Workcred– *The Value of Credentialing to Cybersecurity*

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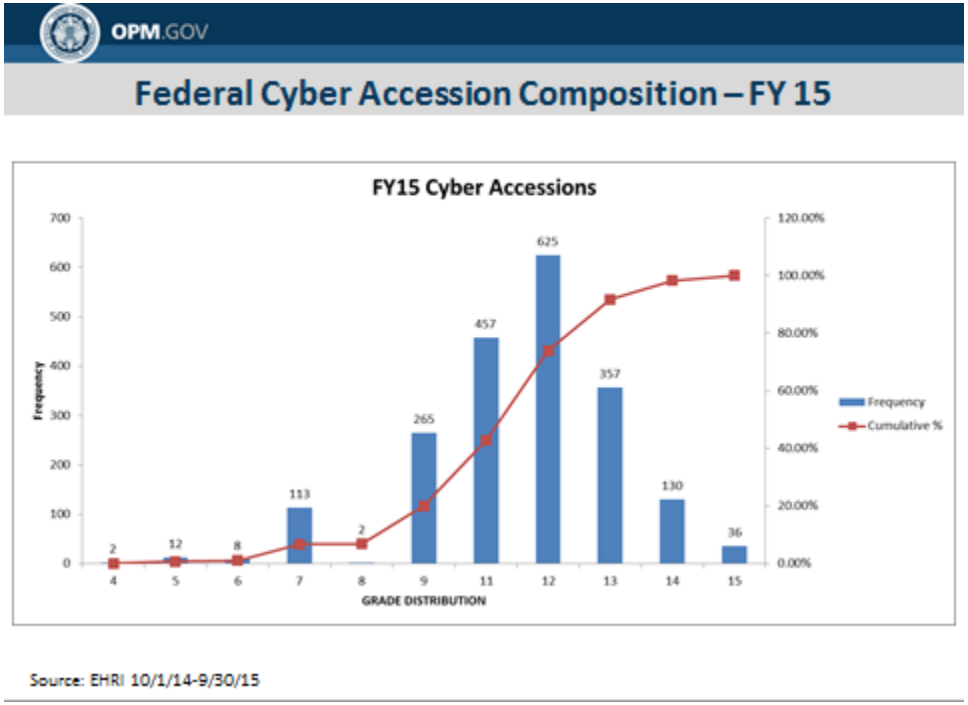
Federal Cybersecurity Workforce



During FY 2015, the Cybersecurity separation rate was nearly 1% higher (17.56% when calculated as a measure of percent change) than the Government-wide and non-Cybersecurity separation rates. Quit, retirement, and termination rates were almost identical, while the Cybersecurity transfer rate is higher than the Government-wide and non-Cybersecurity rate.

During the first five months of FY 2015 (10/2014 – 2/2015), the number of Cybersecurity separations were at least twice the number of Cybersecurity accessions, and in January, there were almost four times as many separations. **Sustained separation ratios like those could cripple the Cybersecurity workforce.**

National Cybersecurity Workforce Framework

7 Categories of the Workforce Framework

*graphic from NICCS™ NATIONAL INITIATIVE FOR CYBERSECURITY CAREERS AND STUDIES

National Cybersecurity Workforce Framework and OPM Codes

Cybersecurity Work Categories and Specialty Areas

- The OPM Data Element codes and the NICE Framework re-define cybersecurity work using 31 Specialty Areas (SA), organized into distinct work Categories.
- Organizations can use these data to identify, build, and customize cybersecurity roles based on mission.

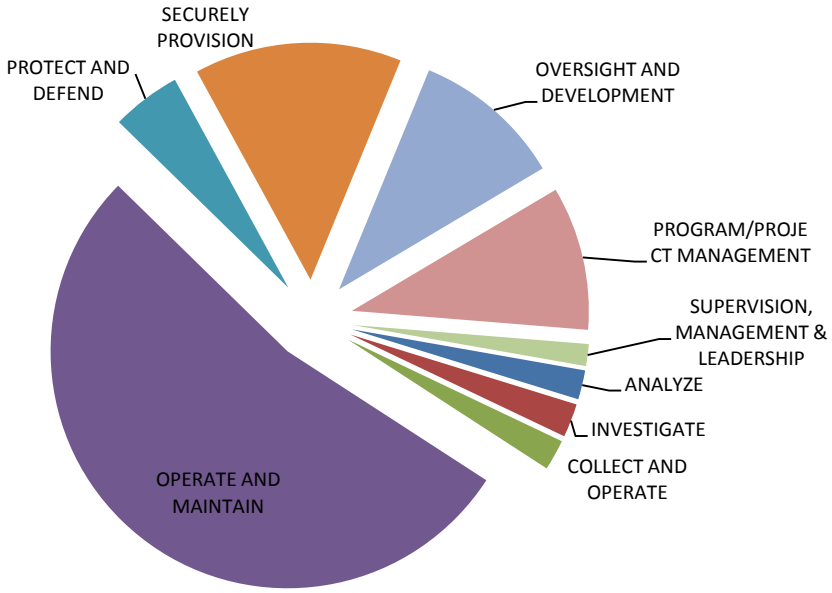
Investigate [20]	Collect and Operate [30]	Analyze [10]	Protect and Defend [50]	Oversight and Development [70]	Operate and Maintain [40]	Securely Provision [60]
	Collection Operations [31]	All Source Intelligence [11]	Vulnerability Assessment and Management [54]	Strategic Planning and Policy [75]	Systems Security Analysis [46]	Test and Evaluation [67]
Digital Forensics [21]	Cyber Operations Planning [33]	Targets [13]	Incident Response [53]	Information Systems Security Operations [72]	Data Administration [42]	Systems Security Architecture [65]
Investigation [22]	Cyber Operations [32]	Exploitation Analysis [12]	CND Incident Response [52]	Security Program Management (CISO) [74]	Knowledge Management [43]	Information Assurance (IA) Compliance [61]
		Cyber Threat Analysis [14]	Computer Network Defense (CND) [51]	Education and Training [71]	Customer Service and Technical Support [41]	Technology Research and Development [66]
				Legal Advice and Advocacy [73]	Network Services [44]	Software Assurance and Security Engineering [62]
					System Administration [45]	Systems Development [63]
						Systems Requirement Planning [64]

