



# ONC *FAST* 101



# FAST Taskforce Antitrust Notice

- The ONC FHIR At Scale Taskforce (*FAST*) (Hereinafter “Taskforce”) is committed to full compliance with existing federal and state antitrust laws.
- All members involved in the Taskforce effort, including its advisory groups, will comply with all applicable antitrust laws during the course of their activities. During Taskforce meetings and other associated activities, including all informal or social discussions, each member shall refrain from discussing or exchanging competitively sensitive information with any other member. Such information includes, but may not be limited to:
  - Price, premiums, or reimbursement charged or paid for products or services
  - Allocation of customers, enrollees, sales territories, sales of any products or contracts with providers
  - Any other competitively sensitive information that is proprietary to a member company
- If you have any specific questions or concerns, seek guidance from your own legal counsel.
- Members should not bring confidential information or intellectual property (hereinafter “Intellectual Property”) owned by their respective member companies into Taskforce meetings. To the extent such Intellectual Property is shared with the Taskforce that shall not be construed as a waiver of member company’s rights to, or ownership in, the Intellectual Property.



# Agenda

- **What is FHIR?**
  - FHIR Adoption Rates
  - Industry Levers for FHIR Adoption
  - Infrastructure
- **What is *FAST*?**
  - Patient Journey
  - Technical and Regulatory Barriers
- **Collaboration and Getting Involved**
  - *FAST* and other FHIR Initiatives
  - *FAST* Process & Collaboration
  - Technical Learning Community





## Presenters – *FAST* Chief Architects



**PAUL OATES**

*Senior Enterprise Architect and  
Lead for the IT M&A Practice*

Cigna



**PATRICK MURTA**

*Solutions Architect*

Humana

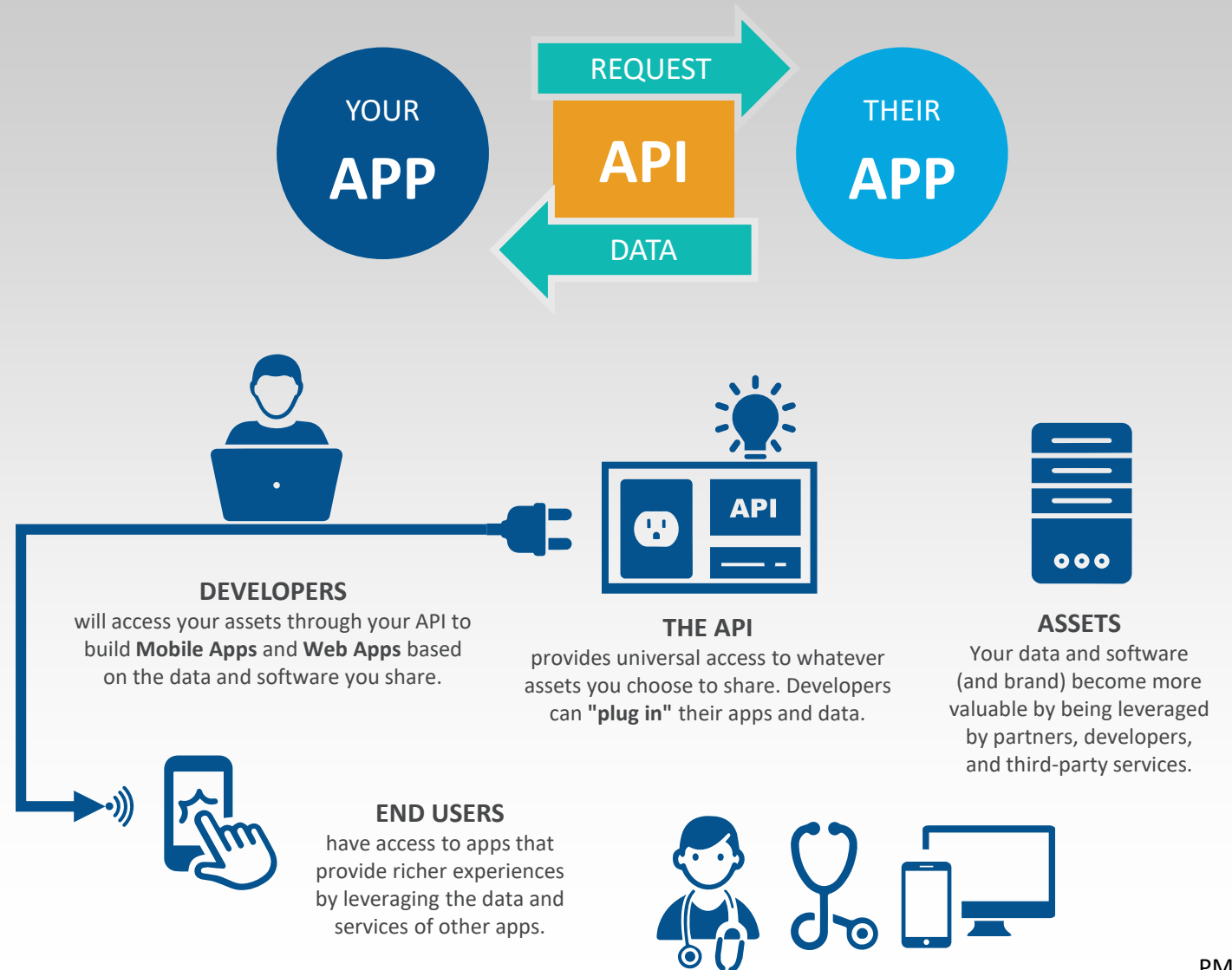




# API Overview

## APIs...

- An API is a software intermediary which allows applications to talk to each other
- **APIs** allow the capabilities or data of one computer program to be used by another
  - Lego blocks of data
  - Doesn't matter what the underlying computer or technology is
- **APIs** are a foundational technology that drives modern computing and the API economy (Amazon, Netflix, Google, Facebook, EBay, YouTube, Twitter, & etc.)
- **APIs** enable innovation in an unprecedented manner
- **APIs** are not new... simplified, easy to use versions of them are





# WHAT IS FHIR?

## FHIR® — Fast Healthcare Interoperability Resources

- An HL7 next generation standard
- Helps two computer systems talk to each other

## FHIR "resources" are standardized & reusable

- Patient, practitioner, organization, deviceRequest

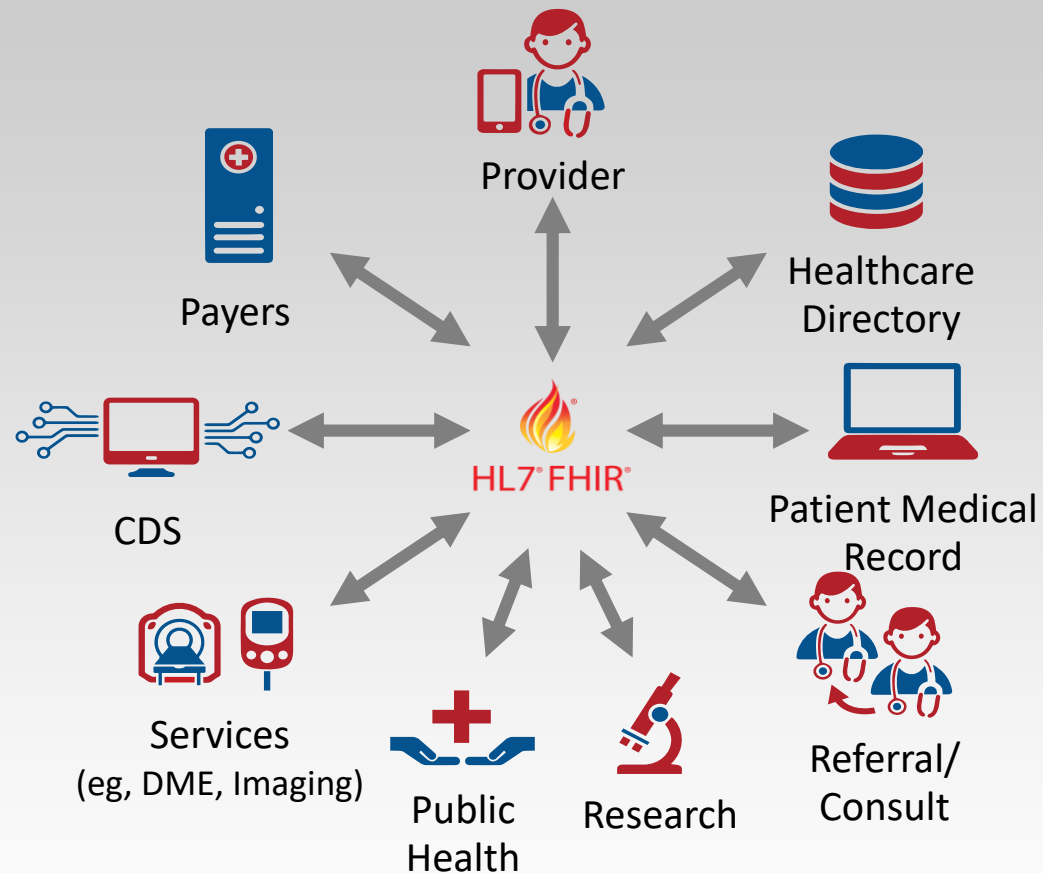
## FHIR supports common exchange methods

