NASCIO 2016 MIDYEAR CONFERENCE

Federal Cyber Security Initiatives: Implications for State Governments (and State Contractors)

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Subjects

- Introduction & Overview
- What is to be protected: The CUI Rule
- What safeguards to employ: NIST SP 800-171
- Application to State and Local Governments
- Implications for SLED Contractors
- Parallel Measures of Sensitive State Information
- Getting a “Head Start”

Introduction & Overview

Protection of Information & Information Systems

"Many federal contractors, for example, routinely process, store, and transmit sensitive federal information in their information systems to support the delivery of essential products and services to federal agencies (e.g., providing credit card and other financial services; providing Web and electronic mail services; conducting background investigations for security clearances; processing healthcare data; providing cloud services; and developing communications, satellite, and weapons systems). **Additionally, federal information is frequently provided to or shared with entities such as State and local governments, colleges and universities, and independent research organizations."**

NIST SP 800-171 (Final), at 1-1.

The “Vector” from Federal to SLED

- The federal government is expected to issue soon a Final Rule on designation and safeguarding “Controlled Unclassified Information” (CUI).
- New cyber safeguards (NIST SP 800-171) were issued in 2015 to protect CUI in non-federal information systems.
- In development is a “General FAR Rule” to obligate all federal agencies to require cyber protection of CUI, per SP 800-171, in all contracts and agreements.
- As SLED entities execute federal agreements subject to these requirements, they (and their contractors) will be obligated to protect CUI in accordance with SP 800-171.
- Federal rulemaking will proceed in 2016-17.

Federal Information to be Protected

Executive Order 13556 makes the National Archives and Records Administration (**NARA**) responsible to determine what types of federal information require dissemination controls and protection. The focus is upon "Controlled Unclassified Information" or "**CUI**."

- **CUI** is federal information that requires protection pursuant to "laws, regulations, and Governmentwide policies."
- **Many forms of CUI are provided to or used by state and local governments, and educational institutions ("SLED").** Areas =
  - Agriculture, Critical Infrastructure, Emergency Management, Financial, Geodetic, Immigration, Legal, Patent, Privacy, Proprietary Business, SAFETY Act, Statistical (Census), Tax, Transportation

The CUI initiative first will determine what unclassified information requires safeguards and then will use acquisition tools to impose safeguards on non-federal CUI recipients.

Objective(s) of CUI Protection

Federal law requires protection of federal information and information systems. FISMA (P.L. 113-283) requires agencies to-

> "provide information security protections commensurate with the risk and the magnitude of the harm resulting from the unauthorized access, use, disclosure, disruption, modification or destruction of
>
> (A) information collected by or on behalf of an agency; or
>
> (B) information systems used or operated by an agency or by a contractor of an agency or other organization on behalf of an agency"

- Federal agencies are obligated to assess impact of security breach on Confidentiality, Integrity & Availability (FIPS-199).
- Threats to federal information include exfiltration, exploitation, unauthorized use, theft, improper access – e.g., **OPM breach.**
- When CUI is used outside federal information systems, the chief concern is protection of its **confidentiality**.

