2019-Q4 Quarterly Report

HYPERLEDGER
Healthcare
SPECIAL INTEREST GROUP

Hyperledger HC-SIG Quarterly Report

Special Interest Group

Healthcare Special Interest Group (HC-SIG)

HC-SIG Overall Health

The HC-SIG continues to mature as its membership mix and participation evolves. We have successfully completed our transition to structure the general group to serve as a "front door" to better engage and keep prospective new members active in the community, align them with resources, and connect them more directly with our three HC-SIG subgroups and various ad hoc teams.

HC-SIG General Meetings are held regularly and are generally well-attended, with a pattern of membership "regulars" starting to be seen. It's clear that meeting topic and/or special guest speaker typically drives attendance numbers.

HC-SIG Subgroups

HC-SIG Subgroups continue to evolve and include:

- The Patient/Member Subgroup
- The Payer Subgroup
- The Healthcare Interoperability Subgroup

The Patient/Member Subgroup continues to meet at a regular pace, and with a great deal of membership involvement. The Payer Subgroup has faltered, and is considering a "reboot" in order to re-engage subgroup membership. The Healthcare Interoperability Subgroup--the newest HC-SIG subgroup–debuted earlier this quarter, and continues to establish itself within the HC-SIG community, but is very slow in acquiring a regular membership core team.

HC-SIG Ad Hoc Teams

HC-SIG Ad Hoc Teams are developed around a specific need or use case, generally of a fixed duration. Ad hoc team leadership, if necessary, may determine that through their investigations, the team should become more regularly established for the sake of membership, and request to become a subgroup. HC-SIG Ad Hoc Teams include:

- Active
  - **Academic Research Team**: developing a white paper to identify how best to engage the academic/healthcare community as the topic relates to blockchain technologies. While this team was temporarily on hold as leadership stepped away on sabbatical, and had again begun working to re-establish a regular cadence, it has again slowed in development, and we are actively seeking leadership to drive this team forward.
  - **Use Case Development Team**: charged with the discussion and development of use cases as applicable in the context of the healthcare industry. This team held a very productive first meeting, but with a recent change in leadership, had been paused, but with new leadership in place, will likely resume in the coming weeks.
  - **Survey Review Team**: our annual review team has again begun preliminary work on the annual HC-SIG membership survey. This effort should be completed soon, and we'll shortly be releasing our survey for 2020.

- Inactive
  - **Charter Review Team**: charged with reviewing, rewriting, and maintaining the HC-SIG Charter. Currently in recess until a charter review is required.
  - **Subgroup Review Team**: convened to review the status of the EMR Subgroup, and to consider how other subgroup models may influence future HC-SIG subgroup designs (disbanded after making recommendations to leadership team)
  - **Wiki Redesign Team**: initially convened to redesign the HC-SIG wiki, now working to manage wiki page conversion to Confluence, and sync with other SIG design efforts. Currently in recess until needed for any future design/redesign efforts.

Of Merit

- Special thanks to Deniz Coskun for the successful transition of the HC-SIG Patient/Member Subgroup to an extremely vibrant and productive team. Deniz's team had requested development access to Hyperledger Labs to move forward with their work efforts in this domain space, secured this lab space, and he and his team continue to develop their e-consent platform using both Hyperledger Fabric and Hyperledger Indy.

- HC-SIG General Meetings hosted the following guest speakers to present on topics relevant to the blockchain technologies in healthcare community:
    - Ben Taylor, CEO of LedgerDomain, spoke on his team's work on the pharmaceutical supply chain. Ben shared learnings from the world's first iOS blockchain app for the clinical supply chain, which LedgerDomain developed in partnership with the Clinical Supply Blockchain Working Group (CSBWG), the world's largest pharmaceutical blockchain consortium. LedgerDomain is also partnering with UCLA on a pilot for the US Food & Drug Administration (FDA) on a last-mile application that helps deliver lifesaving medications to babies. Both these projects feature Hyperledger Fabric.
    - Michael Marchant, Director of HIE and System Integration for UC Davis Health, discussed with HC-SIG membership the current state of health information exchange (HIE) standards and networks: to see what works well, what needs improvement, and through the presentation of several healthcare use cases, how blockchain technologies may serve as a viable solution.
    - Deniz Coskun, Chair of the HC-SIG Patient Subgroup, discussed with HC-SIG membership the current state of his team's work on their blockchain technologies (using both Hyperledger Fabric and Sawtooth) solution in support of pharmaceutical e-consent. This solution is expected to serve as the foundation for numerous other highly distributed and cryptographically secure healthcare solutions including patient recruitment and monitoring.

