Zoom Meeting Interface and Basic Logistics

*image above is a publicly available tutorial image obtained from Zoom website

- **All Attendees will be muted during this presentation.**

- **CHAT:** The chat function is open to *ALL* participants (bottom, middle right, highlighted in orange in this image). Attendees are encouraged to provide feedback and questions via chat during the presentation.

- **BREAKOUTS:** Attendees will be pushed into their respective breakout rooms at the end of this session. Please stay logged in during the break to enable this process. If you log out and log back in you will be put back into the main session and will have to wait for the host to put you back in your assigned breakout room.

- **TECHNICAL DIFFICULTIES:** Having trouble hearing the presenters or seeing the shared screen? Put your issue in chat and the Meeting Host will help you.

Presenters – *FAST* Chief Architects

STEPHEN KONYA

Senior Advisor to the Deputy National Coordinator for Health IT HHS/ONC

ONC Lead, FHIR at Scale Taskforce (*FAST*)

PATRICK MURTA

Chief Interoperability Architect & Fellow Humana

FAST Chief Architect

PAUL OATES

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

FAST Chief Architect

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Agenda

- **What is *FAST*?**
  - What is *FAST*?
  - *FAST* Structure & Mission
  - *FAST* & Other FHIR Collaboratives

- **APIs, FHIR & *FAST***
  - APIs
  - FHIR and the Health Care Ecosystem
  - Importance of the Ecosystem Infrastructure and the *FAST* model

- ***FAST* Solutions Summary**

- ***FAST* Solutions and Path to Execution**

- ***FAST* Pilot Testing Considerations**

- ***FAST* Conceptual Architecture**

- **Full Day Workshop Agenda & *FAST* Resources**

SK

What is *FAST*?

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® FAST Healthcare Interoperability Resources (FHIR®) scalability gaps and possible solutions, analysis that will address current barriers and will accelerate FHIR adoption at scale.
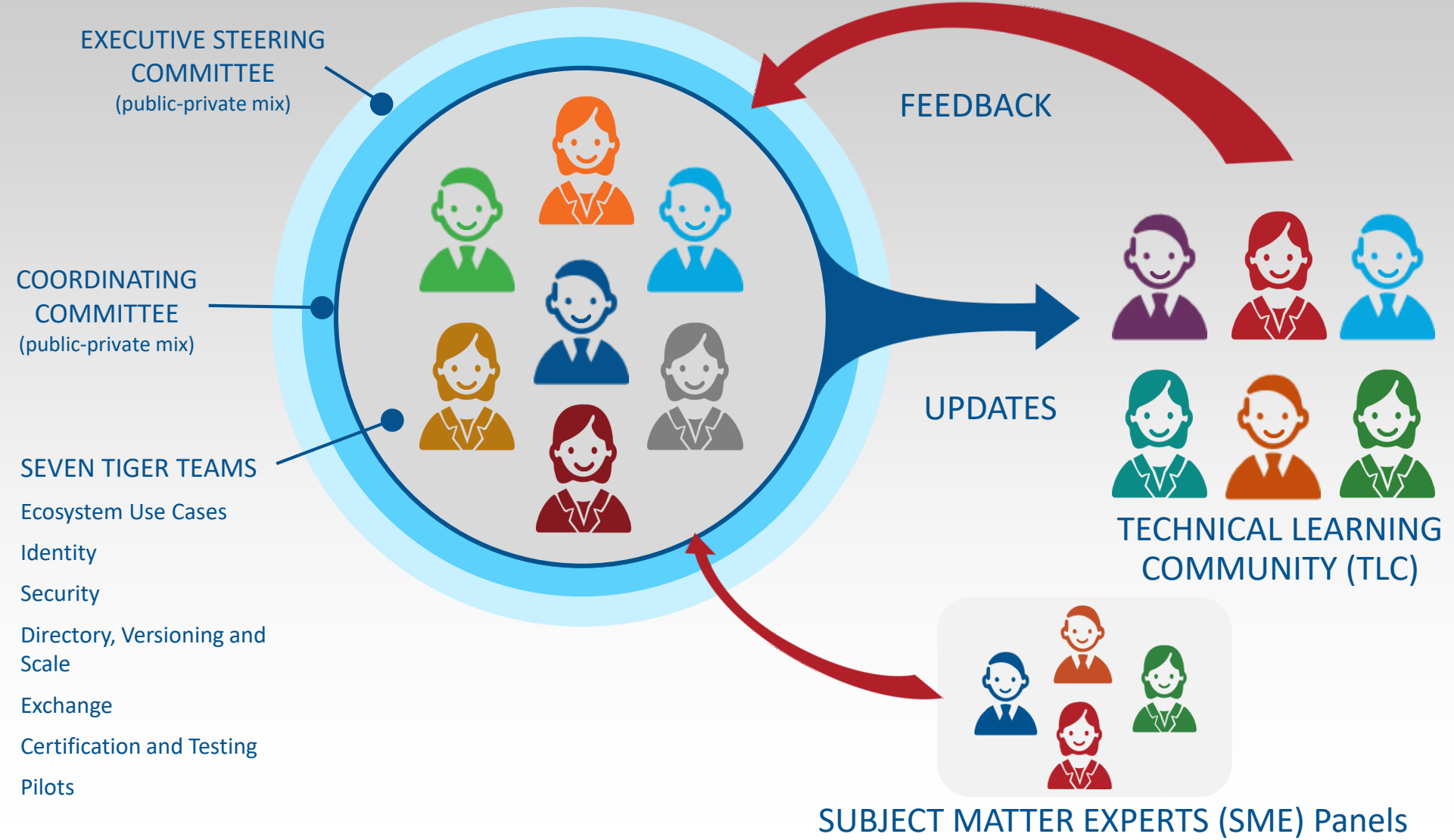
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FAST Taskforce Antitrust Notice

- 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.

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FAST Organization & Community Engagement

EXECUTIVE STEERING
COMMITTEE
(public-private mix)

COORDINATING
COMMITTEE
(public-private mix)

SEVEN TIGER TEAMS

Ecosystem Use Cases

Identity

Security

Directory, Versioning and
Scale

Exchange

Certification and Testing

Pilots

FEEDBACK

UPDATES

TECHNICAL LEARNING
COMMUNITY (TLC)

