FAST Technical Learning Community
Proposed Solutions: Exchange

Durwin Day

Health Information Manager

HCSC

Patrick Murta

Architecture Fellow

Humana

DD

FAST Exchange Team Members & Expertise

Durwin Day *(Co-Lead)*	HCSC
Alberto Llanes *(Co-Lead)*	Anthem
Patrick Murta *(Chief Architect)*	Humana
Rachel Forester	RFI-EDI
Corey Spears	Infor
Bryan Scott	Humana
Sonja Ziegler	Optum
Karen Zapata	Diameter Health
Adam Wong	ONC

DD

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.

DD

Agenda

- *FAST* Technical Learning Community (TLC) Webinar Series

- What is *FAST?*

- Exchange Barriers
  - What problems are being addressed?
  - Why are they problems?

- Proposed Exchange Metadata Solution
  - Overview of point to point and hybrid model
  - Reliable Routing
    - Point to Point
    - Across intermediaries in a hybrid model
  - Alternative intermediary approach

DD

Technical Learning Community (TLC) Webinar Series

Exchange

Today's Presentation

Identity

Thursday, November 21st

Presentation

Directory, Version and Scale

Monday, November 25th

Presentation

Testing and Certification

Thursday, December 12th

Presentation

Security

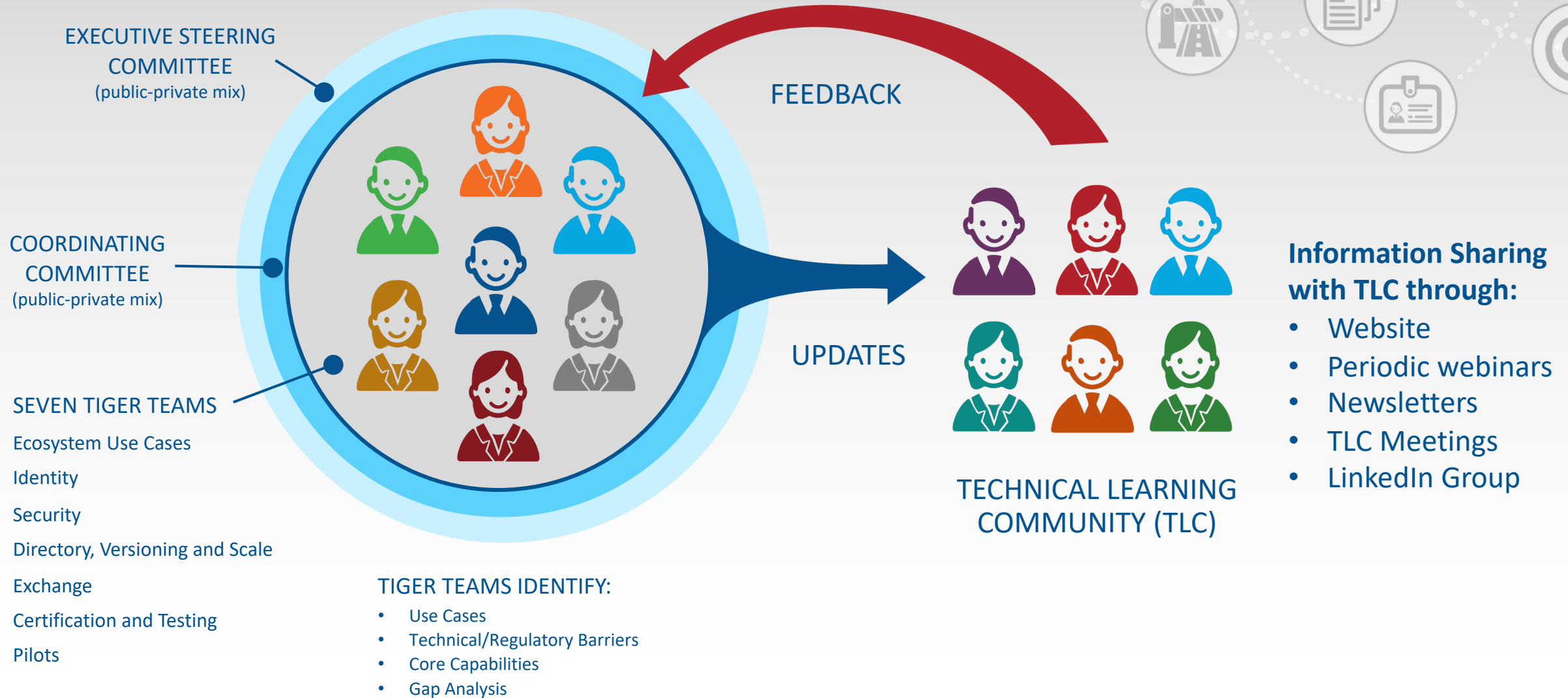**Monday, December 16th**

Presentation

DD

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.
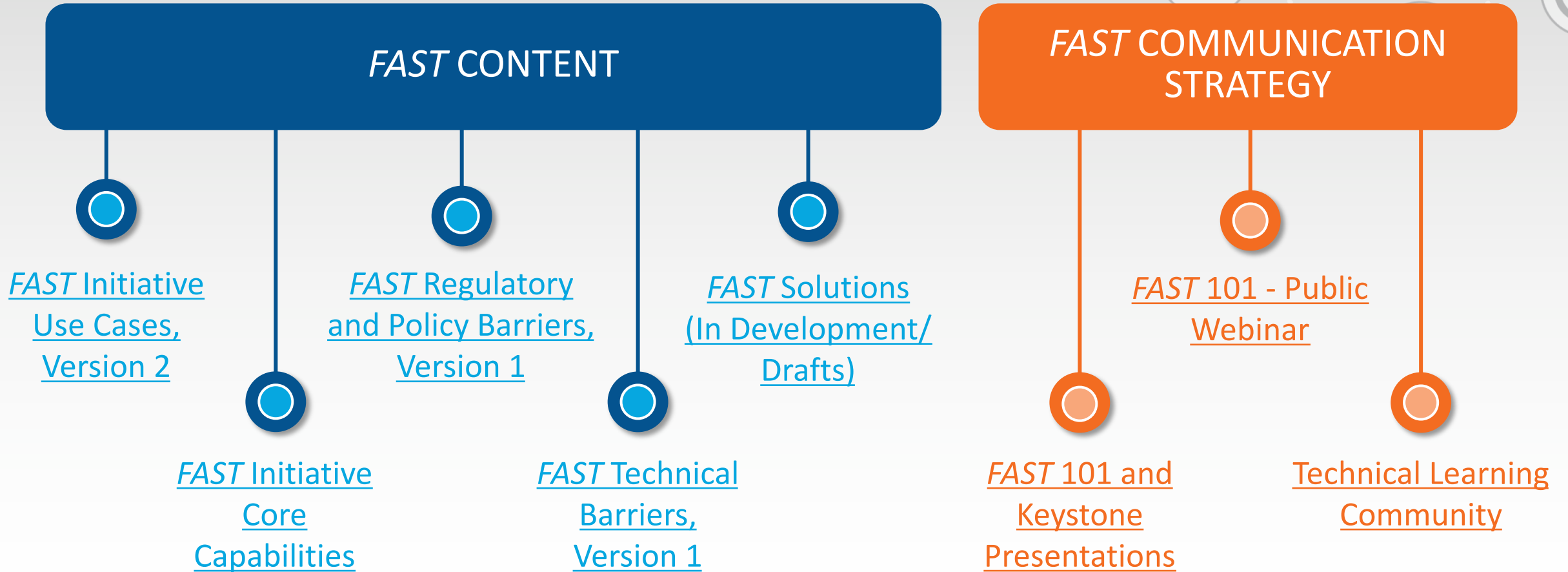
PM

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

TIGER TEAMS IDENTIFY:
- Use Cases
- Technical/Regulatory Barriers
- Core Capabilities
- Gap Analysis

TECHNICAL LEARNING
COMMUNITY (TLC)

**Information Sharing
with TLC through:**
- Website
- Periodic webinars
- Newsletters
- TLC Meetings
- LinkedIn Group

PM

FAST Initiative Output & Communication Strategy

FAST CONTENT

FAST COMMUNICATION STRATEGY

FAST Initiative Use Cases, Version 2

FAST Initiative Core Capabilities

FAST Regulatory and Policy Barriers, Version 1

FAST Technical Barriers, Version 1

FAST Solutions (In Development/ Drafts)

FAST 101 - Public Webinar

FAST 101 and Keystone Presentations

Technical Learning Community

All content is available on the *FAST* Project Page

PM

FAST Focus and How to Get Involved

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

PM

Polling Question 1

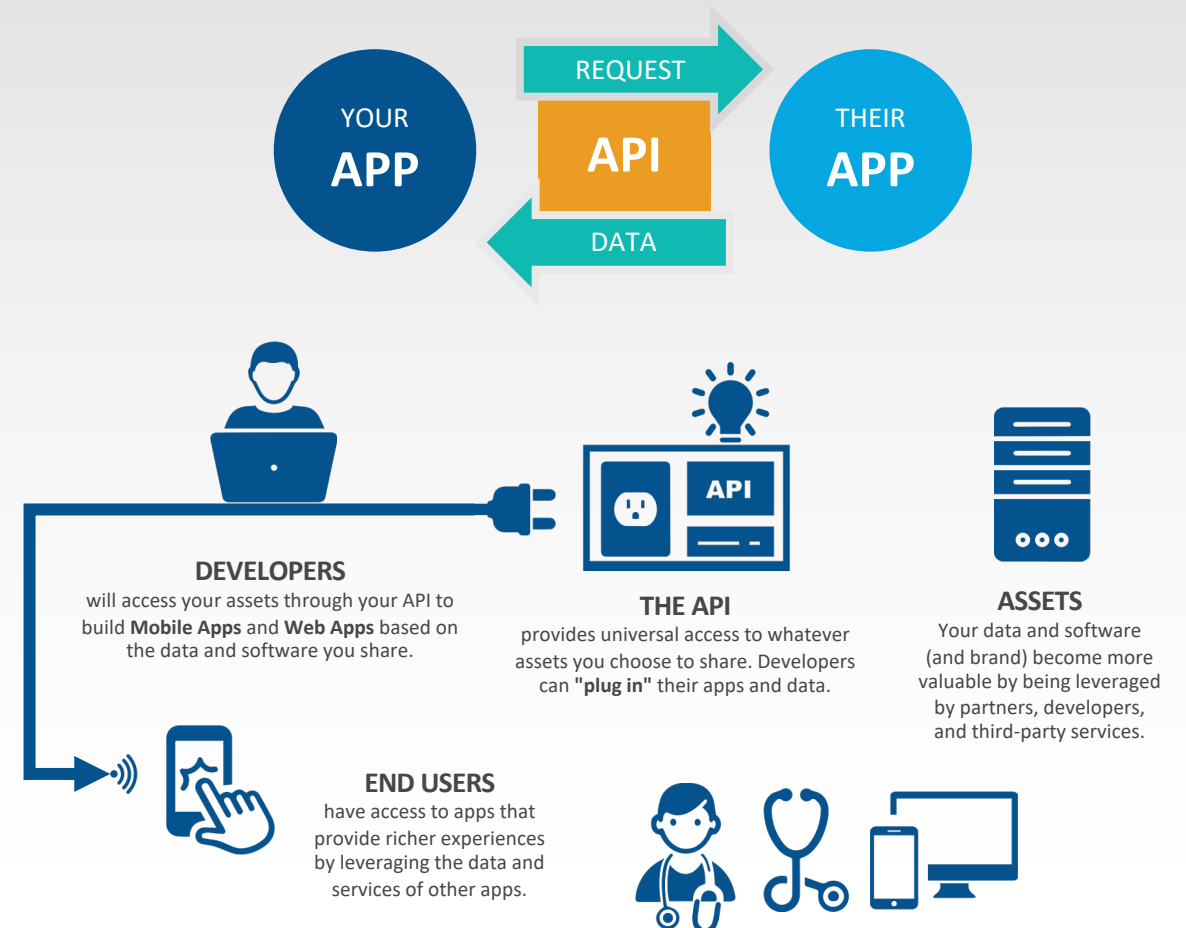## What type of organization do you represent?

