
AWS
re:Invent
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HLC202

Realizing the full value of your EHR with a digital health ecosystem

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Chief of Digital Modernization
Tufts Medicine

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Amazon Web Services

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Agenda

The relationship between EHR features and innovation

The EHR and the digital health ecosystem

Tufts Medicine and the digital health ecosystem

Creating value in health system operations with the AWS Cloud

Using AWS Cloud services to enhance the patient and provider experience

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Preventative care

IS MY WHY

Michael Hegyi
EHR Leader
Amazon Web Services



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AWS for Health



OMICS



HEALTHCARE



LIFE SCIENCES

Accelerating innovations from benchtop to bedside

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1992 – 2021

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Easier to **deploy** and **operate** your EHR



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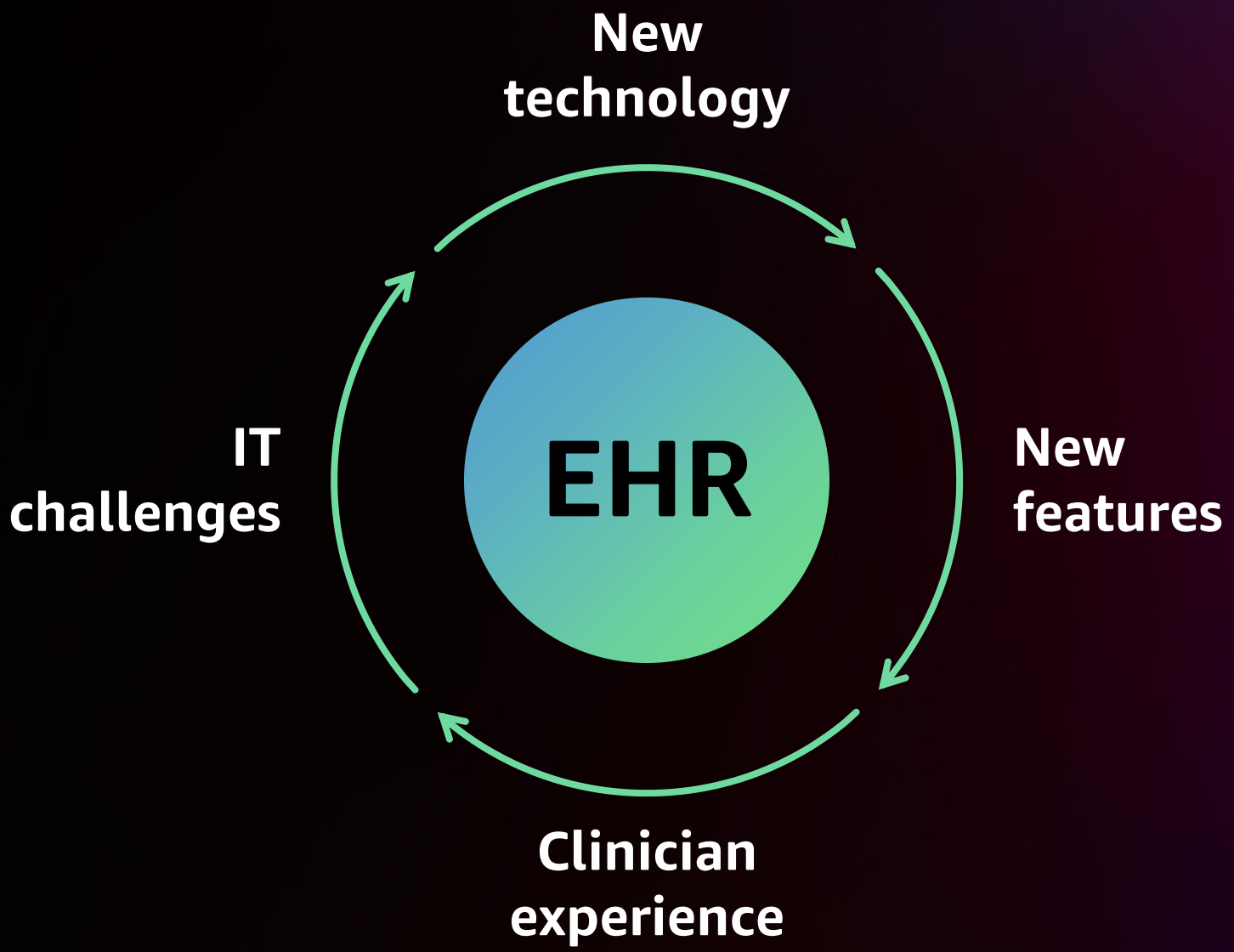


