

THE EMERGING ROLE OF OPEN APIs IN HEALTHCARE

Paths to Market Success



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CORE BELIEFS AT CHILMARK

Our team is united by a core belief that effective deployment and use of IT is essential to modernizing care delivery and ultimately improving the patient journey. We monitor trends and developments in the industry with a focus on those technologies that will be transformational to healthcare delivery.

We provide comprehensive, objective, high quality research for busy executives. It our way to help create a more informed, future-ready market of products and customers.

Let's work together today & be better prepared for tomorrow.





BRIAN MURPHY

Brian Murphy joined Chilmark Research as an industry analyst in August 2012 and brings a wealth of experience to the table. He is an outspoken advocate for true interoperability being the key to unlocking the potential of health IT and has centered the majority of his research efforts with Chilmark around this subject. He also currently heads research for the Analytics domain.

Brian has worked in the IT business for over 25 years, beginning his career in the field-sales organization of IBM. He then joined Yankee Group as an analyst, where he managed an enterprise software service and led research on the dynamics of the database market. Leaving Yankee, Brian joined Eclipsys prior to its acquisition by Allscripts in 2010. At Eclipsys, Brian worked with product managers to refine and harmonize value propositions in light of the organization's broader goals.

Brian is a graduate of both Harvard College and Suffolk Law School. When not thinking about healthcare IT, he is a runner and armchair Boston historian.

