Cybersecurity

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FY2016 Quarter 2

Overview

Goal Statement

Improve awareness of cybersecurity practices, vulnerabilities, and threats to the operating environment by limiting access to authorized users and implementing technologies and processes that reduce risk from malicious activity.

Urgency

The President has identified the cybersecurity threat as one of the most serious national security, public safety, and economic challenges we face as a nation. Ultimately, the cybersecurity challenge in the Federal Government is not just a technology issue. It is an organizational, people, and performance issue requiring creative solutions to address increasingly sophisticated threats and emerging vulnerabilities introduced by rapidly changing technology.

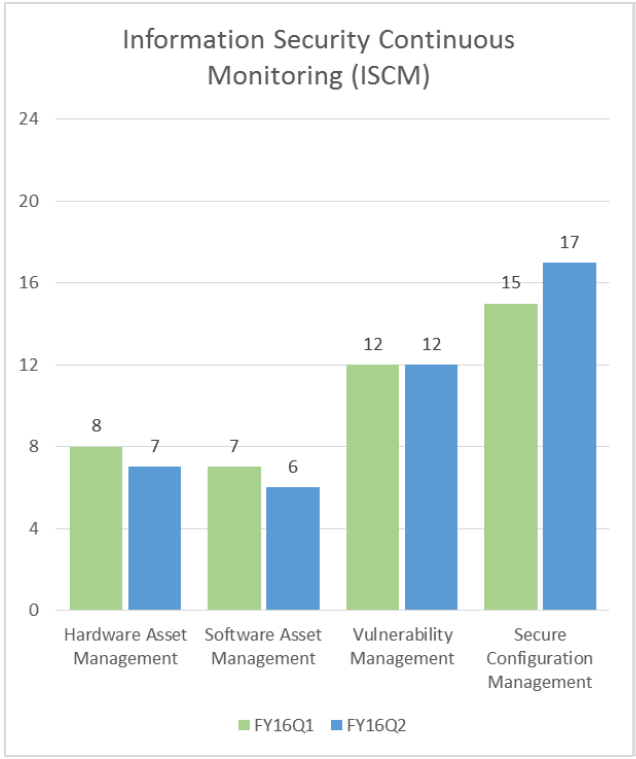
Vision

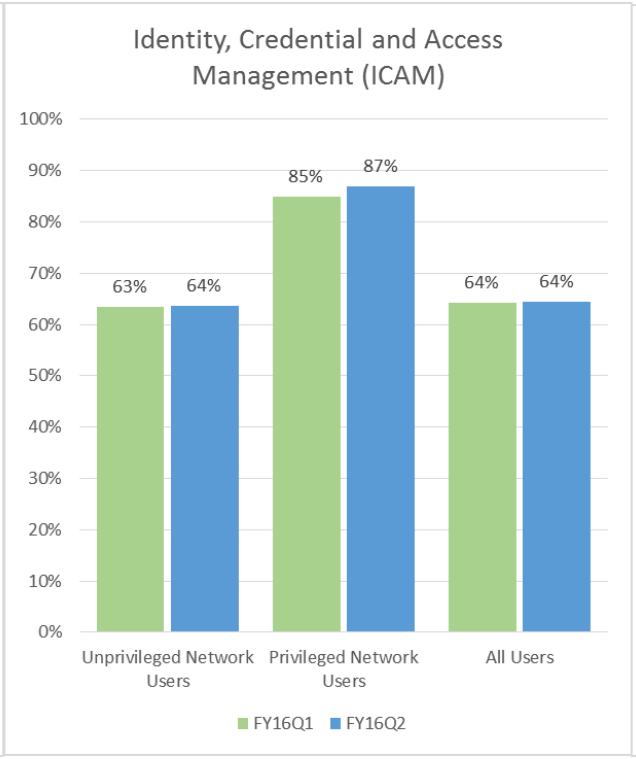
Implement the Administration's priority cybersecurity capabilities and develop performance-based metrics to measure success. The Administration's FY 2015 – FY 2017 Cybersecurity Cross Agency Priority (CAP) goal is comprised of the following initiatives:

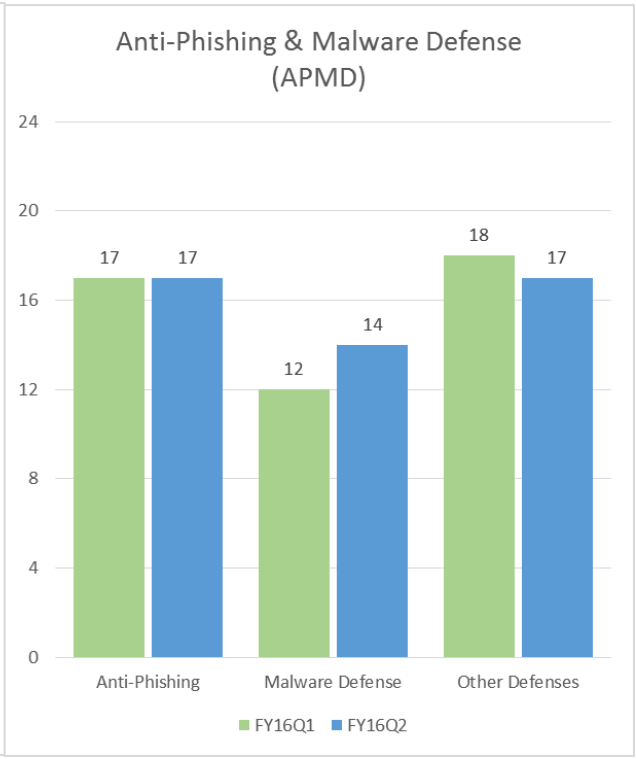
- **Information Security Continuous Monitoring (ISCM)** – Provide ongoing observation, assessment, analysis, and diagnosis of an organization's cybersecurity.
- **Identity, Credential, and Access Management (ICAM/Strong Authentication)** – Implement a set of capabilities that ensures users must authenticate to information technology resources and have access to only those resources that are required for their job function.
- **Anti-Phishing and Malware Defense (APMD)** – Implement technologies, processes, and training that reduces the risk of malware being introduced through email and malicious or compromised web sites.

Status Update

Civilian CFO Act Agency status toward meeting the Cybersecurity CAP Goal targets in FY 2016 Q2.*







*The number of agencies meeting government-wide targets may vary from quarter to quarter due to fluctuations in the number of information technology assets or number of users at a given agency. This report reflects data from the 23 civilian CFO Act agencies, and therefore excludes information from the Department of Defense and small agencies.

Information Security Continuous Monitoring (ISCM)*
FY 2016 Q1 vs FY 2016 Q2

Hardware Asset Management

Performance must be greater than or equal to 95% for both Hardware Asset Management measures (asset detection, asset meta data collection):

- 7 civilian agencies met both targets in FY 2016 Q2, down from 8 agencies in FY 2016 Q1.

Software Asset Management

Performance must be greater than or equal to 95% for both Software Asset Management measures (software inventory, software whitelisting):

- 6 civilian agencies met both targets in FY 2016 Q2, down from 7 agencies in FY 2016 Q1.

Vulnerability Management

Performance must be greater than or equal to 95%:

- 12 civilian agencies met the target for FY 2016 Q2, the same as in FY 2016 Q1.

Secure Configuration Management

Performance must be greater than or equal to 95%:

- 17 agencies met the target for FY 2016 Q2, up from 15 agencies in FY 2016 Q1.

*For more information on the specific ISCM metrics, see the Appendix A - Key Indicators.