- Tory Cenaj, Founder and Publisher of Blockchain in Healthcare Today (BHTY) offered to HC-SIG membership an opportunity to participate in the BHTY First Ambassador Program
- Working with Hyperledger Community Leadership, the development of the Hyperledger Video Libary

Issues

Ongoing difficulties in assessing the value of work efforts exercised by HC-SIG leadership and membership attempting to broaden the overall appeal of the HC-SIG to new members. Engagement metrics would be greatly appreciated in helping to assess the overall success of such efforts.

New since this past quarter has been the deliberate attempt to extend HC-SIG General Meeting invitations through various social media channels, particularly for HC-SIG guest presentations. It's currently unclear if new membership signups are correlated to these efforts.

Overall Activity in the Past Quarter

General Group

The general group serves as an entrée for prospective members in the global healthcare community interested in understanding how best to educate themselves and participate in the implementation of blockchain technologies–ostensibly using the Hyperledger Project umbrella of frameworks, tools, and extensive community–in order to create secure and healthcare-compliant enterprise solutions. For more established members, the general group serves as a resource for the notification and publication of relevant community healthcare activities (e.g., healthcare conferences and related events), as well as a means for promoting and encouraging the project engagement and accomplishments of each of its HC-SIG subgroups and ad hoc teams.

The general group holds a regular meeting on a bi-weekly basis on Friday mornings at 0700 (Pacific Time). As a regular agenda item, HC-SIG subgroup leads (or their proxy) "roll up" their subgroup activities so as to educate prospective new members on active project opportunities.

Membership and activity across the listserv(healthcare-sig@lists.hyperledger.org) appears to be stable. Our chat channel, #healthcare-sig (https://chat.hyperledger.org/channel/healthcare-sig), is seeing only periodic exchanges.

Patient/Member Subgroup

Active since June, 2018 and led by Deniz Coskun, the Patient/Member Subgroup continues to work towards a build effort leveraging Hyperledger tools in the healthcare space. The group have meetings every other week and we are active in the healthcare Special Interest Group mailing list (see #patient-member-subgroup and for details).

The Patient/Member Subgroup underwent a transition in leadership in January and again in June, so we are again in the midst of a leadership pivot. Since the start of this quarter, subgroup membership has been surveyed on topics to investigate, and we believe to be settling around a work effort that will investigate the workflow of clinical trials utilizing Hyperledger Frameworks as a means to harmonize and integrate disparate clinical trial management software (CTMS) solutions. The first focus is the Informed Patient Consent process.

Payer Subgroup

The Payer Subgroup had decided to reorganize with 2020. Group has been working with a payer to identify and refine the use case to start a POC. Group will resume starting January 30th, 2020 Meeting.

- Resetting the bi-weekly meetings starting January 30th. Meeting will move from every other Tuesdays to every other Thursdays and earlier in the day to ensure attendance from various parts of the world.
- Payer group is planning to kick off the POC with Hyperledger Fabric in later January.
- Group working on the Blockchain Decision paper that will help payers understand and identify the need for blockchain

    - Link to the work-in-progress white paper - Link to White Paper - IN-PROGRESS. Due to the lack of consistent members joining the meeting, this has slowed down. We are still continuing slowly to keep the momentum.
- Group has also started talking about how to engage additional volunteers and recruit more volunteers.

