

eHealth Exchange Network in U.S. – Bottom Up Complements Top Down?

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The Sequoia Project's Role

The Sequoia Project is a trusted, independent convener of industry and government.

We address the practical challenges of secure, interoperable nationwide health information exchange.



SECURE



INTEROPERABLE



NATIONWIDE

The Sequoia Project Initiatives

The Sequoia Project's independent initiatives each have their own:

- **Mission**
- **Governance**
- **Membership**
- **Structure**



The Sequoia Project is an ideal home for projects that require a collaborative environment where multiple parties with differing perspectives can work together.

Current Sequoia Project Initiatives

eHealth Exchange™

The **eHealth Exchange** is the largest and fastest growing health data sharing network in the US.

carequality

Carequality facilitates consensus on a standardized, national-level interoperability framework to link all data sharing networks from across the entire US healthcare ecosystem.

RSNA Image Share
VALIDATION

RSNA Image Share Validation Program is an interoperability testing program to enable seamless sharing of medical images.

eHealth ExchangeTM

**The Largest Health Information Exchange
Network in the U.S.**

An initiative of the sequoia project

Choosing How to Connect



Centralized

“Hub” networks



Federated

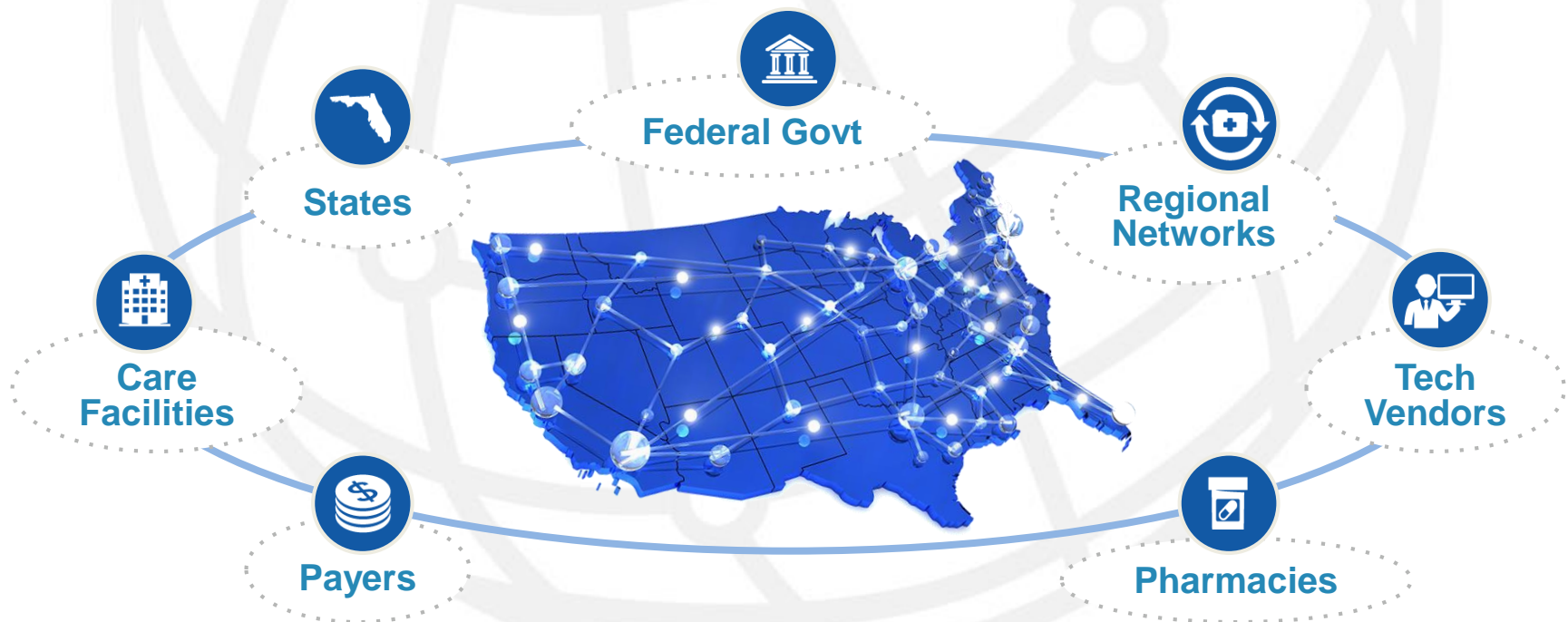
The Internet



**Federated with
Shared Services
(Hybrid)**

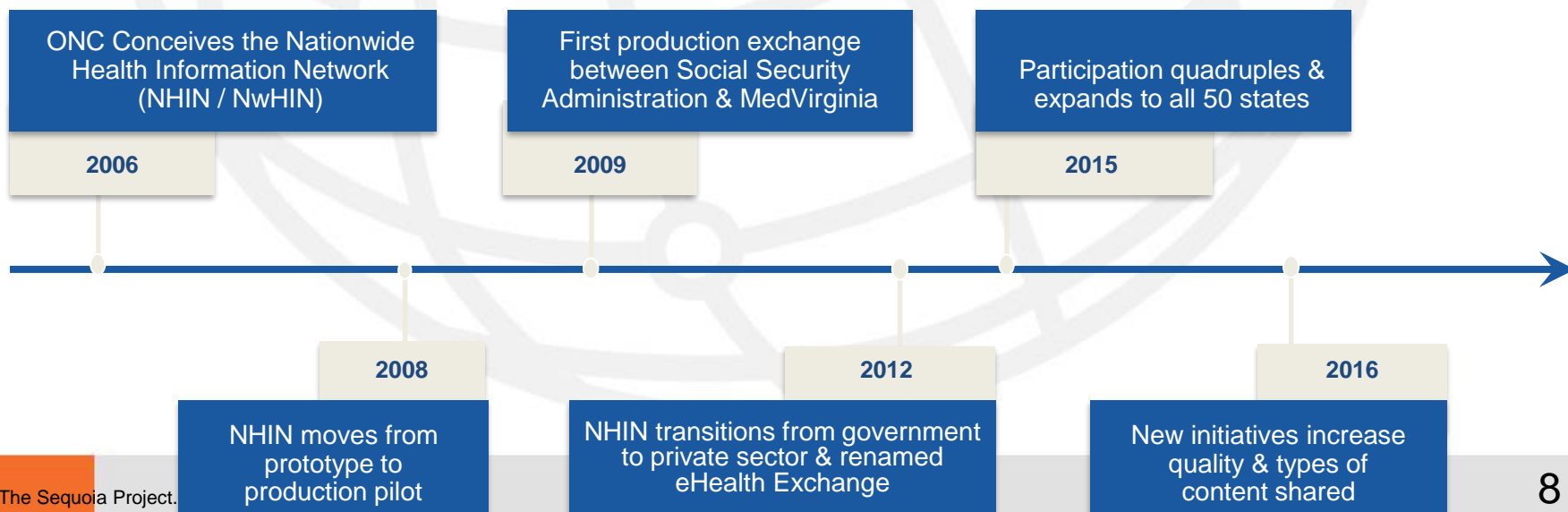
eHealth Exchange™

Introduction to the eHealth Exchange



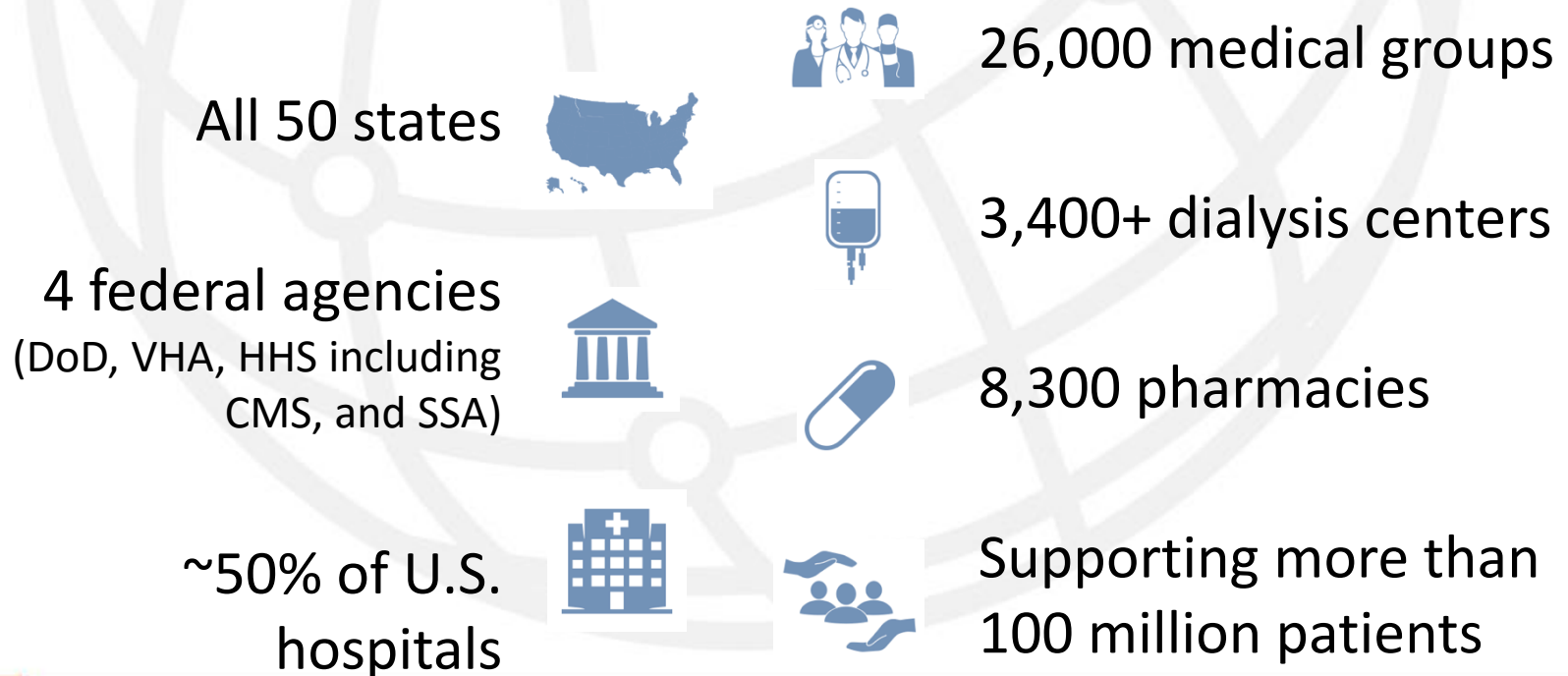
10 Years of Experience

- A solid proven governance model
- Common legal agreement minimizes barriers to nationwide exchange
- Mature capabilities, processes, operations, testing, and strong cultural knowledge base
- Testing and onboarding have simplified efforts for partners to exchange nationwide
- Growth is in the number of medical groups
- Federal partner programs leverage eHealth Exchange as integral part of their interoperability strategy
- Relatively negligible maintenance costs
- Recognized by SDOs as significant nationwide community of implementers



Largest Health Information Exchange Network in the U.S.

Today, the eHealth Exchange connects:



eHealth Exchange Core Values

- Lead in national-level exchange of health information to establish interoperability as a standard, while fostering and supporting innovation
- Maintain openness and transparency in the conduct of operations
- Cultivate trust and protection of information exchanged
- Encourage participation and inclusiveness across a diverse set of stakeholders
- Provide for accountability, fairness and due process
- Maximize effectiveness and efficiency in the exchange of health information
- Evaluate, learn and promote continuous improvement in its own operations



eHealth Exchange has a Trust Foundation

- Legal Agreement
- Governing Committee
- Operating Policies and Procedures



eHealth Exchange uses Technical Services

- Web services registry (phone book of network Participants)
- Security (x.509 Managed Certificate Authority)
- Automated testing using Aegis platform

National Use Cases and Standards Supported



Use Cases

- Treatment / Care Coordination
- Military / Veteran Health
- Disability Benefits Determination
- Quality Measures Reporting
- Immunizations
- Consumer Access
- Life Insurance



