



DHS Office of Health Affairs Chem/Bio Capability Gap Development

**2008 Homeland Security Science & Technology Stakeholders
Conference East**

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The IPT Process & the Office of Health Affairs

- What is DHS' Office of Health Affairs (OHA) and what do we do?
- What is OHA's role in the IPT process?
- How does OHA go about identifying requirements for S&T?
- What are some representative technology needs?



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OHA Primary Goals

- Serve as the *principal medical authority* for the Department of Homeland Security
- Lead the Department's *biodefense* responsibilities
 - End-to-end leadership for implementation of HSPD-9 (Ag/Food Defense) and HSPD-10 (biodefense), including early threat detection and biosurveillance integration
- Lead a coordinated *National architecture for Weapons of Mass Destruction (WMD) planning and catastrophic incident management*
 - Ensure planning and mitigation strategies for biological threats are coordinated across the Interagency
 - Serve as DHS POC for state, local, tribal, and private sector partners for health preparedness
- Ensure DHS employees are supported by effective *occupational health and safety* programs
 - Standardize and direct a Departmental occupational health and safety program
 - Provide medical oversight for health delivery throughout the Department



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National Biodefense Pillars (HSPD-10)

“Biodefense for the 21st Century”

THREAT AWARENESS

- **Intelligence**
- **Assessments**
- **Anticipate
Future Threats**

PREVENT & PROTECT

- **Diplomacy**
- **Interdiction**
- **Critical
Infrastructure
Protection**

SURVEILLANCE & DETECTION

- **Attack Warning**
- **Attribution**

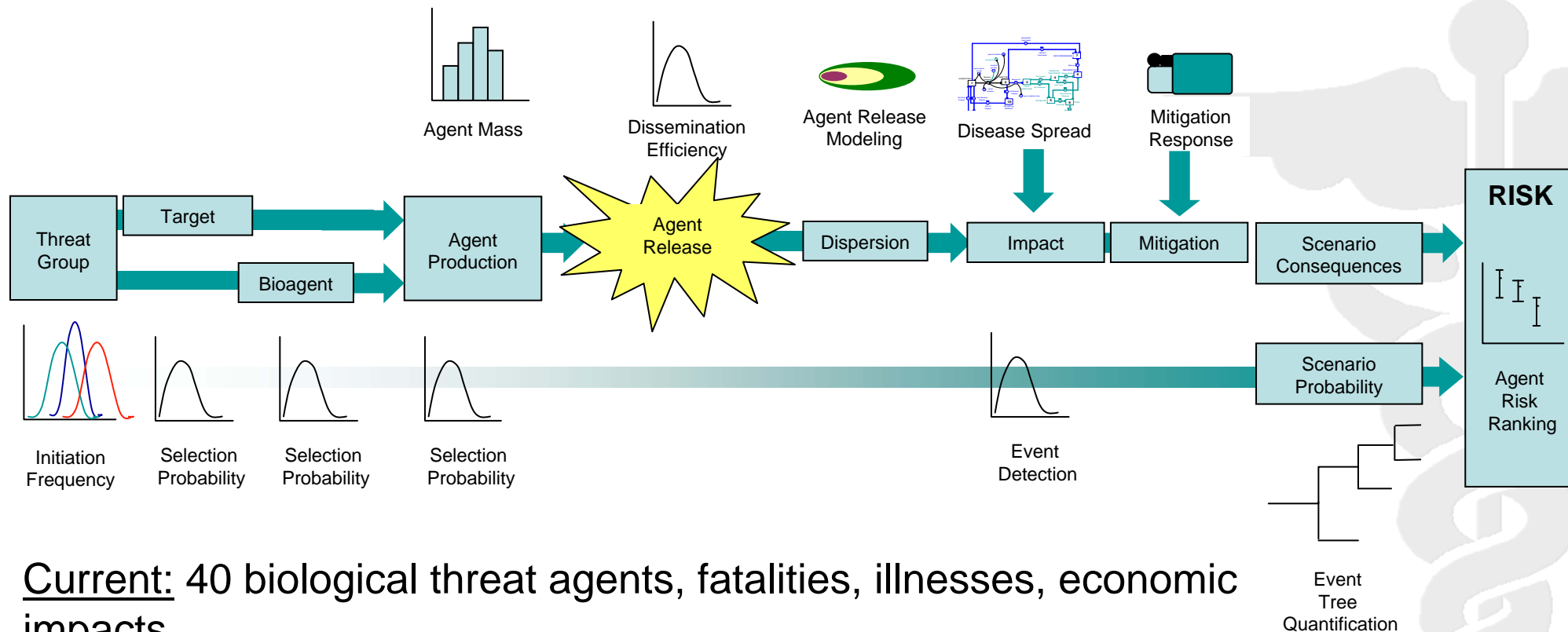
RESPOND & RECOVER

- **Response Planning**
- **Risk
Communications**
- **Medical
Countermeasures**
- **Mass Casualty Care**
- **Decontamination**

The Four Pillars of the National Biodefense Program

Threat Awareness

Bioterrorism Risk Assessment (BTRA) & CTRA



Current: 40 biological threat agents, fatalities, illnesses, economic impacts

Future: Emerging and enhanced agents, prototype desktop tool, improved consequence and intelligent adversary modeling



