NORAD and USNORTHCOM Technology Needs

Mr. John Knutson
J8 Office of S&T

Two Commands - Complementary Missions

The NORAD Mission:

- *Aerospace warning*
- *Aerospace control*
- *Maritime warning*

      …in the defense of North America.

The USNORTHCOM Mission:

- **Homeland defense**
- **Civil support**
- **Security cooperation**

…to defend and secure the United States and interests.

FY 18-22 Technology Needs
(Non-prioritized)

Air & Missile / Maritime / Cross Cutting	Land / Cross Cutting
Detect, Track & ID Air Targets	Counter-WMD Preparedness and Response in the Domestic AOR
Engage Air Targets	Network Resiliency
Maritime Surveillance – Sub-Surface	Critical Time Management of GPS
Maritime Surveillance – Surface	Mission Assurance Common Integrative Framework
Maritime Non-Lethal Engagement	Operational Use of Social Media
Arctic Capabilities	Recovery of USG Personnel in AOR
Threat Info Sharing & Dissemination	

Air & Missile	Maritime	Land	Cross Cutting

FY 18-22 Technology Needs

Detect, Track, and Identify Air Targets

- Enhanced ability to detect, track and ID multiple air threats:

  - Air threats include any object, vehicle, or vessel transiting the air domain.
    - 31,000 per day on average transit within North America

- Enhanced ability to detect, track, and ID air targets over the maritime domain

Joint Engagement Sequence (JES)

Surveil	Detect	Track/ID	TE/ WA	Act	Assess

FY 18-22 Technology Needs

Engage Air Targets

Enhanced capabilities to defend North America against advancing weapons technology and delivery platforms

- Advanced methods to engage tracks of interest.

- *Innovative methods to increase the time needed to engage threats*

Joint Engagement Sequence (JES)

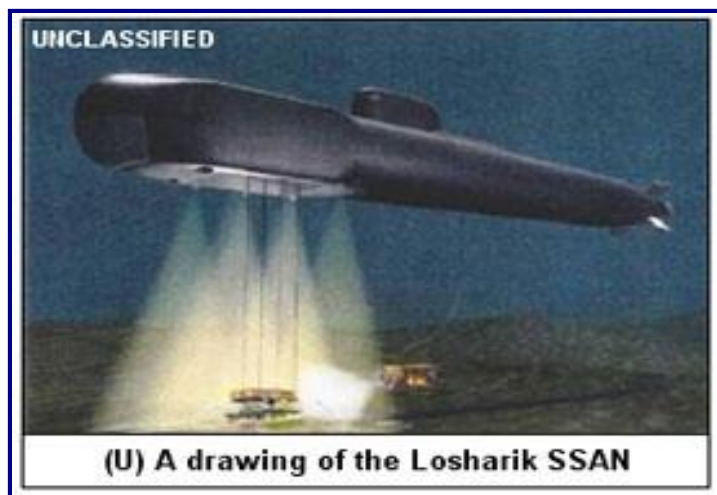| Surveil	Detect	Track/ID	TE/ WA	Act	Assess

FY 18-22 Technology Needs

Maritime Surveillance – Sub Surface

Improved surveillance capability for wide-area maritime comprehensive domain awareness

- S&T efforts are focused on offshoot/novel technologies/capabilities that can improve detection capability in hardware/software/signal processing
- S&T is also supporting and focusing on technology prototypes for assessment in operational environments more quickly

Dark Target Detection/Tracking

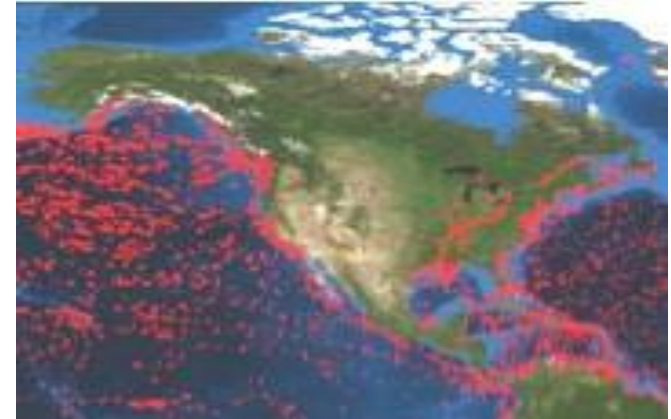**Mine/Underwater IED Detection**

FY 18-22 Technology Needs

Maritime Surveillance - Surface

Improved wide-area maritime surface surveillance, detection, and warning capabilities to defeat, disable, and/or disrupt threats to North American and US waterways and littorals