**Information Sharing
with TLC through:**

- Website
- Periodic Webinars
- Newsletters
- TLC Meetings
- LinkedIn Group

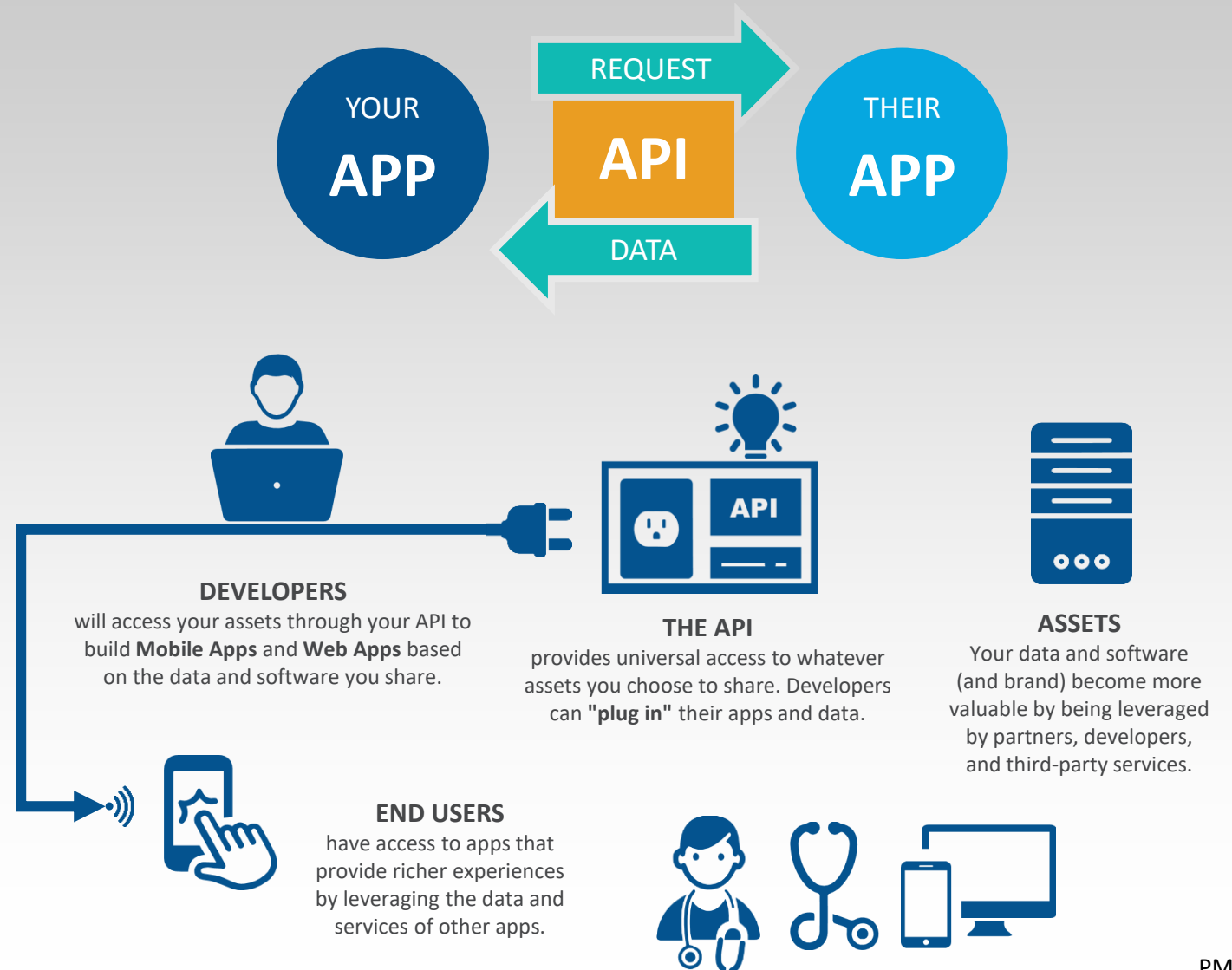SUBJECT MATTER EXPERTS (SME) Panels
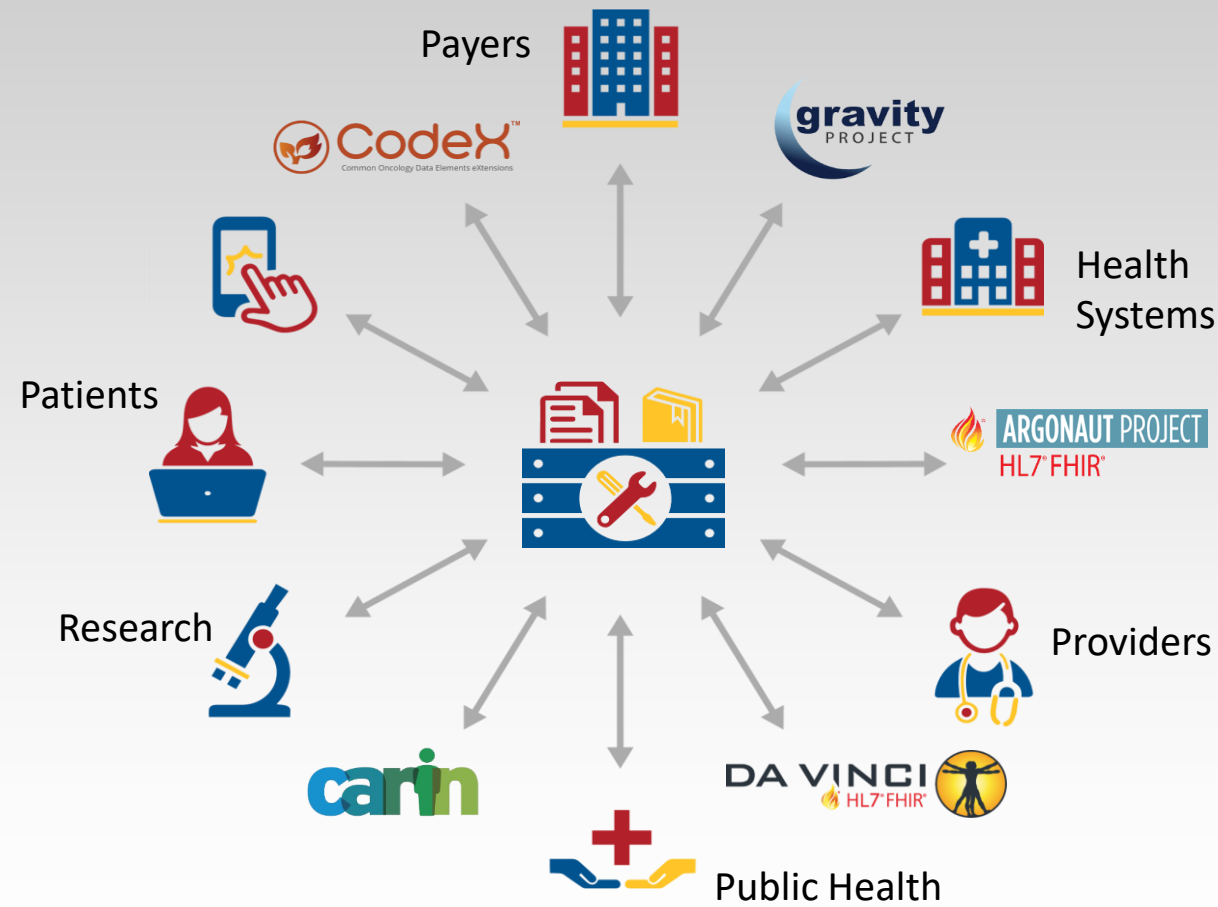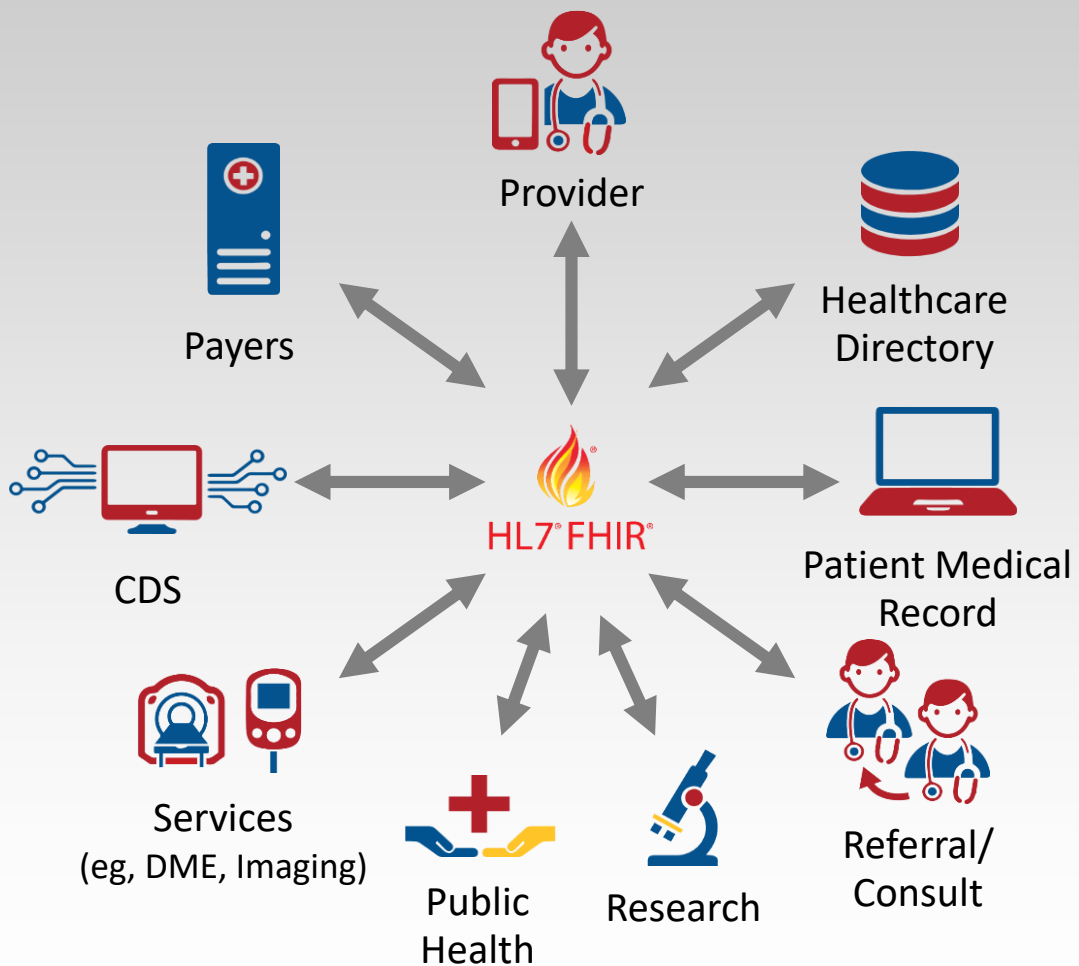
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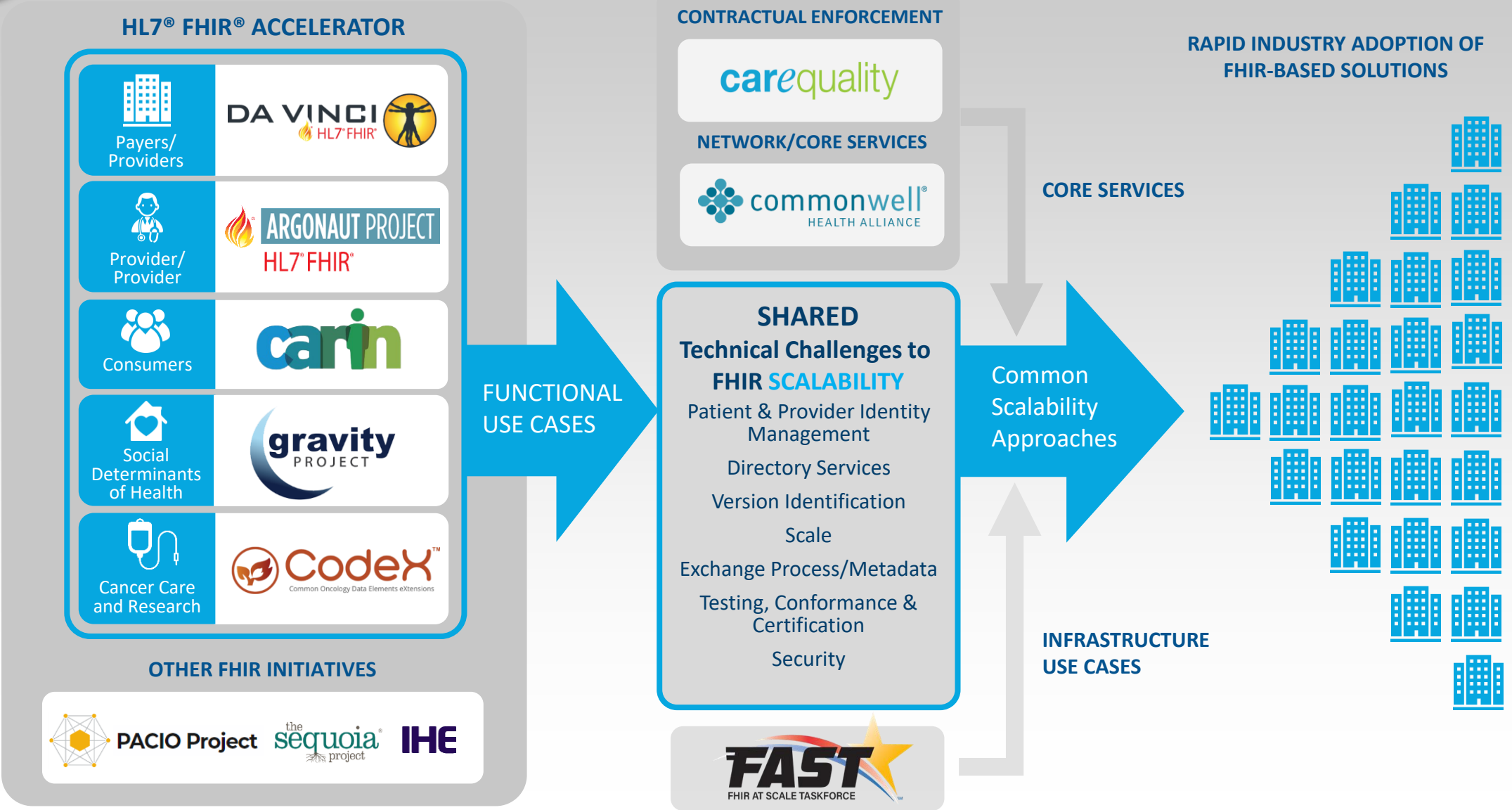
APIs, FHIR & *FAST*

