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# New Administration & Technologies

## Industry's Perspective on Changes for Precision Strike

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# Introduction

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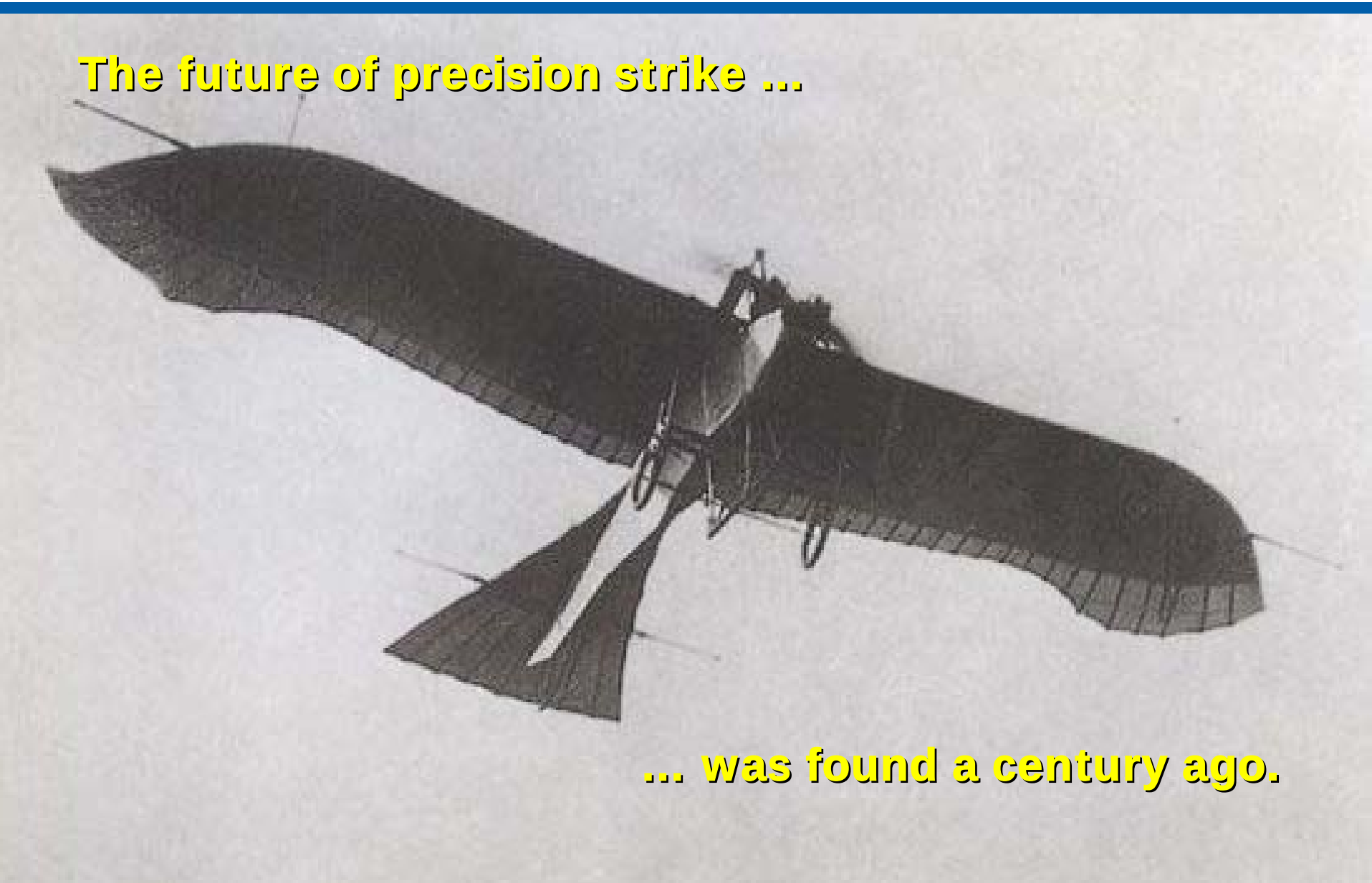

# The Obama Administration - Declared Defense Policy Objectives

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- End War in Iraq
  - Increase commitment in Afghanistan
- Place “people first”
  - Increase size of Army / USMC
  - Take care of Service Men / Women & Families
    - Note: already occurring with the Economic Stimulus to include health care, child care services, barracks repair / construction, etc
- Restore global partnerships and build a Civilian Assistance Corps to promote stability
- Focus on adapting and building US military capabilities for current needs and missions of the future

...a more efficient and adaptive military well suited to irregular challenges that preserves nuclear deterrence and sufficient conventional warfighting capabilities
– Administration transition team

# Conflict in Early 21st Century

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**Hybrid Warfare**

**Conventional Warfare**

**Irregular Warfare**

**Hybrid Warfare – the convergence of disparate types of conflict**
- **Civilian-warrior – disciplined, coordinated, autonomous and determined**
- **Weapons – AK-47 to cruise missiles and cyber technology**
- **Tactics – simple to complex, coordinated with high Situational Awareness**
- **Environment – congested urban settings to isolated, inhabitable terrain**
- **Nation-states to non-state actors will embrace and exploit**

# Military Capabilities Needed Today

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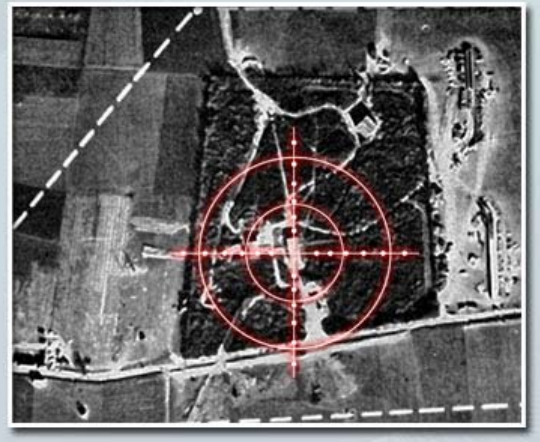
- ISR – to discriminate, detect and track hostile personnel, operations and capabilities
  - Imbedded in complex, congested urban terrain
  - Scattered in austere mountains to dense jungles
- Strike – to damage or destroy
  - With precise, low collateral damage
  - Lethal and non-lethal effects
  - Against a discrete target
  - Against a deeply buried target
  - Must be survivable and persistent



**Previous Targeting Photo**


**Targeting Challenge Today**

Challenge of Precision Strike demands extremely high fidelity information

# Layering ISR
- Maximizing Awareness of the Battlespace

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| Requirements | Who | What | Where | When | Why |
|---|---|---|---|---|---|
| SIGINT | X | X | X | Now & Future | X |
| IMINT | | X | X | Now | |
| MASINT | | X | X | Now | |
| MTI | | X | X | Now | |
| HUMINT | X | X | X | Now & Future | X |

Layering ISR assets provides precise data:
- Where (geo-location)
- When (timing)
- Accuracy (speed, signal type, characterization, picture, etc.)

