

CurrentCare Upgrade and Opportunities for Data Integration: FHIRing things up!

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HealthShare Upgrade

- "HealthShare" is the underlying technology for RIQI's HIE services, including CurrentCare
- After nearly two years of planning, upgrade formally started in fall 2021
- Base system upgraded in September –
 Six full versions! (2015 >> 2021)
- Total full downtime < 72 hours
- On track to complete remaining nonstandard feature implementations by Q1 2022





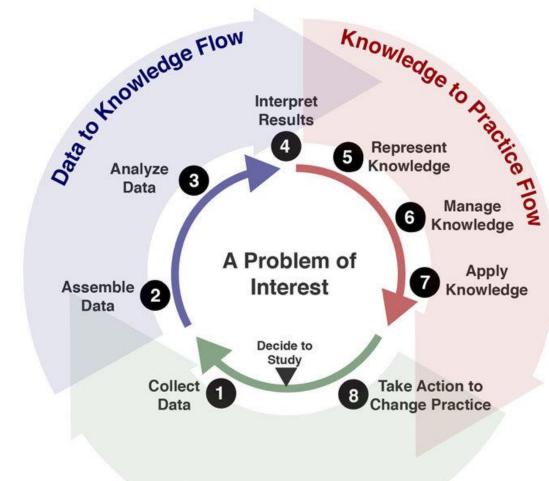
Why Upgrade?

- Performance enhancements, including newer data architecture
- Refreshed application aesthetics and functionality (search!)
- Reduction in maintenance costs and need for customizations
- Updated security and reduced technical vulnerabilities
- Enable contemporary technologies for supporting healthcare data interoperability --FHIR!

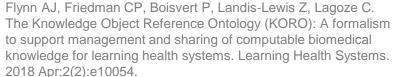




Health Care as a Learning System



Practice to Data Flow





GOALS OF THE LEGISLATION

RESEARCH



Remove barriers to research collaboration



Invest in STEM education



Provide new incentives for the development of rare disease drugs

GETTING TREATMENTS TO PATIENTS MORE QUICKLY



Modernize clinical trials to increase access to drugs

and treatments



Incorporate patient feedback in drug development and review process

KEEPING JOBS HERE AT HOME



Ensure U.S. remains a global leader in medical innovation, protecting and creating jobs at home



Encourage development of new medical apps to save lives and create jobs

#CURESatOne





World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists, Policy, November's W3 news, Frequently Asked Questions.

What's out there?

Pointers to the world's online information, subjects, W3 servers, etc.

Help

on the browser you are using

Software Products

A list of W3 project components and their current state. (e.g. Line Mode, X11 Viola, NeXTStep, Servers, Tools, Mail robot, Library)

Technical

Details of protocols, formats, program internals etc

Bibliography

Paper documentation on W3 and references.

People

A list of some people involved in the project.

History

A summary of the history of the project.

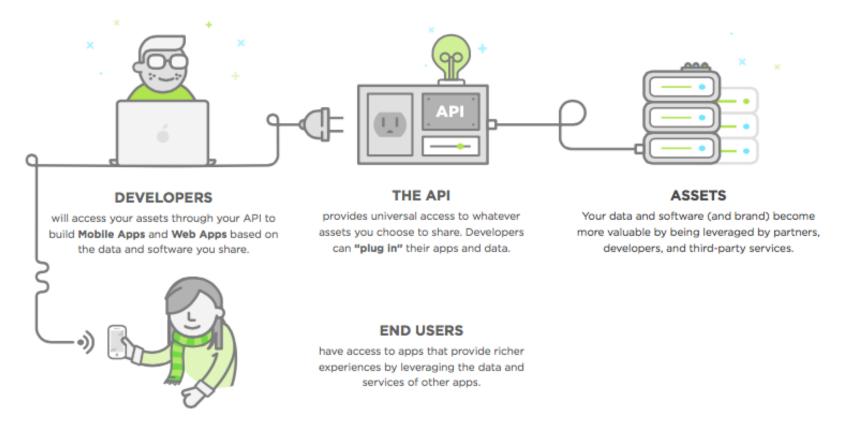
How can I help?

If you would like to support the web...

