

**CDC Health Information Innovation Consortium (CHIIC)**  
**August Forum Meeting Notes**

**Chamblee 106, 1A + Adobe Connect + Phone Bridge**  
**August 16, 2016, 10:00-11:00AM**

**Meeting Agenda**

1. Introduction – Brian Lee – 10 minutes
2. Proof of Concept and Technology for Hosting Bio-Surveillance Systems in the Amazon Infrastructure Cloud – Seth Sims in the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) – 20 minutes

Hepatitis C is a major public health problem in the United States and worldwide. Outbreaks of hepatitis C virus (HCV) infections associated with unsafe injection practices, drug diversion, and other exposures to blood and blood products are difficult to detect and investigate. Thus, effective HCV outbreak investigation requires comprehensive viral hepatitis surveillance and robust case investigation. The web-based Global Health, Outbreak and Surveillance Technology (GHOST), recently developed in Division of Viral Hepatitis (DVH), enables public health laboratories to identify outbreaks by simply uploading and automatically analyzing viral sequences using novel online tools. Pathogen outbreaks are difficult to predict and can generate an unusually large volume of data for analysis. The demand of computational resources fits perfectly for cloud capabilities. The cloud-based GHOST is more efficient in facilitating a fast response to public health emergencies, while reducing infrastructure and maintenance costs.

3. DevOps: The Secret Sauce for Building Forward Looking Software- Jim Nasr (Entrepreneur in Residence) Center for Surveillance Epidemiology and Laboratory Service, Division of Health Informatics and Surveillance (DHIS). -- 20 minutes

A number of underlying currents have led us to reconsider architectural approaches for building software in DHIS. These include: the state of the existing DHIS application portfolio, needs and desire for intra and inter agency application interoperability, trends in fed and public health, as well as emerging technology standards that enable richer innovation and ultimately better citizen interaction. The CDC is at heart a data organization—enabling “open data” supports its mission. Our hypothesis for building forward looking software at DHIS is that if open data is the mission then we need APIs and supporting DevOps as critical success factors, and the way we have built software in the past is not the way to proceed to meet this mission. We see a micro-services architectural style, based on proven open source and uncoupled technologies, as the core approach for building APIs. This approach displaces complexity of software development, and brings opportunities and challenges. In the long-term, if executed correctly, we

reap benefits of reusable software components, reduced domain-driven application development and can leverage a common, albeit complex, DevOps infrastructure that supports multiple programs. Getting DevOps right is the secret sauce and the biggest challenge—far from just a technical obstacle, there are bigger monsters in the dark in the shape of required process, organization and, in particular, culture change. This talk reviews DHIS’s plans for undertaking this DevOps challenge and where we see critical need for cross-agency collaboration.

4. Discussion & Suggestions – 10 minutes

### **Attendees**

The meeting was well attended – a total of seventy-three people attended in person (28) or via webinar (45). Attendance included people from CDC centers, organizations, and government entities: CGH, CSELS, NCBDDD, NCCDPHP, NCHHSTP, NCIPC, NCIRD, OADS, OCIO, OCOO, OID, OPHPR, OPHSS, OSTLTS, NCHS, NCEH/ADTSR, NIOSH, CACI, and HHS. Other participants attended the Adobe Connect session, but only their name was captured and not their location or organization.

### **Minutes**

#### **Introduction – Brian Lee**

Brian recognized Permeicia Winston as a new CACI contractor supporting CHIIC and providing all of the logistical operations for the forum, web site and webinars; recognized Teresa Kinley as the new Surveillance Data Platform IT Program Manager that is using CHIIC as an incubator for new shared service ideas. Brian thanked the CHIIC Advisory Group (Tom Savel, Cyrus Shahpar, Thom Sukalac and Barry Rhodes) for their insight into guiding the CHIIC and identifying promising new projects. Barry Rhodes is retiring from federal service and was recognized for his contributions to CHIIC and the CDC.

#### **Presentation 1 - Proof of Concept and Technology for Hosting Bio-Surveillance Systems in the Amazon Infrastructure Cloud – Seth Sims**

Speaker bio: Seth Sims is a High Performance Computing administrator, lead developer, and architect for the Global Health Outbreak and Surveillance Technology (GHOST) project in the Division of Viral Hepatitis at CDC. CDC’s first cloud based platform. Seth holds degrees in Biochemistry and Computer Science, has been a professional Software Engineer for 10 years, and is pursuing a PhD of Computer Science with Bioinformatics concentration at Georgia State University.

#### **Presentation 2 - DevOps: The Secret Sauce for Building Forward Looking Software- Jim Nasr**

Speaker bio: **Jim Nasr** is an Entrepreneur in Residence at Centers for Disease Control and Prevention. Jim supports multiple initiatives around public health informatics and surveillance, with core focus on architecting forward-looking software and modernizing existing platforms through use of microservices, modern DevOps and open technology frameworks. Prior to joining the CDC, Jim was the CEO and co-founder of Armedia, a technology firm focused on building enterprise solutions around unstructured data, mobile tech and analytics. Jim has more than twenty years of experience in the technology industry, with over a decade as an entrepreneur profitably growing Armedia from inception to over 100 employees, and a 5-time Inc. 5000 awardee. Prior to co-founding Armedia in 2002, Jim worked as a Senior Technology Architect at Sapient Corp and IBM. Jim has co-authored several technology books and spoken at numerous industry events and conferences.

Jim is the Chair of the Technology Association of Georgia (TAG) Connected Content Society, the Chair of Georgia Soccer IT Committee, a mentor for the Machine Learning accelerator Cyberlaunch, and on advisory for a number of startups and technology firms. He has an MBA from the University of Connecticut, a BS in Computer Science and Statistics from Coventry University and resides in Atlanta, GA.

#### **Items of interest**

- Next Forum –November 15, 2pm-3am ET November 15, 2pm-3pm ET – U.S.- Mexico Border Early Warning Disease Surveillance for Dengue and Chikungunya by Stephen Waterman and STD Analysis and Visualization Tool (SavIT) by Rodney Presley and Ninad Mishra.
- 2016 Public Health Informatics Conference: August 21-24 [\[link\]](#)
- CDC Tableau Day: September 13 8am-12:30pm ET [\[link\]](#)

If you would like to review other CHIIC projects, please visit the [CHIIC web site](#).

Please contact [chiic@cdc.gov](mailto:chiic@cdc.gov) to be added to the CHIIC distribution list or have any questions related to previous CHIIC forums.