



FOR HEALTHCARE
AND LIFE SCIENCES

AWS for Healthcare Mission and New Advances in Generative AI & Machine Learning

Elizabeth Keller

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AWS

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AWS

Who are we?

And what are we going to learn today?





aws

is the cloud computing arm
of

amazon

Amazon Web Services (AWS)

17+

Years as the world's most comprehensive and broadly adopted cloud platform

8+

Years with dedicated healthcare and life sciences cloud technology practice

18+

Years of experience, on average, for our team leaders in the healthcare and life sciences industry

1,000,000+

Active customers

2,000+

Government agencies

5,000+

Health and Educational institutions



AWS Canada Healthcare Customers



AWS for Healthcare mission

To enable access and delivery of **person-centered healthcare**, drive **improved outcomes** at a lower cost, and **accelerate the digitization and utilization** of healthcare data



We are accomplishing this mission by:



Providing the **security, compliance, and data privacy** that healthcare & life science organizations can trust



Accelerating innovation with the broadest and deepest portfolio of cloud-based services, including purpose-built health-specific solutions



Unlocking the value of data and providing actionable insights to improve clinical, operational, and research efficiency, develop personalized treatments, and predict health events



Powering the transition to **personalized health**

Security and compliance specifically for healthcare



3rd party validation for 1000s of global requirements

PHIPA 
Canada - Provincial-level

CCCS 
Canada - Federal-level



HITRUST[®]



HITRUST
CSF Certified

Local Healthcare and Federal Compliance

<https://aws.amazon.com/compliance/programs>

Personal Health Information Act (Nova Scotia)

Overview



The Personal Health Information Act (PHIA) is provincial privacy legislation in Nova Scotia that applies to the collection, use, disclosure, retention, disposal and destruction of personal health information. The PHIA recognizes both the right of individuals to protect their personal health information and the need of custodians to collect, use and disclose personal health information to provide, support and manage health care.

Customers are always in control of how they manage and access their content stored on



Personal Health Information Act (Newfoundland and Labrador)

Overview



The *Personal Health Information Act*, SNL 2008, c P-7.01 (NL PHIA), is Newfoundland and Labrador's health-sector specific privacy legislation which applies to the collection, use, and disclosure of personal health information (PHI) involved in the delivery of health care services in the Province of Newfoundland and Labrador.



Customers are always in control of how they manage and access their content stored on AWS. AWS does not have visibility into or knowledge of what customers are uploading onto its network, including whether or not that data is deemed subject to NL PHIA legislation, and customers are responsible for ensuring their own NL PHIA compliance. AWS customers can design and implement an AWS environment, and use AWS services in a manner that satisfies their obligations under NL PHIA.

Personal Health Information Privacy and Access Act (New Brunswick)

Overview



The *Personal Health Information Privacy and Access Act* (NB PHIPAA) and the *General Requirements* is privacy legislation in New Brunswick that applies to the collection, use, disclosure and protection of personal health information that is in the custody or under the control of a custodian.

Customers are always in control of how they manage and access their content stored on AWS. AWS does not have visibility into or knowledge of what customers are uploading onto its network, including whether or not that data is deemed subject to NB PHIPAA legislation, and customers are responsible for ensuring their own NB PHIPAA compliance. AWS customers can design and implement an AWS environment, and use AWS services in a manner that satisfies their obligations under NB PHIPAA.



Personal Information Protection and Electronic Documents Act

Canada's Federal Private Sector Privacy Legislation



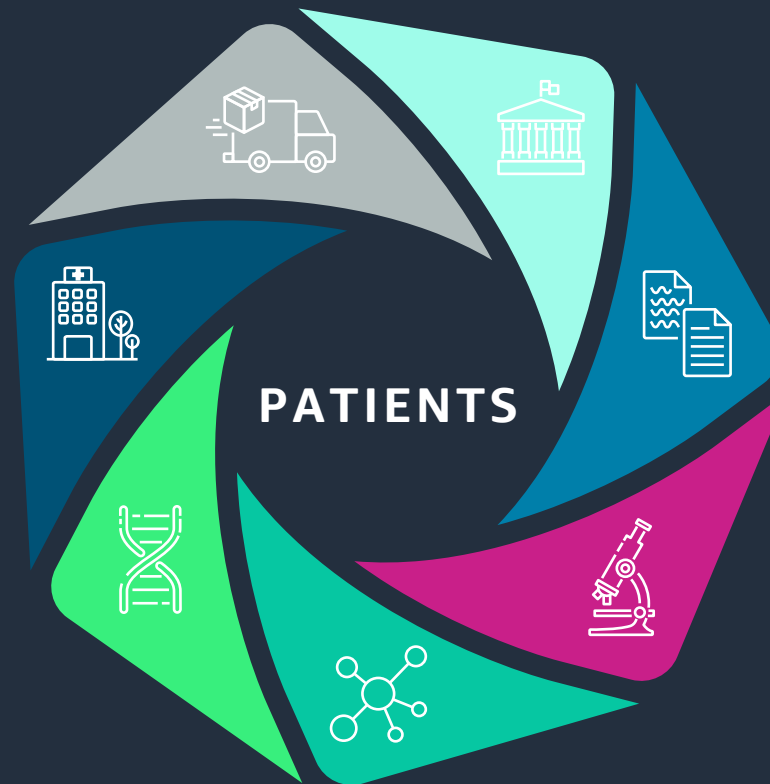
The Personal Information Protection and Electronic Documents Act (PIPEDA) is a Canadian federal law that applies to the collection, use, and disclosure of personal information in the course of commercial activities in all Canadian provinces as supplemented by substantially similar provincial privacy laws in Alberta, British Columbia and Québec. PIPEDA also applies to international and interprovincial transfers of personal information. As AWS does not have visibility into or knowledge of what customers are uploading onto its network, including whether or not that data is deemed subject to PIPEDA regulations, customers are responsible for their own PIPEDA compliance.

The [AWS Canada \(Central\) Region](#) is currently available for multiple services, including Amazon Elastic Compute Cloud (Amazon EC2), Amazon Simple Storage Service (Amazon S3), and Amazon Relational Database Service (Amazon RDS). For a complete list of AWS Regions and services, visit the [Global Infrastructure page](#). Canada Region pricing is available on the detail page of each service, which you can find through our [products & services page](#).