- REST\*, messaging, documents and services

## FHIR supports the spectrum of integration

- Mobile phone apps, EHR-based data sharing, institutional solutions

## FHIR helps with existing use cases & provides for future innovation

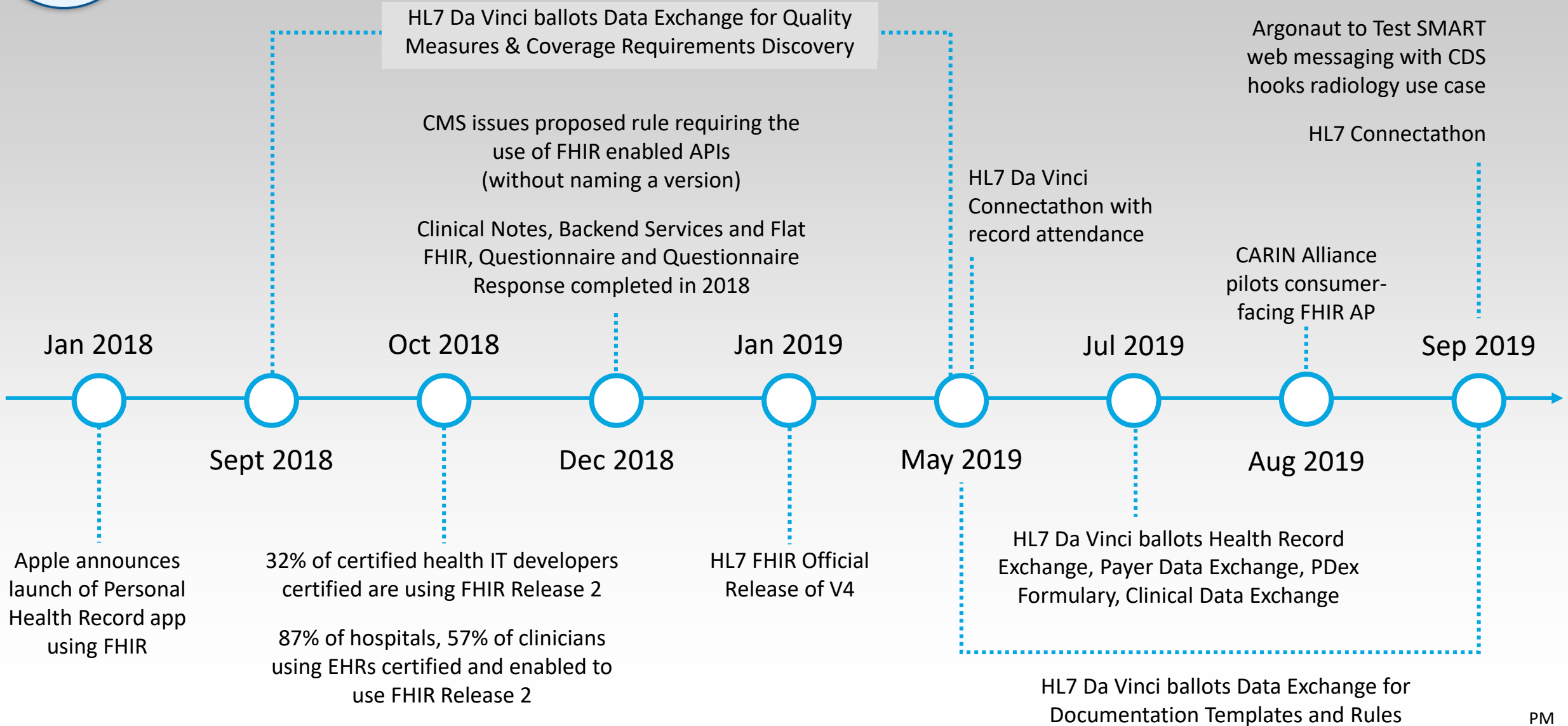


*Data available in-workflow supports value-based care and population health management*

\*Representational State Transfer (REST) defines a set of constraints used for creating web services



# Groundswell of FHIR Activity





# Why FHIR Adoption?

## Industry value levers for FHIR adoption:



Comprehensive data integration



Promote progressive FHIR adoption



Reduce redundancy and duplication



Improve in-workflow data exchange to support value-based care and population health



[CMS](#) and [ONC](#) rules call for widespread APIs adoption using FHIR to enable consumers access to their health data



Drive innovation through data accessibility



Unlock new capabilities through API/service methodologies



Improve consistency as an impetus for accelerating clinical data exchange



Reduce costs and time needed for infrastructure so it can be spent on patient care



# Tying to Reality and Making Practical via CMS & ONC Proposed Rules

Mandating FHIR and consumer mediation as foundations of an integrated, competitive, and innovation friendly ecosystem.

## CMS Proposed Rule (CMS-9115-P)

- Patient access through standards based FHIR APIs
- Information exchange and care coordination across payers
- API based provider directories
- Care coordination through trusted exchange networks

## ONC Proposed Rule (RIN 0955-AA01)

- Implements information blocking provision of Cures Act (and 7 exceptions)
- Standards based APIs
- Certification criteria
- Content specifications



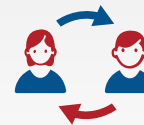
Member Empowered



Standards Based



Open APIs



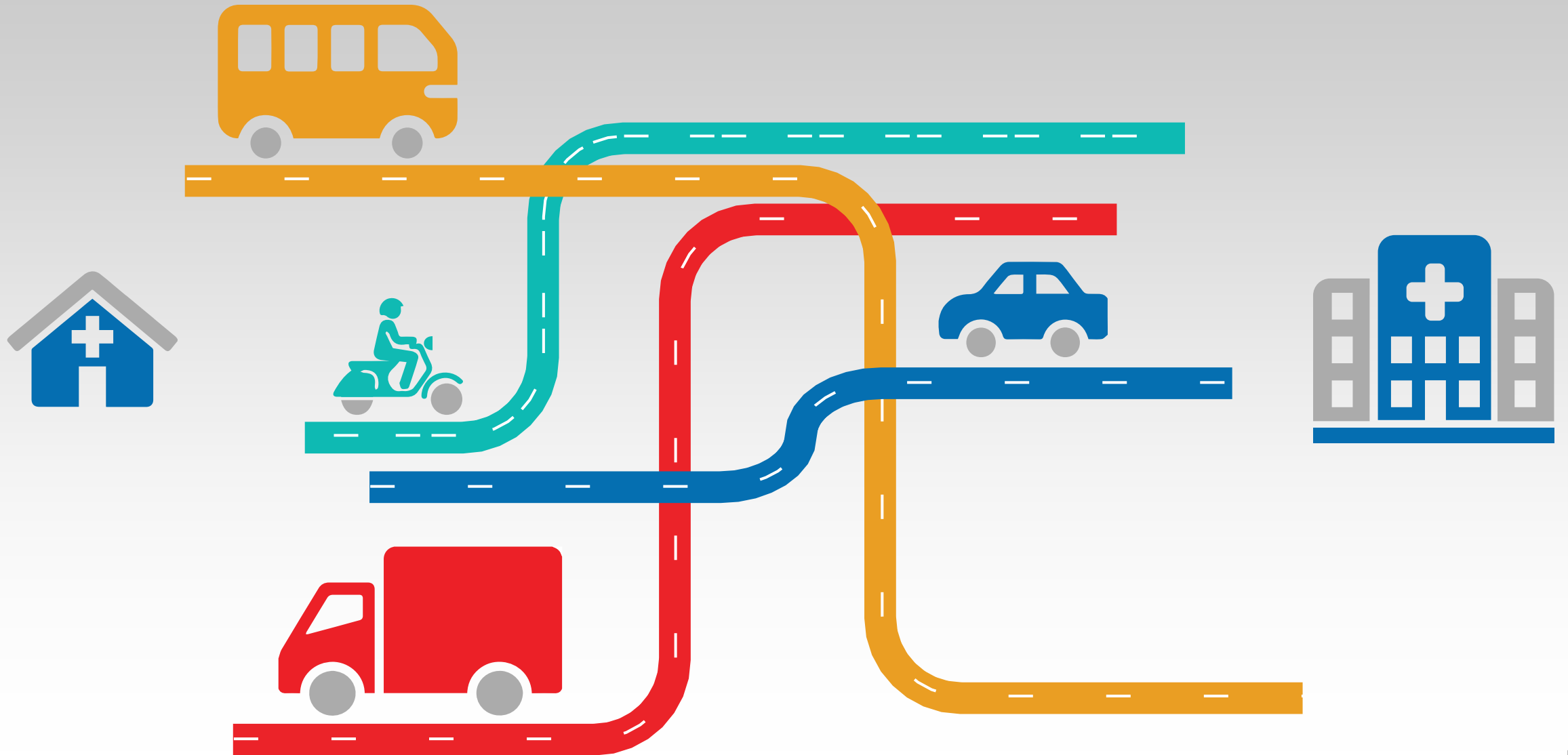
Care Coordination Across Payers and Providers



Innovation

*CMS/ONC proposes rules that align with market forces and reflect industry trends. They provide yet another dimension to the interoperability inflection point we are in.*

# Lack of Consistent Infrastructure Impacts Flow



# Well-Planned Infrastructure Creates Efficiency





## What is *FAST*?

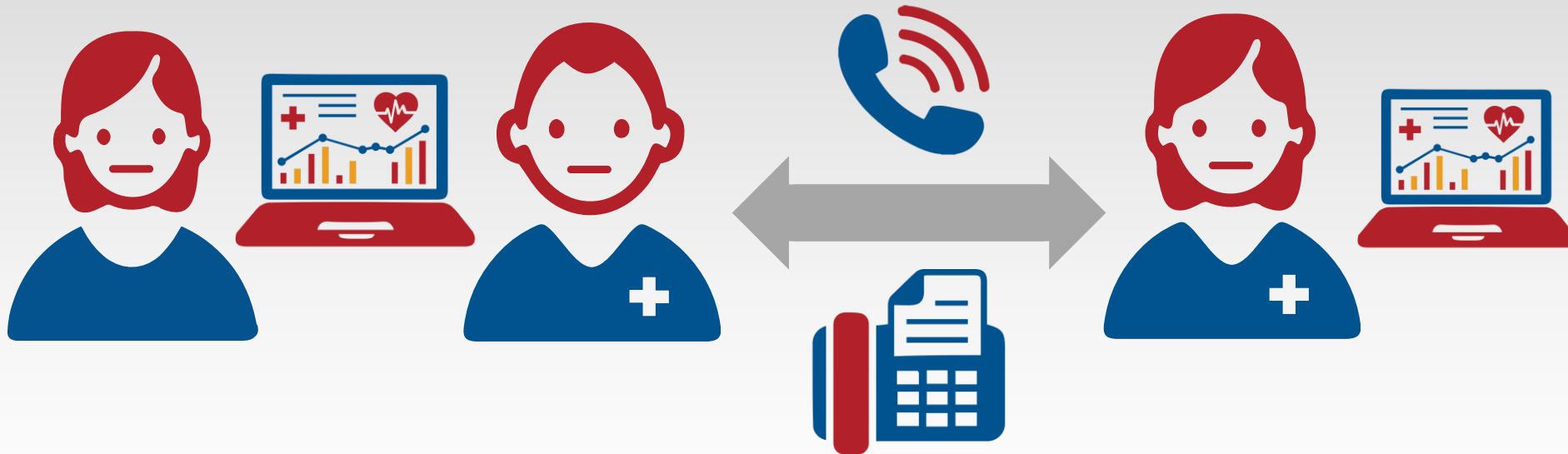
*The FHIR at Scale Taskforce (FAST), convened by the Office of the National Coordinator for Health IT (ONC), brings together a highly representative group of motivated healthcare industry stakeholders and health information technology experts.*

*The group is set to identify HL7<sup>®</sup> Fast Healthcare Interoperability Resources (FHIR<sup>®</sup>) scalability gaps and possible solutions, analysis that will address current barriers and will accelerate FHIR adoption at scale.*



