



University of California
San Francisco

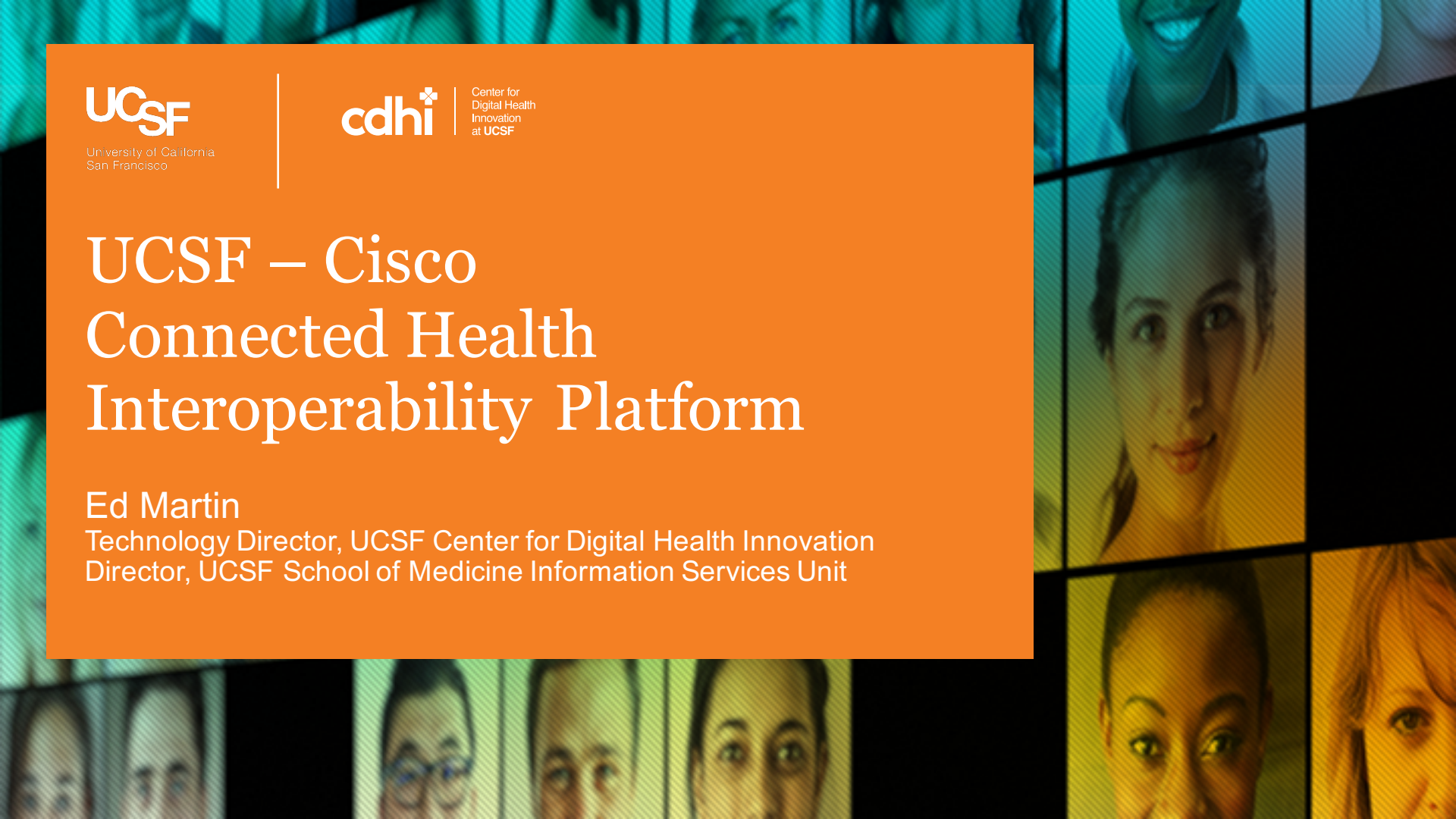


Center for
Digital Health
Innovation
at UCSF

UCSF – Cisco Connected Health Interoperability Platform

Ed Martin

Technology Director, UCSF Center for Digital Health Innovation
Director, UCSF School of Medicine Information Services Unit



Center for Digital Health Innovation: Catalyzing Innovation

What We're About

Improving health worldwide, by envisioning and realizing new technologies and evaluating them in clinical settings.

Guided by science, we're catalyzing the new era of precision medicine.



Innovate

We provide UCSF faculty, students, and staff with the essential support and resources to create transformative technologies.