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Surveillance & Detection

BioWatch National Network

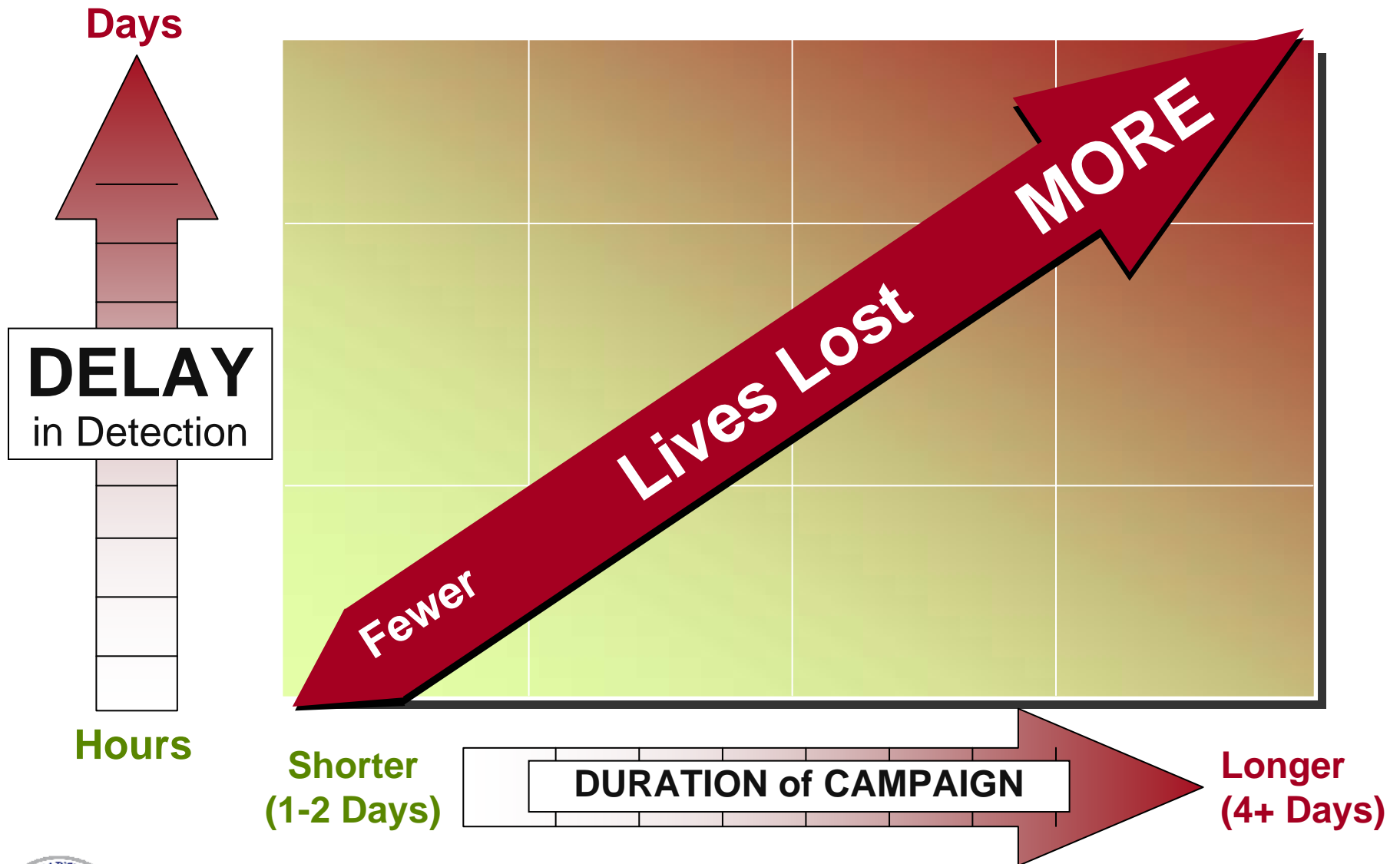


- Operates continuously in more than 30 major population centers
- Detects attacks against our Nation's cities and other high value assets
- Poised to:
 - Enable early detection
 - Provide situational understanding to guide response
 - Share information among partners
 - Integrate into the national networks of reference laboratories
 - Serve as critical element in a national capacity to respond rapidly to bioterrorism events