Working across the spectrum of research, therapeutics, and patient care

- VENDORS**
 - Healthcare IT ISVs
 - Diagnostics
 - Medical devices
 - Global SIs
- PROVIDERS**
 - Hospital systems
 - Laboratory medicine
 - Academic medical centers
 - Pharmacies
- GENOMICS**
 - Research
 - Clinical
 - Direct to consumer



GOVERNMENT

- Public health & regulators
- Scientific research organizations
- Health ministries
- Defense and Veteran health

PAYORS

- Health plans
- Employers

NGOs AND NPOs

- Health associations
- Research organizations

PHARMA & MED DEVICE

- Research & development
- Clinical development
- Manufacturing & supply chain
- Commercial & Med Affairs



New advances in Generative AI and Machine Learning for Healthcare

Fred S. Azar, PhD

Principal, Artificial Intelligence / Machine Learning
in Healthcare BD

AWS

Building on two decades of ML innovation to power healthcare breakthroughs

 RUSH

PHILIPS

 Paige

UC San Diego Health

Australian
Unity 

infor

Beth Israel Lahey Health 
Beth Israel Deaconess
Medical Center

HOUSTON
Methodist
LEADING MEDICINE

CD
PHP


CHANGE
HEALTHCARE

Duke
UNIVERSITY

CH Children's Hospital
of Philadelphia

vyaire
MEDICAL

3M Science.
Applied to Life.™

 Amazon
SageMaker

aidoc

Élevance
Health

NSW
GOVERNMENT

 CAMBIA
HEALTH SOLUTIONS

2002

2017

2023



Why AWS for AI/ML?

Innovation, choice, and flexibility

100,000+

customers have used machine learning (ML) on AWS

250+

new capabilities for ML and artificial intelligence (AI) in just the last 12 months

92% of deep learning (DL) in the cloud runs on AWS

AWS ML SOLUTIONS

Reduce training time by 50%

Deliver 3x faster network throughput

Improve price and performance by 25%



The majority of healthcare data generated is unstructured

First Name	Last Name	...
John	Doe	...
Jane	Smith	...

Street	City	...
123 Main St	Arlington	...
456 Maple Ln	Seattle	...



Structured Data (rows and columns in a database model) is great, but...

More than 80% of data in a typical Enterprise is *unstructured*



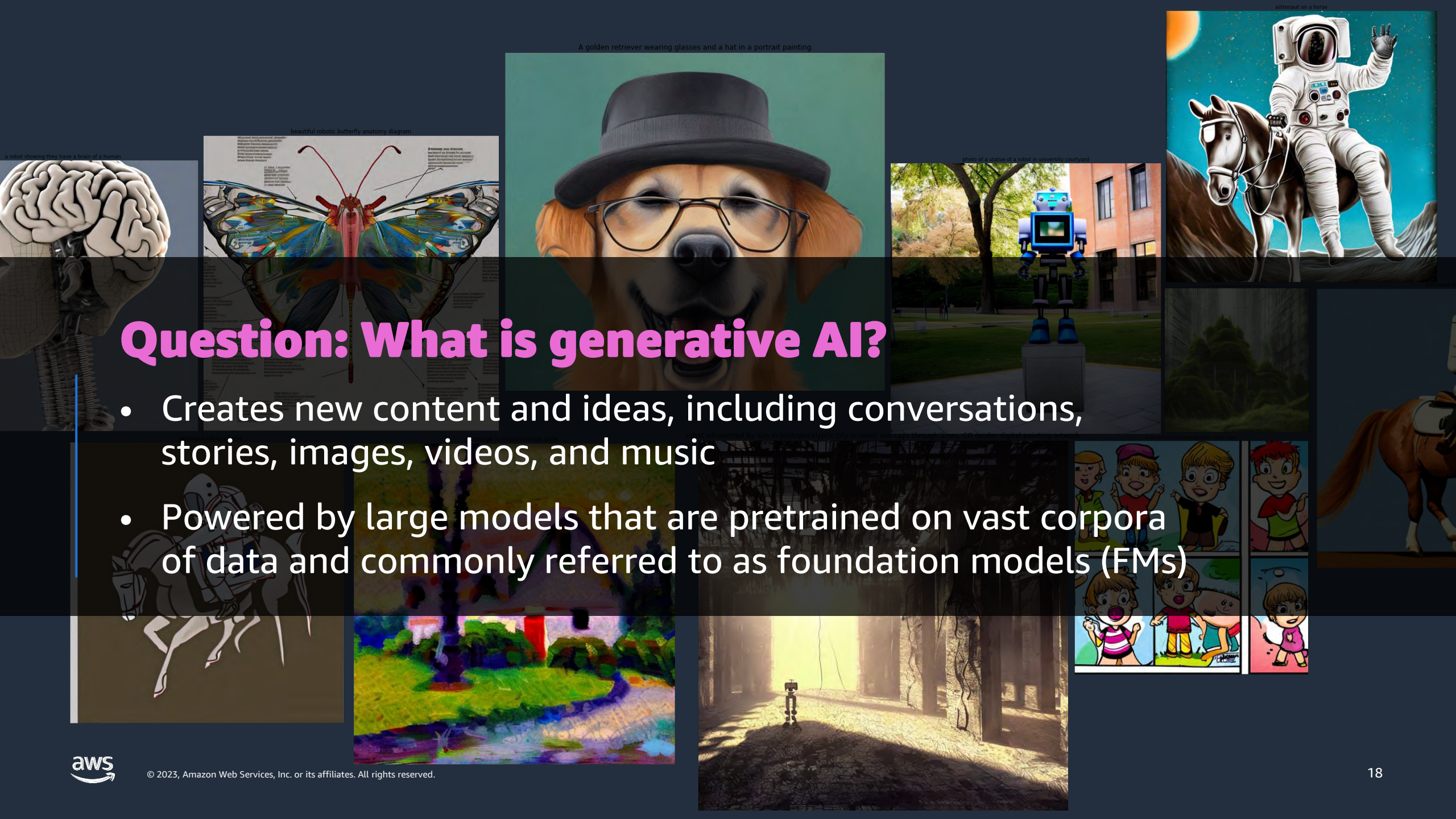
“ The Iron Mountain partnership helped drive our digitization efforts with greater oversight and security protocols. It enabled flexibility and ease of access to our patient information, freeing up valuable space within the hospital and improving the quality of care for patients in our community ”

David Merkley
Director and CPO,
Grey Bruce Health Services

Grey Bruce Health Services (GBHS) is a **400-bed rural multi-hospital group in Canada**. They wanted to digitize physical patient records to save time to review and retrieve records, as well as reduce storage space and costs.

Iron Mountain's InSight is a platform, running on AWS, that provides insights and predictive analytics through ML-based classification of a company's physical and digital information.