Validate

We leverage UCSF's clinical trial resources to test, validate, and iterate on novel technologies.

Integrate

We focus on the integration of new technologies in real clinical environments to ensure that technologies can be used by patients and providers.

Educate

We design digital health education for the next generation of digital health leaders. We bring together leaders across healthcare and digital health, to create an ecosystem for learning.

The Digital Health Environment

What EHR's Were Built to Support

- Episodic, fee for service care
- Billing and documentation
- Care provided within a single institution

What EHR's Were Not Built to Support

- Population health and chronic disease management
 - Require cleaner, more comprehensive data and better analytics
- Collaborative patient-centered care across institutions
- Consumer experience
- Patient engagement
- Data from consumer apps and sensors

Innovation Is Not Scaling

#1: Resources Spent

SELF-ACTUALIZATION

ESTEEM

LOVE/BELONGING

SAFETY

PHYSIOLOGICAL

INNOVATION

CLINICAL

REGULATORY

PRIVACY

FINANCIAL

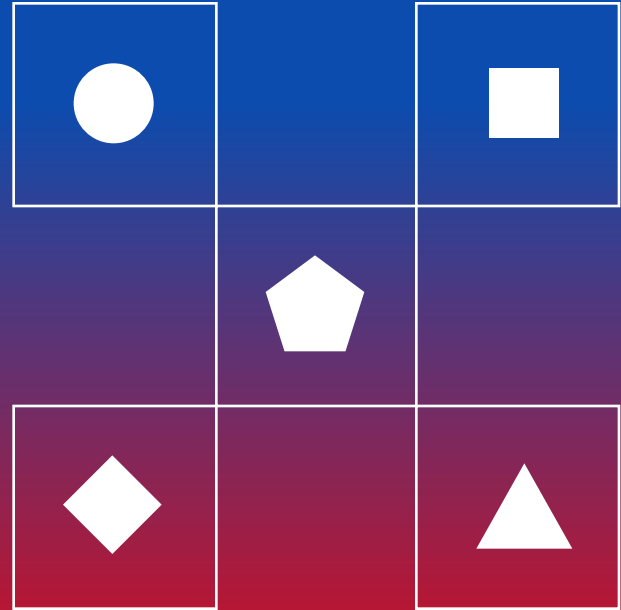
SECURITY

Goal #1

Make it easier for *all* healthcare delivery systems to benefit from innovations supporting new care models

#2: Too Customized

Innovations developed by Academic Medical Centers are frequently “one-offs”



Goal #2

Make it easier for innovative health systems to commercialize and distribute their technologies

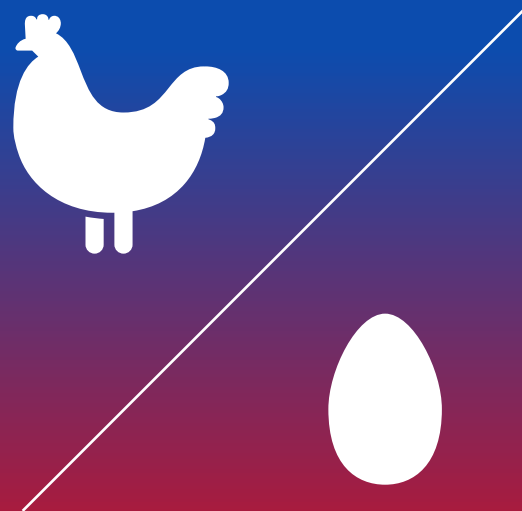
#3: Taking the Leap

Digital Health Companies

“We will not build functionality and APIs to health systems and EHRs until they are willing to pay for our products and make it easier for us to connect”

Health Systems

“We will not set up infrastructure and governance for external access to data when there is no EHR connectivity and no proven apps that utilize that data”

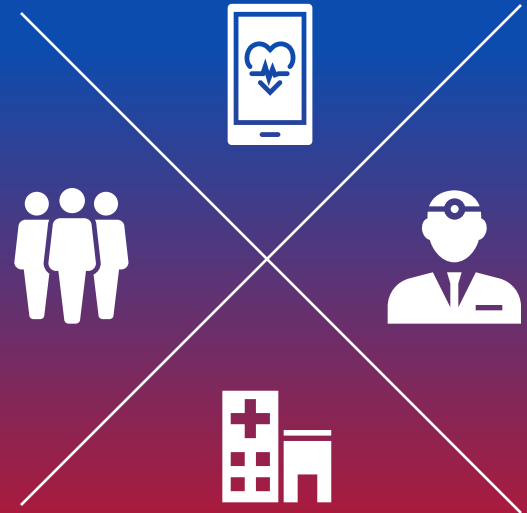


Goal #3

Create a marketplace big enough so that health systems and digital health companies each gain immediate value from connecting

#4: Integrating Patient-Generated Data

- Health systems are not yet sure how to successfully use consumer and mobile health data in daily care delivery.

