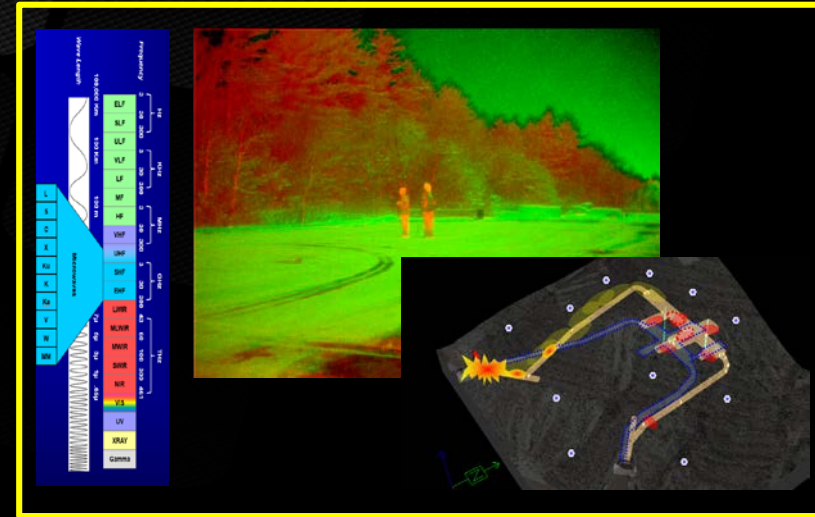


# Next Generation Information Awareness

*Tactical Information Awareness  
in a Contested Environment*

# Future Operating Environment

Challenges



Opportunities

**Contested** Air/Space/EW Domains where the Adversary has Access to Advanced Commercial Technology. Our Advantage will come from our Ability to **find new Access** to data, more **Efficient Means of Analysis**, and Faster **Extraction of Information**.

# Next Generation Information and Identification

**“Next Generation Information Awareness (NGIA)” is the integration of standoff biometrics, technical sensors, and advanced data architecture and analytics to complement traditional intelligence capabilities to enable identification in near-peer, sensitive, and less permissive environments. NGIA innovation comes from the ability to integrate multiple domain sensors to collectively derive high-fidelity information on identities, locations, and actions.**

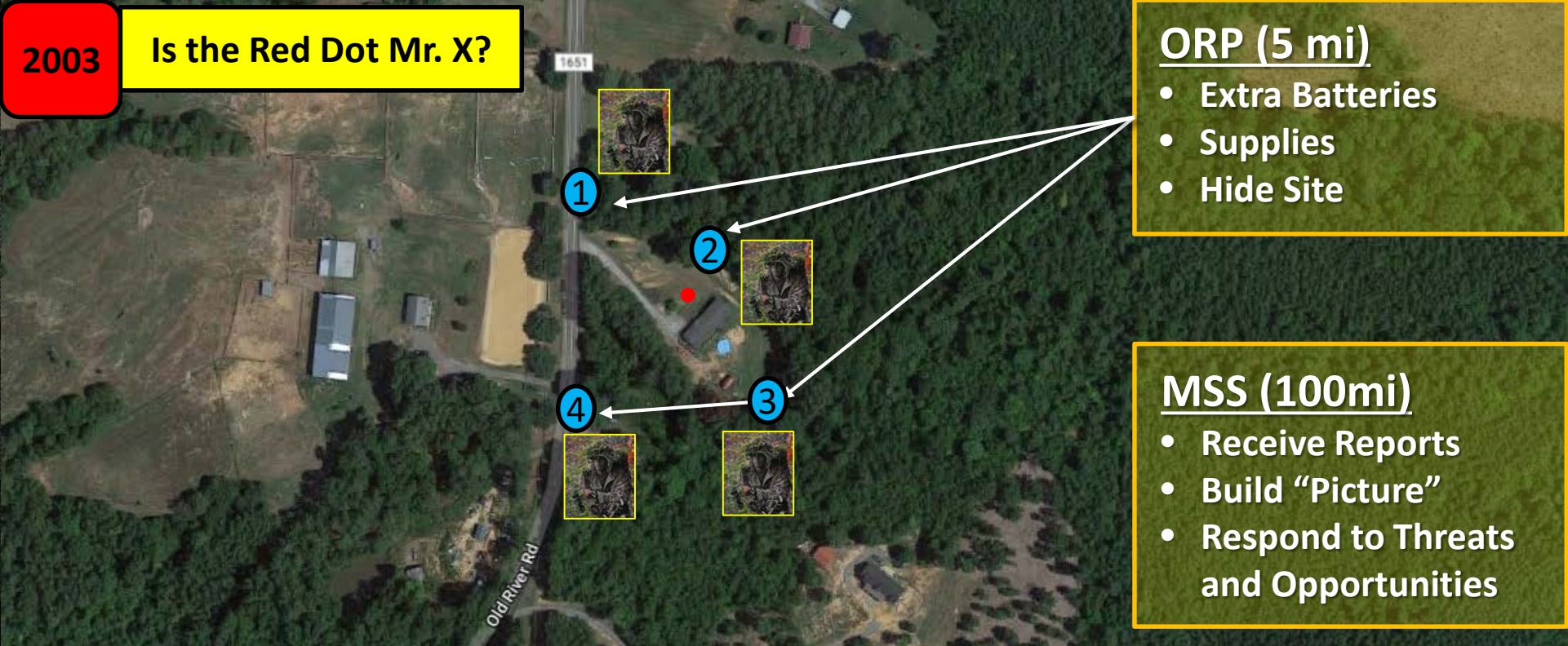
## **NGIA consists of three major subcomponents:**