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Time is Critical



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Courtesy CDC

BioWatch Event to Detection Timeline

Event-to-Detection and Confirmation

24 hours
Aerosol Collection Cycle

Up to
4 Hours
Filter
Recovery

6 Hrs
Primary
Screening

2
Hrs
Full
Agent-
Specific
Test
Panel

10 - 34 hours from exposure to discovery

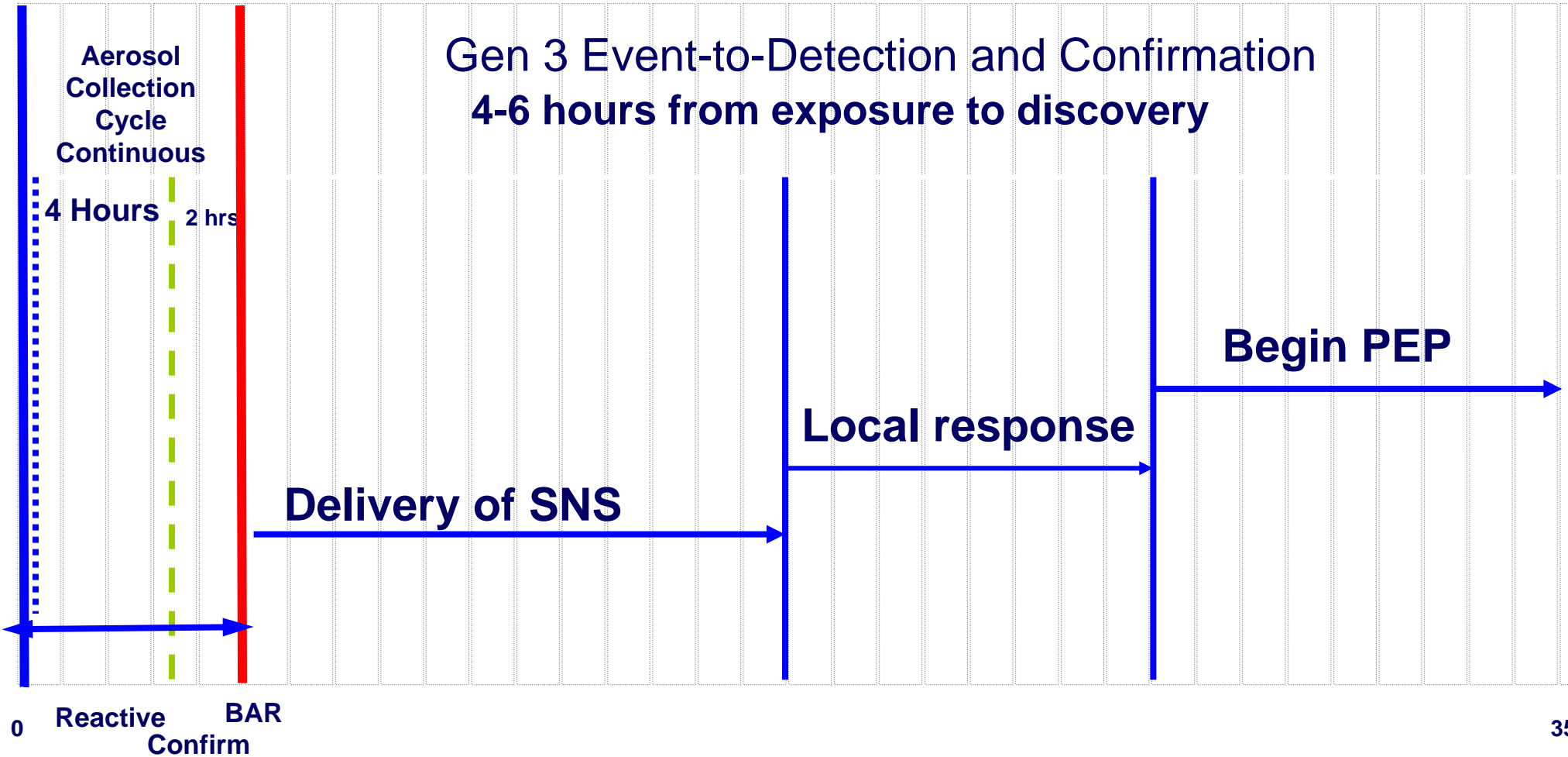
Reactive BAR



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BioWatch Event to Detection Timeline

**Gen 3 Event-to-Detection and Confirmation
4-6 hours from exposure to discovery**



Surveillance & Detection

Representative Technology Needs (Biodetection):

- An *automated*, fully integrated “lab-in-a-box” that is capable of aerosol collection, molecular analysis and identification, and reporting of results with networking capability for real-time control of the entire sensor system
- An automated sampler compatible with lab analysis, sealed for safe handling of potential positives, *preservation of sample viability* for 1-3 days; flexible, remotely programmable; and relatively low acquisition, operation and maintenance costs
- Technologies and systems to identify *unknown and emerging threats*
- Testing, validation, and guidance for *Hand-Held Assays* to elicit response from public safety and health communities.



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Surveillance and Detection

National Biosurveillance Integration Center (NBIC)