Information Security Continuous Monitoring (ISCM)
FY 2016 Q1 vs FY 2016 Q2

Agency	FY 2016 Q1					FY 2016 Q2				
	Hardware Asset Management	Software Asset Management	Vulnerability Management	Secure Configuration Management (SecCM)	ISCM Avg	Hardware Asset Management	Software Asset Management	Vulnerability Management	Secure Configuration Management (SecCM)	ISCM Avg
SSA	100	100	100	100	*100*	100	100	100	99	*100*
OPM	100	100	95	98	*98*	100	100	98	98	*99*
NRC	98	95	100	99	*98*	98	93	100	99	*97*
Justice	91	99	99	99	*97*	93	97	97	100	*97*
ED	74	55	100	99	*82*	96	80	100	99	*94*
GSA	73	97	98	95	*91*	73	98	100	96	*92*
Labor	97	97	95	100	*97*	65	99	96	100	*90*
Treasury	86	93	99	97	*94*	87	93	99	98	*94*
HUD	88	84	100	99	*93*	87	82	100	100	*92*
DOT	95	89	70	98	*88*	95	89	70	98	*88*
State	81	96	62	95	*84*	81	96	68	99	*86*
NSF	100	0	91	100	*73*	100	0	93	100	*73*
SBA	100	7	100	4	*53*	99	7	100	2	*52*
VA	0	2	95	99	*49*	0	3	98	99	*50*
USDA	95	92	85	100	*93*	91	93	85	100	*92*
HHS	87	23	84	90	*71*	69	32	96	90	*72*
Commerce	55	54	77	99	*71*	55	55	76	99	*71*
USAID	89	80	0	75	*61*	91	75	0	96	*66*
EPA	0	73	1	98	*43*	0	69	0	98	*42*
DHS	54	67	93	82	*74*	47	73	92	82	*74*
Energy	29	36	66	88	*55*	68	38	61	82	*62*
Interior	31	50	95	98	*69*	26	34	76	77	*53*
NASA	4	11	91	75	*45*	2	10	89	85	*46*
Civilian CFO Act Avg	52%	57%	83%	94%		54%	58%	86%	93%	
# Agencies Meeting Targets	8	7	12	15		7	6	12	17	

Key
Meets or exceeds CAP targets

Source: FISMA Data Agency Level Questions 1.2, 1.4, 1.5, 2.2, 2.3.1, 2.3.4, 3.16, 3.17 from CyberScope.

Notes: Agencies are sorted by number of CAP Goal targets met

Civilian CFO Act averages are weighted by the number of hardware assets.

Identity, Credential and Access Management (ICAM)*
FY 2016 Q1 vs FY 2016 Q2

Unprivileged Network Users

Performance must be greater than or equal to 85%.

- Unprivileged user PIV-usage for civilian agencies increased from 63% in FY 2016 Q1 to 64% in FY 2016 Q2.
- 18 civilian agencies met the Unprivileged Network Users PIV-usage target in FY 2016 Q2, up from 17 in FY 2016 Q1.

Privileged Network Users

Performance must be equal to 100%.

- Civilian agencies' privileged user PIV-usage increased from 85% on FY 2016 Q1 to 87% on FY 2016 Q2.
- 15 civilian agencies met the Privileged Network Users PIV-usage target in FY 2016 Q2, up from 12 in FY 2016 Q1.

*For more information on the specific ICAM metrics, see the Appendix A - Key Indicators.

Identity, Credential and Access Management (ICAM)
FY 2016 Q1 vs FY 2016 Q2

Agency	FY 2016 Q1			FY 2016 Q2		
	Unprivileged Network Users	Privileged Network Users	All Users	Unprivileged Network Users	Privileged Network Users	All Users
OPM	100	100	100	100	100	100
State	100	100	100	100	100	100
USAID	37	100	38	100	100	100
NSF	92	100	92	99	100	99
GSA	99	100	99	99	100	99
DOT	98	100	98	98	100	98
Treasury	94	100	94	92	100	92
NRC	92	100	92	92	100	92
HUD	93	100	93	90	100	91
ED	87	79	85	87	100	90
SBA	91	100	91	88	100	89
Interior	91	98	91	88	100	89
SSA	86	99	87	87	100	88
USDA	85	95	86	87	100	88
EPA	97	98	98	98	99	98
Labor	95	97	95	97	99	97
DHS	96	96	96	97	93	97
HHS	86	90	86	86	97	86
NASA	76	100	77	78	100	79
Commerce	83	83	83	82	79	82
Justice	64	64	64	57	57	57
Energy	17	17	17	19	28	20
VA	10	100	12	12	99	13
Civilian CFO Act Avg	63%	85%	64%	64%	87%	64%
# Agencies Meeting Targets	17	12		18	15	

Key
Meets or exceeds CAP targets

Source: FISMA Data Agency Level Questions 2.4, 2.4.1, 2.5, 2.5.1 from CyberScope.