With InSight on AWS, GBHS is digitizing **32,000 patient records and 3.5M images**, enabling search and analytical capabilities. Besides accelerating time to review and retrieve records, this also **reclaimed 8170 ft³ (231m³) of physical storage space** for enhanced patient care.



A golden retriever wearing glasses and a hat in a portrait painting

beautiful robotic butterfly anatomy diagram

a robot thinking (how does a brain of a human)

photo of a statue of a robot in university courtyard

astronaut on a horse

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)

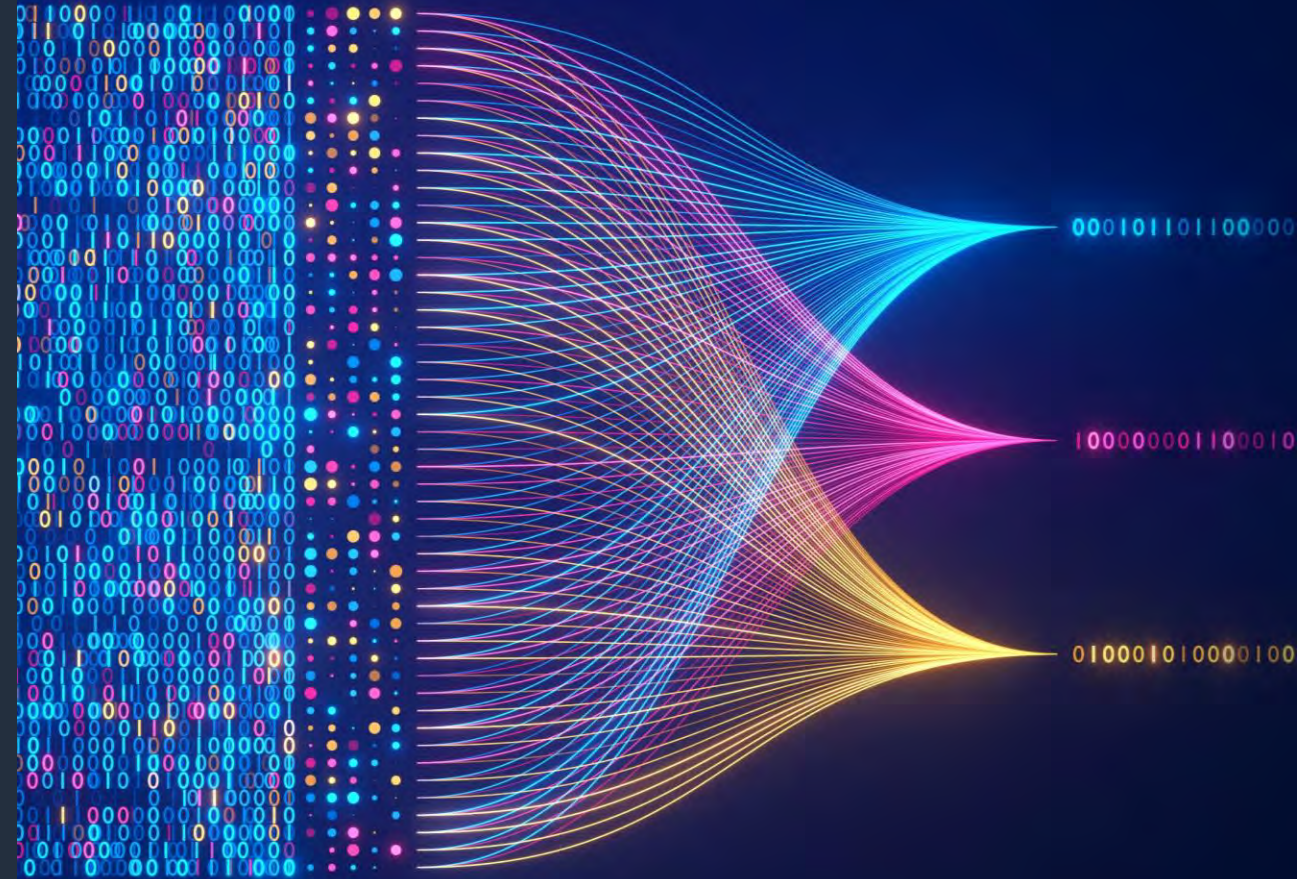
Generative AI is powered by Foundation Models

Pretrained on vast amounts of unstructured data

Contain large number of parameters that make them capable of learning complex concepts

Can be applied in a wide range of contexts

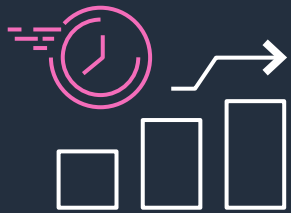
Customize FMs using your data for domain-specific tasks



What are HC customers looking for from GenAI ?

Non-exhaustive

Internal/Enterprise



Increase Productivity

Reduce non-differentiated heavy lift for employees, AI powered intelligent automation



Improve Decision Making

Unleashing and democratizing actionable insights, contextualized recommendation



Accelerate Innovation

Creating new ideas, content and products, enriching applications

External/Customer



Enhance Health Outcomes

More accurate/earlier diagnosis, precision/personalized care

Improve patient & provider experience

Drive Competitive Advantage

Businesses that adopt GenAI early for the right use case working backwards from a clear problem statement can gain a competitive edge by enabling people, enhancing productivity/efficiency and accelerating innovation

Top Healthcare Provider AI/ Generative AI Use Case

Clinician Workflow

- Listen to patient conversations and summarize clinical notes
- Summarize patient records from various documents into EHR
- Suggest medical imaging and multimodal diagnoses

Care Management

- Review and summarize records for registries
- Analyze patient record to identify risks
- Analyze patient cohorts in EHR to identify risks
- Segment patient population for interventions

Patient Engagement

- Provide self-service care triage
- Proactively communicate with patients
- Guide patient care after discharge
- Generate patient-friendly reports

Research

- Automate Data Cleaning for Ingest
- Cross-patient query for Clinical Trial Patient Matching

Corporate functions or Education

- Educational/ Medical Students reference chatbot
- Enterprise documents search and address IT/HR/Other Q&A

