Project Development Description:

openFDA Enforcement Mapper

Blue Raster developed the interactive web mapping application at http://open-fda-mapper.blueraster.io/ by using openFDA data in response to 18F's RFQ 4QTFHS150004. We are experts at creating custom web applications, helping our clients to analyze data quickly, visualize challenges and opportunities, and make sound decisions using geospatial intelligence. Our agile development strategy emphasizes collaboration and personal attention at every stage.

This application consumes data from https://api.fda.gov/food/enforcement.json, is stored in a GitHub repository at https://github.com/blueraster/open-fda-map-viewer and consists of two main components:

1) The server-client, used for geocoding enforcement data from the openFDA data and web serving
2) The browser-client, used to request data from the openFDA API and matching records with geocoded data from the server-client. We cluster records based on spatial location using the ArcGIS API for JavaScript, chart information using Chart.js, and display the results on an interactive map.

A) Assign One Product Manager

Blue Raster assigned one leader, Kevin McMaster, an experience project manager, and held him accountable for the delivery of a quality prototype and supporting documentation within the scheduled period of performance.

B) Multi-disciplinary Team

To support this solution development, in addition to the Product Manager, we established the roles of a Technical Architect (Stephen Ansari), a Frontend Web Developer (Albert Marquez), and a Backend Web Developer (Jon Nordling).

C) Technology Used

By the project mid-point, we identified and implemented the following modern and open-source technologies:

1) Source code pre-processing: Babel, Jade and Stylus
2) JavaScript ES6 & 7
3) Amazon Web Services / EC2 Instance Docker container
4) Node.js / Express
5) Data Visualization: Chart.js
6) React
7) Flux
8) Container: Docker
9) Map interface: ArcGIS JavaScript API
10) Jenkins

D) IaaS provider

We deployed the prototype using the following IaaS provider: Amazon Web Services EC2 instance container.
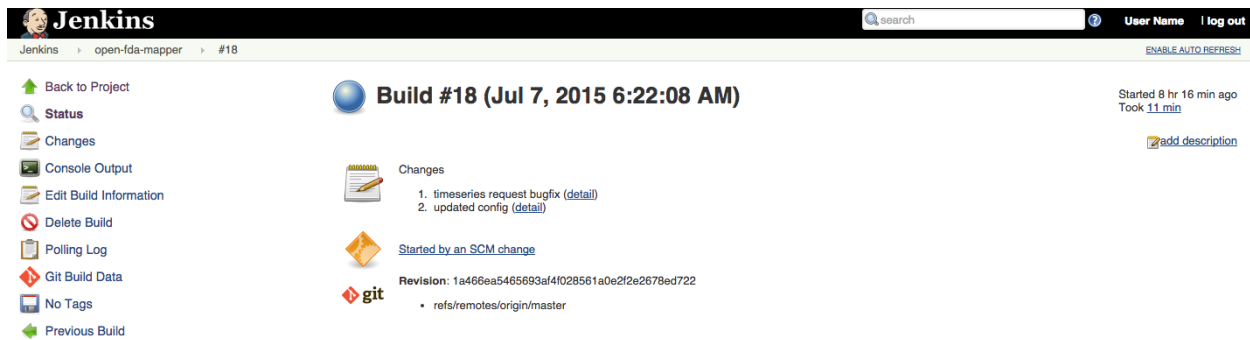
E) Unit Testing

We wrote both unit tests and functional tests for the code. For example, one test makes API calls to create a reference store and consume geospatial information by referencing openFDA enforcement record data.

F) Continuous Integration (CI)

Our team set up Jenkins for CI to monitor the master branch of our GitHub repository https://github.com/blueraster/open-fda-map-viewer and deploy automatic builds upon code check-in. We also used the CI to check the API, the application, and make sure the code deployed.