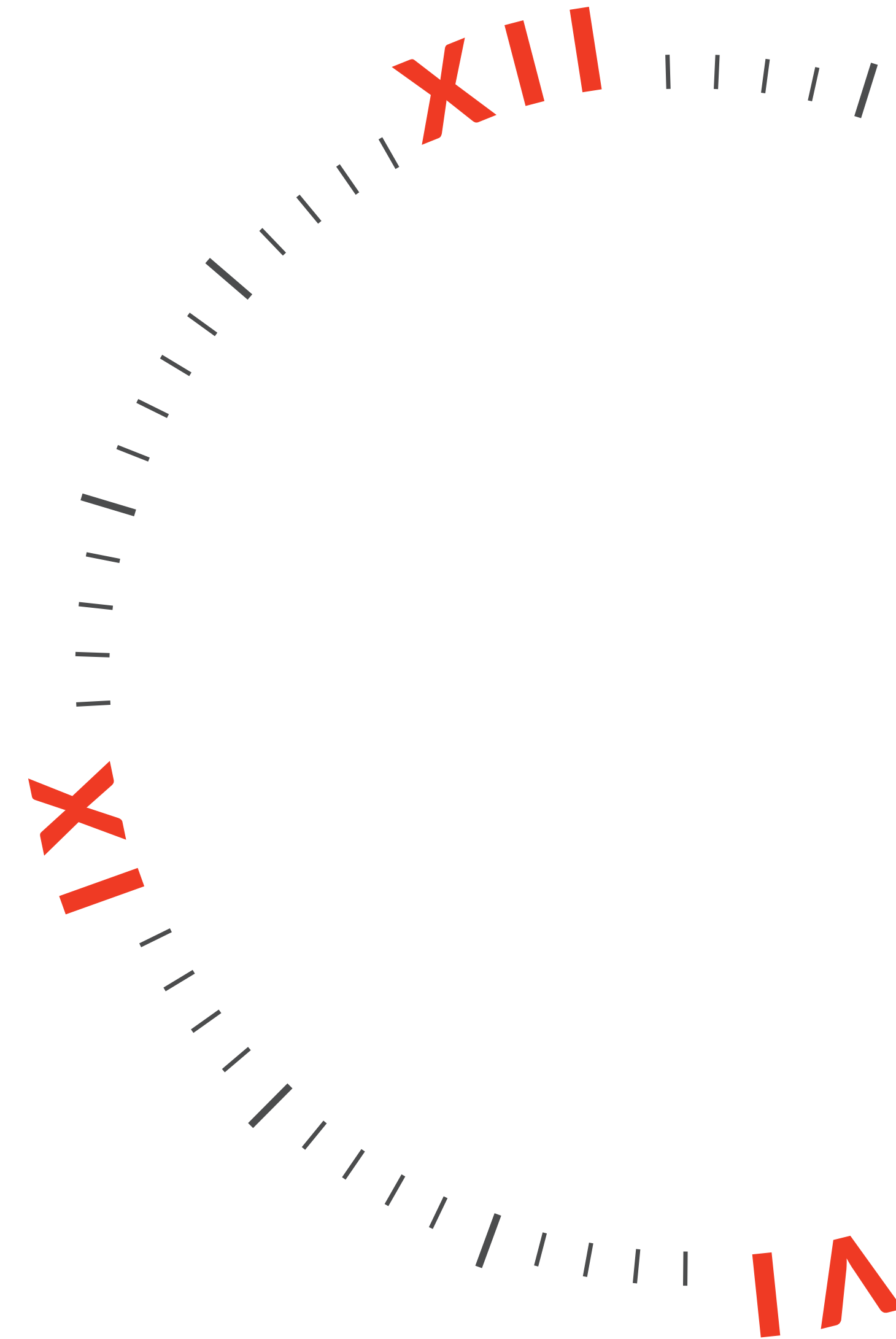


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AGENDA

- ▶ The Bottom Line
- ▶ Explaining APIs in Healthcare
- ▶ The Survey Results Are In
- ▶ Opportunities
- ▶ Who, What, Where, When, How
- ▶ Recommendations
- ▶ Return to the Bottom Line



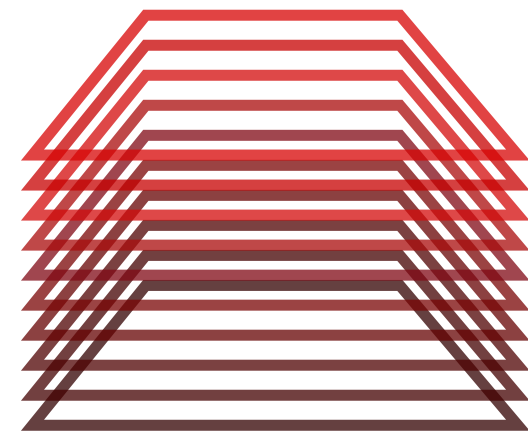
THE BOTTOM LINE

- ▶ APIs are the way forward (open and otherwise)
- ▶ API best practices are outside healthcare
- ▶ Modern software development and deployment ideas are knocking on HCO doors
 - ⇒ Cloud deployment, agile development, social/mobile, microservices, REST/JSON, NoSQL databases have changed IT
 - ⇒ APIs are revenue source for many companies in many industries
- ▶ New models of care need:
 - ⇒ Broader distribution of clinical expertise
 - ⇒ Delivery in lower cost venues and in different channels
- ▶ Opportunities to reduce inefficiencies
 - ⇒ Reusable clinical alerts, quality metrics
 - ⇒ New approaches to care coordination
- ▶ EHRs are “center of the universe” for clinicians
 - ⇒ Maybe not forever
 - ⇒ New payment models can mean less documentation



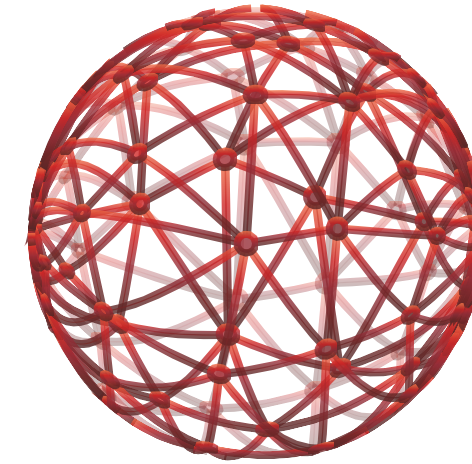
Industry Backdrop





Systems of Record

EHRs
RCM
ERP
Practice Management
Payer Data
Devices
Data Aggregators
Genomics
Socioeconomic



Systems of Engagement

Quality Reporting
Cost and Utilization Analytics
Risk Stratification
Registries
Care Management
Clinical Research
Cost Analytics
BI and Reporting



APIs Connect Divided Health IT Solutions

APIs: dominant means by which developers interact with applications and other organizations

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Browse our extensive collection of APIs and click to drill-down and see how it works:

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REST API

UPDATED November 2012

The Force.com REST API lets you integrate with Force.com applications using simple HTTP methods, in either XML or JSON formats, making this an ideal API for developing mobile applications or external clients. Force.com also supports Apex REST, which lets you create Web services on Force.com using Apex.