- Includes environmental data such as sea state, current, ice prediction in the Arctic and tracking "small boat, go fasts" in the USNORTHCOM AOR

Maritime Non-lethal Vessel Engagement

Improved non-lethal (effects) capability for the Joint Maritime Force to engage maritime vessels and personnel

- Non-lethal capabilities to minimize adverse human effects and provide non-catastrophic "reversible" material damage
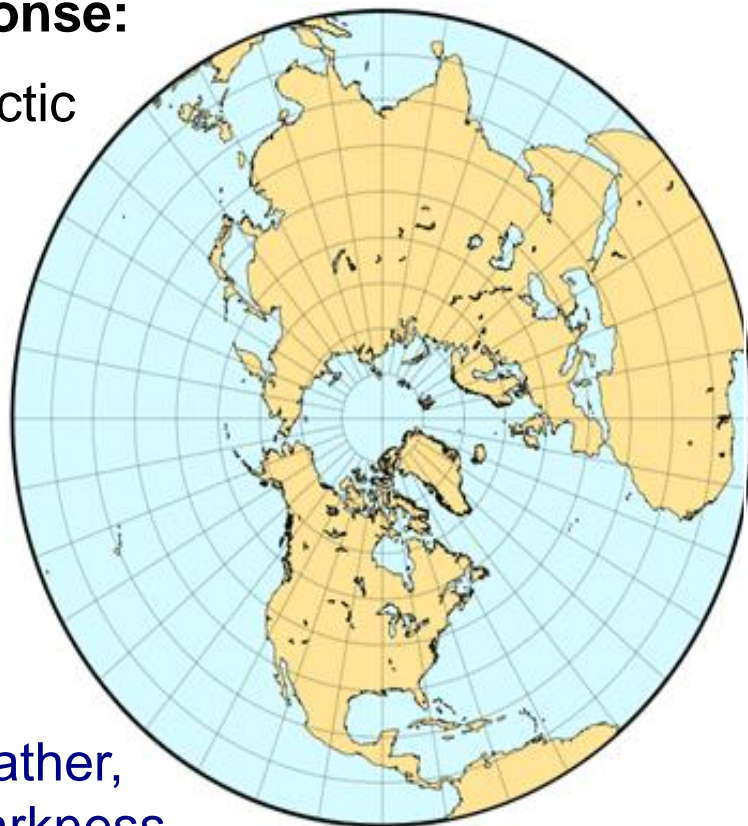- Capable of disabling large maritime vessels, 300 GW tonnage

FY 18-22 Technology Needs

Arctic Capabilities

Improve All Domain Awareness and Response:

- Increased all domain activity across the Arctic due is expected to increase significantly in the coming decades

- Maintain and improve existing air, surface, and undersea activity related to C4ISR assets that will enable effective response operations above 65 degrees North latitude

- Infrastructure challenges include limited resources, the Arctic Region's adverse weather, vast distances, and by long durations of darkness