# Patient Journey - Today

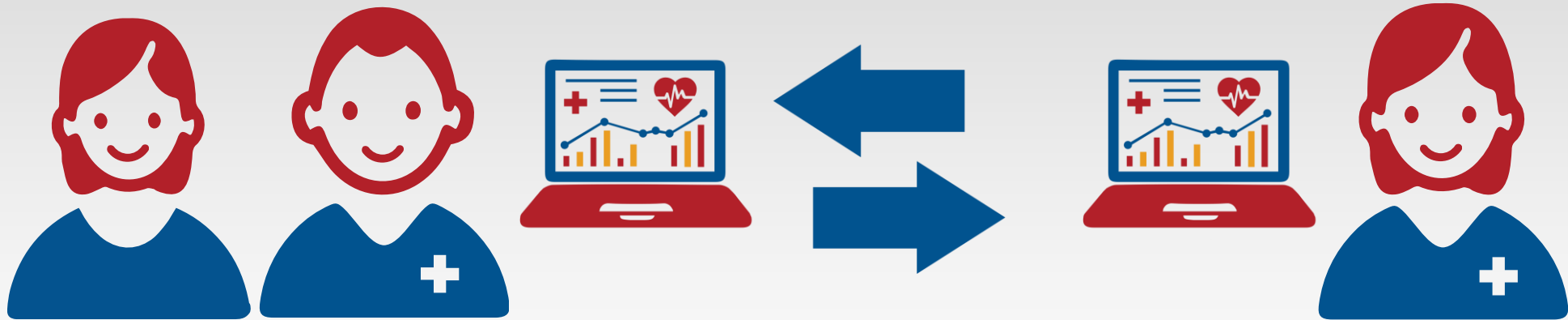
Sophisticated technology exists but without consistent data integration, phone and fax are still the default





# Patient Journey - Ideal

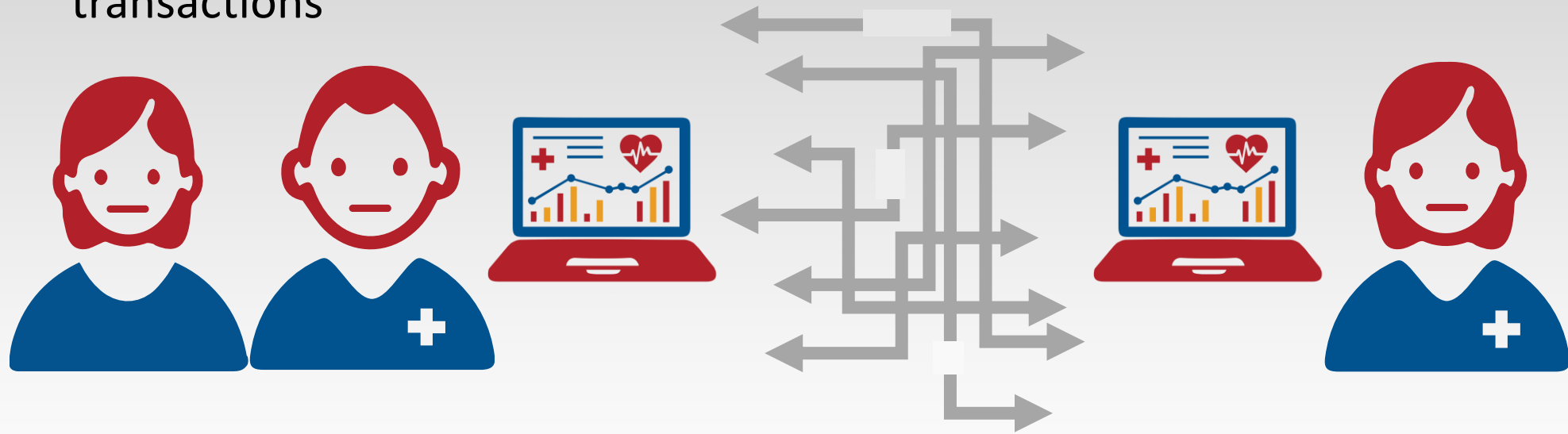
Real-time data exchange removes the need for phone calls and faxes, streamlining the entire interaction.



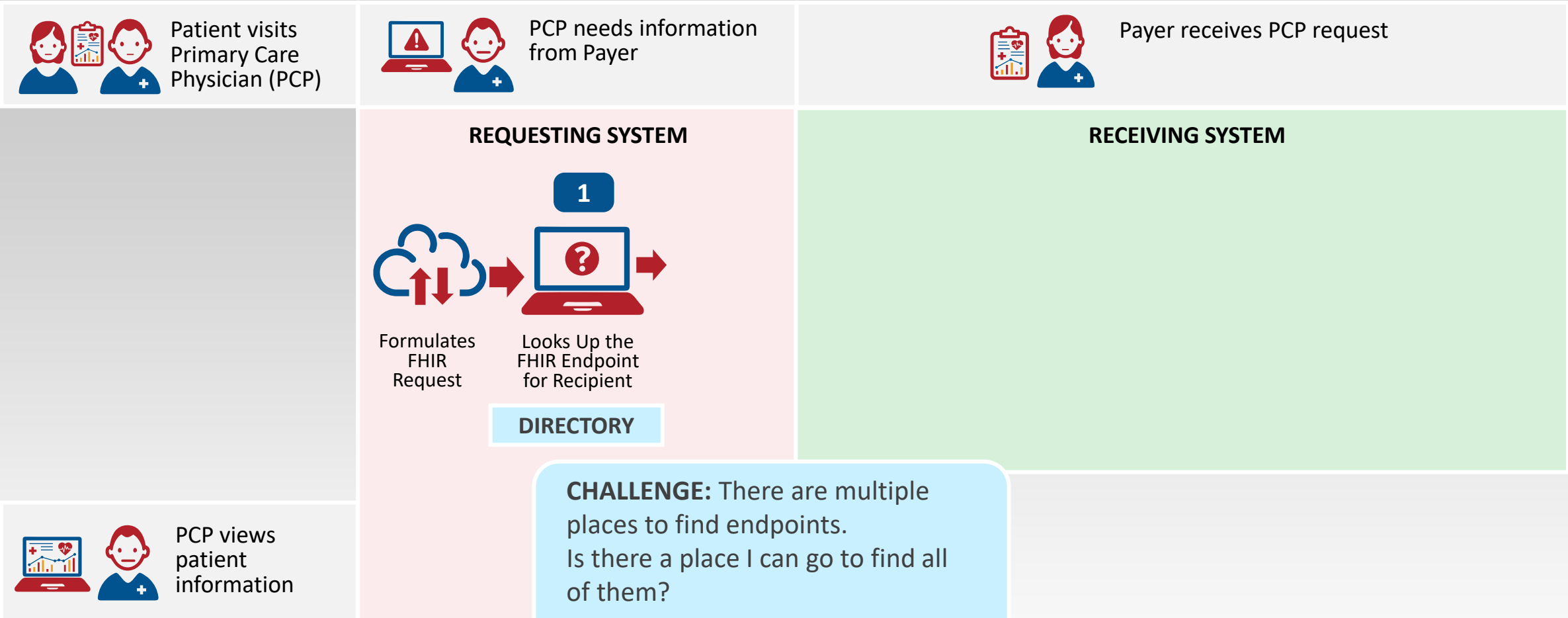


# Patient Journey - Challenges

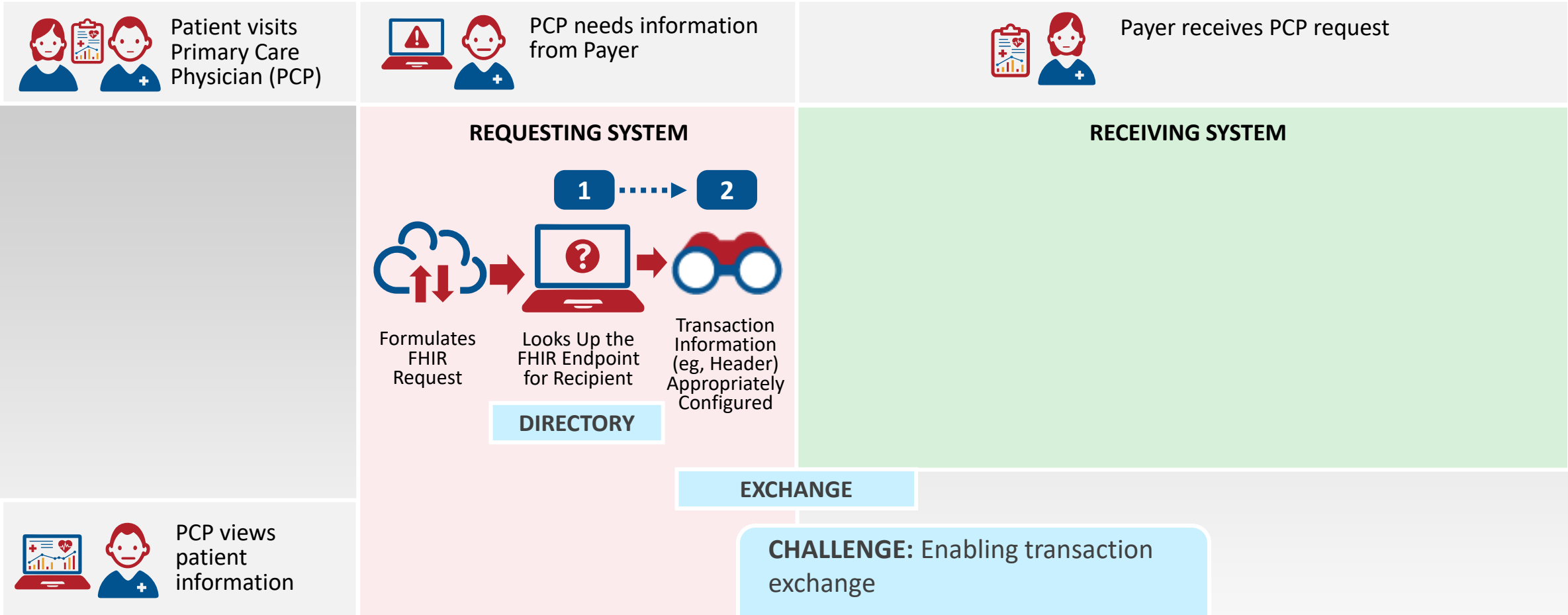
We want to identify and address the barriers for data exchange to happen consistently, for every transaction, specifically FHIR transactions