G) Configuration Management
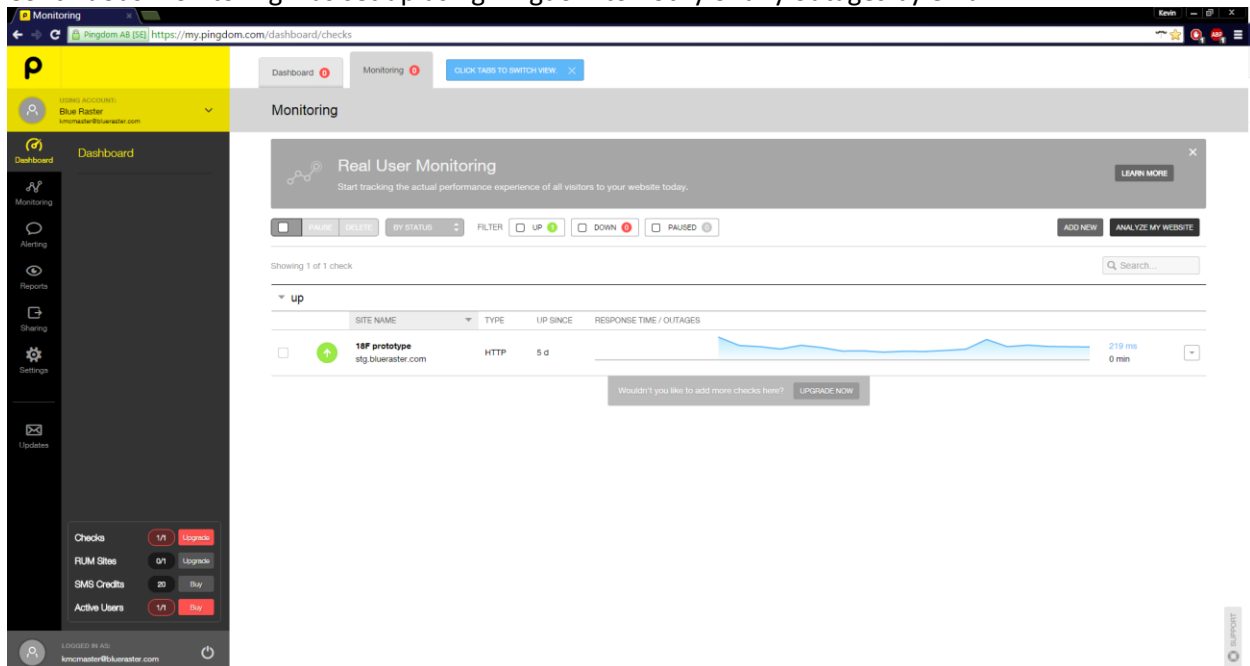Configuration management was set up using NPM (node package manager) package .json (one each for server-client and browser-client), a Dockerfile, and build processing using Gulp.

H) Continuous Monitoring

Continuous monitoring was set up using Pingdom to notify of any outages by email.

I) Software Deployment
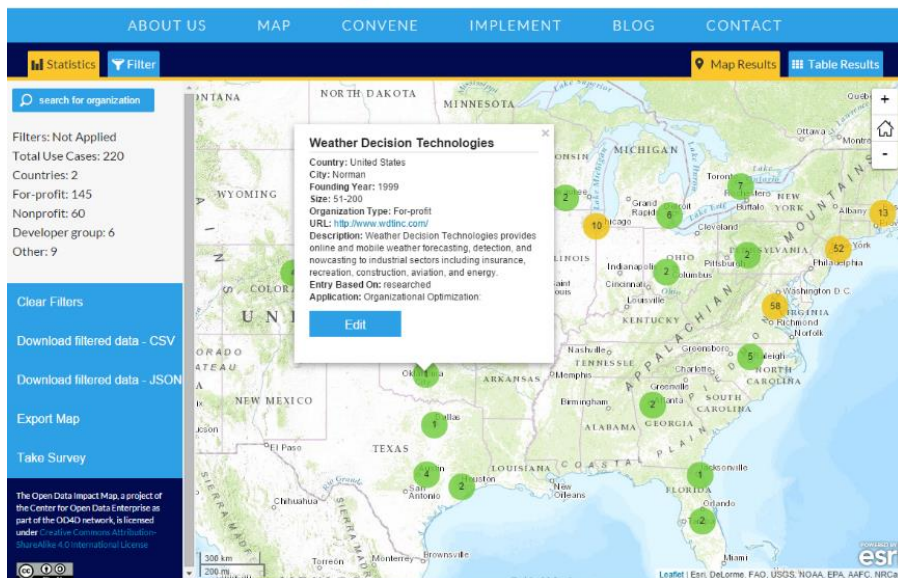We deployed the application in a docker container on an AWS EC2 instance.

