Special Operations Forces Industry Conference

Ms. Valerie Shuey
Program Manager - Intelligence

Intelligence
Program Management Office, Intelligence

System Acquisition In Direct Support Of The Director Of Intelligence And The Intelligence Elements Of USSOCOM Components And Theater Commands

Program Manager Intelligence (PM-IN)
Ms Valerie Shuey

Program Capabilities For:
- Situational Awareness
- Intelligence, Surveillance, And Reconnaissance
- Tasking, Collection, Processing, Exploitation, And Dissemination
- Integrated Broadcast Systems (IBS)
Technology Areas of Interest

- Networked Tactical SIGINT Systems
- Lightweight, Adaptable Tactical SIGINT Systems
- Improved Direction Finding (DF) And Geo-location (GEO) Antenna Arrays
- Exploit Modern Communication Systems
- Data Discovery And Enrichment In Support Of Intel Analysis
- Advanced Data Management Systems
- Network Multi-Level Security/Cross Domain Security Services
- Full Motion Video / Motion Imagery (FMV/MI) Exploitation
- Multi-Intelligence Fusion And Correlation
Networked Tactical SIGINT Systems

- Current State of The Technology
  - Techniques for Collaborative DF And Geo-Location Operations

- Ongoing Efforts
  - Networking Concepts And Devices To Communicate Between Tactical SIGINT Operators

- Where We Want to Be
  - DF and Geo-Location of Signal Sources Using All Available Overhead, Air, Maritime And Ground SIGINT Assets

- Potential Game Changers
  - Lightweight VHF-UHF Mesh Networking Radios; Miniature Communications Devices; JICD 4.0 Collaborative Geo-Location Messaging; Time/Frequency Direction Of Arrival (T/FDOA) Sensors; Geo-Location Algorithms
Lightweight, Adaptable Tactical SIGINT Systems

• Current State of The Technology
  – Heavy, Power-Hungry, Inflexible Products; Focused Use

• Ongoing Efforts
  – Reduce Equipment Size, Weight and Power (SWAP); Expand Platform Integration; Versatile HW/SW

• Where We Want to Be
  – Common Low-SWAP Adaptable SIGINT Equipment

• Potential Game Changers
  – Miniature T/FDOA-capable Receivers; Versatile Antenna “Toolkits”; Low-Profile and Body-Wearable DF Antennas; Flexible Industry-Standard Equipment Interfaces and Software Applications
Improved DF and GEO Antenna Arrays

• Current State of The Technology
  – Bulky, Narrowband, Limited-Accuracy DF Antennas

• Ongoing Efforts
  – Phased Array and Beam-Steering Antennas; Body-Wearable DF Antennas; T/FDOA Techniques

• Where We Want to Be
  – Wideband High-Gain Antenna Systems; Flexible Multi-Platform
    High-Accuracy DF and GEO Antenna Systems; Body-Wearable, Concealable DF Antennas; All-Azimuth/ Elevation

• Potential Game Changers
  – Phase-Coherent DF Systems; Beam-Steering Antenna Design; T/FDOA Signal Measurements
Exploit Modern Communications Systems

- **Current State of The Technology**
  - Collection, Exploitation of Current Communications Signals

- **Ongoing Efforts**
  - Develop Collection and Exploitation Techniques for New Emerging Systems

- **Where We Want to Be**
  - Worldwide Collection and Exploitation of Advanced Communications Systems

- **Potential Game Changers**
  - Advanced Signal Processing Algorithms; Demodulation and Decryption Techniques; Versatile, Wideband Tactical SIGINT Systems

Intelligence
Data Discovery and Enrichment in Support of Intel Analysis

- Current State of The Technology
  - Rule And Statistical Based Entity Extraction And Analysis Tools
- Ongoing Efforts
  - Actionable Intelligence Visualization Proof-of-Concept
  - SIKLOPS, SIDMS
- Where We Want to Be
  - Reduce Time To Analyze Data
  - Automate Appropriate Data Tagging
  - Increase Effectiveness Of Finding The “Answer”
- Potential Game Changers
  - Effective And Easy To Use Application Interfaces
  - Advanced Algorithms In Support The Intel Analysis Process
**Advanced Data Management Systems**

- **Current State Of The Technology**
  - Relational Data Base Management Systems (RDBMS)
  - XML Databases
  - Object-oriented Databases
- **Ongoing Efforts**
  - SIDMS
- **Where We Want To Be**
  - Enable The Effective/Efficient Management Of Unstructured Data
  - A Distributed Data Management System That Reduces The Overhead And Complexity Of Current RDBMS.
- **Potential Game Changers**
  - Advanced XML Databases At A Maturity Level Of RDBMS
Network Multi-Level Security/Cross Domain Security Services

• Current State Of The Technology
  – Cross Domain Solutions Are Complex, High In Cost, And Lack Operational Flexibility In Addressing User Needs

• Ongoing Efforts
  – Evaluating Solutions – E.G., Trusted Virtual Environment (TVE)

• Where We Want To Be
  – Enable SOF Users To Exchange Information, Collaborate On-Demand, And Utilize SOF Required Applications Between Security Domains

• Potential Game Changers
  – Certified/Accredited Classification Labels To Unstructured Data Types
  – Flexible And Robust Algorithms That Enable Current Cross Domain Guards To Support Complex Data Types
Full Motion Video (FMV) Exploitation

• Current State of The Technology
  – Human Analysis, Few Automated Tools

• Ongoing Efforts (Research)
  – Content/Semantic Based Search Capabilities
  – Change /Activity/Object Detection Within FMV Files To Support Video Processing, Exploitation, Dissemination (PED) Processes

• Where We Want to Be
  – Enable Detection of Objects and Activities Of Interest Within Real-Time and Archival Video

• Potential Game Changers
  – Object/Activity Auto-Tagging In High Definition Video
Multi-Intelligence Fusion And Correlation

• Current State of The Technology
  – Multi-INT Data Collections Using Single-INT Stove-Piped Systems And Processes—Limited Post-collection Fusion

• Ongoing Efforts
  – MASINT Tactical Information Fusion (MASTIF) ACTD

• Where We Want To Be
  – Improve Target Geo-Location/Identification Accuracy, Confidence And Speed
  – Enable Cross Cueing Of Intelligence, Surveillance, And Reconnaissance (ISR) Collection Assets

• Potential Game Changers
  – Automated, Real-Time Detection, Identification, And Geo-location Of Target Of Interest, Auto-Project/Predict Movements
Questions?