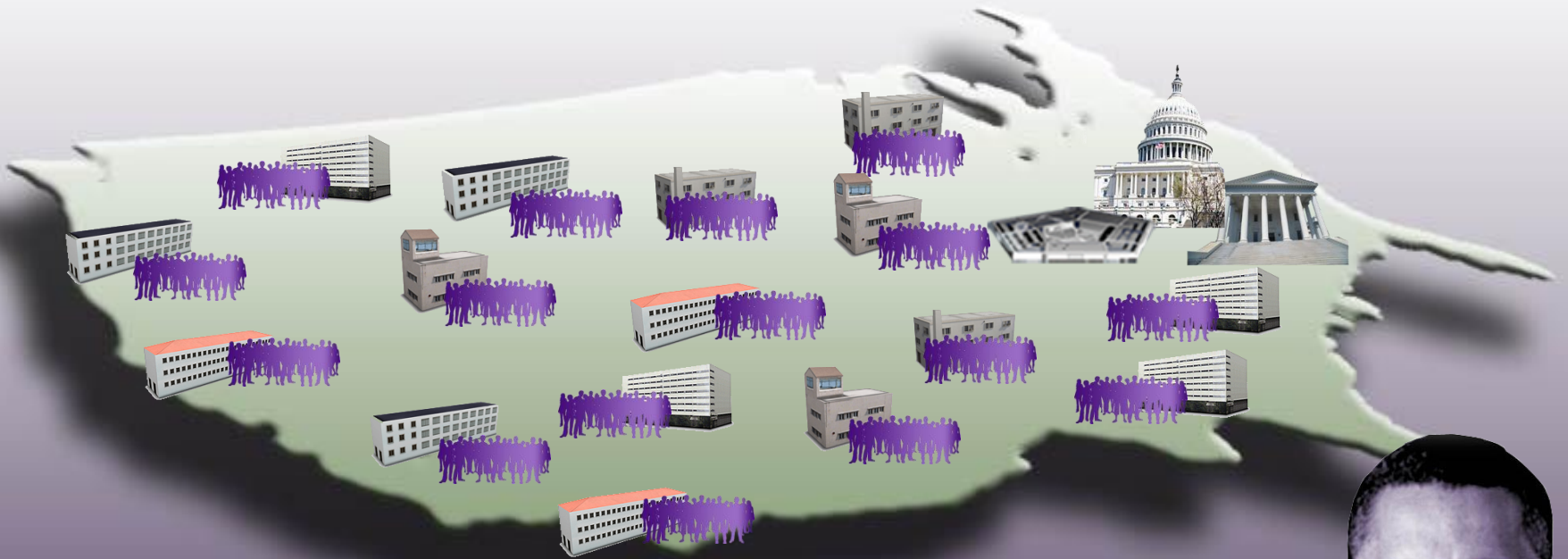# National Initiative for Cybersecurity Education

"…a national campaign to promote cybersecurity awareness and digital literacy from our boardrooms to our classrooms, and to build a digital workforce for the 21st century."

President Barack Obama, 29 May 2009

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Component 4 Mission

In collaboration with the private sector and state, local and tribal partners, Component 4 will establish, provide or otherwise set standards and strategies for national cybersecurity training and professional development.

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NICE Cybersecurity Specialties Framework

The 31 Cybersecurity Specialties:

Securely Provision

- Systems Requirements Planning
- Systems Development
- Software Engineering
- Enterprise Architecture
- Test and Evaluation
- Technology Demonstration
- Information Assurance Compliance

Operate and Maintain

- System Administration
- Network Services
- Systems Security Analysis
- Customer Service and Technical Support
- Data Administration
- Knowledge Management
- Information Systems Security Management

Support

- Legal Advice and Advocacy
- Education and Training
- Strategic Planning and Policy Development

Protect and Defend

- Computer Network Defense Infrastructure Support
- Vulnerability Assessment and Management
- Incident Response
- Computer Network Defense
- Security Program Management

