

Exhibit R-2, RDT&E Budget Item Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				
RDT&E, Defense-Wide/07				Support of the National Communications System/P.E. 0303127K				
COST (in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Total Program Element	4.252	15.000*	5.000*	5.000*	5.000*	6.000*	6.000*	6.000*
Interoperability/N088	0.394	1.000*	1.000*	1.000*	1.000*	1.000*	1.000*	1.000*
NS/EP Programs/N709	3.858	14.000*	4.000*	4.000*	4.000*	5.000*	5.000*	5.000*

A. Mission Description and Budget Item Justification:

This program element supports Executive Order 12472 of 3 April 1984, which assigns the National Communications System (NCS) the mission of assisting the President, the National Security Council, the Office of Science and Technology Policy, and the Office of Management and Budget in exercising their wartime and non-wartime telecommunications functions and responsibilities. This also includes coordinating the planning and provisioning of National Security and Emergency Preparedness (NS/EP) telecommunications for the federal government under all circumstances. Several National Security Decision Directives and Presidential Decision Directives require the development of initiatives to improve the survivability and interoperability of the commercial telecommunications systems. These systems enhance the potential NS/EP functionality of U.S. commercial satellites, and provide communications support for Government agencies which have responsibilities to carry out essential functions in an emergency. To address these requirements, the NCS conducts research, development, testing, and evaluation support in the form of two projects, Interoperability and NS/EP Programs.

Interoperability analyzes new communications technologies and their effects on interoperability, reliability, and security of government communications. Interoperability includes the Federal Telecommunications Standards Program and

* The National Communications System transfers to the Department of Homeland Security effective 1 March 2003. The FY 2003-2009 funding levels of Program Element 0303127K have been withdrawn from DISA's budget and will transfer to the Department of Homeland Security.

