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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0306250F I Cyber Operations Technology Development							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	91.845	162.702	226.287	5.400	231.687	203.833	200.530	213.998	219.345	Continuing	Continuing
646008: US Cyber Command Technology Development	-	91.845	162.702	226.287	5.400	231.687	203.833	200.530	213.998	219.345	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

US Cyber Command's (USCYBERCOM) mission is to deter or defeat strategic threats to US interests and infrastructure, provide mission assurance for the operations and defense of the Department of Defense information environment, and support the achievement of Joint Force Commander objectives.

USCYBERCOM in conjunction with the Services and National Agencies will develop and expand infrastructure architectures and capabilities/tools to support Cyber Mission Forces (CMF).

The portfolio was restructured to facilitate alignment of resources to capabilities.

The focus is on four broad program areas:

1. Common Services: funding is for enterprise capabilities that enable mission execution for the Cyber Mission Forces. Common Services includes a Unified Platform (UP) to enable CMF to conduct planning and execution of full-spectrum cyber operations. UP supports and links the following common service capabilities enabling the CMF: Command and Control; defensive cyber operations; situational awareness; and training and assessment.
2. Access Platforms: funding supports development of capabilities and/or infrastructures used by Cyber Mission Forces for employment of access on networks to create effects. Efforts include research, analysis, testing, assessment and integration. Further details are held at higher classification levels.
3. Tools: funding supports development of common and specialized tools critical to gain access to or create effects on networks. Efforts include research, studies, analysis, testing, assessment of development, integration, and operational assessment of cyberspace capabilities, methodologies and tactics. Funding also supports OCO requirements for Cyber, Joint Task Force ARES.
4. Analytics: funding supports capabilities used in Cyber Mission Force operations to store, correlate, and analyze data collected from multiple sources to garner unique insights to enable decision making.

The origin, details and specific aspects of these efforts are classified and will be provided on a need-to-know basis. For further information please contact USCYBERCOM at 443-634-7769.

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This is in Budget Activity 4, Advanced Component Development and Prototypes, because efforts are necessary to evaluate integrated technologies, representative modes, or prototype systems in a high fidelity and realistic operating environment.					
B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	81.732	158.002	223.636	0.000	223.636
Current President's Budget	91.845	162.702	226.287	5.400	231.687
Total Adjustments	10.113	4.700	2.651	5.400	8.051
• Congressional General Reductions	-0.020	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	12.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.884	0.000			
• SBIR/STTR Transfer	-2.751	0.000			
• Other Adjustments	0.000	4.700	2.651	5.400	8.051
Change Summary Explanation					
Fiscal Year (FY) 2016 Congressional add of FY16 \$12 million for USCYBERCOM Combatant Command (COCOM) Support.					
Fiscal Year (FY) 2017 Request for Additional Appropriations: \$4.7 million in Overseas Contingency Operations (OCO) funding is required to accelerate the build of Title X Infrastructure and access platforms.					
Fiscal Year (FY) 2018 Total Adjustments reflects: OCO \$5.4 million for Joint Task Force ARES, Cyber Situational Awareness \$7 million, internal realignment (-\$5 million) and Air Force inflation.					
Some aspects of the congressional adds are classified and will be provided on a need-to-know basis. For further information please contact USCYBERCOM, 443-634-7769.					
C. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Combatant Command Support	29.164	36.700	-	-	-
Description: Supports development and testing of various tools critical to achieving Combatant Command military objectives. Including research, studies, integration, analysis, access development and operational assessment of cyberspace capabilities, methodologies and tactics in support of Combatant Command					

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
objectives. Further details are held at higher classification levels.						
FY 2016 Accomplishments: - Support studies, analysis, testing and prototype development of cyber operations capabilities and tools in support of Combatant Command military objectives - Support advanced reverse engineering efforts, development of Electronic Warfare and cyberspace targeting efforts, a framework to underpin analytic and targeting efforts and seed funding for cyber capabilities and tools in support of cyber operations requirements - Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact USCYBERCOM, 443-634-7769.						
FY 2017 Plans: - Will continue to support studies, analysis, testing and development of cyber operations capabilities and tools in support of Combatant Command military objectives - Will support advanced reverse engineering efforts, development of Electronic Warfare and cyberspace targeting efforts - Will develop Cyber capabilities and prototype tools in support of operational requirements - Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact USCYBERCOM, 443-634-7769.						
Title: Defend the Nation Description: Funding supports the prototype development of a diverse cyber capability portfolio to enable efforts in order to defeat a wide variety of cyber attacks. Efforts include research, integration, analysis, access development, training, testing, and assessments for defensive cyber capabilities. FY 2016 Accomplishments: - Support cyber operations prototype tools development, engineering, data strategy, and development of a common operating picture that enables USCYBERCOM to conduct operations in defense of specified Department of Defense information networks		35.218	71.359	-	-	-

