
AWS
re:Invent

HLC201

Healthcare executive outlook: Accelerating transformation

Shez Partovi

Director, Worldwide Lead Healthcare, Life Sciences, Genomics

AWS

AWS re:Invent

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Healthcare, life sciences, and genomics at AWS

14+ yrs.

aws

7+ yrs.

Dedicated practice

17+ yrs.

Average experience

Chief Medical Officer

Chief Digital Officer

Genomics Researcher

Informaticists

Healthcare Analyst

Pop Health Specialist

Clinical Researcher

Oncology Nurse

Biochemist

Pharmacologist

Associate Professor

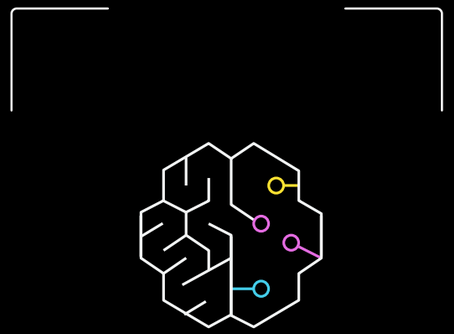
Physician



“When asked which emerging company in healthcare is the most innovative or potentially disruptive, healthcare providers are pointing to Amazon as the leader.”

2020 KLAS Research Report

Patient



Advanced Insights



Advanced Insights



Personalized Journey



Data
Liquidity



Advanced
Insights



Personalized
Journey



Data
Liquidity



Advanced
Insights



Personalized
Journey

Security and Compliance



Data
Liquidity



Advanced
Insights



Personalized
Journey

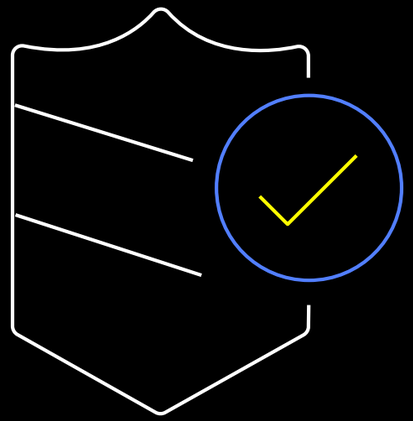
Security and Compliance

Security and Compliance

Security and Compliance

Security and Compliance

Security is job zero



Security and Compliance

Americas

CJIS
Criminal Justice Information Services

DoD SRG
DoD Data Processing

FedRAMP
Government Data Standards

FERPA
Educational Privacy Act

FIPS
Government Security Standards

FISMA
Federal Information Security Management

GxP
Quality Guidelines and Regulations

HIPAA
Protected Health Information

HITRUST CSF
Health Information Trust Alliance Common Security Framework

ITAR
International Arms Regulations

MPAA
Protected Media Content

NIST
National Institute of Standards and Technology

PIPEDA
Canada's Federal Private Sector Privacy Legislation

SEC Rule 17a-4(f)
Financial Data Standards

VPAT/ Section 508
Accessibility Standards

Global

CSA
Cloud Security Alliance Controls

ISO 9001
Global Quality Standard

ISO 27001
Security Management Controls

ISO 27017
Cloud Specific Controls

ISO 27018
Personal Data Protection

PCI DSS Level 1
Payment Card Standards

SOC 1
Audit Controls Report

SOC 2
Security, Availability, & Confidentiality Report

SOC 3
General Controls Report

Europe, Middle East, & Africa

ASIP HDS
Personal Health Data Protection in France

C5
Operational Security Attestation in Germany

CISPE
Coalition of Cloud Infrastructure Services Providers in Europe

Cyber Essentials Plus
Cyber Threat Protection in the UK

ENS High
Government Standards in Spain

G-Cloud
Government Standards in the UK

TISAX
Automotive Industry Standard

Asia Pacific

FinTech
Reference Architecture in Japan

FISC
Center for Financial Industry Information Systems in Japan

IRAP
Security Standards in Australia

K-ISMS
Information Security in Korea

Medical Information Guidelines
Guidelines in Japan

MTCS Tier 3
Multi-Tier Cloud Security Standard in Singapore

NISC
National Center of Incident Readiness and Strategy for Cybersecurity in Japan