# Improving Persistent Awareness - Enhancing Fidelity of Ground Surveillance

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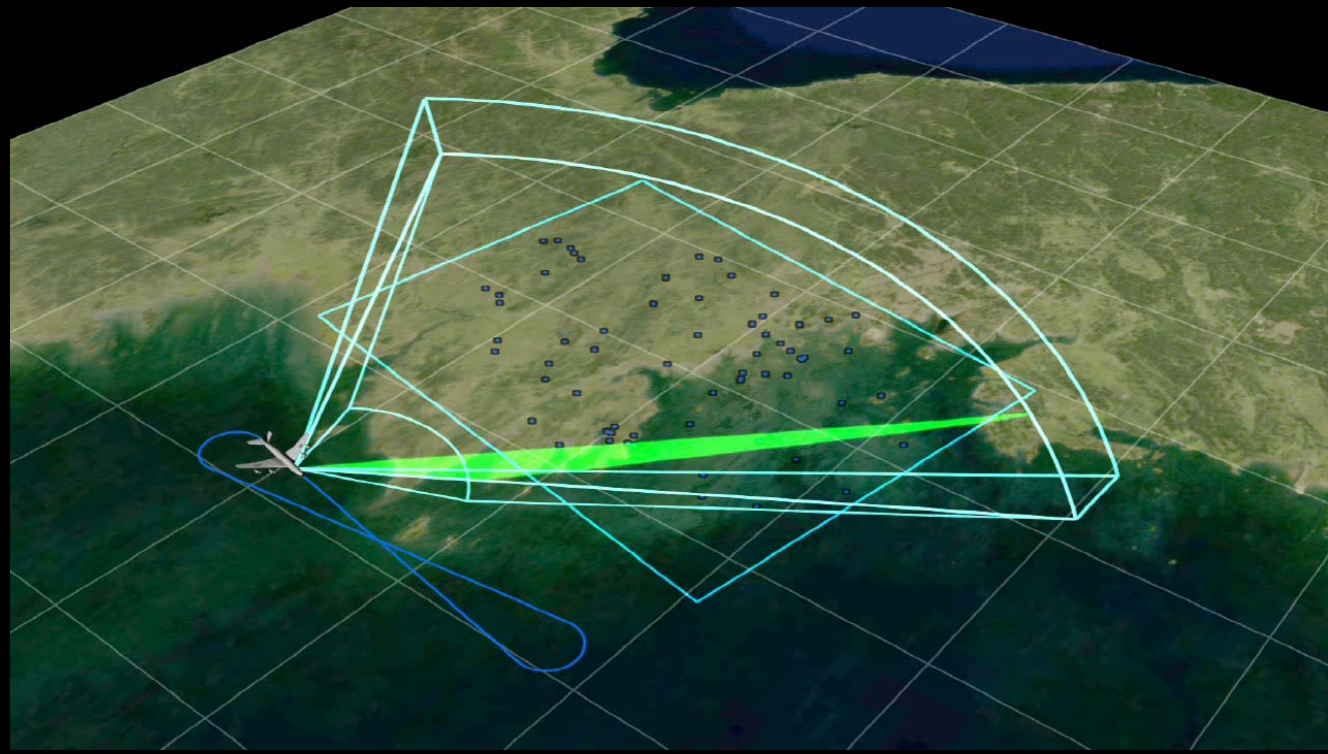
- Current E-8C provides good surveillance and tracking of ground maneuver forces
- Flown over 50,000 hours supporting operations in Iraq and Afghanistan



- Future E-8 (with MP-RTIP Actively Electronically Scanned Antenna) will dramatically improve Ground and Air Commanders' awareness
  - Dismounted Forces
  - Cruise Missile and low flying aircraft

# MP-RTIP on Joint Stars – Expanding Precise Awareness of Surface Action

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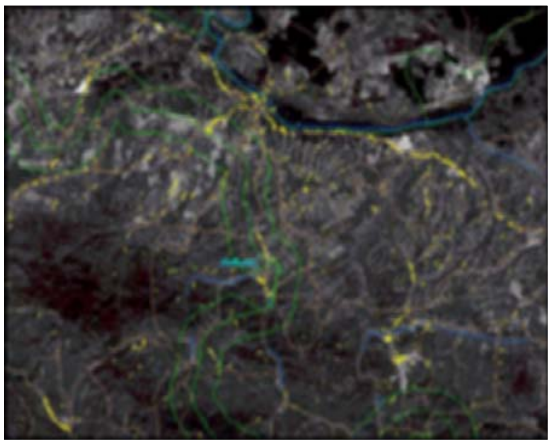
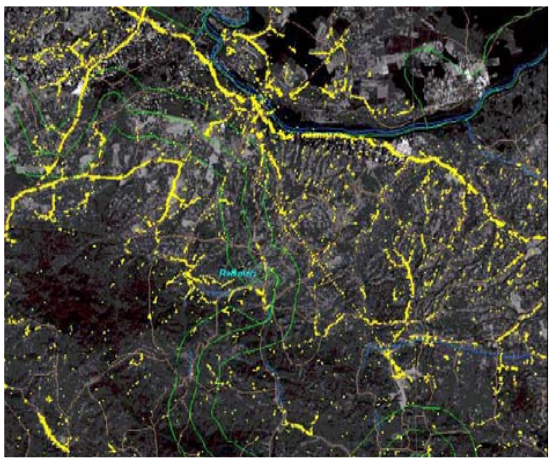
**Current E-8**