[80] Program/Project Management

[90] Supervision, Management and Leadership

[00] Not Applicable

Federal Cybersecurity Workforce



Distribution of Cybersecurity FY 2015 Accessions by Category

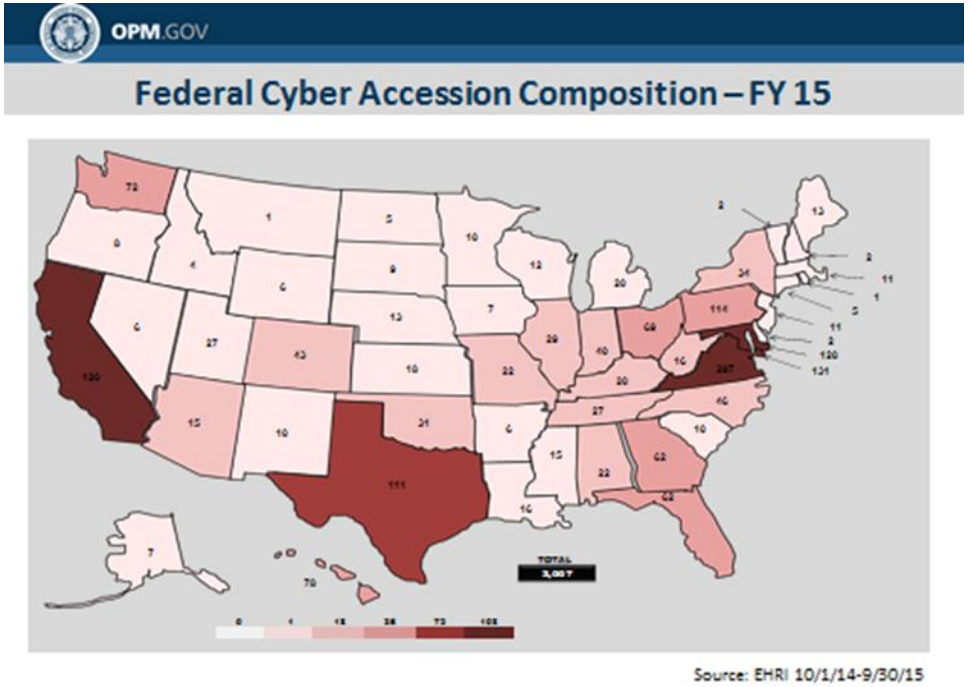
Most of the Cybersecurity workforce functions being performed in the Federal Government are in the "Operate and Maintain" work category. This includes the Cybersecurity work being done by contractors, as well as the Federal Cybersecurity workforce. **Fifty percent** of the Federal Cybersecurity workforce, **53%** of Federal Cybersecurity accessions, and **34%** of all estimated contractor support needed is in the Operate and Maintain category.

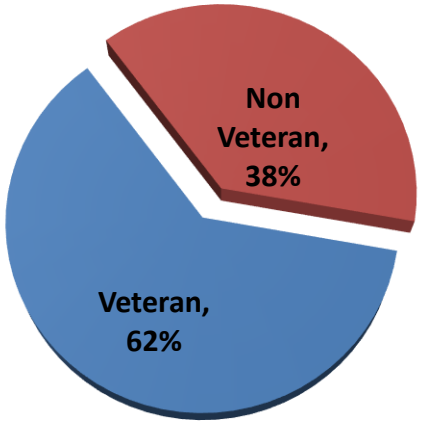
Top 5 Projected Cybersecurity NICE Work Roles

- It is projected that between 2016 -2019 up to 10,000 cyber professionals will be needed to support the anticipated demand

- Customer Service and Technical Support (41);
- System Administration (45);
- Network Services (44);
- Information Systems Security Operations (72); and
- Operate and Maintain (40).