J) Iterative Approach

The project began with a vision of a mapping application that shows issued enforcement reports and the geography impacted by the recall for various categories of interest. Working from the end goal, we architected the solution of a server client powered by Node.js that pulls data from the openFDA API, geocodes the data based on city and state information using Esri's geocoder restful API, and then stores the geometry. Filtered calls by the browser-client made directly to the openFDA API are returned and matched based on report unique ID to geometry data served by the server-client. A hash system could be used to determine if the enforcement location had been geocoded in the past, so only new locations would require geocoding.
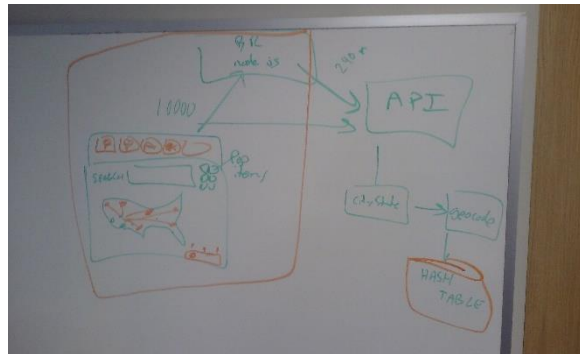
Site design was inspired by a story map at: http://storymaps.esri.com/snack/, and cluster map at http://www.opendataenterprise.org/map/viz/. We analyzed representative reasons for recall on the enforcement reports and selected the following recall keywords for demonstration purposes:

1) Contaminants:
   a. Chloramphenicol
   b. Salmonella
   c. Listeria
2) Food
   a. Ice Cream
   b. Wheat
   c. Peanuts
   d. Salads

Around the world in 365 calories

Recently, over a healthy snack, we wondered: Just where did this food come from? And how far did it travel to get to us? We were surprised to learn that our humble nosh represented a cumulative distance of over 20,000 miles! This map explores our food's arduous journey, from the ends of the earth to our table in suburban DC.

A story map

Delicious, crispy apple from New Zealand.

Savory almonds from central California.

Refreshing bubbly mineral water from Italy.

Tasty sweet blueberries from Chile.

OPEN DATA IMPACT MAP

ABOUT US   MAP   CONVENE   IMPLEMENT   BLOG   CONTACT

Statistics   Filter

Map Results   Table Results

search for organization

Filters: Not Applied
Total Use Cases: 220
Countries: 2
For-profit: 145
Nonprofit: 60
Developer group: 6
Other: 9

Clear Filters

Download filtered data - CSV

Download filtered data - JSON

Export Map

Take Survey

The Open Data Impact Map, a project of the Center for Open Data Enterprise as part of the OD4D network, is licensed under Creative Commons Attribution-ShareAlike 4.0 International License

Weather Decision Technologies
Country: United States
City: Norman
Founding Year: 1999
Size: 51-200
Organization Type: For-profit
URL: http://www.wdtinc.com/
Description: Weather Decision Technologies provides online and mobile weather forecasting, detection, and nowcasting to industrial sectors including insurance, recreation, construction, aviation, and energy.
Entry Based On: researched
Application: Organizational Optimization