Healthcare Interoperability Subgroup

The Healthcare Interoperability Subgroup began meetings in August and despite low turnouts for the three meetings continues to be optimistic members will begin to coalesce around the goals of the group. Currently the group is working to:

- Build out a timetable divided into major epics of work so stories can be created to complete the epics.
- Define frameworks capable of representing clinical artifacts from episodes of care.
  - Is an **episode of care** a sufficient unit of work?
  - What frameworks are currently being used in the medical domain?
  - Are they semantically interoperable?
- What policies of consensus are needed to guarantee assets are semantically interoperable?
- How are assets stored and how are they retrieved?

Planned Work Products

General Group

Continuing activities planned by the general group include:

- The establishment of regular speaker presentations from across the healthcare community to provide "real world" experiences in the design, implementation and establishment of a Hyperledger Project solution within their enterprise context. To date, our HC-SIG Guest Speaker presentations have been very successful at driving new HC-SIG membership interests
- The establishment of additional HC-SIG subgroups or ad hoc teams that appeal to membership healthcare specialties
- The ongoing design/redesign of the HC-SIG Wiki in order to:

  - Provide a more meaningful, consistent, and facile "front door" experience for new members to quickly discover HC-SIG resources and subgroups
  - For established members, serve as a dashboard of activities and accomplishments
  - Better separate (and highlight) our subgroups and ad hoc teams from general group coordination activities and governance

Patient/Member Subgroup

With the shift to new leadership in June, the subgroup team has been active in identifying a clinical trials use case. The plan for this upcoming quarter will be to explore and mature the use case to a point where a POC for Informed Consent Process, E-Consent Process Flow can be defined and requirements expressed. Standardization of API`s and Hyperledger Solutions is a high priority. Great participation from different cultures; (including, but not limited to, East & West Coast US, England, Switzerland, Hong Kong, Argentina, and India). The group had calls almost twice a week, and created a fix team structure for the delivery of first POC on Hyperledger Sawtooth Framework. One of the important challenge was having SME Expert for E-Consent in the team.

Completed:

- The use case for the Informed Patient Consent process is fixed, a roadmap for 2020 is decided
- Two high level preliminary solution architectures are already in place, benchmark criteria (Fabric & Sawtooth) is defined
- Regulatory compliance is already discussed and compliance governance is defined (GDPR, FDA, HIPAA)
- GitHub repositories have been proposed, network and structure is created
- Proposals to two conferences were sent
- Presentation of Team Work at the HC-SIG General Meeting Call, on 13th of Dec. 2019

Planned:

- Sawtooth POC next version with smart contracts, Mid 2020
- Fabric POC first version with smart contracts, Mid 2020
- A lessons learned paper is to be prepared
- Presentations for sponsorships and corporations
- Presence at international conferences (Hyperledger Global Forum 2020, HIMSS 2020 and others)

Payer Subgroup

As the group reorganizes and kicks of its 2020 activities, below is what the team is gearing up for

Planned:

- Starting to finalize POC/Use Case with one of the Vision Payer. They have requested not to be public till they establish the internal plan.
- Fabric POC finalization by mid February 2020
- Complete current white paper on Blockchain Decision Framework
- Recruitment of new corporate members in the Payer Sub Group
- Presence at international conferences (Hyperledger Global Forum 2020, HIMSS 2020 and other

Healthcare Interoperability Subgroup

The HIS team plans to deliver the following work products:

- Documentation describing the requirements for a semantically interoperable healthcare ledger including:
  - Policies that guarantee interoperability
  - Transactions needed to complete an episode of care
  - Semantically interoperable Assets that can represent clinical artifacts whether or not the actual artifact is stored on or off chain
  - Use-cases that reflect real-life episodes of care

- POC : A functional (minimally viable) blockchain
    - Multiple health systems capable of storing / retrieving assets
    - Software and system design documentation (SDD)
    - Git code repository
- Lessons Learned and next steps

Participant Diversity

This is a very diverse membership with global representation (including, but not limited to, member participation from West Coast US, England, Canada, Switzerland, Hong Kong, and India). The majority of membership represents corporate healthcare entities, though we do regularly see regular (and perhaps increasingly so) participation from smaller healthcare startups.

Additional Information

None to date.