Health Information Exchange

A Key Concept

for Biosurveillance

Key Starting Points

- Our activities are intertwined with numerous federal initiatives
- Specifically, NHIN goals and objectives are a key component of our contracts
- Within the NHIN process CDC focuses on the biosurveillance use case
- We feel that success is dependent upon meeting local needs and issues, particularly as it relates to sustainability
- Our funded sites possess a depth and breadth of talent that supports each other

Health Information Exchange

A View from CDC's Perspective

HSPD*-21

Calls on HHS to "establish an operational national epidemiologic surveillance system for human health, with international connectivity where appropriate, that is predicated on State, regional, and community-level capabilities and creates a networked system to allow for two-way information flow between and among Federal, State, and local government public health authorities and clinical health care providers."

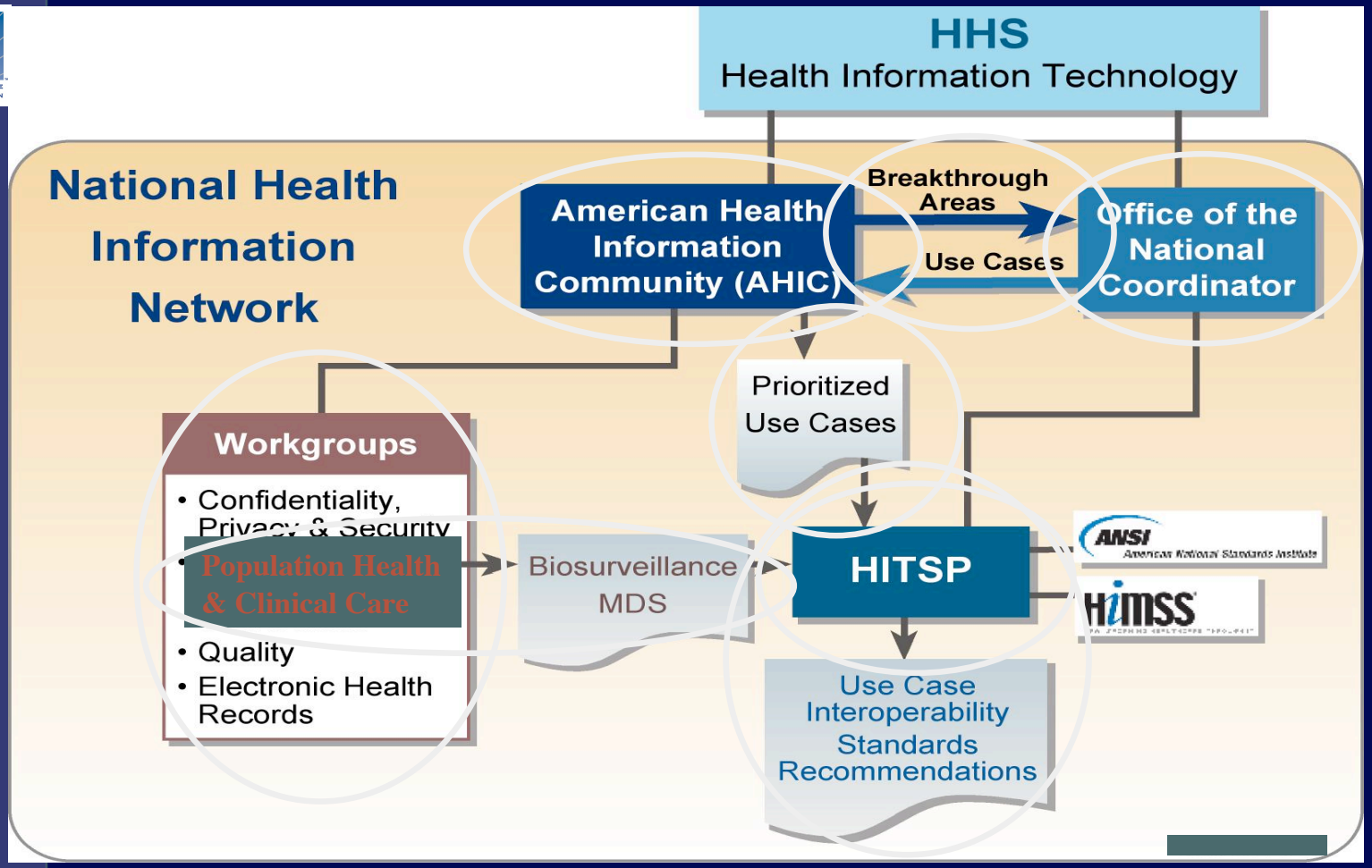
* Homeland Security Presidential Directive

PAHPA*

"IN GENERAL.—Not later than 2 years after the date of enactment of the Pandemic and All-Hazards Preparedness Act, the Secretary, in collaboration with State, local, and tribal public health officials, shall establish a near real-time electronic nationwide public health situational awareness capability through an interoperable network of systems to share data and information to enhance early detection of rapid response to, and management of, potentially catastrophic infectious disease outbreaks and other public health emergencies that originate domestically or abroad. Such network shall be built on existing State situational awareness systems or enhanced systems that enable such connectivity."