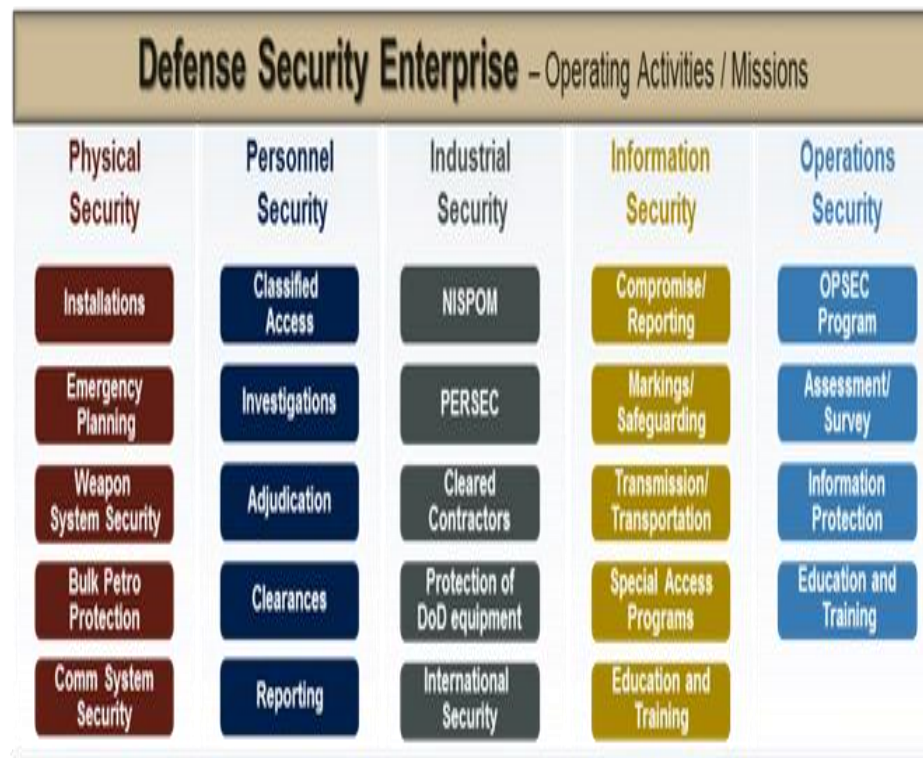DISTRIBUTION A. Approved for public release: distribution unlimited.

FY 18-22 Technology Needs

Threat Information Sharing, Collaboration and Dissemination in Support of Decision Making

Increased Homeland Defense and Force Protection capabilities for:

- Rapid electronic authentication of DoD identity credentials

- Cross-service interoperability for base access control

- Access to authoritative DoD and US government identity/biometrics databases, and

- Cross-Service information sharing

Defense Security Enterprise – Operating Activities / Missions

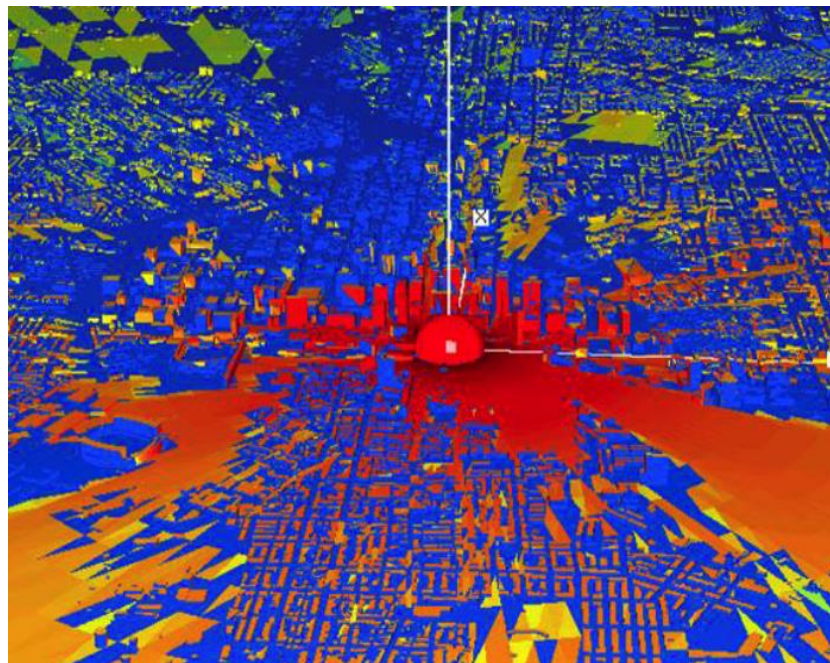| Physical Security	Personnel Security	Industrial Security	Information Security	Operations Security
Installations	Classified Access	NISPOM	Compromise/ Reporting	OPSEC Program
Emergency Planning	Investigations	PERSEC	Markings/ Safeguarding	Assessment/ Survey
Weapon System Security	Adjudication	Cleared Contractors	Transmission/ Transportation	Information Protection
Bulk Petro Protection	Clearances	Protection of DoD equipment	Special Access Programs	Education and Training
Comm System Security	Reporting	International Security	Education and Training	

FY 18-22 Technology Needs

Counter-WMD (CWMD) Preparedness and Response

Improved DoD C-WMD preparedness and response elements for enhanced and integrated CBRN detection and technical forensics

- Protection
- Contamination mitigation
- Characterization

Situational awareness capabilities to mitigate the effects of WMD in the NORTHCOM AOR.

