPLICATIONS FASTER AND MORE SECURELY



---

**Easy to use  
playground**



---

**Projects based  
collaboration**



---

**Easy access with  
corporate SSO**





## Purpose of Gen/AI Sandbox



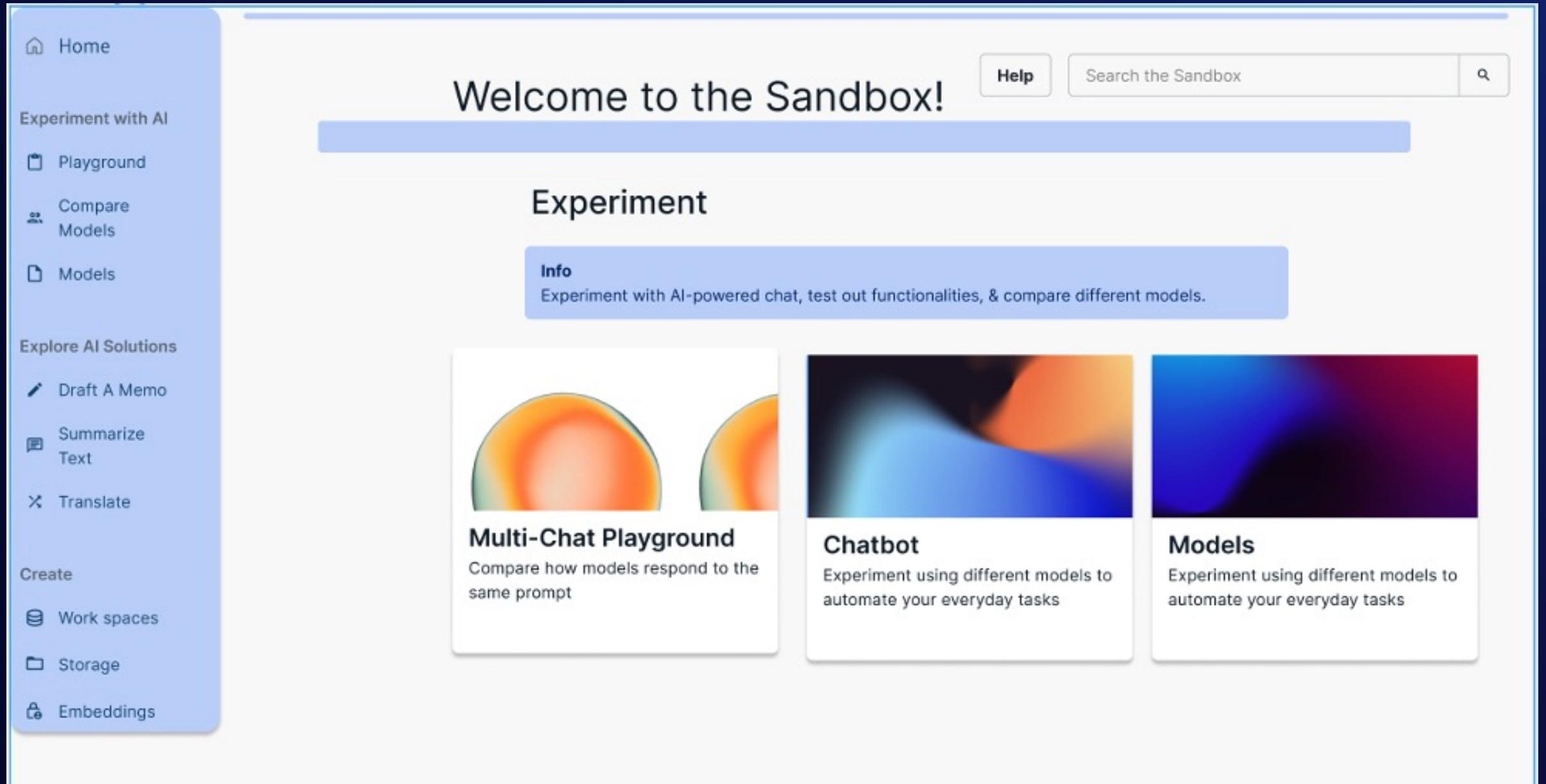
**Security** - An environment to allow teams to experiment the Generative AI securely and safely

**Scale** - AI Center Of Excellence team (build the AI environment, data integration and training/support)

**Empower** - Non-Technical and Technical State staffs for Innovation

**Accelerate** - high impact use cases opportunity to production.

# Preview : If scaling, Gen/AI Sandbox Application – Landing Page



# Generative AI Sandbox Requirements

## Technical

- ☐ Use AWS Multi-Accounts Cloud Foundation with guardrails and budgets
- ☐ Isolate environment with network boundary
- ☐ Use your AD for user access management
- ☐ Leverage “Canned” Gen/AI applications to AI Sandbox where is possible
- ☐ Apply guardrails to large language models
- ☐ Usage reports
- ☐ Multi-Languages support

## Business

- ☐ Self-service
- ☐ Single Sign-On(SSO)
- ☐ Gen/AI playground
- ☐ User Data Store
- ☐ Historical Prompts

# Call to action:

- Close the loop between business and technology
- Select your use case and champion
- Connect with us at the Ask the Experts Table
- Learn more at <https://aws.amazon.com/ai>

# Thank you!

Hiren Deliwala  
[hdaws@amazon.com](mailto:hdaws@amazon.com)

Please complete the  
session survey!



Data and analytics track  
AI/ML for Data and Analytics