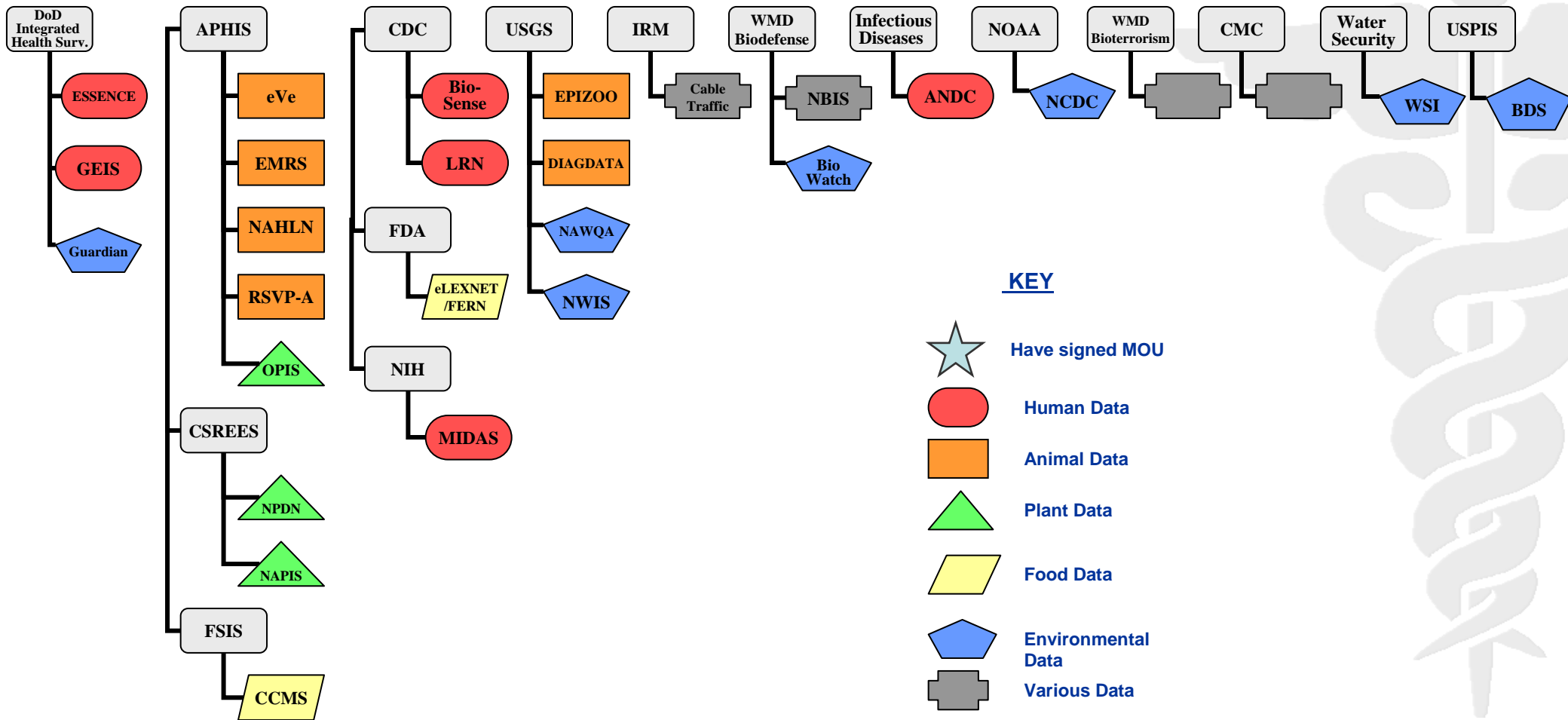
Analysis/Alerts

- Identify and characterize biological events of national concern in as close to real-time as is practicable
- Provide information to populate a Biological Common Operating Picture (BCOP)
- Alert senior leadership, member agencies, and public health agencies of state, local, and tribal governments regarding any incident that could develop into a biological event of national concern










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NBIS Federal Network Integration



KEY

-  Have signed MOU
-  Human Data
-  Animal Data
-  Plant Data
-  Food Data
-  Environmental Data
-  Various Data