Getting code

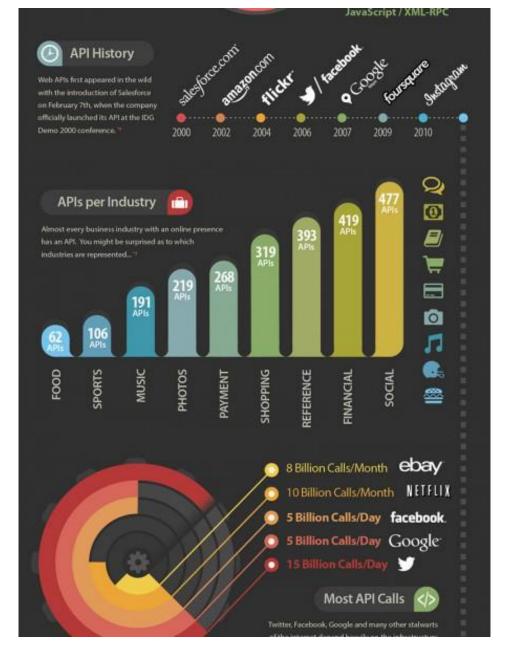
Getting the code by anonymous FTP, etc.





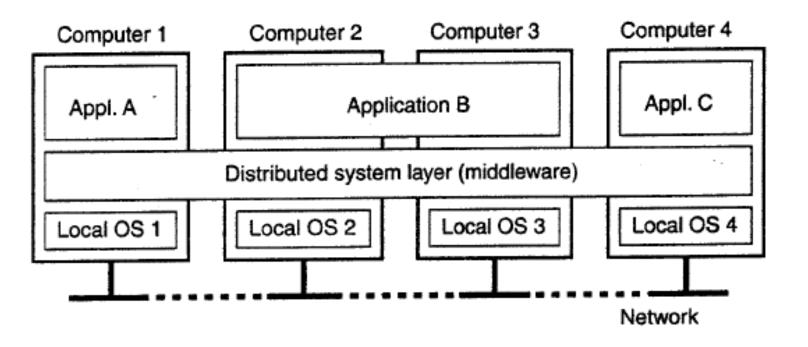
https://www.upwork.com/hiring/development/intro-to-apis-what-is-an-api/







https://visual.ly/community/infographic/computers/api







REPORT TO THE PRESIDENT AND CONGRESS

DESIGNING A DIGITAL FUTURE: FEDERALLY FUNDED RESEARCH AND DEVELOPMENT IN NETWORKING AND INFORMATION TECHNOLOGY

> Executive Office of the President President's Council of Advisors on Science and Technology

> > DECEMBER 2010



Interoperable Interfaces and Demonstration Testbeds Drive Innovation and Economic Growth

The impact of NIT on key national priorities, including healthcare, energy, and transportation, will be magnified and accelerated through the use of *well-defined* and *interoperable interfaces*, and *demonstration testbeds*. These are mechanisms that breed unfettered innovation.

An interface enables one NIT component to connect to and work with others, whether through a network, by exchanging data, or by executing programs. Examples of widely used interfaces include the Internet communication protocols, the HTML document format, and the Microsoft Windows and Apple iPhone software platforms. These interfaces have all been essential to the development of multi-billion dollar NIT industries: the Internet, the World Wide Web, the personal computer, and smart phones.

Interoperable interfaces allow equipment or software from different vendors to work together or communicate. They allow new, innovative creations to work with older, established services. For example, innovation in Web browsers has been possible in part because new browsers use the established HTML document format and HTTP network protocol, and thus are able to access all existing Web content. Innovation has also proceeded on the other side of the interfaces – in Web servers – and in similar fashion a new server implementation works with old browsers because of the standardized interfaces.



The future of efficient health services requires an interface definition for electronic health data and for mechanisms to allow providers and patients to share data. The system must work as well for individual self-employed physicians as it does for regional healthcare organizations. An interoperable specification will spur diversity and innovation in the creation of software that lets doctors and patients make best use of healthcare data.



A Robust Health Data Infrastructure

Contact: Dan McMorrow - dmcmorrow@mitre.org

November 2013

JSR-13-700

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JASON recommends that healthcare interoperability be reoriented away from "siloed legacy systems" toward a centrally orchestrated interoperability architecture based on open APIs and advanced intermediary applications and services. In particular, the report recommends an urgent focus on creating a "unifying software architecture" to "migrate" data from these legacy systems to a new centrally orchestrated architecture to better serve clinical care, research, and patient uses. This architecture would be based on the use of "public" APIs for access to clinical documents and discrete data from EHRs, coupled with enablement of increased consumer control of how data is used.



