

NAVY Transition Assistance Program

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N06-053 - Daniel H. Wagner, Associates, Incorporated

Network Monitoring and Management System (NMMS)

NEED & CUSTOMER REQUIREMENT

Need: In a limited bandwidth/reduced manning environment such as the LCS ASW Mission Package (MP) and other LCS MPs, the Navy needs a system for optimizing information flow between the platform and Unmanned Vehicles (UVs) and manned aircraft. The Navy also needs to optimize use of other scarce resources (operators/platforms/sensors).

Value to the Warfighter: A more accurate TOTAL Situational Awareness (SA) Picture (including raw sensor data when necessary), improved target prioritization, classification and alerting, and optimal mission plans, generated using limited bandwidth and with reduced manning, will result in improved mission performance and reduced risk to friendly assets due to the ability to conduct over-the-horizon UV operations.

Operational Gap: Operators managing a multi-vehicle sensor system in a limited bandwidth/reduced manning environment have insufficient time to continuously monitor and adjust communications assets in response to rapidly changing conditions. In addition, operators need a more accurate and operationally relevant TOTAL SA picture, and more effective prioritization and classification recommendations, alerts, and mission plans.

Customer Specifications: Monitor multiple communication links, automatically optimize the use of available bandwidth, and maximize mission effectiveness while reducing operator workload.

Technology Description: This advanced, inexpensive, scalable, broadly-applicable net-centric multi-sensor data fusion, and information flow optimization system automatically generates an accurate and operationally relevant TOTAL Situational Awareness (SA) picture, including target prioritization, classification estimates, automated alerts, and optimal mission plans. The system supports all standard Navy sensors, and its algorithms have successfully processed passive and active sonar, radar, electro-optical, LIDAR, and Automatic Identification System (AIS) data at-sea.

TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Phase II Option: Reduction in Bandwidth required to maintain accurate SA picture using real-world data	7	Low	50% (threshold); 90% (goal) (have achieved all TRL 5 goals with simulated data)	Aug 2010
Phase II Option: Generation of more accurate and operationally relevant total Situational Awareness (SA) picture using real-world data	7	Low	Number of objects in generated total SA picture compared to ground truth: between 80% and 120% of ground truth (GT) (threshold); between 90% and 110% of GT (goal)	Aug 2010
Phase II Option: Generation of more accurate Prioritization/Classification recommendations and Alerts using real-world data in a limited bandwidth/manning environment	7	Moderate	Percent of time that automated target classification estimate and prioritization recommendation are correct: 80% (threshold); 90% (goal)	Aug 2010

Open contract: N00024-08-C-4152 ending 1/22/2010

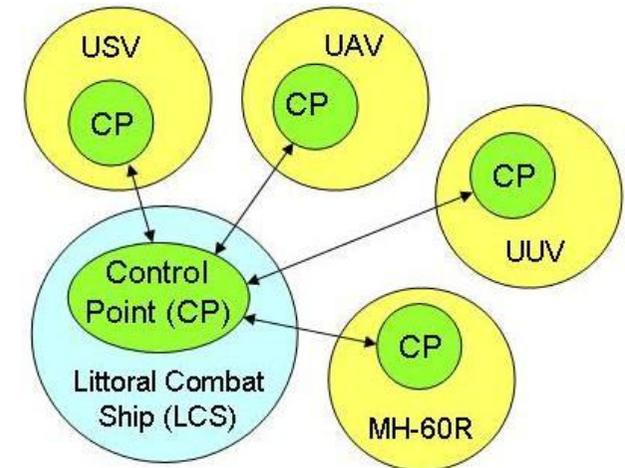
SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: NAVSEA

Transition Target: Littoral Combat Ship (LCS) Anti-Submarine Warfare (ASW) Mission Package (MP) and its Unmanned Vehicles (UVs)

Original Sponsoring Program: PEO LMW (PMS-420)

TPOC Phone Number: 401-832-3355



TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:

Other LCS Mission Packages and their UVs, Unmanned Vehicle Systems, Netted Sensors, Undersea Warfare-Decision Support System (USW-DSS)

Business Model:

NMMS is ready for rapid and cost-effective integration as a data fusion, prioritization, classification, alerting and information flow optimization module in a larger surveillance combat, or command and control system. We are also interested in discussing any other potential uses of NMMS. Examples of our previous integration experience include: (1) Acoustic Mission Planner (AMP) in MH-60R avionics system and shipboard Mission Planning System (MPS); (2) Data Fusion Engine (DFEN) in SQQ-89 Sonar Situational Awareness Functional Segment (SSAFS) and Undersea Warfare-Decision Support System (USW-DSS); (3) Mission Optimization Configuration Item (MOCI) Web Service in USW-DSS; (4) Anti-Torpedo Data Fusion and Optimization System (ATDOS) in ONR Counter Torpedo Detection, Classification and Localization (CTDCL) torpedo defense demonstration.

Objective:

Obtain Program Office support for transition of NMMS to LCS. Obtain support for using NMMS on other platforms to generate an accurate, operationally relevant TOTAL SA picture in a limited bandwidth/reduced manning environment, to prioritize and classify targets, to generate alerts, and to optimize resource allocation.