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put

get

post

custom

force.com database.com

HTTP/S OAuth 2.0

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should you use

get started

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Amazon API Gateway

Amazon API Gateway is a fully managed service that makes it easy for developers to create, publish, maintain, monitor, and secure APIs at any scale. With a few clicks in the AWS Management Console, you can create an API that acts as a "front door" for applications to access data, business logic, or functionality from your back-end services, such as workloads running on Amazon Elastic Compute Cloud (Amazon EC2), code running on AWS Lambda, or any Web application. Amazon API Gateway handles all the tasks involved in accepting and processing up to hundreds of thousands of concurrent API calls, including traffic management, authorization and access control, monitoring, and API version management. Amazon API Gateway has no minimum fees or startup costs. You pay only for the API calls you receive and the amount of data transferred out.

Benefits

Low-Cost and Efficient

With Amazon API Gateway, you pay only for calls made to your APIs and data transfer out. There are no minimum fees or upfront commitments.

Performance at Any Scale

With Amazon CloudFront integration, API Gateway allows you to take advantage of the



NETWORKS ALONE TOGETHER

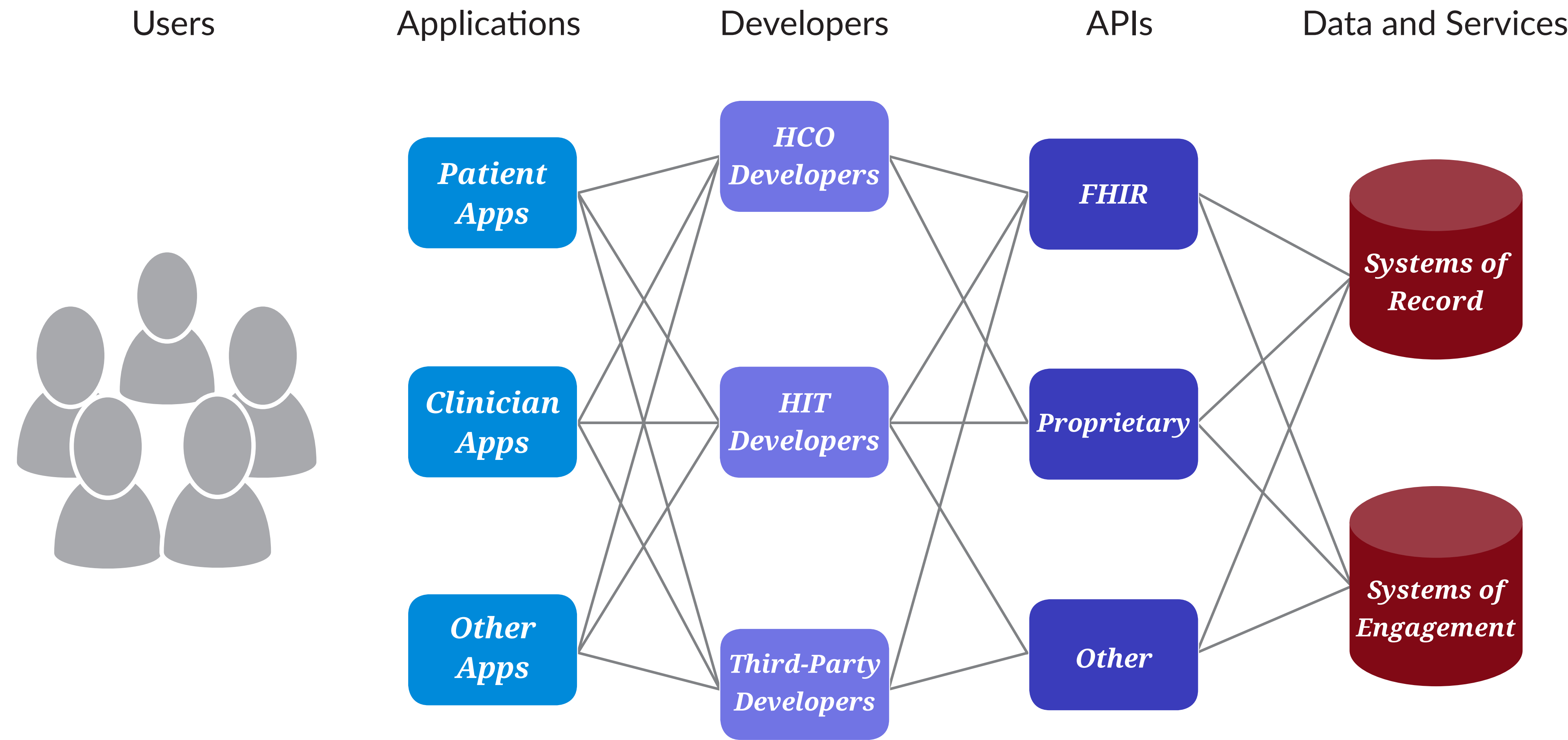
Network Type	Examples	Network Scope	Data Types
EHR network	Cerner, Epic, Allscripts, athenahealthPartners HealthCare Physician Gateway, UCLA HealthLink	HSA, National, Local, catchment area, HSA	Clinical, credentialing, and other data
HIE network	Indiana HIE, LaHIE, Healthbridge, HealthIX, CRISP, MHIN, Adventist Health System, Baylor Scott & White Health, Sutter Health	State, local, and regional	Clinical
CommonWell	Various members	National	MPI and record location
ELR Portals	CalREDIE ELR, Michigan Disease Surveillance System	State	Test Results, Reportable Results, Syndromic Surveillance
Payer networks and claims clearinghouses	Provider Central, Navinet, Change Healthcare, NaviHealth	National, Regional, State, and/or Local	Benefits & Eligibility, Referrals, Authorization, Claims submission & status
e-prescribing and medications data	Surescripts, Express Scripts, IMS Health, Ambulatory EHR vendors	National	Rx fulfillment, meds histories, eligibility, formulary check, authorization
Lab networks	LabCorp, Quest, Liaison Technologies, 4medica, Baystate, BioReference	National, regional, local	Orders and results
Device data aggregators	Validic, Capsule	National	Device