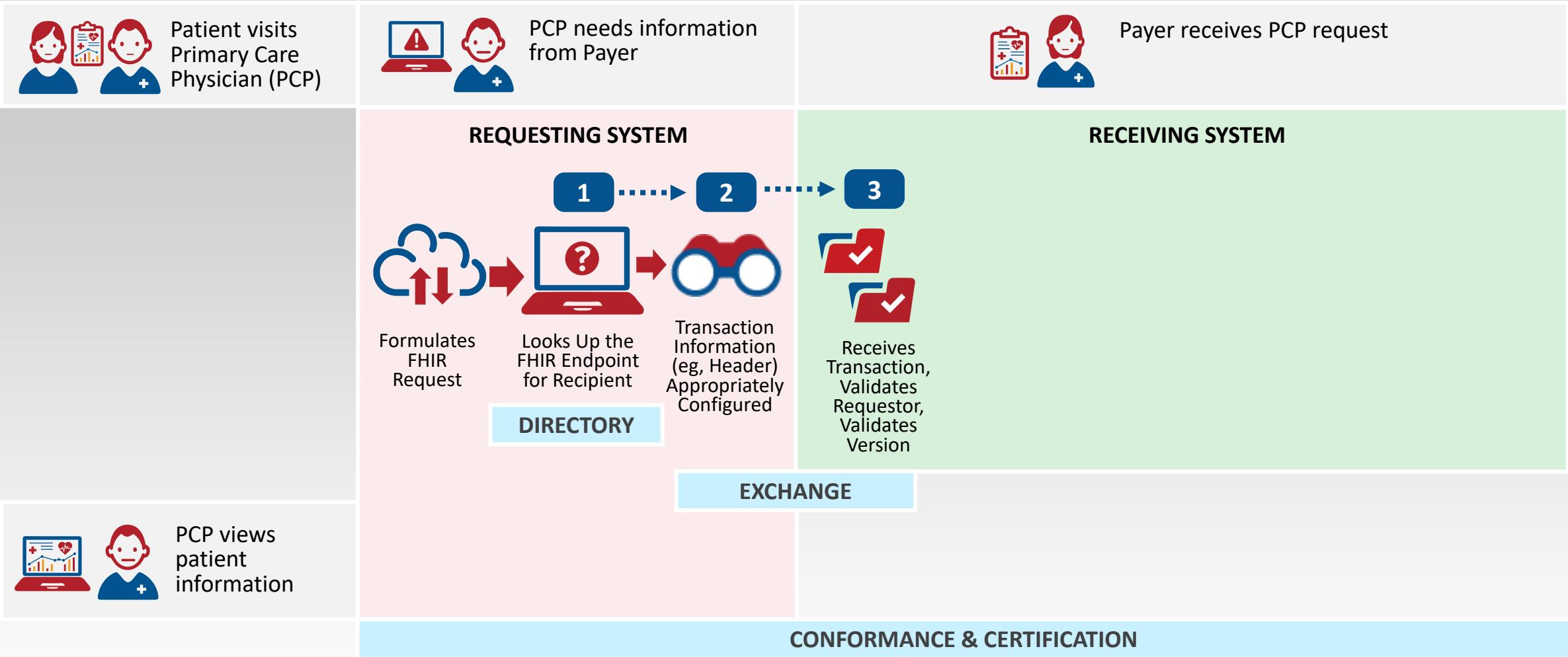
# Example FHIR Transaction Journey



# Example FHIR Transaction Journey



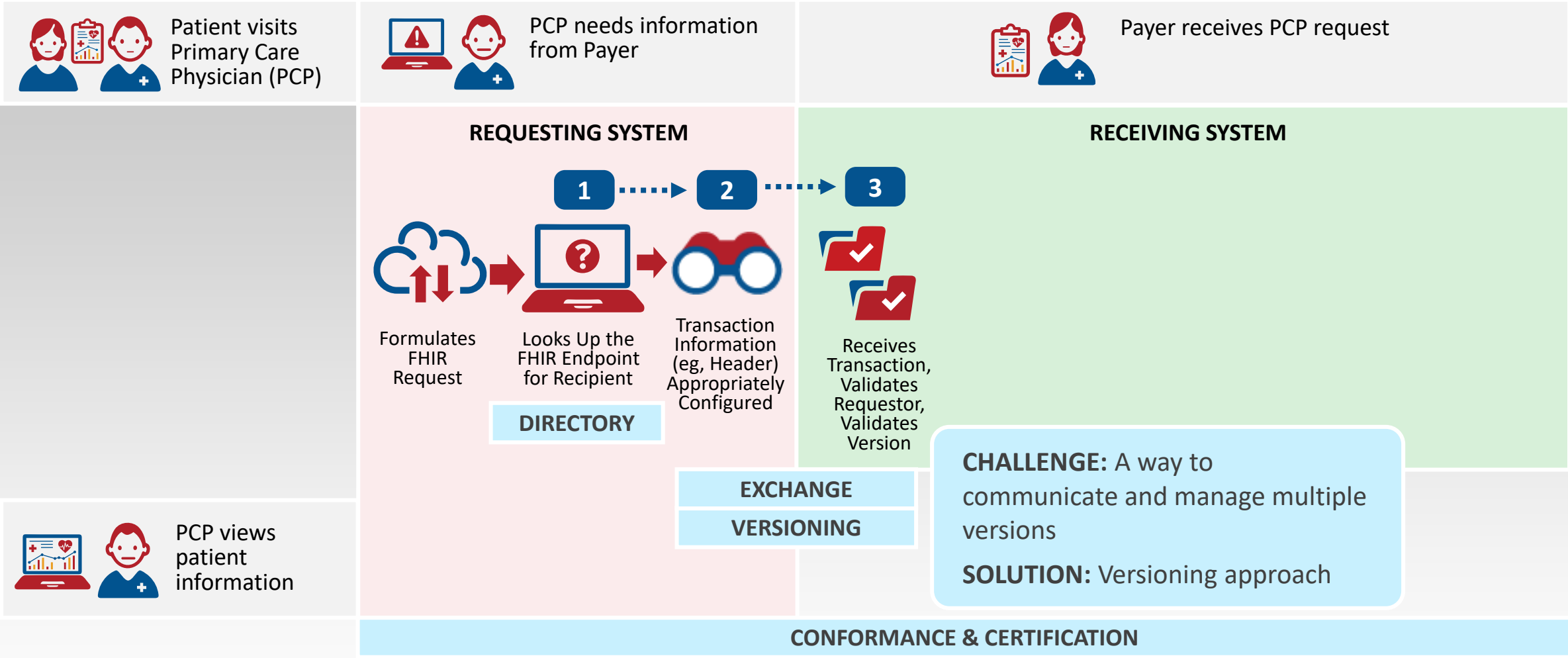
# Example FHIR Transaction Journey



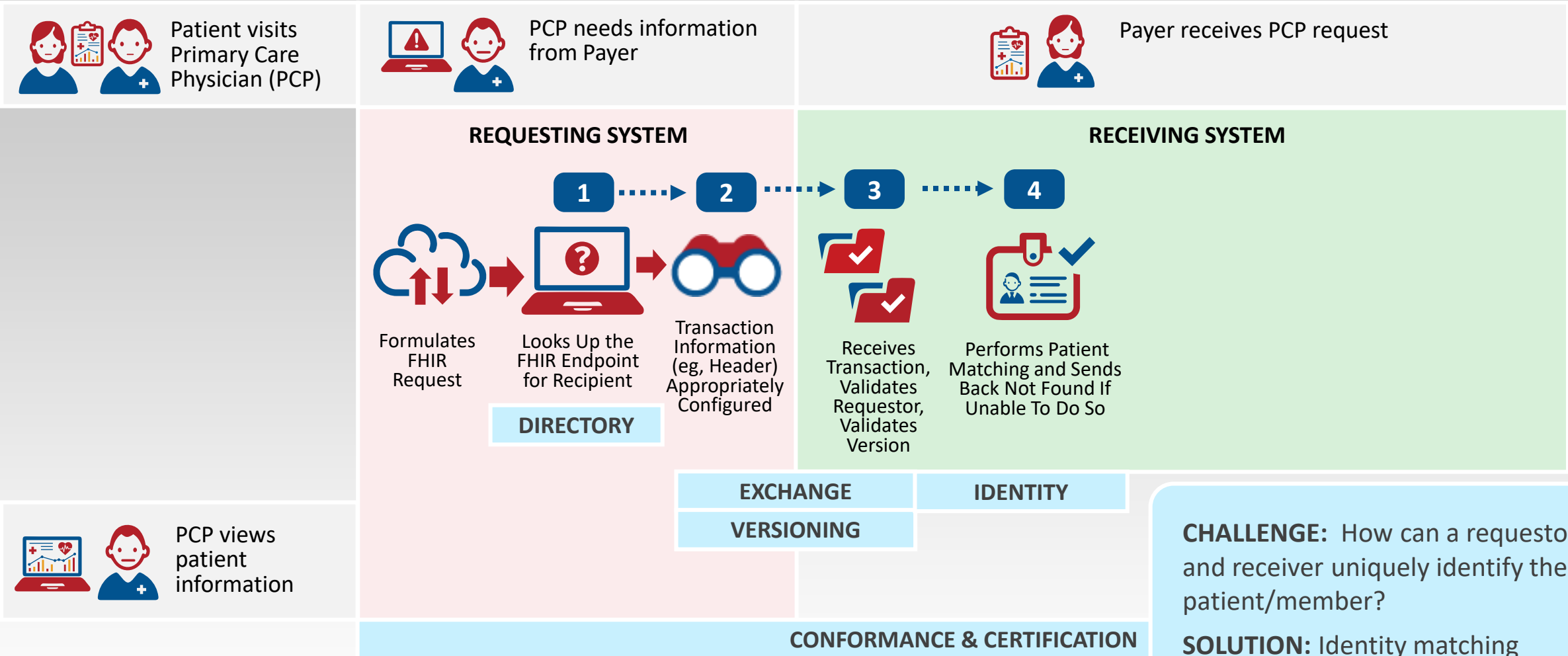
**CHALLENGE:** A way to measure conformance to the standard