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EHR

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Electronic Health Record

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Elastic Health Record

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Elastic Health Record



Amazon Elastic Compute Cloud (Amazon EC2)



Elastic IP address



Amazon EC2 Auto Scaling



Elastic Load Balancing (ELB)



Elastic network interface



Elastic network adapter



Amazon Elastic File System (Amazon EFS)



Amazon Elastic Block Store (Amazon EBS)

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Elastic Health Record



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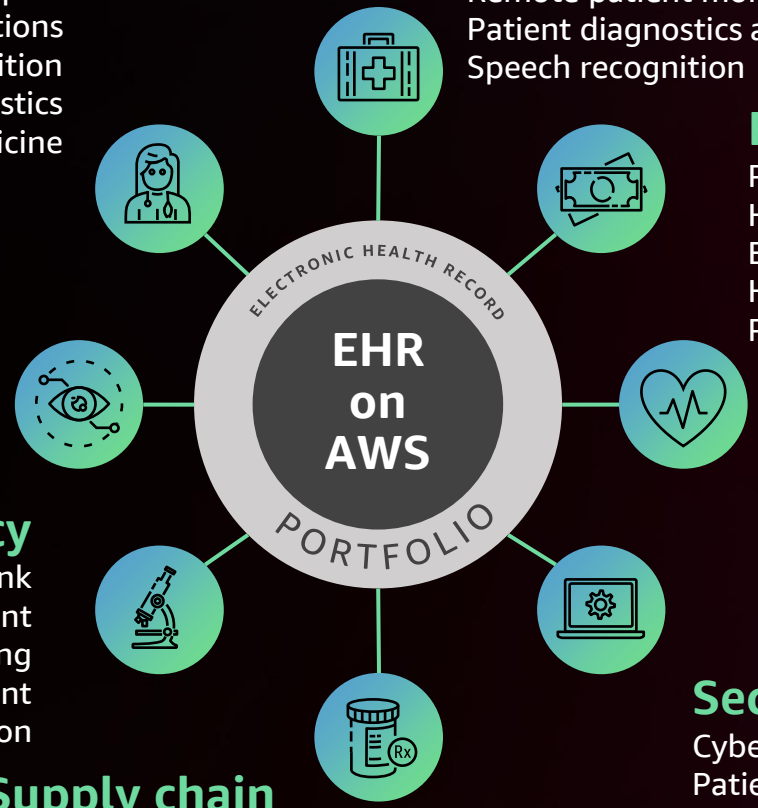
The digital health ecosystem

Inpatient clinical care
Decision support
Clinical communications
Patient nutrition
Patient diagnostics
Precision medicine

Imaging systems
PACS
Universal viewer
VNA image archive
Digital pathology
Workflow management

Lab and pharmacy
Blood bank
Lab management
Point-of-care testing
Medication inventory management
Pharmacy automation

Supply chain
Asset management
Contract management
Inventory logistics



Ambulatory and post-acute care
Home health
Remote patient monitoring
Patient diagnostics and reporting
Speech recognition

Revenue cycle, finance, and HIM
Patient accounting
Human capital management
Enterprise resource planning
Health information management
Patient flow

Value-based care
Telehealth
Population health
Patient engagement
Remote patient monitoring
Data and analytics platform

