

The Blockchain in Healthcare Code-A-Thon



Key Bridge Marriott
Georgetown University

Sponsored By:



Summary

On February 9, 2017 ONC formally announced that it was partnering with the [Chamber of Digital Commerce](#) to host a 24 hour "Blockchain in Healthcare" Code-A-Thon in mid-March at Georgetown University's McDonough School of Business. The competition was a follow-on effort to support ONC's widely publicized "Use of Blockchain in Health IT and Health-related Research Challenge", as well as the ONC/NIST "Blockchain in Healthcare" Workshop.

Contestants were asked to use open source distributed ledger technology and health-specific standards to address one of the following health IT Tracks:

1. **Identity Management and APIs:** Demonstrate the use of blockchain to support the identity management requirements to support APIs for both provider-to-provider and patient-mediated exchange.
2. **Metadata Tagging and Policy Expression:** Demonstrate the use of blockchain for security metadata and tagging to manage access, provide auditing and provenance information.
3. **Data Aggregation and Linkage:** Use of blockchain technology to securely aggregate, link and share patient data to the destination of their choice.

Day 1, March 14

Due to inclement weather, the event was relocated to the Key Bridge Marriott for the Code-A-Thon's first day. It was decided that the event would be opened for remote attendance via [YouTube live stream](#). During the registration period, remote participants were encouraged to use the #DCBlockchain IRC channel to provide their names so they could be recorded as active participants. Approximately 35 contestants and observers attended in person and as many as 48 remote attendees were recorded participating at one time.

Opening remarks were delivered by John Jacobs from the McDonough School of Business, Georgetown University, and by Steve Posnack, ONC Director of Standards and Technology. Participants then heard from Keynote speaker, Jon White, ONC Acting National Coordinator for Health IT who discussed ONC's long term goal of achieving full health interoperability. He detailed his vision for how Blockchain could be applied in the healthcare ecosystem to assist in attaining that goal. Perianne Boring, Founder and President of the Chamber of Digital Commerce, also provided a Keynote address which highlighted the significance of this event, noting this was the first time that the federal government has funded a Blockchain technology Code-A-Thon. Ms. Boring expressed the Chamber's appreciation for the opportunity to partner with ONC in support of this emerging technology.

WELCOME & OPENING REMARKS



JOHN L. JACOBS
Executive Director and Distinguished Policy Fellow
Center for Financial Markets and Policy,
McDonough School of Business,
Georgetown University



STEVE POSNACK
Director, Office of Standards and Technology
HHS Office of the National Coordinator

KEYNOTE SPEAKERS



JON WHITE
Acting National Coordinator for Health Information
Technology
HHS Office of the National Coordinator



PERIANNE BORING
Founder & President
Chamber of Digital Commerce

VIDEOS:

[Speakers and Keynote Address \(remote\)](#)

[Keynote Address \(In-Person\) and Code-A-Thon Kickoff](#)

[Office Hours](#)

[Remote Team Presentations](#)

[In-Person Presentations](#)

**Office Hour
Vendors**

"The role of
government
is to 'build

the highways, bridges and infrastructure to enable commerce' or to 'build the plumbing infrastructure of society'. The highways of the future are virtual and we need to build a sustainable ecosystem of digital asset management for healthcare."

*-Jon White,
Acting National
Coordinator for
Health IT*

MITRE

Microsoft

HYPERLEDGER
BLOCKCHAIN TECHNOLOGIES FOR BUSINESS

UNITED STATES
POSTAL SERVICE

sovrin

HASHED
HEALTH

Code-A-Thon Project
Submissions



The competition was officially kicked off at 11:00 am by Caitlin Ryan, ONC, who went over the competition rules and submission [requirements](#). During "Office Hours", a number of vendors presented their open software development kits (SDKs) and platforms for contestants to consider incorporating into their project submissions. Participating vendors were MITRE, Microsoft, Hyperledger, the United States Postal Service, Sovrin, and Hashed Health.

