



biospatial

# EMS BUSINESS INTELLIGENCE INFORMING NATIONAL PREPAREDNESS

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## National Collaborative for BioPreparedness

- **What is it**
- **Why it was created**
- **Who we are**
- **Value of NCBP to EMS data owners**
- **Where we are going**
- **System Demo**



# WHAT IT IS



- **A collaboration of owners of data that can expose threats to health and safety**
- **Enabled by a visualization and analytics platform provided to data owners at no cost**
- **Enhances national preparedness by providing early warning of events not otherwise detectable**
- **National integration and expansion in process**
- **Result:**
  - National, near real time disease syndromic warning and tracking system
  - Near-real time business intelligence for data owners



# CREATION OF NCBP



- **Developed by UNC-Chapel Hill under a cooperative agreement with U.S. Department of Homeland Security**
- **To address a major gap in national biosurveillance**
  - Human health
  - Animal health
  - Food security
  - Environmental hazards
- **To enhance interaction of the national preparedness enterprise**
  - Public health preparedness
  - Emergency responders
  - Emergency management
  - Public safety / law enforcement
  - Private sector infrastructure operator



# WHO WE ARE



- **University of North Carolina at Chapel Hill**
  - Performed research and development
  - Development network of data owners
  - Ongoing research into identification of population health risk
- **Biospatial, Inc.**
  - Receiving spin-out from UNC 2017 Q2
  - Operating the platform
    - Led by team experienced in providing operational analytics support to U.S. intelligence services
  - Maintaining and growing the data owner network
    - Led by Jeff Runge, MD
    - Emergency/EMS physician
    - Directed the program for UNC since 2014
    - Head of NHTSA (2001-2005)
    - CMO of US Homeland Security (2005-2008)



# DUAL GOAL



- **Improved national biopreparedness**

- Government agencies better equipped to protect public for significant health events
  - Naturally-occurring health events
  - Biological or chemical terrorism
  - Unexpected outbreaks – opioids, enterovirus, Ebola, VBD

- **Service Optimization for Data Owners**

- Local and state officials receive real-time business intelligence for service optimization
- Enhance collaboration between emergency response, emergency management, and public safety / law enforcement
- Enable cooperation across geopolitical boundaries



# BIOSPATIAL PLATFORM

TIMELY INSIGHT INTO EMERGING HEALTH AND SAFETY EVENTS



- **DATA – National Network of Data Owners**

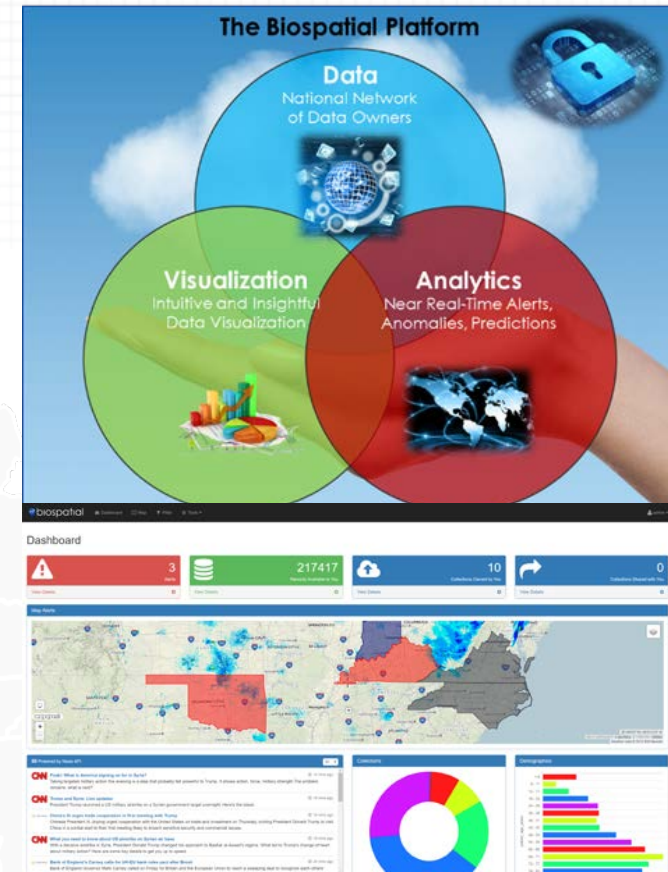
- Ingests and hosts multiple mission-related data sources
  - EMS, infrastructure, environmental, any dynamic or static data source
- Enables collaborative sharing across the Collaborative

