InterSystems
Creative data technology

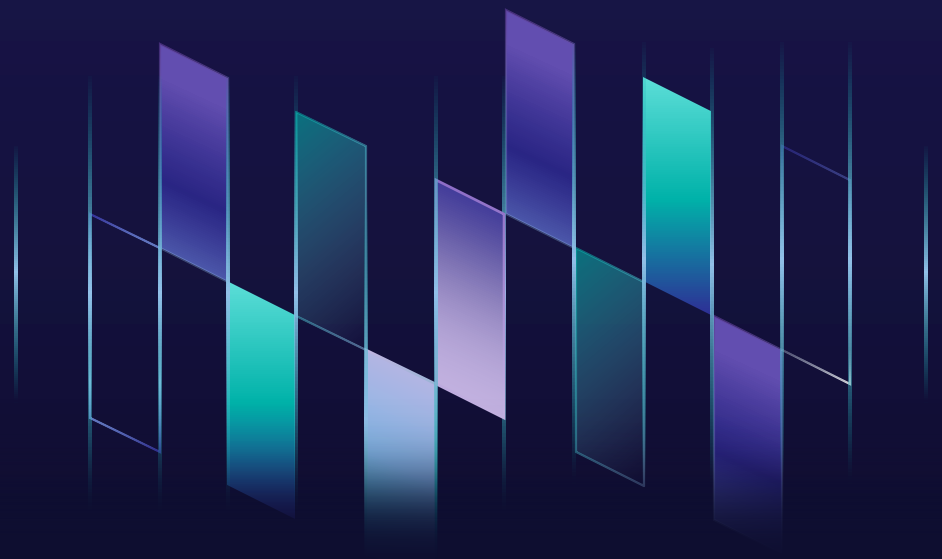
Already Ready with InterSystems

Jeff Fried
Director of Platform Strategy & Innovation
InterSystems

19 February, 2026 | Madrid

Starting with the Foundation

InterSystems IRIS: Different By Design

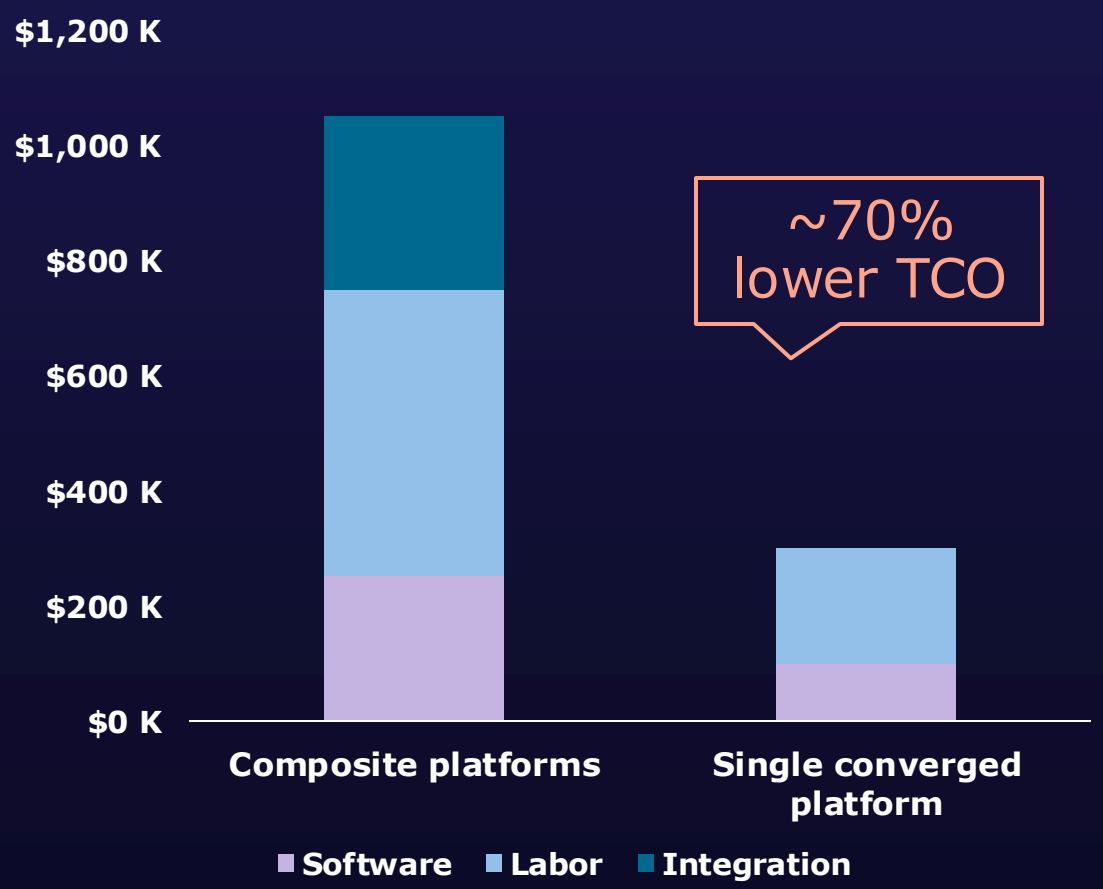


Unique Architectural Approach

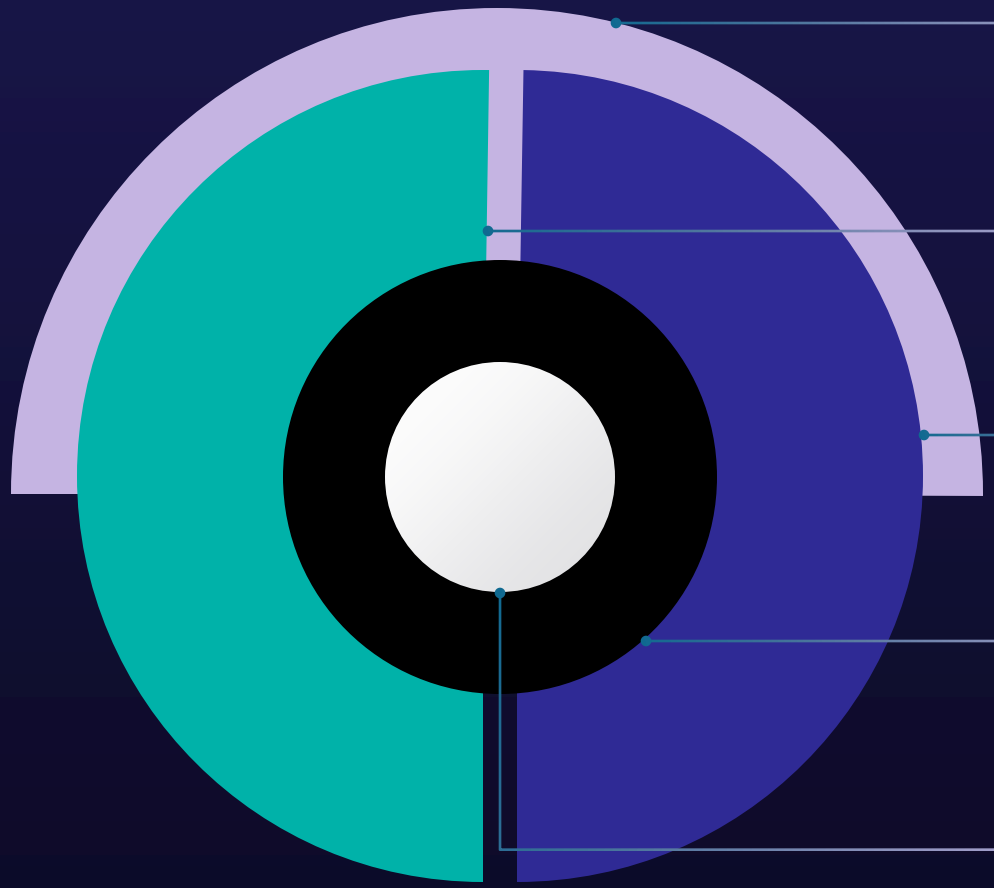
Our integrated, interoperable, multi-model, multi-lingual engine provides the highest performance and resiliency with the lowest TCO