Edit

Leaflet | Esri, DeLorme, FAO, USGS, NOAA, EPA, AAFC, NRCan

A daily standup meeting to discuss projects, nightly builds, and frequent demonstrations facilitated an iterative development process. Close collaboration between team members ensured a quality, robust prototype deliverable. During progressive demonstrations and application refinement, we modified the wording of the interactive application to make it more accessible to a wider audience, and incorporated the severity of the recall.
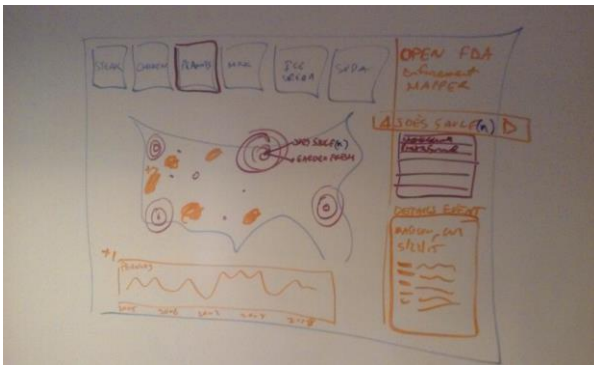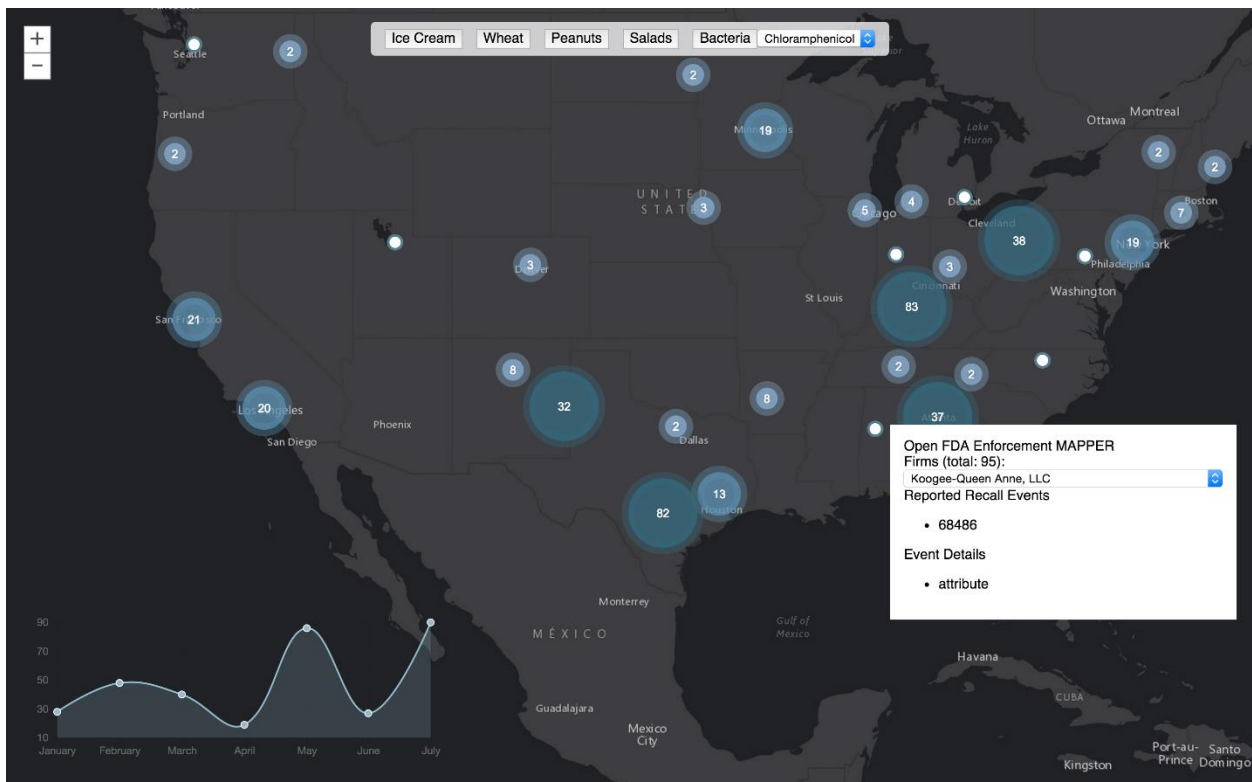
6/26/2015