OSPAR
Outsourcing Guidelines in Singapore

Global companies trust AWS Security and Compliance



Global companies trust AWS Security and Compliance



Global companies trust AWS Security and Compliance





Data
Liquidity



Advanced
Insights



Personalized
Journey

Security and Compliance



Data
Liquidity







Data
Liquidity







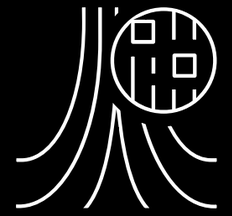
Data
Liquidity





Data
Liquidity

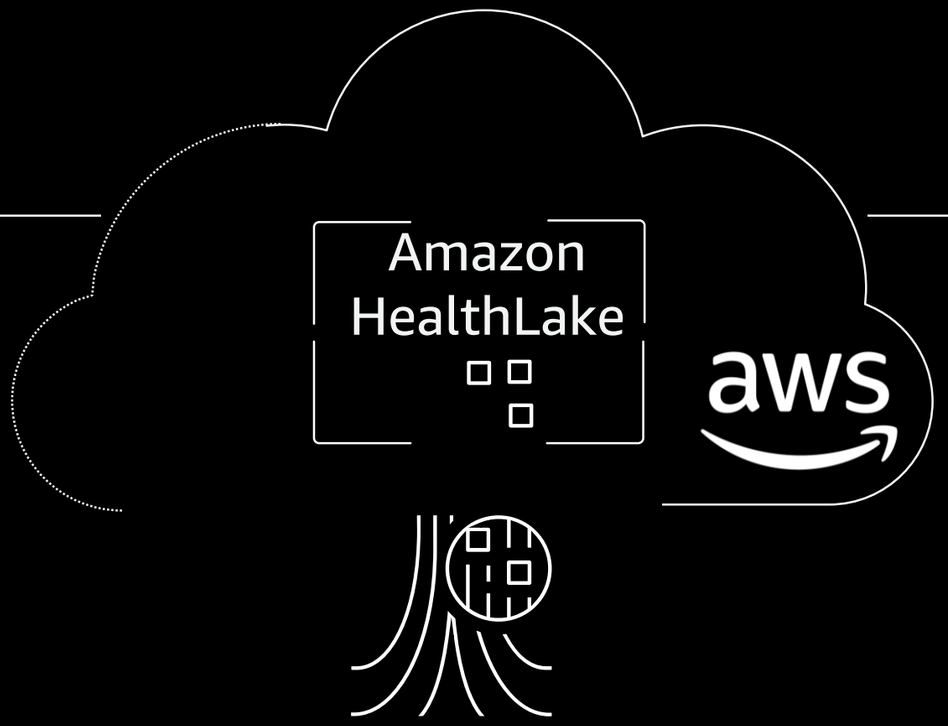




Discrete



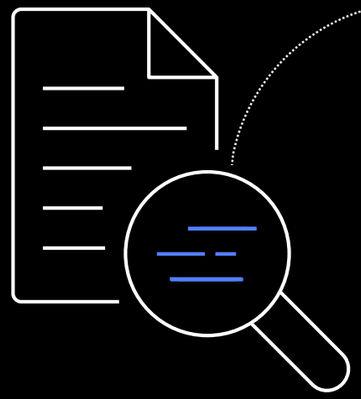
Data
Liquidity



Discrete

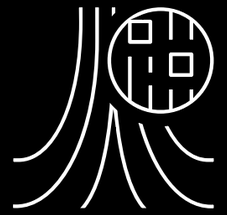


Data
Liquidity









Unstructured

Discrete

Data
Liquidity



Amazon
Comprehend
Medical

Unstructured

Discrete



Data
Liquidity



Amazon
Comprehend
Medical

Unstructured >> Discrete



Data
Liquidity

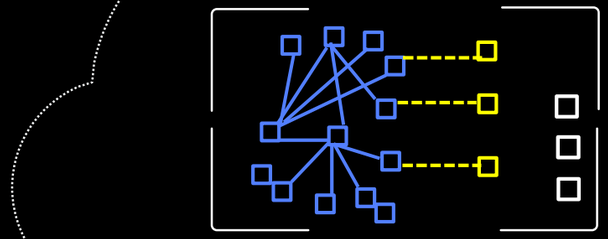


Amazon
Comprehend
Medical

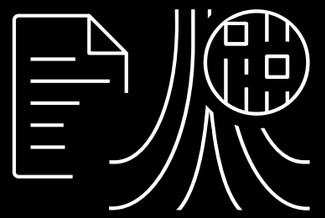
Unstructured >> Discrete



Data
Liquidity



Amazon
Comprehend
Medical

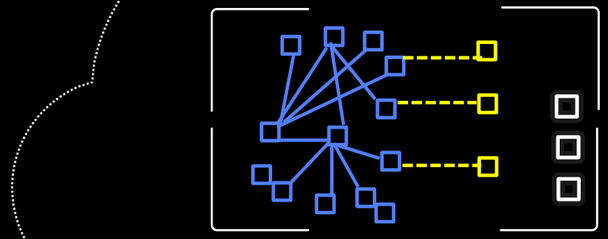


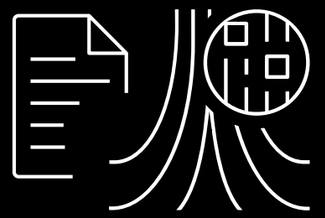
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SNOMED
ICD-10
Rx Norm