Investigate

- Investigation
- Digital Forensics

Operate and Collect

- Collection Operations
- Cyber Operations Planning
- Cyber Operations

Analyze

- Cyber Threat Analysis
- Exploitation Analysis
- Targets
- All Source Intelligence

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Framework Example

31 Cybersecurity Specialties:

Securely Provision

Systems Requirements Planning
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Framework Definition Example

Specialty	Sample Job Titles
Data Administration - develops and administers databases and/or data management systems that allow for the storage, query, and utilization of data.	-Data warehouse specialist -Database developer -Database administrator -Data architect -Information dissemination manager -Content staging specialist -Data manager -Systems operations personnel

Framework Tasks Example

Data Administration	Task	Analyze and define data requirements and specifications
Data Administration	Task	Analyze and plan for anticipated changes in data capacity requirements
Data Administration	Task	Design and implement database systems
Data Administration	Task	Develop and implement data mining and data warehousing programs
Data Administration	Task	Develop data standards, policies, and procedures
Data Administration	Task	Install and configure database management systems software
Data Administration	Task	Maintain assured message delivery systems
Data Administration	Task	Maintain database management systems software
Data Administration	Task	Maintain directory replication services that enables information to replicate automatically from rear servers to forward units via optimized routing
Data Administration	Task	Maintain information exchanges through publish, subscribe, and alert functions that enable users to send and receive critical information as required
Data Administration	Task	Manage the compilation, cataloging, caching, distribution, and retrieval of data
Data Administration	Task	Monitor and maintain databases to ensure optimal performance
Data Administration	Task	Perform backup and recovery of databases to ensure data integrity
Data Administration	Task	Provide a managed flow of relevant information (via web-based portals or other means) based on a mission requirements
Data Administration	Task	Provide recommendations on new database technologies and architectures

Framework KSAs Example

			Linked to OPM Competency:
Data Administration	KSA	Knowledge of data administration and data standardization policies and standards	Data Management
Data Administration	KSA	Knowledge of data backup and recovery concepts and tool, including different types of backups (e.g., full, incremental)	Computer Forensics
Data Administration	KSA	Knowledge of data mining and data warehousing principles	Data Management
Data Administration	KSA	Knowledge of database management systems, query languages, table relationships, and views	Database Management Systems
Data Administration	KSA	Knowledge of digital rights management	Encryption
Data Administration	KSA	Knowledge of agency LAN/WAN pathways	Infrastructure Design
Data Administration	KSA	Knowledge of enterprise messaging systems and associated software	Enterprise Architecture
Data Administration	KSA	Knowledge of network access and authorization (e.g., public key infrastructure)	Identity Management
Data Administration	KSA	Knowledge of operating systems	Operating Systems
Data Administration	KSA	Knowledge of policy-based and risk adaptive access controls	Identity Management
Data Administration	KSA	Knowledge of query languages such as SQL (structured query language)	Database Management Systems
Data Administration	KSA	Knowledge of sources, characteristics, and uses of the organization's data assets	Data Management
Data Administration	KSA	Knowledge of telecommunications concepts	Telecommunications
Data Administration	KSA	Knowledge of the characteristics of physical and virtual data storage media	Data Management
Data Administration	KSA	Skill in allocating storage capacity in the design of data management systems	Database Administration
Data Administration	KSA	Skill in designing databases	Database Administration
Data Administration	KSA	Skill in developing data dictionaries	Data Management
Data Administration	KSA	Skill in developing data models	Modeling and Simulation
Data Administration	KSA	Skill in developing data repositories	Data Management
Data Administration	KSA	Skill in generating queries and reports	Database Management Systems
Data Administration	KSA	Skill in maintaining databases	Database Management Systems
Data Administration	KSA	Skill in optimizing database performance	Database Administration
Data Administration	KSA	Knowledge of database theory	Data Management

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