APIs...

- **A**n 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

YOUR **APP**

REQUEST

API

THEIR **APP**

DATA

DEVELOPERS
will access your assets through your API to build **Mobile Apps** and **Web Apps** based on the data and software you share.

THE API
provides universal access to whatever assets you choose to share. Developers can **"plug in"** their apps and data.

ASSETS
Your data and software (and brand) become more valuable by being leveraged by partners, developers, and third-party services.

END USERS
have access to apps that provide richer experiences by leveraging the data and services of other apps.

PM

FHIR and the Health Care Ecosystem

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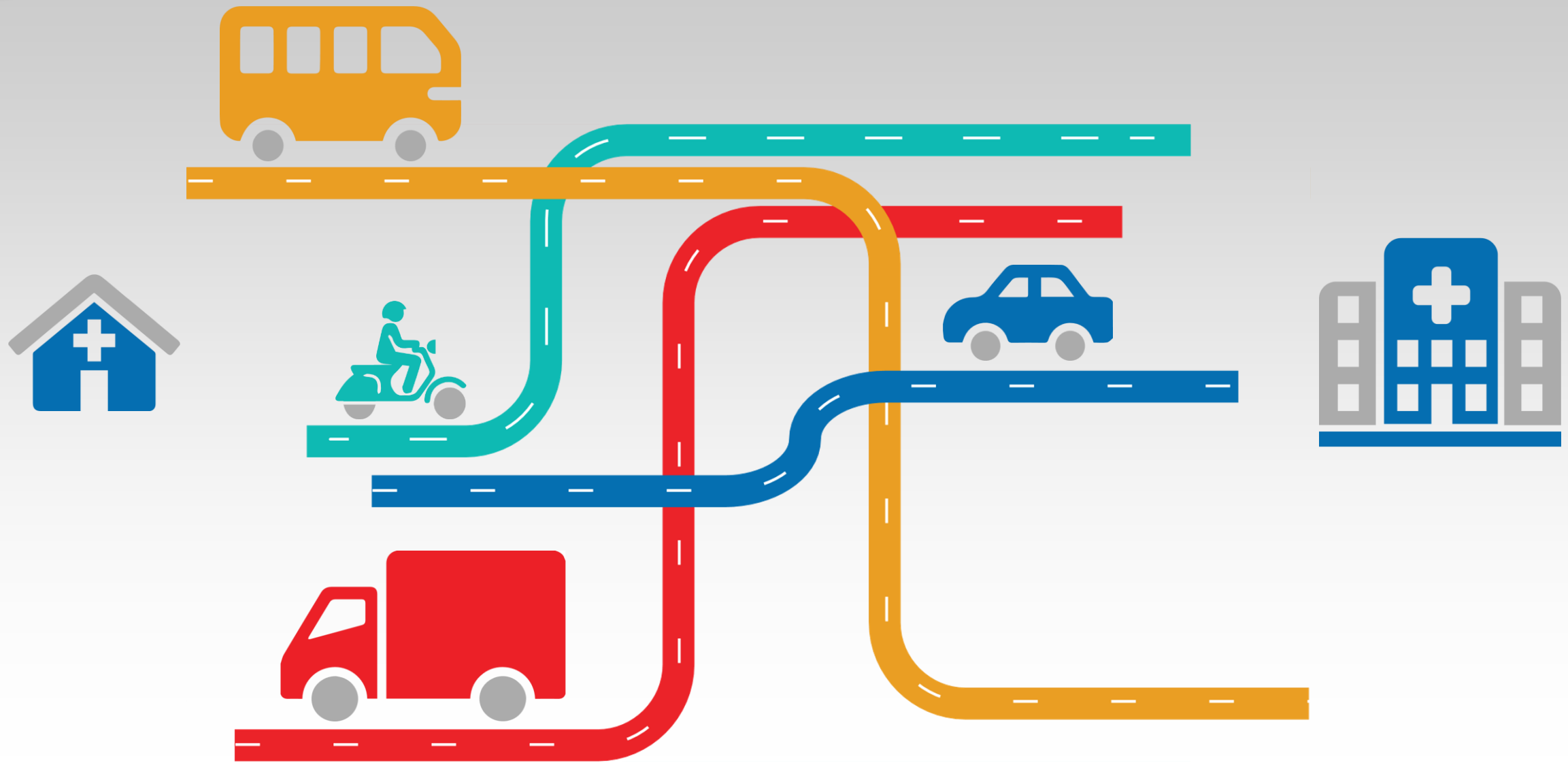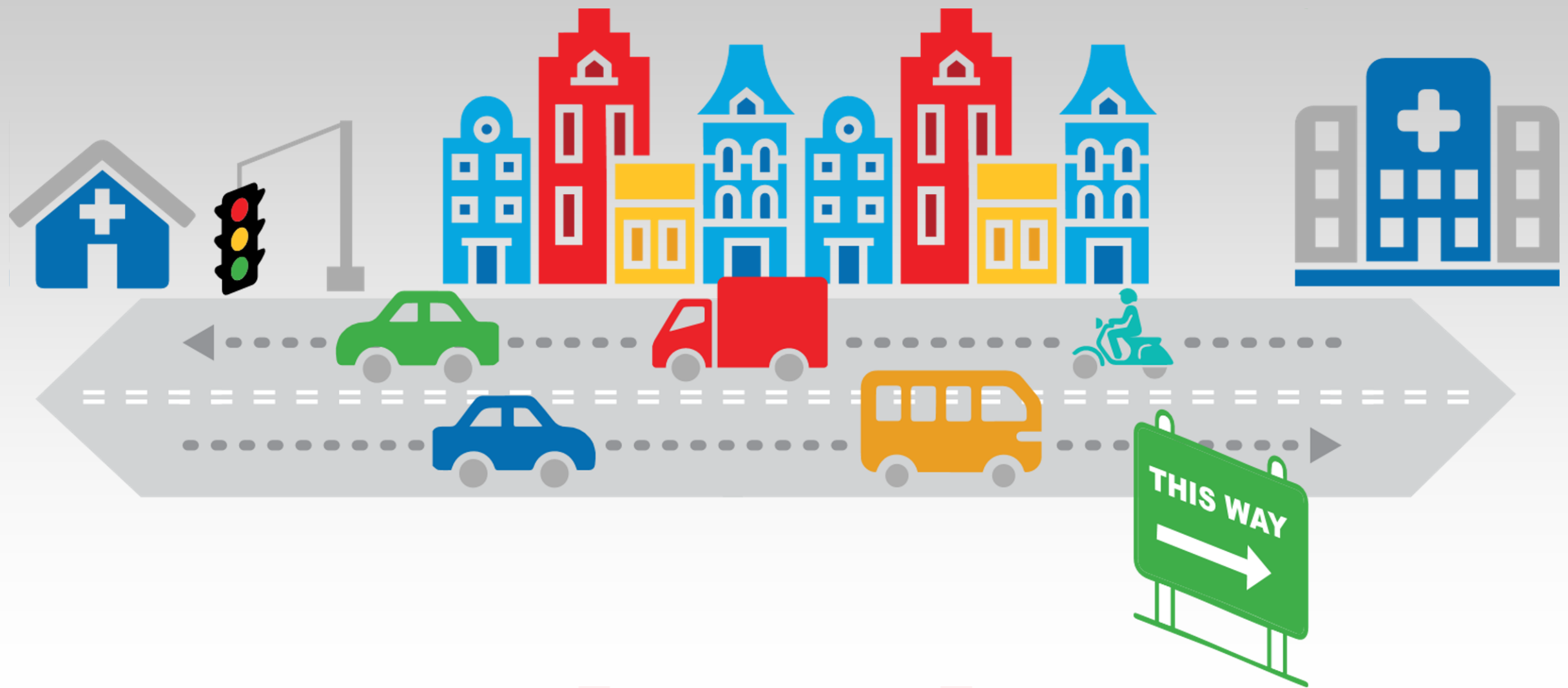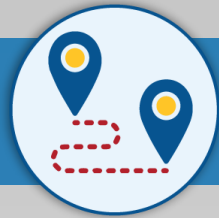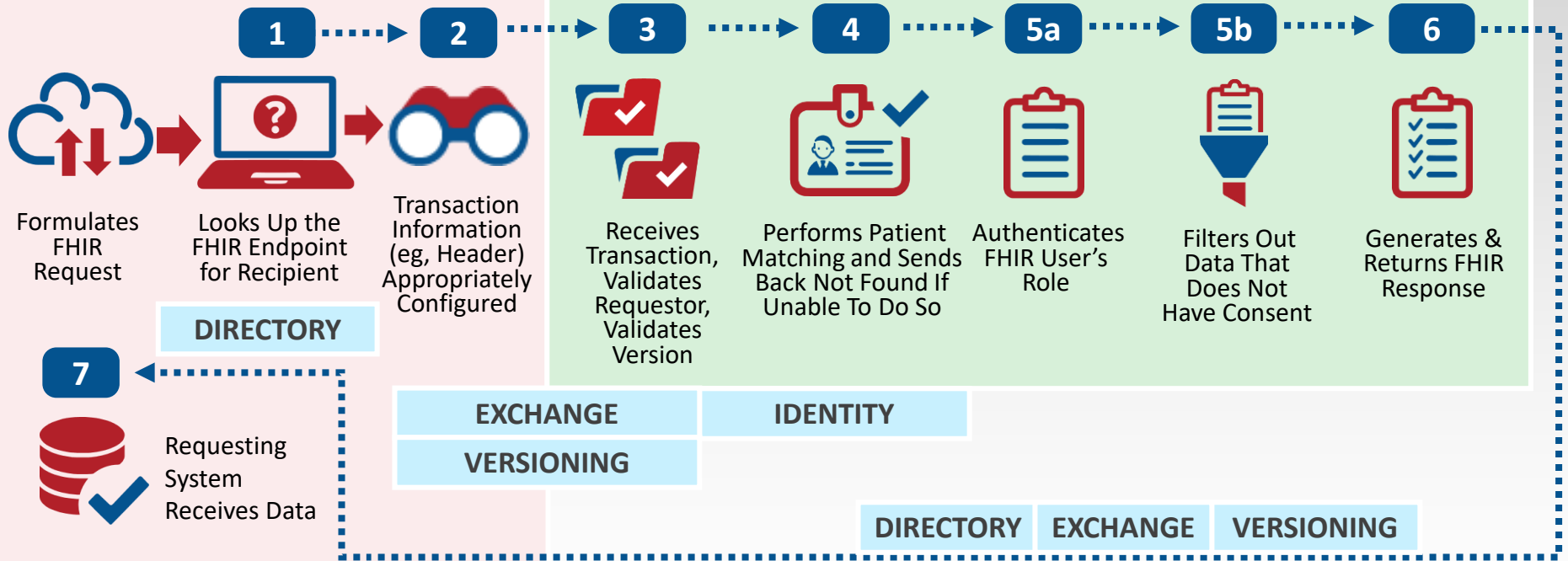
FAST Solutions Summary