Notes: Agencies are sorted by number of CAP Goal targets met

Civilian CFO Act averages are weighted by the number of users.

Anti-Phishing & Malware Defense (APMD)*
FY 2016 Q1 vs FY 2016 Q2

Anti-Phishing

Performance on Anti-Phishing measurements must be greater than or equal to 90% on at least 5 of 7 capabilities:

- 17 civilian agencies met the CAP Goal targets in in FY 2016 Q2, the same as in FY 2016 Q1.

Malware Defense

Performance on Malware Defense measurements must be greater than or equal to 90% on at least 3 of 5 capabilities:

- 14 civilian agencies met the CAP Goal targets in FY 2016 Q2, up from 12 agencies in FY 2016 Q1.

Other Defenses (capabilities related to Anti-Phishing & Malware)

Performance on these measurements must be greater than or equal to 90% on at least 2 of 4 capabilities:

- 17 civilian agencies met the CAP Goal targets in FY 2016 Q2, down from 18 agencies in FY 2016 Q1.

*For more information on the Anti-Phishing and Malware Defense metrics, see the Appendix A - Key Indicators.

Anti-Phishing & Malware Defense (APMD)
FY 2016 Q1 vs FY 2016 Q2

Agency	FY 2016 Q1			FY 2016 Q2		
	# Capabilities required to have >=90% coverage					
	Anti-Phishing	Malware Defense	Other Defenses	Anti-Phishing	Malware Defense	Other Defenses
	5	3	2	5	3	2
HUD	7	5	4	7	4	4
OPM	5	2	3	6	5	4
Treasury	7	4	4	6	4	4
State	6	2	2	5	5	3
USDA	6	4	4	6	5	2
SSA	5	5	3	5	4	3
DOT	6	4	3	6	3	2
GSA	6	3	2	6	3	2
Labor	5	4	3	5	4	2
USAID	5	3	2	6	3	2
NRC	5	3	2	5	3	2
VA	5	1	3	5	3	2
ED	6	3	2	7	1	4
DOD	5	3	2	5	2	3
SBA	4	4	1	4	4	2
Interior	5	2	2	6	1	2
HHS	6	2	2	6	2	1
DHS	5	1	2	7	0	1
Justice	4	3	1	4	3	1
NASA	4	2	1	5	2	1
Commerce	4	0	3	4	0	3
NSF	5	1	2	4	1	2
Energy	3	0	1	4	0	1
EPA	3	1	0	3	0	0
# Agencies meeting targets	18	13	19	18	14	18

Key
Meets or exceeds CAP targets

Source: FISMA Data Agency Level Questions 2.19, 2.19.1, 3.1 through 3.15 from CyberScope.

Notes: Agencies are sorted by number of CAP Goal targets met

Action Plan Summary

Initiative*	Major Actions to Achieve Impact	Key Indicator/Targets for FY 2015 Q3 thru FY 2017
Information Security Continuous Monitoring (ISCM)	• Understand the hardware and software on Federal networks and the risks that they pose; and • Maintain ongoing, near real-time awareness of information security risks and have the capability to rapidly respond to support organizational risk management decisions.	• **Hardware Asset Management:** Detection of devices or device hardware characteristics must be greater than or equal 95%. • **Software Asset Management:** Detection of software inventory or base level application configurations (whitelisting) must be greater than or equal 95%. • **Vulnerability Management:** Detection of hardware or software vulnerabilities must be greater than or equal 95%. • **Secure Configuration Management:** Validation of select OS software configurations must be greater than or equal 95%.
Identity, Credential, and Access Management (ICAM/ Strong Authentication)	• Ensure only authorized users have access to Federal information systems; and • Ensure only authorized users have access to information needed for designated business functions.	• **Unprivileged Network Users:** Unprivileged users required to use PIV for network log-on must be greater or equal to 85%. • **Privileged Network Users:** Privileged users required to use PIV for network log-on must be equal to 100%.
Anti-Phishing & Malware Defense (APMD)	• Implement technologies, processes, and training to reduce the risk of malware introduced through email and malicious or compromised web sites.	• **Anti-Phishing:** 5 of 7 capabilities with anti-phishing toolsets must be greater than or equal to 90%. • **Malware Defense:** 3 of 5 capabilities with malware toolsets must be greater than or equal to 90%. • **Other Defense** *(capabilities related to Anti-Phishing & Malware)*: 2 of 4 capabilities with a blended toolset must be greater than or equal to 90%.