Building generative AI applications can be challenging



Accessing multiple FMs
and newer versions



Customizing FMs
is complicated



Maintaining data privacy
and security



Getting FMs
to execute tasks



Connecting to
data sources



Managing infrastructure
can be challenging

Two ways to start your generative AI journey with AWS

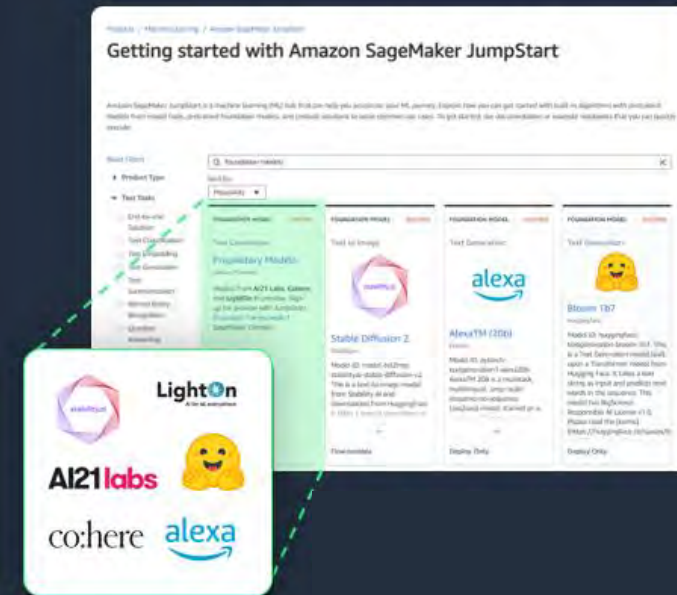
Amazon Bedrock

The easiest way to build and scale generative AI applications with foundation models (FMs)



Amazon SageMaker Jumpstart

Train, fine-tune, deploy, and operationalize FMs at scale



Amazon Bedrock

Now Generally Available, HIPAA & GDPR compliant!

THE EASIEST WAY TO BUILD AND SCALE GENERATIVE AI APPLICATIONS WITH FMS



Access a range of leading FMs through a single API



Privately customize FMs with your own data



Enable data security and compliance



Build agents that execute complex business tasks by dynamically invoking APIs

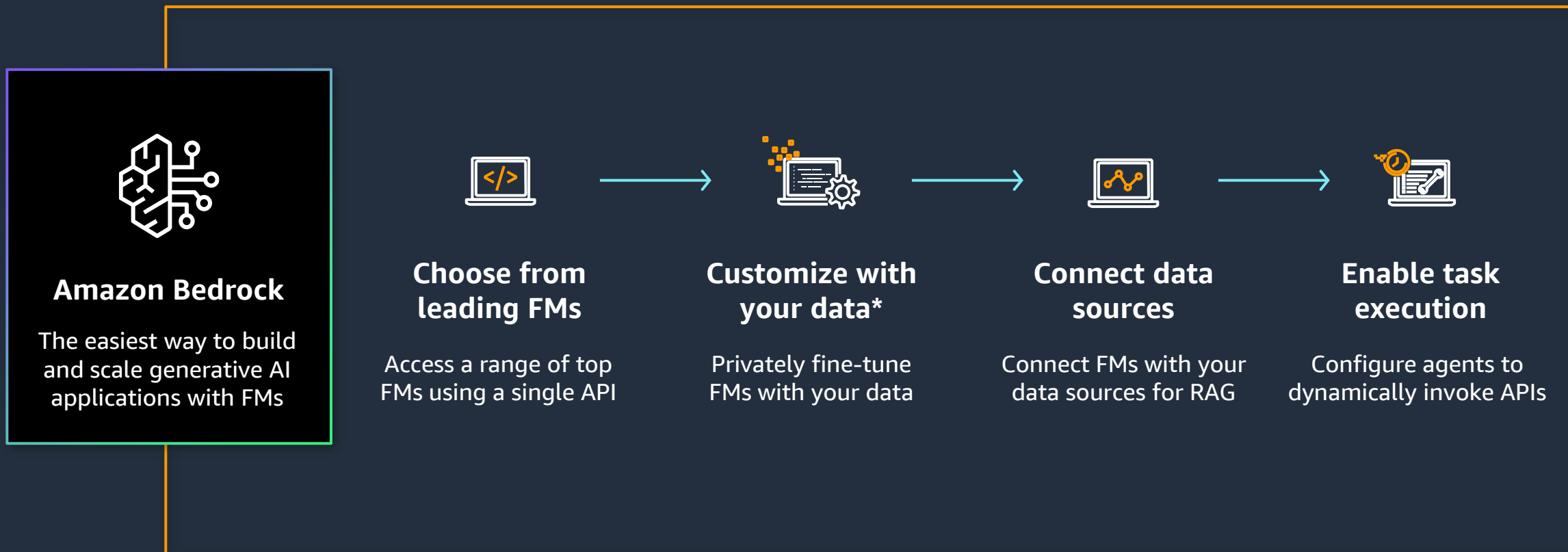


Extend the power of FMs with your data using retrieval augmented generation (RAG)



Get the best price performance without managing infrastructure

How it works



* Your data is not used for service improvements and is not shared with third-party model providers.

Amazon Bedrock supports leading foundation models

amazon

Amazon Titan

Text summarization, generation, classification, open-ended Q&A, information extraction, embeddings, and search

AI21labs

Jurassic-2

Multilingual LLMs for text generation in Spanish, French, German, Portuguese, Italian, and Dutch

ANTHROPIC

Claude 2

LLM for conversations, question answering, and workflow automation based on research into training honest and responsible AI systems

cohere

Command

Text-generation model for business applications and embeddings model for search, clustering, or classification in 100+ languages

∞ Meta

Llama 2 *(coming soon)*

Fine-tuned models ideal for dialogue use cases and language tasks

stability.ai

Stable Diffusion

Generation of unique, realistic, high-quality images, art, logos, and designs

Security and privacy

Private connectivity between Amazon Bedrock and your Amazon Virtual Private Cloud (Amazon VPC)

Your data is encrypted in transit and at rest

Support for standards, including GDPR compliance and HIPAA eligibility



Two ways to start your generative AI journey with AWS

Amazon Bedrock

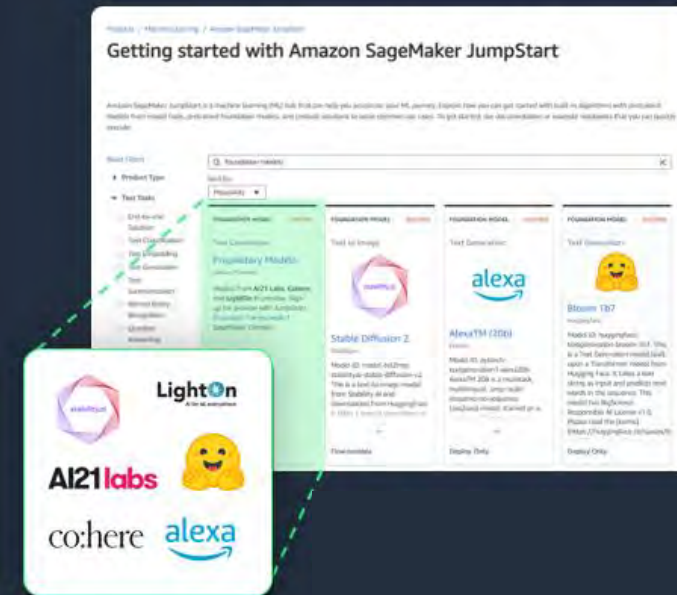
The easiest way to build and scale generative AI applications with foundation models (FMs)