**SOLUTION:** Conformance & certification approach

# Example FHIR Transaction Journey



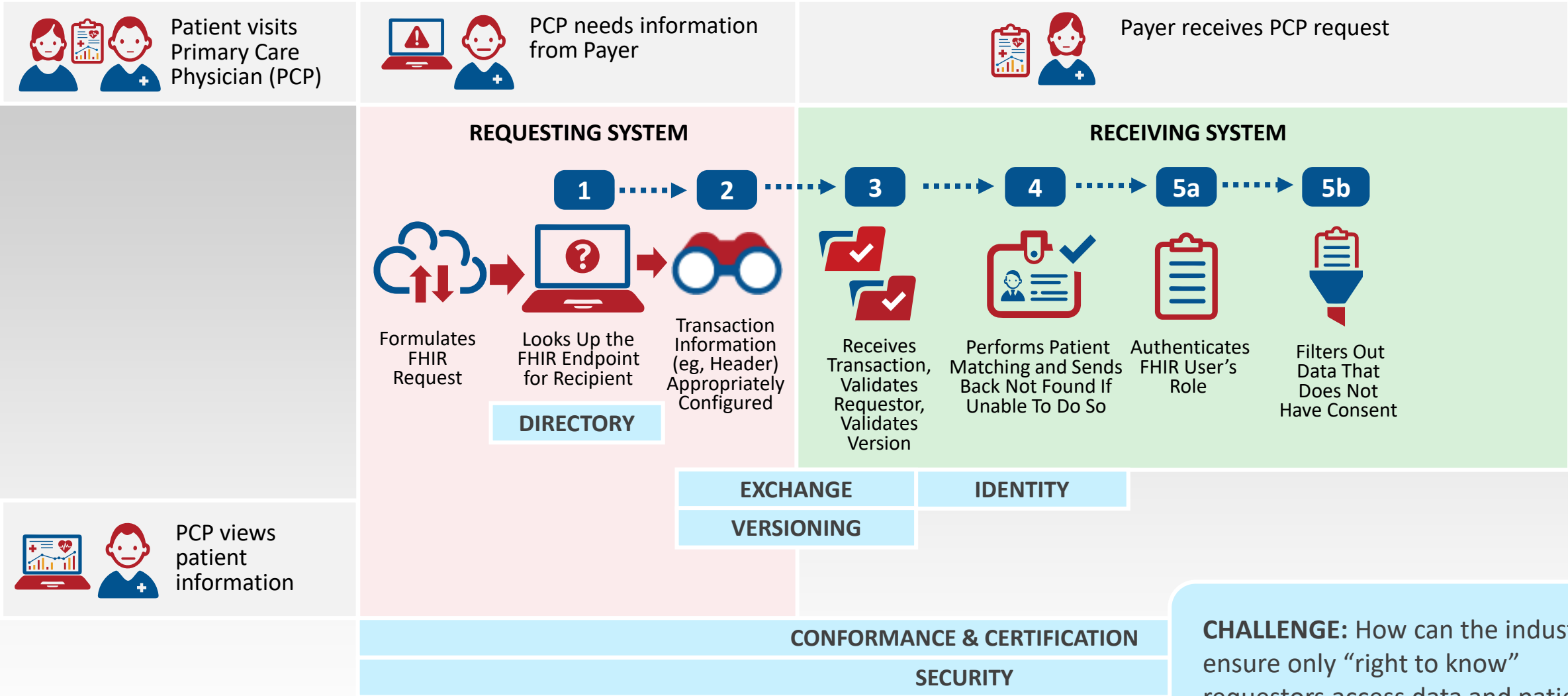
# Example FHIR Transaction Journey



**CHALLENGE:** How can a requestor and receiver uniquely identify the patient/member?

**SOLUTION:** Identity matching approach

# Example FHIR Transaction Journey

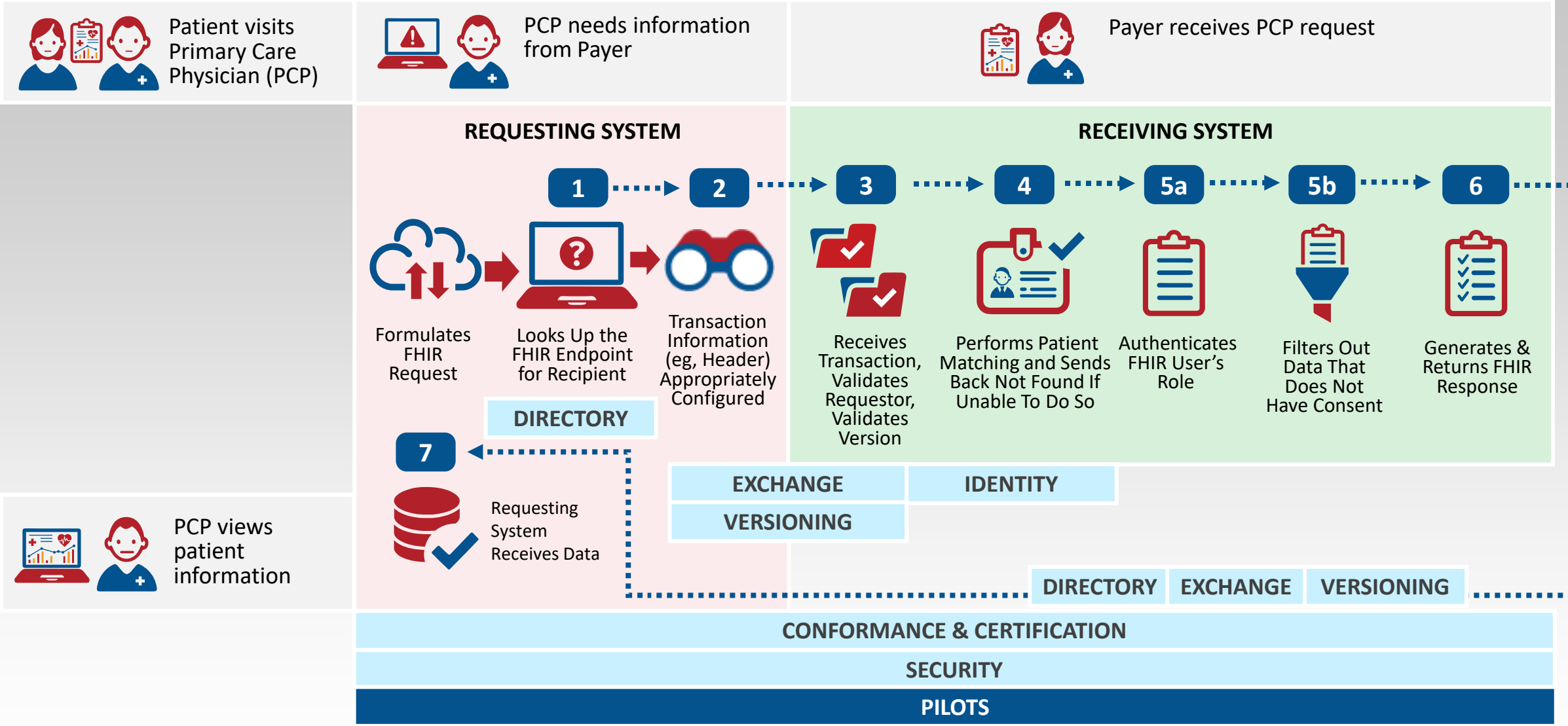


PCP views patient information

**CHALLENGE:** How can the industry ensure only “right to know” requestors access data and patient consent is followed?

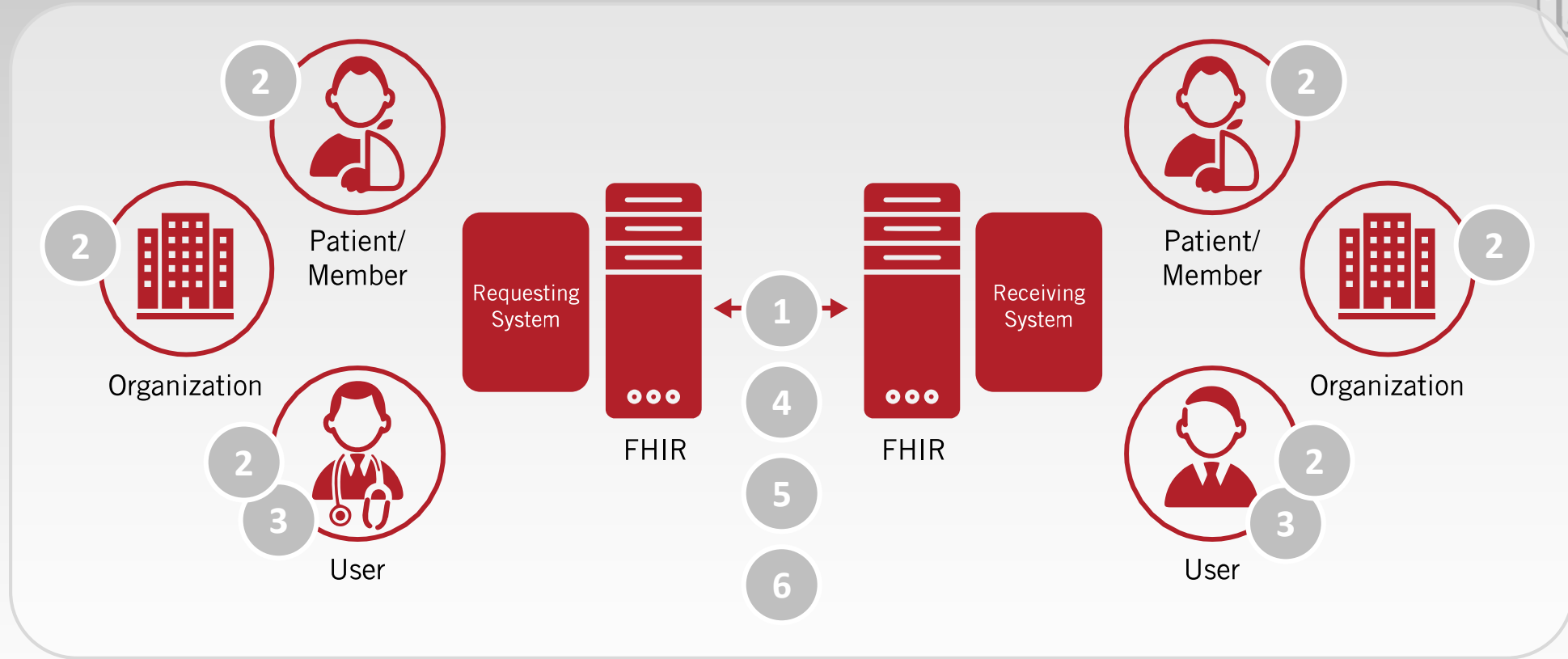
**SOLUTION:** Security approach for authorization & authentication

# Example FHIR Transaction Journey





# Known Technical Barriers



1 Directory Services 2 Identity 3 Security

4 Testing, Conformance, & Certification 5 Versioning 6 Scaling



# FHIR Adoption Technical Challenges

## DIRECTORY



- How does physician know which payer?
- How does payer know which physician?
- How do we address the exponential growth in the number of endpoints?
- How do we find an endpoint across organization boundaries?
- How do we address potential endpoint variation across partners?
- How do we protect endpoints from malicious attacks?