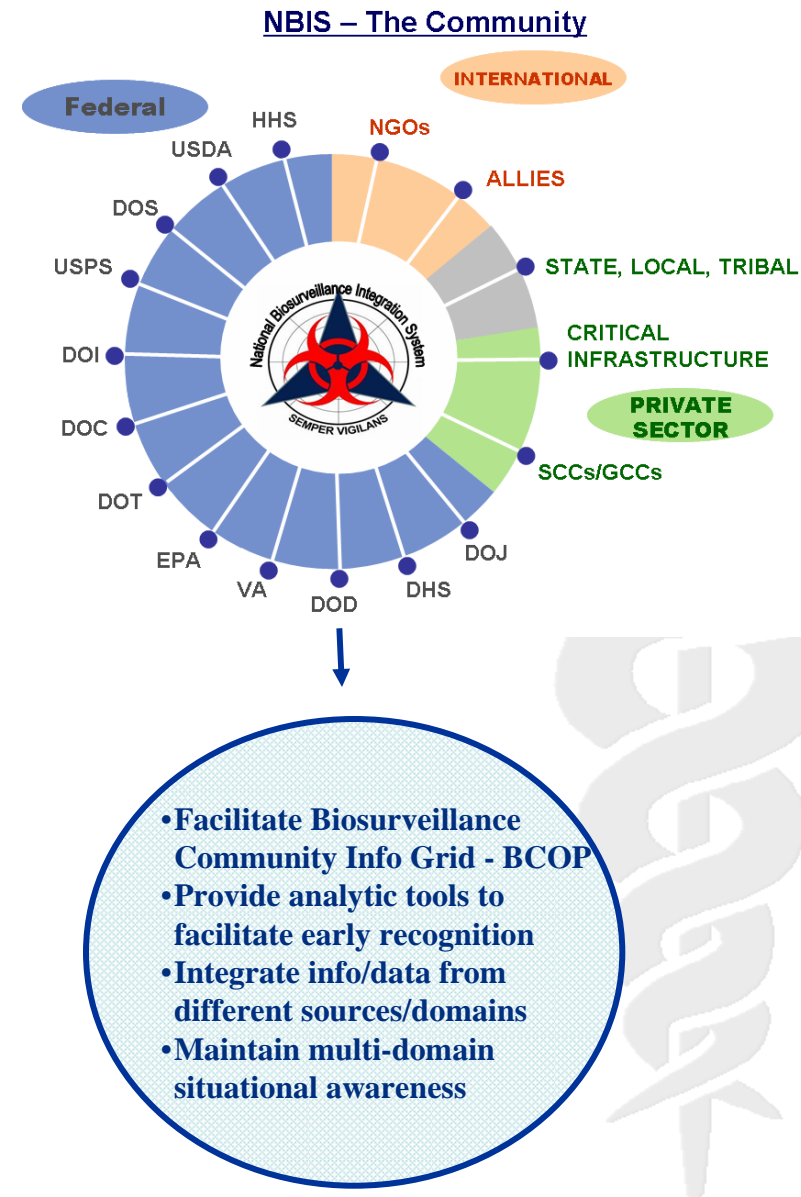
Surveillance & Detection

Representative Technology Needs (Biosurveillance):

- Biological event effects forecasting and analysis modeling tools to determine the likely cause or source of the contamination
- Development of rapid analytics for biological and biosurveillance information data streams from across domains and from non-traditional sources
- Development of visual analytics to support rapid information absorption of bio-situational awareness information by leaders with limited viewing windows
- Explore integration of information from private sector databases

