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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				PE 0303238N: <i>Consolidated Afloat Network Ent SVCS(CANES)-MIP</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	8.375	6.602	-	6.602	-	-	-	-	0.000	14.977
9C87: <i>CANES Integration</i>	-	8.375	6.602	-	6.602	-	-	-	-	0.000	14.977

**Note**

Funding transitioned from PE 0303138N beginning in FY11.

**A. Mission Description and Budget Item Justification**

The CANES program recapitalizes the Navy's afloat network infrastructure (see note below) by consolidation of diverse physical networks and implementation of Afloat Core Services (ACS) and Cross Domain Solutions (CDS). CANES will provide all security domains from Unclassified through Top Secret/Sensitive Compartmented Information (SCI) Common Computing Environment (CCE) for a wide variety of Navy surface combatants, submarines, Maritime Operations Centers, and Aircraft. CANES will enable more efficient data visibility and flow between operational nodes on the Global Information Grid using an open architecture. Additionally, virtualization on the CCE enhances the department's ability to reduce the multitude of standalone command and control systems and applications eliminating the need to field additional or unique hardware (servers and workstations). Through CCE, CDS and virtualization, CANES will improve the Navy's Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) security and agility while reducing total ownership costs.

MIP funding will focus on development of the MIP components of CANES that will deliver the Common Computing Infrastructure and Core Services (Sensitive Compartmented Information & Related Comm) required to host Intelligence, Surveillance and Reconnaissance (ISR) applications and services.

Note existing afloat networks include: Integrated Shipboard Network Systems (ISNS), Combined Enterprise Regional Information Exchange System - Maritime (CENTRIXS-M), SCI Networks, and Submarine Local Area Network (SubLAN). In addition, CANES will provide functionality currently provided in the Video Information Exchange System (VIXS) and portions of afloat Computer Network Defense (CND).

CANES will field on a rolling four year hardware baseline and a two year software baseline. The CANES vision is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. This will allow for streamlined acquisition, contracting, and test events, and significant lifecycle efficiencies through consolidation of multiple current configuration management baselines, logistics and training efforts into a unified support structure. The primary goals of the CANES program are to: 1) reduce the number of networks through the use of mature, certified, cross domain technologies; 2) reduce the infrastructure footprint and associated costs for hardware afloat; and 3) provide increased capability to meet current and projected warfighter requirements.

CANES will enable application developers to begin decoupling applications and services software away from independent, unique hardware stacks and host them on a common interoperable environment.

In FY12, the CANES RDT&E investment ramps down with the close out of the Engineering and Manufacturing Development (EMD) phase, transitioning to the Limited Deployment (LD) phase to continue development on additional platform set baselines and testing events ramp up. Engineering and Development Model (EDM) units are installed on Unit level platforms to support Initial Operational Test & Evaluation (IOT&E). Legacy afloat networks and hosted applications fully transition for integration testing as they migrate to CANES baseline. Begin to prepare Enterprise Engineering and Certification (E2C) lab for Submarine Hosted System Integration. Develop Request For Proposal (RFP) for Full Deployment contract and associated source selection activities.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303238N: <i>Consolidated Afloat Network Ent SVCS(CANES)-MIP</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>
Previous President's Budget	-	8.375	7.406	-	7.406
Current President's Budget	-	8.375	6.602	-	6.602
Total Adjustments	-	-	-0.804	-	-0.804
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-0.804	-	-0.804

**Change Summary Explanation**

Technical: On 29 March 2010, CANES was designated an ACAT IAM pre-Major Automated Information System (MAIS) program. Per FY10 National Defense Authorization Act (NDAA), Low Rate Initial Production (LRIP) is replaced with Limited Deployment (LD) and Full Rate Production (FRP) is replaced with Full Deployment (FD) for MAIS programs.

Schedule: MS B shifted from Q3FY10 to Q2FY11 due to closeout coordination of Preliminary Design Review (PDR) Requests for Action (RFA) for both Engineering and Manufacturing Development (EMD) developers combined with acquisition documentation staffing timelines and alignment with new OSD mandated requirements for milestone events. Execution of the EMD contract was not impacted or affected by the scheduling of MS B. MS B O-IPT was held 1QFY11, and Acquisition Decision Memorandum (ADM) was signed 2QFY11.

MS C planned completion date has shifted from late Q4FY11 to Q2FY12 due to the EMD contract award which re-baselined the program schedule including the lab based Operational Assessment (OA) which is the main entrance criteria for MS C. Initial Operational Capability (IOC): IOC shifted to Q4FY12 aligning with the Joint Staff definition of IOC completion. IOC is achieved when first CANES unit is installed, and maintenance and training support programs are in place. Full Deployment (FD) Contract Award: Shift related to Milestone Decision Authority (MDA) decision to wait until MS C to release FD contract Request for Proposal (RFP).

