# **Meeting/Call Notes - OpenHIE Interoperability Layer**

**Meeting purpose: Community Call for OpenHIE IL**

**Date: 06-08-2013**

**Attendees:**

* Ryan Crichton
* Linda Taylor
* Mark Tucker (Regenstrief)
* Larry Lemmon (Regenstrief)
* Evan Wheeler (UNICEF)
* Derek Ritz (ecGroup)
* Shahid Khokhar (Regenstrief)

**Agenda**

* The design of an Interoperability Layer
  + <https://wiki.ohie.org/display/SUB/No+ESB+Diagram>

**Call Recording file # 16380301**

**Meeting Notes:**

RC summarised discussion to date - have identified 2 major components in IL

1. web service proxy - logging, auditing, auth, persistence then route to another service / system

2. mediators/processors - services that orchestrate or transform messages

MT - want to separate mediator service - can split in two

have either pass-through or do heavy lifting - not sure what is needed in the middle

go thru Apache pass thru to registries

central use case - data collected at edge node, normalised and processed to SHR

know how to do this in LLP - good, flexible baseline to start

If there are performance issues, should be a RESTful interface - should not have to use web service

Derek (Ryan pasted in): not sure how to add this link... but the results of a NetHope managed project (2011) re: engineering an eHealth infrastructure; entire design doc (developed by Mohawk) found here: <https://dl.dropboxusercontent.com/u/11885327/CHP/CHP%20HUB.zip>

Is this pattern re-usable? or wedded to a particular technology stack?

Should be re-usable

DR - Can describe this from architectural not tech viewpoint as well

RM-ODP Viewpoint model - business (workflow reqs), information, computational, engineering, technology

Refer to RC and MT’s two diagrams

(<https://wiki.ohie.org/display/SUB/No+ESB+Diagram>)

Both have a pass through component

RC - can all go thru central component - do authentication etc.

then sent to mediator to orchestrate message

simple queries still go through pass-thru service and straight to registries without needing to go through the mediator

MT - will work for http but what if edge nodes using LLP then what does it do

DR - Are we choosing design or technology first?

MT - If we are looking at vertical bar vs v2, v3 etc. these are critical decisions from a national architectural viewpoint. Like v2 - can teach it to people quickly, degrades gracefully

representation of clinical data is drive for me

Think V3 is not a viable option

If XDS carrying CDA docs has a market - can believe - but FHIR and V3?

RC - Always anticipated receiving http data - have web service end points

Should have discussion around what is the core transport that we expect data will arrive at the IL?

DR - All have significant implications for a country - are advocating ecosystem choices

a “simple” technology choice has huge implications (see email thread- copied below)

Other countries increasingly using IHE (CDA) - in UK and Europe

Know how to do V2 and can see how to do CDA but in US experience people not happy using CDA - when exchanging discrete clinical data

Think a more generic approach / abstracted design may be more useful in our case

RC - referred to RHEA and how the abstract design may be applied in a specific implementation

The smart proxy - authorisation , audit and loogin and an error managament service

then at point it gets routed - directly to domain sevrice i.e. CR,FR, PR

or gets routed to mediator service which sits in between - allows more advanced processing - transform to a format eg. resolve CPID and can enrich message and send to SHR

Then will also have adaptors - can send multiple message types to CR or other registries via adaptor

DR - Can auditing be turned on or off? Different levels required

RC - Should be smart - should be able to determine data type e.g. patient data

DR - Will be legislation related to disclosure and so authentication and authorisation(permission and consent) flow from this and are very different

Can we support synchronous and asynchronous? Should support both

As it approaches steady state will get more and more perfect record so an asynchronous PUT will almost always succeed

Can separate big data dump

Can see “constrained complexity” in the RHEA version - can see “real” view of abstract design

CR exposed is different to CR itself

RC - Is everyone happy with component of the abstract arch diagram?

DR - will continue to advocate for a workflow engine - one of the things that will have most significant impact on outcomes will be to close the “know-do” gap

e.g some interventions cost nothing to do but what we know is the correct intervention is not done... this is the know-do gap. closing this gap has a huge positive impact on health outcomes.

MT - Would this be a domain service?