FAST Solution Process and Where Are We Now

FAST Proposed Solutions

- Directory, Version & Scale (3)
- Identity (4)
- Exchange Process (1)
- Testing & Certification (1)
- Security (4)

A US Wide Solution for FHIR Endpoint Discovery (Version 2)

A US Wide Methodology for Supporting Multiple Production Versions of FHIR (Version 2)

US Wide Scaling Requirements for FHIR RESTful Exchange Intermediaries (Version 2)

Standards Based Approaches for Individual Identity Management (Version 2)
- Mediated Patient Matching
- Collaborative Patient Matching
- Networked Identity Management
- Distributed Identity Management

FAST Proposed Infrastructure Solutions
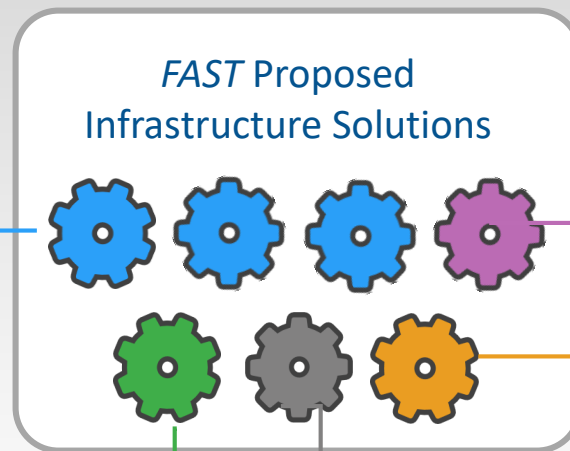
An HL7 FHIR Standard Based Solution for Intermediary-to-Intermediary Exchange and Reliable Routing with Metadata (Version 3 Draft)
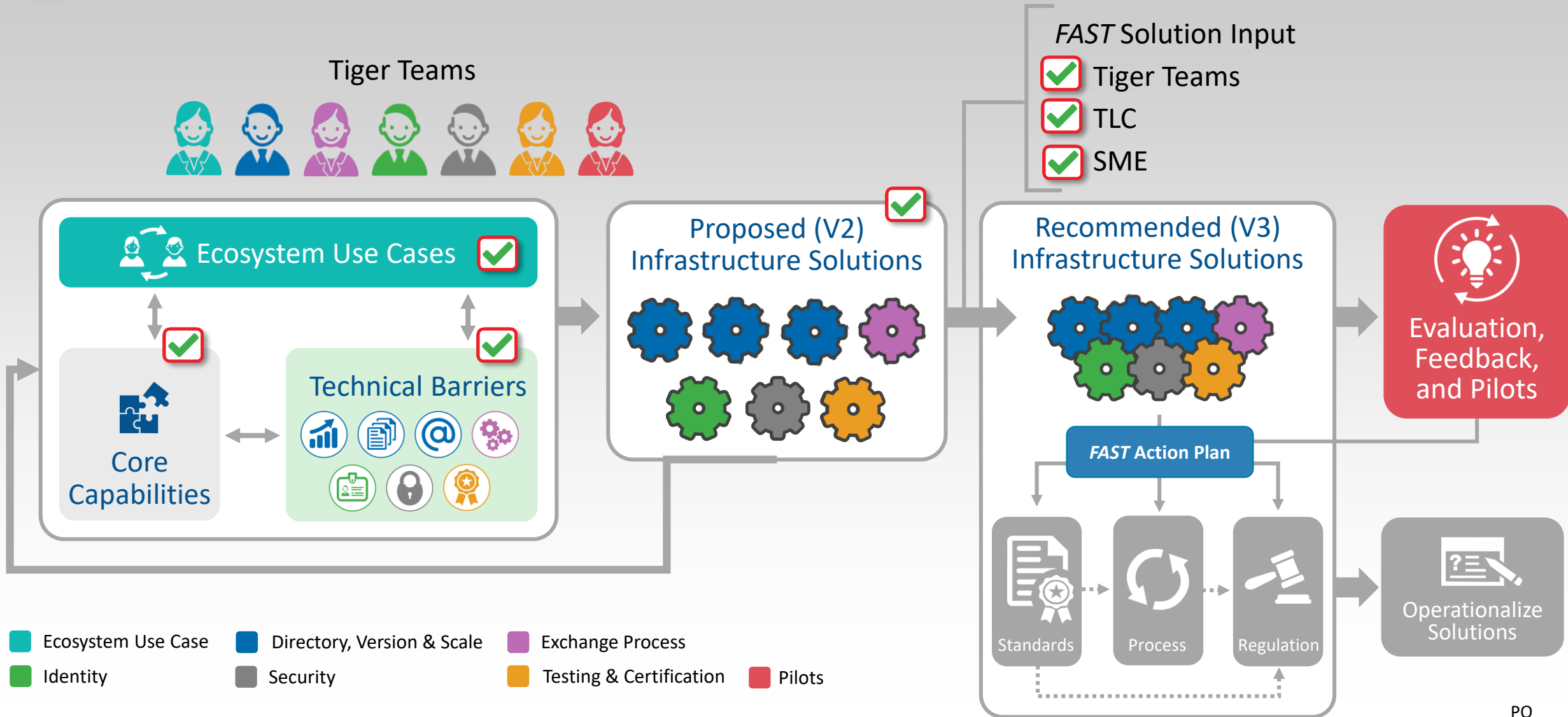- Reliable Routing with Metadata Across Intermediaries

A Scalable FHIR Testing & Certification Platform (Version 2)