At 5:00 pm the live stream to YouTube ended but coding continued apace throughout the night. Teams worked feverishly to ensure their submissions would meet the submission deadline of 7:00 am. Submissions were first posted to GitHub before being entered through the Code-A-Thon website.



Jon Holt, Founder of TranSendX, moderates the Lessons Learned discussion at Fisher Colloquium.



Debbie Bucci providing background and introductory remarks at the DC Blockchain Summit before the Code-A-Thon winners were announced.

(Photo courtesy of the Chamber of Digital Commerce)

Day 2, March 15

Day 2 was held in the Fisher Colloquium at Georgetown University's McDonough School of Business. It was attended by approximately 45 in person and by 18 remote participants. The day began with an hour long "Lessons Learned" discussion moderated by Jon Holt, one of the judges and active member in the planning committee. The discussion acted as a forum for contestants to talk about what they had learned and observed over the previous 24 hours. Participants provide recommendations and insights into the future of Blockchain, particularly the role they see Blockchain is playing in Healthcare.

This discussion was immediately followed by team presentations to the judges. Each team had five (5) minutes to present their work. Submissions were judged and weighted on the following 4 categories:

1. **Technical Competence and Capabilities/Weight 35%:** The demonstration addresses the primary goals of the Code-a-Thon and exhibits interoperability with existing technologies.
2. **Use of Data To Provide Effective Outcomes/Weight 20%:** The demonstration was presented in a way that is easy to understand, visually appealing, and will help drive understanding of current trends as well as recommendations.
3. **Creativity/Innovation/Weight 20%:** The project exceeds expectations through its incorporation of creative design elements and innovative capabilities.
4. **Valuable Information and Insights Regarding Data/Weight 25%:** Team identifies gaps in standards and utilizes blockchain to demonstrate how the technology may be used to enhance/improve existing privacy and security functions, and share data across the health ecosystem

Each track had a unique set of criteria for each category.

After the judges' final deliberation, Debbie Bucci, ONC Lead for the event, awarded four (4) projects "honorable mention" and announced the 6 finalist teams. Finalists were invited to attend the Chamber of Digital Commerce's DC Blockchain Summit following the Code-A-thon and were presented their awards on stage. All submission links and slide presentations can be found [here](#).

Take-a-ways and Next Steps

ONC has received numerous accolades for continuing with its interest in and support of Blockchain's use in Health IT. The coder and Blockchain community was appreciative that the event went on as planned despite bad weather conditions. It was evident in the 'Lessons Learned' discussion that there is a need for deeper and wider education about the value of distributed ledger technologies.

Blockchain is still maturing but believers in this technology are optimistic that, with a little due diligence and focused efforts in the areas of trust, security and privacy, there is a bright future for Blockchain in the Health IT ecosystem.

ONC is evaluating the feedback received from this successful Code-a-Thon in order to discuss next steps and will keep the community informed of the outcome of those discussions.

Results

Teams had a total of 5 minutes for presentations; this included 2 minutes for Q&A. How teams used their time was left solely up to the presenting team's discretion.

A total of 10 teams, 35 participants, successfully completed and submitted projects to the Code-A-Thon

- 5 addressed Track 1
- 2 addressed Track 2
- 3 addressed Track 3

JUDGES



Debbie Buccell
IT Architect and Blockchain Initiative Lead, Office of the National Coordinator



Jonathan Holt
Co-Founder and Executive Vice President of SeqTech Diagnostics, LLC Founder and CEO of TranSendX, LLC



Hector Rodriguez, MBA
Microsoft WW Health CISO



Greg Shannon
Chief Scientist for the CERT Division at the Software Engineering Institute Carnegie Mellon University



Ted Tanner
Co-founder and CTO PokitDok

And the award goes to...

Honorable mentions

2c Data,
Team Divvy,
MedTechMD-Chain,
Patient Physician Network

Finalists

3rd- MC/DC,
Mesh Health and D3 Health
2nd- Nucleus Health and TMI

1st - Health Passport