Safeguarding CUI – The Basic Policy

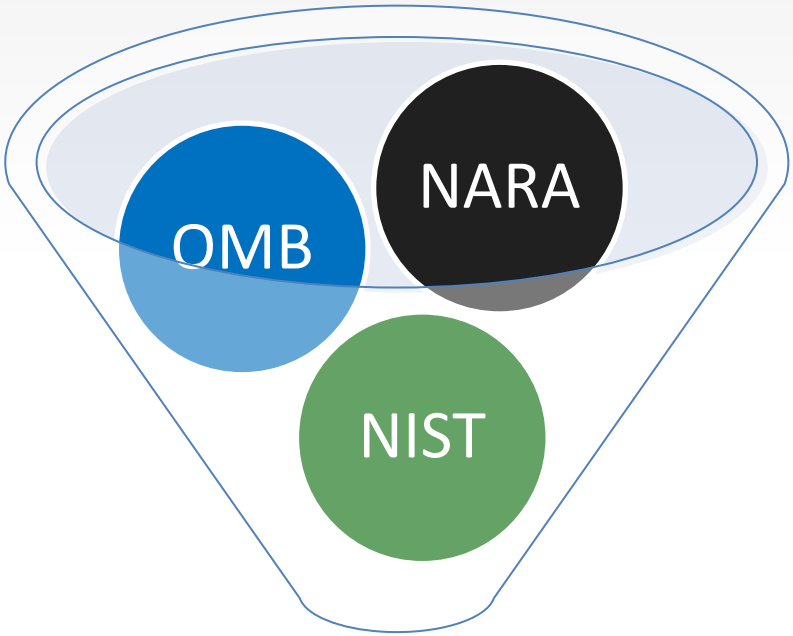
- Policy:

> "Agencies must safeguard CUI at all times in a manner that minimizes the risk of unauthorized disclosure while allowing for access by authorized holders."

Proposed Rule, "Controlled Unclassified Information," 32 CFR § 2002.12(a), 80 Fed. Reg. 26506

- Safeguards include both physical and cyber protection
  - Cyber includes both information and information systems
    - FISMA dictates that federal agencies protect confidentiality, availability and integrity, in accordance with FIPS-199, and utilize the seventeen families of controls in FIPS-200.
    - These standards apply to CUI on *federal information systems*, i.e., those operated by the or "on behalf of" the federal government.
    - NIST **SP 800-53r4** is relied upon by federal agencies to protect CUI; level and nature of controls vary with the "impact" associated with potential breach.
  - The Final CUI Rule will apply the new NIST SP 800-171 to CUI on non-federal information systems – e.g., at contractors and SLED entities.
  - SP 800-171 employs 14 of the 17 control families of FIPS-200 but states many fewer controls and is much less demanding and prescriptive than SP 800-53.

Federal Roles & Missions & the Path to States



Federal Responsibilities:

NARA: to define and categorize the varieties of "CUI" and establish workable guidelines & mechanisms

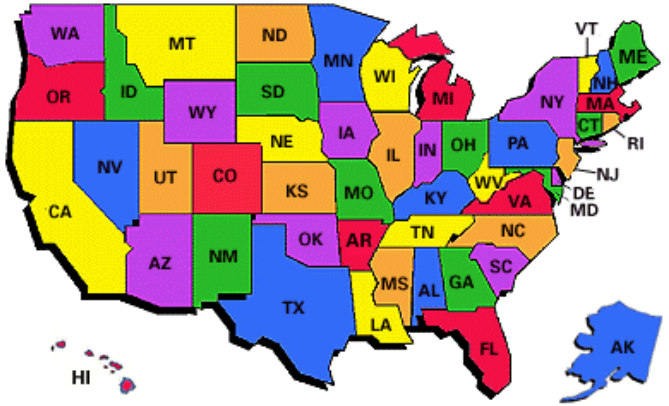
OMB ("8(e)" JWG): to decide on the mix of acquisition methods and contract tools

NIST: to identify required security controls and practices for adoption

Agencies: to evaluate cost/benefit, tailor, specify reporting, require monitoring, administer and oversee

ACQUISITION METHODS
SOLICITATION REQUIREMENTS
CONTRACT TERMS & CONDITIONS

Agencies



SLED recipients of CUI will become subject to federal cyber obligations as these are imposed by contract or agreement term.