US Wide Model(s) for Scalable Security Solutions (Version 3 Draft)
- UDAP Trusted Dynamic Client Registration
- UDAP Tiered OAuth for User Authentication
- UDAP JWT-Based Client Authentication
- UDAP JWT-Based Authorization Assertions

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PO

FAST Endpoint Directory
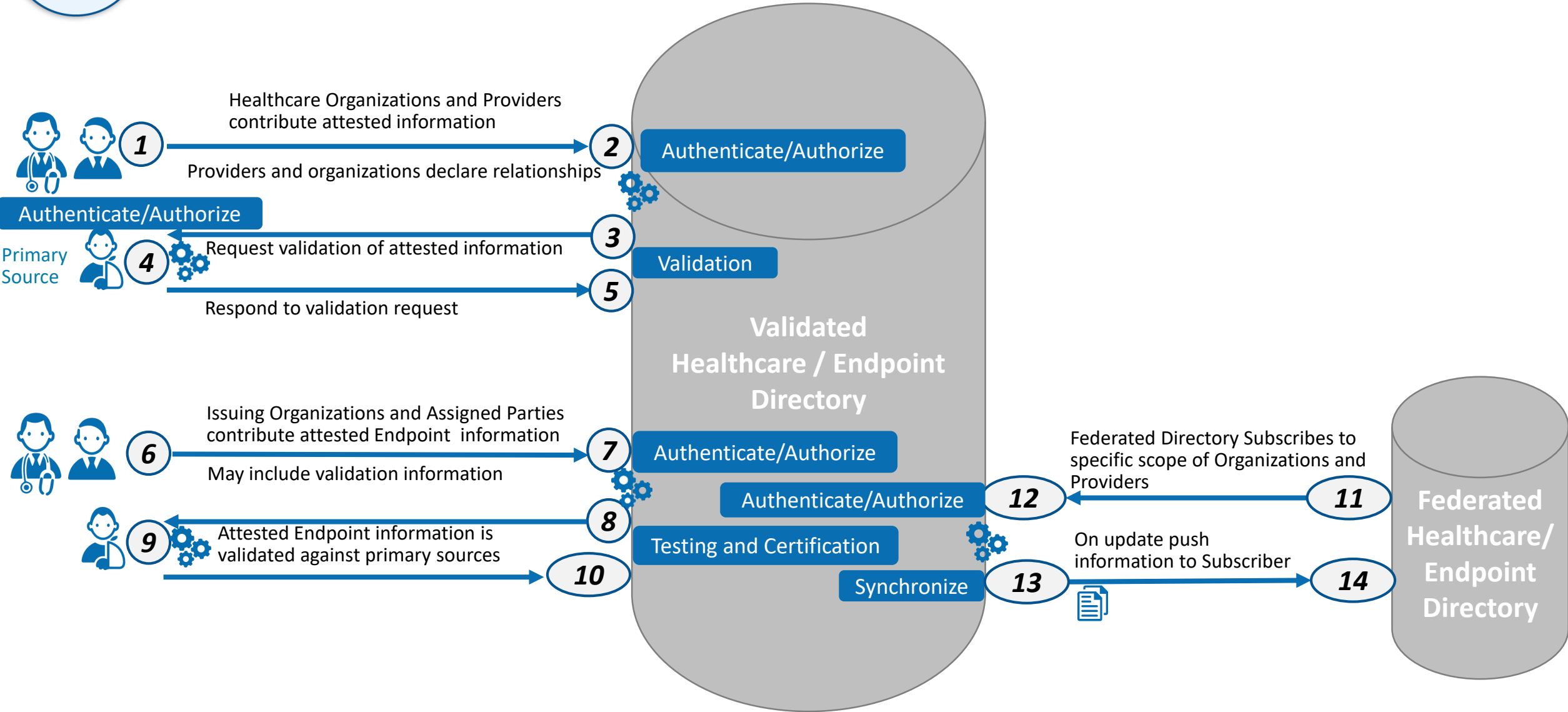
Overview and status

BARRIER
The industry lacks a generally available method to find all FHIR endpoints and their associated capabilities and attributes, as well as a common process for maintaining the information and validating its accuracy

SOLUTION
One national source for validated directory information that is available to any national or local directory workflow environment

IN SCOPE
Individual and entity demographics to determine endpoint relationships, computable endpoint information such as accessibility requirements, metadata for routing, trust framework, implementation guides and certification status

Federated access by HIEs, state directories, EHRs

A FHIR standard implementation guide for use of the directory

OUT OF SCOPE
Manual / portal access, creation of a trust framework, non-FHIR related endpoints, application certification process

STATUS
Incorporating feedback from industry stakeholders

OPEN ITEMS
Define the minimum viable product (MVP) and outline the incremental steps/roadmap to build a directory of endpoints

CURRENT SOLUTION
FAST Endpoint directory proposed solution document
(version 3 in progress)

PO

FAST Identity Management

Multiple options progressing from low to high complexity (technical and process)

Patient directed access to identity and demographic data, support for multiple identities, and Trusted Identity Providers as source of demographic data and metadata for matching

Best practices compliant matching service using demographic data from Requestor

Current state enhanced with best practices e.g. roster exchanges

4 Distributed Identity Management

3 Networked Identity Management

2 Mediated Patient Matching

1 Collaborative Patient Matching

Includes Patient directed workflows
Focus on identity management

Payer/Provider interactions
Focus on patient matching

PO

Overview and status

BARRIER
The industry currently employs a range of patient matching and identity management processes with inconsistencies and limited scalability as volume and the number of participants increase

SOLUTION
Establish a set of patient matching and identity management patterns and best practices that the industry can adopt to reduce the variations that exist today and provide a bridge to new approaches in the future

IN SCOPE
Patient matching during payer/provider interactions: *Collaborative* and *Mediated Patient Matching*

Patient-directed workflows focusing on identity management: *Networked* and *Distributed Identity Mgmt.*

OUT OF SCOPE
Patient as a requester or responder, contractual arrangements. (Security and directory considerations are addressed by other *FAST* solutions)

STATUS
Incorporating feedback from industry stakeholders

OPEN ITEMS
Pursue provider identity matching. Apply proposed solutions to use cases, capture patient matching recommendations, explore steps to Distributed Identity Management, consider how regulation/policy might address challenges that can't be solved by the market

CURRENT SOLUTION
FAST Identity proposed solution document
(version 3 in progress)

PO

FAST Security

Authorization Assertions

UDAP JWT-Based Authorization Assertions

UDAP Trusted Dynamic Client Registration

Trusted DCR

Client Authentication

UDAP JWT-Based Client Authentication

UDAP Tiered OAuth

User Authentication

PM

Overview and status

BARRIER
Today, we have limitations on our ability to ensure, in a scalable way, that the requestor of information using a FHIR based information exchange is appropriately authenticated and has the authorization to see the data requested. Current registration processes are manual and too time-consuming to support expected growth

SOLUTION
Leverage existing credentials and authorizations and best practice standards to establish common security processes that facilitate automated exchange and reuse existing infrastructure where possible

IN SCOPE
Trusted Dynamic Client Registration using Unified Data Access Profiles (UDAP)

JWT-Based Client Authentication & Authorization

OUT OF SCOPE
Directory for Endpoint Discovery, Trust Policy Governance, Requirements for a specific architecture, Patient/provider or provider/patient

STATUS
Incorporating feedback from industry stakeholders

OPEN ITEMS
Cross-solution overlaps, explore standard authorization metadata requirements, recommendations related to privacy

CURRENT SOLUTION
FAST Security proposed solution document
(version 3 in progress)

PM

FAST Exchange

FAST Exchange Solution for Routing Metadata – Process Flow

Planning for a hybrid future while learning from existing models such as CAQH CORE and clearing house patterns

Requestor Actor

Intermediary Capability Actor

Responder Actor

1 Request with routing meta-data using base resource definition

2 Messaging forwarded to endpoint based upon routing meta-data

REST Headers
"X-Originator": "Requestor Actor ID"
"X-Destination": "Responder Actor ID"

http://build.fhir.org/http.html#custom

3 Request processed and returned with routing meta-data

4 Response routed to requestor

PM

Overview and status

BARRIER

FHIR information exchange is typically performed "point to point" between trusted system endpoints. Because healthcare participants may also wish to leverage intermediaries in FHIR exchanges, a solution for conveying routing metadata is needed

SOLUTION

Employ RESTful header parameters to send originator and destination information for use by exchange intermediaries

IN SCOPE

Exchange using intermediaries in addition to point to point connections

Method for exchanging of a minimum set of metadata as HTTP REST headers, or alternatively within FHIR resource .meta tags

OUT OF SCOPE

Value set defining exchange identifiers

Capturing provenance information from exchange through multiple intermediary "hops"

STATUS

Incorporating feedback from industry stakeholders

OPEN ITEMS

Expand direction on usage of the alternative solution employing FHIR .meta elements

CURRENT SOLUTION

FAST Exchange solution document
(version 3 in progress)

PM

FAST Testing & Certification

Proposed Solution: ONC *FAST* Testing & Certification Program

DEVELOPER

Automated Test Platform

Certification Body

HL7 FHIR Validation Engine

+

***FAST* Criteria Test Scripts**

Basic FHIR Conformance

FHIR IG Conformance

***FAST* Readiness Criteria related to...**

1. End Point Discovery
2. Authentication
3. Authorization
4. Resource Version Identification
5. Reliable Patient Identity Management
6. Data Provenance
7. Reliable Provider Identity Management
8. Event/Message/Topic Subscription/Publication
9. Guaranteed Message Delivery
10. Role/Context Identification
11. Readiness Credential
12. Standard Based Endpoint Access
13. Synchronous Transaction Support
14. Asynchronous Transaction Support
15. Reliable Payor Identification

