



Query Workgroup Meeting Minutes

November 10, 2014: 2:00 – 4:00 pm EST

Meeting Participants

Committee Members

- ✓ Seth Selkow, Kaiser Permanente (Co-Chair)
- ✓ Marty Prah, SSA
- ✓ Eric Heflin, Healthway
- ✓ David Tao, ICSA Labs
- ✓ John Donnelly, Interoperability Domain Expert
- ✓ Brandon Wayman, GE
- ✓ Joe Lamy, AEGIS
- ✓ Paul Clip, CommonWell
- ✓ Sean Turner, Dignity Health
- ✓ Tara Dragert, Surescripts

Invited Subject Matter Experts and Carequality Support Team

- ✓ Mariann Yeager, Healthway Chief Executive Officer
- ✓ Neil Webb, Care Connectivity Consortium
- ✓ Darren Mann, Intermountain Healthcare
- ✓ Justin Stauffer, Epic
- ✓ Didi Davis, Healthway
- ✓ Anita Samarth, Clinovations Government Solutions

Meeting Summary

Call to order

Discussion Summary: Roll call was facilitated to identify the Query Workgroup members and invited SMEs and Support Team. See list of participants noted above.

Action/Follow up: None

Meeting Minutes

Discussion Summary: A recommendation was highlighted to clarify the three areas that will be clarified the CCC survey response that was noted in the minutes. This item will be updated and clarified within the version of the minutes for posting.



Action/Follow up: Staff will update the meeting minutes as discussed and ensure that all meeting minutes are posted on the Wiki page.

Posting of Presentations on the Wiki

Discussion Summary: The group discussed whether presentations could be posted to the Carequality Wiki. In reviewing ability to lock down the Wiki there is the ability to post password-enabled materials, as the Wiki does require a login. It is recognized that there may be concern regarding intellectual property or posting in the space.

It does not appear that there is the ability to restrict access to only the Query Workgroup members at this time. Before the workgroups were initiated, there was discussion regarding the ability to lock down the Wiki or a collaboration space to publish materials that could be publically shared versus those that should not be shared broadly, and only amongst the workgroup participants.

Action/Follow up: Staff will research options for posting presentations in a restricted environment for workgroup members only. The link to the web recording will be sent to the workgroup members for access after this meeting, but staff will research longer-term storage options such as the Wiki.

Review of Agenda

Discussion Summary: Today, the capabilities will be reviewed for eHealth Exchange, and time permitting CCC – as the architecture was reviewed – but we received feedback that it would be helpful to review CCC data flow and message orchestration.

The upcoming schedule of presentation topics were reviewed:

Date	2:15 - 3:00 pm	3:00 - 3:45 pm
10-Nov	Eric Heflin, eHealth Exchange Simple Query	Seth Selkow, Darren Mann, Neil Webb, Care Connectivity Consortium Simple Query & RLS
17-Nov	Paul Clip, CommonWell Simple Query and RLS	Tara Dragert, Surescripts RLS
24-Nov	Justin Stauffer, Epic Care Everywhere Simple Query -:-	Justin Stauffer, Epic Care Everywhere RLS
1-Dec	John Donnelly, EHR/HIE Interoperability Workgroup Simple Query	John Donnelly, EHR/HIE Interoperability Workgroup RLS

As the recorded versions of the presentations will be available to workgroup members, the minutes will cover topic level summary information as workgroup members will be able to consult both the presentations and the recorded web presentation with audio for reference.

Action/Follow up: Set to distribute web recording link to the Workgroup and staff to post materials from today's presentation onto the Wiki upon availability of private workspace for the Query Workgroup.

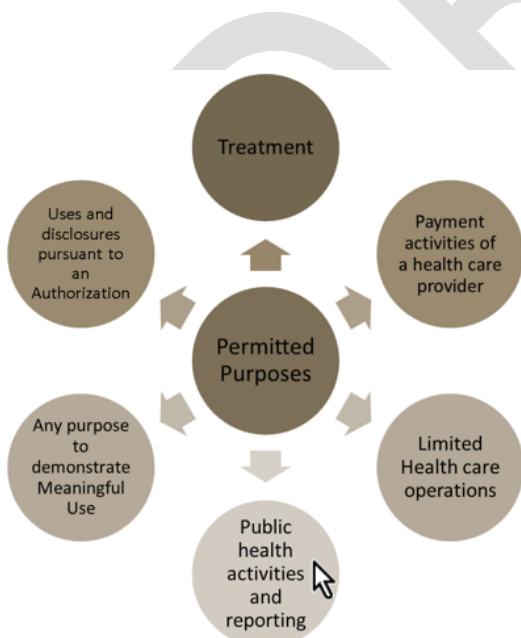
The web recording of the 11/10 meeting is available at:

<https://kponline.webex.com/kponline/lr.php?RCID=5b9f5ce2403b48c2a79b6511d607a764>

Simple Query and RLS Presentation: eHealth Exchange

Discussion Summary: Eric Heflin presented to the group on behalf of the eHealth Exchange. A public presentation has been created previously for the eHealth Exchange that is an hour long that is being excerpted for review and discussion during today's workgroup meeting. The topics that are part of the hour-long presentation was reviewed along with a highlight of proposed items to cover during the session. Workgroup members concurred with the proposed focus areas: Use Cases supported, architectural components, and if there's interest and time permitting, discuss the security program and testing.

The permitted purposes for the exchange are depicted below:



Use Cases

The Care Summary is about 20 Use Cases within itself – an example could be episodic care where the response is for a single episode; Discharge summary or episodic response to a query or query for longitudinal information or query for specific date ranges.