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<p>Emerging Technologies. The Federal Telecommunications Standards Program facilitates interoperability among government communications systems and includes participation in the development of national and international standards to be used as the basis for Federal telecommunication recommendations. Emerging Technologies focus on emerging telecommunications technologies and trends such as network convergence, optical networking, and advanced wireless communications. It explores what impact their deployment might have on NS/EP requirements. Particular emphasis is placed on reliability, survivability, security, and the priority treatment of NS/EP communications. NS/EP Programs develop and implement new technologies as solutions for NS/EP communications requirements. These requirements include those for the National Coordinating Center for Telecommunications (NCC) and the Telecommunications Information Sharing and Analysis Center (Telecom ISAC). NS/EP Programs includes: Wireless Intelligent Network (WIN), Converged Networks (formerly Advanced Intelligent Network (AIN)), Tool Development (formerly referred to as Critical Infrastructure Protection (CIP) efforts), and Cyber Warning Information Network (CWIN). The WIN involves the exploration of evolving wireless technologies and applications and produces proof-of-concept solutions to satisfy current and future NS/EP needs. Converged Networks employs newly developed processing capabilities that tailor the extensive telecommunications resources of the Public Switched Network to enhance connectivity and survivability of services for essential government users during periods of emergency. Tool Development involves research and development of technologies that provide capabilities for monitoring the state of the public networks, detecting anomalous conditions in those networks, and enabling both proactive and reactive mitigation of the effect of network events and impairments on NS/EP telecommunications. Cyber Warning Information Network (CWIN) is one such effort and is envisioned as a robust and survivable network for alerting government watch centers and industry partners in the event of a cyber emergency. Information Sharing is related to Tools Development and its initiatives focus on researching the benefits of and technologies for the sharing of information about network operations, performance and events between network operators. Infrastructure Interdependency focuses on researching the interrelationships between infrastructure sectors, such as those between telecommunications and electric power. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.</p>		
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<p>B. <u>Program Change Summary:</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 02</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 03</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 04</u></th> <th style="text-align: center; border-bottom: 1px solid black;"><u>FY 05</u></th> </tr> </thead> <tbody> <tr> <td>Previous President's Budget</td> <td style="text-align: right;">4.912</td> <td style="text-align: right;">15.000</td> <td style="text-align: right;">5.000</td> <td style="text-align: right;">5.000</td> </tr> <tr> <td>Current President's Budget</td> <td style="text-align: right;">4.252</td> <td style="text-align: right;">15.000*</td> <td style="text-align: right;">5.000*</td> <td style="text-align: right;">5.000*</td> </tr> <tr> <td>Total Adjustments</td> <td style="text-align: right;">-0.660</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">Below threshold reprogramming</td> <td style="text-align: right;">-0.660</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="margin-top: 20px;">Change Summary Explanation: FY 2002 decrease is due to below threshold reprogramming.</p> <p style="margin-top: 40px;">* The National Communications System will transfer to the Department of Homeland Security. This is reflected in the FY 2003-2009 funding levels which have already been withdrawn from DISA's budget.</p>						<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>	Previous President's Budget	4.912	15.000	5.000	5.000	Current President's Budget	4.252	15.000*	5.000*	5.000*	Total Adjustments	-0.660				Below threshold reprogramming	-0.660			
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Exhibit R-2a, RDT&E Project Justification							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NAME AND NUMBER			
RDT&E, Defense-Wide/07	Support of the NCS/PE 0303127K				Interoperability/N088			
COST (in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Project Cost	0.394	1.000*	1.000*	1.000*	1.000*	1.000*	1.000*	1.000*
<p>A. <u>Mission Description and Budget Item Justification:</u></p> <p>Interoperability analyzes new communication technologies and their effects on Interoperability, reliability, and security of government communications. It is made up of the Federal Telecommunications Standards Program and Emerging Technologies. The Federal Telecommunications Standards Program facilitates Interoperability among government communications systems and includes participation in the development of national and international standards to be used as the basis for Federal telecommunication recommendations. Emerging Technologies focus on emerging telecommunications technologies and trends such as network convergence, optical networking, and advanced wireless communications. It explores what impact their deployment might have on NS/EP requirements. Particular emphasis is put on reliability, survivability, security, and the priority treatment of NS/EP communications.</p> <p>* The National Communications System transfers to the Department of Homeland Security effective 1 March 2003. The FY 2003-2009 funding levels of Program Element 0303127K have been withdrawn from DISA's budget and will transfer to the Department of Homeland Security.</p>								
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<p>B. <u>Accomplishments/Planned Program:</u></p> <table border="0"> <thead> <tr> <th></th> <th><u>FY 02</u></th> <th><u>FY 03</u></th> <th><u>FY 04</u></th> <th><u>FY 05</u></th> </tr> </thead> <tbody> <tr> <td>Subtotal Cost</td> <td>0.394</td> <td>1.000</td> <td>1.000</td> <td>1.000</td> </tr> </tbody> </table> <p>In FY 02-05, Interoperability will continue to develop technology, methods, and strategies to support development in industry standards and implementation agreements incorporating specific features to help ensure reliability of NS/EP communications through congested networks. Interoperability will assess satellite vulnerability at the ground stations or with station links. It will evaluate the vulnerability of evolving public switched telecommunications networks to malicious interference due to telecommunications electromagnetic disruptive effects, and identify infrastructure vulnerabilities. Interoperability will integrate the solutions that result from this effort into existing and future programs, develop the short message service for emergency notification, test and evaluate advanced optic network relative to proposed commercial standards and protocols, and perform feasibility prototyping as proof-of-concept for proposed solutions.</p> <p>End products of Interoperability are technology studies that depict possible solutions to evolving NS/EP requirements, proof of concept demonstrations, and prototypes that apply the applications to emergency notification and wireless priority services. The funding required in the later years is due to incorporating proof of concept demonstrations.</p>										<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>	Subtotal Cost	0.394	1.000	1.000	1.000
	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>														
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Project Cost		0.394	1.000	1.000	1.000	1.000	1.000	1.000	1.000																						
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O&M, DW	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>	<u>FY 06</u>	<u>FY 07</u>	<u>FY 08</u>	<u>FY 09</u>	To Complete	Total Cost																					
	2.479	2.418*	2.462*	2.506*	2.553*	2.602*	2.651*	2.702*	Contg	Contg																					

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Exhibit R-3 Cost Analysis											DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT					PROJECT NAME AND NUMBER				
RDT&E, Defense-Wide/07			Support of the NCS/PE 0303127K					Interoperability/N088				
Cost Category	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY03 Cost	FY03 Award Date	FY 04 Cost	FY 04 Award Date	FY05 Cost	FY 05 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Technical Assistance	FFRDC/ Mipr	Mitre McLean, VA	0	.259	11/02	.259	11/03	.259	11/04	Contg	Contg	.777
Technical Assistance	CPFF/ C	SW Research Kelly AFB, Tex	0	.207	11/02	.207	11/03	.207	11/04	Contg	Contg	.621
Technical Assistance	RO	NIST Gathersburg, MD	.196	.207	11/02	.207	11/03	.207	11/04	Contg	Contg	.817
Technical Assistance	FFP/	Gartner Group Stanford, CT	.002							0	.002	.002
Subtotal Support Costs			.198	.673		.673		.673				
Technical Reports 8(a) Herndon, VA	CPFF/	Comtek	.196	.327	11/02	.327	11/03	.327	11/04	Contg	Contg	1.177
Subtotal Product Development			.196	.327		.327		.327				
Total Cost			.394	1.000		1.000		1.000				