Data
Liquidity





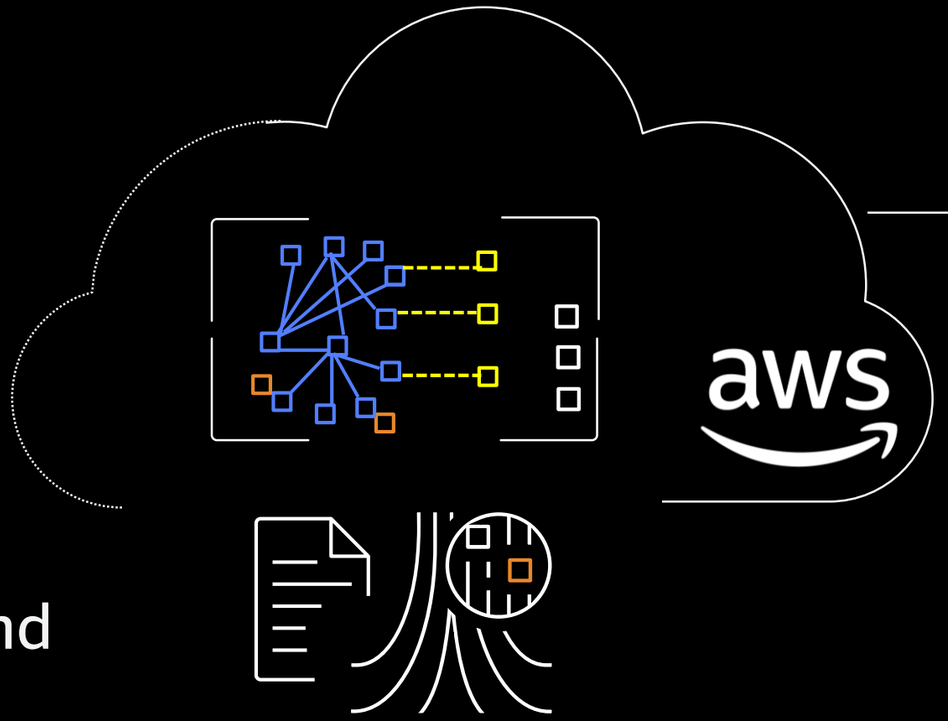
Amazon
Comprehend
Medical

Unstructured >> Discrete >>

SNOMED
ICD-10
Rx Norm



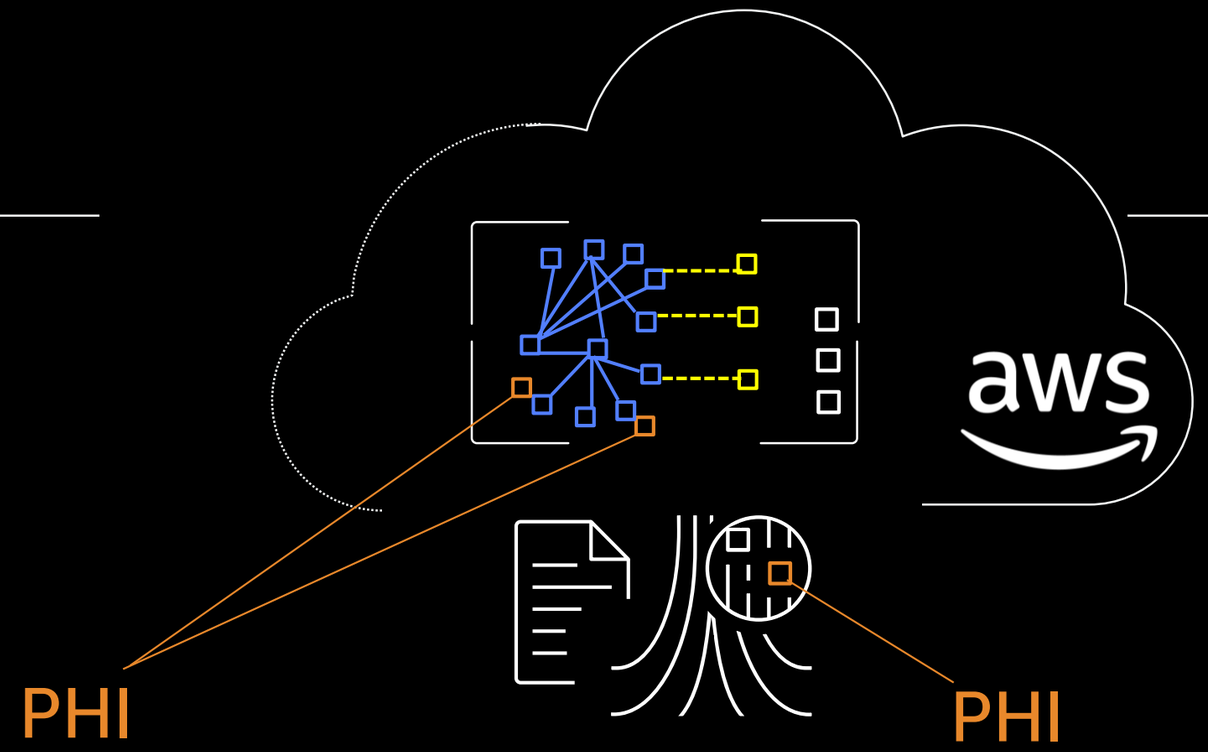