1. Provider
2. Payer
3. Health IT Vendor
4. Standards/Research/Academic
5. Other (Please add comments in the question box)

PM

Application Programming Interface (API)

Dictionary Definition: A System of Tools and Resources in an Operating System, Enabling Developers to Create Software Applications

- Allow the capabilities or data of one computer program to be used by another
  - Lego blocks of data
  - Computer technology agnostic
- Many industries drive their economy by using APIs (Amazon, Netflix, Google, Facebook, eBay, YouTube, etc)
- Enable innovation by allowing programs to use and combine data

YOUR **APP**

REQUEST

API

DATA

THEIR **APP**

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

Fast Health Interoperability Resources (FHIR)

A Standard for Exchanging Healthcare Information Electronically

- HL7 - intellectual property is all licensed to use under the Creative Commons – free to use

- Accelerates data exchange by leveraging the HL7 standard to create allowing modular components (FHIR resources) to refer to each with URLs

- FHIR Resources, Profiles, and Implementation Guides go through a rigorous vetting process ensuring stakeholder input

- Implementation Guides leverage publicly available test servers, connectathons, and human readable instances that are easy to understand to support common healthcare use cases
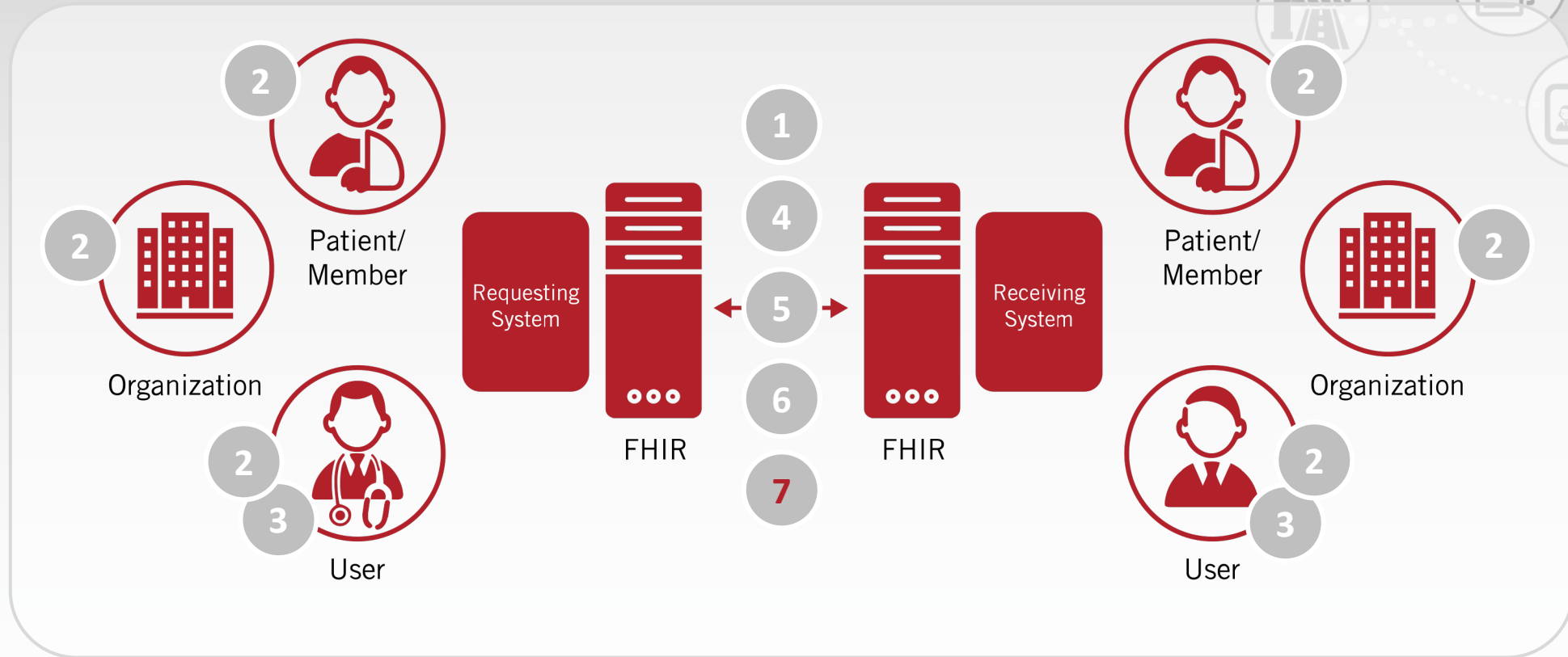
PM

Polling Question 2

How familiar is your organization with FHIR?