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<div>- Support prototype tool development for Joint Cyber Centers with an event detection capability and engineering support to ensure smooth integration and development</div> <div>- Support efforts to solve operational limitations, vulnerabilities and requirements</div> <div>- Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact USCYBERCOM, 443-634-7769.</div> <div>FY 2017 Plans:<div>- Will continue to support studies, analysis, testing and development of cyber operations capabilities and tools in support of Combatant Command military objectives</div><div>- Will support advanced reverse engineering efforts, development of Electronic Warfare and cyberspace targeting efforts</div><div>- Will develop Cyber capabilities and prototype tools in support of operational requirements</div><div>- Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact USCYBERCOM, 443-634-7769.</div></div>						
<div>Title: Operate and Defend the DoDIN / Cyber Situational Awareness / Unified Platform</div> <div>Description: Supports engineering and development of tools, data strategy, and management of a common operating picture support operations focused on cyber key terrain at the global and national level and for cyber situational awareness for the services and CCMDs to support operations focused on cyber key terrain at the global and national level. Further details are held at higher classification levels.</div> <div>FY 2016 Accomplishments:<div>- Support cyber operations prototype tools development, engineering, data strategy, and development of a common operating picture that enables USCYBERCOM to conduct operations in defense of specified Department of Defense information networks</div><div>- Support prototype tool development for Joint Cyber Centers with an event detection capability and engineering support to ensure smooth integration and development</div></div>		27.463	54.643	-	-	-

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<p>- Support efforts to solve operational limitations, vulnerabilities, and requirements</p> <p>- Some aspects of the effort are classified and will be provided on a need to know basis. For further information please contact USCYBERCOM, 443-634-7769.</p> <p>FY 2017 Plans:</p> <p>- Will continue cyber operations tools development, engineering, data strategy, and development of a common operating picture that enables USCYBERCOM to conduct operations in defense of specified Department of Defense information network</p> <p>- Will support prototype tool development for Joint Cyber Centers at all Combatant Commands with an event detection capability and engineering support to ensure smooth integration and development</p>						
<p>Title: Common Services</p> <p>Description: Funding supports capabilities used in Cyber Mission Force operations to correlate data collected from multiple sources to garner unique insight to enable decision making.</p> <p>This major thrust is not a new start. The portfolio was restructured to provide additional fidelity. Funds were transferred from FY17 major thrusts (FY17 Defend the Nation).</p> <p>The origin, details and specific aspects of these efforts are classified and will be provided on a need-to-know basis. Please contact USCYBERCOM, 443-634-7769.</p> <p>FY 2018 Base Plans:</p> <p>Will establish and evolve the Military Cyberspace Operations Platform (MCOP) to enable combined arms, offensive and defensive operations.</p> <p>Will continue development and employment for a series of operational prototypes under the Unified Platform that reduces acquisition risk, responds to operational imperatives, and ultimately support full-spectrum cyberspace operations for the Cyber Mission Forces.</p> <p>Will support full deployment of CENTROPY, a Cyber C2 system that provides oversight and management of operational readiness.</p>		-	-	82.013	-	82.013

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Will continue to support Phase 2 build-out for the Cyber Situation Awareness Evaluation of Alternatives.						
Will continue to support delivery of Unified Cyber Analysis Portal to Full Operational Capability (FOC) that provides a comprehensive solution for malware triage.						
Title: Access Platforms Description: Funding supports capabilities used in Cyber Mission Force operations to correlate data collected from multiple sources to garner unique insight to enable decision making. This major thrust is not a new start. The portfolio was restructured to provide additional fidelity. Funds were transferred from FY17 major thrusts (Combatant Command Support and Operate and Defend the DODIN and Cyber Situation Awareness and Unified Platform). The origin, details and specific aspects of these efforts are classified and will be provided on a need-to-know basis. Please contact USCYBERCOM, 443-634-7769. FY 2018 Base Plans: Will continue employment of the on-net operations infrastructure used to conduct Title 10 cyberspace operations. Will continue employment of a USCYBERCOM cross domain solution that enables automated data flow from platform to data repository. Will support continued employment and deliver to Full Operational Capability (FOC), a system that provides a client/server platform to delivery multiple mission-based cyber effects. Will continue development of operational system that delivers distributed denial of service capabilities on the Department of Defense Information Network.		-	-	58.434	-	58.434
Title: Tools Description: Funding supports capabilities used in Cyber Mission Force operations to correlate data collected from multiple sources to garner unique insight to enable decision making.		-	-	75.588	5.400	80.988