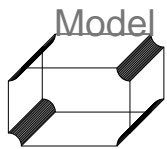
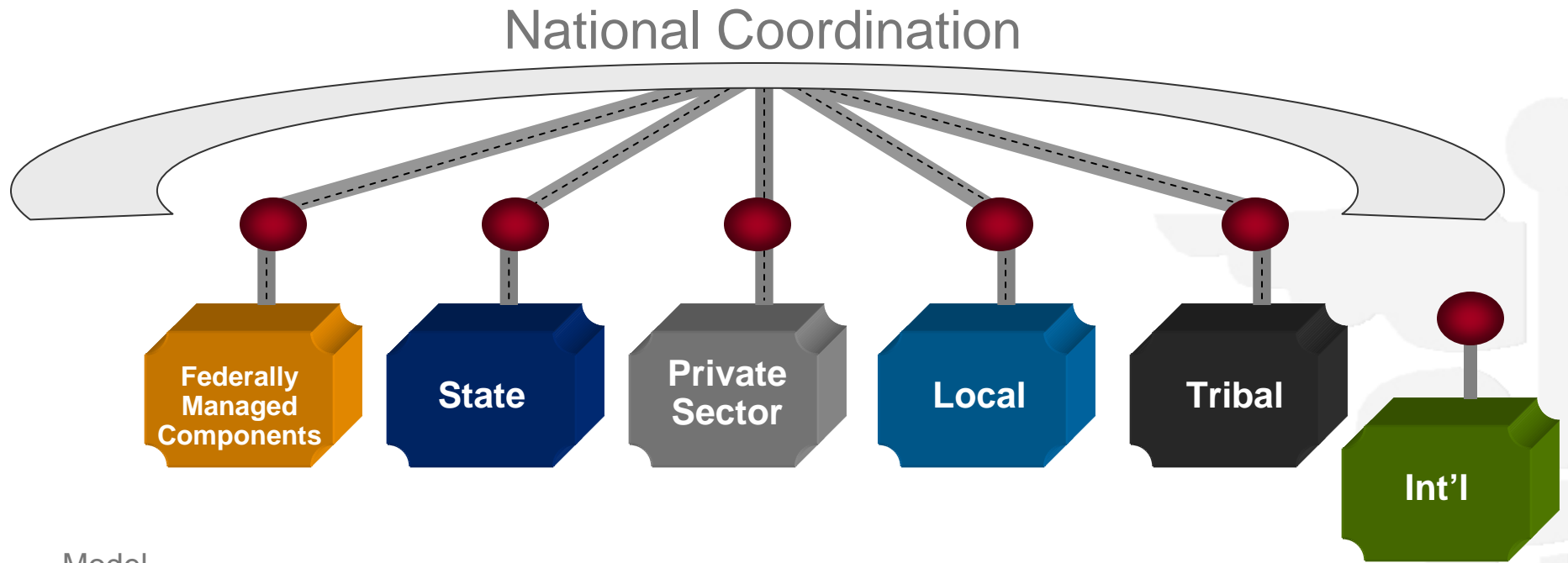


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Response & Recovery

Biodefense Architecture



Federal Direction – Identify the National Architecture



Provides Interoperability for two-way Information Sharing



State/local/tribal Create Solutions Specific to their Unique Needs

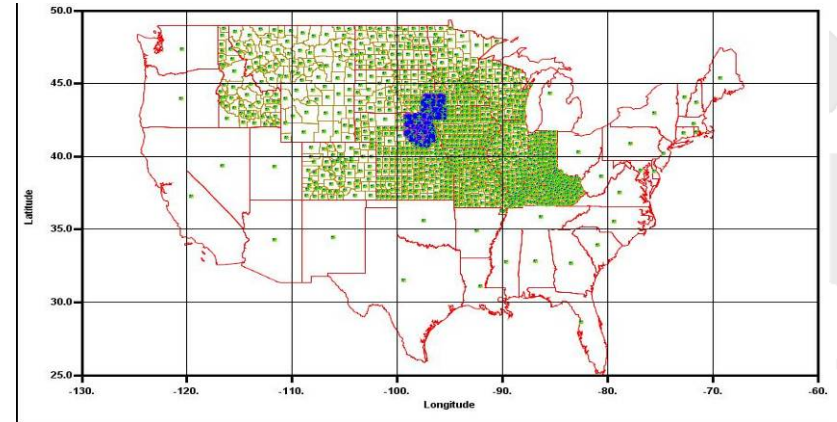


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Food, Agriculture, & Veterinary Defense