- **VISUALIZATION – intuitive and insightful presentation of data**

- Intuitive geospatial and temporal awareness of emerging events
- Customizable dashboards to meet needs of each organization, user
- Actionable reports to improve response management, operations

- **ANALYTICS – alerts, anomalies, predictions**

- Detect syndromic events
- Proprietary, proven machine learning technology – applicable to any data type





- **Respiratory syndromes**

- Biological weapons – tularemia, anthrax, plague
- Naturally occurring respiratory dz – EVD 68

- **Influenza-like illness**

- Seasonal or pandemic
- Novel ILI syndromes

- **Constitutional syndromes**

- Botulism, occult poisonings

- **Opioid syndromes**

- Heroin, Fentanyl derivatives – intentional, unintentional

- **Motor vehicle injury**

- Injury crashes with location, time clustering
- Stratified by severity of injury





- **Visualize Your Own Data**

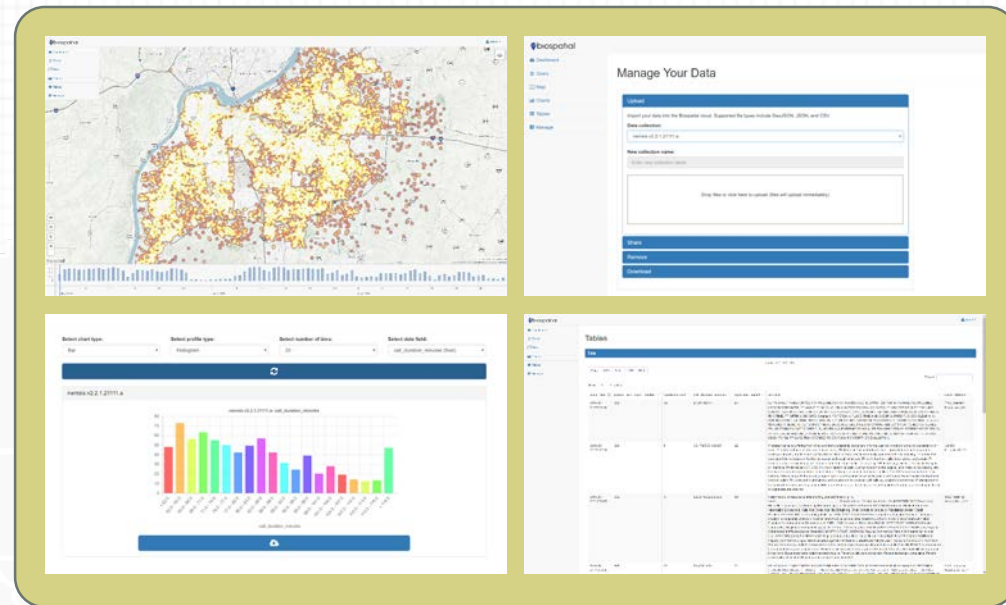
- Agencies are able to visualize their own data on a map
- Additional operational data sources are overlaid

- **Visualize Nearby Events and Trends**

- Agencies are better informed and operationally prepared by seeing events and trends in adjacent counties/jurisdictions
- Enables additional context for preparedness

- **Optimize Operations**

- Performance metrics computed from NEMESIS data
- View statistics of metrics, reach back to original records, review outliers
- Use of data improves data quality and timeliness