Enhanced capabilities to conduct sustained automated mass decon ops during complex catastrophes.

FY 18-22 Technology Needs

Network Resiliency

Improved Network resiliency in support of and among POTUS, senior leadership, Combatant Commanders, subordinates/ components and C4ISR in general

- Cyber stressed
- Electro-Magnetic Pulse (EMP)
- Denied space
- Other events

Mission Assurance Common Integrative Framework

Improved ability to support domestic mission critical assets during prolonged energy outages caused by natural, man-made, or technological disasters.

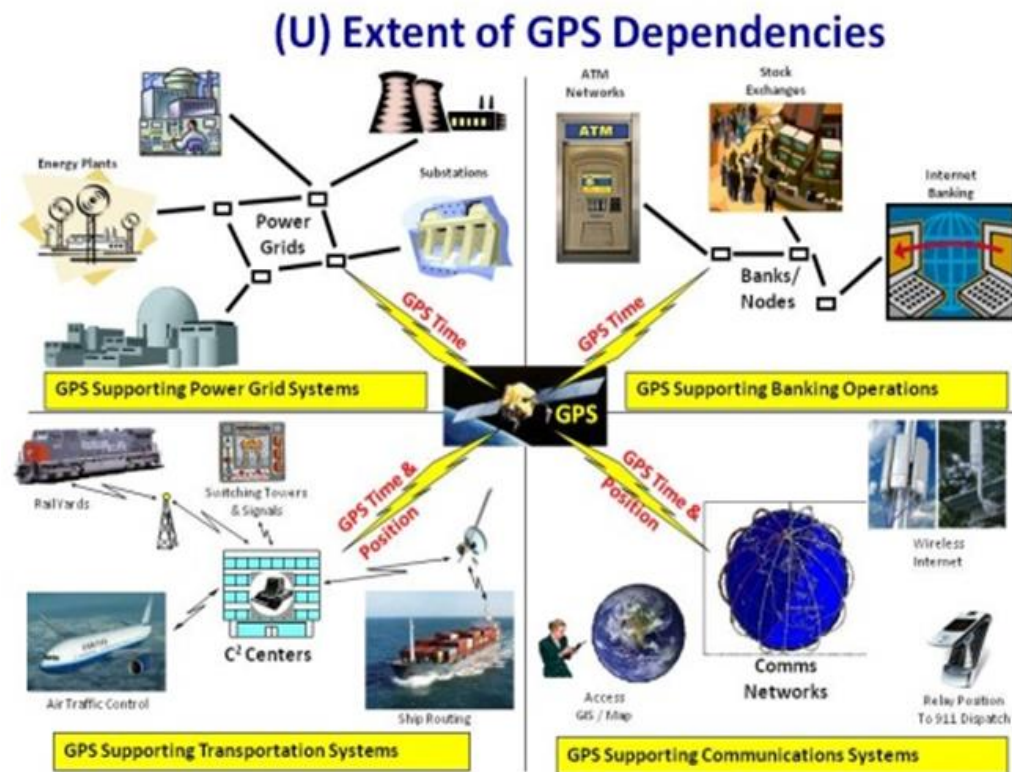- Applicable to all-threat and all-hazard operational environments and associated cascading effects

FY 18-22 Technology Needs

Critical Time Management Relative to GPS

The most widespread method of precise time dissemination is through the GPS, but it is particularly vulnerable to spoofing and denial.

- Critical infrastructure in the Homeland is reliant on GPS for Position, Navigation, and Timing, with a wide range of capabilities threatened in the event of failure