Standards

- Query: SOAP / SAML + IHE Suite
- Push: Direct, Document Submission / Admin Distribution
- Content: C32, CCDA, quality measures
- FHIR
- Others under consideration

eHealth Exchange Architectural Layers/Specifications

Profiles

Employing exchange patterns to enable clinical data enabled workflows

Care Summary Exchange

Quality / Admin Data Push

Claims Eligibility

Information Exchange

Employing lower-level layers to enable basic message exchange patterns

Patient
Discovery

Query for
Documents

Retrieve
Documents

Patient
Consent

Push

Publish /
Subscribe

Discovery, Message Security and Privacy

Message security, privacy, and interoperable healthcare data exchange

Web Services Discovery (UDDI)

Message Platform

Authorization Framework

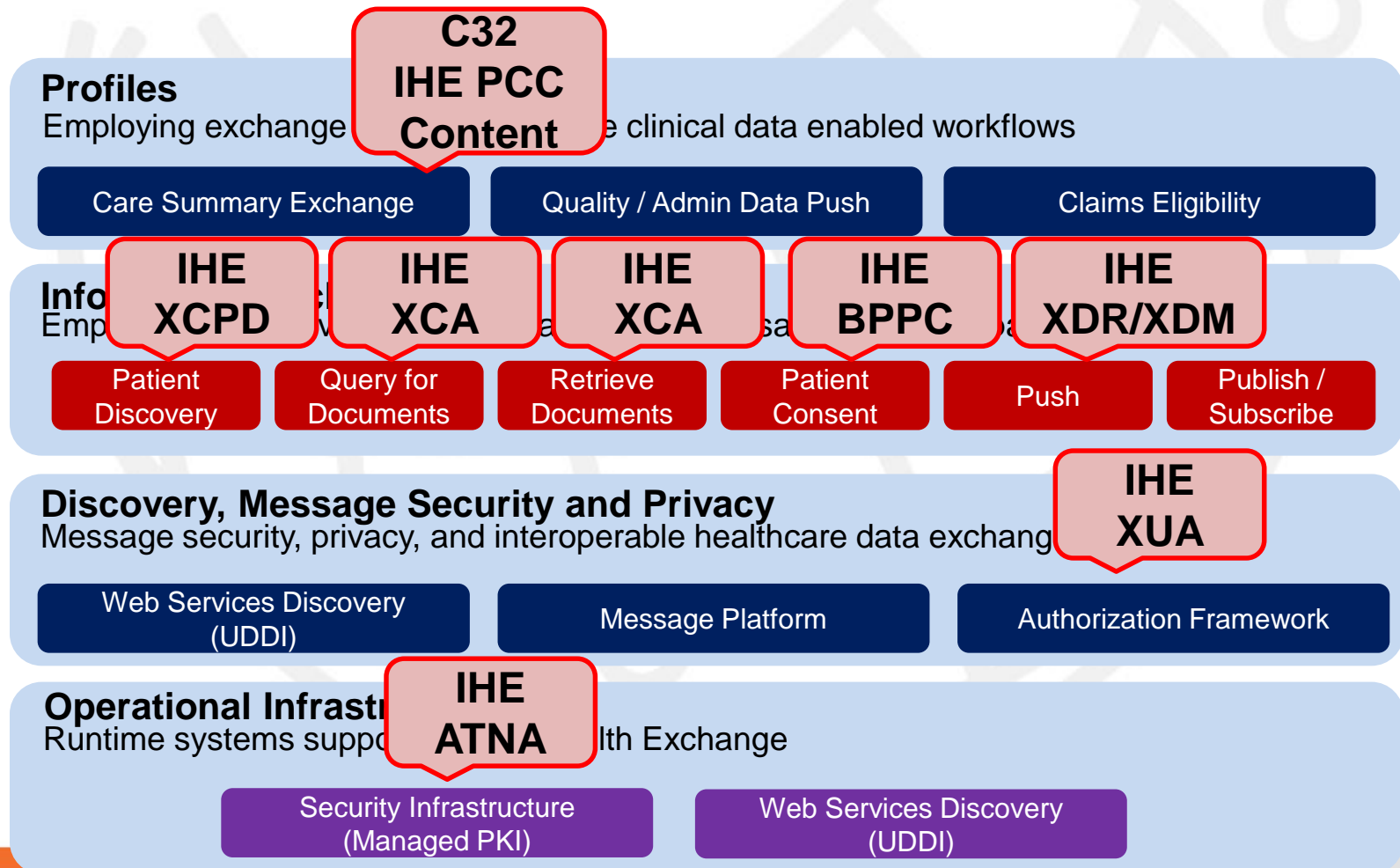
Operational Infrastructure

Runtime systems supporting the eHealth Exchange

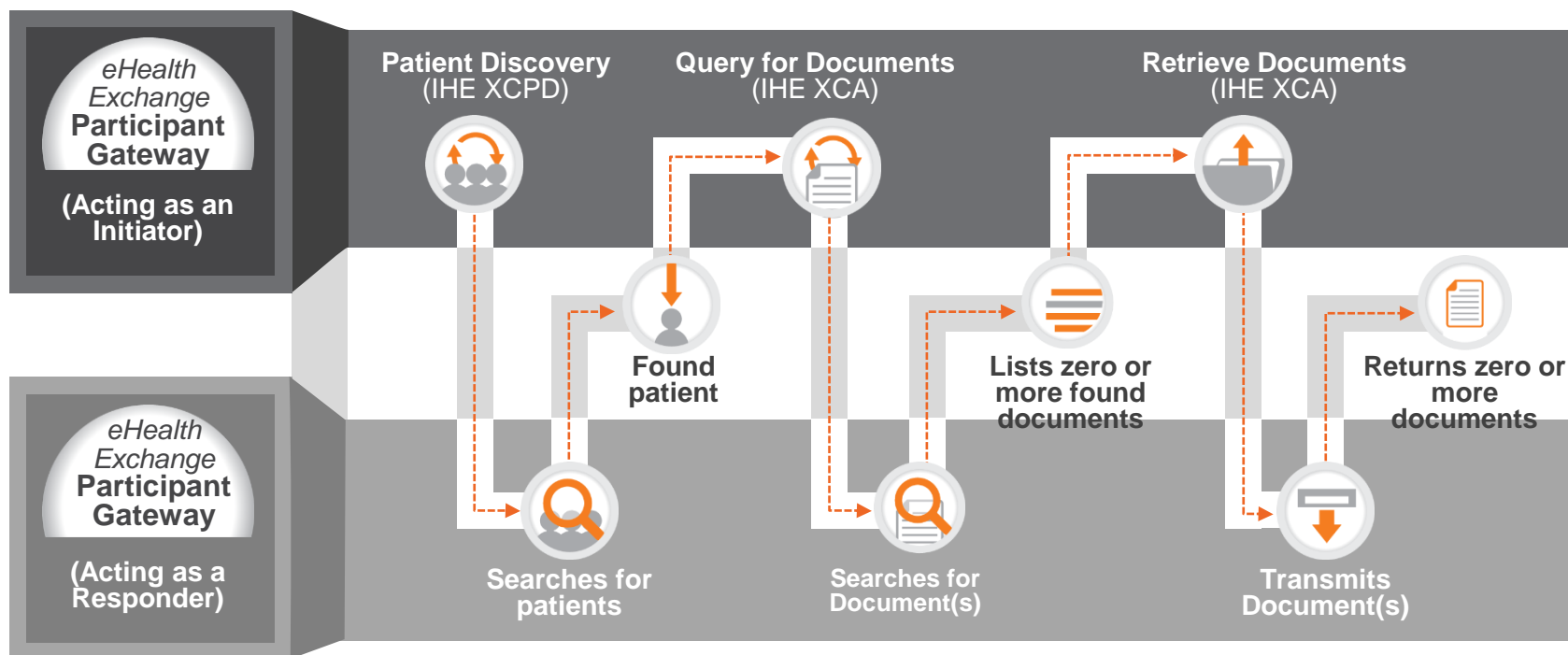
Security Infrastructure
(Managed PKI)

Web Services Discovery (UDDI)