* Pandemic and All-Hazards Preparedness Act

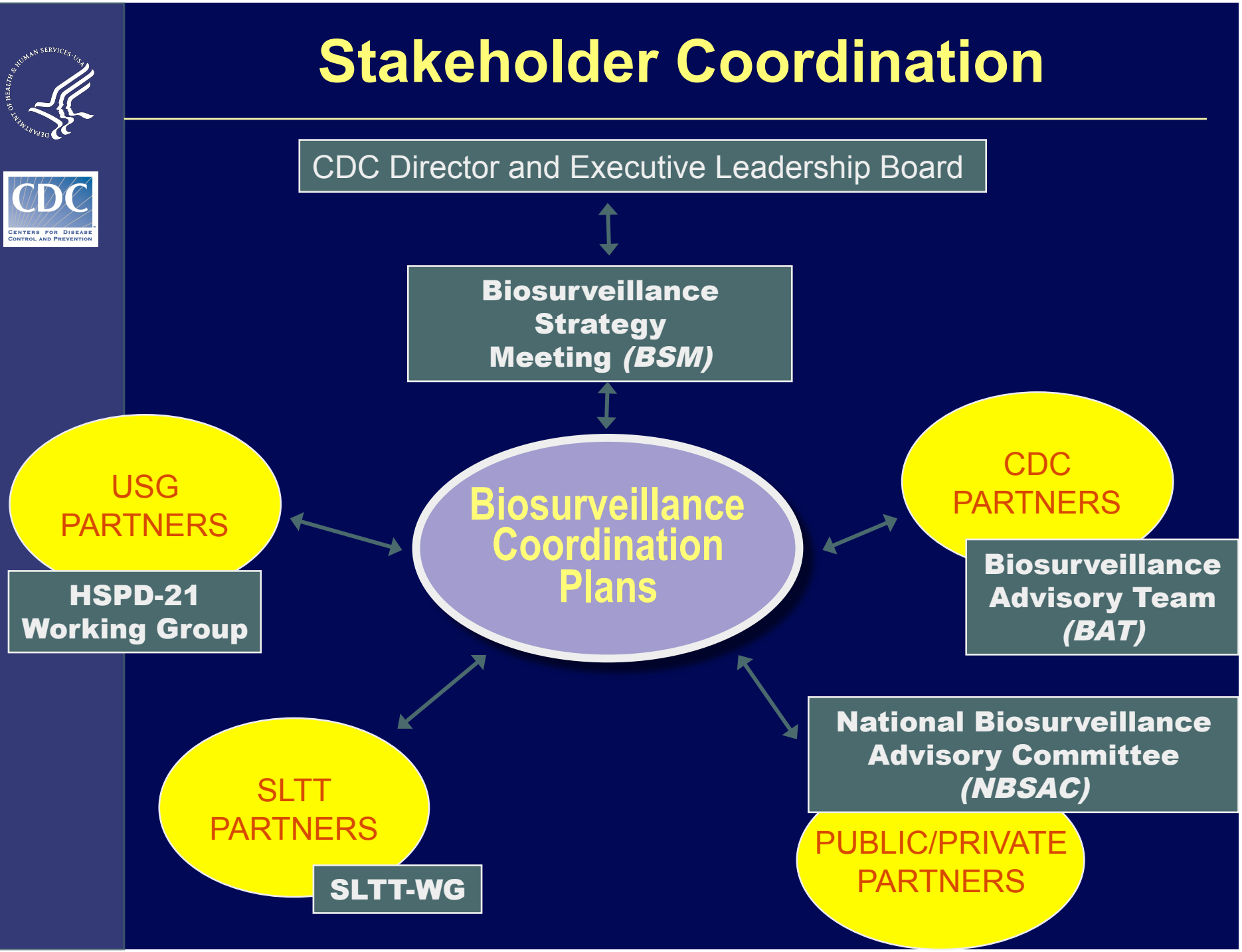
Organizational View

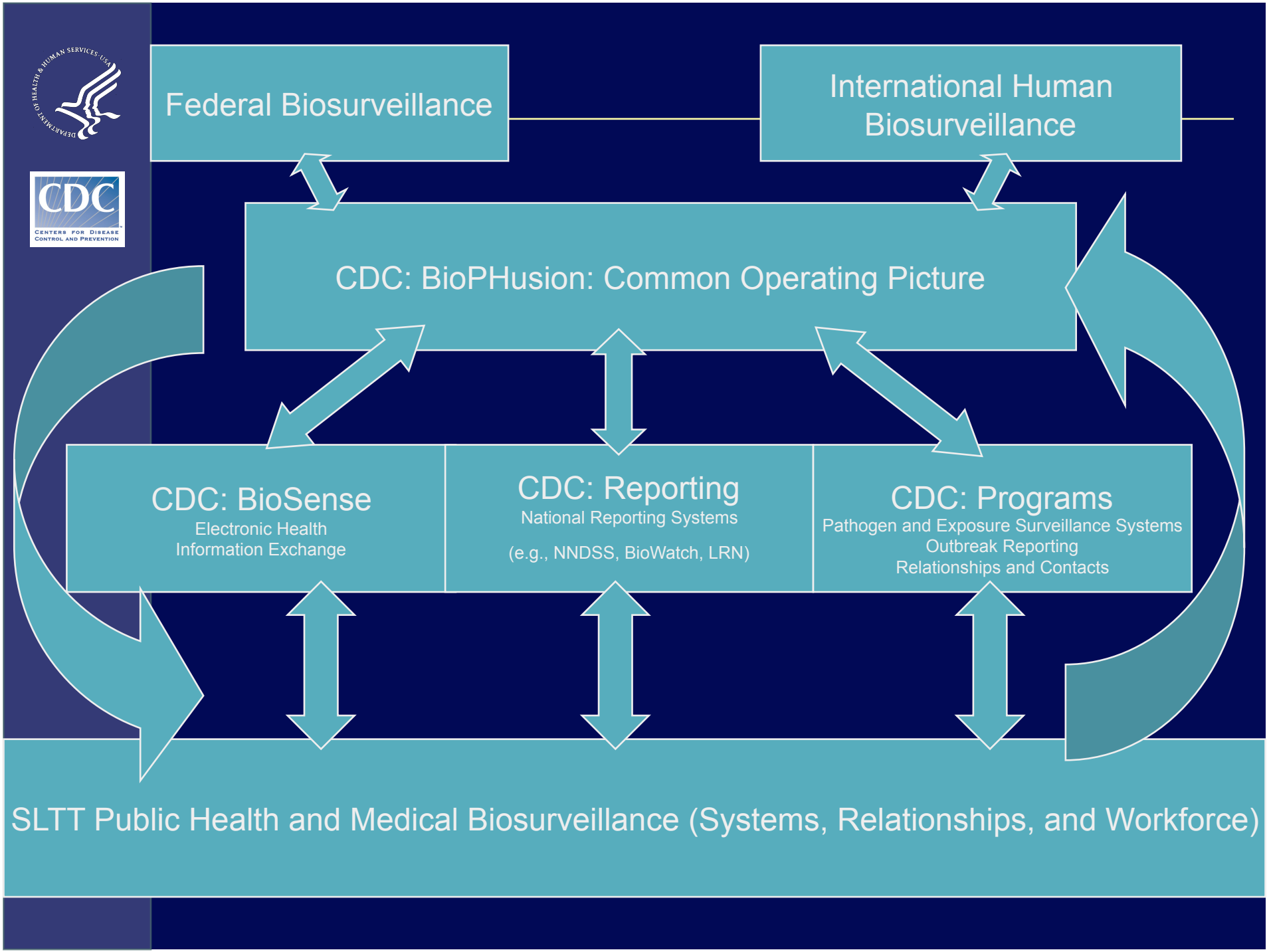


BCU MISSION

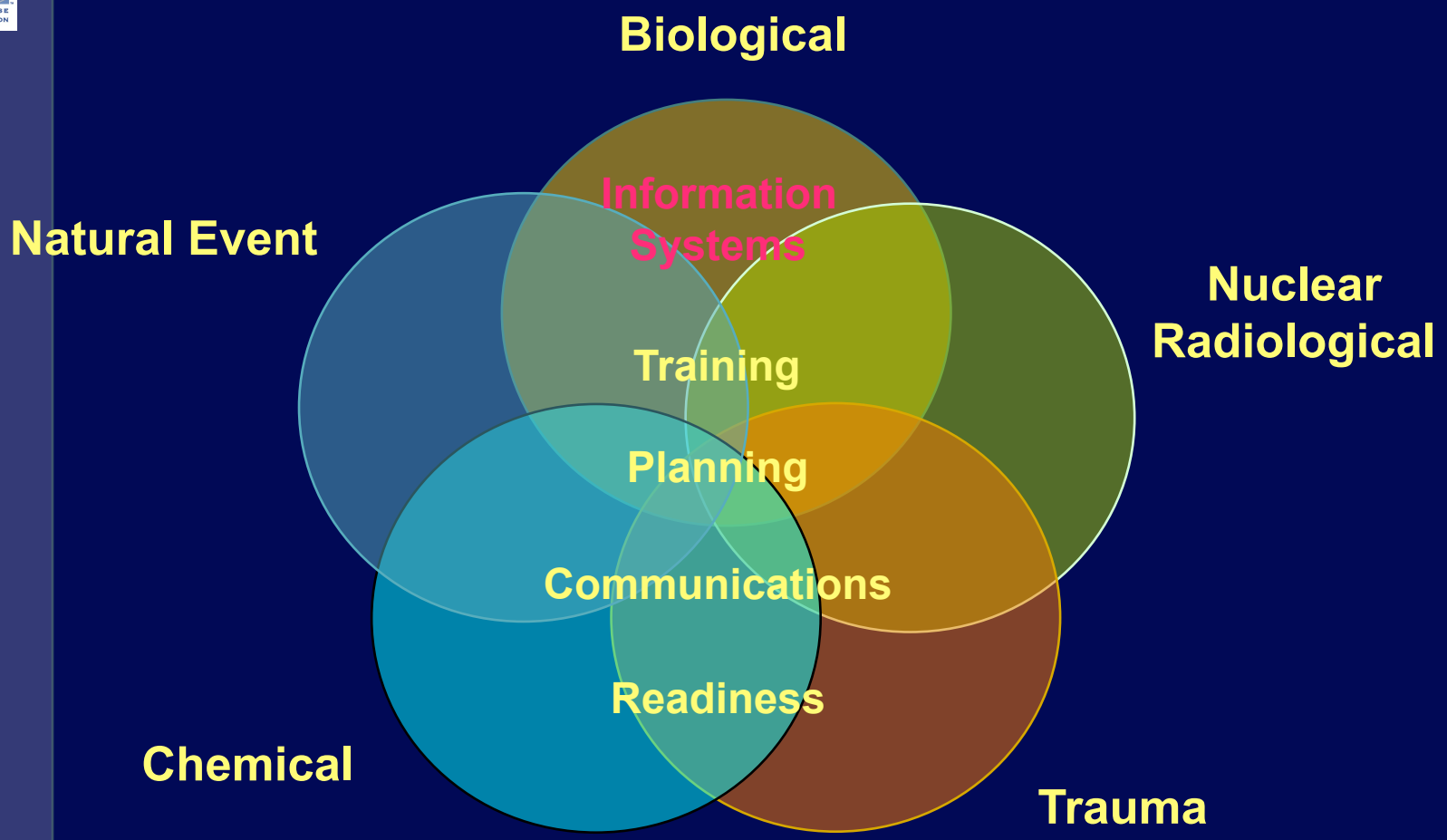
The BCU will coordinate the development of a strategy and implementation plan for integrated, nationwide public health surveillance to safeguard people from acute events by building upon current capabilities that strengthen local public health practice and provide value to medical care.