Benefit – simpler, more robust solution with lower TCO

Composite of multiple platforms vs. Single Converged Platform



Our Architecture is a Differentiator



Smart Data Fabric
Single ecosystem to solve complex data problems

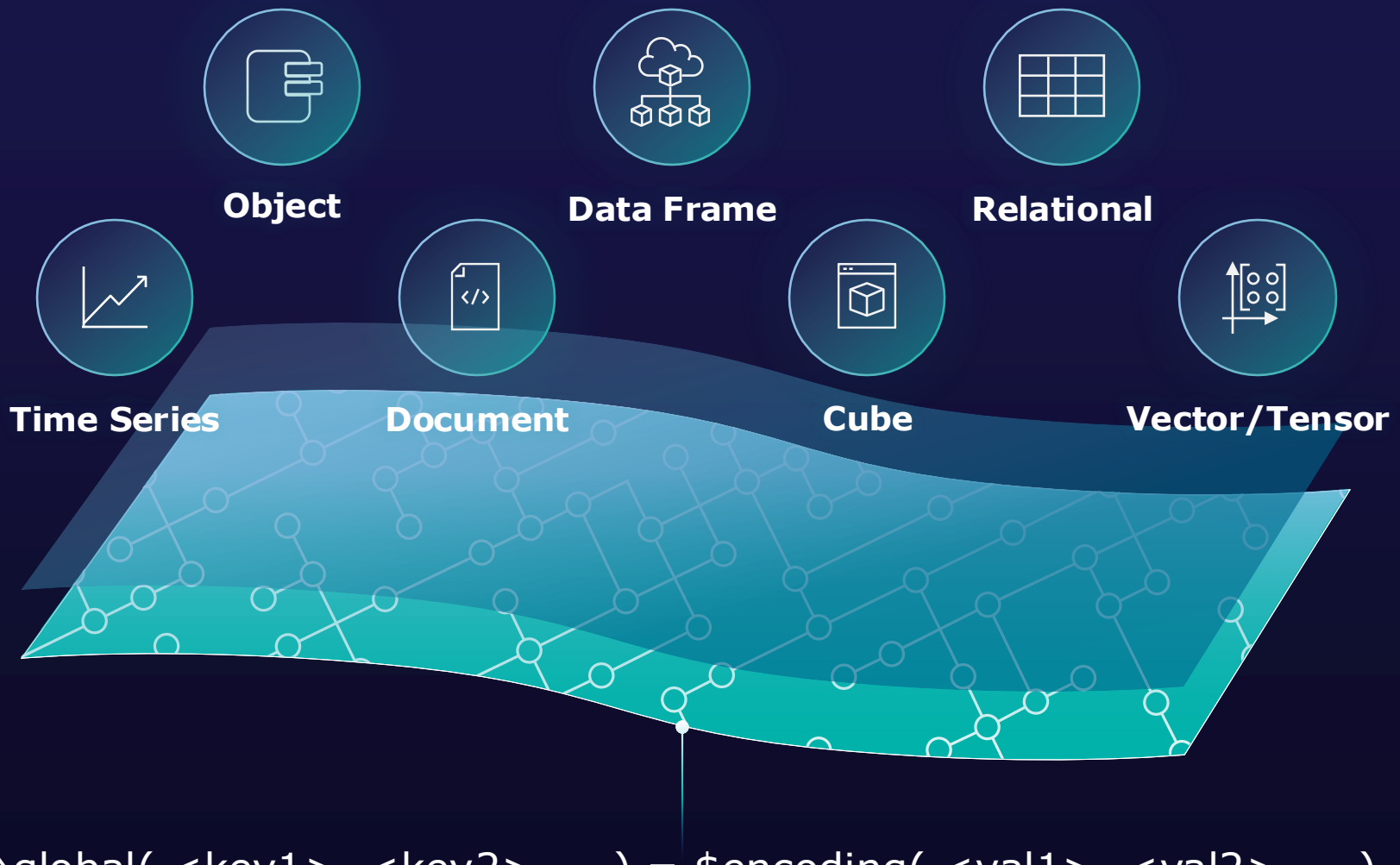
Analytics / AI / GenAI
Run everything on the common data plane

Interoperability
Low-code integration, workflow & API management

Horizontal Scaleout
Distributed, coherent cache at massive scale

Common Data Plane
High-performance, multi-model, multilingual

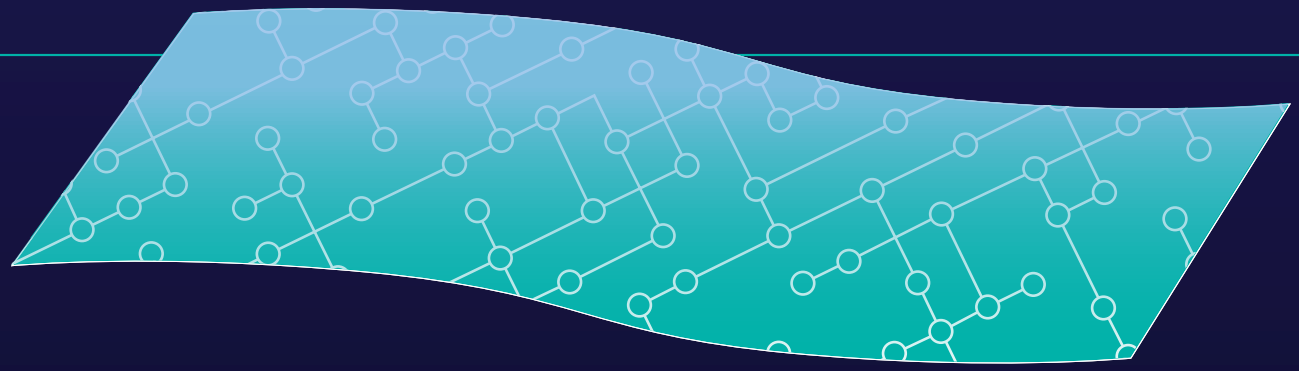
Secret Sauce: Fast, Flexible Data Encodings



^global(<key1>, <key2>, …) = $encoding(<val1>, <val2>, …)

Secret Sauce: The Common Data Plane

The Common Data Plane persists values via highly optimized multi-dimensional arrays

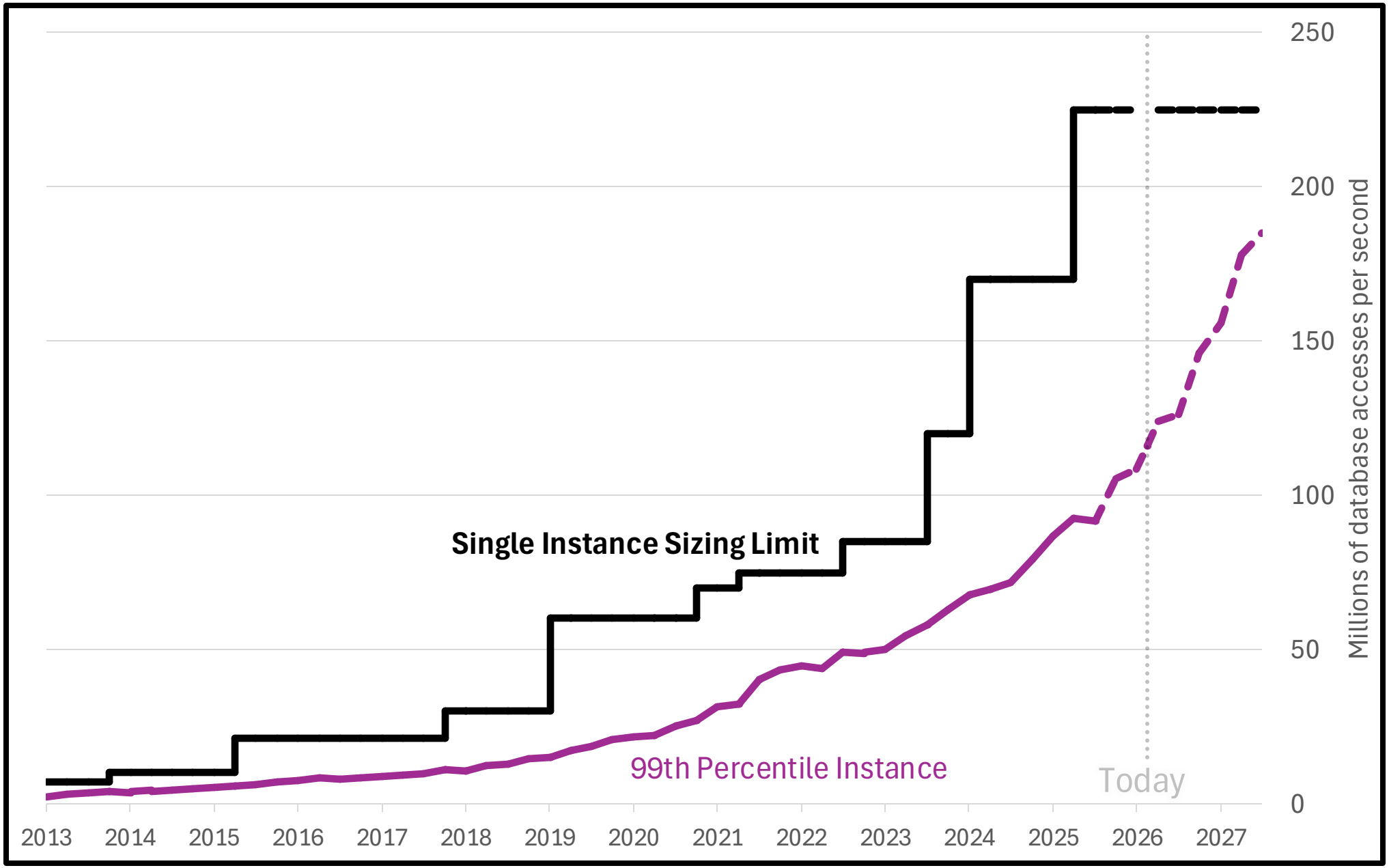


Multi-key array subscripts enables advanced index structures with **high-performance lookups & scans**