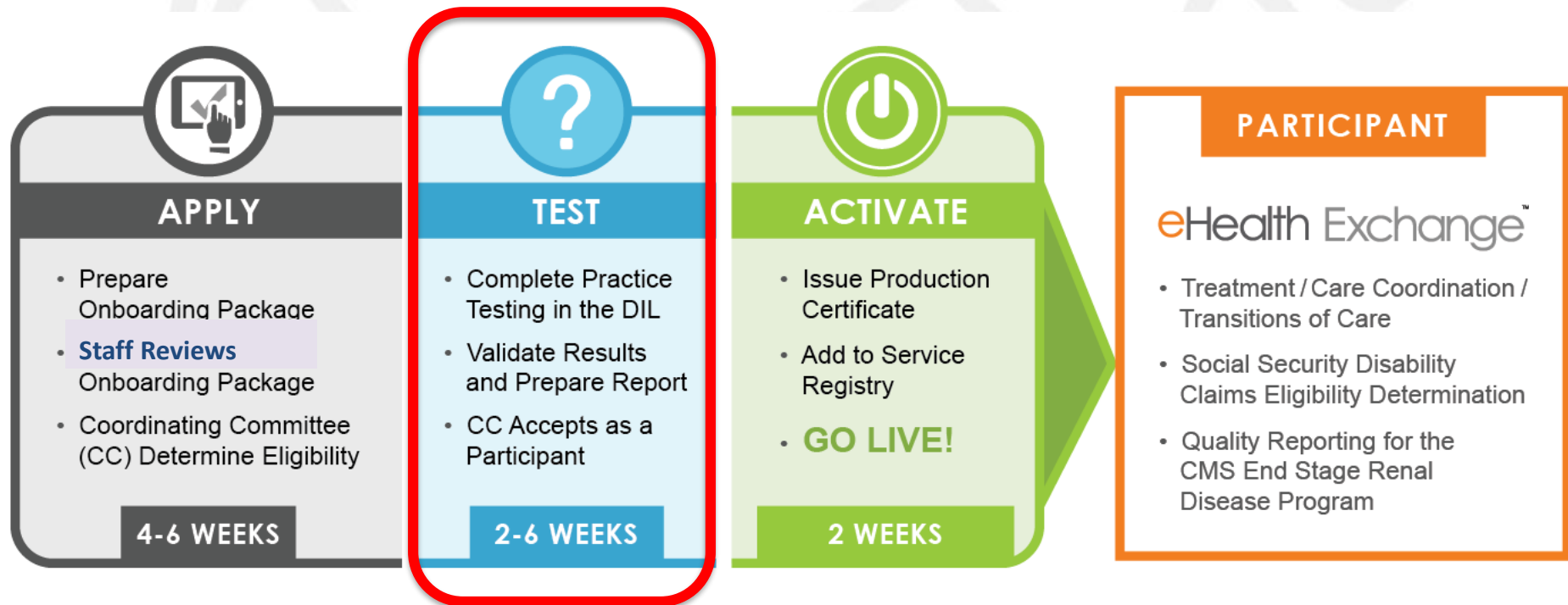
IHE Mappings to eHealth Exchange Architecture



eHealth Exchange Query Workflow



Onboarding & Testing Process



Timelines are based on averages and may be extended depending on Applicant's internal constraints (e.g., legal review, configuration/setup of technical environments, configuration control processes, technical resource availability). The test lab (Developers Integration Lab – DIL) is currently available to any organization that wants to begin practice testing.

eHealth Exchange Validation Programs























Participant Testing

- Verifies that a participant's implemented exchange gateway complies with the eHealth Exchange specifications, and validates for known interoperability and security risks
- Required for new participants and existing who wish to test for new functions or retest for major system changes

Product Testing

- Focus on compliance and interoperability testing of the products "out of the box"
- Reduces cost and burden for participants to onboard by approximately 50%
- Reduces risk of interoperability issues being introduced into production, including the cost and burden of fixing interoperability issues and deploying patches

eHealth Exchange Validated Products





Vendor Product	Validated	Vendor Product	Validated
 Browsersoft Connected Health	 OpenHRE™ from Browsersoft	 IOD	 PRISM
 Cerner	Clinical Exchange Platform	 INTERSYSTEMS	 InterSystems HEALTHSHARE
 CONNECT	 CONNECT	 LTS Health Exchange	 LTS HEX
 Epic	Care Everywhere (2012, 2014, 2015)	 Medicity A Healthagen Business	 Network v5 and v7
 Greenway Health	Greenway Exchange	 OPTUM	 Optum HIE 2.0
 ICAH THE INTEROPERABILITY SUPPORT	CareAlign 3.0	 ORION HEALTH	 Exchange Gateway v3
		 VERINOVUM Purpose Driven Platforms	 eHealthExchange Gateway 1.0