It is very important to tease apart the sub-use cases as the testing program for Carequality should look at the specific resources. One specific example is that some organizations want to use the “service start time” and “service stop time” in their queries – which are critical to their use cases, but the definition of



these are undefined. For example if a service “start time request” is for 3 years, but 4 years ago, the patient was diagnosed with an ongoing chronic condition – there are rules where if a condition exists prior to a “service start time”, it’s acceptable for a responder to provide information that occurred prior to the “service start time” if it is still active.

Other Use Cases: Treatment, Disability Claims, Meaningful Use, Quality, Biosurveillance was one of the first use cases – a pilot between Regenstrief and the CDC where if a patient admitted to Registries with an influenza like illness would result in a push of data to CDC to support development of a “weather map” of where conditions were originating.

Push and Pull: eHealth Exchange have not only a query use case, but also the ability to push data using standards such as IHE and the XD* flavor of Direct.

Requirements for Auditing – a more detailed discussion could be conducted on whether this is appropriate for Carequality Query Use Case. eHealth Exchange has security requirements where the same data elements to enable high audit logging resolution are also used for access control decision making on the part of the respondent.

eHealth Exchange has an input process for getting new use cases into the process to adopt new use cases.

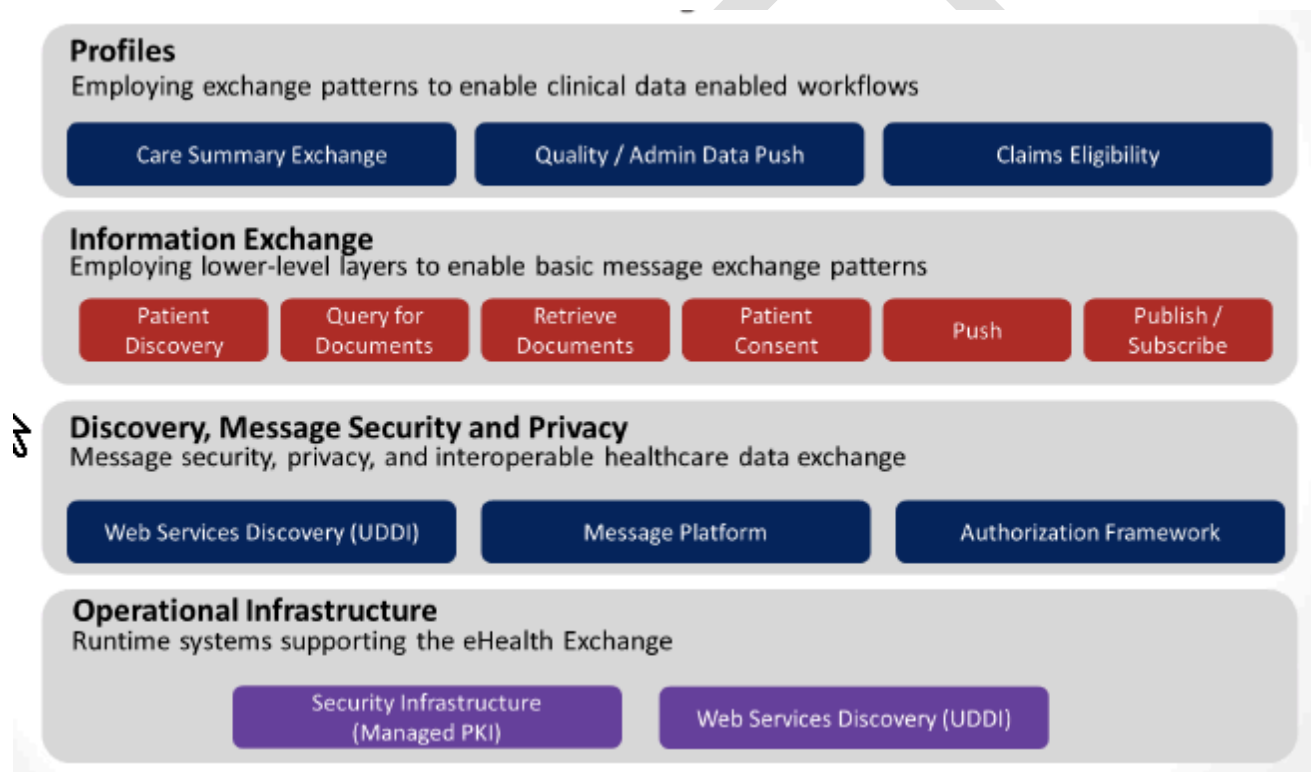
Architectural Requirements

- Ability to discover and exchange healthcare information amongst participant entities: One of the early objectives was to not have a nationwide EMPI – not that it couldn’t exist in the future.
- In the absence of a national identifier, have the ability match patients with their data
- Ability to support patient preference regarding their exchange – to support query requirements as ACP (Access Consent Policies) includes the ability to exchange consent to authorization so that the disclosing party can take into account any patient authorization or consent that the patient has specified. A deliberate limitation to prevent phishing – if there’s a bad actor or a machine is compromised, wanted to prevent an organization from harvesting all of the data on the patient. If a patient cannot be matched cannot be matched due to consent, a response is sent indicating patient is not available. This may be something that Carequality may want to take into account – to respond with why a match did not occur even if there is a patient match – it was due to legal or consent reasons.
- Support secure data exchange



- Support harmonized standards
- Support diverse set of organizations, technologies and approaches
- Support a common trust agreement
- Meaningful Use
- Reliability
- Scalability
- Non-repudiation – one of the objectives from back in 2005 referenced non-repudiation – proof that something happened to ensure that an organization could not claim that they did not share information a given patient's record with organization

The specifications are on the Healthway website within resources – exchange specifications. The Architectural Layers were reviewed:



Participant Gateway

Definition of a gateway has evolved – originally it was focused on a single type of gateway – or single organization. But today, most gateway represents a single organization, but over time a gateway may represent many organizations with some agreement in shared policies, but not total agreement in policies or technologies.