USCDI v1 Assessment and Laboratory Provenance *NEW Plan of Treatment Tests Author Author Time Stamp · Values/Results · Author Organization Care Team Members 👼 **Smoking Status** Medications Clinical Notes *NEW Medications Consultation Note Unique Device Identifier(s) for a Medication Allergies Discharge Summary Note Patient's Implantable Device(s) History & Physical **Patient Demographics** · Imaging Narrative First Name · Date of Birth **Vital Signs** · Laboratory Report Narrative Race Last Name Pulse oximetry Diastolic · Pathology Report Narrative · Previous Name · Ethnicity **Blood Pressure** Inhaled oxygen Procedure Note Preferred Middle Name concentration Systolic Progress Note Language (including middle initial) Blood Pressure Pediatric Vital Signs *NEW Address *NEW Body Height Goals - BMI percentile per age Suffix Phone Body Weight and sex for youth 2-20 Patient Goals Birth Sex Number *NEW Heart Rate - Weight for age per Respiratory rate **Health Concerns Problems** length and sex Body Occipital-frontal Temperature circumference for **Procedures Immunizations** children >3 years old



10

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Technology Vendors

Accenture

Apple

athenahealth

Cerner

Epic

Change Healthcare

MEDITECH

Surescripts

The Advisory Board Company/Optum

Provider Organizations

Beth Israel Deaconess Medical Center

Intermountain Health

Mayo Clinic

Partners Healthcare

SMART at Boston Children's Hospital

Staff (current and past)

Prime contractor: HL7

FHIR initiatives: Grahame Grieve, Josh Mandel, Brett Marquard, Eric Haas

OAuth initiatives: Dixie Baker, Josh Mandel

Project Management: Micky Tripathi, Jennifer Monahan



A SMART Evolution

2009

NEJM: No Small Change for the Health Information Economy introduces the API

White Paper: "... Fostering Development of an "iPhone-like" Platform..."



iTDotHealth meeting with government, vendors, academia

SMART Apps Contest on Challenge.gov, promoted by White House. First health-related apps challenge

SMART Sandbox launched

2015

2015 EHR certification and meaningful use 3 final rules require patient access via API

Launch of SMART App Gallery

Launch of SMART CDS Hooks, a decision support specification

Allscripts and EPIC launch SMART on FHIR developers sandboxes

Project Argonaut commits to CDS-Hooks Implementation

SMART Team, ONC & HL7 launch the SMART FLAT FHIR bulk data project

Carin Alliance focuses on implementing

2019

CMS commits to SMART Bulk Data specs

Microsoft launches SMART on FHIR API in its Azure product

Final rule from ONC specifies SMART as the universal apps API to implement 21st Century Cures

3 Cloud vendors at White House commit to SMART and FHIR open APIs

Veterans accessing health records using Apple's SMART on FHIR Health App

Health

Information blocking rules take effect

Epic launches initial version of SMART/HL7 Bulk FHIR Access API

SMART Health Cards established as a verified credential standard

VCI initiative establishes SMART Health Cards as an industry standard for vaccine credentials

The Commons Project releases the SMART Health Card verifier.

Support for full export of Electronic Health Information

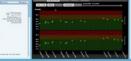












2013

FHIR Genomics

SMART team joins

FHIR development

effort

Release of SMART on











Apple adds SMART

to medical data

support to its Health

CMS launches Blue

for API access to

Medicare claims

Button 2.0 using SMART

Dept of Veterans Affairs

App for patient access





\$15M SHARP grant to the SMART Team

Draft SMART API released (RDF data models)

Cardiac Risk app becomesfirst SMART app

2010

BP Centiles: First SMART App in production at Boston Children's Hospital

2012

Release of SMART on FHIR specification

Launch of SMART Advisory Committee with diverse stakeholders committed to SMART on FHIR ecosystem

JASON Task Force report recommends a public API for healthcare

Argonaut project launched to implant SMART in EHRs

Precision Medicine Initiative Sync for Science uses SMART API

21st Century Cures Act makes APIs a requirement for certified HIT, incorporating language from the SMART team

Cerner launches SMART on FHIR Developers Sandbox

to incorporate SMART on FHIR support into next-generation EHR platform

> CMS pilots SMART bulk data FLAT FHIR export

SMART on FHIR published as an HL7 standard

SMART Markers Framework for Patient Generated Data



Support for SMART on FHIR and Bulk FtHIR APIs required in all certified HIT

2022

2020

SMART®

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