Currently in limited preview

Amazon SageMaker Jumpstart

Train, fine-tune, deploy, and operationalize FMs at scale



How to use Amazon SageMaker JumpStart for building with FMs

1

Choose from more FMs offered by model providers

AI21 labs

Lighton
We bring Light to AI

stability.ai

co:here



alexam

2

Try out model and/or deploy



Try out models via AWS Management Console



Deploy the model for inference using SageMaker, hosting options includes single node

3

Fine tune model and automate ML workflow



Only selected models can be fine-tuned



Automate ML workflow

Data stays in your account, including model, instances, logs, model inputs, model outputs

Fully integrated with SageMaker features

Build your own FM at scale using SageMaker



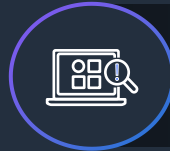
Managed infrastructure

Full control of your model training with managed and most price-performant infrastructure



Efficient distributed training

Complete distributed training up to 40% faster



Debugging and experimentation tools

Capture metrics and profile training jobs in real time to quickly correct performance issues. Track ML model iterations easily.



Price-performant inference

Deploy models in production for any use case with best price-performance



Repeatable and reproducible MLOps

Automate and standardize processes across the ML lifecycle



Governance

Purpose-built governance tools to help you implement ML responsibly




Human-in-loop support

Create high quality datasets and align model outputs with human preferences

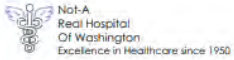
Addressing the risks and limitations of generative AI through the right level of customization

Increasing cost



Prompt engineering	Guiding model to generate useful response by teaching it the “pattern” of desired output using context instructions, examples and output indicators
Retrieval Augmented Generation (RAG)	Text generation based on specified corpus of data, to generate accurate responses with no hallucination
Instruction fine-tuning	Finetuning a language model on a collection of tasks described via instructions (may include an agent giving access to tools, databases, web page, etc.)
Domain adaptation Finetuning	Finetuning a model using proprietary or domain specific data to improve output quality and domain-relevant results
Retraining the model	Retraining a model using a different dataset, or building a model from scratch

Demonstration: Augment Intelligent Document Processing workflows with Generative AI



578 Michael Island,
New Thomas, NC 34644
Ph: (888)-(999)-(0000)
Fax: (888)-(999)-(1111)

Patient Discharge Summary

Not-A Real Hospital, Department of Family Medicine

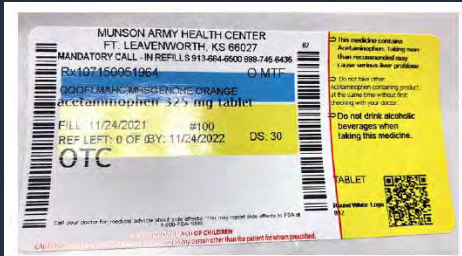
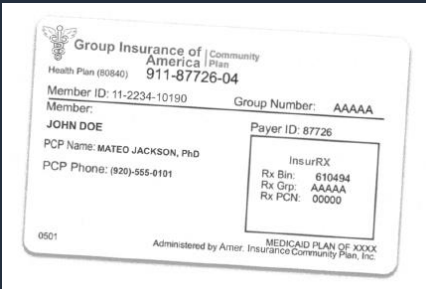
Patient	
Patient Name:	John Doe
Patient ID:	NARH-36640
Gender:	Male
Visit	
Attending Physician:	Mateo Jackson, PhD
Admit Date:	07-Sep-2020
Discharge Date:	08-Sep-2020
Discharge Disposition:	Home with Support Services
Diagnosis	

35 yo M c/o stomach problems since 2 month ago. Patient reports epigastric abdominal pain non-radiating. Pain is described as gnawing and burning, intermittent lasting 1-2 hours, and gotten progressively worse. Antacids used to alleviate pain but not anymore; nothing exacerbates pain. Patient denies constipation or diarrhea. Patient denies blood in stool but have noticed them darker. Patient also reports nausea. Denies recent illness or fever. He also reports fatigue since 2 weeks ago and bloating after eating.
ROS: Negative except for above findings
Meds: Motrin once/week. Tums previously.
PMHx: Back pain and muscle spasms. No Hx of surgery. NKDA.
FHx: Uncle has a bleeding ulcer
Social Hx: Smokes since 15 yo, 1/2-1 PPD. No recent ETOH use. Denies illicit drug use. Works on high elevation construction. Fast food diet. Exercises 3-4 times/week but stopped 2 weeks ago.

Pre-existing / Developed Conditions
Impacting Hospital Stay:

Discharge: some activity restrictions suggested, full course of antibiotics, check back with physician in case of relapse, strict diet

Summary:



Attending Provider Notes

Provider: Dr Mateo Jackson, PhD
Patient: John Doe

35 yo M c/o stomach problems since last 2 months. Patient reports epigastric abdominal pain non-radiating. Pain is described as gnawing and burning, intermittent lasting 1-2 hours, and gotten progressively worse. Antacids used to alleviate pain but not anymore; nothing exacerbates pain. Patient denies constipation or diarrhea. Patient denies blood in stool but have noticed them darker. Patient also reports nausea. Denies recent illness or fever. He also reports fatigue since the last 2 weeks ago and bloating after eating.