Stakeholder Coordination




Federal Biosurveillance
International Human Biosurveillance
CDC: BioPHusion: Common Operating Picture
CDC: BioSense
Electronic Health Information Exchange
CDC: Reporting
National Reporting Systems
(e.g., NNDSS, BioWatch, LRN)
CDC: Programs
Pathogen and Exposure Surveillance Systems
Outbreak Reporting
Relationships and Contacts
SLTT Public Health and Medical Biosurveillance (Systems, Relationships, and Workforce)

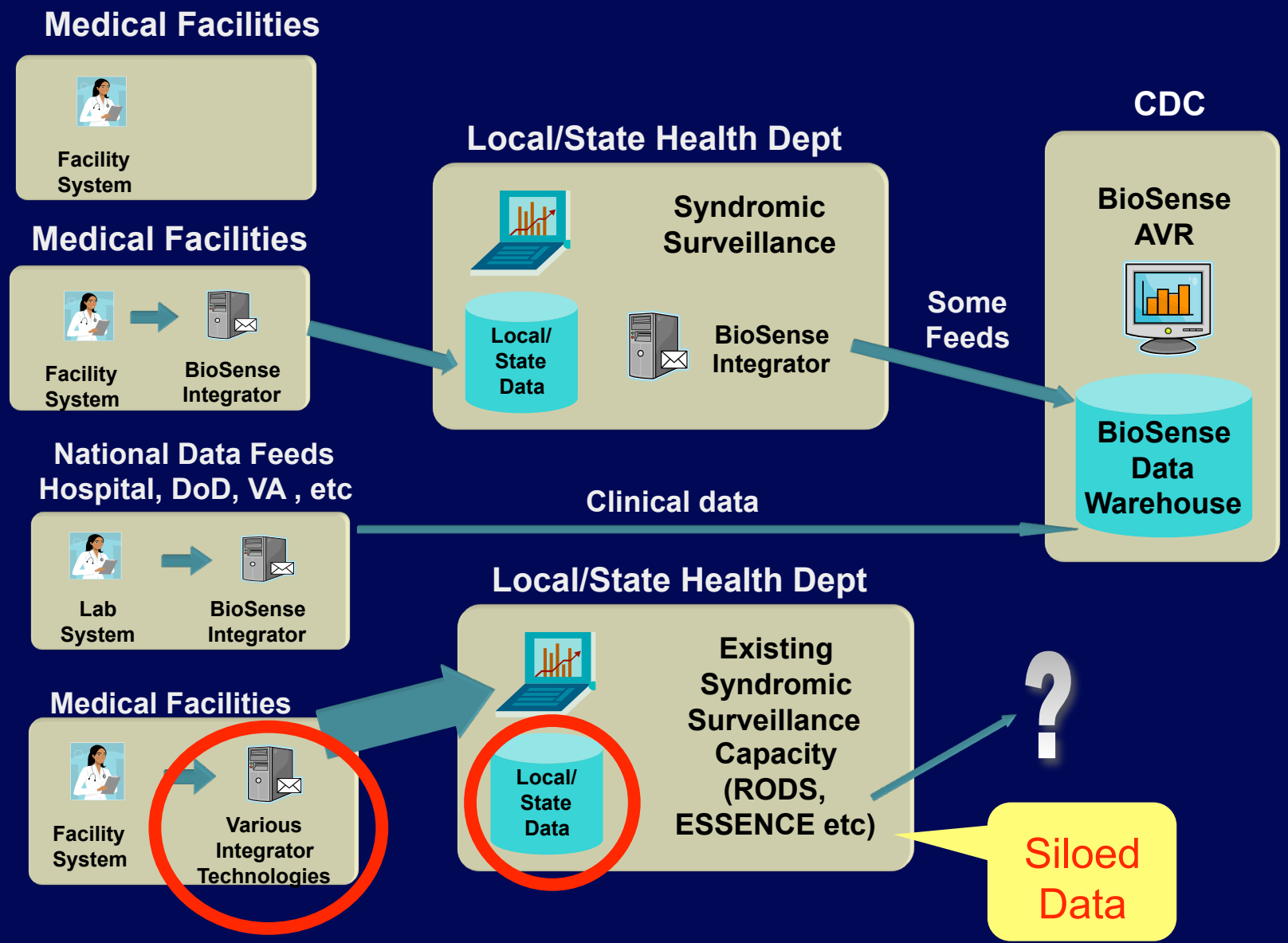
All Hazards Approach



I. Biosense - Current Approach

- Intensive data gathering from medical facilities, state & locals into a giant CDC owned data warehouse
- Heavy use of statistical algorithms to detect anomalies in the data and trigger investigations
- CDC centric approach developing in house software