Flexible, highly optimized core data encodings enable the **multi-model architecture**

Cornerstone Partners

Products we use in key ways in our software


250
200
150
100
50
0
Millions of database accesses per second
Single Instance Sizing Limit
99th Percentile Instance
Today
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027

InterSystems Data Platform Difference

Real-Time

Sub-second
Data Access

Cost

Smart Vector &
Data Profiling

Complexity

Unified
Healthcare Data

Trust

In-tenant Secure
Processing

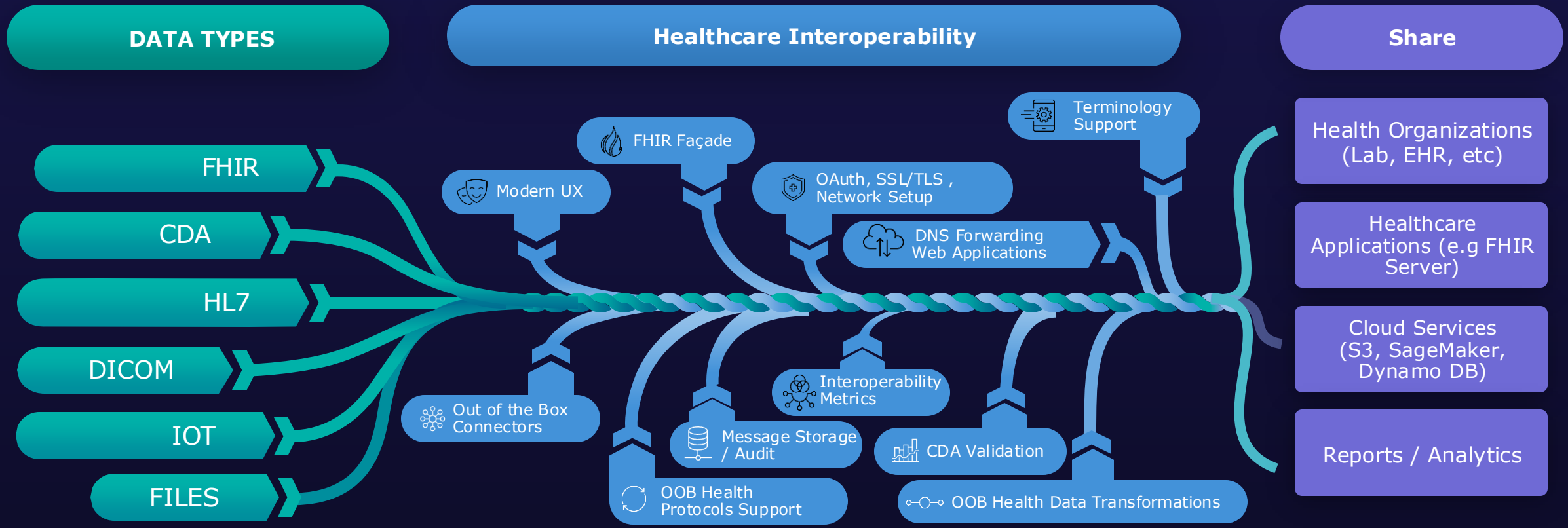
Clinical Safety

Embedded
Workflow Integration

Regulatory

Built-in
Governance & Audit

Healthcare Interoperability



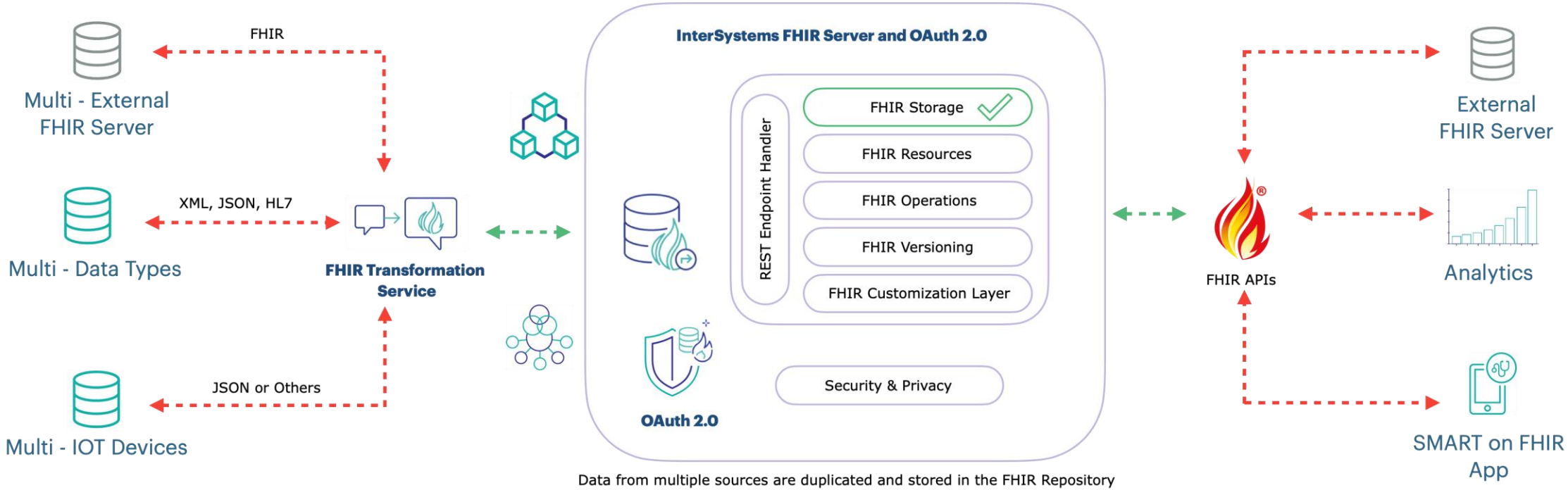
Change Control - CI/CD

High Availability

Disaster Recovery

Managed Upgrades

InterSystems FHIR Server
FHIR Repository



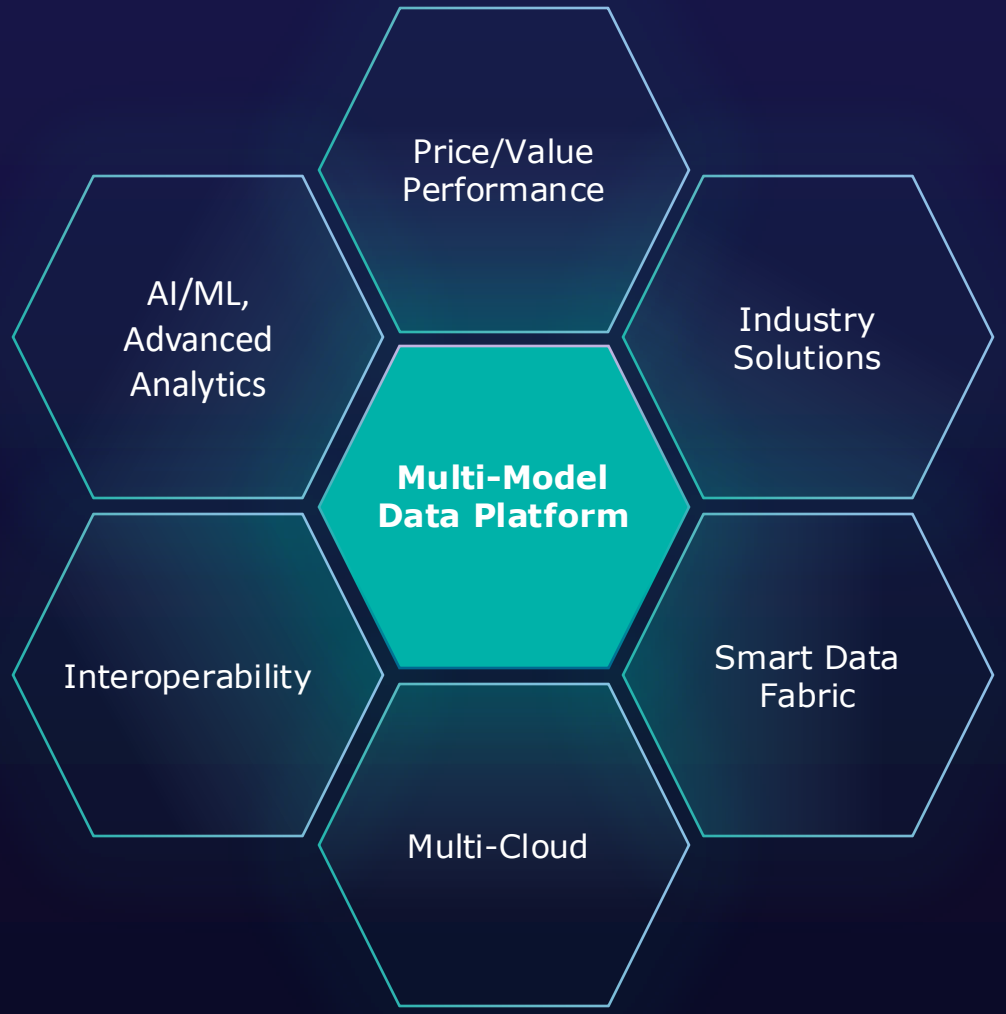
Data from multiple sources are duplicated and stored in the FHIR Repository