Security, privacy, and platforms
Cybersecurity
Patient privacy monitoring
Enterprise single sign-on
Interoperability
Content management
Enterprise help desk
Clinical data archive

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Amazon Elastic Inference



Amazon Forecast



Amazon Lex



Amazon Personalize



Amazon Polly



Amazon Rekognition



Amazon SageMaker



Amazon SageMaker Ground Truth



Amazon Textract



EHR



Genomics



PACS



DMS



VNA



Lab



Pharmacy



Payer



Sat



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Proven success

Feb 2021
Build and train

Aug 2021
Alternate production

Jan 2022
Technical dress rehearsal

Apr 2022
Epic on AWS go live

In just 14 months, Tufts

- **Consolidated 6 EHRs and 42 apps**
- **Moved to a new EHR (Epic)**
- **Engaged 2,300 physicians and 13,000 staff**

"We are creating a frictionless and culturally competent care environment for patients, physicians, and the entire care team by migrating our entire digital healthcare ecosystem to the AWS Cloud. This enables our Tufts Medicine team to integrate data-driven intelligence into everyday health and care that is more secure, resilient, and simple to use."

Dr. Shafiq Rab, Chief Digital Officer and CIO
Tufts Medicine

TuftsMedicine

By provisioning with AWS Cloud over building new data centers, Tufts Medicine realized they will always be able to right-size for all future IT needs without any long-term hardware commitments

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“The cloud’s been around for over a decade. Stop doing proofs of concept.”

Jeremy Marut

Chief of Digital Modernization, Tufts Medicine

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Building a digital health ecosystem at Tufts Medicine



Frictionless patient care

4 million patients serve as 4 million reasons for healthcare transformation at Tufts Medicine



Joyful care provider experience

18,000 healthcare team members who enjoy their work and day-to-day care delivery



Optimized operations & infrastructure security

Secure and seamless healthcare systems that provide a consistent patient and provider experience



Cloud center of excellence

Rapid innovation in the AWS Cloud, supporting each member of our healthcare community

Tufts Medical Center | Lowell General Hospital | Home Health Foundation | Tufts Children's Hospital | circlehealth Complete connected care℠ | MW Melrose Wakefield Healthcare

Tufts Medicine digital health ecosystem

- A commitment to healthcare transformation leveraging cloud and digital capabilities
- Epic and AWS selected as strategic partners to serve as the foundation for our transformation
- Implementation of Epic electronic health record system across Tufts Medicine, retiring 6 existing EHRs
- Epic and 40 supporting systems implemented on AWS to create Tufts Medicine systems and data estate
- Rapid and continuous innovation using cloud services, enabling patient chatbots and telehealth services

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It’s about the ecosystem

- Epic has your back
- The supporting cast (third parties)
- Consistent resiliency
- Third time’s a charm
- Cloud enabling legacy apps
- The golden architecture
- Cloud concepts on monoliths
- Standardize, codify, elasticize

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Cloud value in health system operations