- **Visualize Data on National Scale**

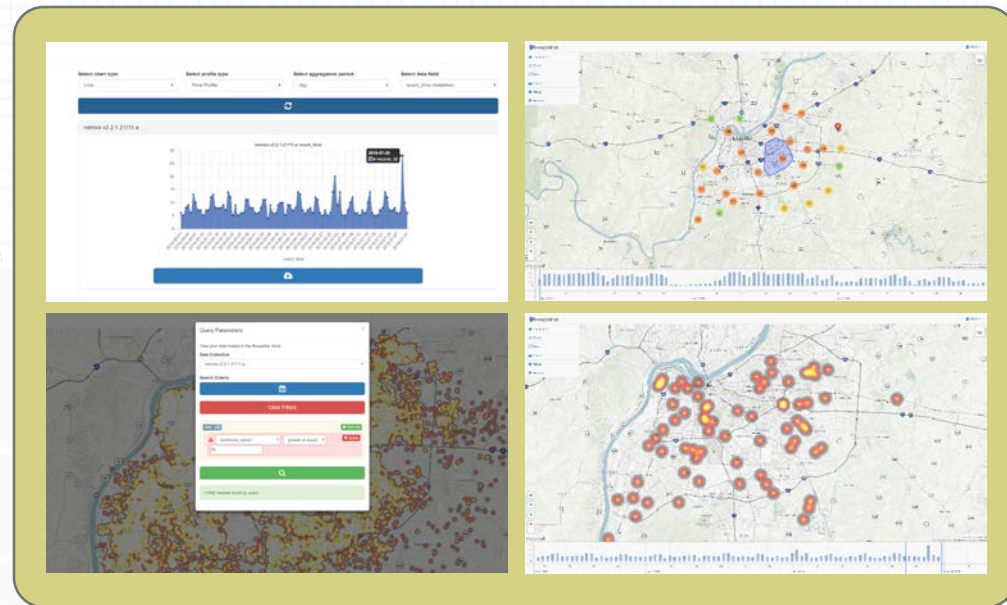
- Enables querying and reporting across multiple data layers
- Identifies trends
- Supports decision making
- Connects Federal preparedness agencies to states and localities

- **Near Real-time Alerts**

- Automated anomalous event warnings
- Enables rapid response and crisis event management

- **Real-time Information to Response Agencies**

- Federal subscribers have national level data context
- Improves collaboration between Federal users and local/state agencies to aid in response planning and event/disaster management





## **NCBP operates in full HIPAA-compliance**

- Environment is HIPAA/HITECH compliant
- Data owners operate as Business Associates to UNC/Biospatial
- NCBP system and policies are evaluated by external HIPAA consultant annually
- User organizations administer data access rights to appropriately trained users

## **NCBP operates in a maximum security environment**

- Biospatial has deep operational experience in classified systems
- Data environment FISMA-aligned
- Data fully encrypted in transfer and at rest
- Data owners retain full control of who can see what data