Data
Liquidity



Amazon
Comprehend
Medical



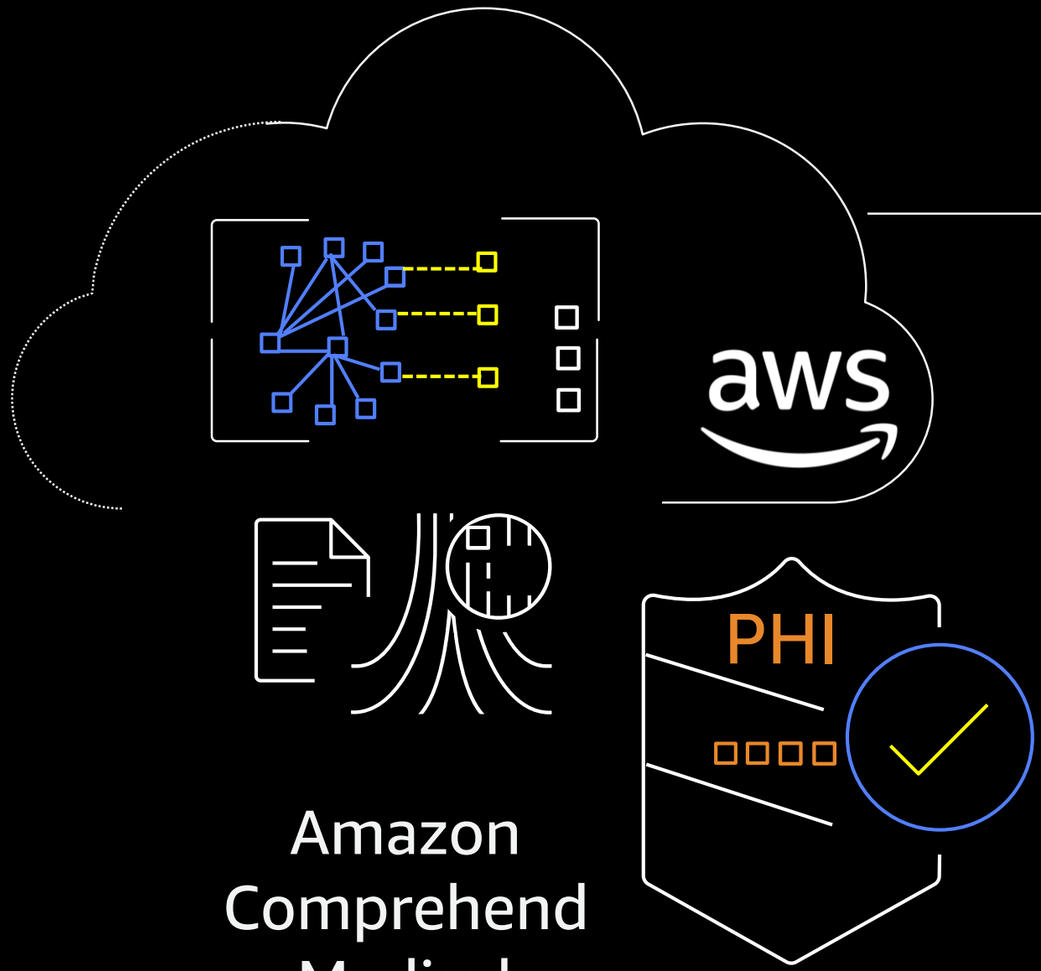
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Comprehend