- Standoff Biometric Sensors. System of ground-based sensors collecting in multiple domains capable of providing data that contributes to personal identification.
- Remote Emplacement and Control. Autonomous emplacement, control, and sustainment of standoff sensors to minimize chance of detection and focus on access to most critical information.
- Data Fusion and Information Architecture. Fuse and interpret sensor data at the point of collection to derive information. Transmit data between sensors, and selectively transmit derived information over-the-horizon with low probability of detection.

**Identify and Characterize Adversaries in the Future Operating Environment.**

2003

Is the Red Dot Mr. X?



**ORP (5 mi)**

- Extra Batteries
- Supplies
- Hide Site

**MSS (100mi)**

- Receive Reports
- Build "Picture"
- Respond to Threats and Opportunities

	Equipment	Observe/Report
1	Binos, NVGs	"Med Build, bearded, Limping on left leg"
2	Standoff Microphone	"Southern accent, stuttering"
3	EM Collection	"He talked to Mr. Y"
4	Binos, Thermals	"Red Ford Truck drove in"



**Analysis**

He walks a little like Mr. X

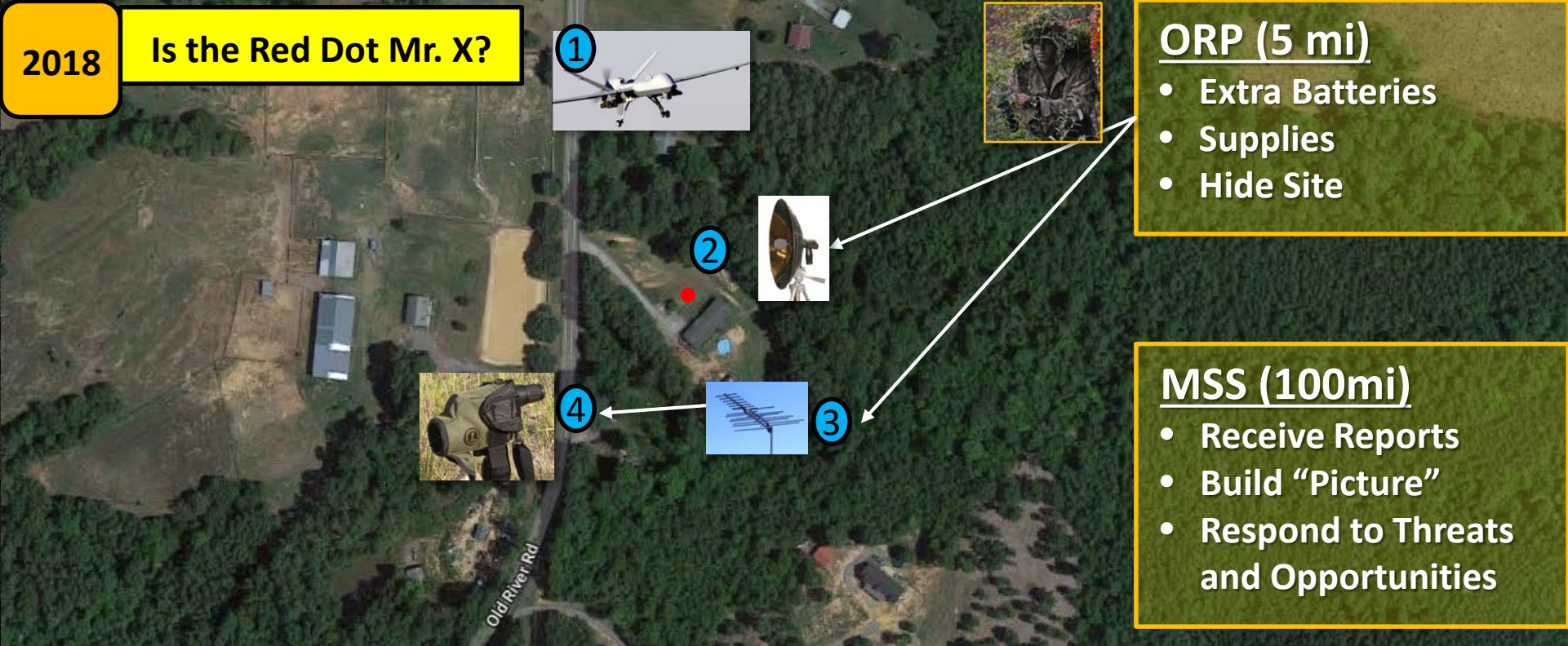
He sounds a bit like Mr. X

He talks to Mr. X's friends

A car like Mr. X's drove in

2018

Is the Red Dot Mr. X?



- ORP (5 mi)**
- Extra Batteries
  - Supplies
  - Hide Site

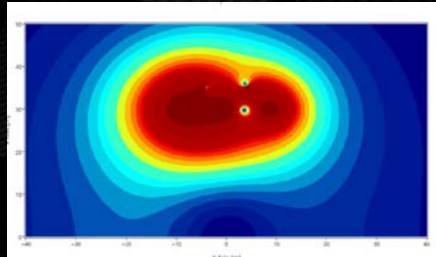
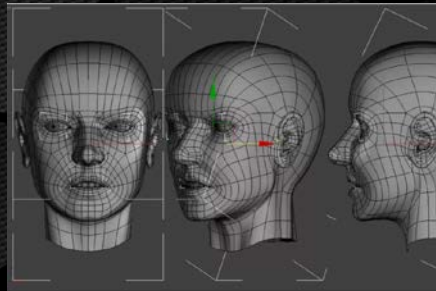
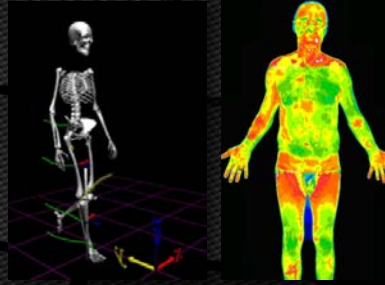
- MSS (100mi)**
- Receive Reports
  - Build "Picture"
  - Respond to Threats and Opportunities

	Equipment	Collect/Transmit
1	FMV HD Feed	GB/Hr
2	Standoff Microphone	MB/Hr
3	EM Collection	KB/Hr
4	FMV FLIR Feed	GB/Hr

GB-TB/Day

Analysis
He walks a little like Mr. X
He sounds a bit like Mr. X
He talks to Mr. X's friends
A car like Mr. X's drove in