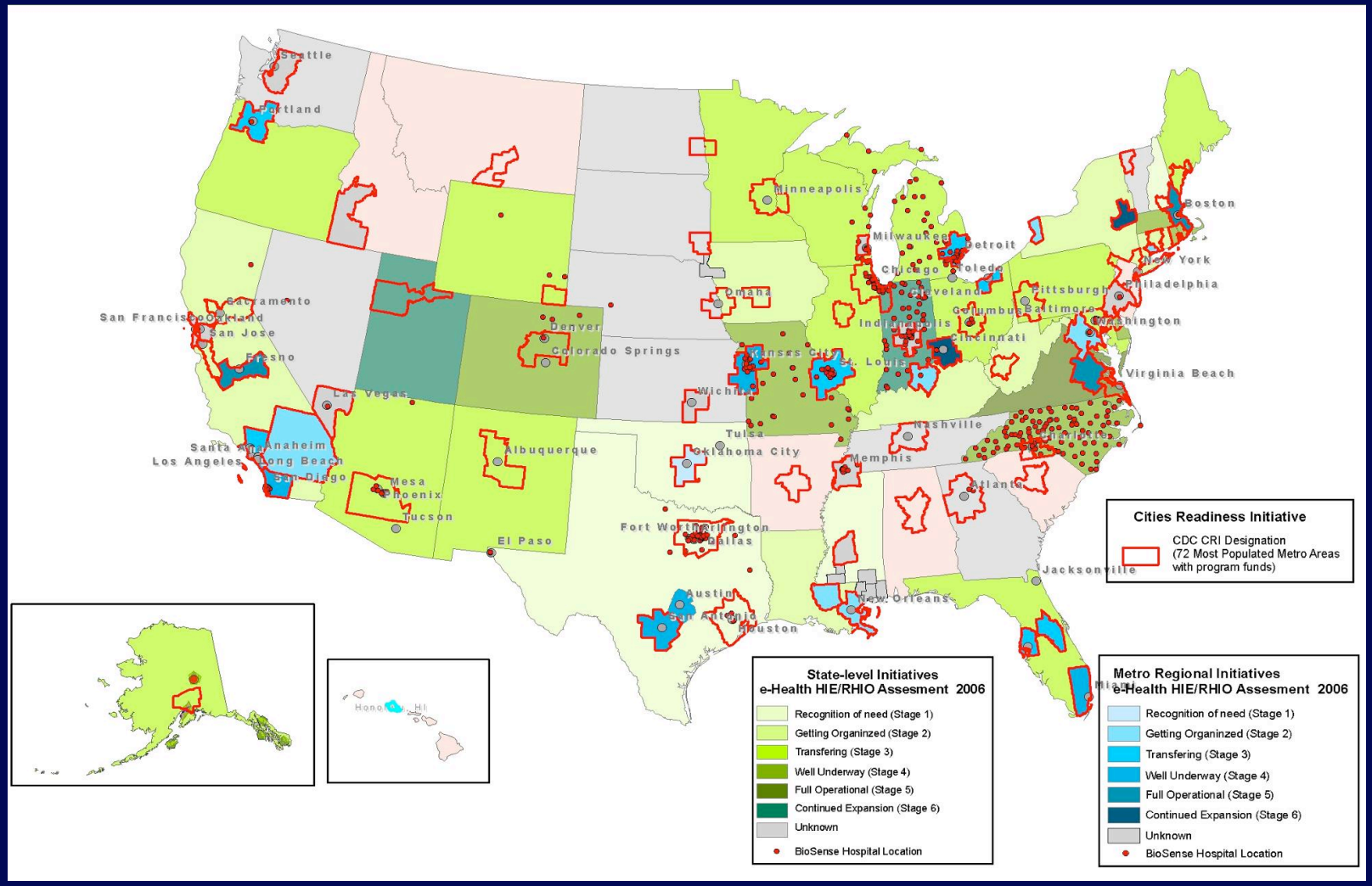
Current State



II. Lessons Learned

- Politics of control of data has been the primary obstacle to formation of a national system
- Much existing data remains siloed at the Local/ State level
- Building systems non-collaboratively leads to low adoption rates
- Getting data direct from medical facilities is challenging; facilities have limited IT resources