1. Expert (i.e., installed FHIR server, doing FHIR production exchanges)
2. Advanced (i.e., well-versed in FHIR and some production exchanges)
3. Beginning (i.e., aware of FHIR standard)
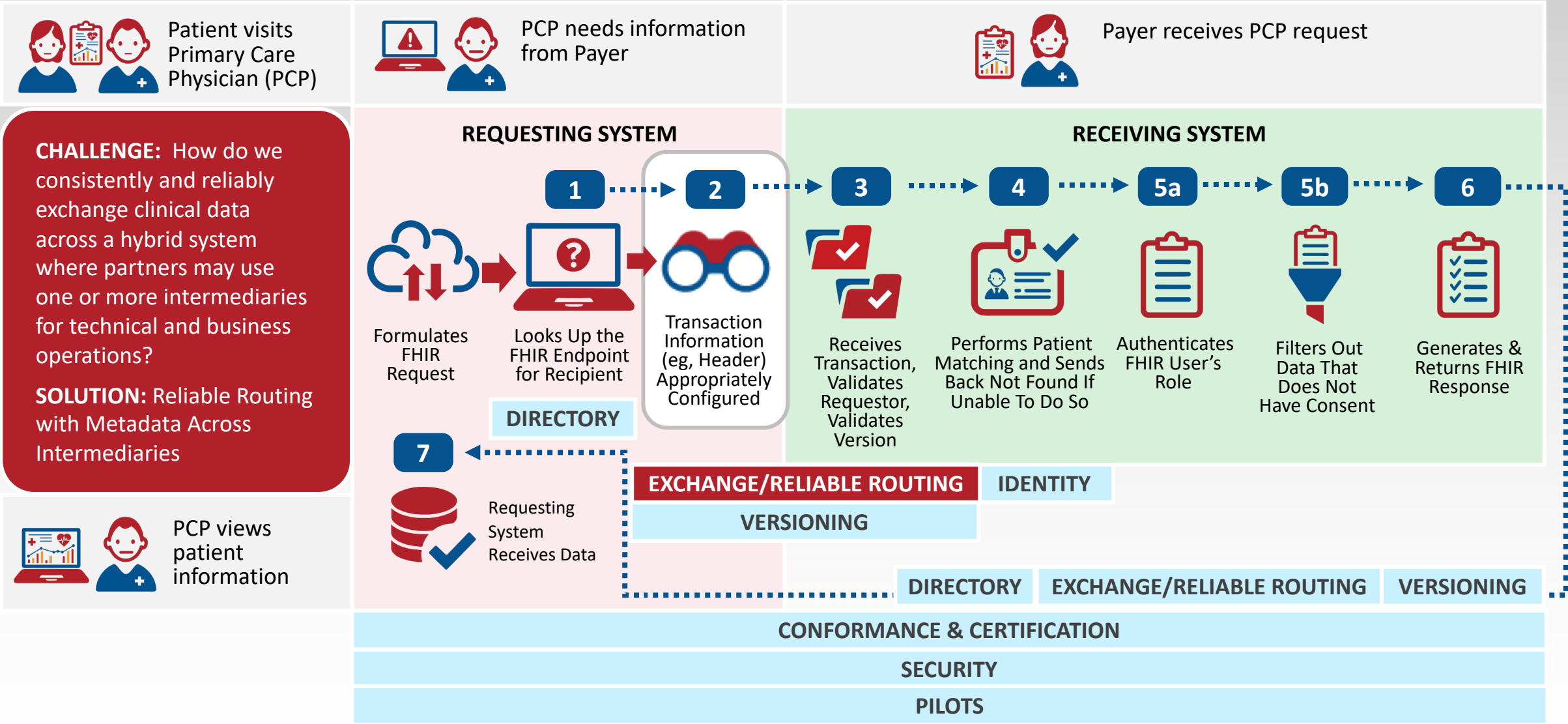4. Not at all
5. Other (Please add comments in the question box)

