

Red Hat Intelligent Data-as-a-Service solution for healthcare

Industry overview

Managing healthcare data has always been a challenge. The volume, complexity, diversity, and general lack of standards made the most basic integrations difficult and expensive, while interoperability remained out of reach. The more recent focus on wellness and cost reduction has led to value-based payment models which have driven technology shifts to population health programs, precision medicine, regulatory initiatives, and edge computing, augmented by artificial intelligence and machine learning (AI/ML). But practical incorporation of these programs hinges on the definitive capture, storage, and usage of data.

Modern architecture

To address the challenges of healthcare data management and to meet the emerging market needs, healthcare data must move to a modern architecture such as:

- ▶ **Application programming interfaces (APIs) and microservices:** Breaking data into reusable components available for integration with software applications.
- ▶ **Event-driven:** Embedding sensors in the data streams, for immediate exception-based handling of events—while the mass of unremarkable data moves to its destination.
- ▶ **Secure transport and access:** Using a modern container-based architecture for security across the application life cycle.
- ▶ **Industry Standards Support:** Using a single platform to manage a wide variety of healthcare data types, from a wide variety of healthcare data sources (e.g., electronic data interchange (EDI), Health Learning 7 (HL7), Fast Healthcare Interoperability Resources (FHIR), images, continuity of care document (CCD), and Clinical Document Architecture (CDA)).
- ▶ **Aligning with existing technologies:** Adding a layer of additional benefits, yet does not rip or replace what is working.
- ▶ **Open source acceleration:** Taking advantage of healthcare-specific, open source community assets for connectivity to engines such as natural language processing (NLP), rules, customer data platform (CDP) and process orchestrators, data translators, synthetic data tools, data simulators, parsers, and builders.

Advantages of event-driven architecture

Conventional approaches to healthcare data often focus first on data cleansing and normalization or denormalization, and moving the data to a single source of truth, such as an enterprise data warehouse or data lake. Unfortunately, the result is stale data—unusable for anything but retrospective analytics. A modern, event-driven architecture reduces reliance on costly applications and supports flexible decisions and actions that can make a difference in treatment, decision making, payment, supply, and more. A few examples of these actions include:

- ▶ Identifying patients for integrated care or drug treatment programs
- ▶ Creating a patient finder to identify patients with potential diseases
- ▶ Quantifying readmission risk
- ▶ Understanding fraud, waste, and abuse
- ▶ Evaluating drug efficacy based on real-world data
- ▶ Integrating personal health records (PHR)
- ▶ Benchmarking for risk-adjusted productivity
- ▶ Stratifying risk
- ▶ Interoperability and data enhancement

Red Hat Intelligent Data-as-a-Service (iDaaS) solution for connected health

Red Hat® iDaaS architecture features cloud-native, cloud-agnostic offerings from the Red Hat portfolio, enhanced by healthcare-specific assets. Whether used individually or together, these offerings provide a low-cost, lightweight platform, with synchronized software development.

- ▶ **Red Hat Fuse:** Derived from the Apache Camel-based integration platform—reduces the difficulty of connecting applications, services, processes, and devices for comprehensive, efficient solution formats including FHIR and HL7.
- ▶ **Red Hat AMQ:** A standards-based, reliable, open source messaging platform that allows real-time communication among applications, services, and devices.
- ▶ **Red Hat Runtimes:** A set of offerings, tools, and components for developing and maintaining cloud-native applications, such as Quarkus, Data Grid, OpenJDK, and single sign-on (SSO) for Red Hat solutions.
- ▶ **Red Hat 3Scale:** Share, secure, distribute, control, and monetize your APIs on an infrastructure platform built for performance, customer control, and future growth.
- ▶ **Red Hat OpenShift:** A single enterprise-ready Kubernetes application platform with a choice of deployment and consumption options that supports every application and environment.

Learn more

Find out more about our [healthcare and life sciences](#) solutions.



About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with [award-winning](#) support, training, and consulting services.

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