ROS: Negative except
Meds: Motrin once/w
PMHx: Back pain and
NKDA.
FHx: Uncle has a ble
Social Hx: Smokes sin
high elevation constr

PLEASE DO NOT WRITE IN THIS AREA

HEALTH INSURANCE CLAIM FORM

1. MEDICARE MEDIGAP CHAMPUS CHAMPVA OTHER 16. INSURED'S ID NUMBER
 2. PATIENT'S NAME (Last, First, Middle Initial) 3. PATIENT'S BIRTH DATE 4. INSURED'S NAME (Last, First, Middle Initial)
 5. PATIENT'S ADDRESS (street, city, state, ZIP CODE) 6. PATIENT RELATIONSHIP TO INSURED 7. INSURED'S ADDRESS (street, city, state, ZIP CODE)
 8. PATIENT STATUS 9. EMPLOYMENT (EMPLOYED OR PHYSICIAN)
 10. DATE OF CLAIM 11. DATE PATIENT UNABLE TO WORK IN US
 12. PATIENT'S OR AUTHORIZED PERSON'S SIGNATURE 13. SIGNATURE OF PHYSICIAN 14. SIGNATURE OF AUTHORIZED PERSON
 15. NUMBER OF REFERRING PHYSICIAN OR OTHER SOURCE 16. HOSPITALIZATION DATES RELATED TO CLAIM
 17. NAME OF REFERRING PHYSICIAN OR OTHER SOURCE 18. NUMBER OF REFERRING PHYSICIAN OR OTHER SOURCE
 19. RESERVED FOR LOCAL USE 20. MEDICARE SUBMISSION CODE
 21. DIAGNOSIS ON NATURE OF ILLNESS OR INJURY (RELATE ICD-9-CM TO ICD-10 BY LINK)
 22. MEDICARE AUTHORIZATION NUMBER
 23. PRIOR AUTHORIZATION NUMBER
 24. CHARGES BY SERVICE DATE OF SERVICE 25. CHARGES BY SERVICE DATE OF SERVICE
 26. FEDERAL TAX ID NUMBER 27. PATIENT'S ACCOUNT NO. 28. TOTAL CHARGE 29. AMOUNT PAID 30. BALANCE DUE
 29. SIGNATURE OF PHYSICIAN OR SUPPLIER 30. NAME AND ADDRESS OF FACILITY WHERE SERVICES WERE RENDERED 31. PHYSICIAN'S, SUPPLIER'S BLEND NAME, ADDRESS, ZIP CODE & PHONE #
 32. APPROVED BY AIA COUNCIL ON MEDICAL SERVICE 33. PLEASE PRINT OR TYPE 34. FORM HCR-100 (REV. 1/97) FORM PPA 1100 FORM DATED 1/01



Surgical Pathology Report

Patient: Doe, John
MRN: A11-8-199878
DOB: 07/08/1971
Gender: M

Accession Number: AF123456
Procedure: 03/15/2020
Attending: Dr. Mateo Jackson, MD

Clinical History: Large Gastric Mass

Specimen: Gastric Mucosa

Diagnosis

Stomach, Partial Gastrectomy:

- Malignant Epithelioid Gastrointestinal Stromal Tumor
- Tumor Size 10 x 9 x 8 cm
- Cell Type: Epithelioid and Spindled
- High cellularity; present
- Mucosal Invasion: Focally present adjacent to ulceration
- Mucosal ulceration present
- Mitotic Count: 10/50 HPF
- Myxoid background: Focally present
- Foci of necrosis present
- CD117, vimentin, and CD34: uniformly positive

Gross Description

The specimen consists of an approximately 5 x 7 cm portion of gastric mucosa that is surrounded and underlying by a lobulated mass which is 10 x 9 x 8 cm. The central portion of the mass appears to have an approximately 1.5-cm ulcer. The mucosa away from the area of ulceration is partially removed from the underlying tumor. The underlying mass appears encapsulated and lobular. Gross sections show the lesion to consist of several different patterns. A single area has a gray to tan pattern with an area of central necrosis showing a fairly uniform appearance whereas; other regions of the tumor are gray white- and somewhat lobular in appearance. Areas of yellow necrosis are scattered through the tumor. Representative portions submitted.

Microscopic Description

Sections through the neoplasm show it to be primarily a high cellular neoplasm. The cells are in part arranged in fascicles and clusters with enlarged elongate nuclei having relatively fine nucleoli. In some areas, the fascicles have an interwoven appearance. Mitotic figure up to 10-50 HPF. A few areas show foci of necrosis with the cells appearing to be surrounded by somewhat myxoid stroma. Foci of displayed necrosis are present. The lesions appear circumscribed, although not specifically encapsulated. It focally involved the mucosa and shows full thickness ulceration. The tumor immediately beneath the mucosal area of ulceration has a nearly lobular somewhat spindled growth pattern. Some areas of the tumor have a slightly more rounded nuclei and somewhat epithelioid appearance. The cells appear to be arranged in groups and clusters. Some of the cells have cytoplasmic vacuoles. These areas also show a prominent mitotic activity. Some mitotic figures are abnormal and atypical. The tumor contains numerous relatively open vascular channels which appear to be part of the neoplasm. The tumor has a pseudo capsule and in some areas appear to be nearly covered.

Immunostains are strongly positive for CD117 (C-kit), CD34, and Vimentin, Smooth muscle actin, Desmin, Synaptophysin, S-100, and Ck8/18 are negative.