Use HIE Infrastructure to Support Data Acquisition



BioSense - Health Information Exchange

- Links HIE's with state and local public health and the CDC
- Focuses on case identification and reporting
- Supports development of two-way communications
- Assess new mechanisms to detect emerging problems
- Supports overall NHIN efforts

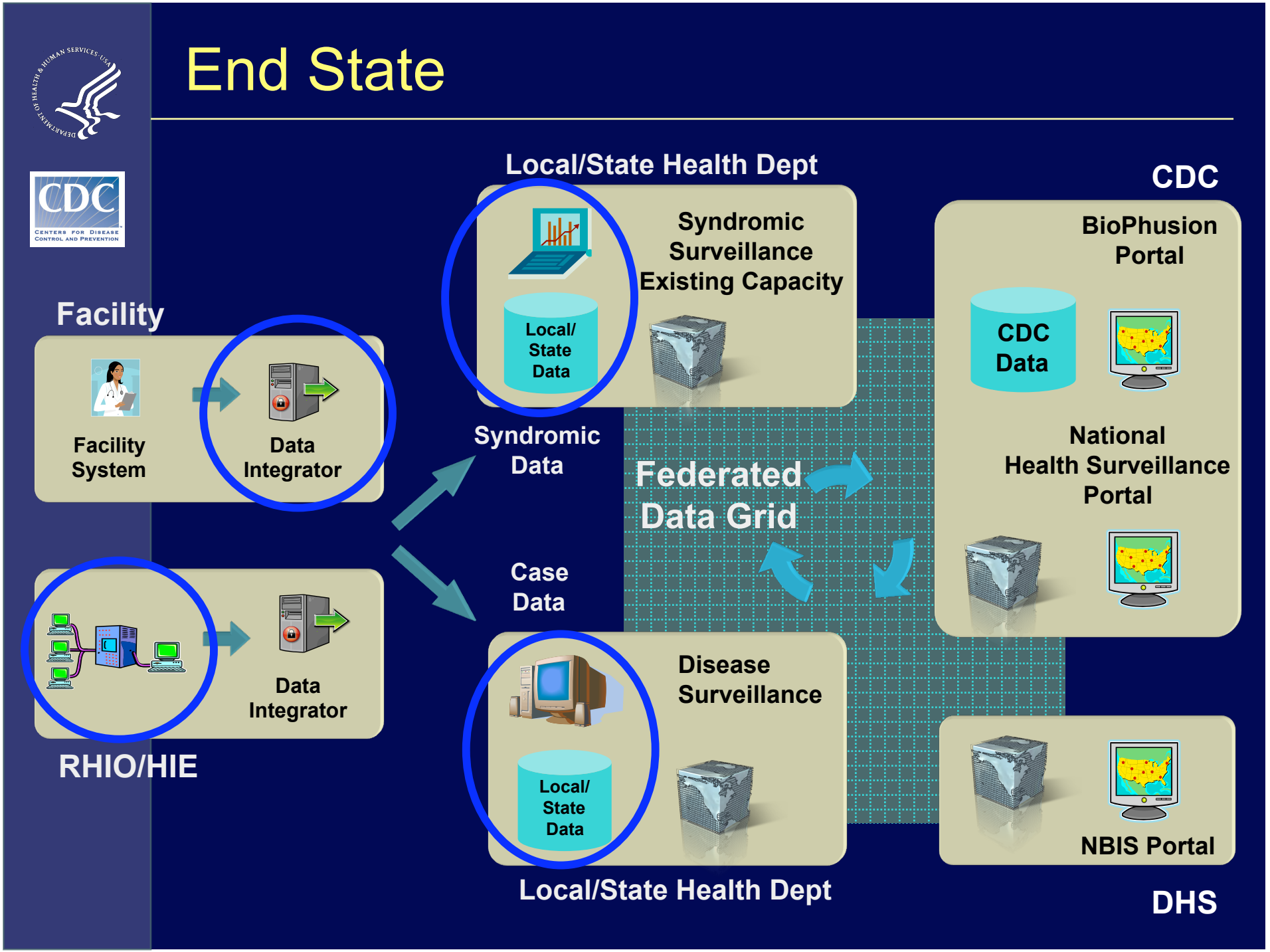
Case Recognition: Integration with Regional HIE's