Funding: An \$804K decrease in FY12 occurred since PB11. As a result, the Operational Testing (OT) event was condensed. The OT criteria is still being met, with some of the risk mitigation testing events being eliminated.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303238N: <i>Consolidated Afloat Network Ent SVCS(CANES)-MIP</i>	<b>PROJECT</b> 9C87: <i>CANES Integration</i>
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
9C87: <i>CANES Integration</i>	-	8.375	6.602	-	6.602	-	-	-	-	0.000	14.977
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Funding transitioned from PE 0303138N beginning in FY11.

**A. Mission Description and Budget Item Justification**

The CANES program recapitalizes the Navy's afloat network infrastructure (see note below) by consolidation of diverse physical networks and implementation of Afloat Core Services (ACS) and Cross Domain Solutions (CDS). CANES will provide all security domains from Unclassified through Top Secret/Sensitive Compartmented Information (SCI) Common Computing Environment (CCE) for a wide variety of Navy surface combatants, submarines, Maritime Operations Centers, and Aircraft. CANES will enable more efficient data visibility and flow between operational nodes on the Global Information Grid using an open architecture. Additionally, virtualization on the CCE enhances the department's ability to reduce the multitude of standalone command and control systems and applications eliminating the need to field additional or unique hardware (servers and workstations). Through CCE, CDS and virtualization, CANES will improve the Navy's Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) security and agility while reducing total ownership costs.

Note existing afloat networks include: Integrated Shipboard Network Systems (ISNS), Combined Enterprise Regional Information Exchange System - Maritime (CENTRIXS-M), SCI Networks, and Submarine Local Area Network (SubLAN). In addition, CANES will provide functionality currently provided in the Video Information Exchange System (VIXS) and portions of afloat Computer Network Defense (CND).

CANES will enable application developers to begin decoupling applications and services software away from independent, unique hardware stacks and host them on a common interoperable environment. This approach will incrementally deploy and will provide a basis for overall Navy Return on Investment (ROI) over the existing strategies.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<b>Title:</b> CANES Integration	-	8.375	6.602
<b>Articles:</b>		2	0
<b>FY 2011 Plans:</b> Continue CANES statutory and regulatory acquisition documentation to achieve Milestone C (MS C). Complete revised Cost Analysis Requirements Document (CARD) and Life Cycle Cost Estimate (LCCE). Procure two (2) Engineering and Development Model (EDM) units for Environmental Qualification Test (EQT), Operational Assessment (OA), integration, and regression testing. The EDM units function as pre-production units and require funding for necessary installation design and installation costs. Continue Developmental Testing (DT) and begin OA for Operational Testing (OT) event. Close out EMD contract and complete			

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Navy **DATE:** February 2011

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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2010	FY 2011	FY 2012
<p>down-select of the prime system developer to continue into Limited Deployment (LD) phase to develop additional platform set baselines. Develop Request for Proposal for Full Deployment contract and source selection activities. Achieve Milestone B (MS B). MIP funding will focus on development of the MIP components of CANES that will deliver the Common Computing Infrastructure and Core Services (Sensitive Compartmented Information &amp; Related Comm) required to host Intelligence (INT)/Intelligence, Surveillance and Reconnaissance (ISR) applications and services.</p> <p><b>FY 2012 Plans:</b> MIP funding will focus on development of the MIP components of CANES that will deliver the Common Computing Infrastructure and Core Services (Sensitive Compartmented Information &amp; Related Comm) required to host Intelligence (INT)/Intelligence, Surveillance and Reconnaissance (ISR) applications and services. Complete statutory and regulatory acquisition documentation to achieve CANES MS C. Revise CARD and LCCE in support of Navy's Service Cost Position (SCP) for MS C. Following Operational Testing (OT), preparation begins for IOT&amp;E to include installation of EDM units on Unit level platforms to complete operational assessments for readiness. Also, continue developmental Legacy afloat networks and hosted applications fully transition for integration testing as they migrate to CANES baseline. Begin to prepare Enterprise Engineering and Certification (E2C) lab for Submarine Hosted System Integration. Completion of Source Selection activities to award Full Deployment contract. Continue development of platform set baselines.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	-	8.375	6.602

**C. Other Program Funding Summary (\$ in Millions)**

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• OPN/2915: CANES	1.177	34.398	195.141	0.000	195.141	303.318	319.817	307.413	376.359	Continuing	Continuing
• OPN/2925: CANES INTELL	0.000	10.432	75.084	0.000	75.084	85.447	63.863	71.297	60.260	Continuing	Continuing
• RDTE/0303138N: CANES INTEGRATION	46.823	63.563	12.906	0.000	12.906	15.663	15.125	11.464	13.661	Continuing	Continuing