PM

Overview and status

BARRIER

FHIR testing capabilities and an associated accreditation/certification are needed to support reliable, trustable exchange between healthcare participants. It must be a process in which specification/ requirements that are well established and broadly shared can be absolutely confirmed

SOLUTION

Testing platform supporting the base FHIR Specification and *FAST* Readiness Criteria

ONC FHIR Testing & Certification Program

IN SCOPE

Testing and certification to the base FHIR Specification and *FAST* Readiness Criteria
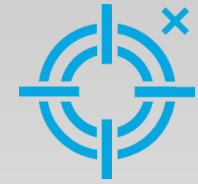
OUT OF SCOPE

HL7 FHIR Validation Engine, RFP development to select entity to provide services

Validate ease of establishing connections, conformance to non-blocking requirements, conformance to HIPAA patient privacy

STATUS

Incorporating feedback from industry stakeholders

OPEN ITEMS

Capture test assertions in greater detail, clarify aspects, coordinate with related efforts

CURRENT SOLUTION

FAST Testing & Certification solution document
(version 3 in progress)

PM

FAST Solutions and Path to Execution

Path to Solution Execution

- How do we make the results of *FAST* persistent?

- Creating standards (examples)
  - Updating FHIR core specification
  - Creating FHIR Implementation Guide(s)
  - Updating specific artifacts and tools (e.g. FHIR version management/conversion)

- Supporting testing and piloting (e.g. making certain the solutions are implementable)

- Supporting regulatory processes

- Establish persistent process
  - Testing & Certification
  - Endpoint Directory(ies)
  - Trust Frameworks

PO

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Standards

Process

Regulation

Operationalize Solutions
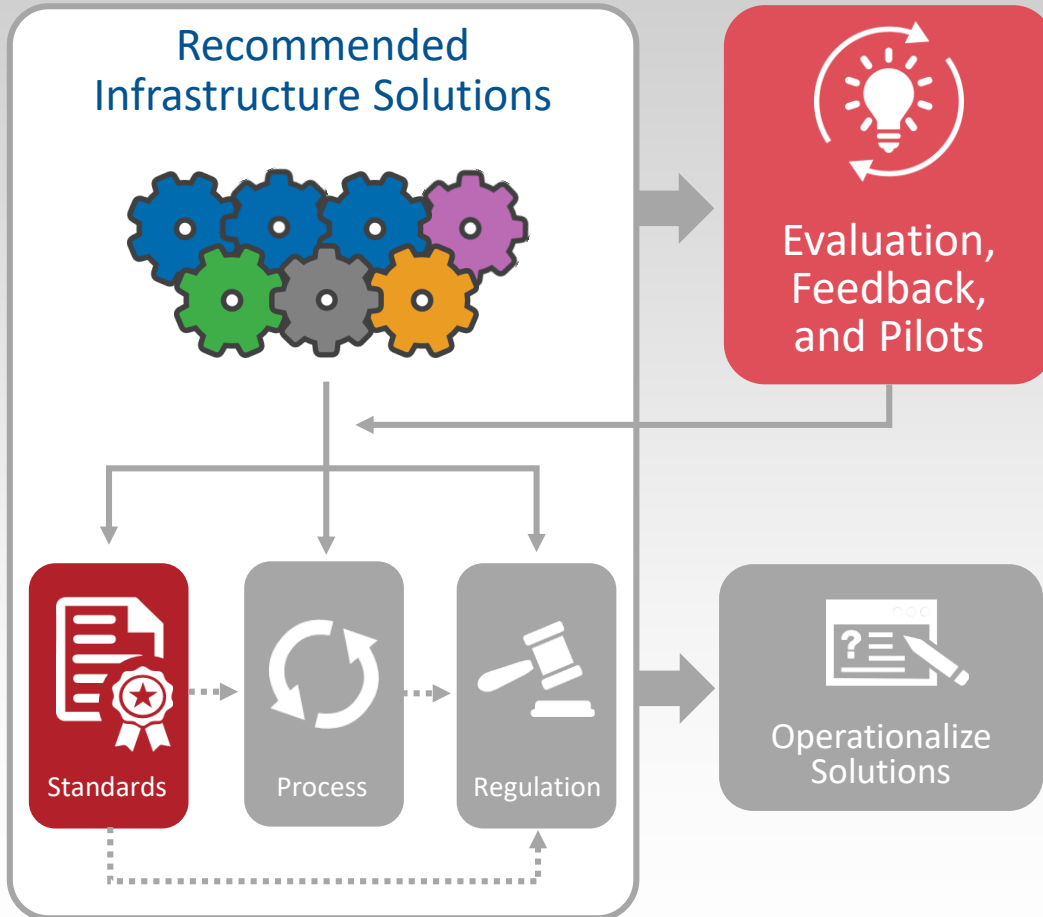
Identify relevant, existing or new standards, and work with standards bodies to include *FAST* recommendations where appropriate

Potential Owner(s)
HL7, NIST, ONC, etc.

PO

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Standards

Process

Regulation

Operationalize Solutions
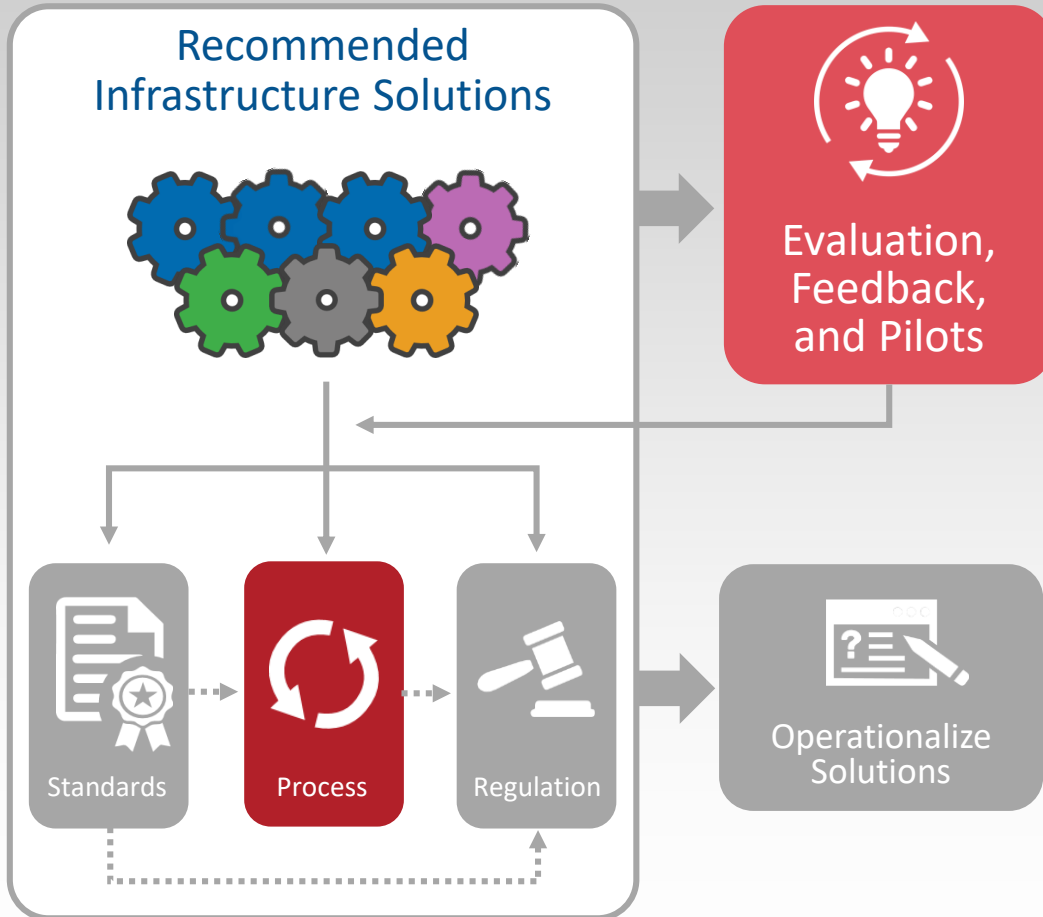
Process considerations examples:
1. Testing and certification support
2. Declaration of support for relevant attributes in directory metadata
3. Other processes as needed

Potential Owner(s)
HL7, NIST, ONC, etc.

PO

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Standards

Process

Regulation

Operationalize Solutions

The potential policy or regulatory support, published guidelines, etc.

Potential Owner(s)
NIST, ONC, CMS, etc.