The 3-Part Federal Initiative to Safeguard CUI

There are three elements to the federal CUI initiative:

① NARA's CUI Rule, establishing categories of CUI, responsibilities for designation, dissemination controls and required cyber security measures (NIST SP 800-171 for CUI on non-federal information systems) **Final Rule: Soon**

② NIST's SP 800-171, establishing cyber safeguards expected of commercial companies and other non-federal actors who host, use or transmit CUI **Done**

③ Acquisition Measures, effected by regulation, implemented through solicitation requirements and contract clauses, to obligate recipients to protect CUI, e.g.,

- *DoD's "Unclassified Controlled Technical Information" DFARS (Nov. 2013)* **Superseded**
- *DoD's Interim Rule, "Network Penetration Reporting and Contracting for Cloud Services" (Aug. 2015, revised Dec. 2015)* – protects four categories of CUI termed "Covered Defense Information" (CDI) **Applies now to DoD contracts**
- *NARA is readying the "General FAR Rule" to apply to all federal acquisitions and agreements; expect start of "notice-and-comment" rulemaking in 2016 with a one-year cycle before Final Rule promulgation.* **Coming**

Applicability to SLEDs (how, when, why)

Today:

State and Local governments are not now subject to CUI safeguard requirements *unless* they receive DoD "Covered Defense Information" under a contract or other agreement subject to the new 'Network Penetration' DFARS.

Why?

FISMA imposes on the federal government a legal duty to protect information and provide information security regardless of whether that information is employed on a federal information system or by non-federal actors such as state and local governments, their contractors, educational institutions or otherwise.

So?

SLEDs should identify present receipt and use of CUI, assess their information systems for conformance with SP 800-171, and plan parallel measures for contracts to assure necessary protection. SLEDs can expect a transition period to allow for implementation.

Now?

All DoD contracts and subcontracts now require the DFARS 'Network Penetration' clause that obligates holders of "Covered Defense Information" to provide cyber protection per NIST SP 800-171 and to report to DoD cyber incidents. Some educational institutions (and perhaps states) will receive contracts from DoD (or DoD primes) subject to these obligations.

Soon:

When NARA completes the CUI Rule and the "General FAR Rule is promulgated, State and Local governments will enter into agreements with the federal government that include SP 800-171 minimum cyber safeguard requirements applicable to *all* categories of CUI they receive pursuant to such agreements.

Categories of Controlled Unclassified Information

- NARA Proposed Rule: "Controlled Unclassified Information"), 32 CFR Part 2002, 80 Fed. Reg. 26501 (May 8, 2015)

- NARA's CUI "Registry," https://www.archives.gov/cui/registry/category-list.html, identified 23 Categories and 82 Subcategories of CUI

Who has access to CUI?

Federal contractors
State & Local governments
State & Local contractors
Tribal governments
Colleges & Universities
Interstate Organizations
NGOs
Foreign governments

Agriculture	**Controlled Technical Information**	**Critical Infrastructure (7 sub)**	**Emergency Management**	**Export Control (1 sub)**
Financial (8 sub)	**Foreign Government Information**	**Geodetic Product Information**	**Immigration (7 sub)**	**Information Systems Vulnerability**
Intelligence (5 sub)	**Law Enforcement (15 sub)**	**Legal (11 sub)**	**NATO (2 sub)**	**Nuclear (5 sub)**
Patent (3 sub)	**Privacy (8 sub)**	**Procurement & Acquisition (2 sub)**	**Proprietary Business (3 sub)**	**SAFETY Act Information**
Statistical (3 sub)	**Tax (1 sub)**	**Transportation (2 sub)**	"CUI categories and subcategories are those types of information for which ***laws, regulations, or Government-wide policies*** requires safeguarding or dissemination controls". Proposed 32 C.F.R. § 2002.2 (Definitions)	

NARA estimates that 300,000 contractors & grantees hold Controlled Unclassified Information

Example:
Health Information in the CUI Registry

CUI Registry

Privacy-Health Information

Category-Subcategory Practices

Category-Subcategory:	**Privacy-Health Information**
Category Description:	Refers to personal information, or, in some cases, "personally identifiable information," as defined in OMB M-07-16, or "means of identification" as defined in 18 USC 1028(d)(7).
Subcategory Description:	As per 42 USC 1320d(4), "health information" means any information, whether oral or recorded in any form or medium, that (A) is created or received by a health care provider, health plan, public health authority, employer, life insurer, school or university, or health care clearinghouse; and (B) relates to the past, present, or future physical or mental health or condition of an individual, the provision of health care to an individual, or the past, present, or future payment for the provision of health care to an individual.
Marking:	PLACEHOLDER
Abbreviated Marking:	PLACEHOLDER
Marking and Handling Instructions:	Safeguarding, Marking, Dissemination and/or Decontrol measures that differ from General Guidelines are required by statute, regulation, or government-wide policy. Reference individual Safeguarding and Dissemination authorities for control citations, including specific handling practices, if applicable.