**D. Acquisition Strategy**  
CANES was identified as a ACAT IAM pre-MAIS. Formal program initiation at MS B (2QFY11). The program office is employing a multiple-phase, multiple-award down-select contract strategy to reduce program risks and maintain competition in both design development and production during contract performance. Two competitive contracts have been awarded to design, develop, and deliver all hardware and the associated operating system, virtualization and other commercial software needed to deliver a functional network. As the program accomplishes system development, a down-select will be conducted to choose the best design for Limited Deployment (LD). At the completion of LD, a separate competitive contract will be awarded for Full Deployment (FD) efforts.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Navy		<b>DATE:</b> February 2011
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**E. Performance Metrics**

Early RDT&E investment and sustainment of dual design contractors through the development phase will save 10-30% of Total Ownership Cost (TOC) over the life cycle of the program. Cost avoidance throughout the life of the program is based on performance gains that are measured (not quantified) by 1) reducing the number of networks through the use of mature, certified, cross domain technologies; 2) reducing the infrastructure footprint and associated costs for hardware afloat; and 3) providing increased capability to meet current and projected warfighter requirements.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303238N: <i>Consolidated Afloat Network</i> Ent SVCS(CANES)-MIP	<b>PROJECT</b> 9C87: <i>CANES Integration</i>
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<b>Product Development (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	C/CPFF	UNKNOWN:UNKNOWN	-	8.161	Aug 2011	-		-		-	0.000	8.161	8.161
Systems Engineering	C/CPFF	UNKNOWN:UNKNOWN	-	-		6.380	Nov 2011	-		6.380	0.000	6.380	6.380
<b>Subtotal</b>			-	8.161		6.380		-		6.380	0.000	14.541	14.541

<b>Management Services (\$ in Millions)</b>				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cost Estimation and Analysis	WR	SPAWAR Systems Center:San Diego, CA	-	0.060	Nov 2010	0.065	Nov 2011	-		0.065	0.000	0.125	0.125
Program Management Support	C/CPFF	Systems Research & Application:San Diego, CA	-	0.154	Oct 2010	0.157	Oct 2011	-		0.157	0.000	0.311	0.311
<b>Subtotal</b>			-	0.214		0.222		-		0.222	0.000	0.436	0.436

			Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	8.375	6.602	-	6.602	0.000	14.977	14.977

**Remarks**  
 4QFY11 UNKNOWN will be defined after down select to one contractor at the completion of the Engineering and Manufacturer Development (EMD) competitive contract. This winning prime contractor will be selected for the Limited Deployment (LD) option and to continue development of additional platform set baselines. 4QFY11 funds are paramount to procurement of (2) Engineering Design Model (EDM) units to be installed in 1QFY12 in support of Initial Operational Test & Evaluation (IOT&E), Full Deployment Decision (FDD) and program's ability to meet 5 year requirement from Funds First Obligated to FDD.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy**

**DATE:** February 2011

**APPROPRIATION/BUDGET ACTIVITY**

1319: *Research, Development, Test & Evaluation, Navy*  
BA 7: *Operational Systems Development*

**R-1 ITEM NOMENCLATURE**

PE 0303238N: *Consolidated Afloat Network*  
*Ent SVCS(CANES)-MIP*

**PROJECT**

9C87: *CANES Integration*

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2012 Navy		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303238N: <i>Consolidated Afloat Network</i> Ent SVCS(CANES)-MIP	<b>PROJECT</b> 9C87: <i>CANES Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 9C87</b>				
Acquisition Milestone - CANES Transition	1	2010	1	2010
Acquisition Milestone - CANES Milestone (MS) B	2	2011	2	2011
Acquisition Milestone - MS C	2	2012	2	2012
Acquisition Milestone - Initial Operational Capability (IOC)	4	2012	4	2012
Acquisition Milestone - Full Development Decision Review	3	2013	3	2013
System Development - Surface (2 developers)	2	2010	3	2011
System Development - Preliminary Design Review (PDR)	4	2010	4	2010
System Development - Critical Design Review (CDR)	2	2011	2	2011
System Development - Submarines	2	2013	1	2014
System Development - Technical Insertion (TI) Software (SW)	3	2013	1	2014
System Development - Technical Insertion 2 Hardware (HW)/SW Development	2	2015	1	2016
Software Development - ACS 1.1	1	2010	2	2010
Development Test	4	2010	3	2011
Operational Test - Limited Deployment	4	2011	1	2012
Operational Test - Initial Operational Test & Evaluation	4	2012	2	2013
Development Test - Submarines	3	2013	2	2014
Operational Test - Submarines	4	2014	1	2015
Development Test - Technical Insertion	4	2015	1	2016
Operational Test - Technical Insertion	4	2016	4	2016
Production Milestone - Limited Deployment	4	2011	4	2012
Production Milestone - Full Deployment	3	2012	4	2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries - ACS 1.1	4	2010	4	2010
Deliveries - CANES Engineering Design Model (EDM) Unit	4	2010	4	2010
Deliveries - CANES EDM Unit Environmental Qualification Test (EQT)	4	2011	4	2011
Deliveries - Limited Deployment	2	2012	2	2013
Deliveries - Full Deployment	3	2013	4	2016
System Development - Surface (1 developer)	4	2011	1	2013