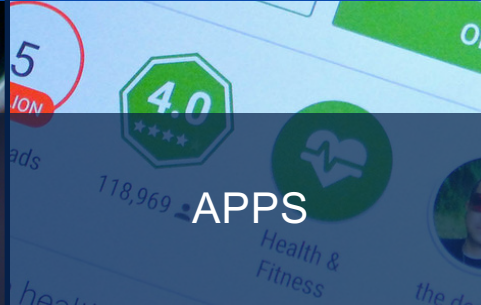


Consumer Health Technology



WEARABLES

A close-up photograph of a smartwatch. The screen displays a green waveform and the text 'PPG23'. The watch is black with a silver metal link band.



APPS

A screenshot of a mobile health application interface. It features a green circular icon with a white heart and pulse line, a green hexagonal badge with '4.0' and four stars, and a red circular badge with '5'. Below these are the words 'Health & Fitness' and '118,969'.



IOT

A close-up photograph of a medical device, possibly a patient bed or chair, with a circular logo on its side. The logo features a stylized 'H' and 'I' intertwined, representing a hospital or healthcare institution.



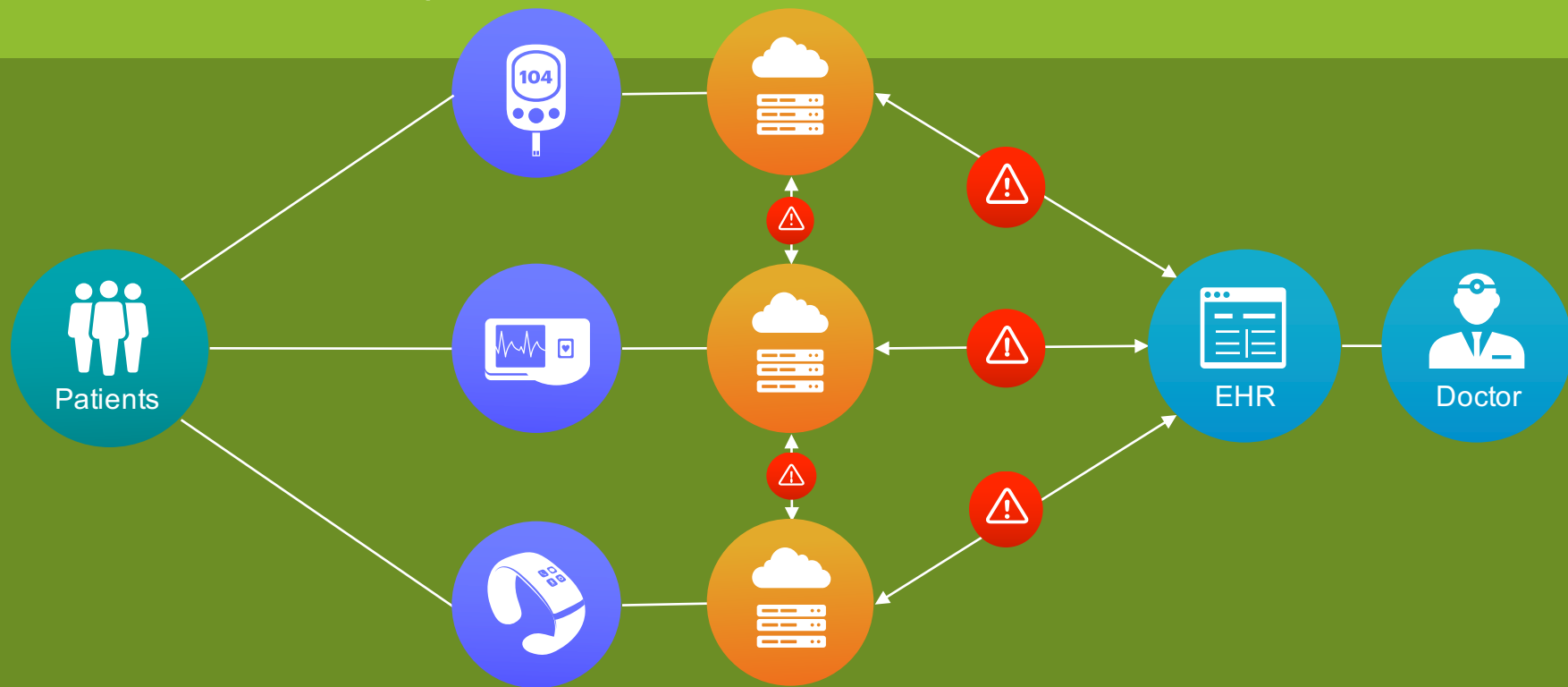
DEVICES

A close-up photograph of a red, textured medical cap or piece of equipment, likely used in a clinical setting.