**E-8 w/MP-RTIP**



**Improved Resolution & Track Quantities / Continuity**

| Operational Benefit | E-8 W/APY-7 | E-8 w/MP-RTIP |
|---|---|---|
| Wide Area Continuous Tracking | | |
| Small Area Tracking | | |
| Precision Engagement of Moving Targets | | |
| Moving Target ID | | |
| SAR Image Resolution | | |
| Concurrent SAR/GMTI | | |

1991 – Move and Die
Stationary and Survive
2015 – Move and Die
Stationary and Die

# Expanding the ISR coverage – Global Hawk

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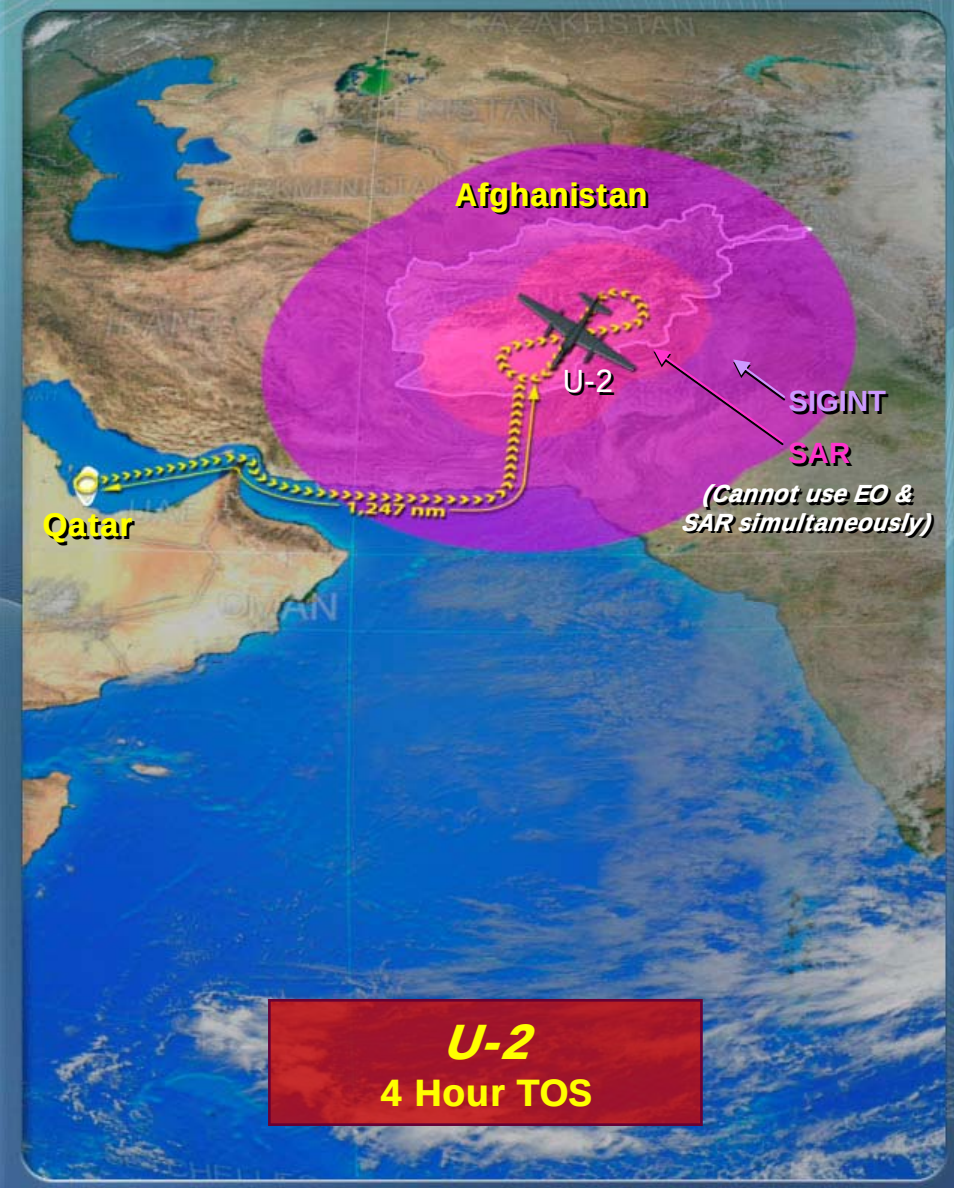