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Exhibit R-4 Schedule Profile														Date: February 2003																											
Appropriation/Budget Activity RDT&E, Defense -Wide/07														Program Element Number and Name Support of the NCS/PE 0303127K														Project Number and Name Interoperability/N088													
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009												
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4									
Contract Award:			▲																																						
PLS Multiprotocol Level Switching:				▲																																					
Fiber optic Vulnerabilities Model:					▲	▲	▲																																		
Optical Buffering:												▲																													
Deliverables:				▲				▲				▲				▲								▲																	

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Exhibit R-4a Schedule Detail							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NAME AND NUMBER			
RDT&E, Defense-Wide/07	Support of the NCS/PE 0303127K				Interoperability/N088			
<u>Schedule Profile</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Contract Award	3Q							
Next Generation Networks deliverable	4Q							
PLS Multiprotocol Level Switching	4Q							
NS/EP communications in high-speed networks deliverable		4Q						
Fiberoptic Vulnerabilities Model		2-4Q						
NS/EP communications of infrastructure transition deliverable			4Q					
Optical Buffering			4Q					
Emerging technologies affecting NS/EP communications deliverables				4Q	4Q			

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APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT			PROJECT NAME AND NUMBER			
RDT&E, Defense-Wide/07		Support of the NCS/PE 0303127K			NS/EP Programs/N709			
COST (in millions)	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
Project Cost	3.858	14.000*	4.000*	4.000*	4.000*	5.000*	5.000*	5.000*
<p>A. <u>Mission Description and Budget Item Justification:</u></p> <p>This project is required to employ newly developed processing capabilities to tailor the extensive telecommunications resources of the existing Public Switched Network (PSN), which includes the Local Exchange Carrier (LEC) and Inter Exchange Carrier (IEC) networks, thus enhancing connectivity and survivability of services for essential government users during periods of emergency.</p> <p>Wireless Intelligent Network (WIN) involves the exploration of evolving wireless technologies, with emphasis on data applications and produces proof-of-concept solutions to satisfy current and future NS/EP needs. This research will explore an always on, always available, ubiquitous, integrated, high assurance, and end-to-end service for NS/EP users.</p> <p>Converged Network (formerly Advanced Intelligent Network (AIN)) involves the development of evolutionary architectures to meet the ever-changing telecommunications requirements and to monitor the telecommunications environment. This effort employs newly developed processing capabilities that tailor the extensive telecommunications resources of the Public Switched Network to enhance connectivity and survivability of services for essential government users during periods of emergency.</p> <p>Tool Development (formerly Critical Infrastructure Protection (CIP)) develops prototype tools that demonstrate capabilities for monitoring the state of the public networks (especially the Internet), detecting anomalous conditions in those networks, and enabling both proactive and reactive mitigation of the effect of network events and impairments on NS/EP telecommunications. Prototypes will be developed and evaluated to assist in the development of requirements for operational systems.</p> <p>* The National Communications System transfers to the Department of Homeland Security effective 1 March 2003. The FY 2003-2009 funding levels of Program Element 0303127K have been withdrawn from DISA's budget and will transfer to the Department of Homeland Security.</p>								

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Project Cost	3.858	14.000	4.000	4.000	4.000	5.000	5.000	5.000

Cyber Warning Information Network (CWIN) is an emergency warning and notification network targeted toward rapid notification of key personnel and organizations in emergency and other contingencies. The CWIN envisions a robust and survivable network for alerting government watch centers and industry partners in the event of a cyber emergency. Activity in this area includes research into and evaluation of technologies that provide the necessary survivability, scalability, performance, and security for these applications.

B. Accomplishments/Planned Program:

Wireless Intelligent Network (WIN) explores evolving telecommunications technologies and applications and produces proof-of-concept solutions to satisfy current and future NS/EP needs, with emphasis on the investigation of potential wireless solutions for specialized NS/EP needs.