DATA SENT TO FHIR REPOSITORY → FTS TRANSFORM DATA TO FHIR → DATA IS LOADED AND STORED IN THE FHIR REPOSITORY CONFORMANCE AND OTHER OPERATION ARE APPLIED → FHIR API

Convert Files in FHIR Resources
NO "ON THE FLY" CONVERSION IS NEEDED

FHIR REPOSITORY RECEIVE THE QUERY AND ANSWER THE QUERY WITH THE PRE LOADED FHIR RESOURCES ↔ FHIR API ↔ FHIR Query

InterSystems Data Technologies



Strengths of Our Data Platform

Multi-model and transactional-analytical data management capabilities in one platform

Supports **multi-cloud, hybrid**, and on prem with a single API

Differentiated **industry solutions** in healthcare, finance, and supply chain

Composable services for data management, interoperability, analytics, process orchestration, ...

Superior price/performance, speed, scale, security, and reliability

Unifying Health Data with HealthShare

The InterSystems HealthShare Solution Set

Interoperability Services Delivering Trusted Data

Connected Health Solutions

Sources

- EHRs
- Claims
- Devices
- Economic/Social
- Registries/HIEs
- Labs / Omics
- CRM

Clinical Viewing
AI Assistant
Unified View

Personal Community
Engagement and Self-Management

Care Community
Coordination & Transition of Care

Toolkit for
Customer Innovation

- Research
- Mobile Applications
- AI Applications
- Dashboards
- Genomics

Smart Data Fabric

Patient Index

Provider Directory

Unified Care Record
Normalization, Viewing, Clinical Logic

Health Connect
Integration, FHIR, Health Service Bus

Health Insight
Dashboards,
Data Quality

→ **Connected Health Foundation**

InterSystems IRIS for Health
Health Data Management, Standards-based Interoperability, FHIR Application Development Framework, AI/ML

Comprehensive Healthcare Data Model

Member

Care delivery

- Genomics Orders
- Observations
- Referrals
- Problems
- Health Concerns
- Medications
- Allergies
- Diagnoses
- Appointments
- Illness Histories
- Vaccinations
- Advanced Directives
- Family History
- Physical Exams
- Radiology Orders
- Procedures
- Documents Encounters
- Patient
- Orders
- Lab Orders
- Device Items

Metadata

- Provenances
- Program Memberships
- Alerts

Care Coordination

- Care Plans
- Clinical Relationships
- Goals
- Tasks

Health plan

- Medical Explanation of Benefits
- Medical Claims
- Guarantors
- Member Enrollments
- Pharmacy Claims
- Pharmacy Explanation of Benefits

Third party data

- Social Histories
- Social Determinants

Promoting Interoperability and Analytics – Many-to-Many

Reduced Complexity, Reduced Cost, Reduced Risk

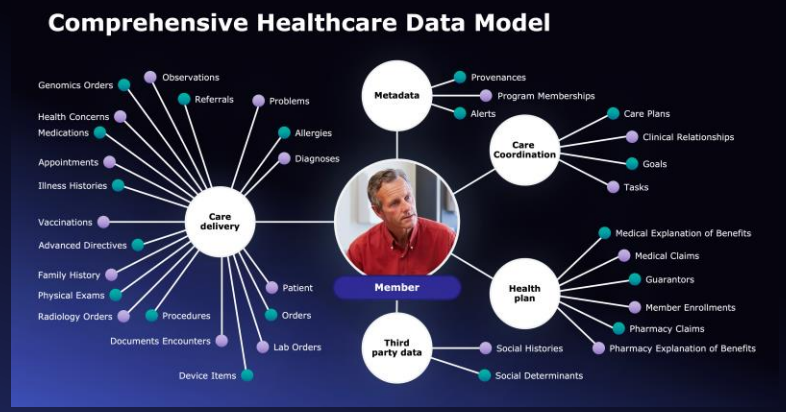
Care Delivery: FHIR, CCD/CDA, HL7v2, DICOM, etc.

National Networks (Commonwell, CareQuality, eHealth Exchange, Bamboo, etc

Claims, X12, Patient Uploaded, CRM, SDOH, etc.

ETL, SQL, XML, JSON Flat Files, Documents, etc.
Virtually any other data type

InterSystems
Creative data technology



Clinical Viewer (Web-based, SMART On FHIR enabled)

Analytics (SQL, Self-Service, AI/ML, etc.)

Member/Patient Engagement

Interoperability (FHIR, CCD/CDA, HL7, proprietary, etc.)

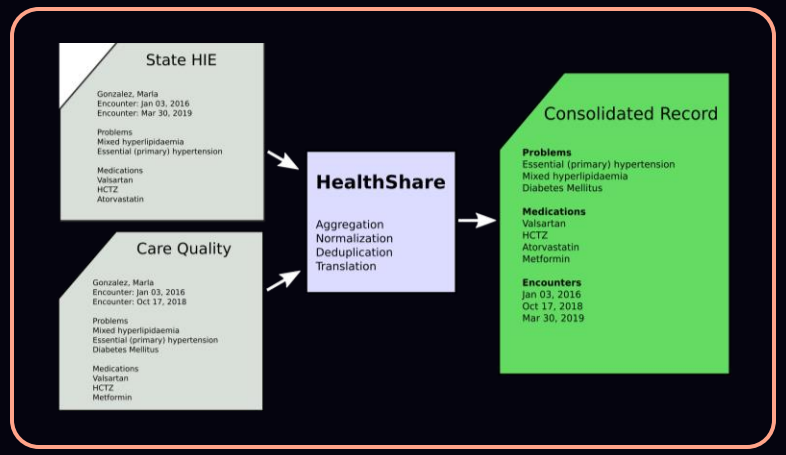
Real-Time Alerts & Notifications

Deduplication and Filtering

Duplicate records within single data source

Example:

- EMR includes allergies in every discharge summary document
- Diagnoses sent with ADT and billing events
- Fully automatic using out of the box deduplication rules
- Out of the box rules can be customized



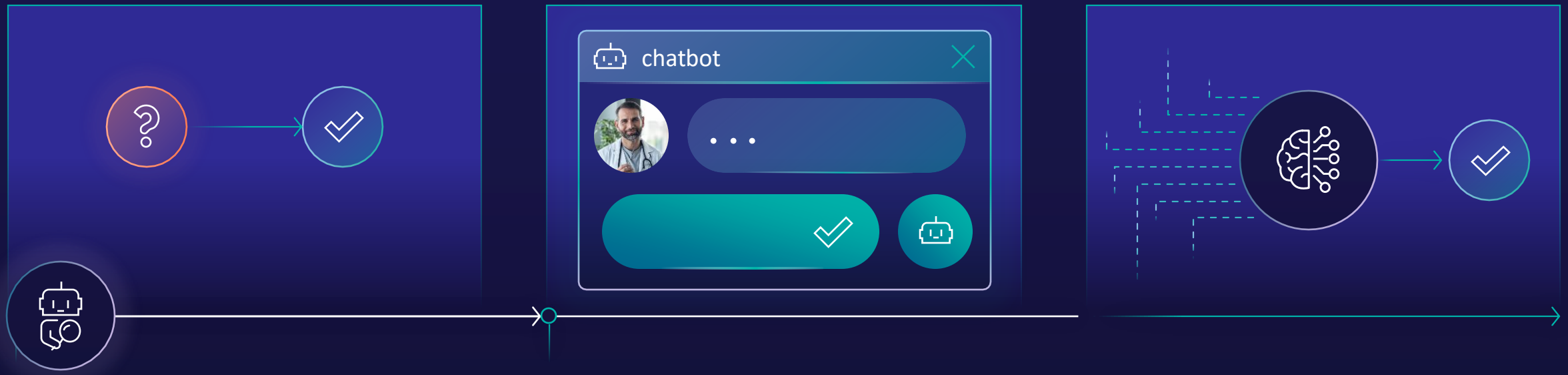
Duplicate records from across data sources

Example: Hospital and regional HIE may both have records for the same patient encounter
Customer-specified deduplication rules

InterSystems can:

- Pre-aggregate and deduplicate records from multiple sources before feeding them to the downstream systems (e.g. documents resulting from fan-out requests to multiple sources)
- Fetch all records from 3rd party FHIR Store to compare against inbound data for deduplication between new and existing data

How are we seeing AI aiding in transformation?