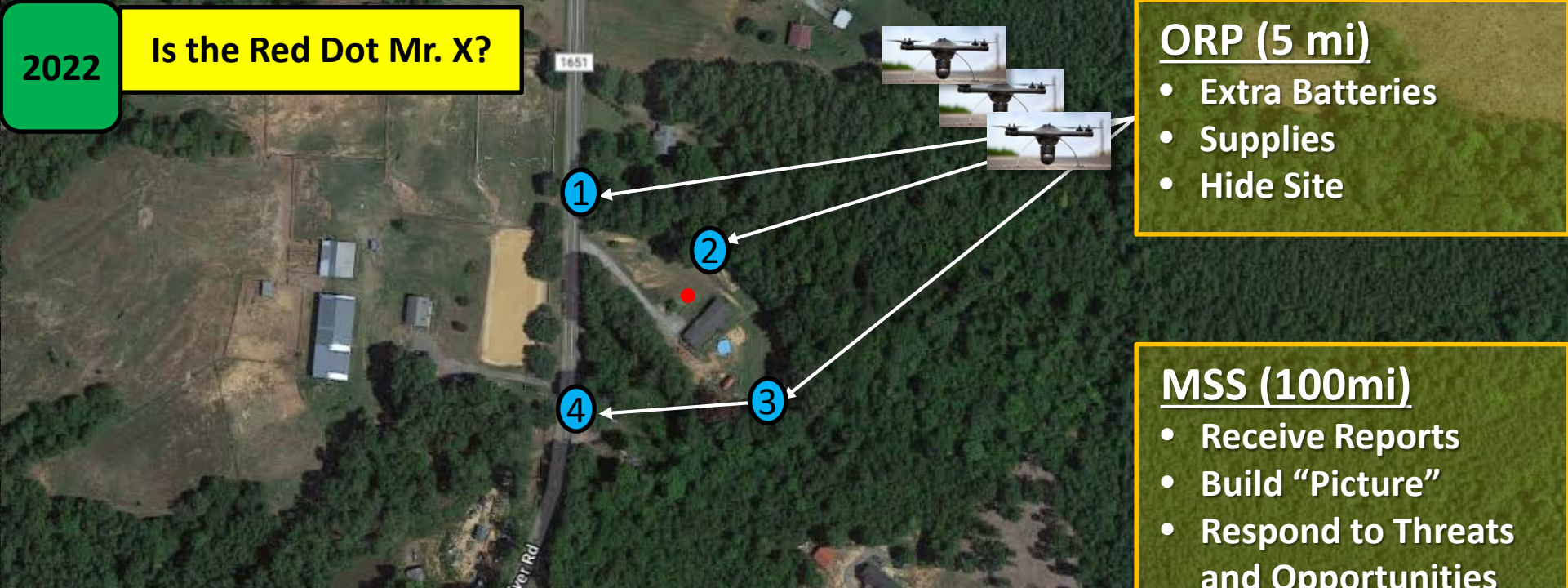
# Next Generation Information and Identification



**Identify and Characterize Adversaries in the Future Operating Environment.**

2022

Is the Red Dot Mr. X?



- ORP (5 mi)**
- Extra Batteries
  - Supplies
  - Hide Site

- MSS (100mi)**
- Receive Reports
  - Build "Picture"
  - Respond to Threats and Opportunities

	Sensor	Data And Fusion/Analysis
1	Visual, Video	85% Facial ID match 82% Build Analysis 76% Gait Match
2	Audio	67% Voice ID 95% Dialect Match
3	EM Collection	EM Footprint Match
4	Video, HSI	88% Vehicle ID 92% HSI Paint Match



97% Match for Mr. X  
at Grid AB 12345678  
Need More Voice  
Data

# NGIA Questions

- **What can unattended sensors do better than human reconnaissance?**
- **Can sensors “emplace themselves?” Can they sustain themselves? Hide themselves?**
- **How much data is really needed to draw a conclusion?**
- **What opportunities exist for non-traditional remote/standoff biometrics?**
- **How much “fusion” can be done at the point of collection?**
- **Can we identify what additional collection would be of the most value?**
- **How can we combine independent, lower-density multi-spectral collections?**

**If we Relax Requirements for any Individual Sensor Fidelity, can we Improve our Overall Level of Confidence Through Forward Processing and Adaptive Collection?**



# What are we Looking for?

<b>Standoff Biometrics</b>	<b>Remote Access</b>	<b>Data Fusion and Architecture</b>
Facial, Gait	Autonomous Cargo	Edge Computing
Physical Measurements	Networked Drones	Forward Sensor Fusion
Gestures/Actions	Advanced Concealment	Real Time Super-Resolution
Odor, Chemical	Power Sources	Adaptive Collection
Sound and Voice	Sustainment	Action Recognition
Hyperspectral	Micro/Nano Sensors	Cross-Domain Architecture
Others	EO, IR, LIDAR, EM	LPI/LPD Transport

**FedBizOps Posting expected July 1.  
SOFWERX event on NGIA planned for July 30 (Tentative).**

# *Questions*