PM

Known Technical Barriers & Focus Areas

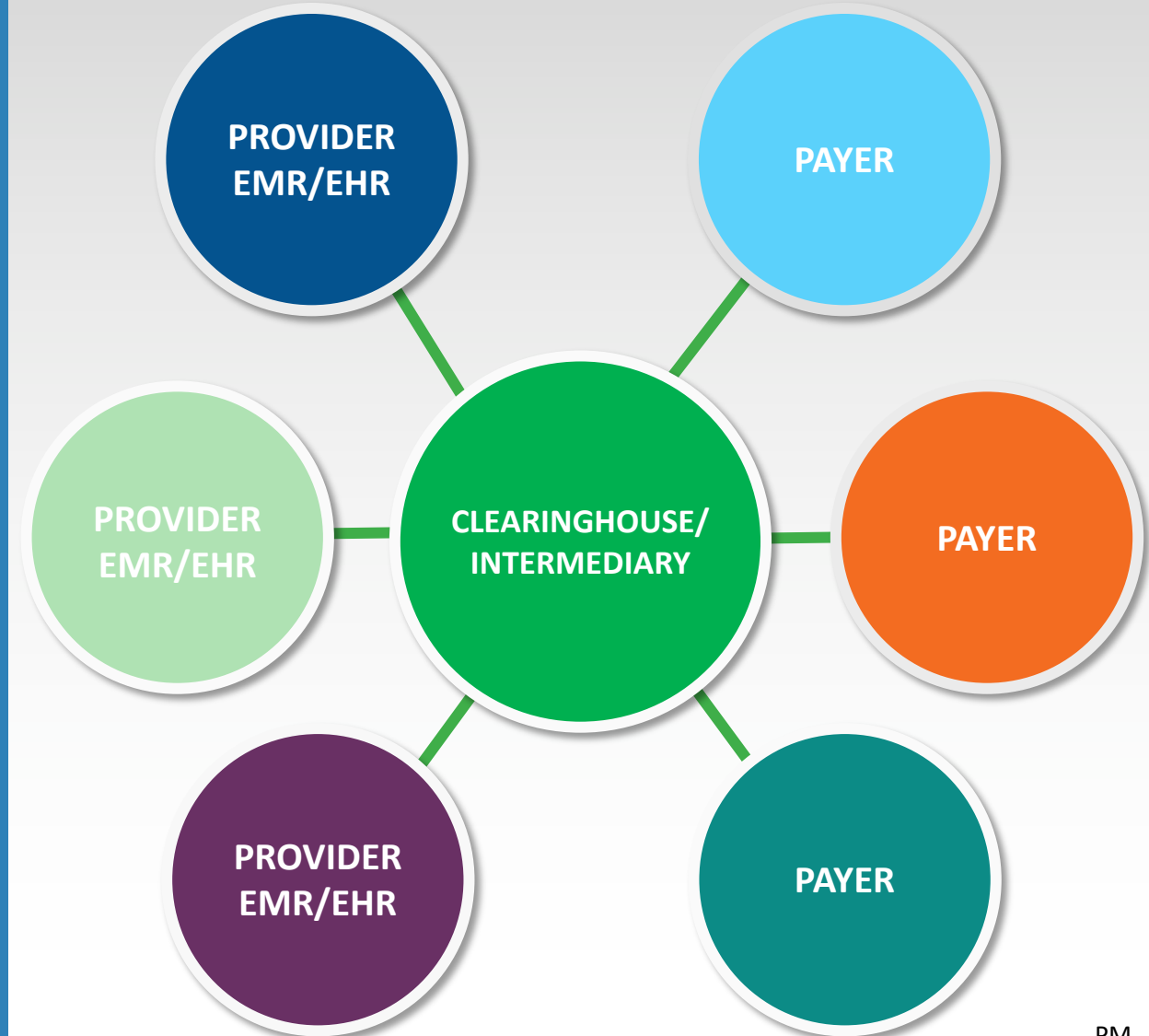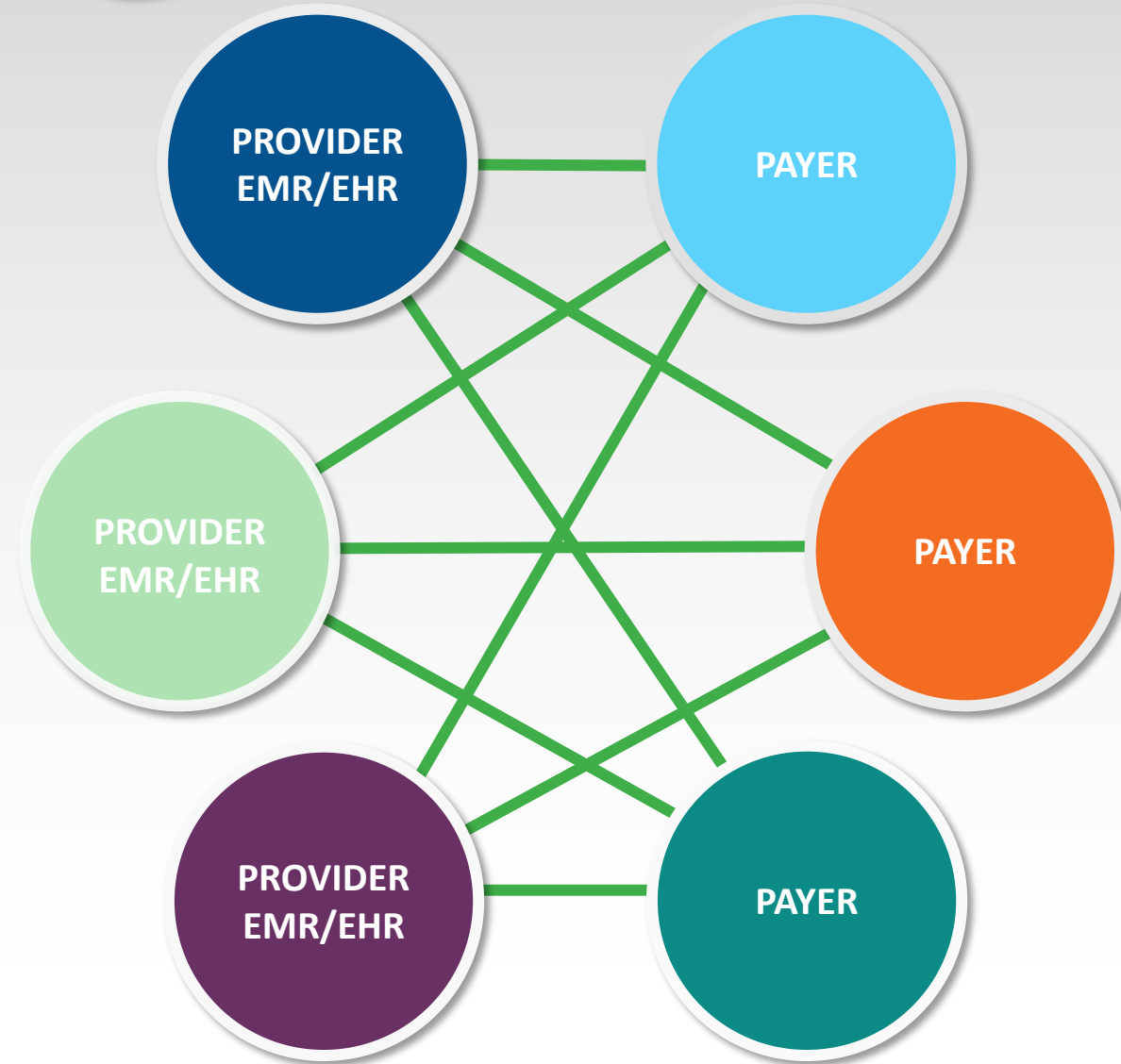|			
1 Directory Services	2 Identity	3 Security	4 Testing, Conformance & Certification
5 Versioning	6 Scaling	7 **Reliable Routing**	