PO

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Standards

Process

Regulation
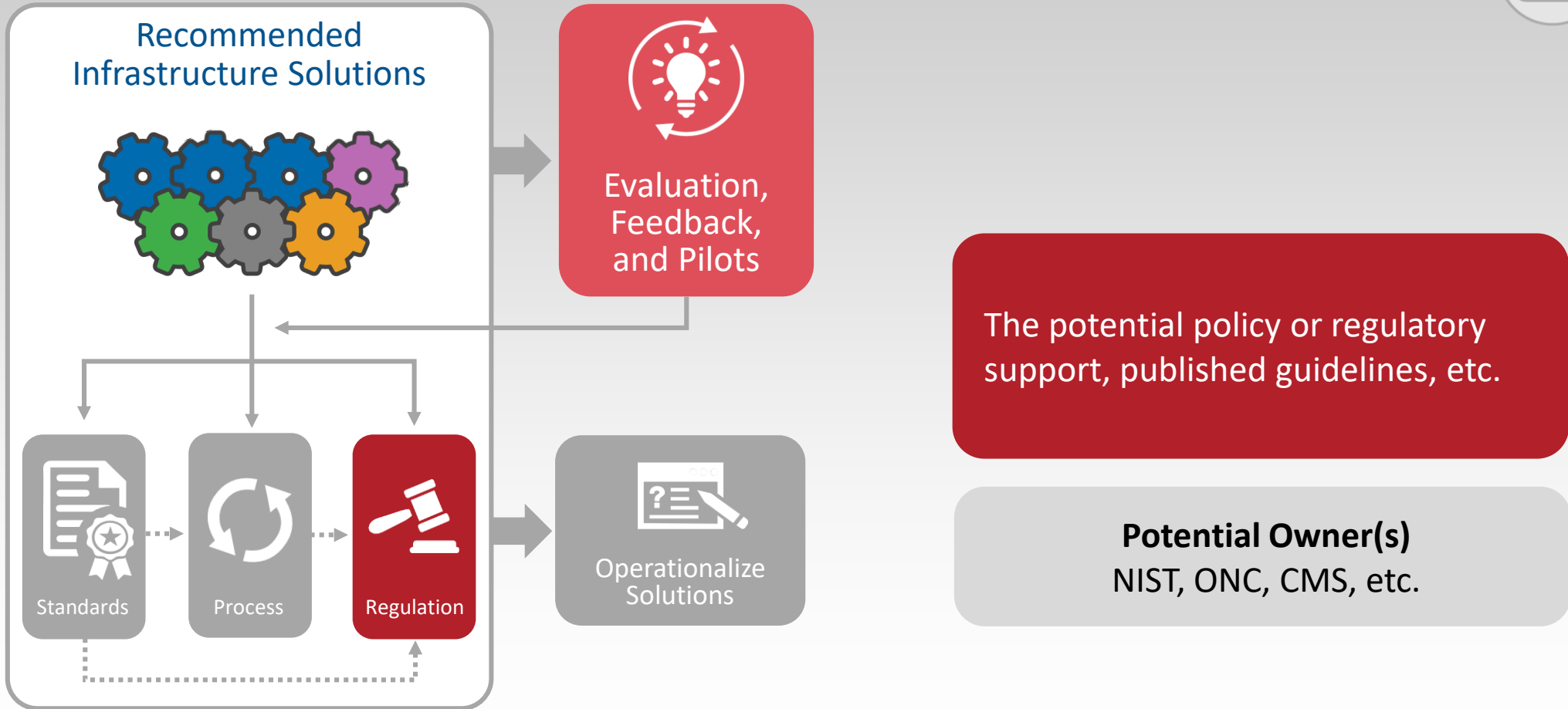
Operationalize Solutions

Da Vinci potential pilot, early use cases from SMEs. Addition of a testing/cert process based on certification team recommendations

Potential Owner(s)
HL7, NIST, ONC, etc.

PO

FAST Pilot Testing Considerations

Example CDS/FHIR Transaction Journey – PDex (Da Vinci Payer Data Exchange)

PCP initiates clinical referral or inpatient request

PCP needs prior auth requirements information from Payer

Payer receives PCP requests
Payer PDex Interactions
1) Payer receives CDS request and creates CDS card
2) CDS Card is returned in real time & PDex bundle is available

EHR PDex Interactions

1) [START] PCP's EHR requests CDS Card from payer

2) CDS Card is processed & PDex bundle is made available to EHR for visualization and integration [END]
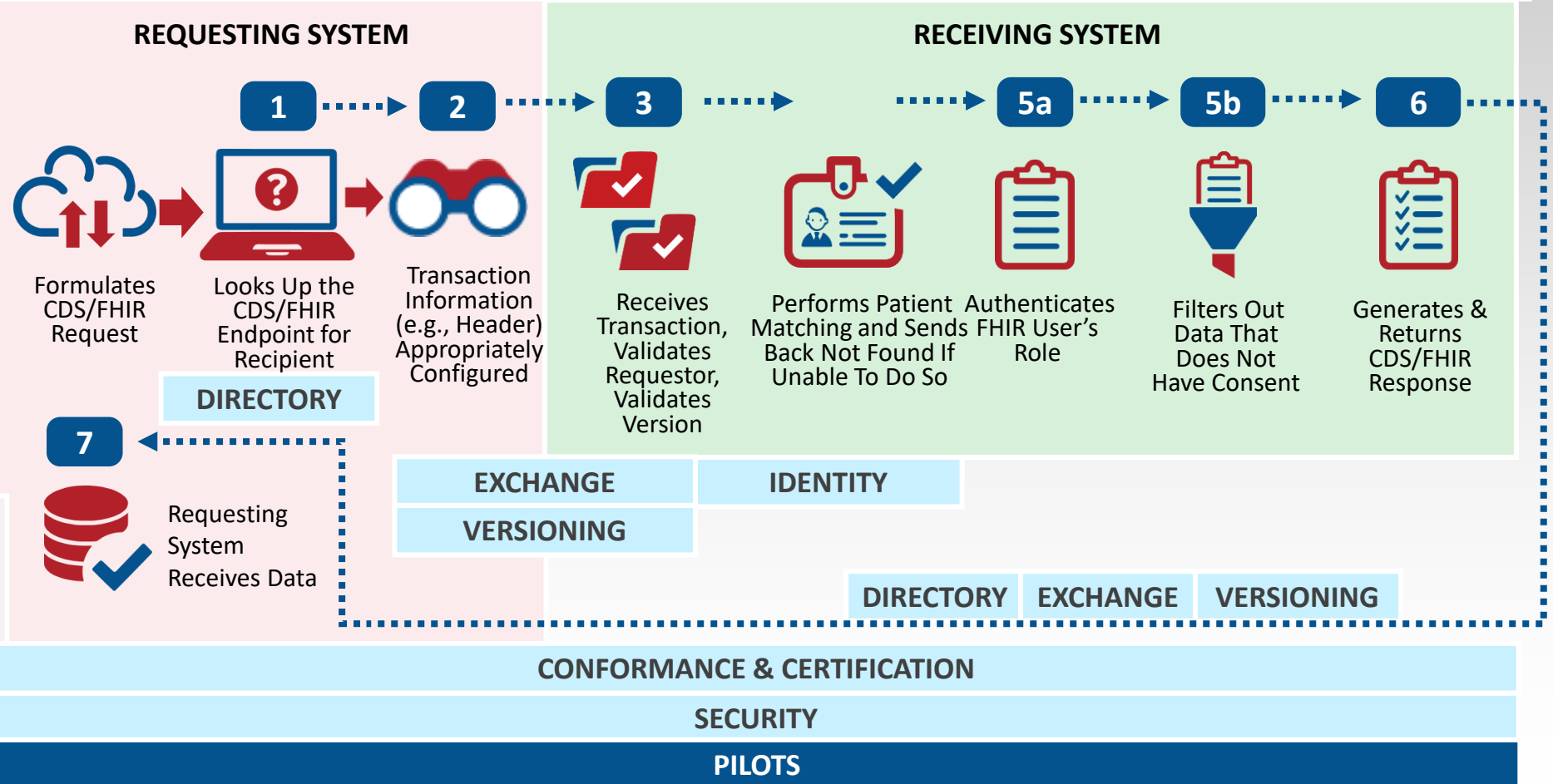
PCP views Patient information