Medical



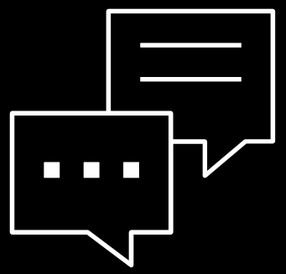
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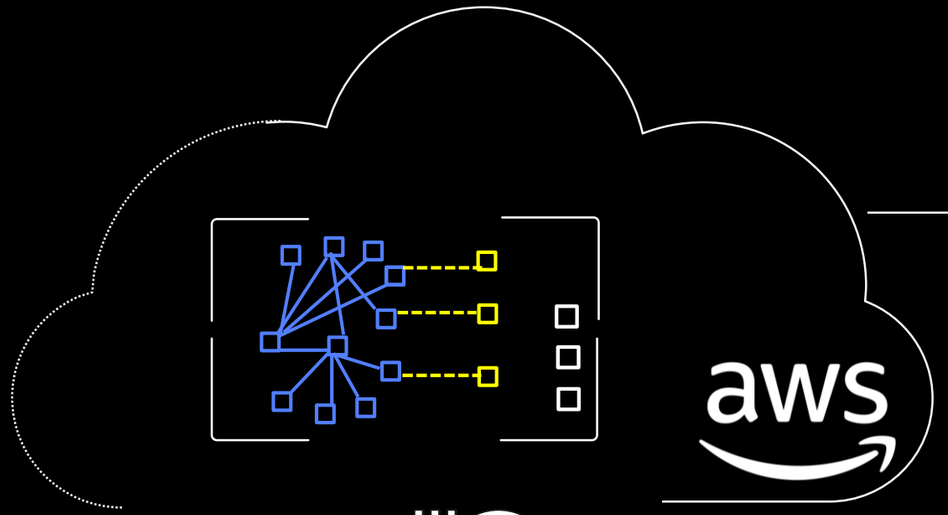
Amazon
Comprehend
Medical