# HOW IT WORKS

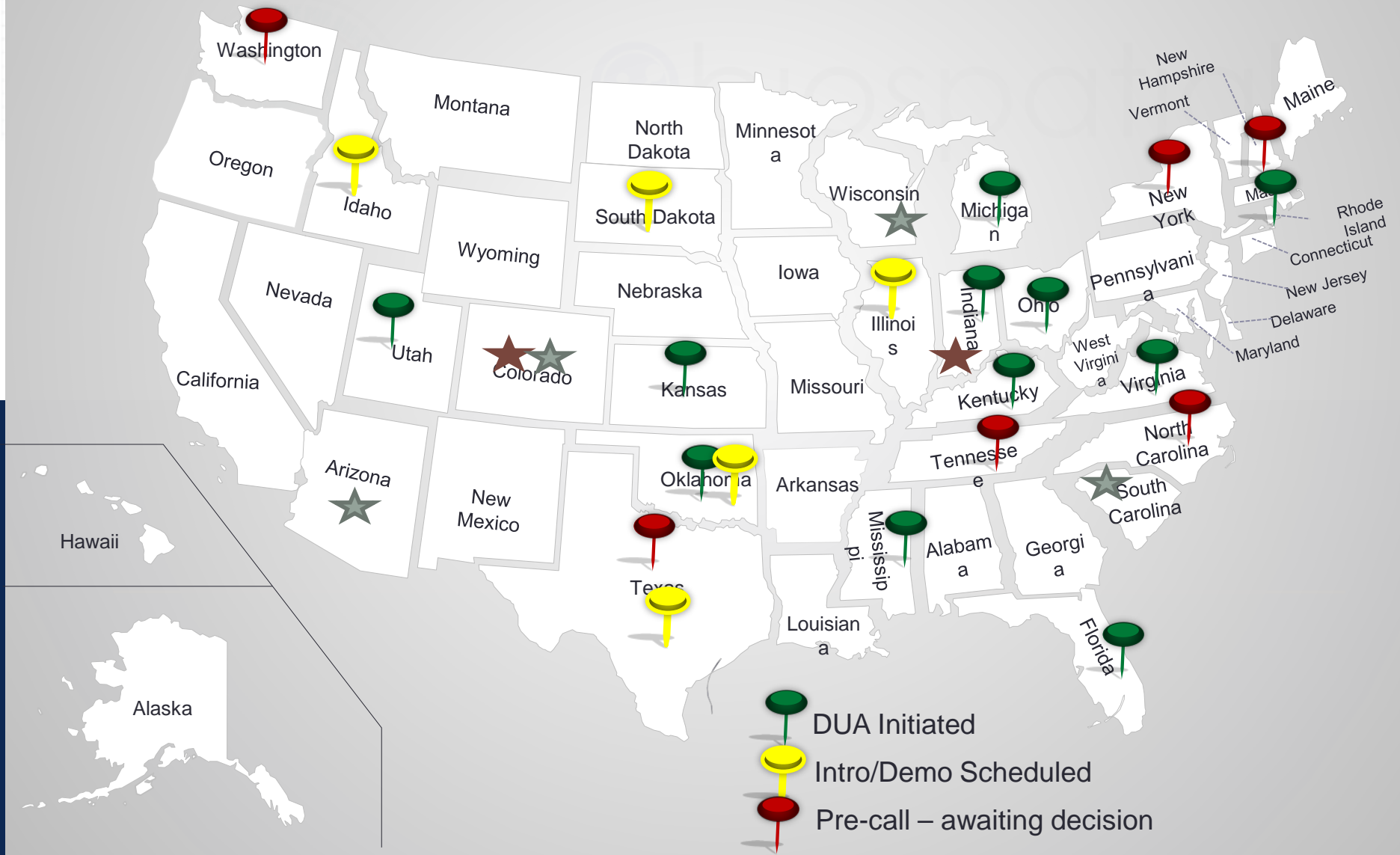


- **Data owners share data in the protected Biospatial environment with full discretion over access**
- **Biospatial provides data management, security and analytics to turn data into information**
- **Biospatial provides the platform at no monetary cost to the data owners**
- **Data owners must grant access to users inside and outside its organization**
- **U.S. Government preparedness agencies subscribe to the system to see analytic signals produced by the analytics (but not the raw data)**