For example the responder only pilot may only represent organizations that respond to requests, but not initiators. Others represent initiators (like PHRs) but not responders.

From a Carequality standpoint, we'll have to look into requirements, assumptions, constraints, and enablers to enable Simple Query.

Many organizations develop a rollout plan for the participant gateway – some add everyone at the same time. For example with the VA – regions have been added at a time, but all of their regions were added at once about a year and a half ago. Dignity Health has a single gateway that's onboarded, but are bringing on content regionally as they have the capability to bring on that content. In Texas, the gateway only has Austin and Houston onboarded, and are waiting for other regional gateways to connect.

A commenter noted that eventually something akin to a “cell phone map” would be helpful to understand the level of connections.

Could have a list of regional gateways within a state and within that, the organizations within a region. Can include geocoding information with the zip code of the participants – so will have a way to operationalize a large directory. There are multiple representations in each state and cities right now – especially with SSA and the VA.

For example, the SSA is not interacting with everyone on the Exchange right now – but have Google mapped the data to get a sense of where organizations can interoperate. At a local level, this is done to build out “phone books”, but in the future some level of Provider Directory is needed so that you have the ability to query across networks.

If a patient queries KP for example and receives 5 records – can the requestor assume that all records were received – when in reality only a certain region has been connected to the gateway. How will the requestor know the completeness or scope of the response?

A lot of organizations want to know “who are their neighbors?” because there is a higher probability of information sharing between those organizations.

Example and Carequality Query Workgroup Follow-up: Is CareEverywhere for Epic – really everywhere? Or is it's not really every Epic customer, it's only those who are on X version who bought X, Y, and Z. So that you don't assume that you're connected to everyone who bought Epic. This is a requirement for the Query Workgroup to consider.



Patient Discovery

eHealth Exchange Patient Discovery uses the IHE XPCD. Has the ability to perform targeted and broadcast queries. The Carequality Query Workgroup should consider whether support for both is needed.

Carequality workgroup should identify operation that is supported by the specs – in querying for Demographics, demographics and ID, and query for the ID – is there the ability to store the ID. Organizations may use a query for demographics and ID to allow the partner to save the ID, which can cause challenges – but this is one mode of operation that is supported by the eHealth Exchange specifications.

Off-label use of publish and subscribe: For example the VA, in connection with Walgreens, VA will use the patient discovery request to Walgreens as a subscription so Walgreens can send information to the VA. Usually a publish/subscribe has other requirements as well, such as control – notifying or disabling or unsubscribe of the subscription, which is not supported today. Healthway is seeing more and more requests for a publish/subscribe model.

Query for Documents

Occurs after patient discovery, using IHE XCA and returns a list of zero or more matching documents. One scalability issue – if you have a client you see every day for a long period of time - it could result in a lot of documents. There is one flavor of XCA that returns less documents than the other and can be helpful if timeouts occur.

In MU testimony, there have been complaints from providers - even for a single document (C-CDA) - contains too much information.

When you take a query where you can get multiple documents from multiple sources over multiple dates, what has experience told us in terms of returning something that is useful? This has been a long-term problem that is being nudged into a direction towards resolution – as returning 500 documents to a query is as useful as returning no documents. Want to allow the receiver of the 500 documents to have them go through a cognitive processing step. For example, the requester likely wants current problem information, but someone like a family practitioner might want access to all historical problems. The care setting and context can result in a different use and need of the same data. This is why we need interoperable data.

As the simple push use case from A to B hasn't been solved at a national level, how to avoid problems of acceptance around Query which is even more complex. However, the filtering and cognitive layer requires consideration.



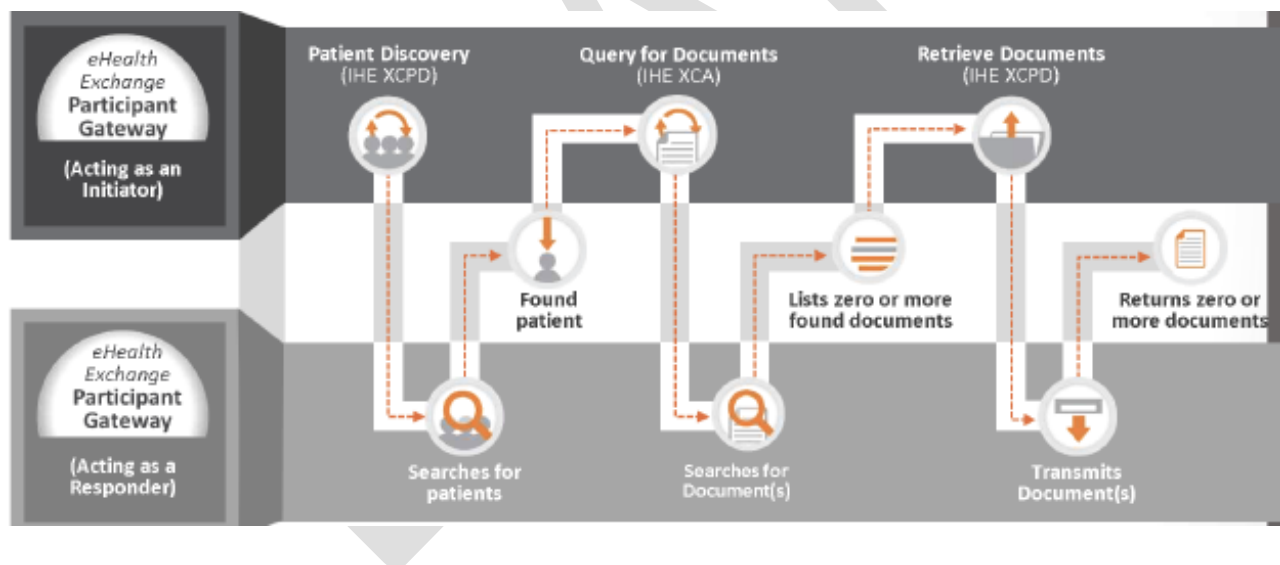
Not just can you generate the data, what does the SLA look like – how long does it take and what does the data look like – especially when you query nationwide. Need to look at whether organizations have this in place and think through what this looks like nationally.