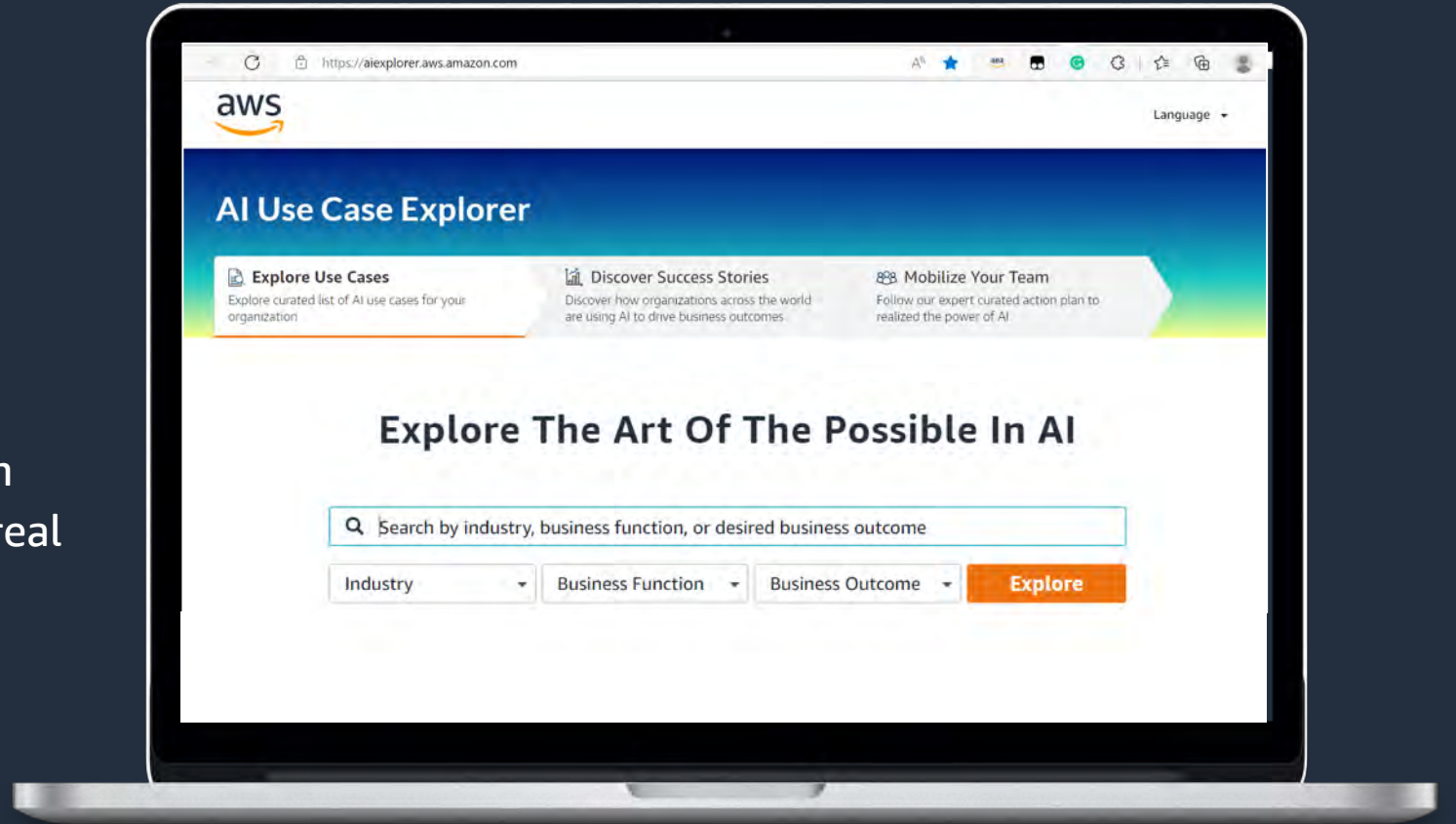
Comment

Immunostains were performed on the core biopsy and demonstrate that the tumor cells are positive for CD117. The findings are consistent with the above diagnosis.



AI Use Case Explorer

Easily find the most relevant AI use cases with related content and guidance to make them real



aiexplorer.aws.amazon.com

Start your generative AI journey today

1

Build on your own
Data Strategy

2

Explore healthcare
use cases with us
& train on our
services

3

Get started on a
PoC with the AWS
Generative AI
Innovation Center

4

Joint Go-to-Market



Thank You!

Elizabeth Keller

National Business Development Manager, Healthcare
AWS

Fred S. Azar, PhD

Global Head, Artificial Intelligence / Machine Learning in Healthcare
AWS



Appendix

Insurance claim documents



Not-A
Real Hospital
Of Washington
Excellence in Healthcare since 1950

578 Michael Island,
New Thomas, NC 34644
Ph: (888)-(999)-(0000)
Fax: (888)-(999)-(1111)

Patient Discharge Summary

Not-A Real Hospital, Department of Family Medicine

Patient	
Patient Name:	John Doe
Patient ID:	NARH-36640
Gender:	Male

Visit	
Attending Physician:	Mateo Jackson, PhD
Admit Date:	07-Sep-2020
Discharge Date:	08-Sep-2020
Discharge Disposition:	Home with Support Services

Diagnosis	
Pre-existing / Developed Conditions Impacting Hospital Stay:	<p>35 yo M c/o stomach problems since 2 montsh ago. Patient reports epigastric abdominal pain non-radiating. Pain is described as gnawing and burning, intermitent lasting 1-2 hours, and gotten progressively worse. Antacids used to alleviate pain but not anymore; nothing exhacerbates pain. Pain unrelated to daytime or to meals. Patient denies constipation or diarrhea. Patient denies blood in stool but have noticed them darker. Patient also reports nausea. Denies recent illness or fever. He also reports fatigue since 2 weeks ago and bloating after eating.</p> <p>ROS: Negative except for above findings Meds: Motrin once/week. Tums previously.</p>