* The corresponding indicators for these CAP Initiatives are captured in the Key Indicators section of this report.

Work Plan

Milestone Summary			
Key Milestones	**Milestone Date**	**Milestone Status**	**Issues / Comments**
OMB FY 2015 – FY 2016 FISMA reporting guidance released	10/30/15	Complete	http://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-03.pdf
FY 2016 CIO FISMA/CAP metrics published	10/30/15	Complete	http://www.dhs.gov/publication/fy16-fisma-documents
FY 2015 FISMA annual/Q4 metrics reports due	11/13/15	Complete	https://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/final_fy_2015_fisma_report_to_congress_03_18_2016.pdf
FY 2016 Q1 CAP metrics updates due	1/15/16	Complete	https://www.performance.gov/node/3401?view=public#progress-update
FY 2016 Q2 CAP metrics updates due	04/15/16	Complete	
FY 2016 Q3 CAP metrics updates due	07/15/16		
FY 2016 Annual/Q4 CAP metrics updates due	11/10/16		Also known as the FY 2016 FISMA annual report due date

Appendix A - Key Indicators

CAP Initiatives	Area	Question No.	Question
Information Security and Continuous Monitoring	Hardware Asset Management	1.2	Number of the organization's hardware assets connected to the organization's unclassified network(s).
		1.4	Number of GFE hardware assets (from 1.2.) covered by an automatic (e.g. scans/device discovery processes) hardware asset inventory capability at the enterprise-level. (CAP)
		3.16	Percent (%) of the organization's unclassified network that has implemented a technology solution to detect and alert on the connection of unauthorized hardware assets. (CAP)
	Software Asset Management	1.2.1	Percent (%) of endpoints from 1.1.1 covered by an automated software asset inventory capability to scan the current state of installed software (e.g., .bat, .exe, .dll).
		1.2.2	Percent (%) of endpoints from 1.1.1 covered by a desired-state software asset management capability to detect and block unauthorized software from executing (e.g. AppLocker, certificate, path, hash value, services, and behavior based whitelisting solutions).
		1.5	Number of GFE endpoints and mobile assets (from 1.2.1. and 1.2.2.) covered by an automated software asset inventory capability at the enterprise-level. (CAP)
		3.17	Number of GFE endpoints and mobile assets (from 1.2.1. and 1.2.2.) covered by a software asset management capability to detect, alert, and/or block unauthorized software from executing (e.g., certificate, path, hash value, services, and behavior based whitelisting solutions). (CAP)
	Vulnerability Management	2.2	Percent (%) of the organization's unclassified network(s) assessed for vulnerabilities using Security Content Automation Protocol (SCAP) validated products3. (CAP)
	Secure Configuration Management	2.3.1	Number of hardware assets with each OS. (Base)
		2.3.4	Number of assets in 2.3.1 covered by auditing for compliance with 2.3.2. (CAP)

Source: FISMA Data Agency Level Questions from Cyberscope.

Appendix A - Key Indicators (cont.)