2020

Machine Learning

Predicting the future, predicting one variable

- Predicting breast cancer risk from mammograms
- Predicting no-shows, readmissions, future costs, urgent patient portal messages

2023

Large Language Models / GenAI

Writing, Summarizing, Advising

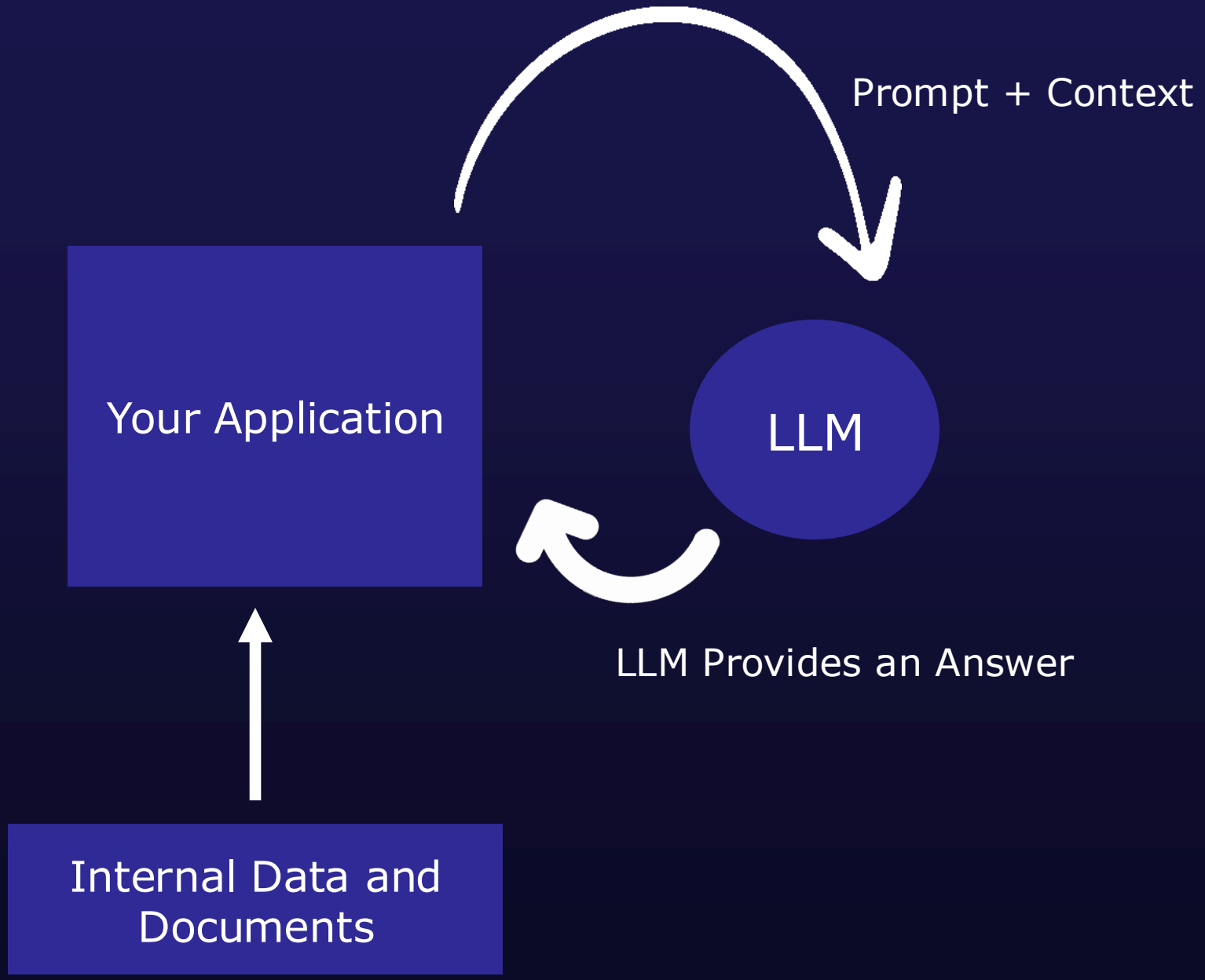
- Answering questions about patient's chart.
- Summarizing a Patient Visit from a transcript
- Retrieval Augmented Generation (RAG) to tap into appropriate data sources