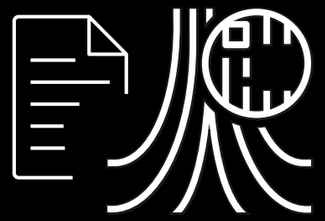


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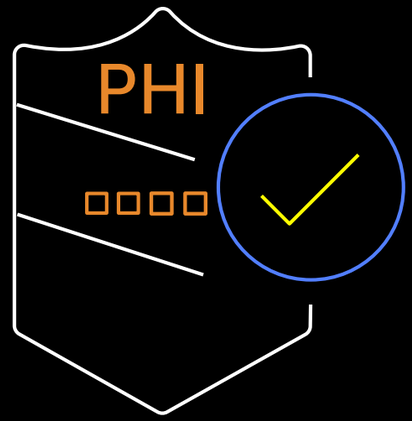


Amazon
Transcribe
Medical



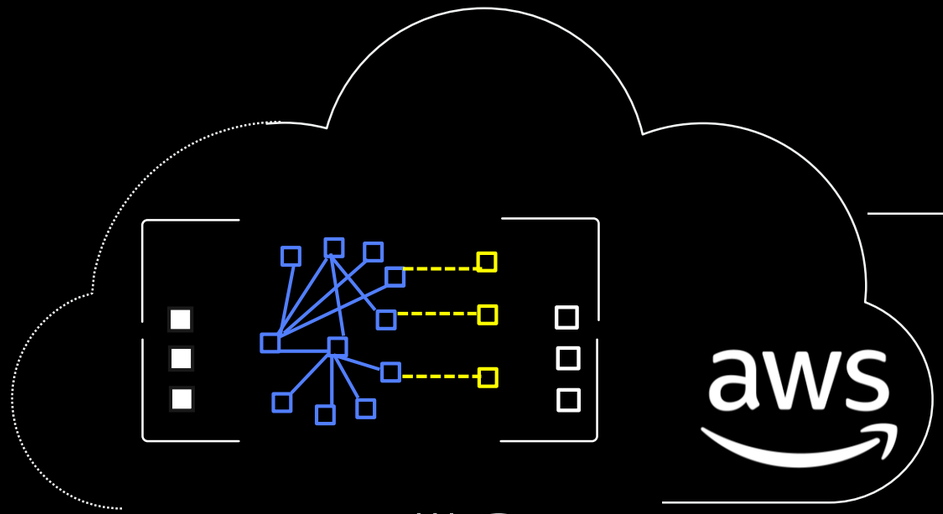


Amazon
Comprehend
Medical

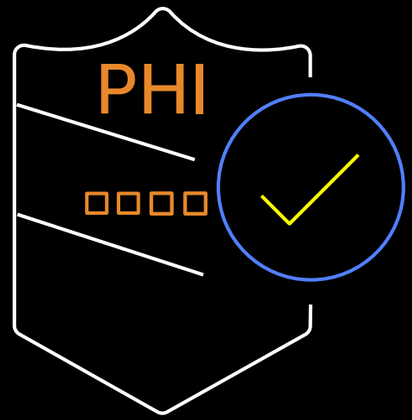




Data
Liquidity







Amazon
Transcribe
Medical

Amazon
Comprehend
Medical



Data Liquidity

Large State Agency

cloudticity

- Need: data lake to help manage COVID-19
- 6 Health Information Exchanges into 1 data lake in 11 days
- Enabled the agency to perform advanced analytics



Data Liquidity

Anthem

- Receives millions of claims from providers
- Utilizes Amazon Textract to automate text extraction (80-85% accuracy)
- Machine learning services improved scalability



Data
Liquidity



Advanced
Insights

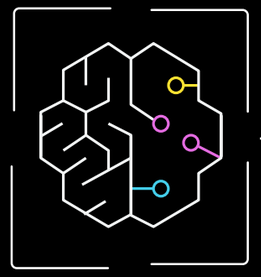


Personalized
Journey

Security & Compliance



Advanced Insights



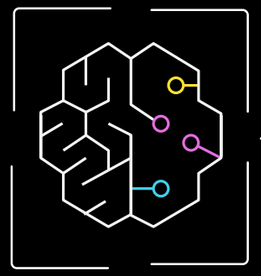
Advanced Insights

Prediction (e.g., vision loss in 18 mo.)