  - Power Grid systems
  - Transportation systems
  - Communications systems
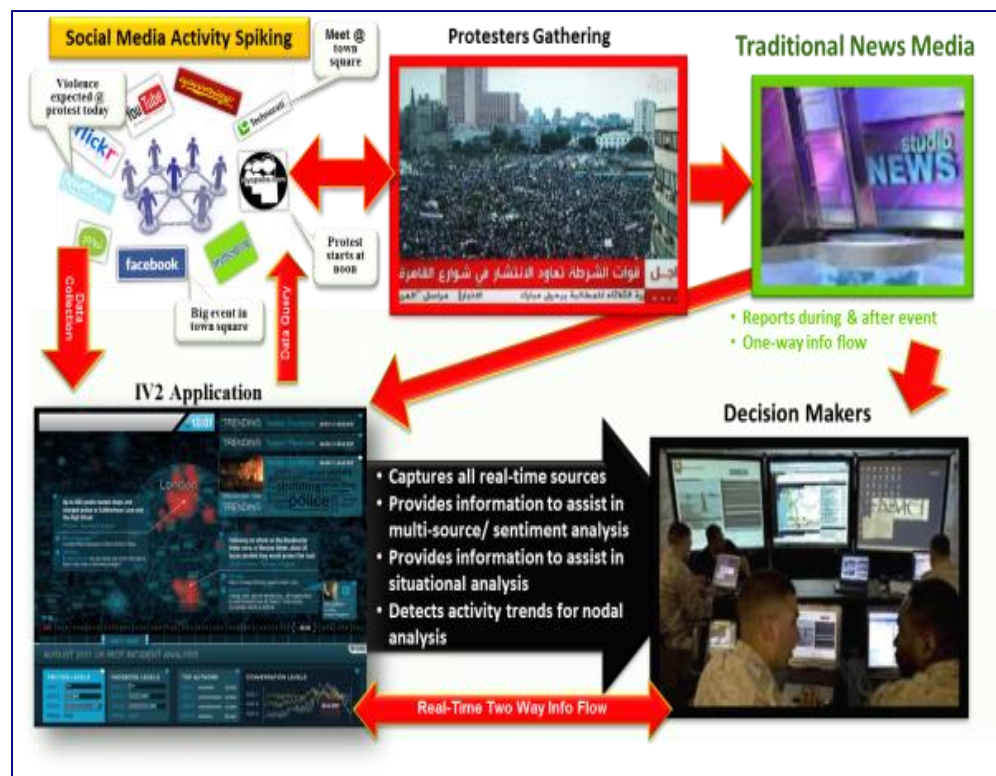 - Financial operations

(U) Extent of GPS Dependencies

FY 18-22 Technology Needs

Operational Use of Social Media

Ability to effectively leverage open source information across a range of mission efforts to provide a holistic perspective on certain aspects of intelligence collection, production, and dissemination

- DoD is prohibited from using social media in support of operations within the US due to the potential for discovery of US Personally Identifiable Info

- DoD is limited from leveraging a valuable info source for situational awareness from either direct access or from info gathered from DoD partners
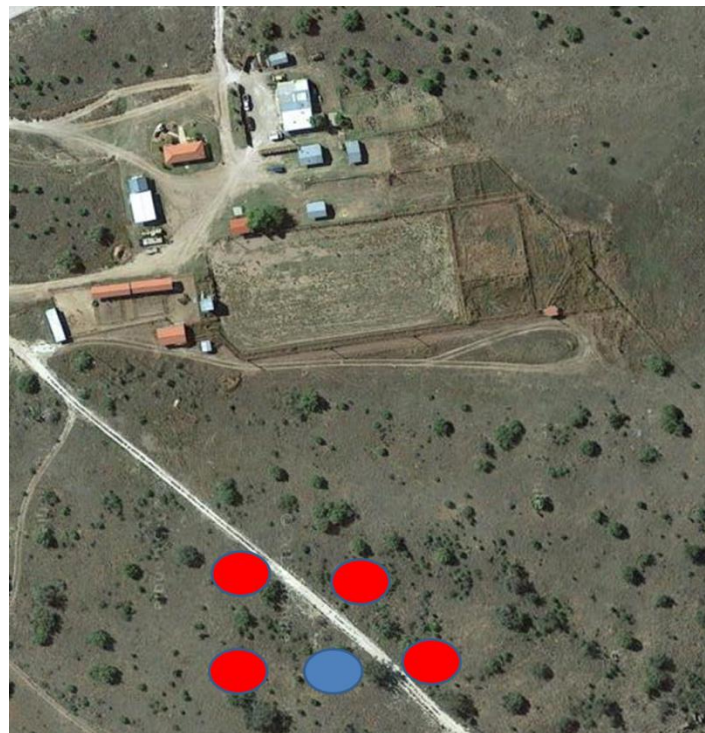
FY 18-22 Technology Needs

Recovery of USG Personnel in the USNORTHCOM AOR

Improved means for geolocation during personnel recovery efforts.

- Attempted abductions of U.S. persons in the USNORTHCOM AOR while supporting USG activities pose significant risk to personnel safety and operational security
- Goal is to quickly geo-locate, track, and verify identity and status of isolated personnel

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