AWS re:Invent

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HLC202

Anthem HealthOS platform: The future of health data interoperability

Tawfiq Bajjali
Engineering Head, HealthOS Data Services
Anthem, Inc.

Sreenath Gotur
Sr. Solutions Architect
Amazon Web Services

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Agenda

Introduction – AWS for health

Current business opportunities

Current data challenges

Building the digital HealthOS platform

Current and future architecture

Amazon HealthLake overview

Q&A – roundtable

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Introducing AWS for health

ACCELERATING INNOVATION FROM BENCHTOP TO BEDSIDE



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AWS for health



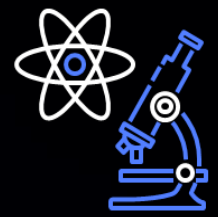
Clinical information systems



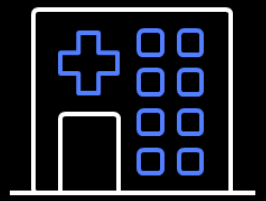
Analytics and AI/ML



Patient and clinician experience



Medical research



Finance and operations



Core health IT

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Anthem introduction

Mission: Improving lives and communities. Simplifying healthcare. Expecting more.

Vision: To be the most innovative, valuable, and inclusive partner.

Access to Quality Care

95% of physicians

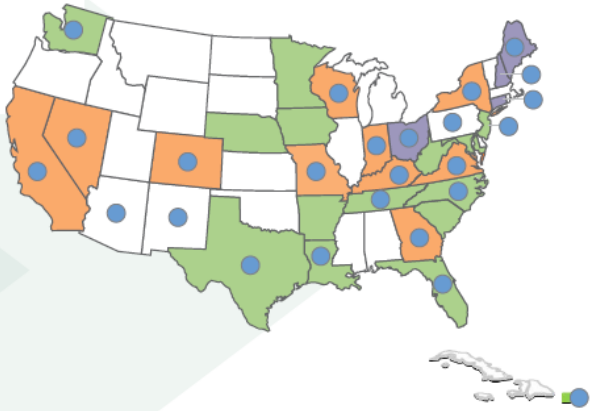
96% of hospitals

Member access through BCBSA's national BlueCard® PPO program

nearly **1 in 8 Americans or 44 million** total medical members in affiliated health plans

more than **117 million** total lives served

Q2 2021 data



- BC or BCBS licensed plans (4)
- BC or BCBS licensed plans + Medicaid presence (10)
- Medicaid presence (15)
- Medicare presence (25)

14 states BC or BCBS plan

25 locations with Medicare presence includes states & Puerto Rico

25 locations with Medicaid presence includes states, DC, & Puerto Rico

Measures and Metrics

$295.1 billion benefits paids

739.7 million claims processed

44 million service calls

$120.8 billion total operating revenue

2020 data

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Goals for serving our members



Improve member experience



Increase quality of care and reduce cost



Gain insights using machine learning



Scale applications to support the many lives we serve



Develop and deploy health applications

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Current business opportunities



1000s of disparate data sources



Various data formats



Improved data quality to our consumers



Provide insights leveraging advanced modeling technique using AI/ML



Provide bidirectional data interoperability



Current data model requires extensive enterprise knowledge

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Building the digital HealthOS platform

The HealthOS platform is a digital payer-provider platform that combines data, insights, and solutions to address providers' needs and enable payers' business goals



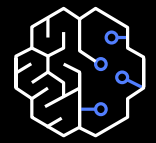
Enable bidirectional data interoperability between payers and contracted provider network



Provide a simplified healthcare platform that yields better member experiences



Empowering value-based care agreement with providers



Build and deploy AI-based solutions

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HealthOS

CORE PRINCIPALS



Streamlines acquisition of clinical data



Provides a comprehensive view of a member by integrating clinical data with health plan administrative data



Provides tools to streamline the development and actualization of AI/ML models



Provides APIs for data, insights, and workflow integration with health plan endpoints



Third-party digital health platforms and applications that simplify and streamline complex solution delivery