- Case detection occurs at the institutional level
- Suspected case forwarded to HIE
- HIE's search other clinical data sources in region for relevant data for suspected case and retrieves this data
  - Suspect case can be confirmed or rejected
- Composite case forwarded to state and local public health as well as CDC (when indicated)

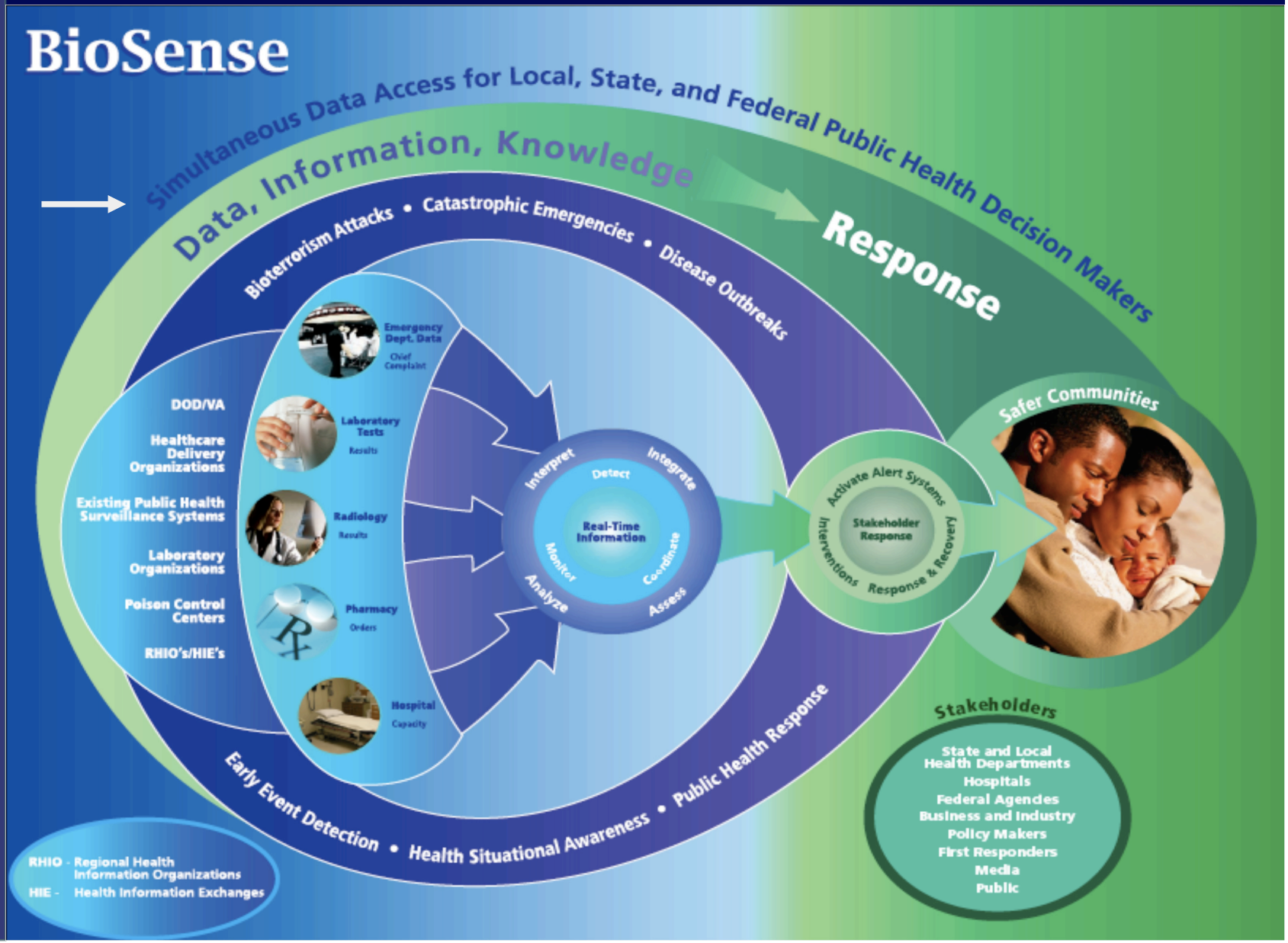
Open Source Collaborative Development

- Lead a Public Health Informatics Community
  - Community determines technology efforts
  - Community collaborates on strategy
- Use Open Source Methods
  - Anyone can use the software
  - Anyone can copy & modify the software
  - Only trusted contributors can provide enhancements to the base product

End State


Local/State Health Dept
Syndromic Surveillance Existing Capacity
Local/ State Data
CDC
BioPhusion Portal
CDC Data
National Health Surveillance Portal
Facility
Facility System
Data Integrator
Syndromic Data
Federated Data Grid
Case Data
Data Integrator
RHIO/HIE
Disease Surveillance
Local/ State Data
Local/State Health Dept
NBIS Portal
DHS