CAP Initiatives	Area	Question No.	Question
Identity Credential and Access Management	Unprivileged users	2.4	Number of users with unprivileged network accounts.4 (Exclude privileged network accounts and non-user accounts.) (Base)
		2.4.1	Number of users (from 2.4.) technically required to log onto the network with a two-factor PIV card5 or NIST Level of Assurance (LOA) 4 credential.6 (CAP)
	Privileged users	2.5	Number of users with privileged network accounts. (Exclude unprivileged network accounts and non-user accounts.) (Base)
		2.5.1	Number of users (from 2.5.) technically required to log onto the network with a two-factor PIV card7 or NIST LOA 4 credential. (CAP)
Anti-Phishing & Malware Defense	Anti-Phishing	2.19	Number of users that participated in exercises focusing on phishing that are designed to increase awareness and/or measure effectiveness of training, (e.g. organization conducts spoofed phishing emails, clicking links leading to phishing information page). (Base)
		2.19.1	Number of users (from 2.19.) that successfully passed the exercise. (CAP)
		3.1	Percent (%) of incoming email traffic passing through anti-phishing and anti-spam filtration at the outermost border mail agent or server. (CAP)
		3.2	Percent (%) of incoming email traffic analyzed using sender authentication protocols (e.g., DKIM, ADSP, DMARC, VBR, SPF, iprev). (CAP)
		3.3	Percent (%) of incoming email traffic analyzed using a reputation filter (to perform threat assessment of sender). (CAP)
		3.4	Percent (%) of incoming email traffic analyzed for detection of clickable URLs, embedded content, and attachments. (CAP)
		3.5	Percent (%) of incoming email traffic analyzed for suspicious or potentially nefarious attachments opened in a sandboxed environment or detonation chamber. (CAP)
		3.6	Percent (%) of outgoing email traffic that enables the recipients to verify the originator using sender authentication protocols (e.g., DKIM, ADSP, DMARC, VBR, SPF, iprev). (CAP)

Source: FISMA Data Agency Level Questions from Cyberscope.

Appendix A - Key Indicators (cont.)

CAP Initiatives	Area	Question No.	Question
Anti-Phishing & Malware Defense	Malware Defense	3.7	Number of GFE endpoints (from 1.2.1.) covered by an intrusion prevention system. (CAP)
		3.8	Number of GFE endpoints (from 1.2.1.) covered by an antivirus (AV) solution using file reputation services, checking files against cloud-hosted, continuously updated malware information. (CAP)
		3.9	Number of GFE endpoints (from 1.2.1.) covered by an anti-exploitation tool (e.g., Microsoft's Enhanced Mitigation Experience Toolkit (EMET) or similar). (CAP)
		3.10	Number of GFE endpoints (from 1.2.1.) protected by a browser-based (e.g., Microsoft SmartScreen Filter, Microsoft Phishing Filter, etc.) or enterprise-based tool to block known phishing websites and IP addresses. (CAP)
		3.11	Number of GFE endpoints and mobile assets (from 1.2.1. and 1.2.2.) authorized for remote access connection to the unclassified network. (Base)
		3.11.1	Number of assets (from 3.11.) scanned for malware prior to an authorized remote access connection to the unclassified network. (CAP)
	Other Defenses (capabilities related to Anti-Phishing & Malware)	3.12	Percent (%) of privileged user network accounts (from 2.5.) that have a technical control limiting access to only trusted sites. (CAP)
		3.13	Percent (%) of inbound network traffic that passes through a web content filter, which provides anti-phishing, anti-malware, and blocking of malicious websites (e.g., fake software updates, fake antivirus offers, and phishing offers). (CAP)
		3.14	Percent (%) of outbound communications traffic checked at the external boundaries to detect encrypted exfiltration of information (i.e. D/A's capability to decrypt/interrogate and re-encrypt). (CAP)
		3.15	Percent (%) of email messages processed by systems that quarantine or otherwise block suspected malicious traffic. (CAP)

Source: FISMA Data Agency Level Questions from Cyberscope.

Acronyms

APMD	Anti-Phishing and Malware Defense
CAP	Cross Agency Priority
CFO	Chief Financial Officer
Commerce	Department of Commerce
DHS	Department of Homeland Security
DOT	Department of Transportation
ED	Department of Education
Energy	Department of Energy
EPA	Environmental Protection Agency
FISMA	Federal Information Security Management Act
FY	Fiscal Year
GSA	General Services Administration
HHS	Department of Health and Human Services
HUD	Department of Housing and Urban Development
ICAM	Identity, Credential, and Access Management
Interior	Department of the Interior
ISCM	Information Security Continuous Monitoring
Justice	Department of Justice
Labor	Department of Labor
NASA	National Aeronautics and Space Administration
NRC	Nuclear Regulatory Commission
NSF	National Science Foundation
OPM	Office of Personnel Management
PIV	Personal Identity Verification
SBA	Small Business Association
SSA	Social Security Administration
State	Department of State
Treasury	Department of the Treasury
USAID	United States Agency for International Development
USDA	Department of Agriculture
VA	Department of Veterans Affairs