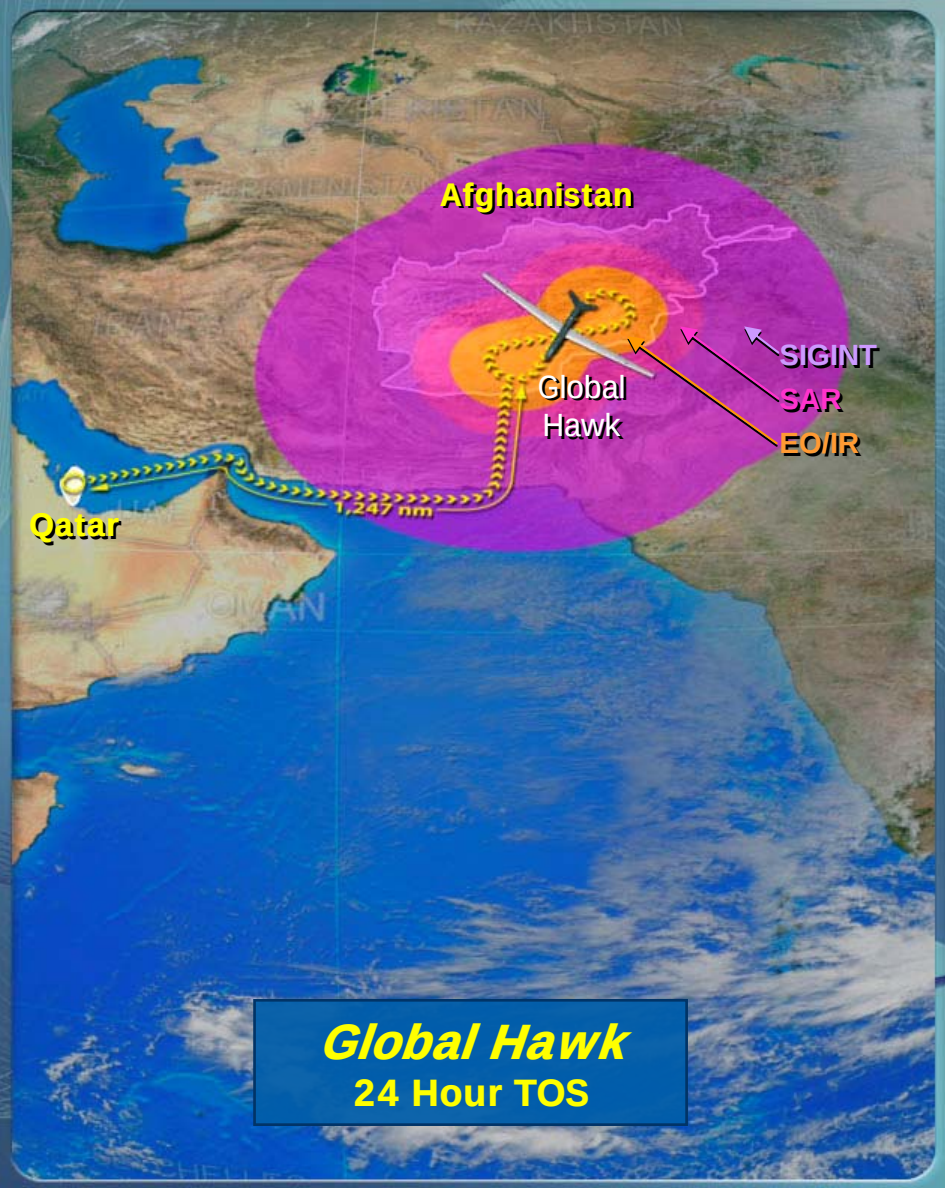

# System Comparison – GH vs U-2

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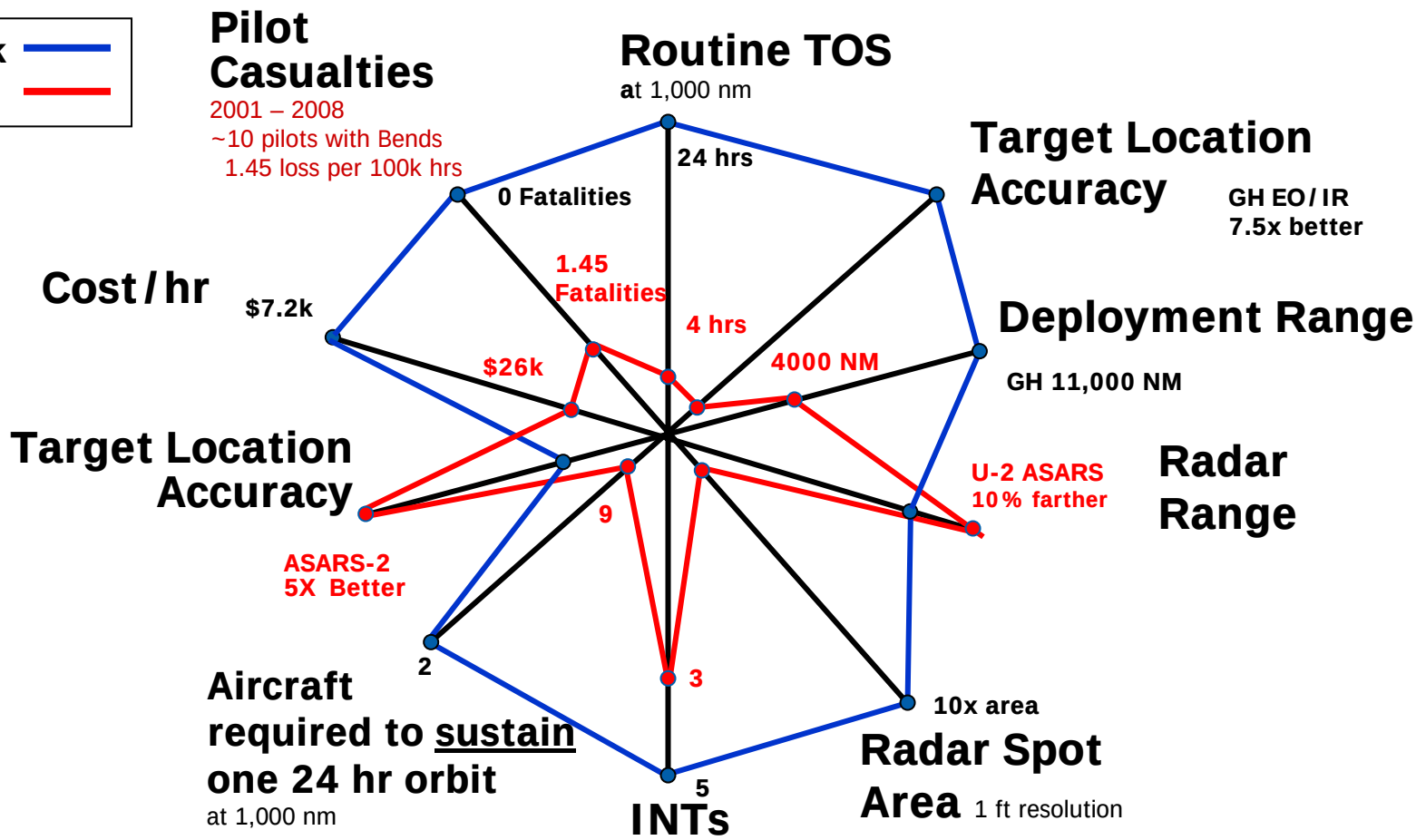


Challenge of Precision Strike demands expanded information collection

# Unmanned Combat Air System (UCAS) – Next Generation Combat System

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- Carrier based stealth UAS supported by autonomous air-to-air refueling (AAR) capability
  - Return of true global strike / ISR capability to the US Navy Carrier force
- Long unrefueled range / endurance for deep persistent operations
  - ~1,700-4,000NM max unrefueled range with current engines
  - ~3,300-5,600NM max unrefueled range with advanced commercial derivative engines
- Ultra-long refueled endurance for global responsiveness, extended CV standoff with AAR
  - >100 hours, limited primarily by actuators, lube oil
  - Probe-drogue and boom-receptacle refueling
- Balanced survivability
  - Broad-band / all-aspect stealth
  - On- and off-board threat awareness
  - Dynamic mission management / auto-routing
  - LPI/LPD communications
  - Electronic and lethal countermeasures
  - Collaborative defensive operations