## SECURITY



- How do we know the service consumer has permission to ask or see?
- What does a scalable authentication and authorization models for FHIR based information exchange look like?
- Will a scalable solution to support millions of patients/payers/ providers
- How do we leverage existing security guidelines and best practices?
- How do we know the FHIR consumer has permission to ask or see?

## IDENTITY



- How do we know who the patient is? The payer? The physician?
- How do we know the minimum patient data to return?
- Can we rely on the consistency of identity-matching services across organizations?
- How do we map patient identity real-time?
- How do we address the misidentification risk?
- When is member/patient ID a requirement in a FHIR resource?



# FHIR Adoption Technical Challenges

## TESTING, CONFORMANCE & CERTIFICATION



- How do we test and version across multiple stakeholders with varying degrees of maturity?
- How do we adequately test/validate consistently in a scalable environment? Automated tool?
- How do we define the minimum level of transaction conformance and validation required?
- What steps and stakeholders should be included for governance of FHIR certification?

## VERSIONING



- How do we ameliorate the challenges adoption of different versions causes?
- How do we support specific functionality when vendor's adoption variances mean they support different functions at different times?
- How can we address different FHIR versions being used for the same patient?
- Can Implementation Guides across multiple FHIR versions be harmonized?
- How do we remove definition variances between FHIR and standard RESTful APIs cause confusion?

## SCALING



- How do we make response times more predictable and consistent to better support real-time exchanges?
- How can standards be successfully implemented to support hybrid exchange models?
- How do we anticipate the volume of FHIR-based transactions?



# Potential Regulatory Barriers

HIPAA Minimum Necessary

Regulatory Mandate for a Single Named Standard

HIPAA Transactions Requiring X12

Use of NPPES as the Repository for Endpoints

Patient Identifier

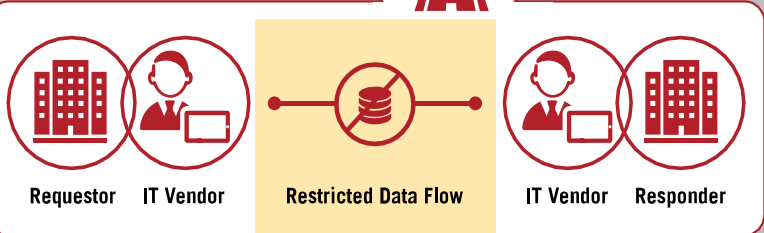
Data Blocking



FEDERAL/STATE REGULATORY BODIES



REGULATORY BARRIERS



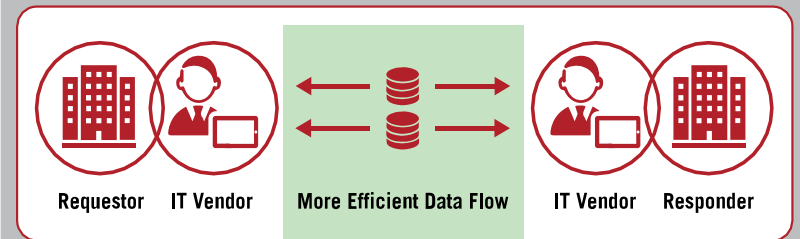
TODAY



FEDERAL/STATE REGULATORY BODIES



REMOVAL OF REGULATORY BARRIERS



FUTURE



# Standards Efforts Towards FHIR Adoption

FHIR Solutions for VBC

**DA VINCI**  HL7® FHIR®  
Payers/Providers

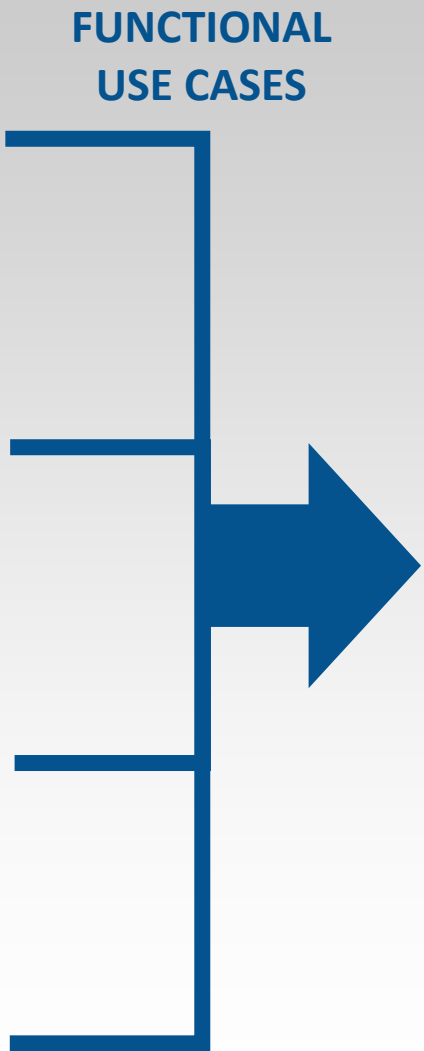
Core Data Services

 **ARGONAUT PROJECT**  
HL7® FHIR®  
Provider/Provider

FHIR Consumer Solutions

**carin**  
Consumers

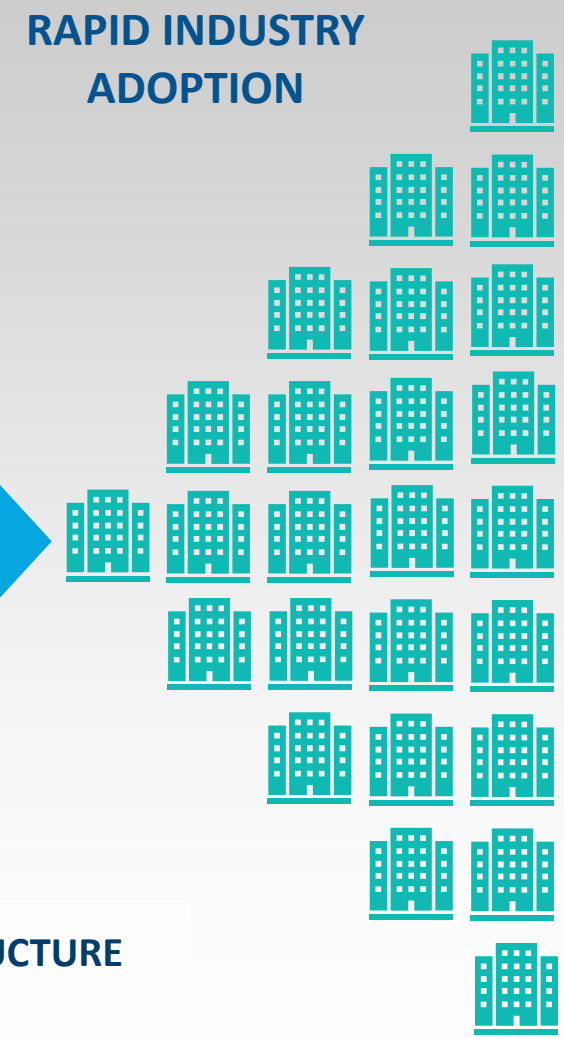
Other Collaborative Efforts to Develop & Implement FHIR Solutions



**SHARED Technical Challenges to FHIR Scalability**

- Patient & Provider Identity Management
- Directory Services
- Version Identification
- Scale
- Exchange Process/Metadata
- Testing, Conformance & Certification
- Security

**FAST**  
FHIR AT SCALE TASKFORCE 



**INFRASTRUCTURE USE CASES**



# Core Capabilities & Solutions Summary

## DIRECTORY, VERSIONING & SCALE

Endpoint Discovery

**Solution:**  
FHIR Endpoint Discovery

Standard Based Endpoint Access  
Guaranteed Message Delivery  
Resource Version Identification

## EXCHANGE

Reliable Routing

**Solution:**  
Reliable Routing with Metadata  
Across Intermediaries

## IDENTITY

Reliable Patient Identity  
Management

**Solutions:**  
Real Time Patient Matching  
Mutually Known Identifier for  
Patient

Authentication  
Authorization  
Reliable Provider Identity  
Management  
Role/Context Identification

## SECURITY

Authentication  
Authorization  
Reliable Patient Identity  
Management  
Reliable Provider Identity  
Management  
Role/Context Identification