Select Safeguarding/Dissemination or Sanction Authority to view statutory/regulatory language in a new window.
Authority links are updated based on regular re-publication of the United States Code and Code of Federal Regulations.

Safeguarding and/or Dissemination Authority An asterisk (*) indicates that the authority defines specific handling practices	Sanctions
18 USC 3486(e)*	
18 USC 4247(e)	
42 USC 242m(d)	
38 USC 7332(a)	38 USC 5705
38 USC 5705	38 USC 5705
42 USC 12112(d)	42 USC 12188
42 USC 1320d-2(d)(2)*	42 USC 1320d-5 42 USC 1320d-6(b)
42 USC 1320d-2 note(b)(Public Law 104-191, Section 264)	42 USC 1320d-5 42 USC 1320d-6(b)
42 USC 15044(c)	
42 USC 290dd-2(a)	42 USC 290dd-2(f)
20 CFR 401.200(g)*	20 CFR 401.200(h)
29 CFR 1630.14(b)(1)*	
42 CFR 2.1(a)	42 CFR 2.1(f)
42 CFR 2.12(a)	42 CFR 2.1(f)
42 CFR 2.13(c)	42 CFR 2.1(f)
42 CFR 2.16(a)*	42 CFR 2.1(f)
42 CFR 2.2(a)	42 CFR 2.2(f)
42 CFR 2.21(b)	42 CFR 2.2(f)
45 CFR 164.306(a)	
45 CFR 164.310(a)(1)	
45 CFR 164.502(a)	
45 CFR 164.508(a)	
45 CFR 164.530(c)	45 CFR 164.530(e)