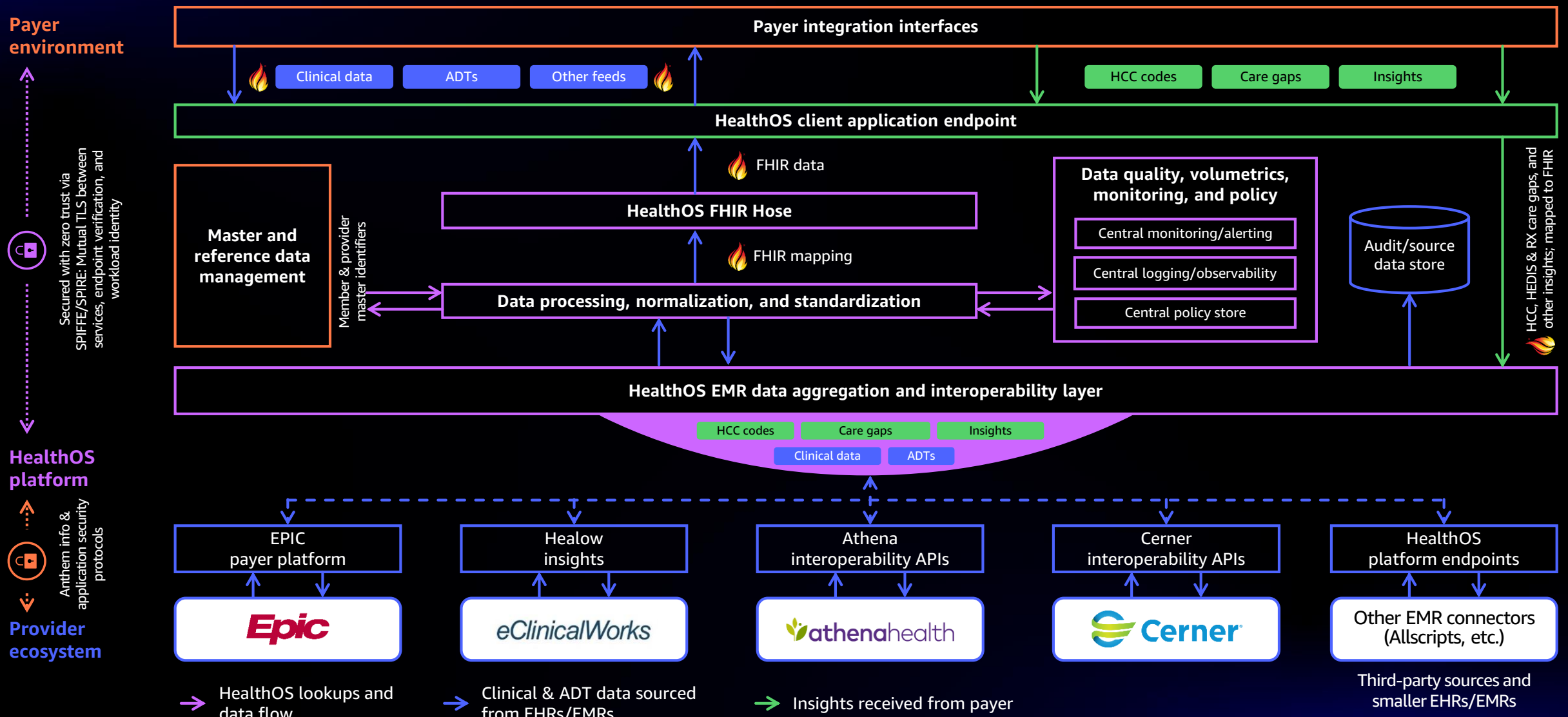
Provides APIs for bidirectional and native integration of data, insights, and workflow with EMR and other provider-deployed systems that simplify scaling bidirectional interoperability



Provides an application, services, and data catalog for HealthOS health applications and platform services that accelerate engineering cycle times and promote reusability and consistency