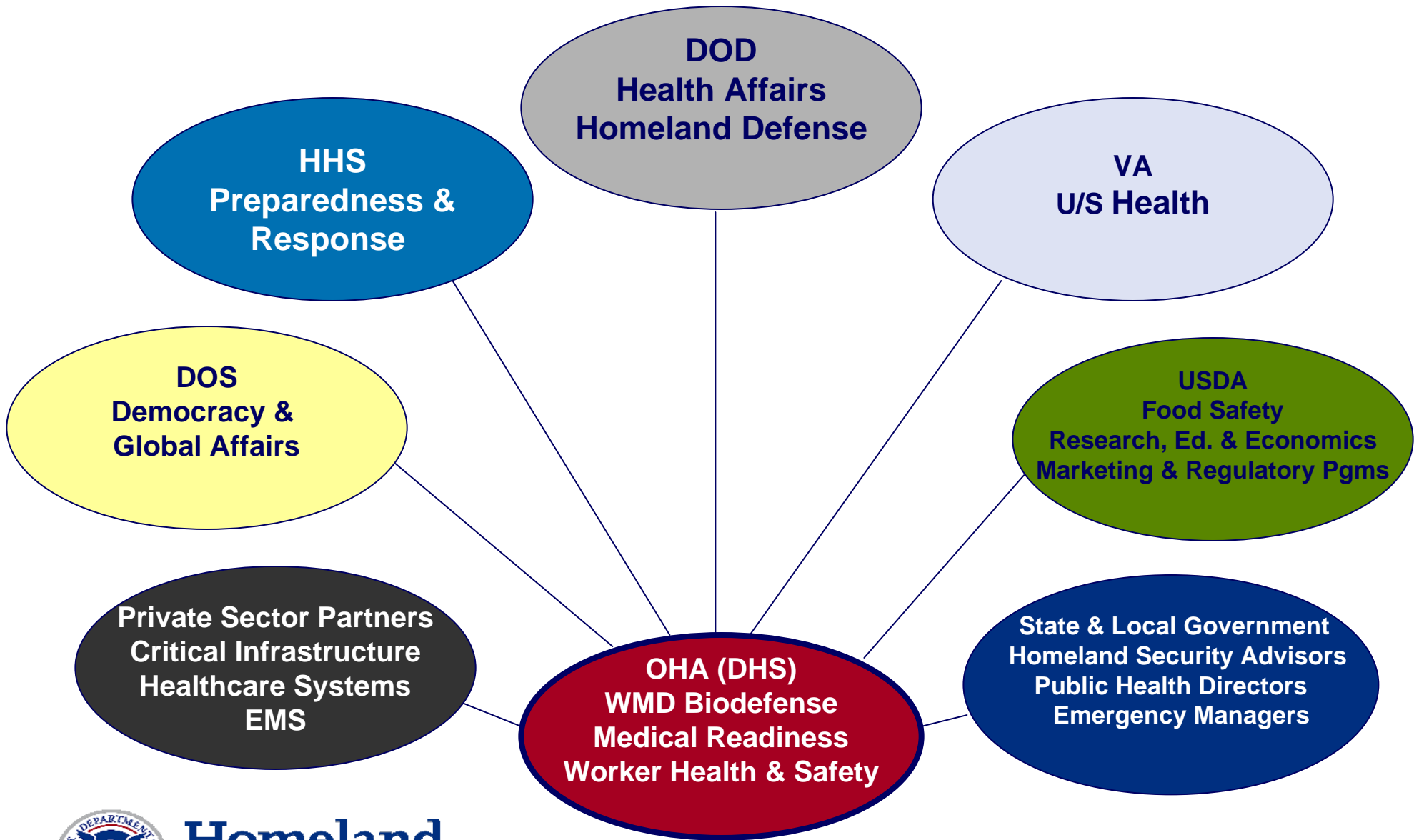
Representative Technology Needs:

- Agro-screening tools and protocols to detect and mitigate animal disease outbreaks
- “Trade-friendly” FMD vaccines, as well as vaccines for RVF, CSF, and other foreign animal diseases
- High throughput diagnostics
- Agriculture & food vulnerability assessments
- Modeling tools to support policy and decision makers in evaluating intervention strategies to control outbreaks
- Modeling & training tools to support state and local planning and operations



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DHS Health Affairs Integration



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Taking Threats Off the Table

What can you do?

- Provide feedback to DHS
- Deliver near-term improvements, as well as develop innovative tools and technological solutions in the mid- to long-term
- Enhance our scientific knowledge base

What can we do?

- Develop a Strategic Plan for biological events
- Establish partnerships at all levels of government, with the private sector, and with non-governmental organizations
- Identify gaps and work with our partners to address them



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