- Advanced, networked targeting capability
  - Automated sensor fusion
  - Automated target recognition
  - Automated precision imagery geo-registration
  - GIG connectivity for ISR data distribution / receipt

# UCAS in Action
# – Survivable, Sustained ISR and Attack

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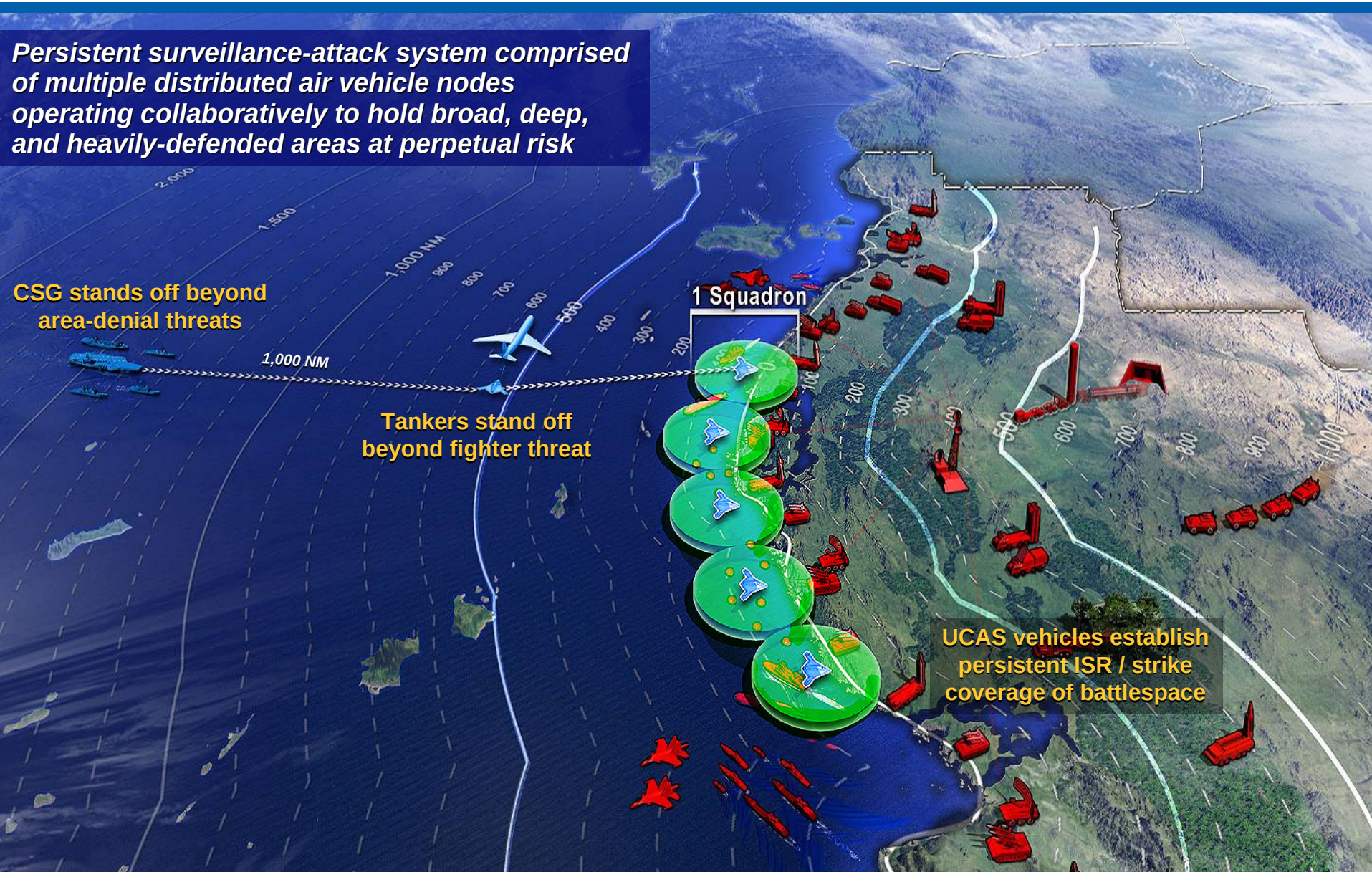
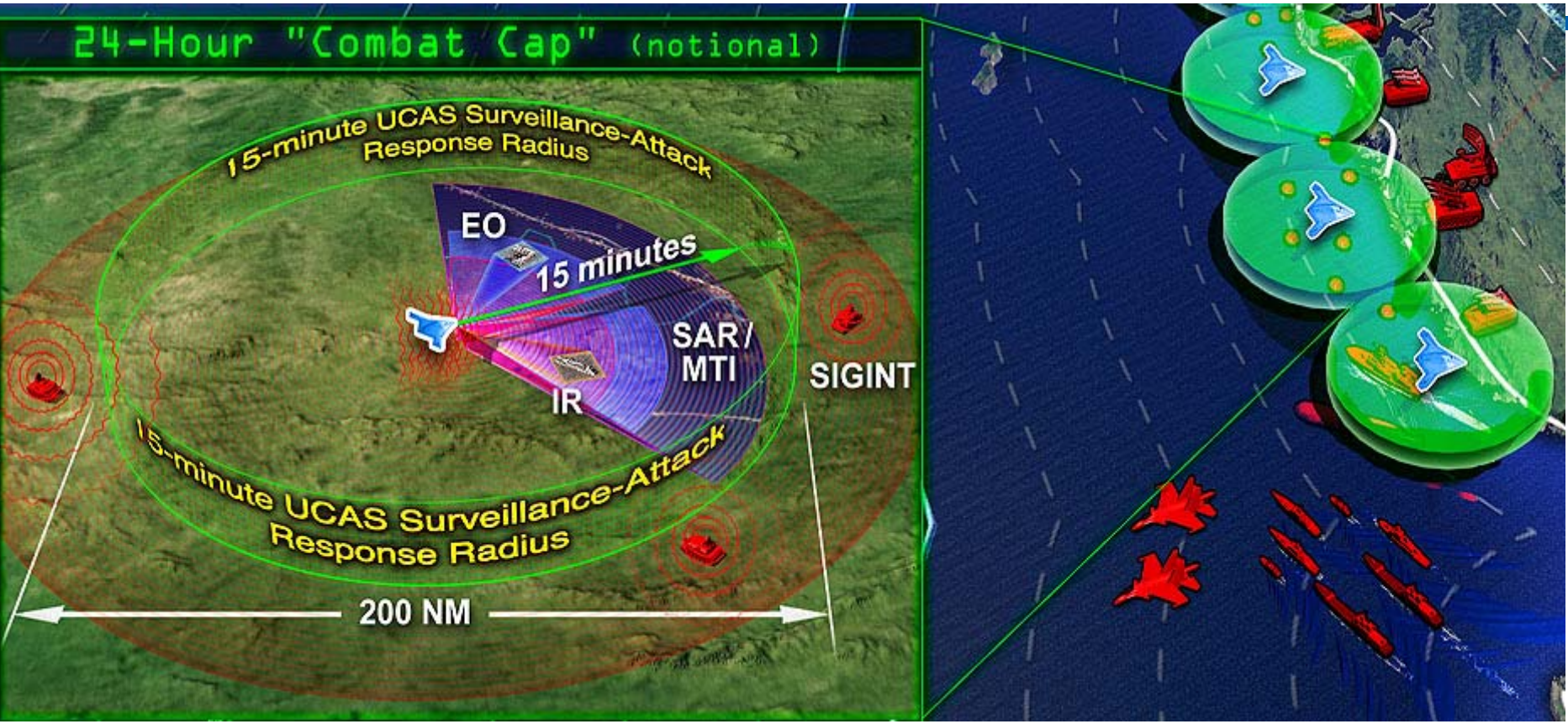