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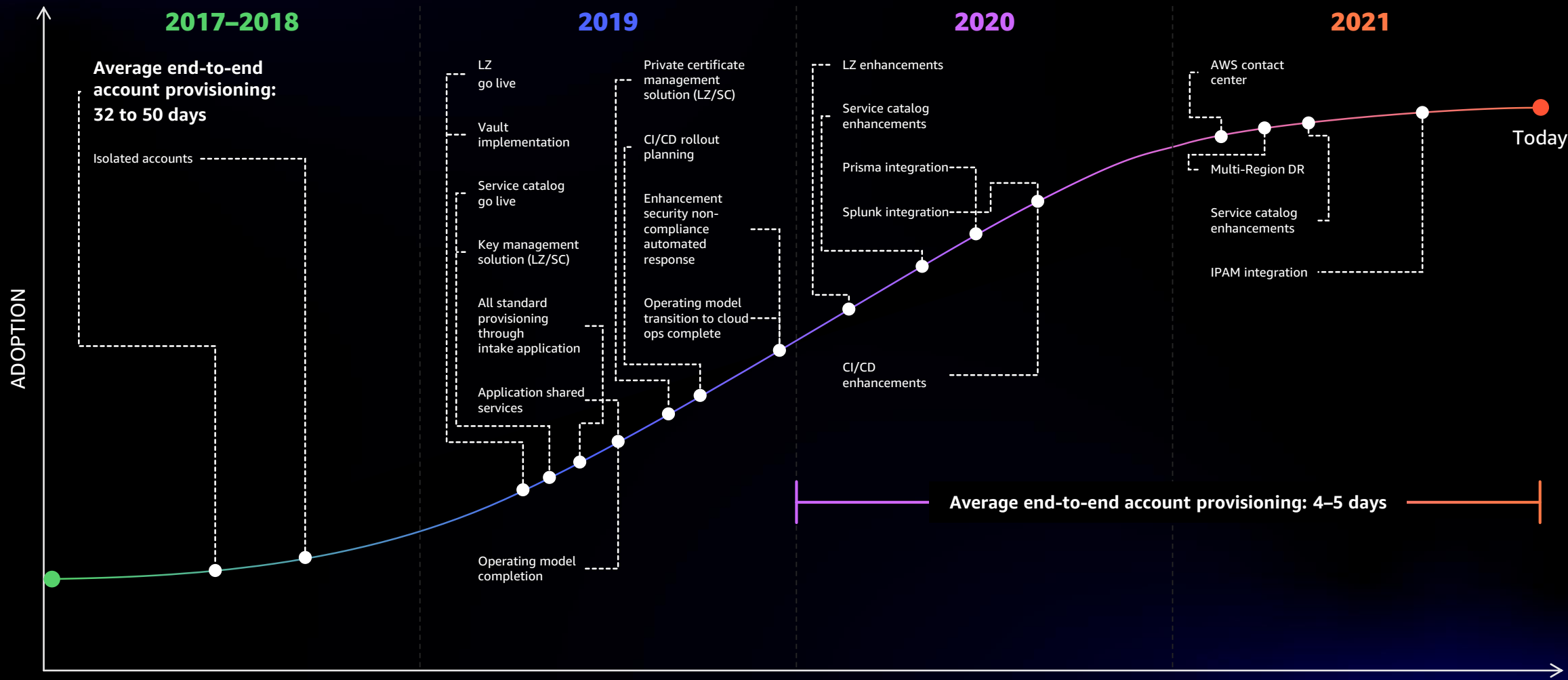
Overall platform architecture