Health IT systems complete rigorous set of tests to validate:

- Conformance to underlying standards and specifications
- Systems are free from known interoperability issues - transport, security, transactions and content (if not MU certified)
- Configured and operate securely (negative security tests)

eHealth Exchange Impact

Benefit	How eHealth Exchange Achieves Benefit
 Reducing Costs	<p>Using common standards, legal agreements and governance enables participants to reduce legal fees and avoid building custom interfaces with trading partners.</p>
 Improving Clinical and Business Decisions	<p>Access to a nationwide data sharing network provides secure access to the comprehensive health data that healthcare providers, pharmacies and payers require to improve clinical decision making, patient safety, process improvement and fair payment.</p>
 Exchanging Data with Government Agencies	<p>Federal participation in the eHealth Exchange supports data sharing among all participants and with agencies such as Centers for Medicare & Medicaid Services, the Department of Defense, the Social Security Administration and the Department of Veterans Affairs.</p>
 Planning for the Future	<p>Because the eHealth Exchange is governed by a representative set of participants, its multi-purpose interoperability platform has the ability to evolve and incorporate new use cases, standards, etc.</p>

Who Benefits?

PATIENTS



- Improves Care Coordination and can reduce medical errors
- Expedites Social Security Benefits for the disabled
- Ensures that individuals with End Stage Renal Disease receive the highest quality of care

PROVIDERS



- Allows access to critical information such as test results, medication history and allergy information is available to providers when the patient is transferred to another service.
- Enables exchange with government providers with national level ROI
- Can earn credit for MU2 Transitions of Care Measures

ACTIVE DUTY MILITARY, RETIREES, AND VETERANS



- Supports active duty military, retirees, their families, and veterans throughout their care by making it possible for medical records to follow the patient

eHealth ExchangeTM

Lessons Learned in Building a Federated Health Data Sharing Network

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project

Growing a Nationwide Network

Top Down

- Government supports uniform approach
- Strong government support and participation in pilot
- Driving private sector adoption:
 - Federal agencies participation
 - Meaningful use
 - Alt. payment structures

Bottom Up

- Provider and patient demand
- Private sector collaboration on implementation details
- Health IT technologies maturing
- Workflow improvements being made
- Exploring additional uses of the connectivity beyond federal use cases

Common Legal Agreement

- Eliminates one-to-one legal agreements
- Saves money with uniform contracts, policies and governance
- Contractual enforcement of compliance
- Provides transparency
- Creates clear expectations for participants

Test – Test - Test

- Testing should meet business and technical needs (e.g. test once, exchange with many)
- Need for more rigorous testing of clinical documents
- Network-level testing should focus on increasing assurances of interoperability in production
- Goal should be to reduce network-level testing over time as interoperability “is built into” products
- Testing should evolve as health IT capabilities mature
- Incremental improvements over time essential
- Feedback loop to standards development organizations

Journey Towards “Seamless Interoperability”

- Highly constrained specifications
- Send strictly, receive liberally (can be expensive)
- Key is to focus on the basics (simple is difficult enough!)
- Collaborate early to ensure the strategy is not siloed
- Very precise specifications are elusive
- If a spec is testable then you’ve won the battle (or at least a skirmish)
- Transport, security, web services are not the complete picture
 - Data sharing policies, patient matching, consent, content, work flow

“Flexibility and optionality are the enemy of interoperability”

--Wes Rishel – Vice President & Distinguished Analyst – Gartner

Costs and Savings

- eHealth Exchange has a non-profit, co-op business model
- Seeking to provide services as close to free as possible - shared savings model
- Leveraging a mutual investment in process, collaboration, specifications, tooling
- Network testing is not a profit center
- “Test once, exchange anywhere” goal
- Upfront costs result in lower downstream costs by shifting expenses forward in timeline where they are less expensive
- Optional vendor/product testing reduced level of effort
- Automation is the absolute key (quality, fast turnaround loop, continuous testing, cost-efficient)

Our focus in 2016



Service Level
Guidance



Increasing connectivity



Provider directory



Production testing



Improve content testing



Patient
matching

Convene



Collaborate



Interoperate



Questions & Discussion

www.sequoiaproject.org

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Thank You!