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<p>This major thrust is not a new start. The portfolio was restructured to provide additional fidelity. Funds were transferred from FY17 major thrusts (Combatant Command Support and Operate and Defend the DODIN and Cyber Situation Awareness and Unified Platform).</p> <p>The origin, details and specific aspects of these efforts are classified and will be provided on a need-to-know basis. Please contact USCYBERCOM, 443-634-7769.</p> <p>FY 2018 Base Plans: Will continue development of the deployed exploitation framework for USCYBERCOM.</p> <p>Will continue execution of a spiral development process for cyberspace operations basic tools that provide operational agility during CMF effects operations.</p> <p>Will continue the tool repository and signature management study on each spiral of delivered tools that enables tool measurement and repository as well as a means to manipulate tool code to minimize risk of discovery.</p> <p>Will continue to support development and employment of the results of the study from the signature diversity study.</p> <p>FY 2018 OCO Plans: Will support Joint Task Force ARES OCO requirements.</p>						
<p>Title: Analytics</p> <p>Description: Funding supports capabilities used in Cyber Mission Force operations to correlate data collected from multiple sources to garner unique insight to enable decision making.</p> <p>This major thrust is not a new start. The portfolio was restructured to provide additional fidelity. Funds were transferred from FY17 major thrusts (Combatant Command Support and Operate and Defend the DODIN and Cyber Situation Awareness and Unified Platform).</p> <p>The origin, details and specific aspects of these efforts are classified and will be provided on a need-to-know basis. Please contact USCYBERCOM, 443-634-7769.</p> <p>FY 2018 Base Plans:</p>		-	-	10.252	-	10.252

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Will continue development of the Unclassified Amazon Web Services (AWS) GovCloud and Big Data Platform (BDP) that enables the Services CMF teams to identify anomalous behavior on the DODIN network.						
Will support development of technologies, policies, and processes needed to enable Intelligence and “indicator” sharing across the DODIN tiers and domains.						
Will support creation and development of Advanced Analytics that provides training and technical assistance on analytic tools and techniques, assist with developing target folders (to include target analysis, target system analysis, and network analysis), provide technical expertise on data query strategies, provide technical continuity for development efforts. Evaluate solutions and product capabilities. Provide analysis and report of solutions and/or product capabilities.						
Accomplishments/Planned Programs Subtotals		91.845	162.702	226.287	5.400	231.687
D. Other Program Funding Summary (\$ in Millions) N/A						
Remarks						
E. Acquisition Strategy Facilitate the delivery of technology capabilities to the Cyber Mission Forces, by applying innovative solutions for existing and emerging technologies. Contracts are awarded under full and open completion whenever possible. Variations of both Fixed Price (FP) and Cost Plus (CP) contracting vehicles will be used and managed by USCYBERCOM Acquisition authority, various Service Component contracting offices, Combatant Command Contracting offices and National Security Agency contracting offices.						
F. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.						

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017			
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 0306250F / Cyber Operations Technology Development				Project (Number/Name) 646008 / US Cyber Command Technology Development					
Product Development (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Combatant Command Support	Various	Multiple Agencies : Various	-	29.164	Nov 2015	36.700	Jul 2017	0.000		0.000		0.000	Continuing	Continuing	-
Defend the Nation	Various	Multiple Agencies : Various	-	35.218	Nov 2017	71.359	Nov 2016	0.000		0.000		0.000	Continuing	Continuing	-
Operate and Defend the DoDIN / Cyber Situational Awareness / Unified Platform	Various	Multiple Agencies : Various	-	27.463	Nov 2015	54.643	Nov 2016	0.000		0.000		0.000	Continuing	Continuing	-
Common Services	Various	Multiple Agencies : Various	-	0.000		0.000		81.724	Feb 2018	0.000		81.724	Continuing	Continuing	-
Access Platforms	Various	Multiple Agencies : Various	-	0.000		0.000		58.085	Feb 2018	0.000		58.085	Continuing	Continuing	-
Tools	Various	Multiple Agencies : Various	-	0.000		0.000		73.966	Feb 2018	5.400		79.366	Continuing	Continuing	-
Analytics	Various	Multiple Agencies : Various	-	0.000		0.000		9.912	Feb 2018	0.000		9.912	Continuing	Continuing	-
Subtotal			-	91.845		162.702		223.687		5.400		229.087	-	-	-
Support (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-
Test and Evaluation (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Air Force												Date: May 2017		
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>				Project (Number/Name) 646008 / <i>US Cyber Command Technology Development</i>				