DR - not sure - some of the things that workflow would do would be the source of so many messages that feel it should be in the far left

e.g. time-driven events

Want to intercept this message before it lands anywhere

what is the role of the w/f engine if it is a domain? - watch all other databases or watch inbound traffic in message transport?

e.g. drug allergies generating alerts if script written / drug ordered

RC - maybe should be a hook in the mediator to do this - “prescription safety mediator”

MT - is the client expecting sync vs. async ? Consider how this affects mediation

If HIE is going to exert process control then have a central place to change processes - e.g if WHO changes HIV care protocols

Edge nodes that are already built will get notification on check-in - can adjust service to fit new protocol - if edge node cannot do sync calls

RC - Seems consensus on the general arch design - with a workflow engine to be added

smart proxy = core of IL and mediators part of IL as well but specific to the implementation

together they form the IL

MT - Add asynchronous outbound

Edge nodes must be willing to have info pushed to them - even if by polling

Central should have a push component

DR - would advocate for as publish/subscribe service

DR - Can we add a generic workflow engine (BPMN driven) added to diagram? stronger adherence to care guidelines has a direct one-to-one link to health outcomes

RC - Should we start to prototype this using the OpenHIM - see how this works ?

will this be useful?

DR - Yes, and we should be prototyping designs

Also advocate load testing as early as we can - intended to national use so v.important - (mimic load testing )

MT - Can take real Indiana data flow and test against OpenMRS

Scaling out is cheap compared to scaling up - be able to parallelise components

DR - Pilots are not providing us with this information so need to test

**EMAIL THREAD REFERRED TO:**

*Hi all.*

*There are two considerations which I believe are important for us. Our choice of a standard for SHR (or any other element) should be consistent with our overall choice of a standards “stack”. I don’t think these choices are community choices in isolation. For the OpenHIE puzzle pieces to be interoperable with each other, and with the world outside the datacentre, they will all need to be adherent to the same stack.*

*This brings in the second consideration. Which stack is strategically the right one for OpenHIE? I’ve not seen a directive yet resulting from our strategy session in Indy – but I know that the stack of standards choice strategically “positions” us within our target community of MOH and implementing stakeholders. In that regard, one could make a case that it is in scope for the executive leadership to decide.*

*Importantly, I believe this should be treated as an “ecosystem” decision. I can also tell you from first-hand experience that the ecosystem matters more than the technological “beauty” of the standards spec itself. Canada's national experience is very informative on this point.*

*In my view, the stack-of-standards choice is one which I think should be made as a pan-OHIE choice. All of our communities have the technical skill to work within the chosen spec, no matter what it is. But we should all be singing off the same songsheet; it makes no sense to do otherwise.*

*DJ*

***Derek Ritz,*** *P.Eng., CPHIMS-CA*

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***From:*** *openhie-shr@googlegroups.com [mailto:openhie-shr@googlegroups.com]* ***On Behalf Of*** *Ryan Crichton*

***Sent:*** *August 5, 2013 9:47 AM*

***To:*** *openhie-shr@googlegroups.com*

***Subject:*** *Standard for the SHR*



*Hi Derek,*

*Do you think it needs to be as black and white as that? That we can only use a single standards stack? I understand that for particular domains within the exchange it makes sense to use a specific standards stack. For example, for the provider registry and facility registry we could use the IHE CSD profile for interregistry communication but for communicating clinical data from point of care systems to the SHR we could, say, use FHIR. Why would we need to just use a single stack when the purposes are different?*

*It seems to me that the world is moving in a direction where many simple things (standards, services, technologies, software libraries etc.) can be combined as needed to provide higher level functions. Is this not the same in this case? Could we not combine the use of multiple simple standards with particular purposes to gain the overall required functionality of OpenHIE?*

*Perhaps, I am naiive here, but I don't see the how this need to all be the same stack. Could you explain your reasoning?*

*I do agree that we need to define what the standard(s) are that we plan to use under OpenHIE and the define the interactions that we wish to support between service requesters and inter-registry.*

*Cheers,*

*Ryan*



*Hi Ryan (and all).*

*I think it is a matter of perspective. I’m looking at this issue from a national MOH standpoint. That is why I referred to this as an “ecosystem” choice.*