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AWS Cloud journey

Anthem



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Why AWS

These are some of the key drivers for why we chose AWS



Scalability



Elasticity



Performance efficiency



Security



Managing cost



Using the power of AI/ML



Breadth of services

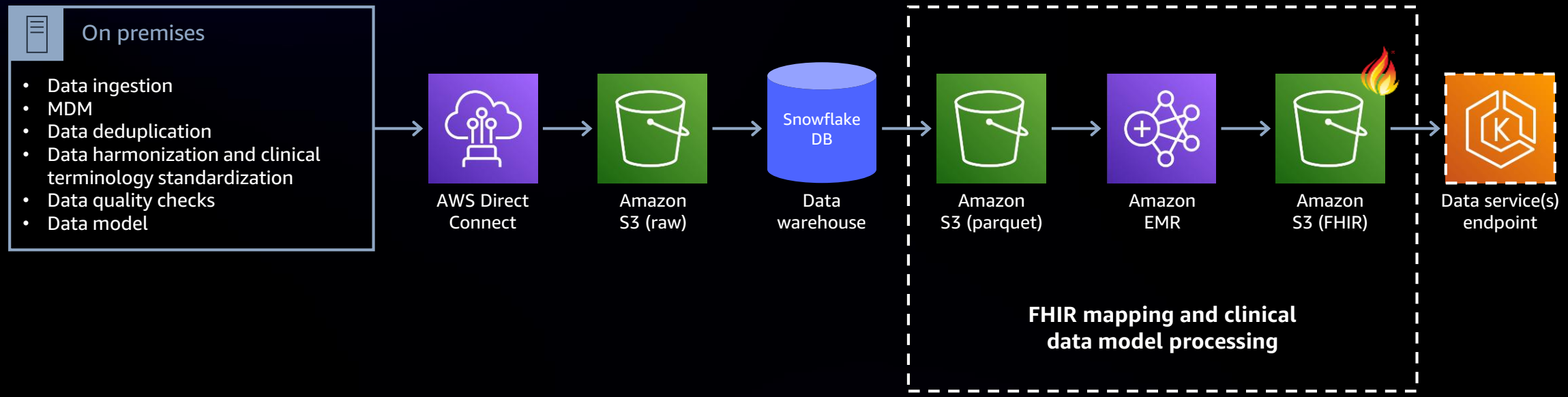


Healthcare specialized services

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HealthOS platform on AWS

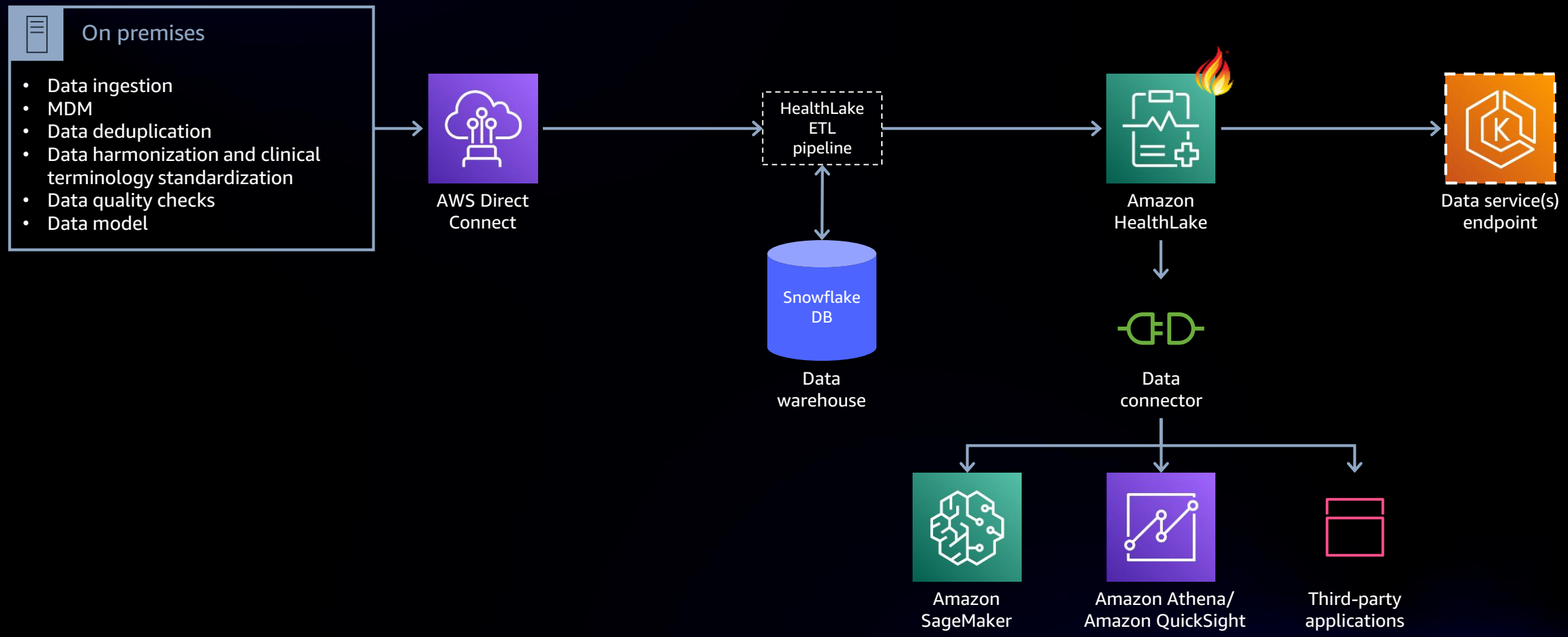
CURRENT STATE



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HealthOS platform on AWS

TARGET STATE



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Benefits



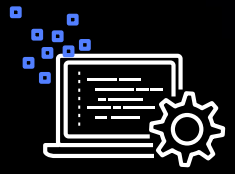
Improved pipeline processing from 3–4 days to a couple of hours



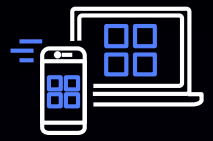
44 million FHIR bundles are generated daily



Complete longitudinal patient records with potentially thousands of data points per member



Millions of patients' records updated daily



Seamless integration between services (AWS-native services)