Improved availability

Reduced cost

Dynamic capacity

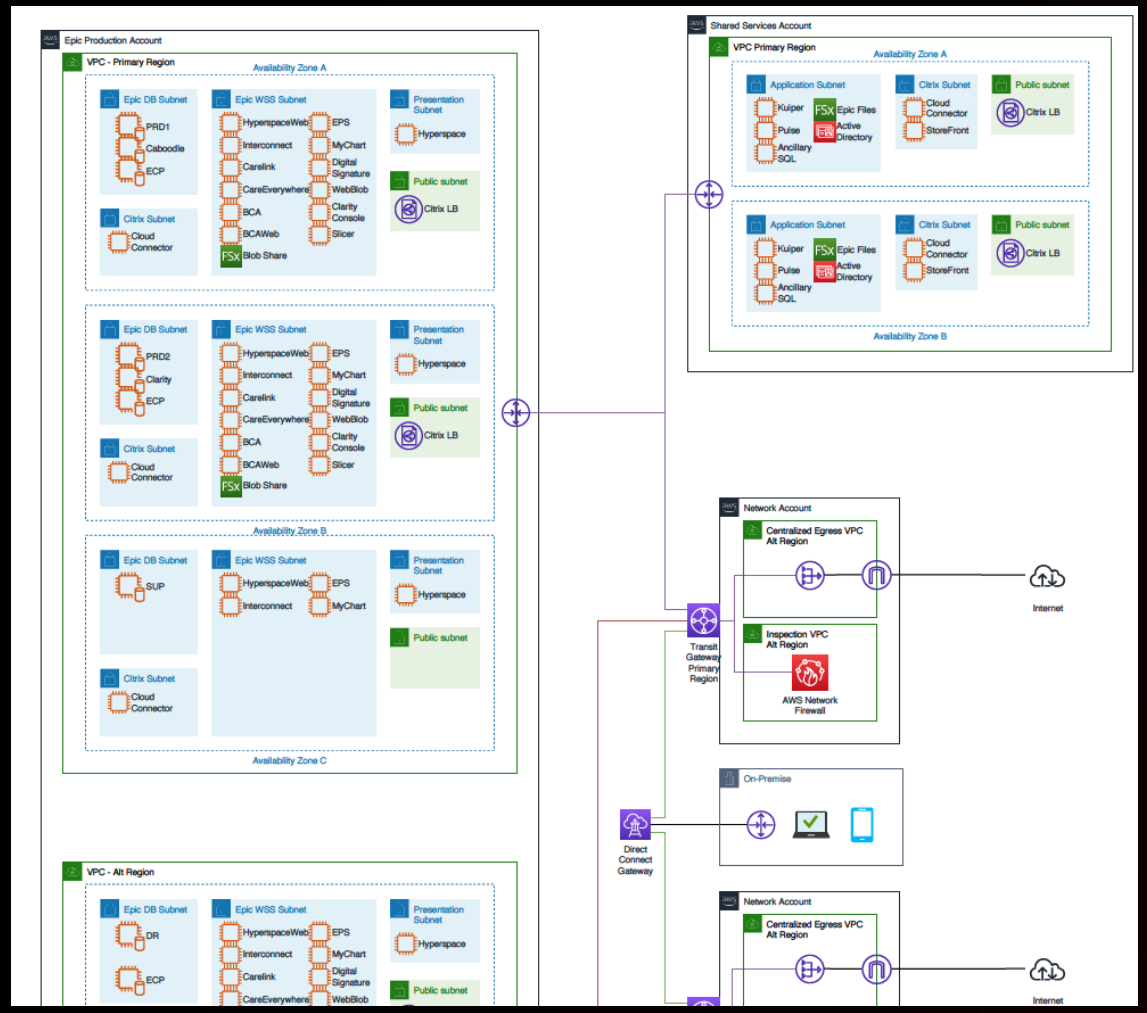
AWS Savings Plans

Healthcare data estate

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The golden architecture



Secret – no one can achieve it

Third time's a charm

Flipping the script

Have a spine

Incentivize – co-laboratory

Invest in the industry

Upskill everyone

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Security: The tipping point



The board room has finally flipped

Cloud exposes everything –
a TLS story

Cyber insurance

Start fresh, don’t replicate mistakes

The AWS Well-Architected
Framework advantage

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The gorillas: TCO and ROI



Cloud is not the same

Mental preparation

How many servers you got?

Monetizing soft savings

Principal’s office

Cheaper by the day

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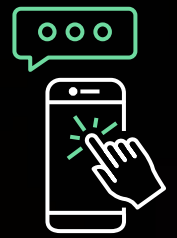
Saving lives not drives!