	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>
Subtotal Cost	.193	.467	.467	.467

Objectives for this program in FY 02-05 include: integrating the solutions that result from this effort into existing and future programs, expanding emergency notification and the Wireless Intelligent Network with emphasis on data applications, and development of short message service for emergency notification. End products of the Wireless Intelligent Network are proof of concept demonstrations, the tech risk reduction effort, and applying the solutions to the emergency notification and the Wireless Intelligent Network. Other end products of this program are prototypes that apply the applications to emergency notification and the Wireless Intelligent Network and technology studies that depict possible solutions to evolving NS/EP requirements. Minimal funding increases are required in the later years due to incorporating proof of concept demonstrations.

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<p>Converged Network (formerly Advanced Intelligent Network (AIN)) employs newly developed processing capabilities that tailor the extensive telecommunications resources of the Public Switched Network to enhance connectivity and survivability of services for essential government users during periods of emergency.</p> <table border="0"> <tr> <td></td> <td><u>FY 02</u></td> <td><u>FY 03</u></td> <td><u>FY 04</u></td> <td><u>FY 05</u></td> <td colspan="5"></td> </tr> <tr> <td>Subtotal Cost</td> <td>2.142</td> <td>1.105</td> <td>1.105</td> <td>1.105</td> <td colspan="5"></td> </tr> </table> <p>Objectives for FY02-05 include evaluating the security needs and vulnerabilities of public switched telephone network next generation network, evaluating the vulnerabilities of potential Government emergency telecommunication services and converged network enhancements. Further objectives involve identifying new applications of new technologies to address NS/EP communications needs and providing emergency notification services to 2,000 users in the Washington, D.C. and New York City metropolitan areas.</p> <p>End products include technical reports that address: analysis of studies on high probability of completion (HPC), recommending new services to support the NS/EP community, and assessing the results of information gathering and program support activities, recommending service packages/service level agreements that should permit government NS/EP users to meet their telecommunications requirements. Added capabilities include analyzing service survivability mechanisms of emerging broadband IP-based technologies and a technical report identifying new technologies that may facilitate interoperability between network elements within the public network. Other capabilities involve developing processing priorities and specifying service survivability functionality for these emerging networks.</p>											<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>						Subtotal Cost	2.142	1.105	1.105	1.105					
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<p>Cyber Warning Information Network (CWIN) will be developed using various analytical processes to provide a Federal coordination capability along with the ability to perform infrastructure vulnerability and interdependency analyses in response to cyber events.</p>								
Subtotal Cost	<u>FY 02</u> 0	<u>FY 03</u> 10.000	<u>FY 04</u> 0	<u>FY 05</u> 0				
<p>Objectives for this program include: exploring emerging telecommunications technologies for applications that enhance NS/EP, developing proof-of-concept hardware and software to demonstrate potential solutions, and alerting government watch centers and industry partners in the event of a cyber emergency. CWIN defines, develops, and demonstrates intelligent network NS/EP enhancements. Research and evaluation of technologies provide the necessary survivability, scalability, performance and security for these applications. The prototype network for alerting government watch centers and industry partners in the event of a cyber emergency is an end product of CWIN. Developing an emergency warning and notification network targeted toward rapid notification of key personnel and organizations in emergency and other contingencies is a capability of CWIN. The CWIN envisions a robust and survivable network for alerting government watch centers and industry partners in the event of a cyber emergency.</p>								
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C. Other Program Funding Summary:

O&M, DW	<u>FY 02</u>	<u>FY 03</u>	<u>FY 04</u>	<u>FY 05</u>	<u>FY 06</u>	<u>FY 07</u>	<u>FY 08</u>	<u>FY 09</u>	To Complete	Total Cost
	19.577	18.199*	19.122*	19.267*	19.412*	19.713*	20.088*	20.466*	Contg	Contg

D. Acquisition Strategy:

Work will continue under current and re-competed contract vehicles, to include systems engineering and technical support (SETA), Federally Funded Research and Development Centers (FFRDCs), industrial firms, and small businesses to minimize schedule risks. For requirements where such vehicles do not exist, marketplace will be evaluated to determine if sole source or full and open competition is warranted. Contract vehicles will explore technologies and avenues available for satisfying NS/EP telecommunication requirements.

* The National Communications System transfers to the Department of Homeland Security effective 1 March 2003. The FY 2003-2009 funding levels of Program Element 0303127K have been withdrawn from DISA's budget and will transfer to the Department of Homeland Security.