# Surveillance and Attack Response – Any Threat Environment




- **Multi-sensor ISR capability**
  - EO/IR, IRST
  - SAR, Ground / Air / Maritime MTI, ISAR
  - ESM

- **Advanced lethality**
  - Two internal weapons bays each carry up to 2,250 lbs of ordnance or advanced mission loads
  - Up to 18 250-lb GPS-guided Small Diameter Bomb, or 2 2000 lbs JDAM)
  - Miniaturized precision kinetic weapons (free-fall, glide and powered) to deepen strike magazine
  - DE weapons for counter-air / missile ops

# Potential N-UCAS Concepts of Employment – Core Applications Offer True Multi-mission Capability

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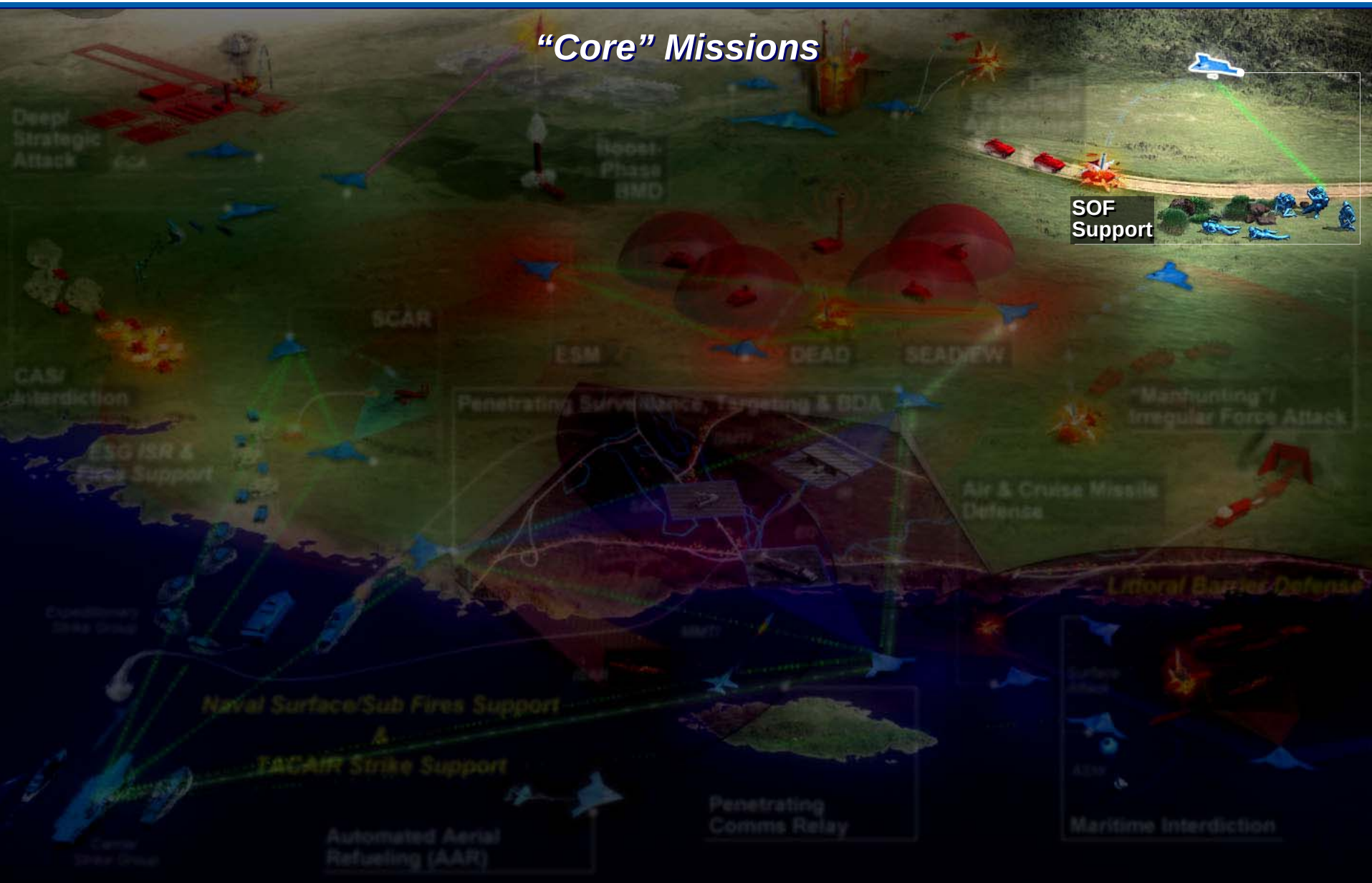