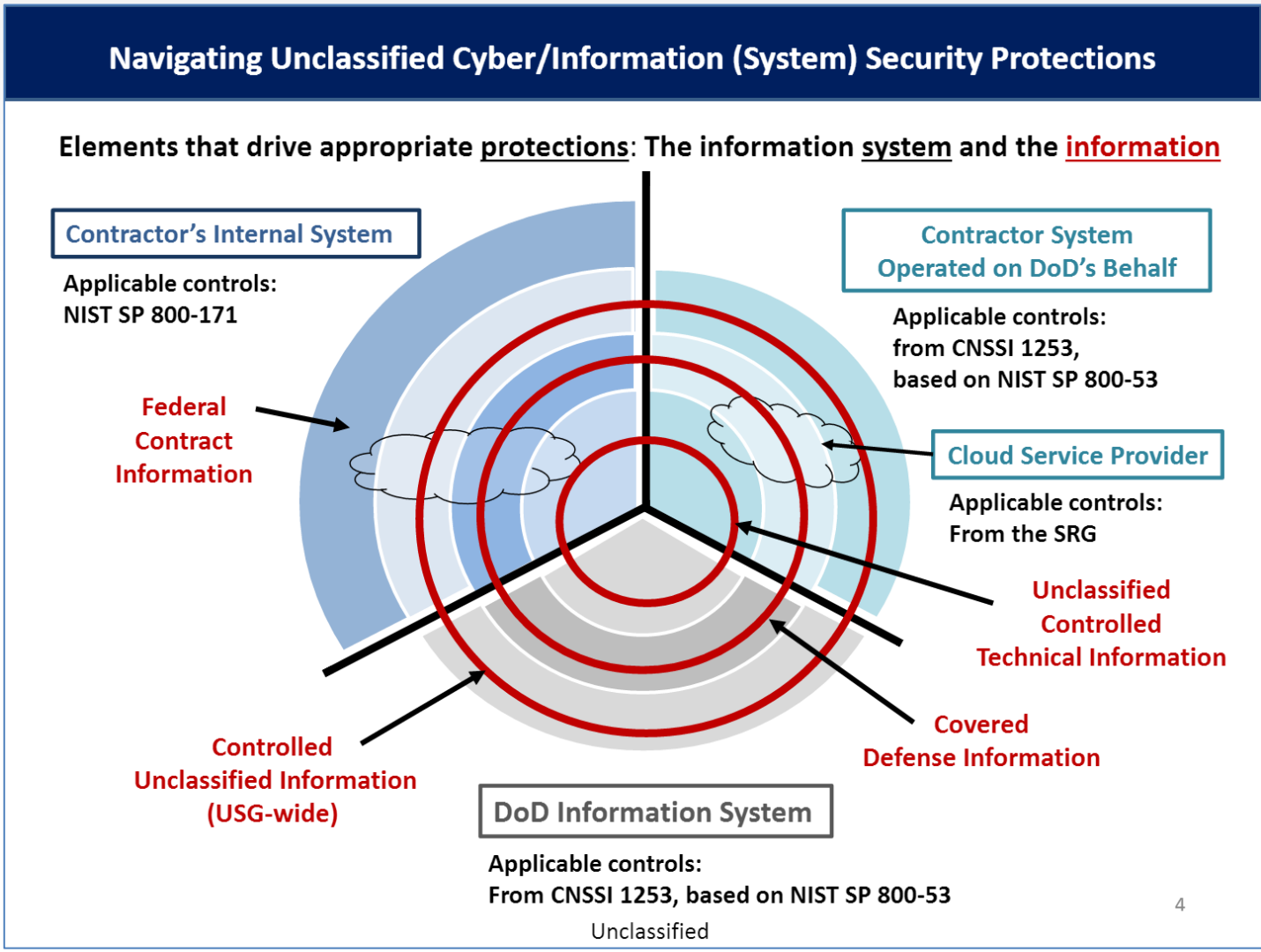
PDF files require the free Adobe Reader.

Three Information System Domains

DoD, "Navigating Unclassified Cyber/Information Security Protections, Network Penetration Reporting and Contracting for Cloud Services," Dec. 17, 2015, available at http://www.cogr.edu/COGR/files/ccLibraryFiles/Filename/000000000292/Navigating%20Unclassified%20Information%20System%20Security%20Protections%20(slides%20for%20COGR)Thursafternoon.pdf

States also deal with three information system domains: State-Operated Systems (e.g., Data Centers), State Systems operated by Contractors "on behalf of" the State, and Contractor Internal Systems that host or use State Data.

Cloud systems present distinct security (and legal) issues vs. on-premises systems – but cloud adoption will rise due to economies and functionality.



NIST SP 800-171: 14 "Families," 109 Controls

SP 800-171 describes 30 "basic" and 79 "derived" security requirements. The "basic" requirements track to control families in FIPS-200. The "derived" requirements reflect principles present in NIST 800-53 rev4.

Access Control (2/20)	Awareness & Training (2/1)	Audit & Accountability (2/7)	Configuration Management (2/7)	Identification & Authentication (2/9)
Incident Response (2/1)	Maintenance (2/4)	Media Protection (3/6)	Personnel Security (2/0)	Physical Protection (2/4)
Risk Assessment (1/2)	Security Assessment (3/0)	Systems & Comm Protection (2/14)	System & Information Integrity (3/4)	

SP 800-171 does not require submission of a Security Plan and has no mechanism for authorization, accreditation or for government review or approval. Essentially, 800-171 relies on self-assessment and self-attestation. Cyber breaches will require reporting and federal inquiry could follow events.