For more information view *FAST* 101 and Technical Barriers
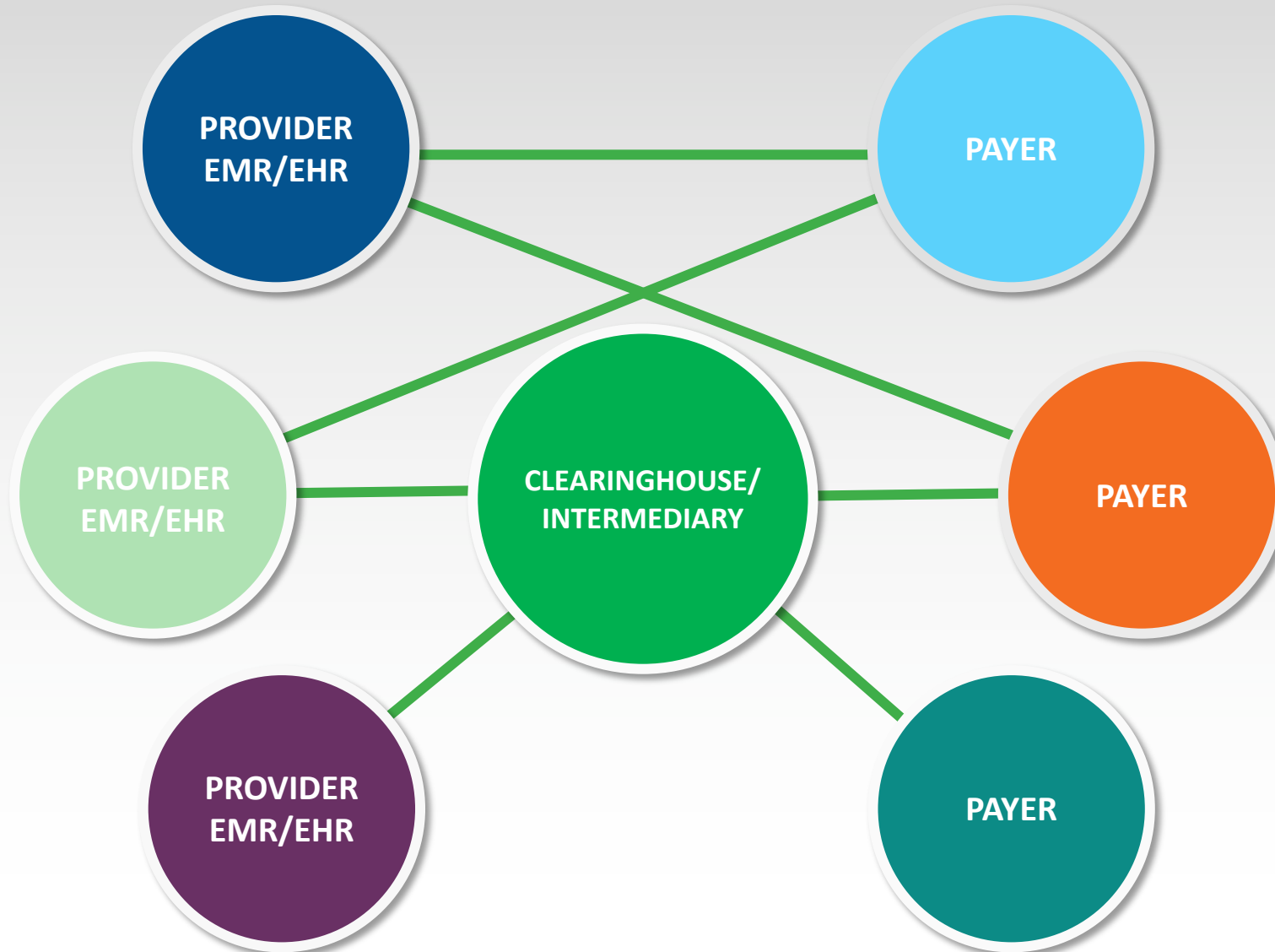
PM

Example FHIR Transaction Journey

Patient visits Primary Care Physician (PCP)

PCP needs information from Payer

Payer receives PCP request

CHALLENGE: How do we consistently and reliably exchange clinical data across a hybrid system where partners may use one or more intermediaries for technical and business operations?

SOLUTION: Reliable Routing with Metadata Across Intermediaries

PCP views patient information

REQUESTING SYSTEM

RECEIVING SYSTEM

1 Formulates FHIR Request

2 Looks Up the FHIR Endpoint for Recipient

Transaction Information (eg, Header) Appropriately Configured

DIRECTORY

3 Receives Transaction, Validates Requestor, Validates Version

4 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 FHIR Response

7 Requesting System Receives Data

EXCHANGE/RELIABLE ROUTING	IDENTITY
VERSIONING	

DIRECTORY	EXCHANGE/RELIABLE ROUTING	VERSIONING

CONFORMANCE & CERTIFICATION

SECURITY

PILOTS

For more information view _FAST_ 101

PM

Supporting Both Point to Point & Intermediary Models

PM

PM

Polling Question 3

How familiar are you with intermediary/clearinghouse model?