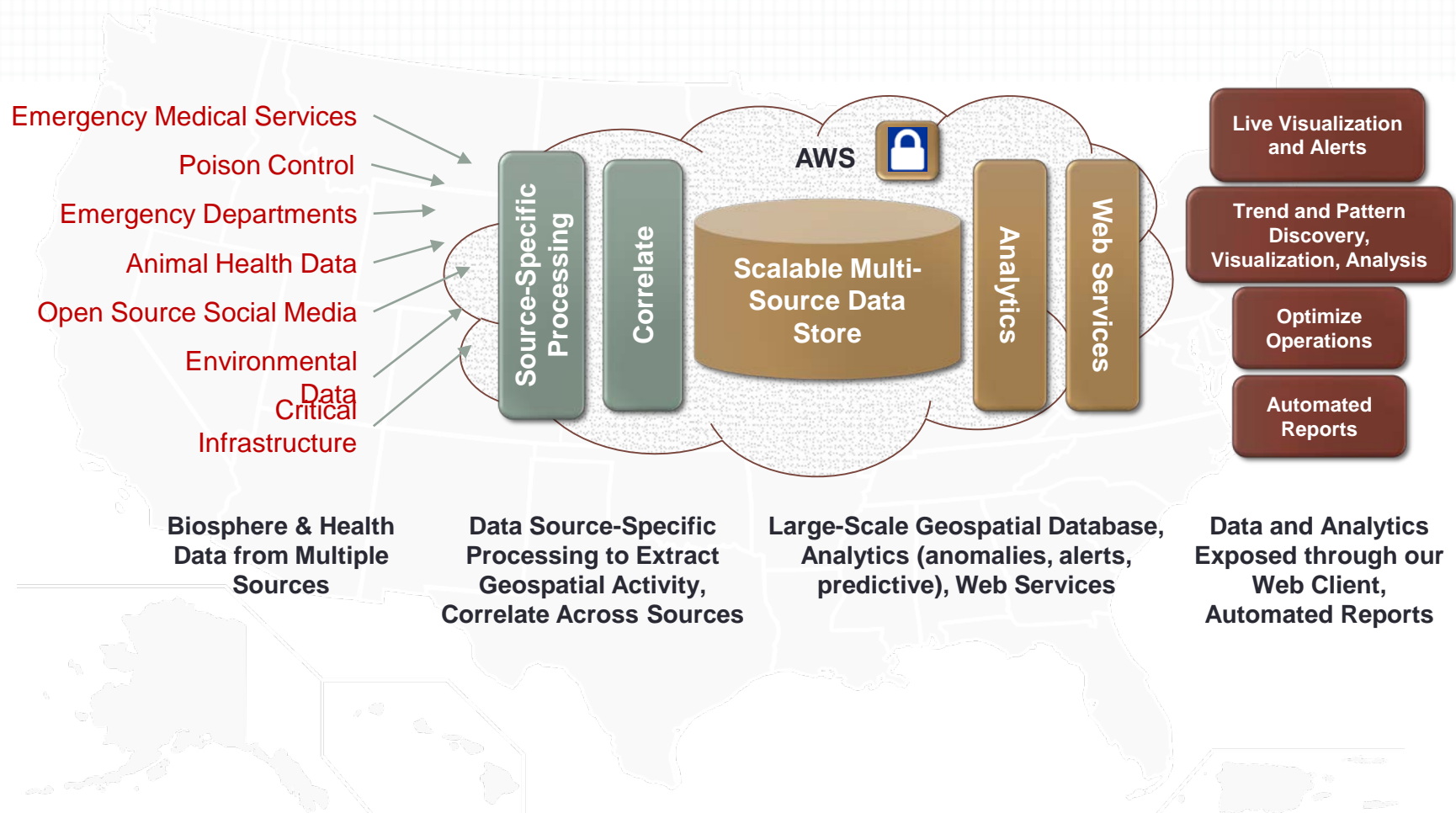
# NCBP Data Provider Onboarding Map - 2/7/17

★ DUA Completed – preparing to submit data

★ Submitting Data



## Data Partnerships at National Scale: Serving EMS, Security, and Medical Communities





## OPIOID DEMONSTRATION

The National Collaborative for Bio-Preparedness

*23 March 2017*



## MVC DEMONSTRATION

The National Collaborative for Bio-Preparedness

*17 April 2017*