Redaction Extraction Classification Q&A

Redacted text using Amazon Comprehend PII detection

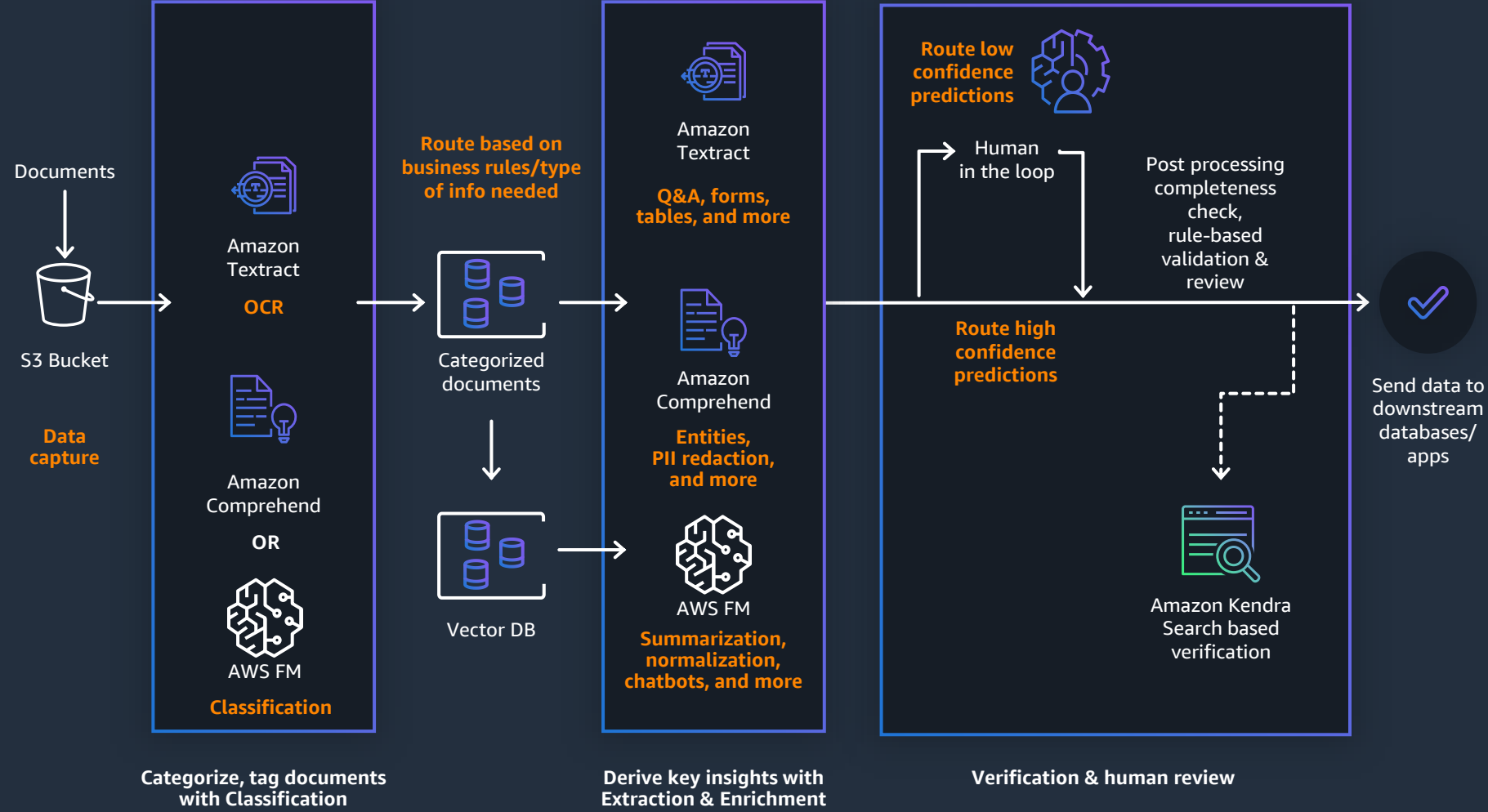
Not-A
Real Hospital
[ADDRESS]
Excellence in Healthcare since [DATE_TIME]
[ADDRESS]
Ph: [PHONE]
Fax: [PHONE]
Patient Discharge Summary
Not-A Real Hospital, Department of Family Medicine
Patient
Patient Name: [NAME]
Patient ID: NARH-36640
Gender: Male

Visit
Attending Physician: [NAME], PhD
Admit Date: [DATE_TIME]
Discharge Date: [DATE_TIME]
Discharge Disposition: Home with Support Services

Diagnosis

Pre-existing / Developed Conditions Impacting Hospital Stay:
35 yo M c/o stomach problems since 2 montsh ago. Patient reports epigastric abdominal pain non-radiating. Pain is described as

Sample document pipeline using AWS IDP and FM



How to get started

Developers can easily embed AI-powered functionality from Textract and Comprehend into your business workflows and apps

Engage your Data Science team for FM selection, evaluation and tuning based on your GenAI use case

Link your GenAI/FM modules with AWS IDP (e.g., through chaining) to create an end-to-end document processing pipeline



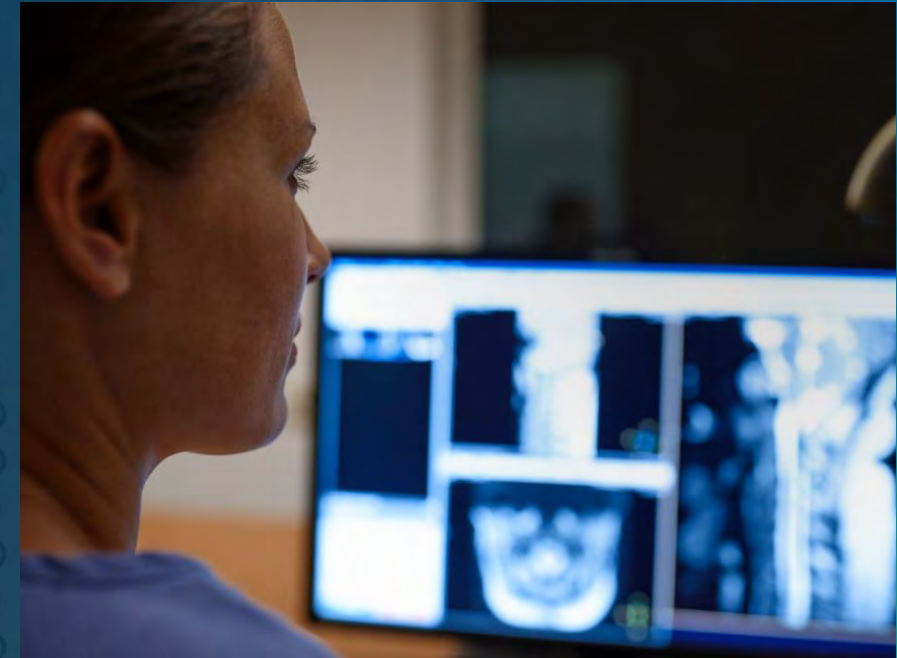
Philips joins forces with AWS to advance AI-enabled tools in support of clinicians

“With healthcare systems under increasing pressure, the focus of clinicians has shifted from technical specifications towards more efficient workflows that lead to accurate diagnoses – and that’s what we are delivering here”

- Shez Partovi, Philips Chief Innovation & Strategy Officer and Business Leader Enterprise Informatics

“Through democratizing access to generative AI and applying FMs to help support clinical decision-making, increase diagnostic accuracy, and automate administrative tasks, AWS will continue to support Philips as they uncover new ways to simplify radiologists’ workflow and reduce cognitive burden and clinician burnout.”

- Swami Sivasubramanian, AWS VP of database, analytics, and machine learning



<https://www.philips.com/a-w/about/news/archive/standard/news/press/2023/20230417-philips-joins-forces-with-aws-to-bring-philips-healthsuite-imaging-pacs-to-the-cloud-and-advance-ai-enabled-tools-in-support-of-clinicians.html>



3M Health Information Systems collaborates with AWS to accelerate AI innovation in clinical documentation

"The innovation, security and reliability of AWS helps us accelerate the delivery of high-quality clinical documentation. Our overarching goal is to create a better, more sustainable solution and to continue to be a trusted partner that our clients can rely on to reduce administrative tasks and prioritize patient engagement.

We look forward to working with AWS and using machine learning and generative AI services to scale our 3M M*Modal conversational and ambient AI solutions."

- Garri Garrison, 3M Health Information Systems President



<https://news.3m.com/2023-04-18-3M-Health-Information-Systems-collaborates-with-AWS-to-accelerate-AI-innovation-in-clinical-documentation>