1. Aware and think it adds value
2. Aware but do not think it adds value
3. Not aware
4. Other (Please add comments in the question box)

PM

What is Metadata/Routing Information?

- Within FAST, exchange is solely concerned with routing across intermediaries and other tiger teams are focusing on directory, version, security, etc...

- Metadata – data about the data!

  - Classic example

    - Author

    - File size

    - Create date

    - Keywords

- Within the context of exchange, metadata refers to routing information that is carried along with the transaction so that it can reliably route across multiple 'hops' and arrive at the appropriate destination

  - Exchange examples

    - Payer ID

    - Organizational identifier

    - NPI

    - Originator ID

PM

Exchange Tiger Team Approach

Industry Initiatives and Research	Considered best practices and approaches from: • Existing API interaction patterns and models • SOAP wrappers around X12 • IHE • Direct Trust • ACH • Block chain
Community feedback	Soliciting early and continued feedback • SME involvement • Requesting feedback from FAST TLC through Webinars and LinkedIn Group
FAST Internal Reviews	Leveraging expertise on the taskforce • Feedback from FAST Coordinating Committee • Reviews with FAST Chief Architects and other Tiger Teams

PM

FAST Exchange Barriers to FHIR Scalability

EXCHANGE BARRIERS

IMPLICATIONS

Exchange Barrier	Description	Implication
USE OF DIFFERENT IDENTIFIERS	The metadata will need to have a standardized identifier set and attribute name (NPI, Payer ID, etc)	Routing engines will expect consistent attribute and identifier sets to route information
SYNCHRONOUS & ASYNCHRONOUS MODELS	Both models need to be supported with reliable routing	The model will need to support both push and pull models in synchronous and asynchronous patterns
HYBRID ENVIRONMENTS	The environment will consist of both dynamic point to point & intermediary models	The model must support transactions over both dynamic point to point and intermediary brokered models

PM

EXCHANGE

Reliable Transaction Routing

APPROACHES

Primary: Reliable Routing Across Intermediaries Using Metadata

Alternative: Reliable Routing Across Intermediaries Using Destination Specific Endpoints

PM

Proposed Solution:
Metadata

Proposed Solution: Routing Metadata – Overview

Solution Summary

In today's environment, FHIR integration is typically point-to-point without the need for routing meta-data. In addition, given the point-to-point model, it is typically obvious who the requester and responder are without the need for multi-hop routing data.

As FHIR scales and given that an intermediary/multi-intermediary hybrid model is being accounted for by other tiger teams, the need to support reliable multi-hop routing is planned.

Assumptions

- Point to point (including dynamic) models exists
- Intermediary model exists

In Scope

- Exchange using intermediaries
- Exchange using point to point (including dynamic)

Out of Scope

- Versioning
- Directory services
- Security
- Authentication
- Authorization

Complexity Rating

Medium: Builds on existing technology solution frameworks, but uses them in a new manner

PM

Proposed Solution: Routing Metadata – Status & Open Issues

Proposed Solution Status: In Progress

1. Vetting of solution continues including this webinar
2. Additional modeling of the structure and content, including value sets, continues
3. Additional SME focus teams to review in early 2020

Open Items

1. Vetting of appropriate metadata structures and locations such as
   1. Base resource metadata (source, tag) .. https://www.hl7.org/fhir/resource.html
   2. Resource MessageHeader
2. Value set for identifiers reconciliation

PM

Polling Question 4

Do you agree with this approach?