Push has its own challenges as the receiver has no control in advance on what to receive. One of the considerations for the Query Workgroup is that the requester can provide information to drive granularity and specificity in the request, to increase the likelihood of getting what is desired or useful.

eHealth Exchange Query Workflow

Carequality may consider a similar diagram to the below as it's been useful to work with individuals and stakeholders to understand query workflow who are not as experienced or technically experienced as the Query Workgroup.

A valuable lesson learned on Federated HPD that could benefit Federated Queries work for the Query Workgroup: It's good to have a list of **<unclear>**.



This is similar and standard message orchestration for CCC and KP – there's a little difference when interoperating with SSA. For implementation of these IHE profiles, it's the same message orchestration for CCC, KP. There are additional layers for shared services for CCC as well.

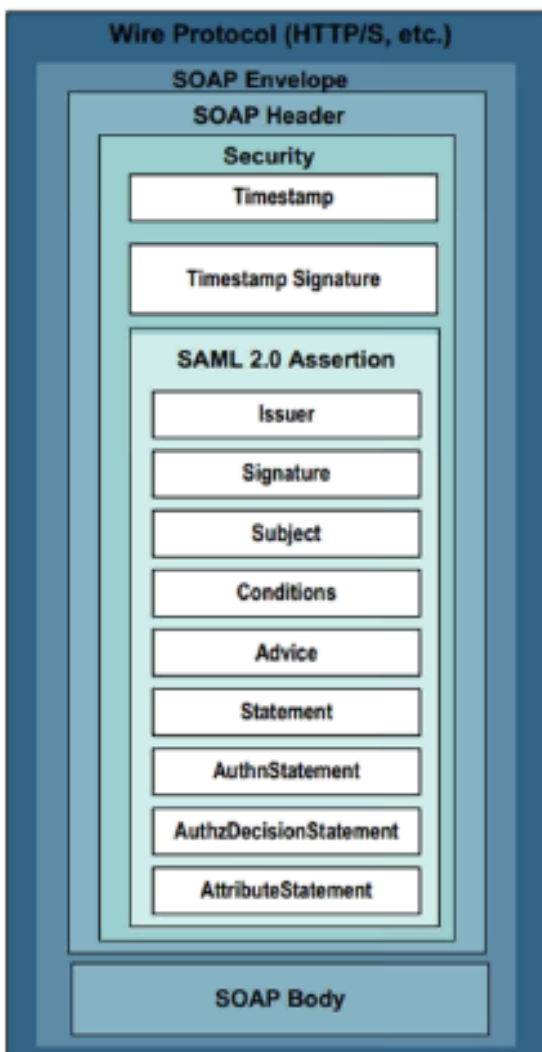
Based upon the standards described, the document list and the presentation of documents would support both static documents a network may have as well as on-demand set of documents. The approach is agnostic to documents – this may be an



area to dive in deeper in a future discussion – to support static documents (e.g. episodic) vs. EMR data.

All of the metadata parameters that can be used for queries and the processing roles – some of the basic specs for metadata parameters are still evolving. There are a number of definitions that are not solid at this time.

If a system can only handle C-CDA, not C-32 – then there isn't a way to specify the query parameters. Need to consider this in the implementation specifications. An example is when to provide data outside of the requested parameters?



Security Layer

The eHealth Exchange security layer was described as depicted below.

In supporting a degree of non-repudiation is in using digital signatures in this message layer – to enable the verification of the party that signed the message. 10 years from now, for example, KP can look at PKI from a message and determine whether the signature was independently verifiable from Organization B. The eHealth Exchange security assessment was based on the NIST Threat Model.

Trust is based upon systems, not users. The gateway is being trusted because it's part of the eHealth Exchange. X.509 certificates are issued once Healthway staff has determined that the participant has met the legal, business, and technical requirements. The digital certificate can be used as evidence that the organization has met the eHealth Exchange criteria.

There is very limited expertise in health systems and organizations in PKI and certificates.

SAML headers are used – wanted to present enough information to the responder so that they can make access control decisions. Example in Texas, Houston is only sharing information for treatment or for specific purposes. The vendor does not support



SAML today, so Houston asked if at the state level, the SAML requirement would be waived. Texas is willing, but if you don't have SAML – for every request that comes to you, you cannot tell whether the request to the city of Houston came from VA, SSA, Austin – all requests will look like they came from the state of Texas. After discussing some of the compelling benefits of SAML, it was eventually supported by the city of Houston.

If looking at building a bridge for something like FHIR, Carequality, should consider that there's a way to either infer or carry attributes back and forth between eHealth Exchange based web services and FHIR RESTful services, or similarly for other future technologies.

In addition, eHealth Exchange uses a governed Certificate Authority (CA), have been reviewed using Threat/Risk Modeling, a human user is only an "attribute" of Gateway communications, all activities between gateways are securely logged, and provides for automation and user directed activities.