Agile Delivery Service Example Using openFDA Data: Geo-Enabling Enforcement Reports
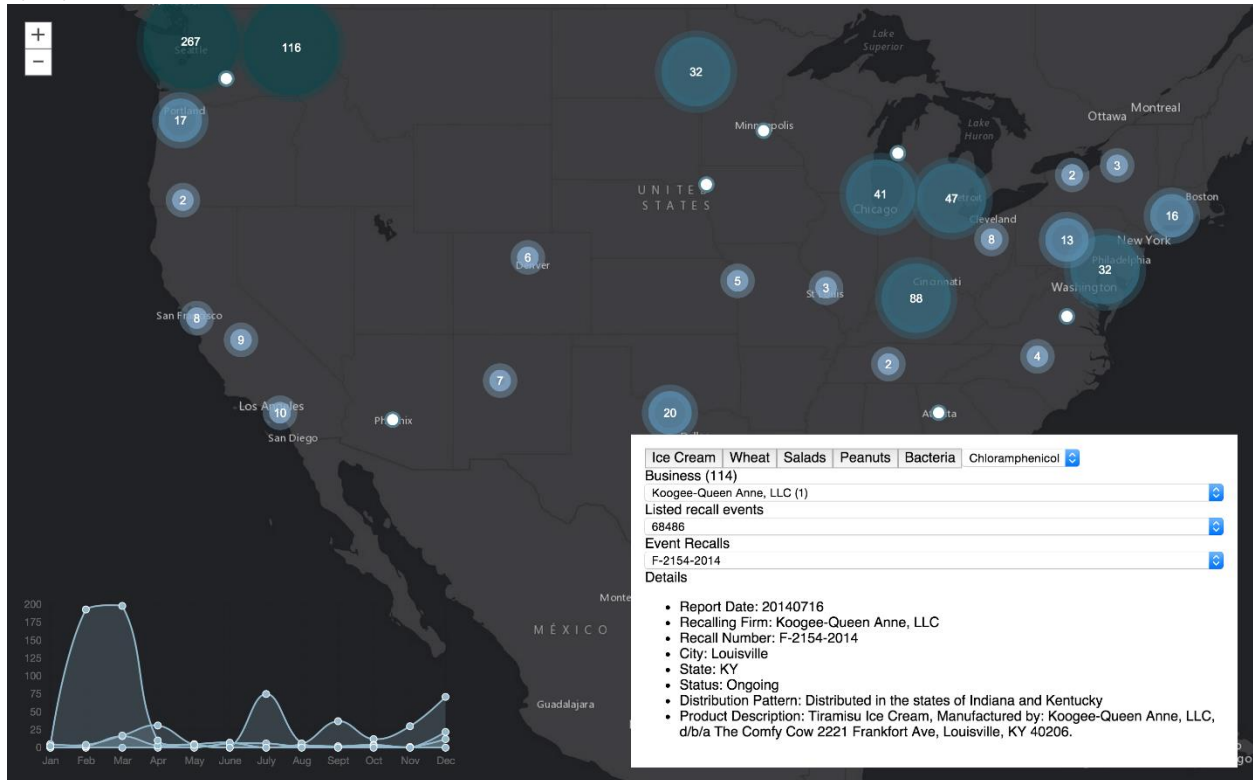
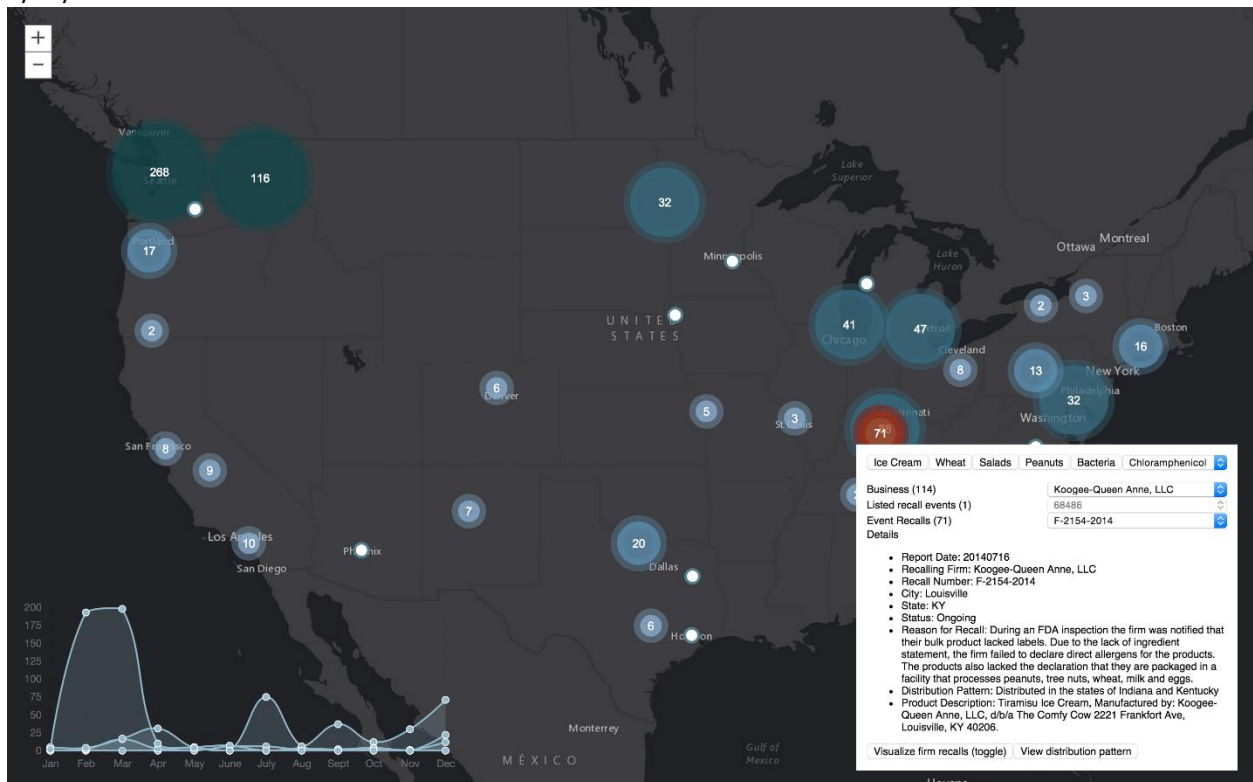Enforcement reports throughout the U.S. mentioning the items below
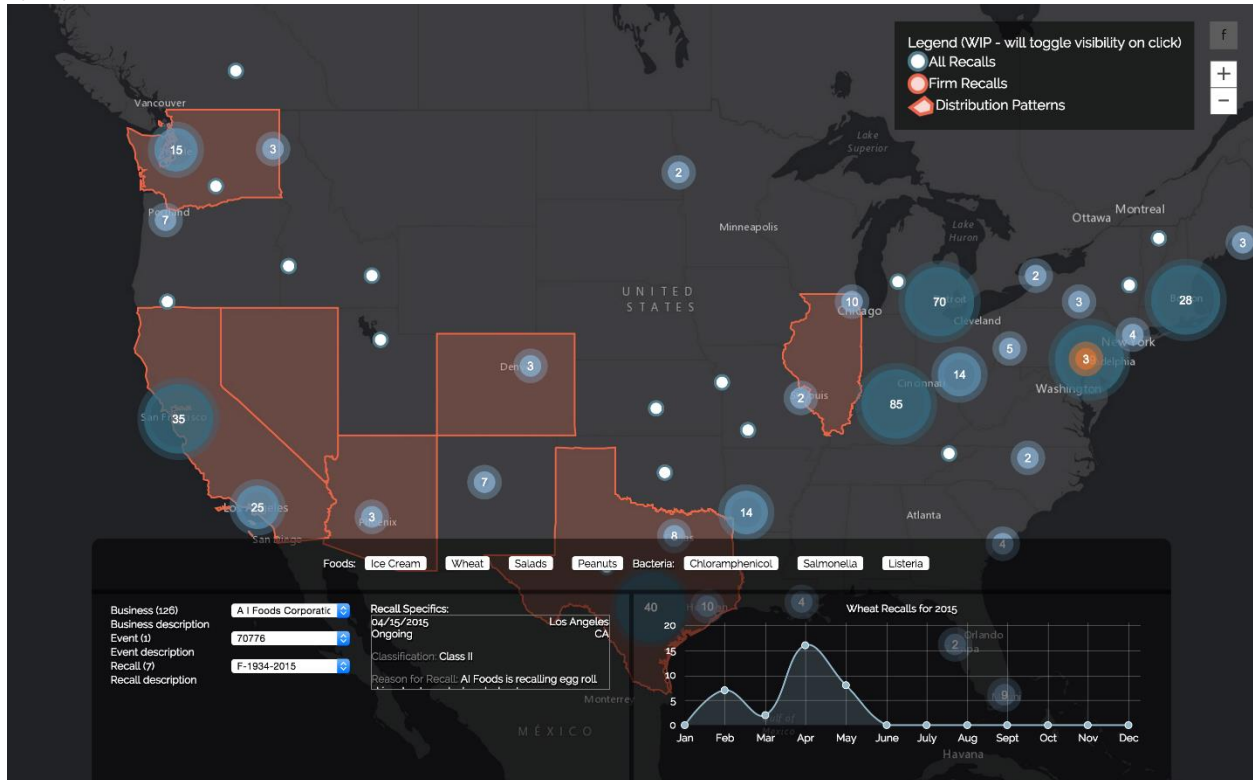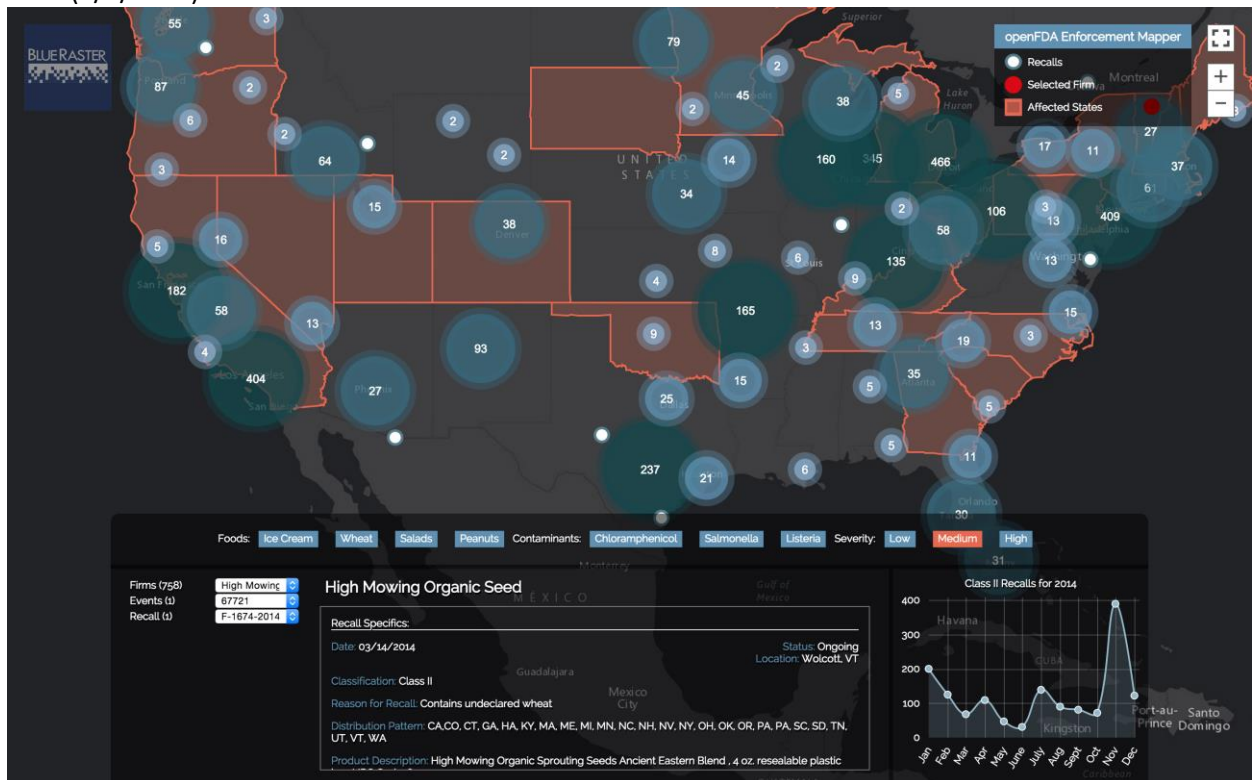
6/27/2015

6/29/2015

6/30/2015

6/31/2015

Final (7/7/2015)

K) Documentation
Blue Raster provided sufficient documentation in the documentation.md file at
https://github.com/blueraster/open-fda-map-viewer/blob/master/documentation.md and a docker
container to install and run the prototype on another machine.

L) Openly Licensed
The prototype and underlying platforms used to create and run the prototype are openly licensed and
free of charge.

To learn more about Blue Raster's work visit www.blueraster.com/blog