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Exhibit R-3 Cost Analysis										DATE: February 2003		
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT					PROJECT NAME AND NUMBER					
RDT&E, Defense-Wide/07		Support of the NCS/PE 0303127K					NS/EP Programs/N709					
Cost Category	Contract Method & Type	Performing Activity & Location	Total PY's Cost	FY03 Cost	FY03 Award Date	FY 04 Cost	FY 04 Award Date	FY05 Cost	FY 05 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Technical Assistance	CPAF/C	BAH McLean, VA	.094	N/A		N/A		N/A			.094	.094
Technical Assistance	FFRDC/Mipr	Mitre McLean, VA	0.212	0.249	04/03	0.071	04/04	0.071	04/05	Contg	Contg	.603
Technical Assistance	CPAF	I Assure Scott AFB	0.376	N/A		N/A		N/A			.393	.376
Technical Assistance	CPFF/C	Akamai Cambridge, Mass	1.924	6.960	12/02	1.989	12/03	1.989	12/04	Contg	Contg	12.862
Technical Assistance	CPFF/C	AT&T Washington, DC	0	1.989	12/02	0.568	12/03	0.568	12/04	Contg	Contg	3.125
Technical Assistance	RO	DOE Albuquerque, NM	0	3.427	12/02	0.979	12/03	0.979	12/04	Contg	Contg	5.386
Subtotal Support Costs			2.606	12.625		3.607		3.607				
Technical Reports	CPFF/SS	Telcordia Morristown, NJ	1.060	1.176	03/03	0.336	03/04	0.336	03/05	Contg	Contg	2.909
Technical Reports	RO	JPL Pasadena, CA	0.192	0.199	03/03	0.057	03/04	0.057	03/05	Contg	Contg	0.505
Subtotal Product Development			1.252	1.375		0.393		0.393				
Total Cost			3.858	14.000		4.000		4.000				

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Exhibit R-4 Schedule Profile														Date: February 2003																											
Appropriation/Budget Activity RDT&E, Defense-Wide/07														Program Element Number and Name Support of the NCS/PE 0303127K														Project Number and Name NS/EP Programs/N709													
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009												
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4									
Task Order (TO) award (I Assure Contract):				△																																					
Request For Information (RFI) issued:				△																																					
Data Collection and Hosting Environment (DCHE) established:				△																																					
Request For Proposals (RFP) issued:								△																																	
Contract award:								△																																	
Deliverables:					△	△	△	△	△	△	△		△	△	△		△	△	△		△	△																			

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Exhibit R-4a Schedule Detail							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NAME AND NUMBER			
RDT&E, Defense-Wide/07	Support of the NCS/PE 0303127K				NS/EP Programs/N709			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Task Order (TO) award (I Assure Contract)	4Q							
Request For Information (RFI) issued	4Q							
Data Collection and Hosting Environment (DCHE) established	4Q							
Internet Monitoring Framework (IMF) delivered		1Q						
User Interface (UI) delivered		1Q						
Statistical analysis and framework delivered		2Q						
Request For Proposals (RFP) issued		2Q						
Prototype Critical Node Monitor (CNM) delivered		3Q						
Prototype Internet Worm Early Warning System (IWEWS) delivered		3Q						
Prototype BGP AS Viewer delivered		4Q						
Contract award		4Q						
Enhanced UI delivered			1Q					
Enhanced CNM delivered			2Q					
Enhanced IWEWS delivered			2Q					
Enhanced BGP AS Viewer delivered			2Q					
Prototype IP Address Geolocator (IPAG) delivered			4Q					

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Exhibit R-4a Schedule Detail							DATE: February 2003	
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT				PROJECT NAME AND NUMBER			
RDT&E, Defense-Wide/07	Support of the NCS/PE 0303127K				NS/EP Programs/N709			
Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Root Server Traffic Monitor (RSTM) delivered			4Q					
Enhanced UI delivered				1Q				
Prototype HoneyNet Monitor (HNM) delivered				2Q				
Prototype Malformed BGP Update Scanner (MBUS) delivered			2Q					
Prototype Link Load Tester (LLT) delivered				4Q				
Enhanced IPAG delivered				4Q				
Enhanced RSTM delivered				4Q				
Enhanced UI delivered					1Q			
Prototype Intelligent Agent for Monitoring (IAM) delivered					2Q			
Enhanced HNM delivered					2Q			
Enhanced MBUS delivered					2Q			
Enhanced LLT delivered					4Q			
Enhanced UI delivered						1Q		
Enhanced IAM delivered						1Q		