Knowledge (e.g., patient has diabetes)

Information (e.g., trend of rising blood sugar values)

Data (e.g., single blood sugar value)



Advanced Insights

Munich Leukemia Laboratory (MLL)

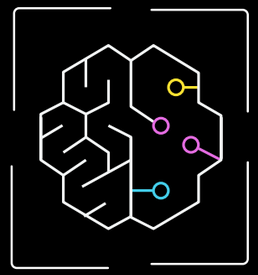
- Automate Leukemia diagnosis
- AWS enables MLL to easily manage and run huge national and international research projects
- Using Amazon Machine Learning to combine genomic, imaging, and EHR data to provide diagnostics in minutes instead of hours or days

Butterfly™ Network

Advanced Insights

- Simplify device operations
- Improve image interpretation
- Consistent lesion measurement

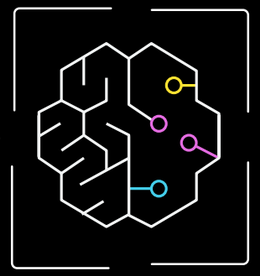




Advanced Insights

Cerner®

- Cerner Command Center delivers
  - Operational excellence
  - Situational awareness
  - Alerts and notifications
- Performs real-time prediction to inform decision-making



Advanced
Insights

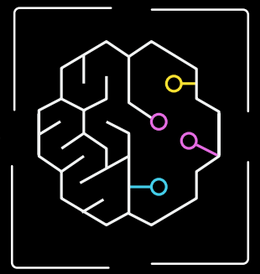


Data
Liquidity

A Culture of Innovation



Data
Liquidity



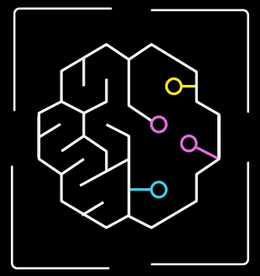
Advanced
Insights

1. 1st Order lift—doing stuff you're doing now, just better
2. 2nd Order lift—doing stuff you wanted to do but couldn't
3. 3rd Order lift—doing things you never imagined

A Culture of Innovation



Data
Liquidity



Advanced
Insights



Personalized
Journey



Personalized
Journey



Personalized Journey

BREASTCANCER.ORG

- Personalizing web content based upon specific cancer diagnosis



Personalized Journey

careMonitor

- Virtual visits via Amazon Chime
- Virtual scribes via Amazon Transcribe
- Building prediction models via Amazon SageMaker
- First-ever city-wide remote monitoring solution for COVID-19 patients in record time, bringing relief to overburdened hospitals



Personalized Journey

MedStar Health

- MedStar Health quickly scaled telehealth solutions amid the pandemic with support from AWS
- The health system also launched three call centers in less than a week:
  - one for providers
  - one for patients waiting on COVID-19 lab results
  - one for contact tracing



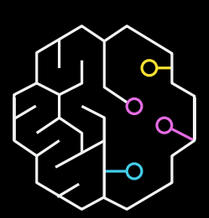
Personalized Journey

GRAIL

- Grail is developing a multi-cancer early detection test
- Through a simple blood draw, Grail can detect more than 50 types of cancer with a very low false positive rate of <1% and identify where in the body the cancer is located with >90% accuracy
- AWS products enable Grail to utilize the power of next-generation sequencing, population-scale clinical studies, and state-of-the-art genomic analysis and machine learning to detect cancer-derived signals in patients' DNA



Personalized
Journey



Data
Liquidity



Advanced
Insights



Personalized
Journey

Security and Compliance

Healthcare sessions at re:Invent 2020

ID	TITLE
HLC201	Healthcare executive outlook: Accelerating transformation
HLC202	Making healthcare more personal with MetroPlus Health
HLC203	Securing protected health information and high-risk datasets
HLC204	Accelerating the transition to telehealth with AWS
WPS202	Transform research environments with Service Workbench on AWS
WPS209	Reinventing medical imaging with machine learning on AWS
WPS211	An introduction to healthcare interoperability and FHIR Works on AWS
WPS304	Achieving healthcare interoperability with FHIR Works on AWS
AIM303	Using AI to automate clinical workflows
AIM310	Intelligent document processing for the insurance industry
MKT206	Simplify healthcare compliance with third-party solutions
GPS211	AWS Partners driving innovation amidst COVID-19

Learn more

aws healthcare

Healthcare & Life Sciences at AWS



Thank you!

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