Connecting to 10–100s of healthcare providers

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Amazon HealthLake

A HIPAA-eligible service that enables healthcare providers, health insurance companies, and pharmaceutical companies to securely store, transform, query, and analyze health data at petabyte scale



IMPORT

Quickly and easily import medical records including clinical notes, lab reports, and more



STORE

Stored in the AWS Cloud in a secure, compliant, and auditable way



TRANSFORM

Tag and index unstructured data using specialized ML models



QUERY AND SEARCH

Powerful query and search capabilities to ask questions of the data



ANALYZE

Understand relationships in the data with integrated analytics and ML capabilities

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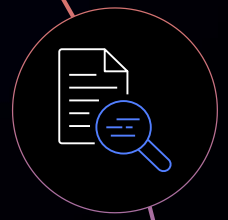
Support interoperability



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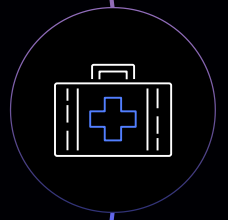
Making sense of health data

See how you can benefit from Amazon HealthLake



Easily extract meaning from health data

Built-in natural language processing (NLP) to automatically extract meaning from unstructured data such as prescriptions, procedures, and diagnoses in minutes – you can then easily search and query the data



Analyze data and make predictions

Build machine learning models with Amazon SageMaker and apply Amazon QuickSight analytics to analyze and understand relationships, identify trends, and make predictions with health data



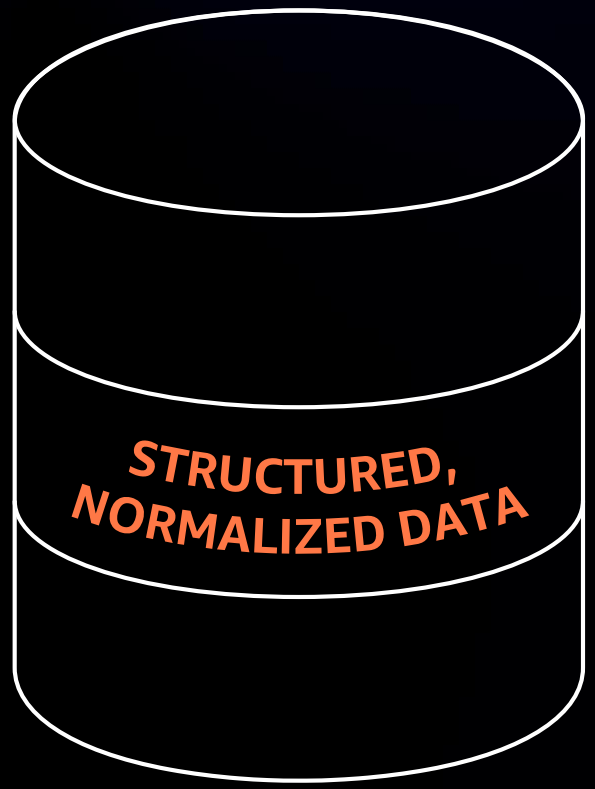
Support interoperability standards

Create a complete view of each patient's medical history and structure it in the Fast Healthcare Interoperability Resources (FHIR) standard format to facilitate the exchange of information across multiple applications

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Analyze data and make predictions



Amazon SageMaker

Amazon QuickSight

Third-party applications

IDENTIFY TRENDS

Easily search and query the data

Develop interactive dashboards

MAKE PREDICTIONS

Create predictive models, like predicting sepsis in a hospital ICU

SHARE DATA SECURELY

Healthcare providers and patients alike can easily share and access their data

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Wrap-up

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Visit our other healthcare sessions

HLC210 (breakout) – Revolutionizing colorectal cancer with detection innovation at Medtronic

HLC308 (breakout) – Accelerate pediatric research with ML and healthcare interoperability

HLC303 (chalk talk) – A guide to expediting EHR migration

HLC304 (chalk talk) – See the bigger picture with machine learning for multimodal data

HLC307 (workshop) – Using Fast Healthcare Interoperability Resources (FHIR) on AWS

HLC302 (builders' session) – Building a HIPAA-eligible virtual care solution on AWS

HLC306 (chalk talk) – Healthcare data center migration: Best practices and approaches

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Healthcare and Life Sciences Lounge

Join us at our networking lounge every day for post-session speaker meet-and-greets, Ask the Experts sessions, featured topic deep dives, and informal discussions

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Wynn, Level 1

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Thank you!

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