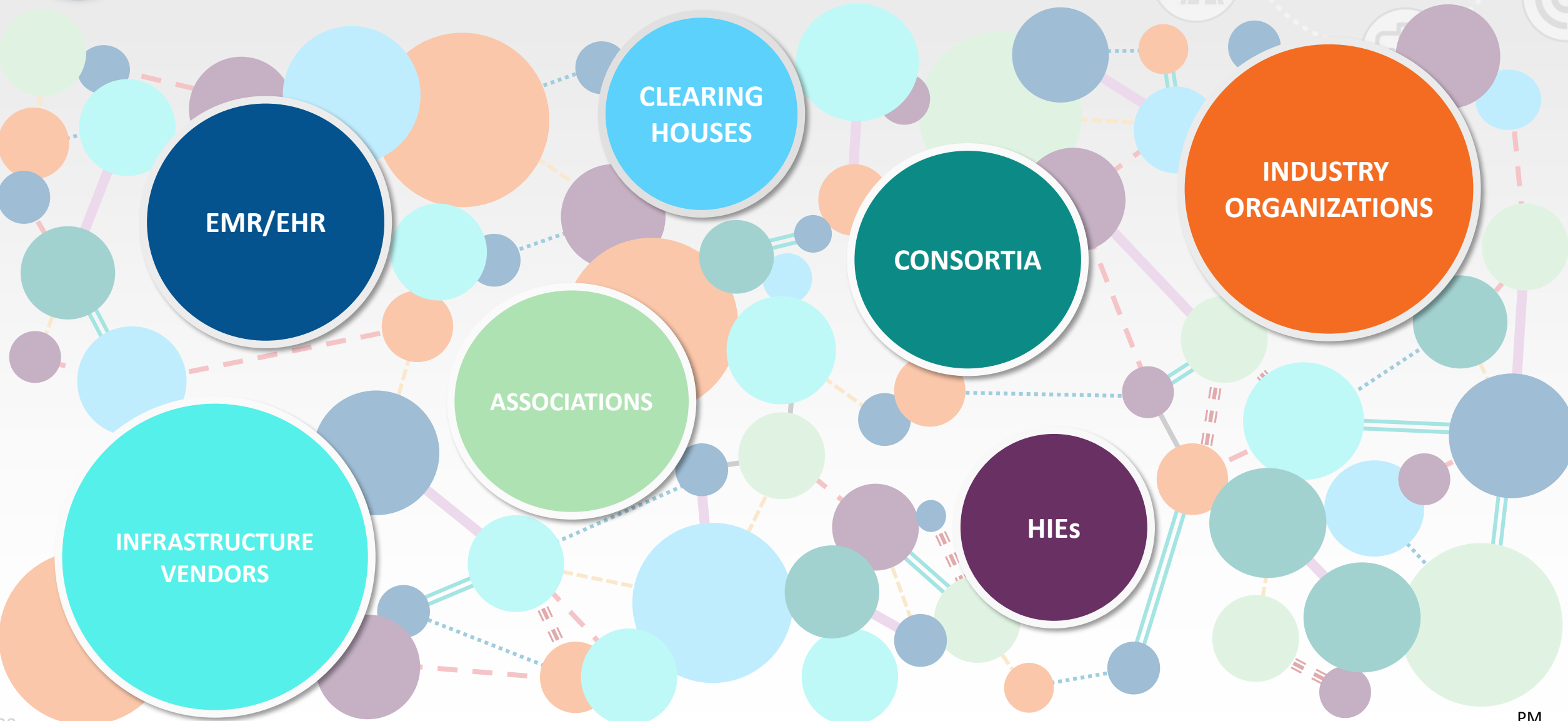
## CONFORMANCE & CERTIFICATION

Readiness Credential

**Solution:**  
ONC FHIR Testing &  
Certification Program



# Deployment Challenges, Barriers to Communication



EMR/EHR

CLEARING HOUSES

CONSORTIA

INDUSTRY ORGANIZATIONS

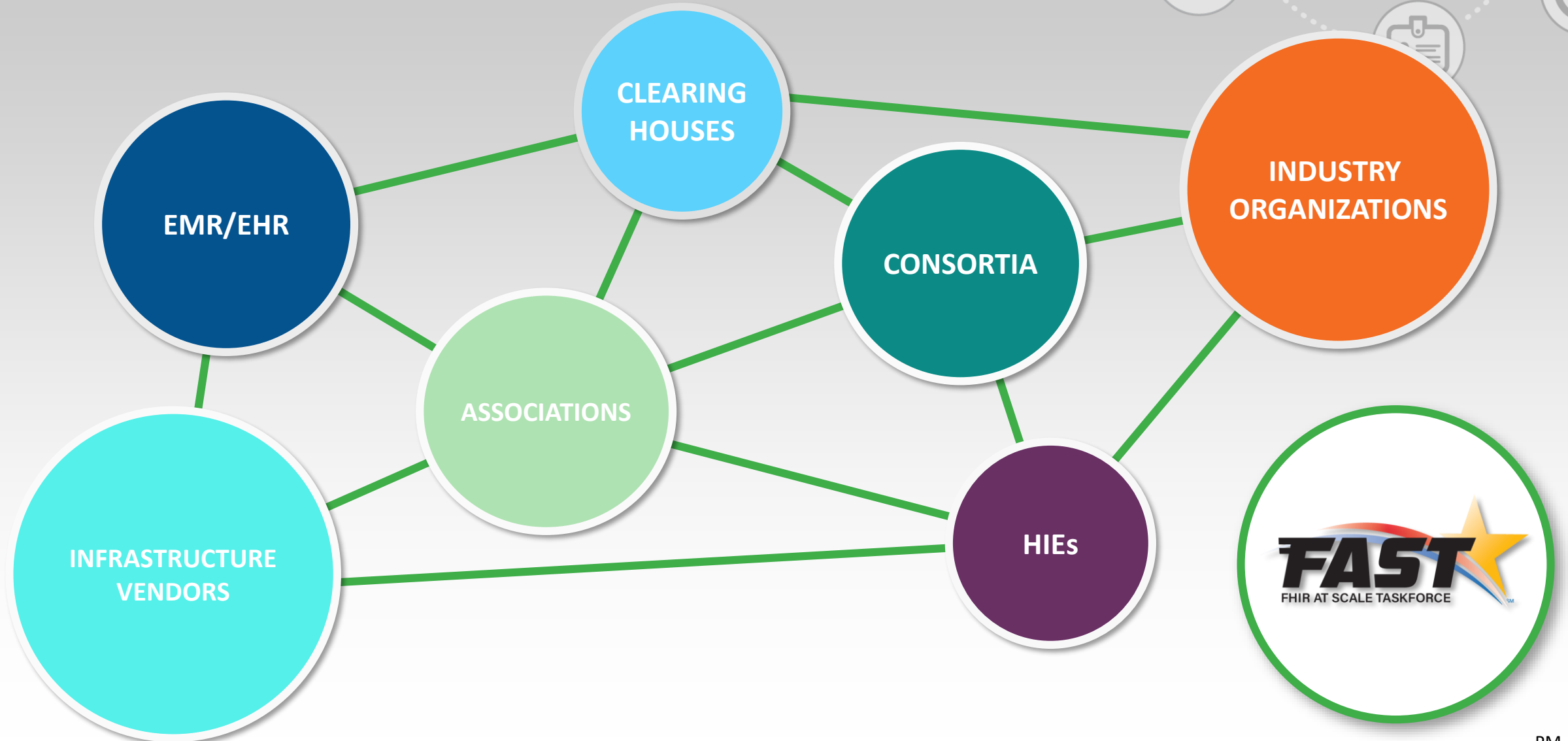
ASSOCIATIONS

INFRASTRUCTURE VENDORS

HIEs



# Coordinate Industry Solutions Through Common Infrastructure





# P2 FHIR to FAST

## Oct 2017 – Payer + Provider (P2) FHIR Taskforce Established

Originally focused on Payer/Provider collaboration

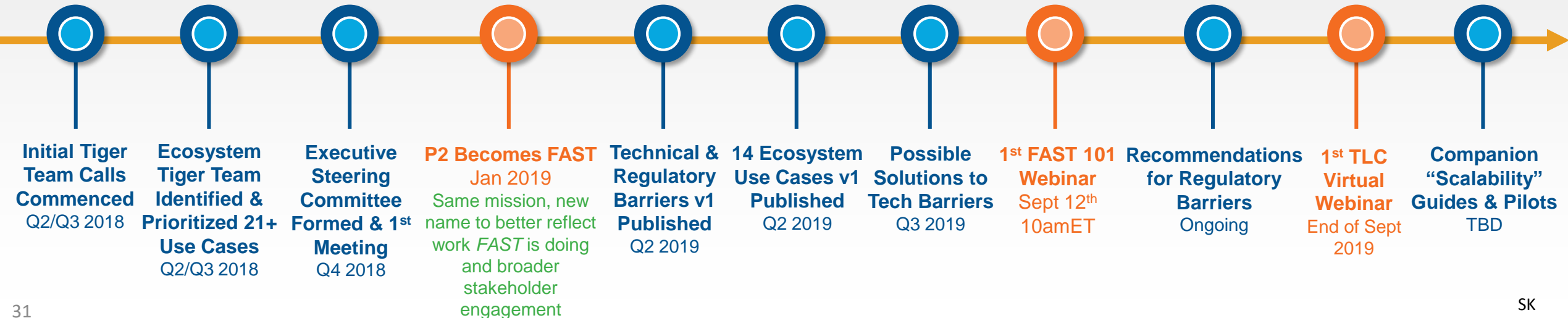
## Q1 2018 – Taskforce Charter Created

**Problem:** Ecosystem and infrastructure barriers prevent wide-scale adoption and deployment of FHIR

**Purpose:** Address ecosystem barriers and accelerate adoption of FHIR for production exchange of clinical information between payers and providers

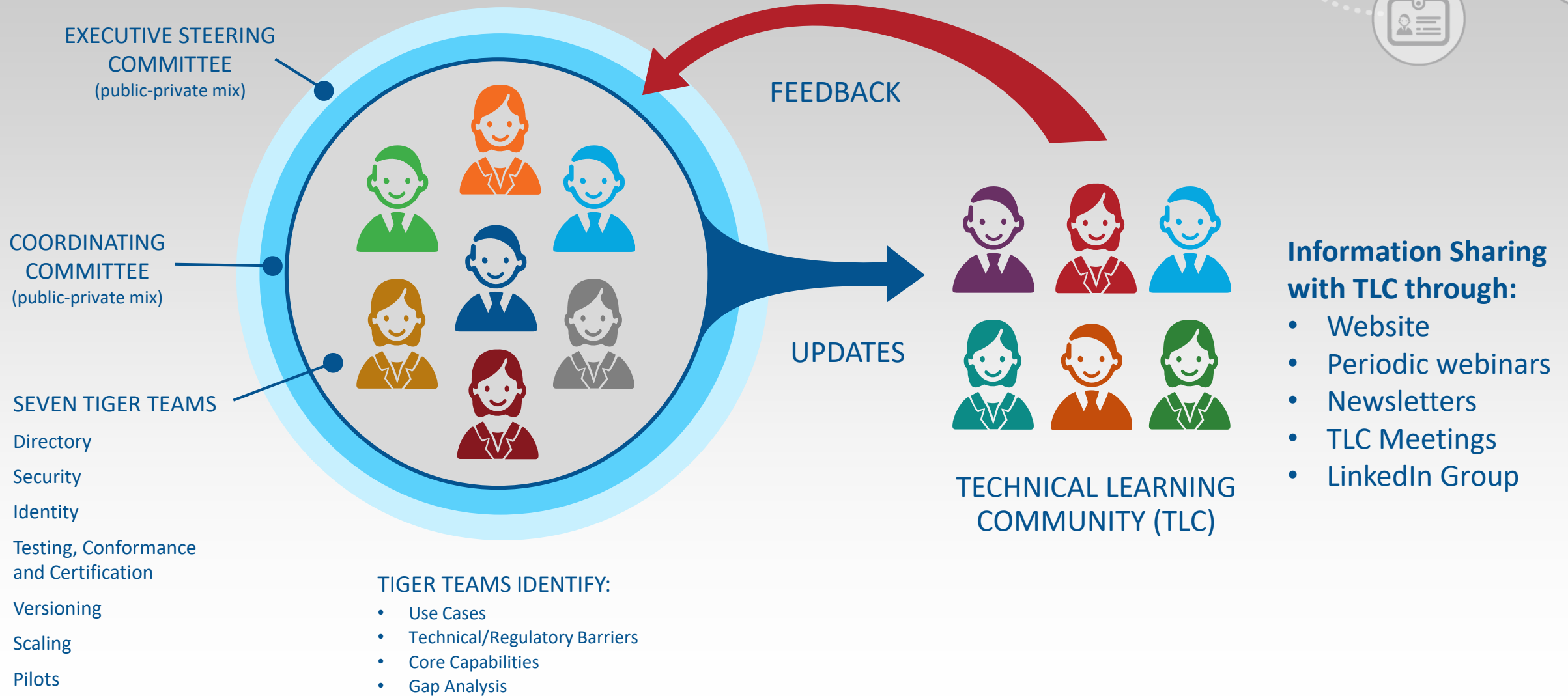
**Need:** Establish a national architecture for standardized exchange of information using FHIR