The Fairy Tale



The Reality





DANGER

**BE CAREFUL
WHEN BELT
IS IN MOTION.**





Goal #4

Enable mobile and consumer health data to be used within the clinical workflow in a contextualized, actionable fashion



Technology

CDHI Experience

Our inaugural projects span a breadth of issues in health, from diabetes and heart disease, to team-based communication, to the use of sensors and apps.



Team-based collaborative
care platform

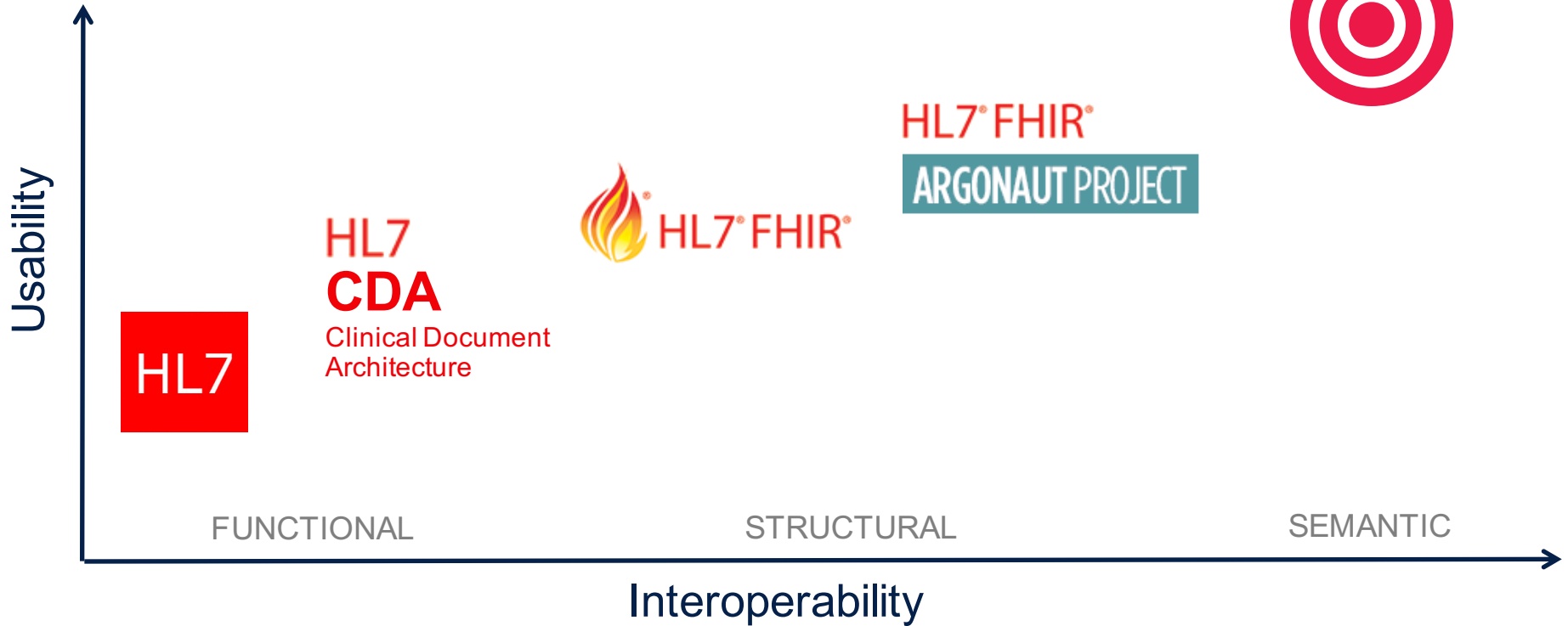


A new generation of smart
diabetes management apps



A clinical trials platform
aimed to end heart disease

Interoperability Today



Healthcare Needs a Platform to Scale Innovation

- Support semantic interoperability
- Multi-tenant, cloud-based platform with support & maintenance
- Create an app marketplace
- Combine consumer health data with patient data
- Open access for digital health innovators