21ST CENTURY CURES ACT

- ▶ Focus on “Information Blocking”
- ▶ Modifies the criteria for CEHRT
 - ➡ Requires published APIs
- ▶ Tells HHS to define what is interoperable
- ▶ Winds down the HIT Standards Committee
 - ➡ Outsources to an SDO
- ▶ Effective for products certified after January 1, 2018
- ▶ Enforcement via:
 - ➡ Decertification
 - ➡ Civil monetary penalty



APIs IN HEALTHCARE



The Survey



PURPOSE OF STUDY

SURVEY OPINIONS AND IDEAS

- ▶ Open APIs in Creation of Healthcare API ecosystem
- ▶ Help IT Deliver higher value and ROI for HCOs
- ▶ Primary Research Concerned with:
 - Market Demand for Open APIs
 - Contribution to Healthcare Transformation
 - Governance
 - Data and Technology
- ▶ APIs as catalyst for innovation, higher performance, and better patient experience.

SURVEY TARGETS AND QUESTIONS

Who Did We Talk To?

- ▶ Large HCOs
- ▶ Small HCOs
- ▶ Payers
- ▶ HIT Vendors
- ▶ Data Integrators
- ▶ Device Manufacturers
- ▶ 15 Organizations
- ▶ 25 Interviewees

What Did We Talk About?

- ▶ What will be the pioneer apps?
- ▶ Which users can benefit?
- ▶ What data is important?
- ▶ Will anyone pay?
- ▶ Which APIs are important?
- ▶ Who will lead?



WHAT DID THEY SAY?

Healthcare Segment	Common Beliefs and Attitudes
Large HCOs	<ul style="list-style-type: none">▶ Strong enthusiasm about a healthcare app marketplace▶ Fully aware of potential of open APIs▶ Expect their EHR vendor to build an API infrastructure▶ EHR user interface and functional enhancements▶ Not investing yet, waiting for vendors▶ FHIR and SMART-on-FHIR will be valuable and functional
Small HCOs	<ul style="list-style-type: none">▶ Strong enthusiasm about a healthcare app marketplace▶ Completely dependent on their EHR vendor▶ APIs are low priority▶ EHR enhancement is the opportunity
Payers	<ul style="list-style-type: none">▶ Stronger IT bench than HCOs▶ Want to partner with providers and employers▶ Want to find way to develop new, better apps that are less costly to create and maintain



WHAT DID THEY SAY? cont'd

Healthcare Segment	Common Beliefs and Attitudes
Large HIT Vendors	<ul style="list-style-type: none">▶ FHIR is the centerpiece of most vendor's open API strategy▶ Little sense of urgency▶ Varied beliefs about role of third parties
Small HIT Vendors	<ul style="list-style-type: none">▶ Very strong belief in open APIs▶ See FHIR as a way for large vendors to control access to data▶ Freely offer alternative web-based development ideas▶ Thinking way beyond the EHR
Data Integrators	<ul style="list-style-type: none">▶ Strong belief in proprietary APIs▶ Skeptical of FHIR▶ Focused on monetization
Device Manufacturers	<ul style="list-style-type: none">▶ Strong supporters of simplified access to their data▶ Focused on monetization