NIST Safeguards – and SLEDs

- The Federal government will expect states to protect CUI through safeguards reflecting SP 800-171 .
- The security "requirements" of SP 800-171 are in the nature of "performance objectives" – not instructions, and not "prescriptive."
- NIST (and NARA) specifically recognize that there are multiple sources and standards other than "federal." Systems built on other control strategies can satisfy -171 through many methods.
- States may elect to utilize the more rigorous SP 800-53 controls to protect critical state information on systems operated by or "on behalf of the state or local government.
- Systems that satisfy SP 800-53 will exceed SP 800-171 requirements.
- Protection of CUI by use of third party cloud providers is expected but the applicable federal safeguards are a "work in progress."

A Comparative Example

NIST SP 800-171
3.6 Incident Response

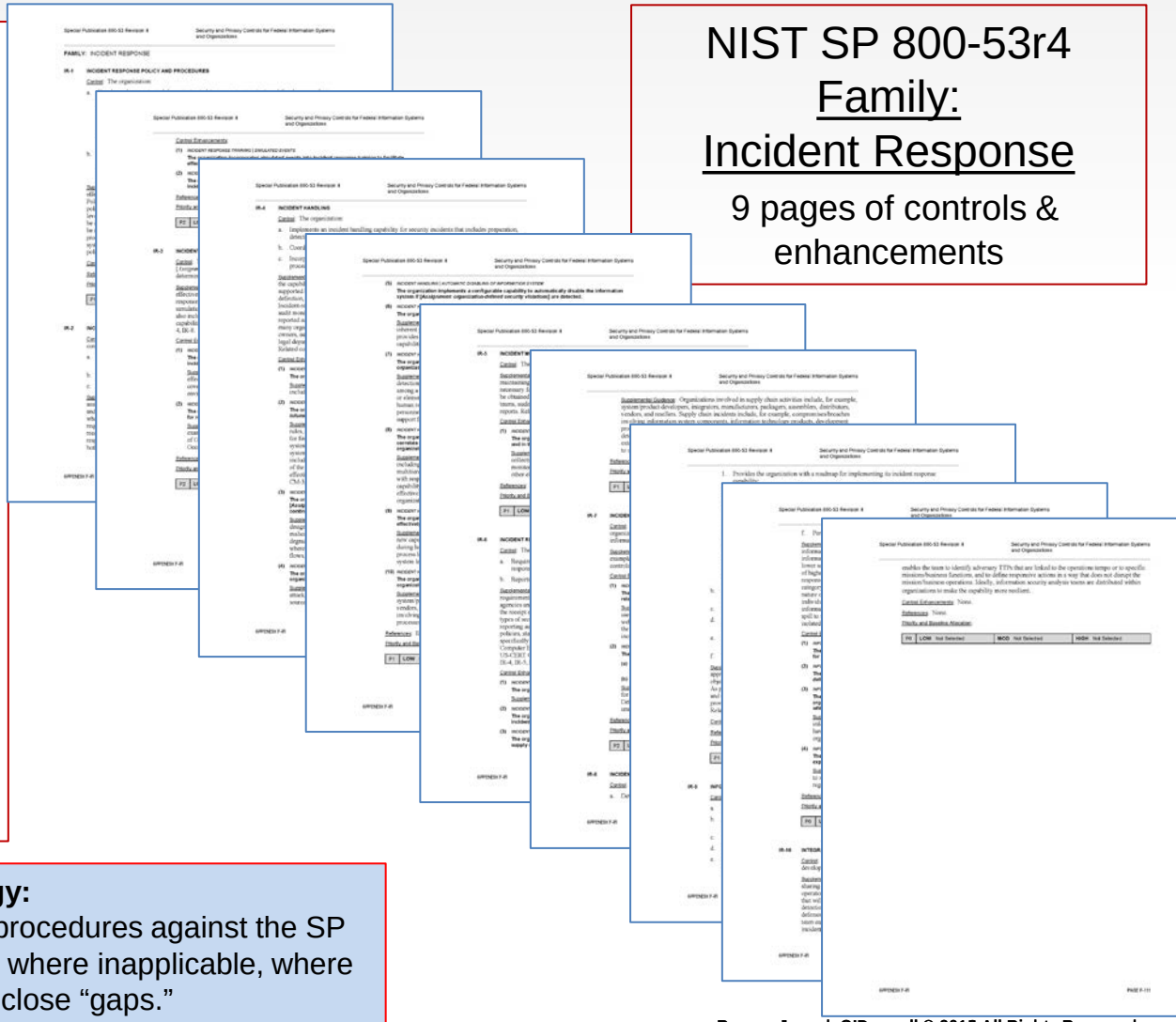
Basic Security Requirement

3.6.1 Establish an operational incident-handling capability for organizational information systems that includes adequate preparation, detection, analysis, containment, recovery, and user response activities.

3.6.2. Track, document, and report incidents to appropriate officials and/or authorities both internal and external to the organization.

Derived Security Requirements

3.6.3 Test the organizational incident response capability.



NIST SP 800-53r4
Family:
Incident Response

9 pages of controls & enhancements

Response Strategy:
Assess existing systems, safeguards and procedures against the SP 800-171 "families" to determine where met, where inapplicable, where not – and to develop plans to close "gaps."

Potential Parallel Measures of State and Local Governments

Protection of "State Sensitive Information"?

- Premise:
  - Sensitive State (or Local) information ("SSI") merits protection for the same reasons as CUI.
  - State and Local Governments (SLGs) already seek security for information and assurance for information systems they operate or are operated by contractors on their behalf.
  - SLGs may seek to improve confidence that contractors or others, who receive "SSI" or use SSI to provide a service or perform a function, take measures to protect SSI confidentiality.
- Assumptions:
  - Public and private sector stakeholders have an interest in consistency and coherence in *what* is controlled and the *safeguards* employed.