REQUESTING SYSTEM

RECEIVING SYSTEM

1 **2** **3** **5a** **5b** **6**

Formulates CDS/FHIR Request

1 Looks Up the CDS/FHIR Endpoint for Recipient
DIRECTORY

2 Transaction Information (e.g., Header) Appropriately Configured
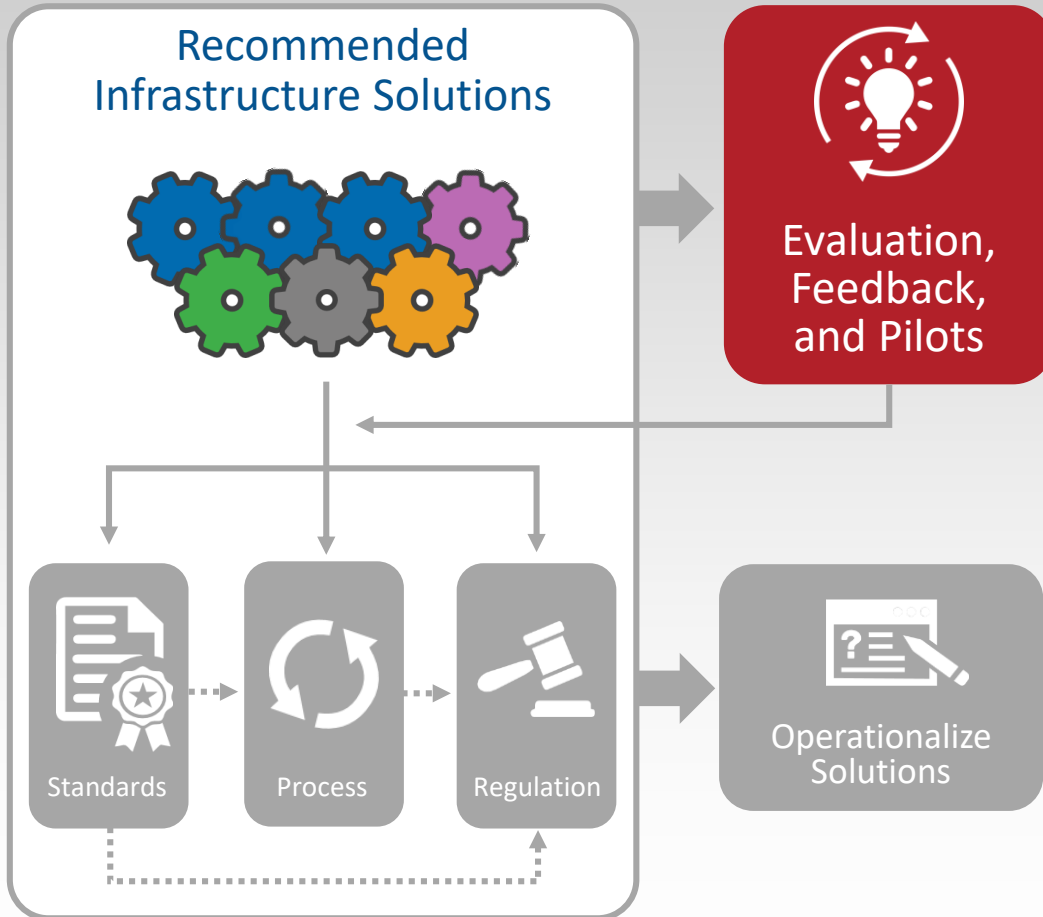
3 Receives Transaction, Validates Requestor, Validates Version

Performs Patient Matching and Sends Back Not Found If Unable To Do So

5a Authenticates FHIR User's Role

5b Filters Out Data That Does Not Have Consent

6 Generates & Returns CDS/FHIR Response

7 Requesting System Receives Data

| EXCHANGE | IDENTITY |
| VERSIONING | |

| DIRECTORY | EXCHANGE | VERSIONING |

CONFORMANCE & CERTIFICATION

SECURITY

PILOTS

PM

FAST Pilots Support with Da Vinci PDex (Payer Data Exchange)

PDex (Payer Data Exchange)

1
- UserId
- PatientId
- EncounterId
- Appointments
- (SubscriberId)
- JWT for EMR API Access

DSTU2 STU3 R4 EMR

Call Hook SMART APP

CDS HOOKS
Appointment-book

2
- Use SubscriberId if provided to search
- Or Get Patient from Pre-fetch or get CapabilityStatement from EMR to get FHIR version and get Patient record from EMR and perform Demographic-based search

R4 Payer

CARD Member Query Summary
Review

4
Review > Select > Write

5
- Get EMR Metadata
- Write constrained by write options in EMR
- Write documentReference
(Optional – complete or selected DocumentBundle + PDF)

3
- Provide Access Token with US Core Scopes
- Provide URL Link to Smart App
- Provide FHIR Entrypoint
- Make CapabilityStatement available
- Human Readable result of Member Query
  - No data found
  - Unable to match individual
  - N records returned

FAST Solutions Tested

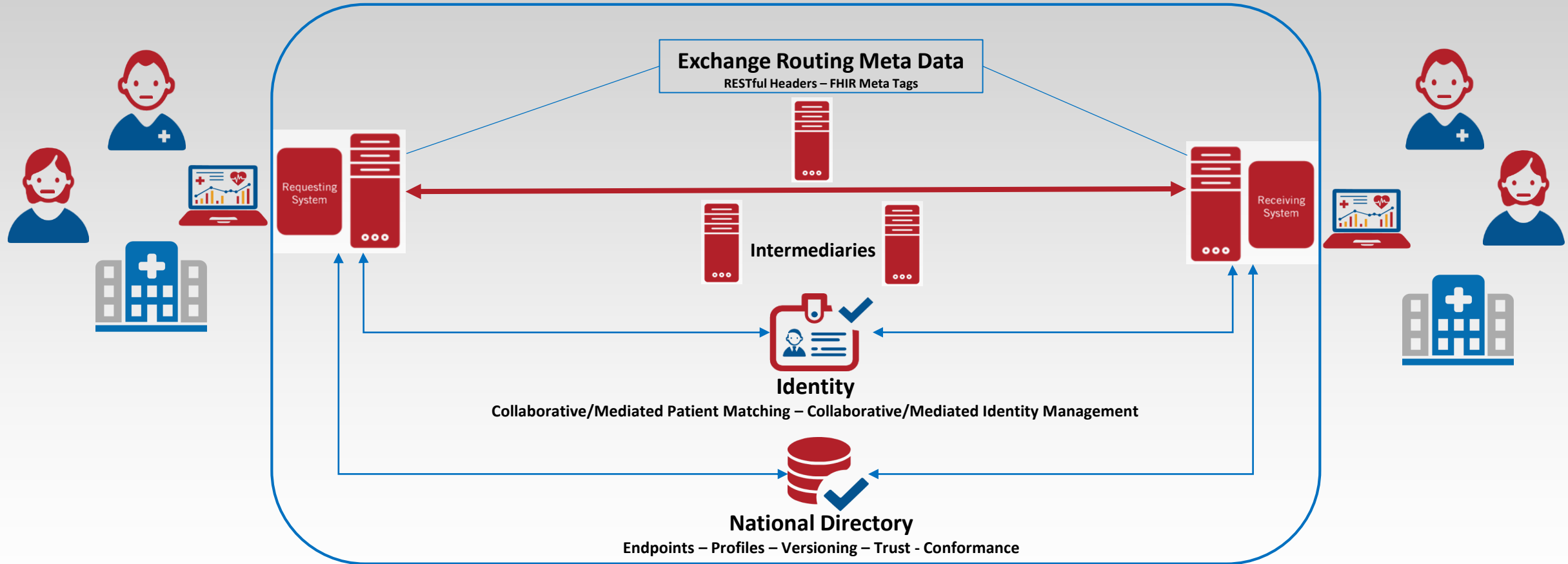|	Directory	Versioning	Exchange	Identity	Scale	Security	Conformance & Certification
1 2 →	✓	✓	✓	✓		✓	✓
3 4 5 →	✓	✓	✓	✓		✓	✓

PM

FAST Conceptual Architecture

Conceptual Integrated Architecture

Security (Authenticate/Authorize)

UDAP Trusted Dynamic Client Registration - UDAP Tiered OAuth User Authentication - UDAP JWT-Based Client Authentication - UDAP JWT-Based Authorization Assertions

Exchange Routing Meta Data

RESTful Headers – FHIR Meta Tags

Requesting System

Receiving System

Intermediaries

Identity

Collaborative/Mediated Patient Matching – Collaborative/Mediated Identity Management

National Directory

Endpoints – Profiles – Versioning – Trust - Conformance

CONFORMANCE & CERTIFICATION (Testing & Certification Program)

PILOTS (*FAST* Capability Vetting with Existing HL7 Accelerators)

PM

Full Day Agenda &
FAST **Resources**

Breakout Sessions Schedule

10:10am – 12:00pm: Morning Breakouts - *FAST* Architectural Considerations (limited attendance, concurrent)

Room #1: *FAST Solution Interdependencies*	Room #2: *The Role of Trust Framework(s)*	Room #3: *Testing and Certification*	Room #4: *Stakeholder Nuances*

12pm – 1pm: Lunch Break

1:00pm – 2:30pm: Afternoon Breakouts Part 1 - *FAST* Pathways to Implementation (limited attendance, concurrent)

Room #1: *Standards*	Room #2: *Regulations*	Room #3: *Process*

2:30pm – 3:00pm: Afternoon Break

3:00pm – 4:00pm: Afternoon Breakouts Part 2 - *FAST* Pathways to Implementation (limited attendance, concurrent)

Room #1: *Timing Considerations / Interim Steps & Solutions*	Room #2: *Pilots*	Room #3: *Intermediaries*

SK

FAST Workshop – Full Day Agenda and Resources

- View the [*FAST* Workshop Summary and Detailed Agenda](#)

  – Morning and Closing Plenary

  – Breakout Room Sessions Schedule

  – Handouts and Resources

- Explore these *FAST* resources

  – New to *FAST*? Breakout sessions target interactive discussion and references the *FAST* work to date. Please consider exploring any of the following *FAST* artifacts before attending these breakout sessions:

    - [The *FAST* 2020 Mid-Year Report](#)

    - [The *FAST* 2019 End of Year Report](#)

    - [SME Panel Session Pages](#)

CONTINUE THE CONVERSATION!

Join the Technical Learning Community to stay up to date – receive updates about FAST presentations & events, provide additional input and follow our progress.

[*JOIN THE LINKEDIN GROUP*](#)
&
[*SIGN UP FOR THE TLC*](#)

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

SK

Thank You – Today's Presenters

Stephen Konya
ONC *FAST* Lead

Patrick Murta
FAST Chief Architect

Paul Oates
FAST Chief Architect

For more information on the *FAST* Initiative,
visit the *FAST* Project Page

Have any further questions/suggestions?

Please contact Stephen Konya at Stephen.Konya@hhs.gov
& Diana Ciricean at Diana.Ciricean@hhs.gov