Trust Framework – Cross-Pollination Items

The Trust Framework hasn't gotten to this level yet – may not get into that level. The Trust Framework will look to the security framework around this – to ensure there's the harmonization of Use Case security to implementation of use cases for Security. The Trust Framework is ensuring that the framework is there, but not getting into specifics in terms of privacy and security. As you move from use case to use case, need an approach that can be applied in a consistent manner from a security standpoint.

Simple Query and RLS Presentation: CCC Continuation

Discussion Summary: Last week, the components were covered, but not the detail about how information moves and how CCC talks to the outside world and how the outside world talks to CCC. It's done similarly in CCC as with Healthway. CCC does "X, Y, and Z" to interoperate with others.

The following diagram was shared to provide additional information on how CCC participants would interoperate with each other.

Might want to consider the type of Conformity Assessment that is needed to onboard participants to a network. The Workgroup should identify these types of items. The diagram is exposing the tier below the gateway – looking into the ability to be a conduit for its members. At the end of the day, it needs to be understood what is an interaction between providers within a network.



As the workgroup looks at the surveys and examines different organizations that come to the table, need to understand the Use Case not only from the technical side, but also the business side. If we're looking at a network that does have an edge gateway that could enable a group of organizations underneath them to come to the table vs. an organization that has a smaller group of participants. The Workgroup charge is fairly wide – how do we enable a large number of organizations to come to the table – either by the organization, technology partner, or number of organizations within the network.

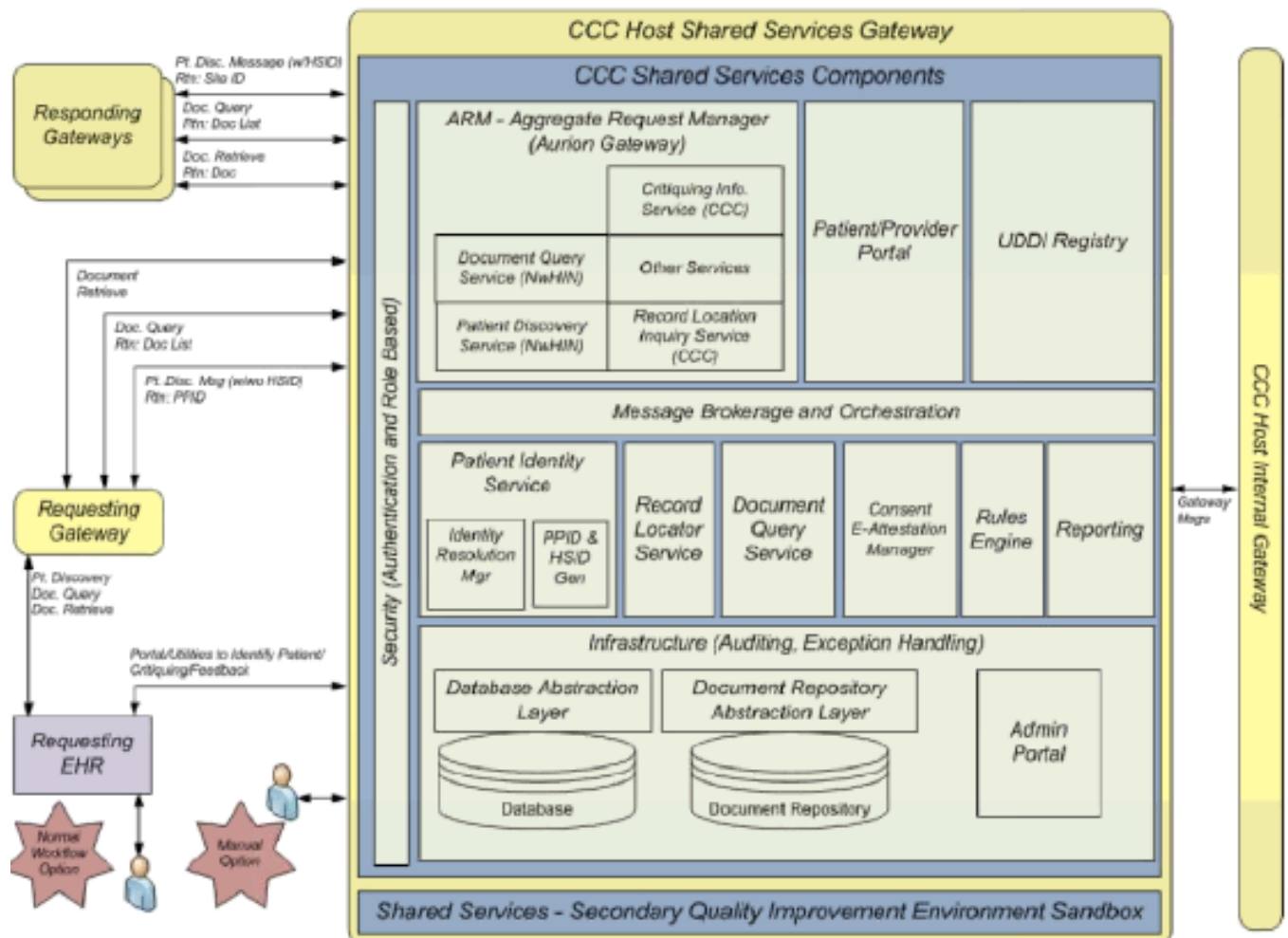


Figure 18: Detailed Federated Model Architecture Diagram

The diagram below depicts the CCC Federated Model. The Workgroup will need to consider whether we know intelligently whom you're supposed to query as the requestor? Or is there a workflow that indicates the specific places to query directly. Whether this is happening in an automated manner or more blunt force is something that's happening by the gateway. The network is impacted one way if it's a brute force way to do a fanned out query to search vs. a targeted query where for example a



patient indicates he was at Kaiser Permanente and there's the need to query specifically for Kaiser.