Federal Cybersecurity Workforce





All of FY15, **62%** of the accessions are **Veterans**. (1244 out of 2007)

Source: EHRI 10/1/14-9/30/15

The Federal Cybersecurity workforce is spread out across and outside of the United States, but is most heavily concentrated on the **East Coast (Virginia, Maryland, and the District of Columbia) and in California and Texas.** The Cybersecurity workforce is well represented by Veterans and Federal agencies continue their commitment to hiring from this pool of talent. In FY 2015, **62%** of new hires and transfer ins made to the Cybersecurity workforce were **Veterans**.

Cybersecurity Human Capital Strategy (at a glance)

Make civilian Federal service the destination of choice for Cybersecurity professionals throughout multi-sector careers

Data Analytics

Increase cybersecurity workforce data accuracy and planning capability to effectively conduct workforce planning.

Recruit & Hire

Engage in government-wide and agency-specific efforts to conduct outreach and recruitment for cybersecurity talent.

Talent Pipeline

Work with educational institutions on a cyber curriculum from K-12 through university to significantly increase capacity for government and beyond.

Talent Development & Retention

Promote retention through uniform, high-quality trainings, certifications, badging, and developmental opportunities across the Federal cybersecurity workforce.

Goal 4: Retain and Develop Highly Skilled Talent

Purpose: Establish an enterprise-wide approach to retention and development to support the continued enhancement of the cybersecurity workforce and its infrastructure.

Outcome: Create a network of cybersecurity professionals to facilitate knowledge sharing, identify potential cybersecurity professionals inside the Federal workforce, and promote long-term professional development through informal and formal channels to improve retention efforts and incentivize greater workforce capabilities.

FEDERAL GOVERNMENT CYBERSECURITY PROFESSIONAL CREDENTIALING FRAMEWORK

The Federal Government Cybersecurity Professional Credentialing Framework will promote awareness, recognition, and achievement for the cybersecurity professional, and promote the Federal Government as an employer of choice. Moreover, the government wide framework would provide recognition and reciprocity across agencies. This unique program, that reflects mastery and prestige at elite levels, will contribute to attracting and retaining top talent and foster duty, mission, teamwork, comradery, and professional pride in service to the nation. Modeled after the highly successful examples in the US military, the credentialing of Federal cybersecurity professionals will recognize the most highly qualified subject matter experts in the field with competencies that address the critical needs of the Federal Government, as well as desired expertise in private industry.

What are the possibilities a credentialing program might enable?

- Recruit
  - Aspirational achievement opportunities
  - Financial incentives
  - Unique career possibilities
- Retain
  - Pride
  - Compensation possibilities
  - Career goals and pathways
- Skills Recognition Reciprocity
- Surge Force

The Model Being Considered –
2 Major Dimensions

- **Employee Skill Evolution**
  - Apprentice
  - Journeyperson
  - Expert } *Focus for Credentialing*
- **Training Program Levels**
  - Foundation (Level 1)
  - Role Based/ JourneyPerson (Level 2)
  - Expert } *Focus for Credentialing*
  - Elite

Level 3 (Expert) Training Criteria Concept

- Concentrated practical experience (real world experience) or Simulated experience
- Course work
- Ability and willingness to complete exceptionally challenging training regimen
- 2+ year commitment to service
- Peer reviews as part of criteria to earn badge
- Ability to lead and instruct small teams
- Credential level
- Stipend offered for approved items
- **Federal only credentialing**

Working Concept Only / Deliberative / Pre-Decisional

Level 3 (Expert) Training Requirements for Participation

- Nomination (could be from governance board / competition/simulator score)
- Personality Attribute Testing
- Competency testing
- Extraordinary job performance
- Re-qualify

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Level 4 (Elite) Training Criteria Concept

- Best of the Best generally selected from those with Prestige Badges
- Three years of superior performance and continuous training or mission experience.
- Selected from superior active Prestige Badge corps
- Credential level
- Stipend offered for approved items
- Federal only credentialing

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Level 4 (Elite) Training Requirements for Participation

- Selected from top performing active expert badge holders
- Exceptional performance demonstrated and validated by the Elite organization
- Re-qualify

Working Concept Only / Deliberative / Pre-Decisional

Illustration of the Concept

Levels	Military Recognition	Cyber Illustrations
Elite (Level 4)	Seal Team Six / Delta	Cyber Force 1*
Expert (Level 3)	Navy Seal / Army Ranger	Cyber Investigator*
Journeyperson (Level 2)	Airborne / Air Assault	Cyber Defender*
Apprentice (Level 1)	Marksman	Cyber Warrior*
		CISSP
		Microsoft Certified Solutions Expert (MCSE)

* Illustrative Only

Cybersecurity Credentialing Initiative Summary

- Program targeted to be recognized across the Federal Workspace providing reciprocity skills attainment and credentialing across agencies
- Leverages the NICE framework from NIST
- Provides value in managing and motivating the cyber workforce
- Badging and Credentialing initiative targeted for launch in 2017