1. Yes
2. No (Please add comments in the question box)
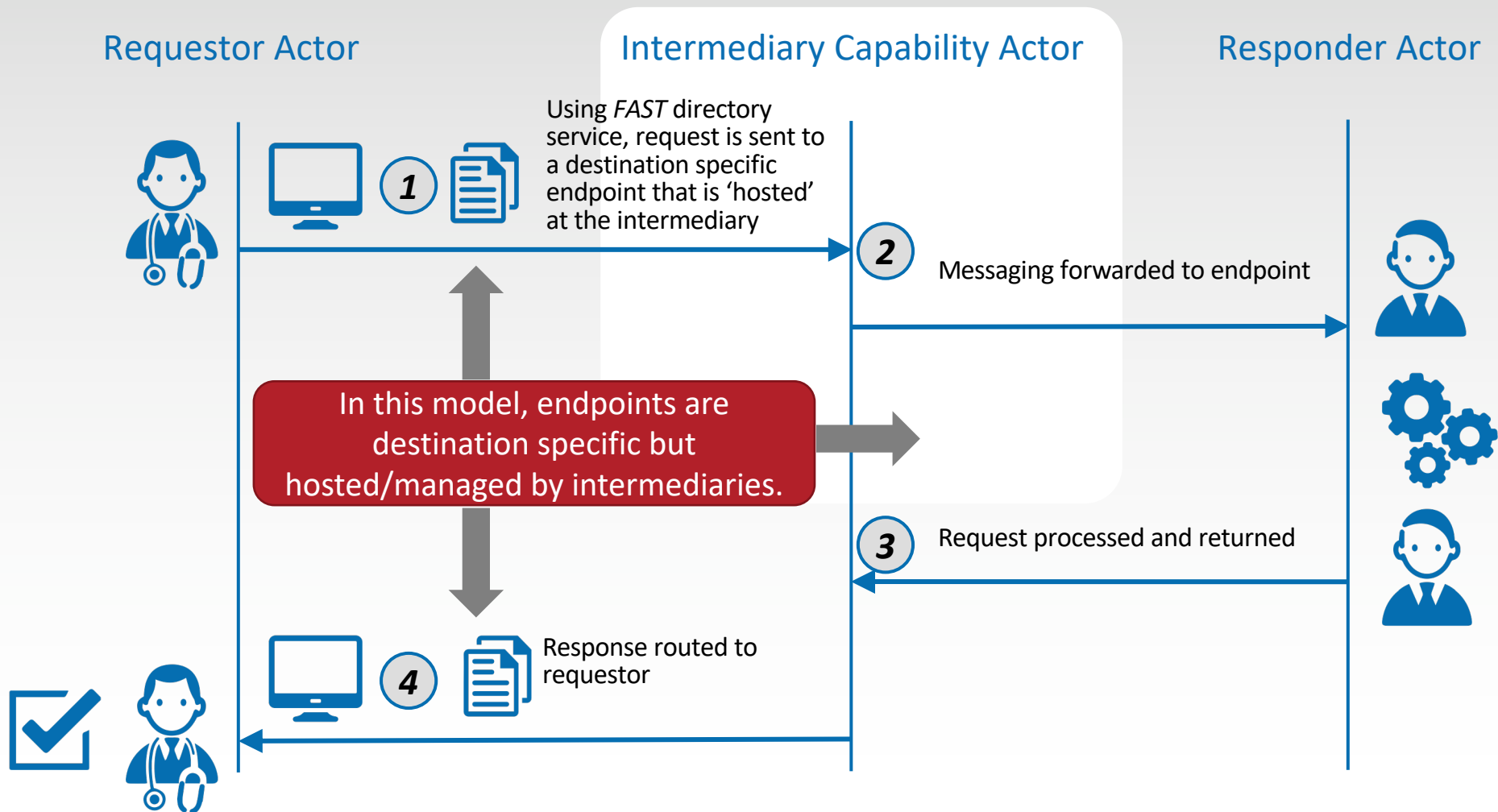3. Somewhat (Please add comments in the question box)

Alternate Solution:
Destination Specific Endpoints
Using Intermediaries

Alternate Solution: Destination Endpoint – 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

Using *FAST* directory service, request is sent to a destination specific endpoint that is 'hosted' at the intermediary

2

Messaging forwarded to endpoint

In this model, endpoints are destination specific but hosted/managed by intermediaries.

3

Request processed and returned

4

Response routed to requestor

PM

Polling Question 5

Do you agree with this alternate approach?

1. Yes
2. No (Please add comments in the question box)
3. Somewhat (Please add comments in the question box)

PM

FAST Technical Learning Community (TLC) Webinar Series

Identity TLC Webinar
Thursday, November 21st
Mediated Patient Matching
Collaborative Patient Matching
Distributed Identity Management
Presentation

Certification & Testing TLC Webinar
Thursday, December 12th
ONC FHIR Testing and Certification Program
Presentation

Exchange TLC Webinar
Thursday, December 19th
Reliable Routing Across Intermediaries Using Metadata
Presentation
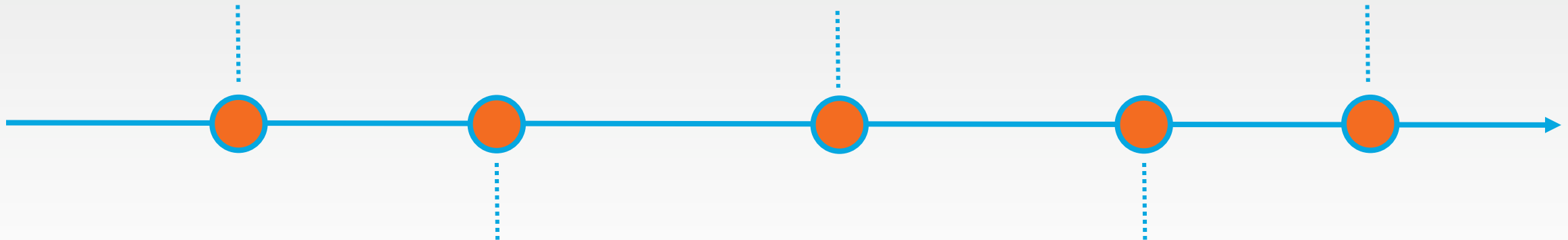
Directory, Versioning & Scale TLC Webinar
Monday, November 25th
Directory: A national solution for FHIR Endpoint Discovery
Versioning: Supporting multiple production versions of FHIR
Scale: Requirements for FHIR RESTful exchange intermediaries
Presentation

Security TLC Webinar
Monday, December 16th
Trusted Dynamic Client Registration & Token Request
Presentation

PM

Additional Questions & Feedback

Patient & Provider Identity Management

Directory Services

Version Identification

Scale

Exchange Process/Metadata

Testing, Conformance & Certification

Security

Pilots

FAST Technical Learning Community

The *FAST* team wants to hear from you!

Please post additional questions and comments for Tiger Team members to review and respond in the *FAST LINKEDIN GROUP*

DD

Thank You – Today's Presenters

Durwin Day

Health Information Manager

HCSC

Patrick Murta

Architecture Fellow

Humana

Connect with us on LinkedIn to stay informed

For more information on the *FAST* Initiative,
visit the *FAST* Project Page or https://tinyurl.com/ONC-FAST

Have any further questions/suggestions?

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

DD