BROAD RANGE OF SPECIFIC IDEAS

- ▶ EHRs that activate and engage clinicians
- ▶ Apps that activate and engage patients
- ▶ Cross-organization care coordination that borrows interaction features from social network applications
- ▶ Apps that allow patients to compare the cost implications of different treatment and medication options
- ▶ Care transition apps for the relatively large number of people involved in care who have no access to an EHR
- ▶ Self-service scheduling
- ▶ EHR that conceptualizes each patient as a sequence of birth-to-death care gaps
- ▶ Real-time access to relevant individual data points
- ▶ A more functional, searchable longitudinal patient record
- ▶ Better use of patient-generated data, including patient-reported outcomes
- ▶ Patient-focused peer group communities
- ▶ Error detection and prevention
- ▶ Utilization management
- ▶ Precision medicine
- ▶and the list goes on



OPPORTUNITIES AND PIONEER APPS

- ▶ EHR rejuvenation is a strong, clear, and urgent need
 - ➡ Reduce documentation burden
- ▶ Clinicians want actionable data
 - ➡ Data that is relevant at POC
 - ➡ Combination of data with expertise
- ▶ Better distribution of expertise across the healthcare system is the dominant systemic need
 - ➡ Reduce time to accurate Dx
- ▶ Strong interest in new models of care
- ▶ Emphasis on process change
 - ➡ Supported by technology – not the other way around



APPS FOR CLINICIANS OR PATIENTS?

- ▶ Needs exist among every group of users in healthcare
- ▶ Clinician-facing apps seen as more impactful
 - ➡ Physicians want their EHRs fixed
 - ➡ Patients can't be their own doctors
- ▶ Large minority believe patient apps should come first
 - ➡ Unclear what patients want, need, or value
 - ➡ Patients need better apps



VALUABLE DATA

- ▶ EHR data is highly prized
 - Everyone wants better access
- ▶ Concern about volume of data versus its value
- ▶ All want maximum access to the minimum data required by context
- ▶ Nobody believes that the available data is adequate
- ▶ Widespread understanding that the number and type of data sources will expand

WHO WILL PAY

- ▶ Uncertain funding
- ▶ Patient or clinician will only pay for value
- ▶ Paying for raw data unlikely
- ▶ Willingness to pay for actionable data
- ▶ Metered charges for access to data is not a popular option



WHICH APIs?



- ▶ FHIR and SMART on FHIR are inevitable
- ▶ FHIR alone will not address all requirements
 - ➡ UX, orchestration, some clinical disciplines lacking, non-clinical data sources
- ▶ Slow pace of FHIR rollout
 - ➡ Largest vendors are strongest supporters
 - ➡ Rollout is slow
- ▶ Decent support for proprietary APIs
- ▶ Skepticism about role of standards

WHO WILL LEAD?

- ▶ Large HIT vendors and large HCOs will control the pace
 - ➡ But vendors must deliver
- ▶ Smaller players are pointing the way but can't move the market
 - ➡ Strong adopters of modern technology
- ▶ Major EHR vendors can make or break progress for APIs
- ▶ Not seeing frustration with the pace



Conclusions



RECOMMENDATIONS

Healthcare Segment	Next Steps
HCOs	<ul style="list-style-type: none">▶ Start an API program▶ Press EHR vendors▶ Begin API governance discussions▶ Concentrate on EHR UX issues before functional enhancements
HIT Vendors	<ul style="list-style-type: none">▶ Start an API Program with FHIR and other APIs▶ Rethink interfaces as a product rather than service business
Payers	<ul style="list-style-type: none">▶ Start an API program and begin with paid claims data▶ Cultivate stable of ISVs and independent developers
Data Integrators	<ul style="list-style-type: none">▶ FHIR is not going away so begin to build support▶ Monetization model will be value-based rather than access-based
Device Manufacturers	<ul style="list-style-type: none">▶ Partner with EHR vendors and data integrators▶ Monetization model should be value-based rather than access-based

2017 RELATED REPORTS

First Quarter:

Clinician Network Management Market Trends Report

Second Quarter:

SMART on FHIR: Moving Beyond the Pediatric Growth Chart

Fourth Quarter:

API Programs for Health IT: Provider and Vendor Perspectives



Thank You for Attending

Questions?

Please feel free to email **Brian** directly with any additional questions or inquiries:
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Research Funding Provided By:





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