2026

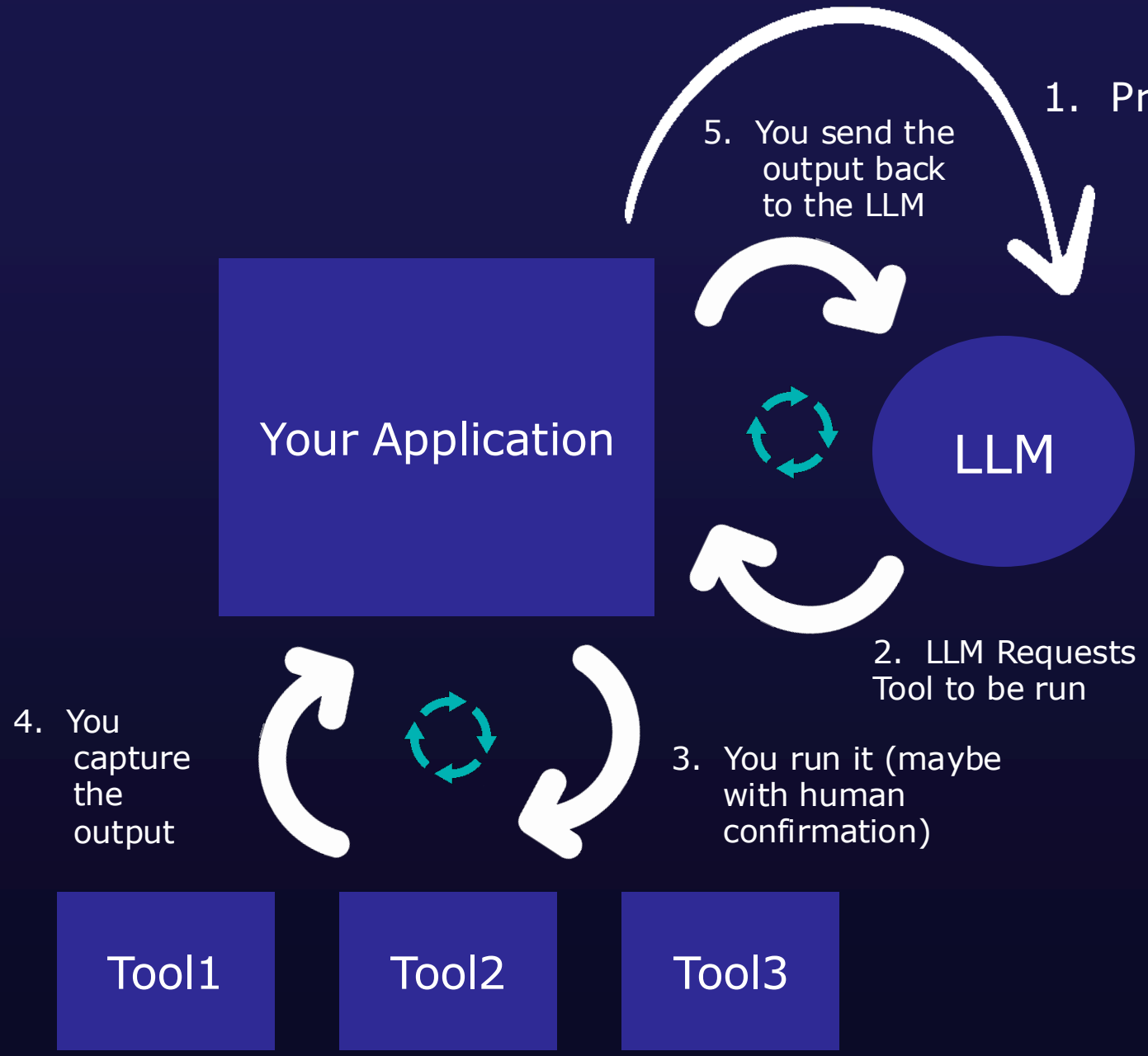
Agentic AI

Making decisions and taking action

How GenAI Works today

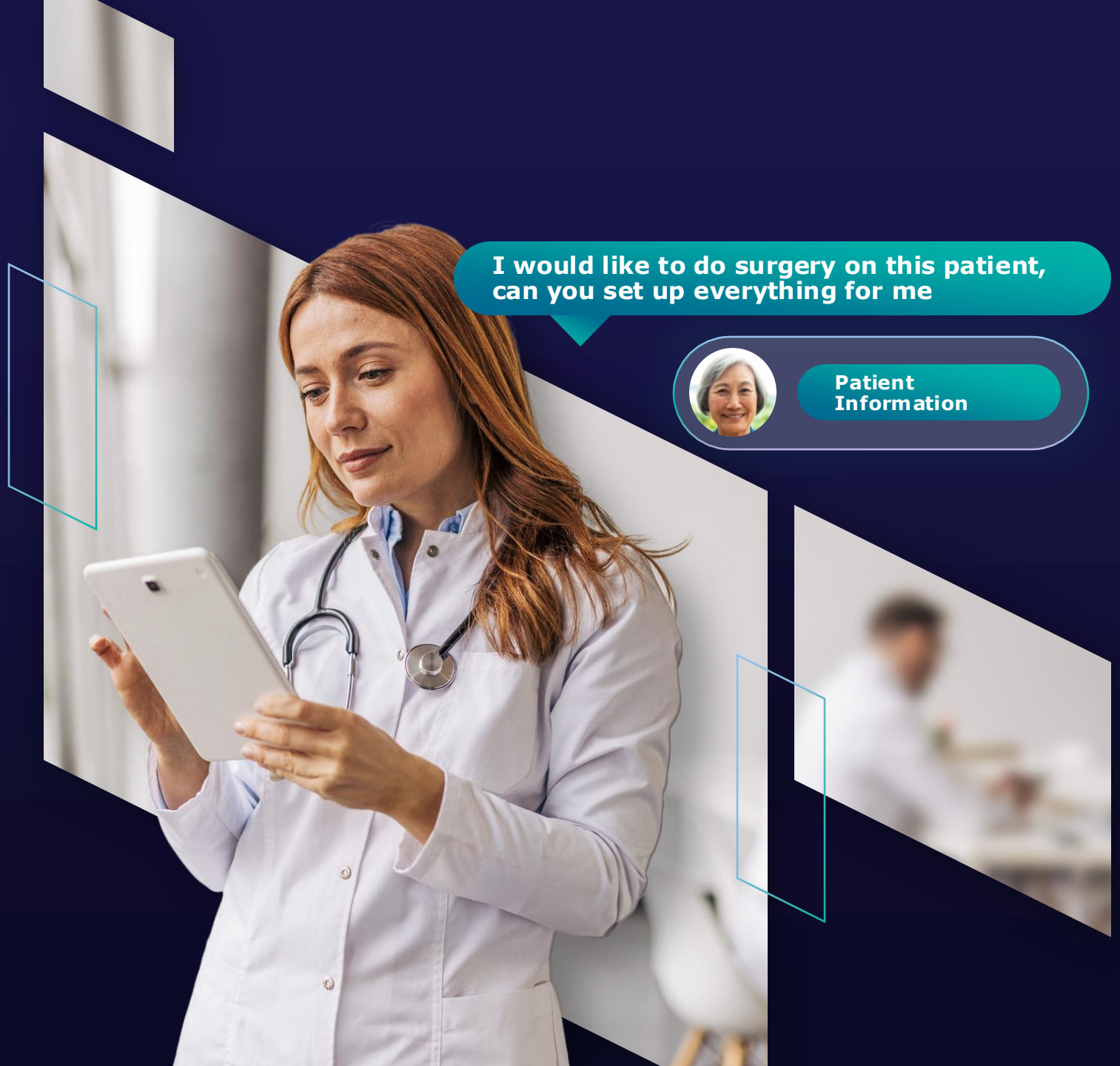


Here's How GenAI Will Work Tomorrow (Agents)



Tools Could Be:

- Show me the sections of this patient's medical chart
- Fetch me all the data in a section.
- List me the clinical documents
- Fetch a particular clinical document.
- Do a string search across the whole chart.



I would like to do surgery on this patient, can you set up everything for me

Patient Information

Orchestrator Agent

TO DO

- Schedule a visit with the patient
- Send the patient pre-op instructions
- Book the room
- Book the resources
- Order a few tests before surgery
- Send a prior-auth request to payer
- Confirm that it’s approved

I would like to do surgery on this patient, can you set up everything for me

Patient Information

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TO DO

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- Scheduling Agent
- Contact with Patient
- API Tool
- API Tool
- API Tool
- Prior-auth Agent
- Confirmation from Requester

Orchestrator Agent

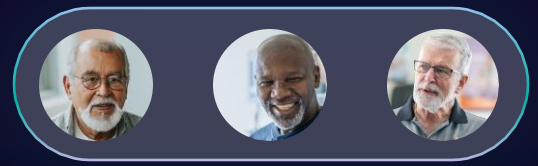
Book Appointment Directly with Patients

Orchestrator Agent

Look through my patient panel and check each of them against the gov't website of clinical trials to build a list of people that might be eligible.

1. Search list of patients
2. Search medical records
3. Search for clinical trials
4. Write a formatted report

Send them a letter to the eligible patients:



AI in Action

AXS ENERGIA

61
solar plants

AXS Energia processes information from a variety of sources, including IoT sensors, weather stations, distributors, and even NASA data on solar irradiation.

Data Fabric with Vector Search Initiative

92%
forecast accuracy for revenue

38%
reduction in operating costs per megawatt

22%
improvement in customer retention

Prediction is Power.

"**We're not just building technology — we're reshaping how energy is experienced.** We're turning the product into a **data experience** — redefining how insights are accessed and used across AXS."