Management Services (\$ in Millions)				FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost To Complete	Total Cost	Target Value of Contract
PMA	Various	Various : Various, MD	-	0.000		0.000		2.600	Feb 2018	0.000		2.600		Continuing	Continuing	-
Subtotal			-	0.000		0.000		2.600		0.000		2.600		-	-	-

			Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	91.845		162.702		226.287		5.400		231.687	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: FY 2018 Air Force			Date: May 2017		
Appropriation/Budget Activity 3600 / 4		R-1 Program Element (Number/Name) PE 0306250F / <i>Cyber Operations Technology Development</i>			Project (Number/Name) 646008 / <i>US Cyber Command Technology Development</i>

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
	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
UP AoA (Common Services, formally Operate and Defend the DoDIN)																												
UP RR (Common Services)																												
Cyber C2 Pilot (Common Services, formally Combatant Command Support)																												
Cyber C2 FOC (Common Services)																												
Cyber C2 Spiral Development (Common Services)																												
Cyber SA Prototype (Common Services, formally Operate and Defend the DoDIN)																												
Cyber SA Spiral Development (Common Services)																												
Cyber UCAP FOC (Common Services)																												
Cyber UCAP Spiral Development (Common Services)																												
CYBERCOM access platform FOC (Access Platforms, formally Defend the Nation)																												
CYBERCOM access platform spiral development (Access Platforms)																												
Cyber data flow accross domain solution (Access Platforms)																												
Mission based platform IOC (Access Platforms)																												
DDoS for DODIN sustain (Access Platforms, formally Operate and Defend the DoDIN)																												
DDoS for DODIN spiral development (Access Platforms)																												

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Appropriation/Budget Activity 3600 / 4										R-1 Program Element (Number/Name) PE 0306250F / Cyber Operations Technology Development										Project (Number/Name) 646008 / US Cyber Command Technology Development																	
										FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022			
										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
Exploitation framework spiral development (annual) - (Tools, formally Defend the Nation)																																					
Foundational tool suites (spirals annual) - (Tools)																																					
Mission based platform FOC (Access Platforms)																																					
Tool signature management study (Tools)																																					
Data analytics platform IOC (Analytics)																																					
Data analytics platform next GEN (Analytics)																																					
Data analytics platform technology insert (Analytics)																																					
Analytical capabilities spiral development (annual) - (Analytics)																																					

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
UP AoA (Common Services, formally Operate and Defend the DoDIN)	1	2016	1	2019
UP RR (Common Services)	1	2017	4	2018
Cyber C2 Pilot (Common Services, formally Combatant Command Support)	1	2016	4	2017
Cyber C2 FOC (Common Services)	1	2018	4	2019
Cyber C2 Spiral Development (Common Services)	1	2020	4	2022
Cyber SA Prototype (Common Services, formally Operate and Defend the DoDIN)	1	2016	4	2018
Cyber SA Spiral Development (Common Services)	1	2019	4	2022
Cyber UCAP FOC (Common Services)	1	2017	3	2017
Cyber UCAP Spiral Development (Common Services)	3	2019	1	2021
CYBERCOM access platform FOC (Access Platforms, formally Defend the Nation)	1	2016	3	2017
CYBERCOM access platform spiral development (Access Platforms)	4	2017	4	2022
Cyber data flow accross domain solution (Access Platforms)	1	2017	4	2019
Mission based platform IOC (Access Platforms)	1	2017	3	2017
DDoS for DODIN sustain (Access Platforms, formally Operate and Defend the DoDIN)	1	2016	1	2019
DDoS for DODIN spiral development (Access Platforms)	1	2018	4	2022
Exploitation framework spiral development (annual) - (Tools, formally Defend the Nation)	1	2016	4	2022
Foundational tool suites (spirals annual) - (Tools)	1	2017	4	2022
Mission based platform FOC (Access Platforms)	1	2018	4	2022
Tool signature management study (Tools)	3	2017	4	2018
Data analytics platform IOC (Analytics)	1	2017	1	2018
Data analytics platform next GEN (Analytics)	2	2018	2	2020
Data analytics platform technology insert (Analytics)	3	2020	2	2022

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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Air Force			Date: May 2017
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Events	Start		End	
	Quarter	Year	Quarter	Year
Analytical capabilities spiral development (annual) - (Analytics)	1	2017	4	2022