The Connected Health Interoperability Platform

Healthcare Platform Services

- Healthcare Coding Standardization
- Enhanced FHIR Services
- Master Patient Index
- Provider Registry
- Customer (Patient) Portal
- Workflow Engine

Healthcare Apps Marketplace



Referral Management



Care Collaboration

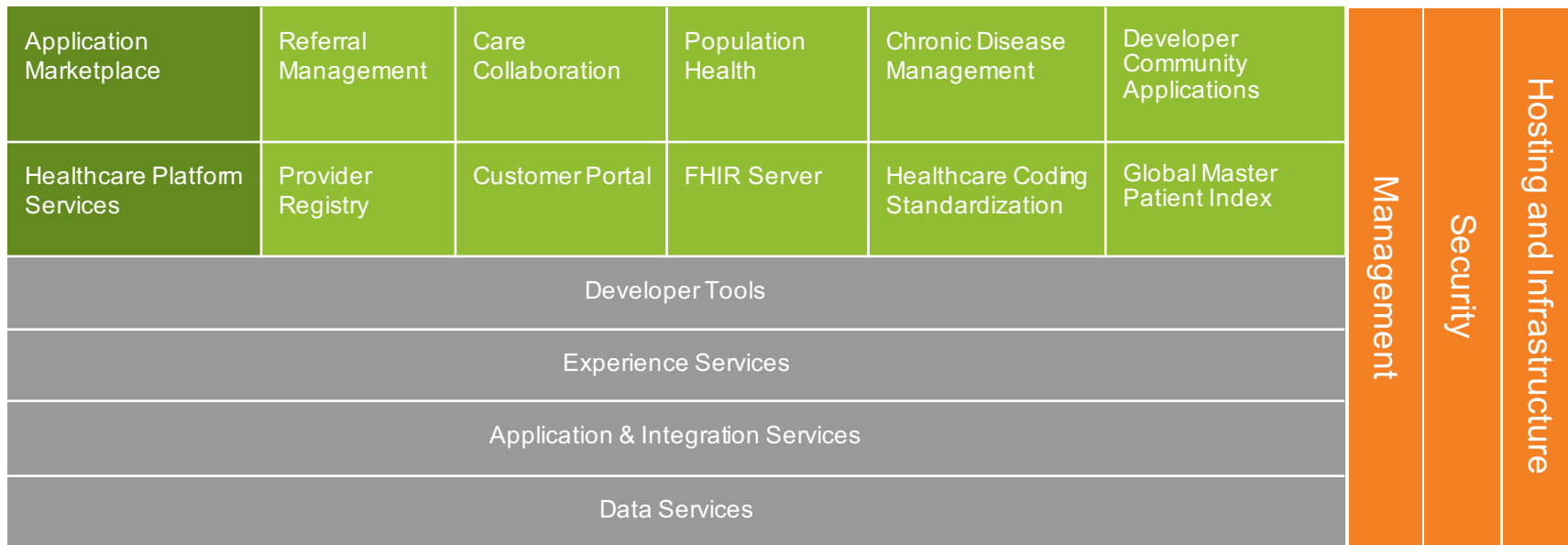


Population Health

Developer Community

- Sandbox environment for application developers
- Experiment with our healthcare API's and services
- Work with test patient data and consumer health data
- Access to developer toolkits and frameworks
- Sample code libraries

CHIP: A Digital Platform for Healthcare



Source System Specific Connectors



The Partnership



- Global market reach
- 5th largest software company in the world
- Internet-of-Things leader
- Cloud analytics for hyper-distributed data
- History of partnership and collaboration
- Health interoperability is a global challenge
- Distribution channel for innovative technology
- Care delivery innovations w/ sensors, devices
- Exponential growth in health data
- Building a digital health ecosystem

Partnership Accomplishments

- UCSF and Cisco team co-located in San Francisco
- Initial application partners identified
- Product requirements developed
- UCSF Health agreed as the first installation in CY Q1 2017 (Referral Management)
- CHIP 1.0 Limited Availability CY Q3 2017
- CHIP GA 2018

CDHI Leadership – CHIP Initiative



Michael Blum, MD

Cardiologist
Chief Digital Transformation Officer
Vice Chancellor of Informatics



Aaron Neinstein, MD

Endocrinologist
Director of Clinical Informatics



Pam Hudson, RN

Chief Operating Officer, CDHI



Ed Martin

Technology Director
Director, SOM ISU

Connected
Health
Interoperability
Platform



For More Information

www.digitalhealthplatform.org