Cezar Augustus Essenfelder De Azevedo
CTO, AXS Energia

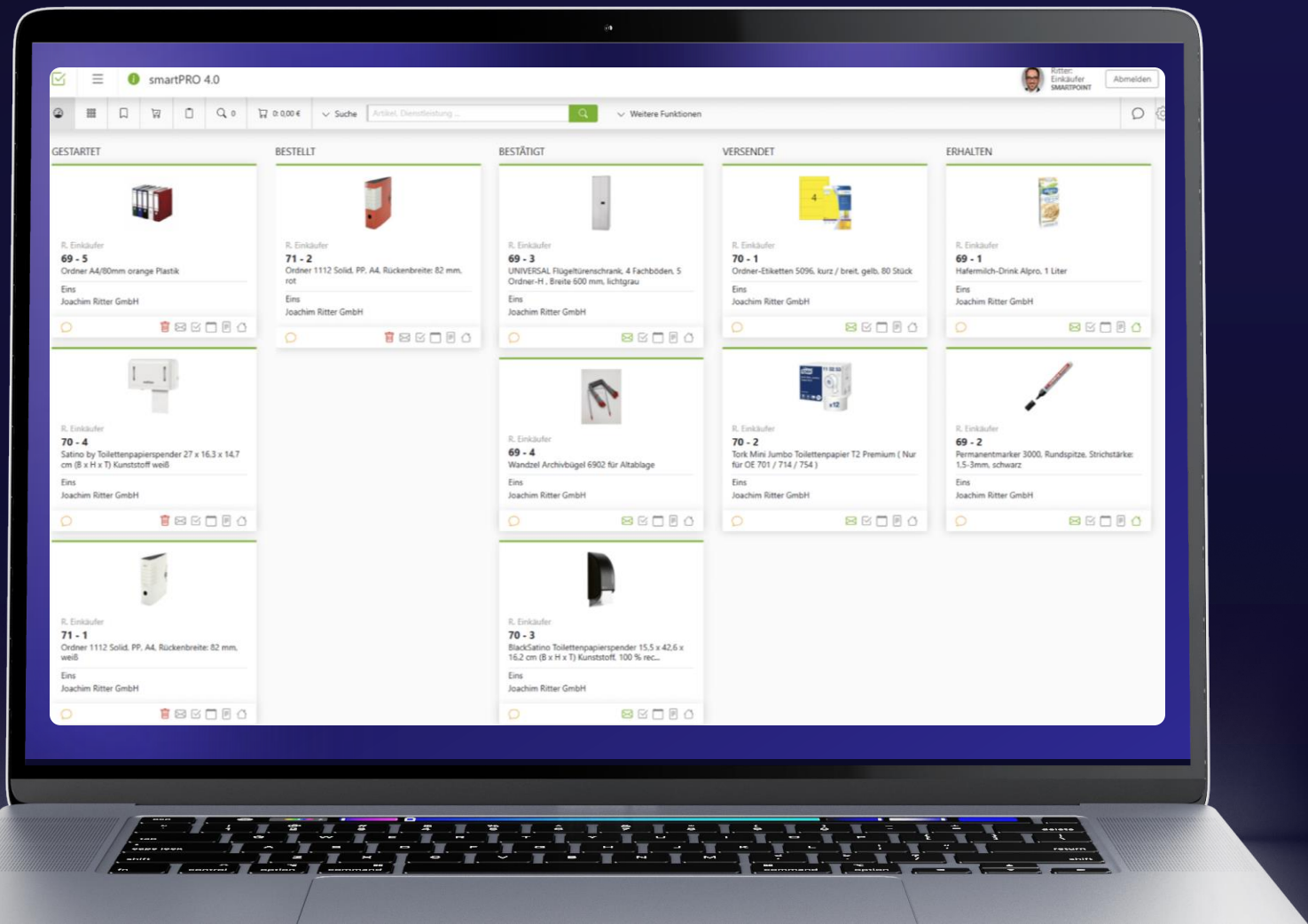
#sophistication

#simplicity

#energytech

AGIMERO – Guided Agentic Procurement

Our Toolkit



How AI Is Being Used At Stanford Health Care

Stanford MEDICINE Technology & Digital Solutions

01 **Enhancing** Doctor-Patient Relationship

02 **Predicting** and Diagnosing Diseases Precisely

03 **Accelerating** Medial Research

ChatEHR+AXIOM:
Platform, UI & Automations

Stanford MEDICINE | Technology & Digital Solutions

Data Sources

- HL7FHIR
- EHR
- HL7
- External files
- www

ChatEHR +AXIOM

API suite offering LLM-enabled functionality with access to relevant data.

LLM Router

Language Models

Automation Use Cases


Stanford MEDICINE | Technology & Digital Solutions
STANFORD HEALTH CARE & SCHOOL OF MEDICINE

TDS Connection

THE LATEST FOR TDS PARTNERS | January 2025

FEATURED STORY

SHC Launches Innovative AI Tool to Screen Sequoia Patients

By Lisa Tsering, Internal Communications Specialist, TDS


Clinicians can 'chat' with medical records through new AI software, ChatEHR

By Hanae Armitage

ChatEHR, artificial intelligence software developed at Stanford Medicine, is expediting chart reviews and other tasks by allowing clinicians to ask questions of medical records.

Artificial Intelligence (AI) | June 05, 2025

AXIOM – Data Journey

Stanford MEDICINE Technology & Digital Solutions

Trigger Events:

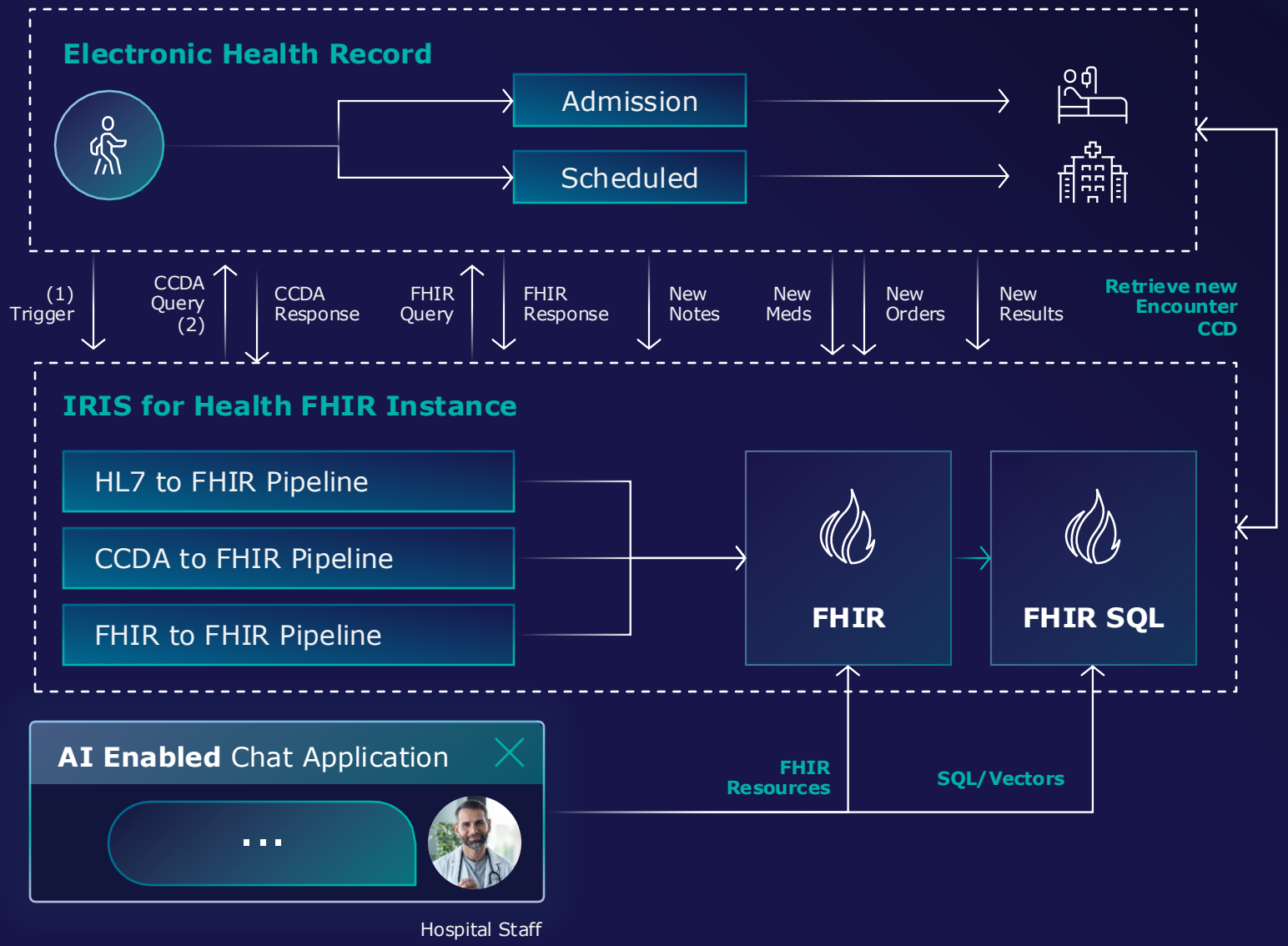
- Hospital Admission
- Scheduled Appointment
- ED Check-in
- User initiated trigger

Loading Historical Clinical Data:

- Retrieve Encounter CCD documents via FHIR Document Reference
- Data Transformation Path: CCD → SDA → FHIR

Real-time Encounter Updates:

- Continuously listens for real-time HL7 v2 messages
- Data Transformation Path: HL7 v2 → SDA → FHIR



AXIOM Approach Led To Queries That Were 8x Faster (On Average)

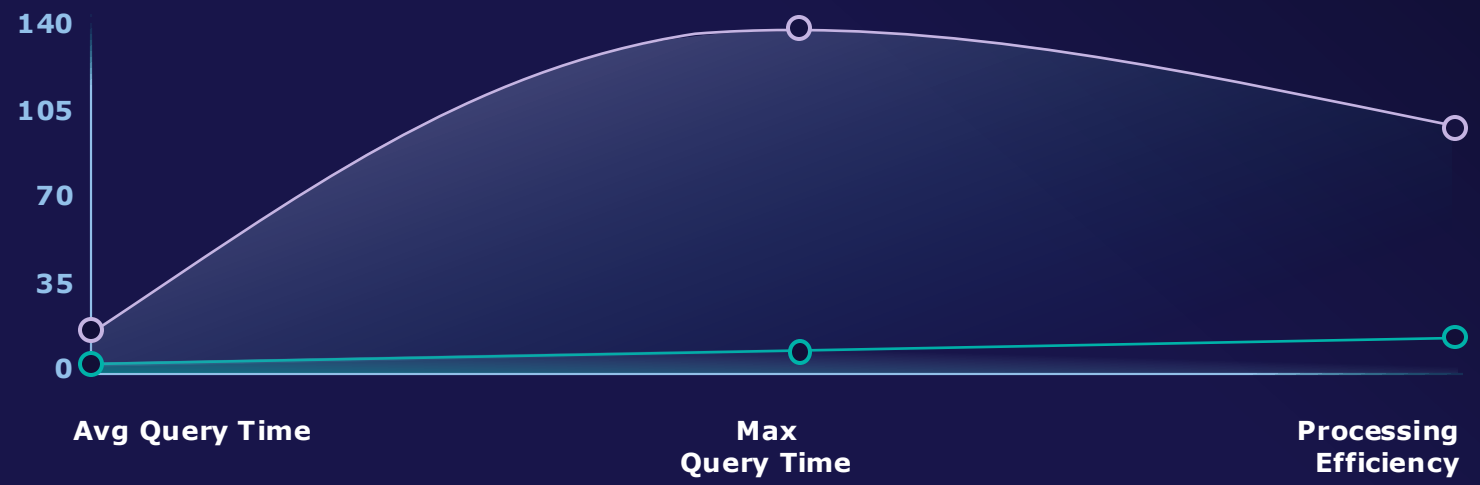
Stanford MEDICINE Technology & Digital Solutions

"AI in healthcare isn't about replacing humans—it's about removing the barriers that prevent humans from practicing at the top of their capabilities.