For CCC, the message orchestration is similar to the description provide for eHealth Exchange where patient discovery is performed first followed by a query for documents.

In the Query Workgroup charter, the "Simple Query" is focused on a known responder versus more of a broadcast query – where the responder and the patient is known.

Another example – some information is pushed to you but it's not everything that you want – the Targeted Query may be easier to tackle, but it won't cover every possible scenario. The same infrastructure should support both targeted and broadcast query by applying parameters. A targeted query would be initiated by a requestor by applying specific parameters.

Shared Services Platform Overview: Federated Model

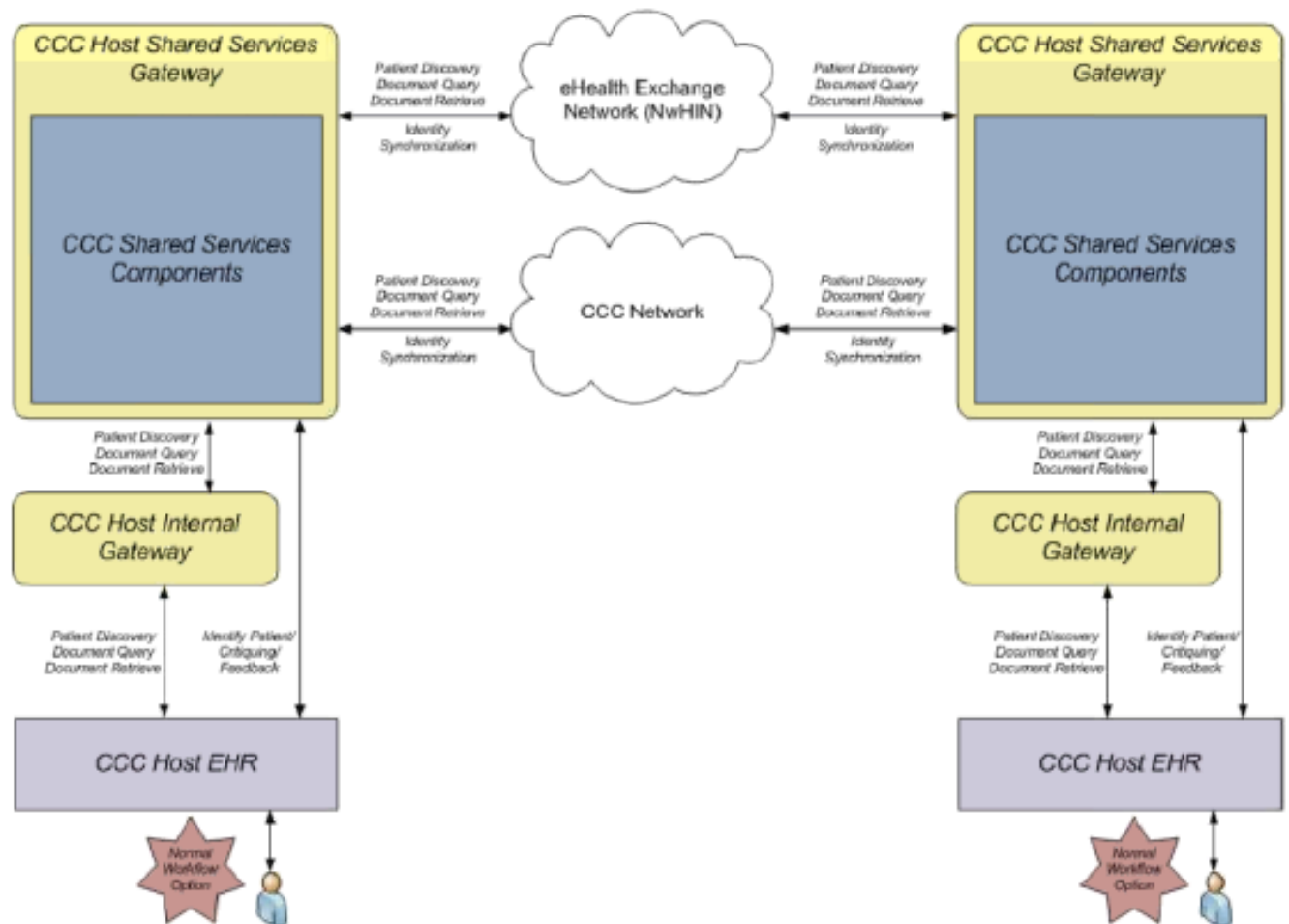


Figure 15: High Level Federated Model Architecture Diagram

In order to interoperate, several services need to be supported. The Document Query Service Architecture Diagram was reviewed:

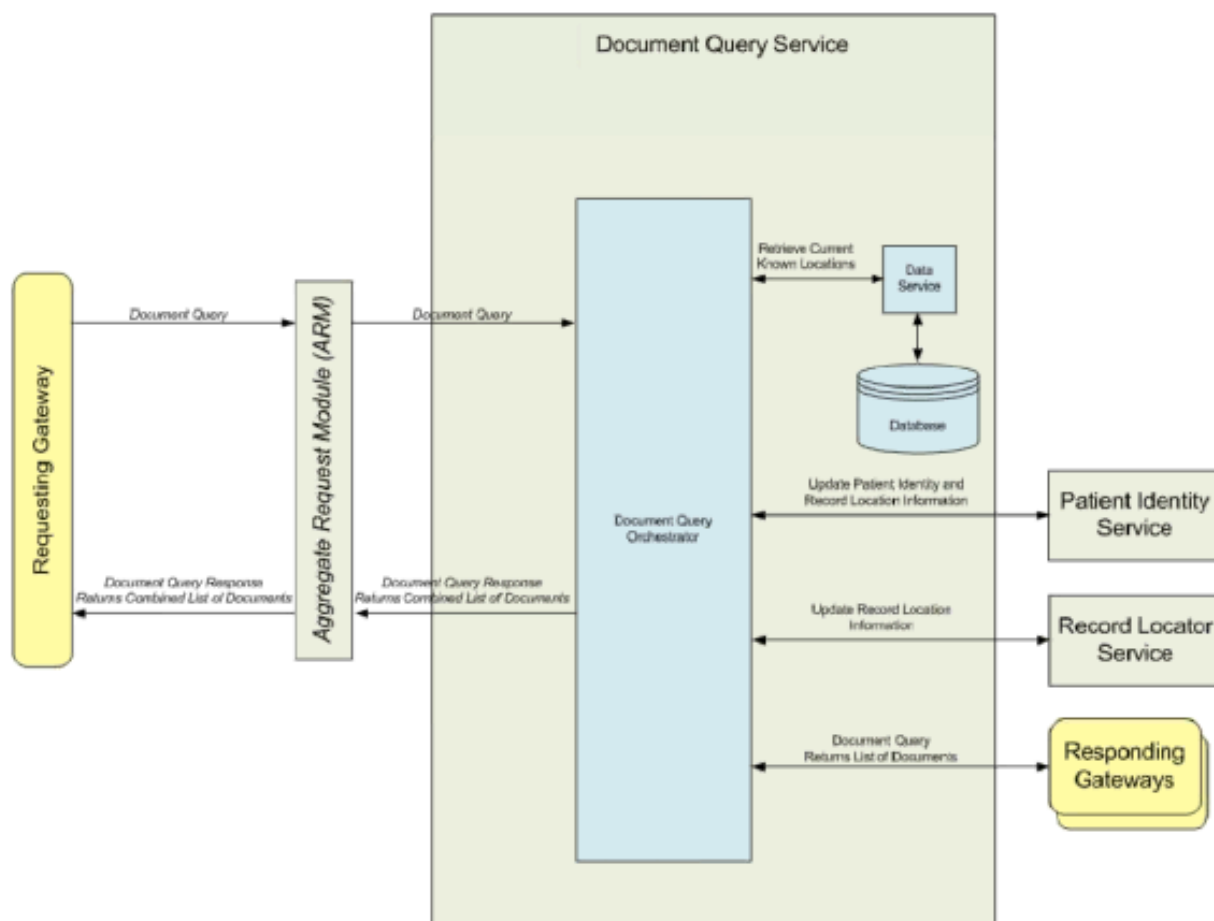


Figure 24: Document Query Service Architecture Diagram

On the right-hand side of the “Aggregate Response Module” (ARM) is up to CCC. This picture depicts one message in the message orchestration for patient discovery followed by a request for documents.

The group discussed the level of detail to investigate in the Workgroup meetings and in preparation for the December 8th in-person meeting.

How much of the complexity of the gateway is transparent? For example, with eHealth Exchange, might get one patient back from an assigning authority or may get multiple – in this case the requesting authority has to manage this. Where is the complexity managed? The CCC is leveraging more of a federated EMPI – the gateway would know about patients it has addressed – not necessarily a conclusive view of a number



of organizations. (E.g. keep track of organizations with whom there has been interaction).