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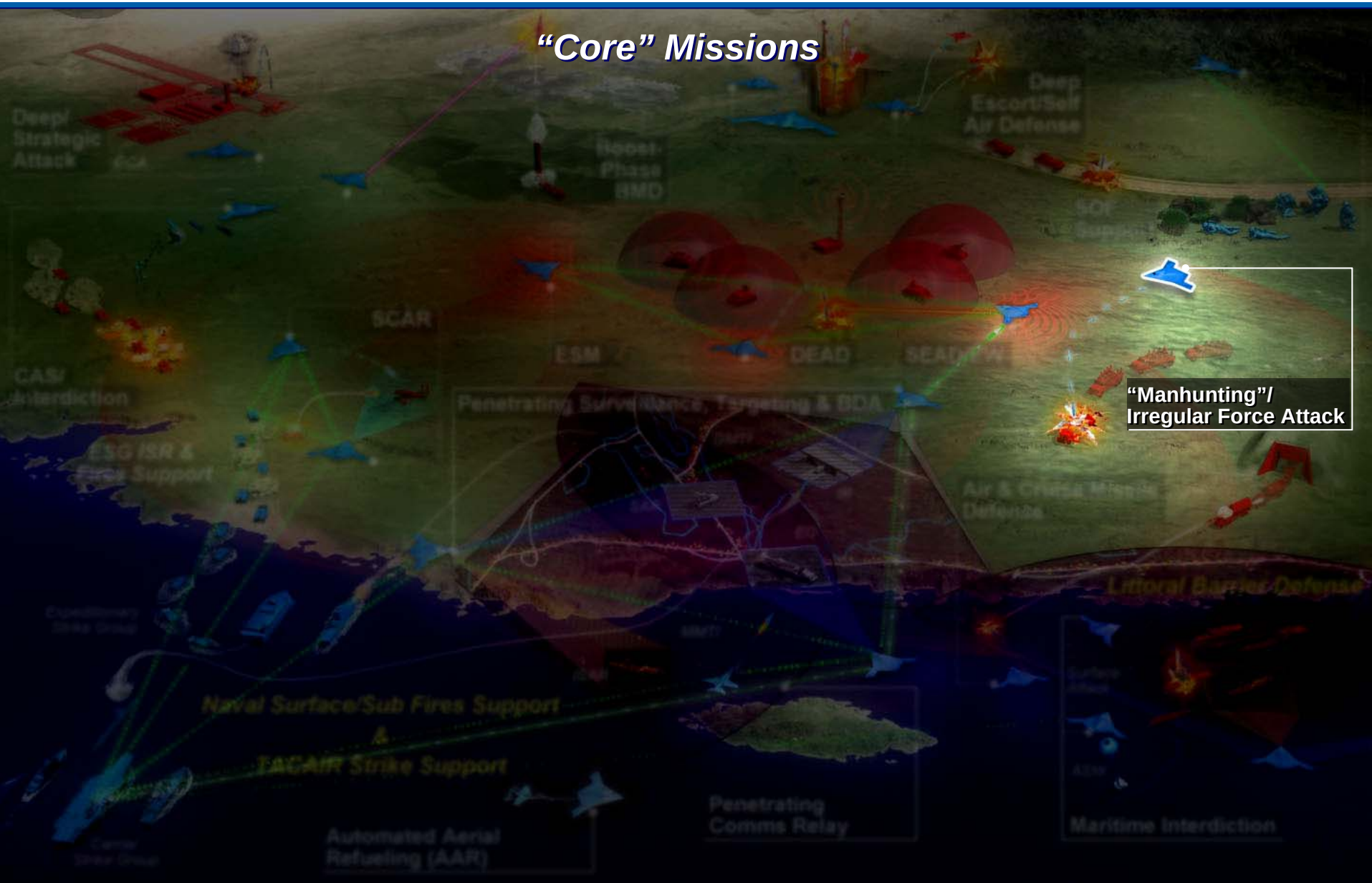

# Potential N-UCAS Concepts of Employment – Core Applications Offer True Multi-mission Capability

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# Precision Intelligence and Strike – Integrating Systems, 2015