Data access is the first and most critical barrier."

Nigam Shah, MBBS, PhD

Performance Comparison: Traditional vs AXIOM



Metric	Traditional	AXIOM	Improvement
Average Query Time	15.4 seconds	1.9 seconds	8.1x faster
Maximum Query Time	138.4 seconds	6.4 seconds	21.6x faster
Data Processing Efficiency	Baseline	87% reduction	7.7x more efficient

In the age of AI, with InterSystems IRIS you're Already Ready

Analytics close to the Data

- InterSystems IRIS BI
- Adaptive Analytics
- InterSystems Reports
- NLP & Hybrid Search

Our philosophy:
Run close to the data

AI & ML close to the Data

- PMML Engine
- Embedded Python
- IntegratedML
- GenAI & Vector Search

Leveraging AI to Accelerate Development

Selected tabnine AI coding platform, launched in October

120 | Users

50K | Total interactions

60% | Code acceptance

Use to reduce technical debt

"Half my team is now using tabnine for anything from minor help to feeding it large portions of code to revamp."

Accelerating to the Frontier of AI

ACORN is the latest addition to our world-class vector search technology

What

Cutting-edge algorithm for efficiently combining nearest-neighbor semantic vector search with predicates on structured data

Ideal for transactional applications dealing with a high volume of structured and unstructured data, looking for AI insight... like an **EHR**

When

Included with IRIS 2026.1

Why

On clinical data, much improved from **93%** to **97%** correlation…

It may seem small but it's really a **doubling of the accuracy**

ACORN: Performant and Predicate-Agnostic Search Over Vector Embeddings and Structured Data

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ABSTRACT

Applications increasingly leverage mixed-modality data, and must jointly search over *vector data*, such as embedded images, text and video, as well as *structured data*, such as attributes and keywords.

predicate filtering. For example, customers on an e-commerce site can search for t-shirts similar to a reference image, while filtering on price [64]. Similarly, researchers performing a literature review may search with both natural language queries and filters on publication

5 Recall Analysis

Recall@10 measures the percentage of true top 10 nearest neighbors successfully retrieved.

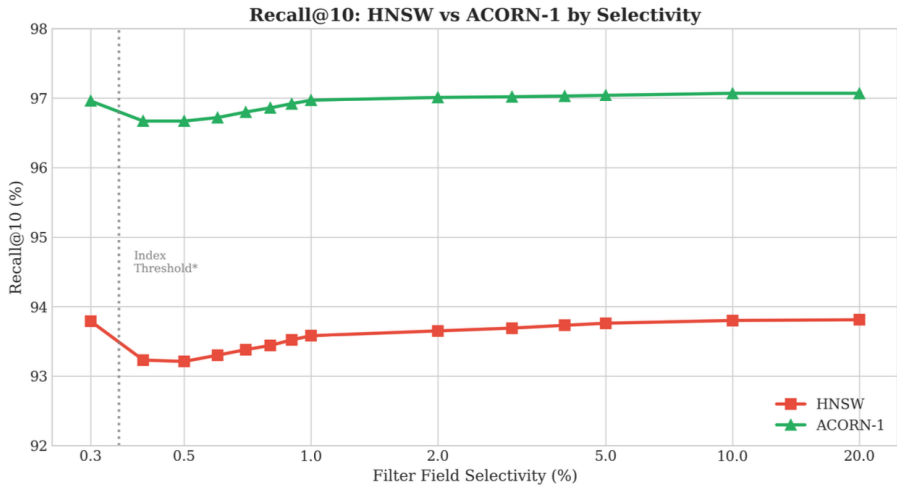
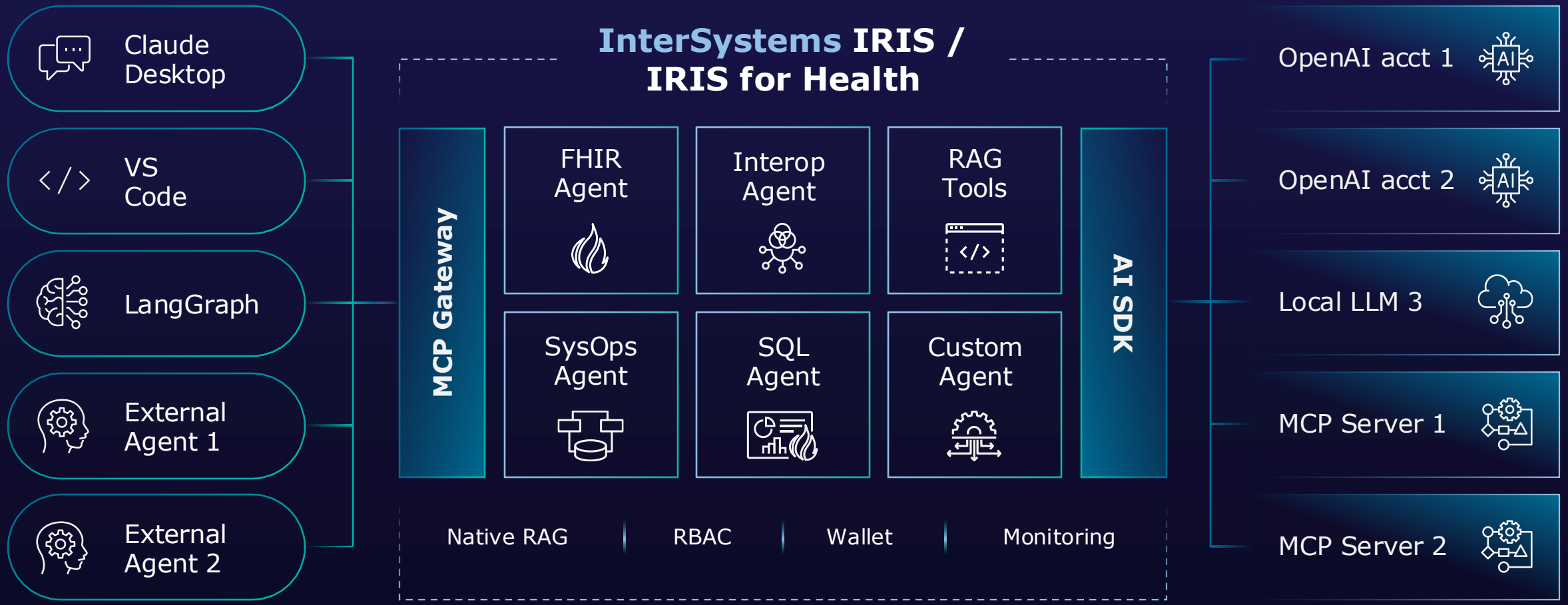


Figure 1: Recall@10 by Selectivity Level. ACORN-1 achieves approximately 97% recall versus HNSW at approximately 93%.

Accelerating to the Frontier of AI

InterSystems AI Hub Bringing interoperability to AI apps and agents



SafeAI Principles

Used to define our approach to the use of AI in a clinical setting

Human Oversight

(also known as 'human in the loop') meaning that the user is fully accountable for any AI-generated content that is incorporated into the medical record, which is always a manual process.

Data Transparency

to ensure traceability of AI-assisted data within a clinical record.

Editability and Correction

of AI outputs and manual incorporation of data into a clinical record.

Awareness of the limitations

of GenAI by end-user, for example understanding what data is or is not available to the AI model.

Consistency

and recording keeping, including a comprehensive audit of all GenAI use.

Regulatory Compliance

and scope, ensuring that the use of GenAI falls within legislation for the region of use.

With InterSystems, You are Already Ready

- Ready for Interoperability
- Ready for getting value from your data
- Ready to enable and transformed user experience for your clinicians
- Ready to enable a transformed digital experience for your patients
- Ready to take on new challenges knowing you can scale
- Ready to innovate with patient safely at the core

Thank you

Jeff Fried
Director of Platform Strategy & Innovation
InterSystems