**Scope:** Establish ONC taskforce that leverages “tiger teams” to focus on near term, practical approaches for the standardized exchange of information using FHIR



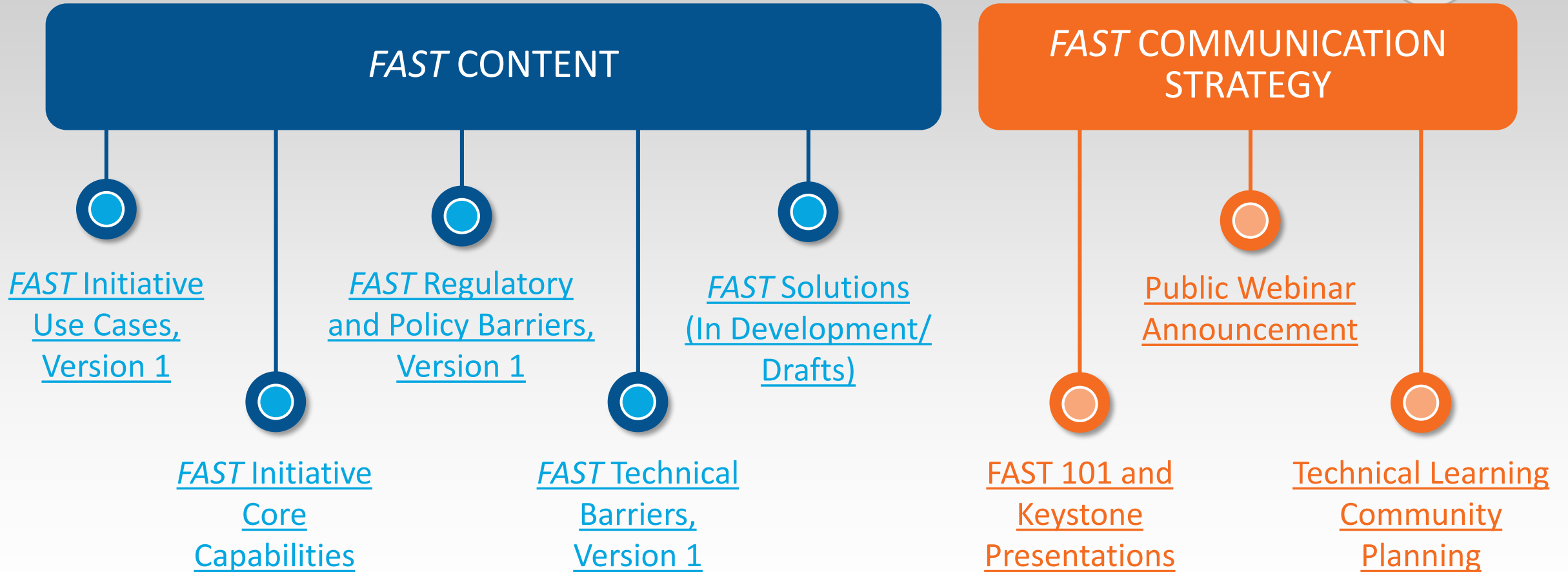


# FAST Organization & Community Engagement





# FAST Initiative Output & Products Update



All content is available on the [FAST Project Page](#) or <https://tinyurl.com/ONC-FAST>



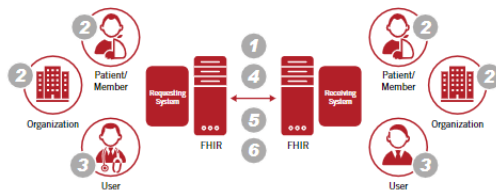
# Published Content and FAST Artifacts

## Technical Barriers to HL7® FHIR® Solutions Scalability

The FHIR at Scale Taskforce (FAST) has identified a series of technical barriers that need to be addressed in order to scale Fast Healthcare Interoperability Resources (FHIR) as a ubiquitous technology that enable scale clinical information exchange between providers, payers, and other stakeholders. These barriers include a lack of a FHIR endpoint locator, lack of common authentication and authorization approaches to ensure appropriate patient privacy, gaps in the ability to bridge patient identity across stakeholders, and a lack of industry wide governance and versioning for FHIR Application Programming Interfaces (APIs).

The FAST initiative brings together a highly representative, collaborative group of motivated healthcare stakeholders and health information technology experts who are working to analyze and synthesize the solutions across the industry, and to further identify infrastructural and scalability gaps and barriers, with the objective to propose a suite of solutions that will accelerate FHIR adoption at scale.

The following technical barriers identified by the FAST team were found to impede the adoption of FHIR at scale and will be the basis for FAST-proposed scalability solutions:



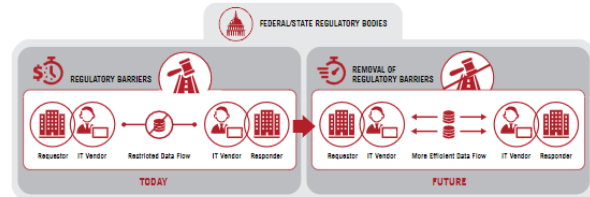
1. Directory Services
2. Identity
3. Security
4. Testing, Conformance, & Certification
5. Versioning
6. Scaling

## Regulatory/Policy Barriers to HL7® FHIR® Solutions Scalability

The FHIR at Scale Taskforce (FAST) has identified regulatory and policy barriers that need to be addressed in order to scale Fast Healthcare Interoperability Resources (FHIR) as a ubiquitous capability that enables wide-scale clinical information exchange between providers, payers, and other stakeholders.

These barriers include the HIPAA minimum necessary regulations, the naming of a standard in a way that limits innovation, the lack of a single patient identifier, and the cost of accessing data via FHIR Application Programming Interfaces (APIs).

The industry is interested in scaling FHIR use. The most recent Centers for Medicare & Medicaid Services (CMS) Notice of Proposed Rulemaking (NPRM) and the Office of the National Coordinator for Health IT (ONC) NPRM (published in the federal register on March 4, 2019) call for widespread use of APIs to enable consumers to access their health data and foster industry-wide adoption. However, the following regulatory and policy barriers impede scalable FHIR adoption, and they are the focus for which FAST will identify potential solutions.



1. HIPAA Minimum Necessary
2. Regulatory Mandate for a Single Named Standard
3. Patient Identifier
4. Data Blocking
5. Use of NPPES as the Repository for Endpoints
6. HIPAA Transactions Requiring X12

## Endpoint Discovery

Introduction & Background

The purpose of the FHIR at Scale Taskforce (FAST) is to augment and support recent HL7® Fast Healthcare Interoperability Resources (FHIR®) efforts focused on ecosystem issues that, if mitigated, can accelerate adoption.

Reference Documentation

FAST Technical Barriers

### Accelerate Use of FHIR

Identify: Barriers to adoption and opportunities for synergy: Endpoint Services, Security Approaches, Identity Resolution, Versioning & Scale Approaches, Testing Approaches, Regulatory/Policy Needs

Why: Removing barriers and aligning consensus-based adoption via the network effect will accelerate adoption of FHIR for the production exchange of clinical information between providers and payers

How: Analyze — look, learn, understand FHIR pilots/prototypes/deployments underway; Synthesize — Subject Matter Expert (SME) evaluation, identify trouble spots, develop best practices and proposed solutions; Catalyze — through additional standards work, barrier identification, testing, pilots, and leveraging existing resources

Use case model is unique in that it describes ecosystem needs as opposed to specific functional use cases for FAST are derived in one of 3 approaches as described in the graphic below.

### Use Case Approaches

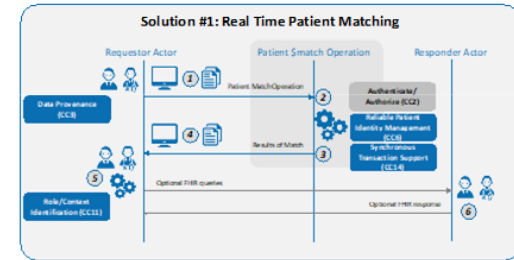
Can Be Used Exclusively or in Combination to Define the Dimensions of the Model

- Barrier Use Case:** Align use cases directly to an identified barrier such as resource locator, security, and identity.
- Healthcare Ecosystem Use Case:** Instead of aligning directly to a barrier, utilize industry ecosystem use cases which identify and spotlight barriers.
- Functional Use Case:** Use functional use cases, such as Da Vinci, as a foundation for FAST. FAST provides the "highways" while the industry efforts, like Da Vinci, provide the cars, trucks and buses. Uses the "vehicles" to help define the dimensions of the "highway"

UC-Endpoint\_Discovery-Core\_Capability-CCI

## Proposed Solutions: Identity

### Supporting Diagrams & Flows



ID	Description	Notes
1	<p>Patient Smatch Request: Requestor Actor calls a Patient Smatch operation provided by the Responder Actor or a trusted intermediary of the Responder Actor.</p> <p>The Smatch request will use Patient resource in the request. The attribute "onlyCertainMatches" will be set to true for Use Cases involving Patient Care Delivery.</p> <p>As an optional pre-cursor to the Smatch, the Requestor may verify the Patient's demographics to the best of their ability, ranging from a manual verification of identification such as Driver's Licenses to automated checks against non-healthcare databases such as credit bureau records, if warranted.</p>	<p>To do: Define minimum and optional set of attributes to improve match scores.</p> <p>List use cases where onlyCertainMatches must be set to true.</p> <p>Identify recommended limits for "count" for example use cases.</p>

FAST-PS-Identity



## FAST Focus

Patient & Provider Identity Management

Directory Services

Version Identification

Scale

Exchange Process/Metadata

Testing, Conformance & Certification

Security

Pilots

## WANT TO GET INVOLVED??

*Join the Technical Learning Community to get updates and provide input on the technical and regulatory barriers, use cases, and proposed solutions as they are developed.*

**SIGN UP!!**

**&**

**JOIN THE LINKEDIN GROUP**

**Questions?**





# Thank You – Today's Presenters

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For more information on the *FAST* Initiative,  
visit the *FAST* [Project Page](#)

Have any further questions/suggestions?

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& Diana Ciricean at [Diana.Ciricean@hhs.gov](mailto:Diana.Ciricean@hhs.gov)