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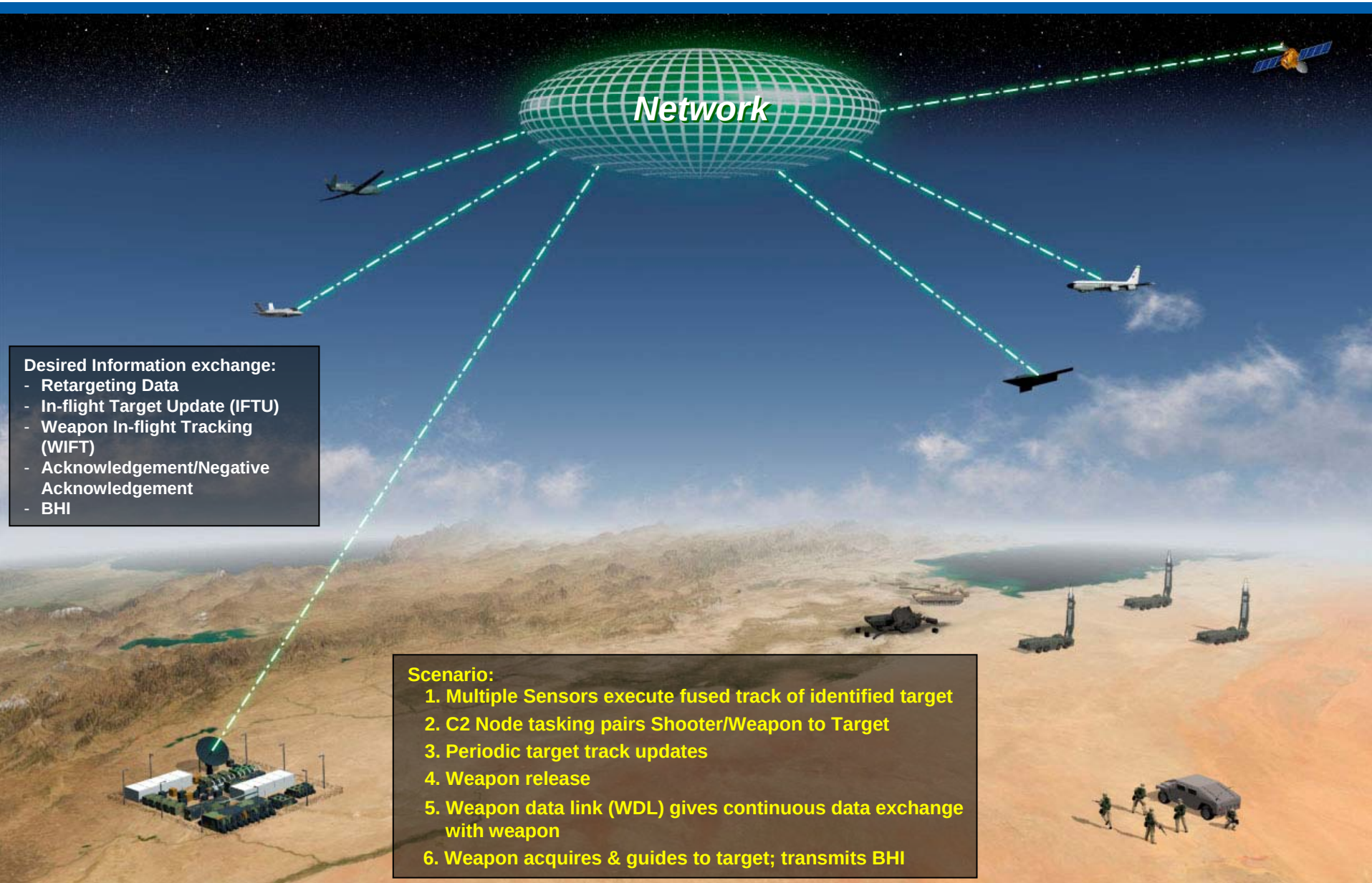
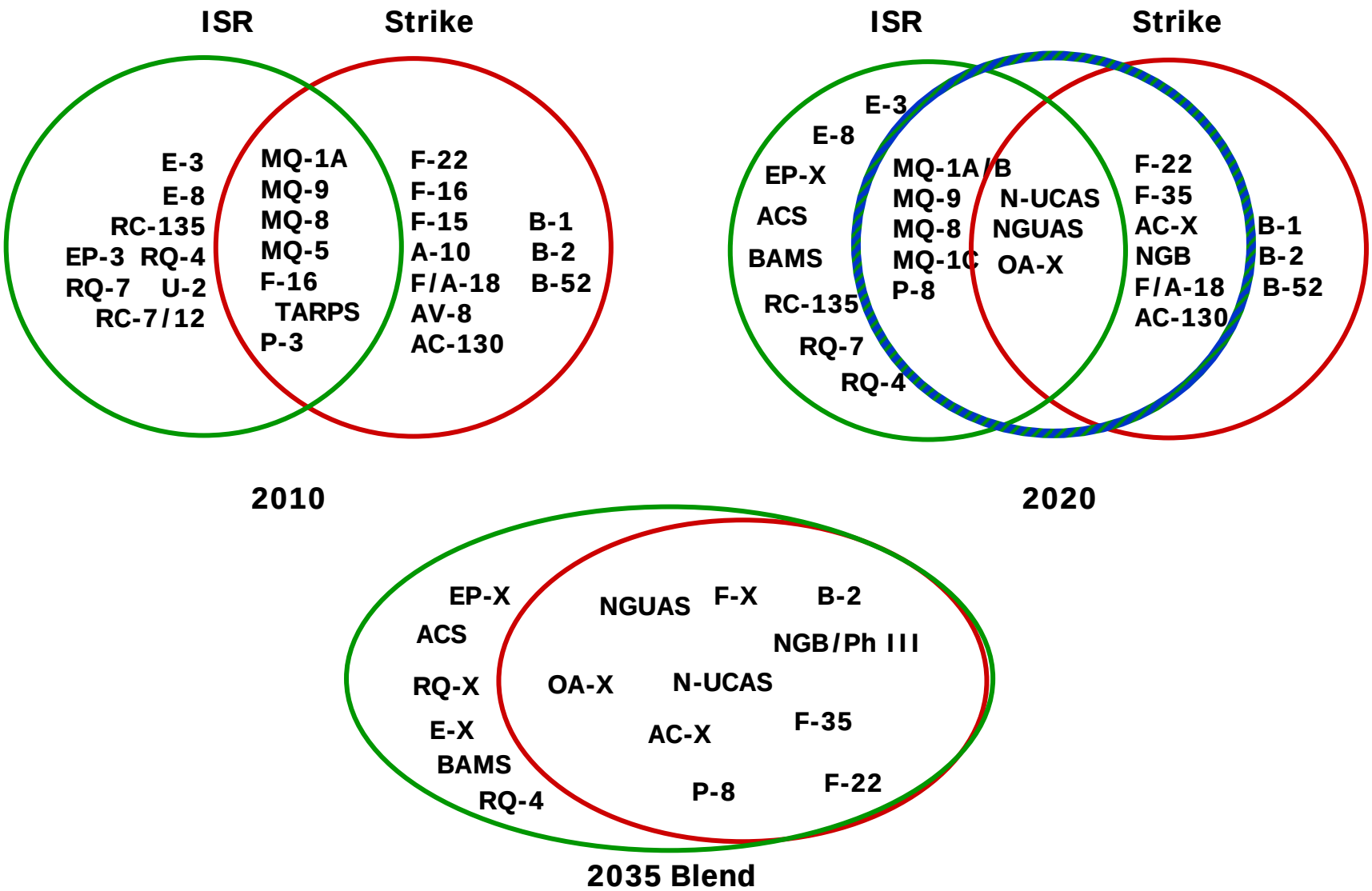


# The Evolution of ISR and Strike



# Summary

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- New Administration dedicated to prevailing in current fight by adapting capabilities for this mission ...
- ... while preparing for future challenges by building new capabilities
- Precision Strike in current and future scenarios demands a higher fidelity of Precision Intelligence
- Near-term and developmental systems offer significant improvements of the quality and quantity of data provided ...
- ... and will offers weapon systems that merge collection and engagement capabilities

**Industry can no longer think of Precision Strike and ISR as distinct ... as the Joint Warfighter does not**


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