

Pediatric Cloud Update

December 28, 2020

As a not great year winds to a close I wanted to share some great news. Our objective of connecting 1,000,000 healthcare machines in all the children's hospitals in the world is a *medical moon shot*. We took *one small step* on December 15, 2020 at 1:56PM Pacific time when we connected the first edge cloud server (dubbed Apollo 11) to a Philips Epiq7 ultrasound machine at Lucille Packard Children's Hospital on the Stanford campus.

The Pediatric Cloud team assembled in the hospital lobby around noon on the 15th and as part of hospital protocol we all got matching masks. We were escorted to the machine around noon and met up with Jerold, a senior clinical engineer and James Tsang from network engineering. While it took a while to work thru a few network issues, the Phillips machine integration edge app worked flawlessly, connected with the ultrasound and supplied machine and nomic data to the Bevelcloud Web Services (BWS) data services.

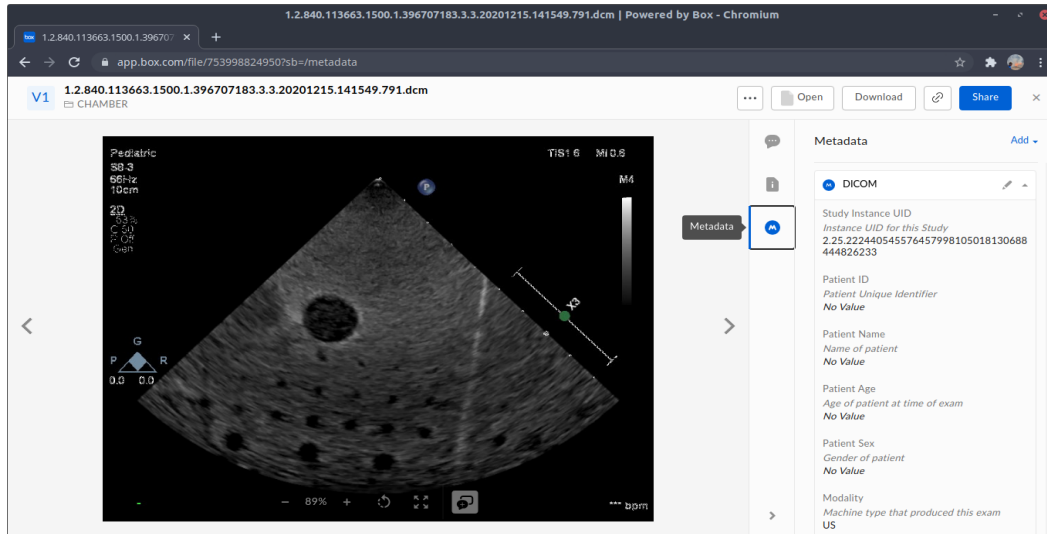
Once configured we launched the second edge cloud application: Oomnitza Clinical. You may not have heard of Oomnitza but they are a leader in smart asset management for laptops, PCs, cell phones and currently being used by companies like Twilio, Yelp and Apple. Oomnitza Clinical leverages their expertise to improve the productivity of the clinical engineer as well as the security, availability and performance of the connected healthcare machine.

Finally we deployed the first version of the CHAMBER application. CHAMBER is a research project conceived of at Stanford by Dr. Charitha Reddy with the goal of aggregating 100,000 pediatric echo images to serve as training data for the development of artificial intelligence (AI) algorithms. These two applications are just a small example of what is possible.

Below are a few photos from the big day (note matching masks)



Here is an example of the de-identified echocardiogram data stored in the center cloud.



This is a huge milestone and could not have done it without the support of the Lucille Packard Children's Hospital team, which includes but is not limited to Natalie Pageler, Anshul Pande, Matt Lungren, Ilir Kullolli, James Tsang, Hui Lan, Tony Loosli, Sijo Thomas, Safwan Halabi, Jerold Abel, and Sarina Behera. Further kudos go to our core team, which today includes over 20 contributors.

This install took about 2 hours, but then again, none of us had ever seen the machine before. We learned a lot and think we can take the install time down to 20 minutes. All will factor into our next release, which is scheduled for first quarter of 2021. Most of our efforts will be directed towards scaling as we are within reach of connecting a significant number of machines in 2021.

As members of this 200-person distribution list you've been officially adopted as members of the Pediatric Cloud Project. If you'd like to know more or share with your colleagues there are seven episodes of the [Pediatric Cloud TV Show](#). Every episode is smaller than a TED-talk.

Landing Apollo 11 in Palo Alto was an incredible end to a not-so-great year.

Best wishes to all of you in 2021,
Pediatric Cloud Core Team