*If I were the government of \_\_\_\_\_\_\_\_\_ (fill in the blank here), and I were establishing the national eHealth norms and standards which will ensure broad interoperability across all my public and private sector care systems and provide the reportable indicators I need for health system management, I am at the same time choosing:*

*· The standards bodies I will participate in (are they easy/inexpensive to work with, or hard/expensive?)*

*· The specifications I will train my staff in (is training readily available?)*

*· The specifications I will want my technical institutions to provide health informatics education in (is this “mainstream” or will graduates be out of step with global marketplace?)*

*· The specifications I will write into procurement documents (is it easy for me, in legal language, to describe the properties of a “conformant”, interoperable eHealth product?)*

*· The economy of products and services in the private sector market that will I be supporting (is there a wealth of options to choose from… or am I left with few choices… or only one?)*

*· The burden of conformance testing (is there an easy way to do this, or do I have to establish my own testing and certification facilities?)*

*· The amount of risk I’m taking on (is this a new specification, or a mature one?)*

*· The amount of change I’m taking on (will existing health IT products be able to readily connect, or do they need to be modified… or replaced altogether?)*

*Strategically, what is OpenHIE – when looked at from the point of view of a national MOH? At the simplest level, it either is, or isn’t, a credible product candidate to be deployed as eHealth interoperability infrastructure. At this simple, product-choice level… OpenHIE is either consistent with the country’s existing eHealth standards or it isn’t.*

*But I feel there is (or should be) a taller aspect to the OpenHIE initiative, taller than just the product aspect. Quite a significant number of countries in our “target market” are only just now approaching the issue of establishing a national set of eHealth norms and standards. That is why I think our choices regarding eHealth standards should not be treated as software programmer choices… I think they should be treated as “national eHealth ecosystem” choices.*

*This is also why I think the selection of a stack-of-standards is a strategic, pan-OHIE decision.*

*Warmest regards,*

*Derek.*

***Derek Ritz,*** *P.Eng., CPHIMS-CA*

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***From:*** *Ryan Crichton [mailto:ryan@jembi.org]*

***Sent:*** *August 6, 2013 4:47 AM*

***To:*** *Derek Ritz (ecGroup)*

***Cc:*** *openhie-shr; ohie-architecture@googlegroups.com; ohie-leadership@googlegroups.com*

***Subject:*** *Re: Standard for the SHR*

*Different people refer to "standards" with differing meanings and levels of granularity in their minds, so I think it might be useful to clarify things a bit in this conversation.*

*For purposes of this conversation, let's call the HL7v2 messaging standard, and the SNOMED code set, examples of "base standards". They are lower level means of communication that really are harder to apply to use cases on their own. They need to be either further specified, or combined together with other base standards to satisfy real world use cases.*

*Again, for the purposes of this conversation, "profiles" are more explicitly specified collections of base standards, and use-case specific customizations of standards.*

*When it comes to the issue of "choosing standards bodies", there is a lot of varied ways in which these organizations behave, and this makes it challenging to compare these bodies to one another and make blanket generalizations about them.*

*For example, HL7 is a body that develops base standards (like the V2 messaging standard, the V3 information model, etc), as well as dip it's toes into more explicit "profile-like" activities. However, they are less inclined to create amalgams of "best of breed" base standards, instead opting for a business model that nudges them towards creation (and sold access) of their own new content.*

*The IHE group on the other hand spends little to no time on development of base standards. They focus almost entirely on "profile" development, which by it's very nature gets to the very notion of "best of breed" you're referring to Ryan. On the other hand, they are missing lots of content related to the profiles that matter to us, and aren't seeing the kind of real world uptake/engagement that you'd imagine they deserve. They seem to be smaller than other ecosystems out there.*

*There are other examples of these organizations/ecosystems.*

*In my opinion, none of them ecosystems are perfect. That nudges us towards making investments and beginning commitments with the "ecosystem" that both is flexible and welcoming enough to work with us in ways that allow us to move at the pace we need, and doesn't constrain the kinds of choices our community wants to make through our collective real world implementation experience.*

*Hope this helps,*

*-Paul*