Connect with
your care team



Book an appointment
on the go



Chatbot to make your journey
through the app easy

Infrastructure is not sexy

Democratizing innovation

Out-of-the-box mentality

Automation, automation, automation

Multi-language, omni-channel app

AI and ML tools for quality tracking

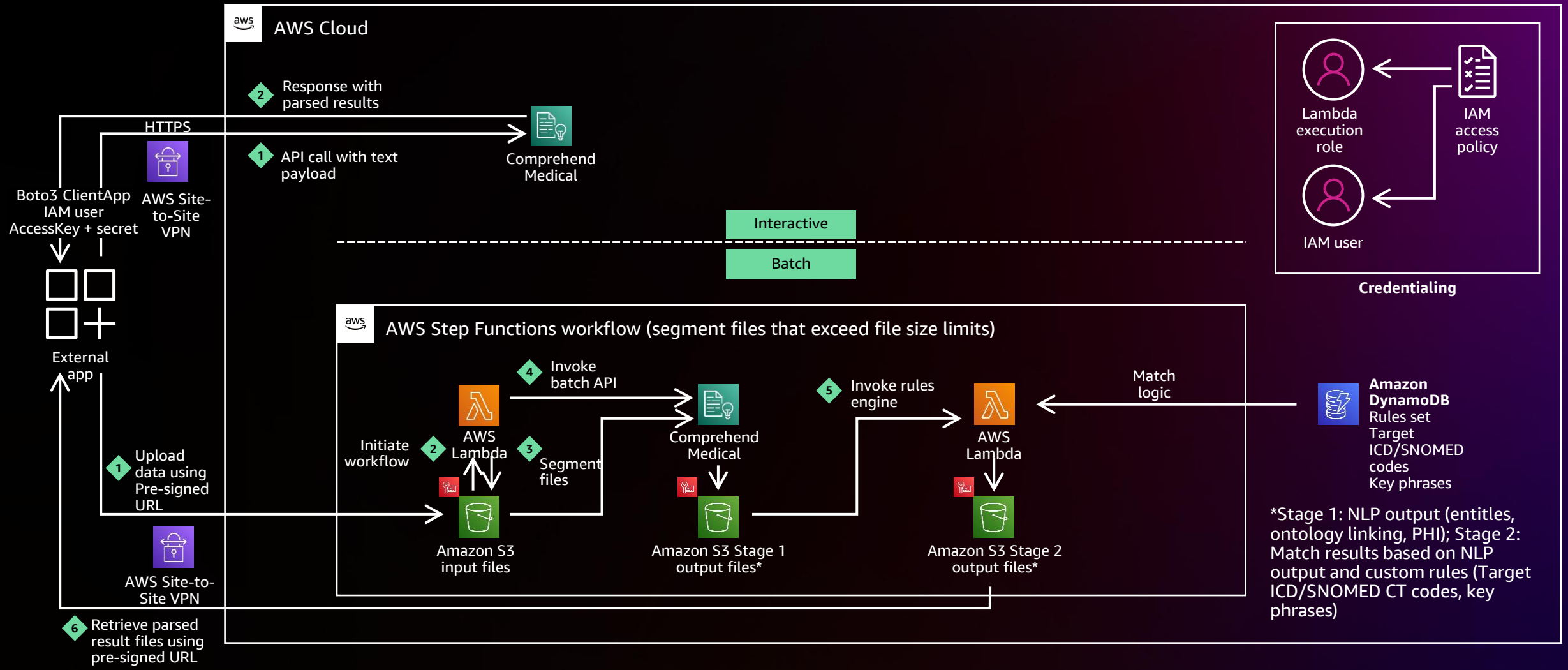
Amazon Connect for call centers

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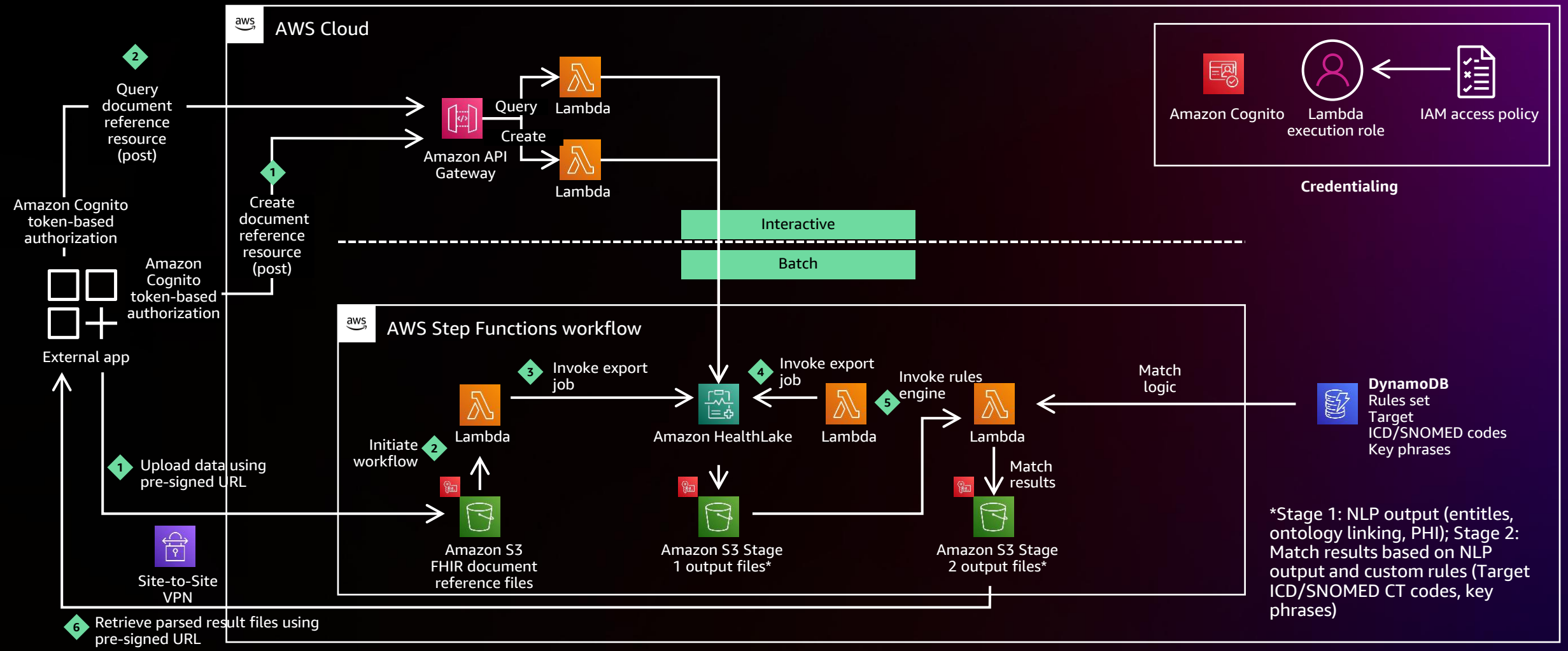
Amazon Comprehend Medical

BATCH AND API CALLS SUBJECT TO FILE SIZE/CHARACTER LIMITS, SEGMENTATION RECOMMENDED



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Amazon HealthLake



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Outcomes and learnings

The Elastic Health Record (EHR) on AWS

The digital health ecosystem

Tufts Medicine’s journey

Creating value in health system operations with the AWS Cloud

Saving lives not drives

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AWS and Children's National Hospital

Customer obsession = patient obsession

Collect pins at the AWS for Health Lounge from child artists who are also patients at Children's National Hospital – learn about their inspiration and their "why"





Artwork provided by Alice, age 11, patient with neurological condition

"I drew a heart because I love all of the people that took care of me at Children's National."

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AWS Health Lounge

Connect with **AWS for Health experts** and other attendees in our dedicated lounge space for informal discussions and networking.

Explore **AWS Healthcare & Life Sciences demos** and new additions to the AWS for Health portfolio!

Location: AWS Industries Networking Lounges; Caesars Forum Main Hall



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Thank you!

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