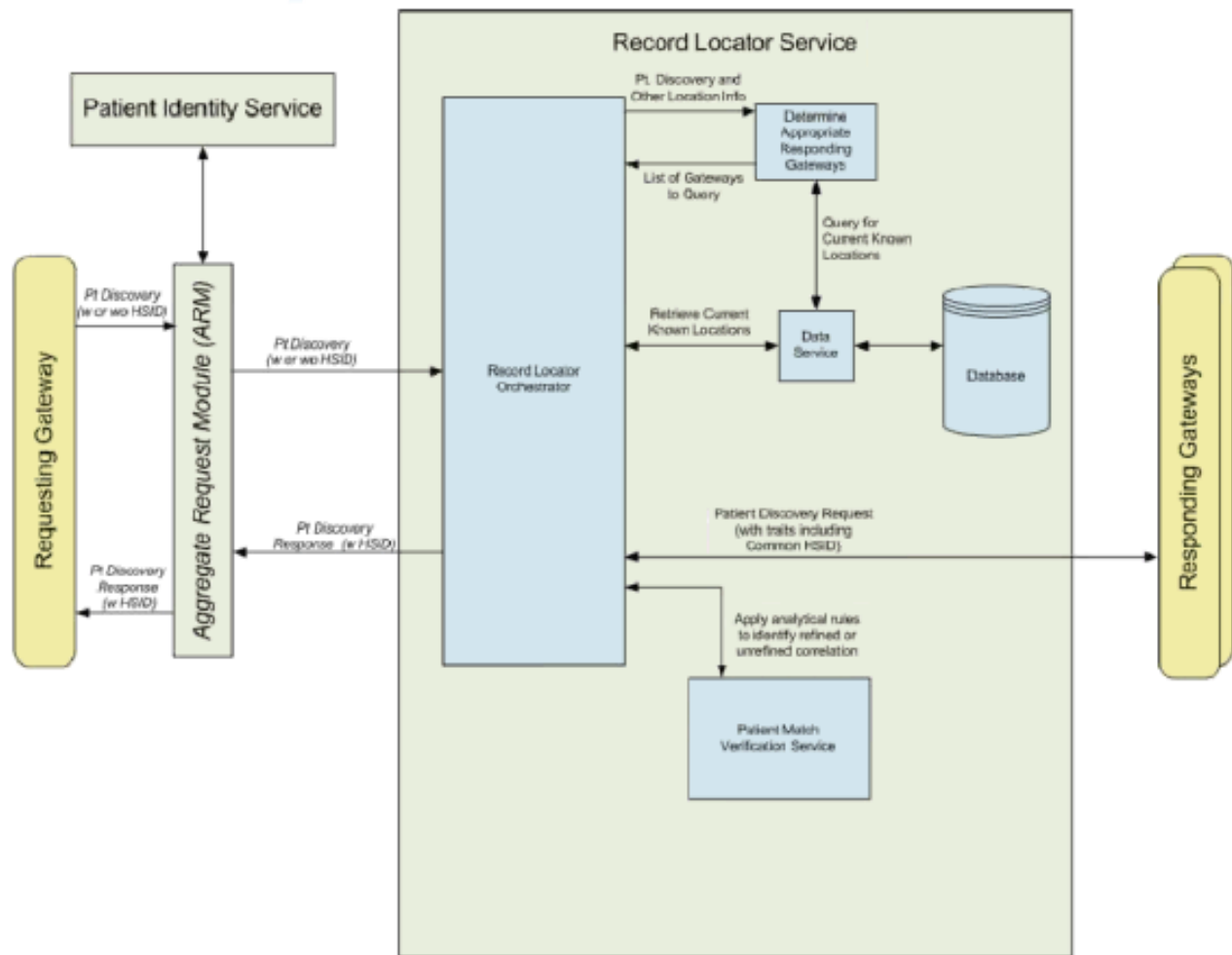
CCC is not a centralized gateway that supports all CCC members. The Patient Identity services is a key component in terms of how it maintain links to other organizations – it's incumbent upon the requesting organization to handle the information. There's a small amount of processing to determine if CCC already knows about the patient, but it's largely up to the requesting organization to handle patient matching and MPI.

If you have apples and oranges mixed – with a CCC set of provider organizations who use different vendors (of which some are Epic) and then you also have Epic CareEverywhere which might include some of the same organizations – does this create any sort of confusion? Is the same patient reported in both – for a Kaiser organization participating in CCC, is there a response from both the CCC/Kaiser and also Epic CareEverywhere. At Kaiser – there are 7 regions – with 7 implementations of Epic – which are stitched together. There is an MPI for each region – if a patient goes to another region, he/she will get another member number. The Epic organizations will communicate with each other as well as non-Epic organizations. Kaiser interacting with CCC, SSA, VA – or other non-Epic exchange partners, Kaiser is seen as one entity, having implemented a shared services platform, so that Kaiser is seen as a single entity.

The shared services platform and architecture has been jointly developed across CCC members to allow, for example CCC organizations not on Epic – to participate in HIE but don't have the technical architecture in place. CCC has been able to provide a notional example to depict how organizations interoperate. How to interact will be a large portion of the focus for December 8.

For RLS, through the EMPI, can determine which organizations the patient has been at, and provide that information back to the requestor, using an XCPD message. The orchestration of when would you want to do an RLS query – when you're doing an XCPD message or when you're doing a document retrieve.

An important distinction is if a patient identifier is being handed back to an organization that has a shared services platform – another organization that has the same correlation will have a different patient identifier for the same patient. There is a pseudo-identifier behind the scenes that can be discussed when reviewing "handshake IDs"



What are differences between eHealth Exchange and CCC?

- Allow for ambiguous matches, want to allow for the exchange of consent not found – would be helpful to list out the differences between the two exchanges.
- What hasn't been promoted in production?
- A concrete decision model will need to be considered by the Query Workgroup on “delta issues” as we review other presentations.

For example, CCC's support of XCPD – here are the optional and required data elements – there may be more to discuss and describe beyond this – such as how matching is performed. Is there an ability to return information on ambiguous matches? There is a match for the patient, but the responder doesn't have consent to share the information with the requestor.



The Workgroup should work to identify the type of information to collect, catalog and compare, particularly beyond the implementation of required vs. options components of specifications.

Is there a prescribe patient matching algorithm for CCC? There is a specific algorithm as defined in the Healthway specs – “critiquing information” that describes how to find a match, and here’s the information that was recorded along the way to understand why a match was or was not determined.

Is the RLS designed to “cast a wider net” where there isn’t a patient discovery conducted up front – where you narrow down the gateways to respond and then initiate the patient discovery from those narrowed set of gateways rather than all of them? If a query was initiated from an organization to Geisinger, only the Geisinger information – with the information Geisinger knows about where the patient has been, is returned – it is up to the requestor to correlate the information from multiple responders. An optional step is “acceptance analysis” – if an organization wants to apply a specific set of algorithms to a match using their own set of rules, the organization can do so. These algorithms can be adjusted over time. The RLS is not a “wider net”, but a “narrower net” – it’s dependent upon whether a patient has been queried for before – and whether the patient has been to a particular location.

Is there a chance of a false negative in this scenario? If there has already been an interaction with a patient at an organization, it is returned. There is no process to query other organizations to see if there is information that exists elsewhere. The response only consists of what is known from prior queries or interactions.

Action/Follow Up: None

Next Steps

Discussion Summary:

- All day mee5ing in Siemens office on Monday, December 8th from 9am to 5pm
- Continue scheduling RLS & Query presentations

The next meeting will be held Monday, November 17.

The meeting adjourned at 4:03 pm EST.