From a Conceptual Model to a System



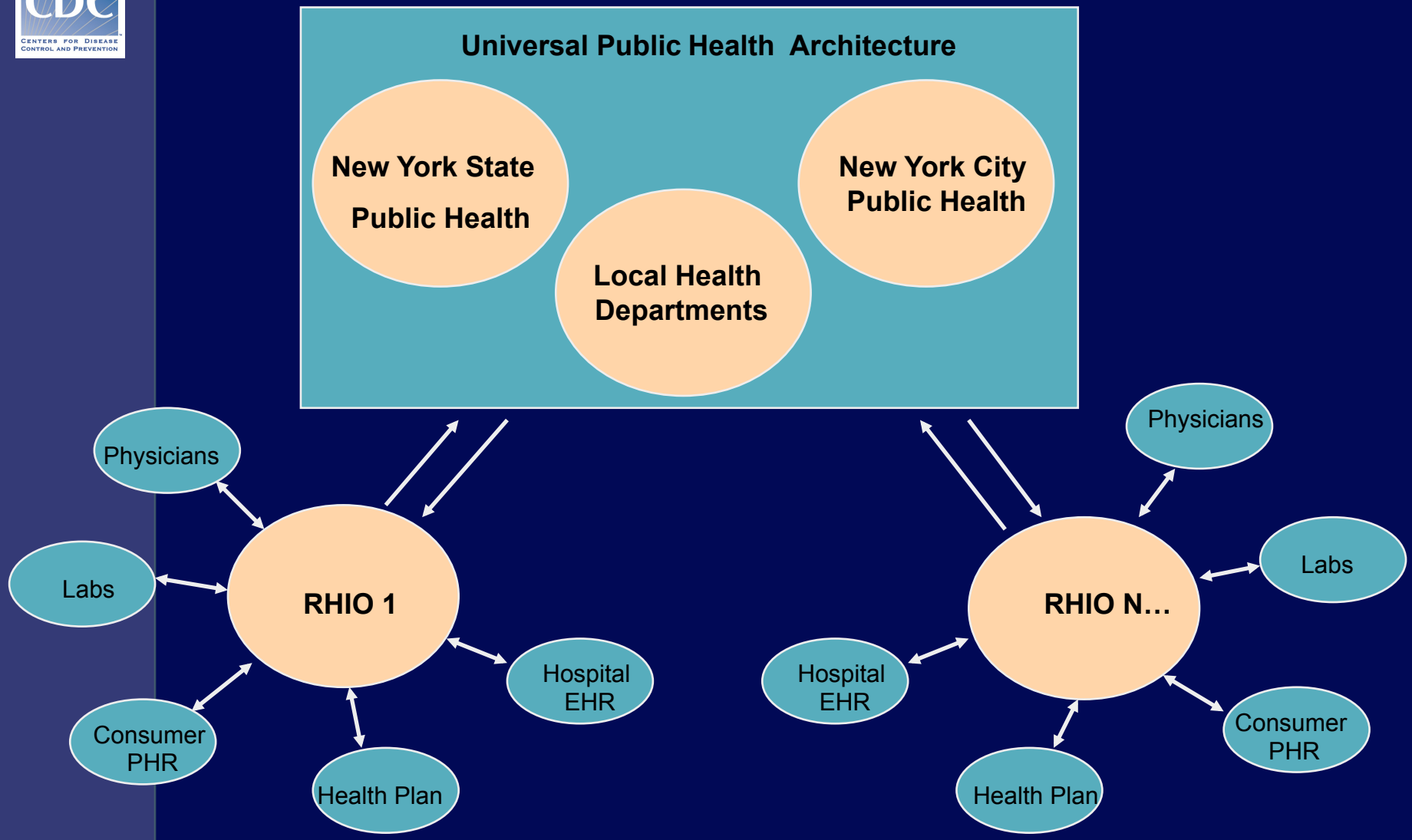
Our Major Activity

- A five-year, thirty-eight million dollar effort in three areas – WA/ID, IN, NY
- Initiated in February 08
- Coordinators
  - WA/ID – SAIC
  - IN – Regenstrief Institute
  - NY
    - Health Research Inc.
    - NYSDOH
    - NYCDOHMH

Superb Attributes for Team Success

- WA/ID – SAIC
  - *Technical expertise*
  - *Government experience – CDC and NHIN*
- IN – Regenstrief
  - *Thirty years of HIE experience*
  - *Internationally renowned research center*
- NY
  - *Significant state funding*
  - *Powerful political support for statewide HIE*

Conceptual Architecture



Key Deliverables – Year 1

- Develop, test, evaluate and implement the biosurveillance use case (BUC) and Minimum Data Set (MDS)
- Demonstrate successful interchange using NHIN specifications for the BUC
- Evaluate and exchange the MDS for ID reporting
- Bidirectional communication
- Assess analytic tools

Other Areas of Exploration

- Collaboration with DOD
  - *Idea accepted for presentation at military meeting*
  - *How can HIE's support identification of service members with undetected TBI or PTSD*
- Discuss private sector synergies
  - *Global access to EMR*
  - *Possible, new analytic techniques*


Questions?