  - Proliferation of safeguard "regimes" and conflicting obligations (even if similarly intended) would be costly, frustrating and potentially chaotic.
  - Most SSI users and recipients already have information systems security measures in place.
- Recommendations:
  - SLGs should follow the lead and learn from the federal government as it executes its CUI plan.
  - For third party access to SSI (and CUI when received from SLGs), cyber safeguards should converge on SP 800-171 as the "norm" but allow for variations.
  - SLGs should avoid disproportionate or unrealistic obligation and risk-shifting.
  - Time will be needed for private sector participants to conform. Cloud should be encouraged.

About the Presenter

This presentation reflects Mr. Metzger's personal views and should not be attributed to any client of his firm or organization with which he is involved or affiliated.

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Recently named a 2016 "Federal 100" awardee, Federal Computer Week said of Bob: "In 2015, he was at the forefront of the convergence of the supply chain and cybersecurity, and his work continues to influence the strategies of federal entities and companies alike."

Bob is a member of the Defense Science Board Cyber/Supply Chain Task Force. He also is Vice-Chair of the Cyber/Supply Chain Assurance Committee of the IT Alliance for Public Sector (ITAPS), a unit of the Information Technology Industry Council (ITIC), a prominent trade association.

Bob received his B.A. from Middlebury College and his J.D. from Georgetown University Law Center, where he was an Editor of the Georgetown Law Journal. He was a Research Fellow, Center for Science & International Affairs (now "Belfer Center"), Harvard Kennedy School of Government. Bob is a member of the International Institute for Strategic Studies (IISS), London. Academic publications on national security topics include articles in *International Security* and the *Journal of Strategic Studies*.

Taxonomy

- **CUI**: Controlled Unclassified Information
- **DFARS**: Defense Federal Acquisition Regulation Supplement
- **FAR**: Federal Acquisition Regulation
- **FIPS**: Federal Information Processing Standards
- **FISMA**: Federal Information Systems Modernization Act
- **GSA**: General Services Administration
- **NARA**: National Archives & Records Administration
- **NIST**: National Institute of Standards & Technology
- **OMB**: Office of Management and Budget
- **OPM**: Office of Personnel Management