

# POWERING CONNECTED HEALTH SYSTEMS WITH SMILE CDR AND RED HAT OPENSIFT

BROCHURE

## INTEROPERABILITY NEEDED FOR HEALTHCARE DATA

In the healthcare industry, organizations are increasingly moving away from a fee-for-service approach to one that focuses on improving the quality of care through integration. This change is causing a significant shift in technology requirements for healthcare.

Organizations must be able to connect massive amounts of data from multiple sources across the care continuum. This data must be aggregated, normalized, analyzed, and used to make good decisions on patient care. The infrastructure must be able to connect multiple devices and applications and deliver an efficient, cost-effective solution.

As a result, interoperability is essential. One of the key standards used to achieve this goal is Fast Healthcare Interoperability Resources (FHIR). FHIR is an open source, global standard that describes data formats and elements, and serves as an application programming interface (API) for exchanging electronic health data.

## FHIR-COMPLIANT DATA REPOSITORIES

Whatever the source of the data, and wherever it is stored, it must be accessible by the IT infrastructure. Organizations need to store health records in a secure, compliant way, while still being able to easily access those records using standards-based APIs. A FHIR-compliant repository can help.

FHIR also addresses interoperability between legacy healthcare systems, making it easy to provide information to healthcare providers and individuals on a variety of devices, including computers, tablets, and mobile phones. It also enables third-party application developers to create applications that can be easily integrated into existing healthcare data systems.

With a FHIR clinical data repository (CDR) model, relevant clinical data can be extracted from multiple legacy systems and then stored and managed centrally. Other authorized systems and applications can then use FHIR APIs to gain access to this data or to provide additional data to the repository from other systems.

## SMILE CDR DATA REPOSITORY

Smile CDR, a Red Hat partner, offers a complete clinical data repository built on the FHIR standard. It includes out-of-the-box enterprise capabilities including terminology, security, audit and compliance, Lucene-based search, and Health Level Seven International (HL7) v2 to FHIR conversion.

Smile CDR is based on HAPI, the open source reference implementation of the FHIR specifications in Java™. With Smile CDR, HAPI users can seamlessly transition from an unsupported open source FHIR server to a commercially supported, enterprise FHIR repository.

### **Accelerated development**

Smile CDR gives developers access to a service interface that simplifies their work and makes them more productive, so businesses can build and customize applications faster. By removing the data structure and management from the development cycle, developers can work rapidly with a clinical team to deliver user interfaces.

Smile CDR uses the HL7 FHIR standard, and integrates with HL7v2 and clinical document architecture (CDA) data sources, allowing it to be integrated immediately with most healthcare systems.

In addition, Smile CDR saves time by simplifying account management with built-in management capabilities and integrated external identity services.

These savings in development and integration time, in addition to Smile CDR's cost-effective licensing model, help reduce overall costs.

### **Added security**

Smile CDR provides services with built-in security and privacy. All activities can be constrained based on user identity. Administrators are monitored, and their actions can be logged. All activity is audited, and the solution's security protects it from external attacks.

At the same time, there is no risk of vendor lock-in, and Smile CDR gives clients full access to their data—it is as easy to get data out as it is to put it in. Based on established standards, clients can easily move to a new product if required.

## **FOUNDATIONAL RED HAT SOLUTIONS**

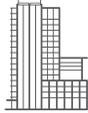
Smile CDR uses the following Red Hat products to offer optimized capabilities for interoperable healthcare data applications:

### **Red Hat OpenShift**

To provide a scalable and easily deployable solution, Smile CDR runs on Red Hat® OpenShift®. The Red Hat platform allows Smile CDR clients to deploy across multiple cloud vendors without vendor lock-in.

Red Hat OpenShift gives Smile CDR clients a stable, controllable platform on which to develop their health systems and applications. It is easy for them to develop, integrate, deliver, and deploy their solutions.

Red Hat OpenShift enables customers to make frequent updates and add new configurations quickly. The platform also provides another layer of security for protected health information (PHI) data.



## ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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## Red Hat Fuse

Smile CDR clients often require an integration and mapping tier to other health information systems (HIS), electronic medical record (EMR), and electronic health record (EHR) systems. By using the Red Hat Fuse integration platform, clients can simplify their integration activities to provide a single interface for mapping their data transformation and translation requirements.

Together, Red Hat Fuse and Smile CDR help developers and business users collaborate to develop connected solutions. Red Hat Fuse and Smile CDR provide an API-centric, container-based architecture that decouples services so they can be created, extended, and deployed independently.

Red Hat Fuse also provides an event-driven architecture that allows Smile CDR to run events through an intelligence layer. This ability helps organizations to act proactively—for example, if a prescription is not refilled, the care coordination team can immediately take action.

## Red Hat 3scale API Management

Customers will need to expose microservices created by using Red Hat Fuse to ensure reusability. Additionally, these integration endpoints need to be managed, secured, and monitored. As a result, customers will require an API gateway and security tier.

Red Hat 3scale API Management makes it easy for Smile CDR clients to manage their APIs. Customers can share, distribute, control, and monetize their APIs on an infrastructure platform built for security, performance, customer control, and future growth.

Customers can use Red Hat 3scale API Management gateways for conformance and transaction volume management.

## FHIR-ENABLED DATA SHARING

Smile CDR and Red Hat help healthcare enterprises deliver reliable, compliant, and scalable solutions with the required interoperability and FHIR-enabled capabilities for data sharing.

Smile CDR, running on Red Hat OpenShift, Red Hat Fuse, and Red Hat 3scale API Management, provide an answer to many of the challenges faced by clinical infrastructures.

To learn more, visit [redhat.com/health](https://redhat.com/health) or contact your Red Hat account representative.