



DoD Software Assurance

Kristen Baldwin

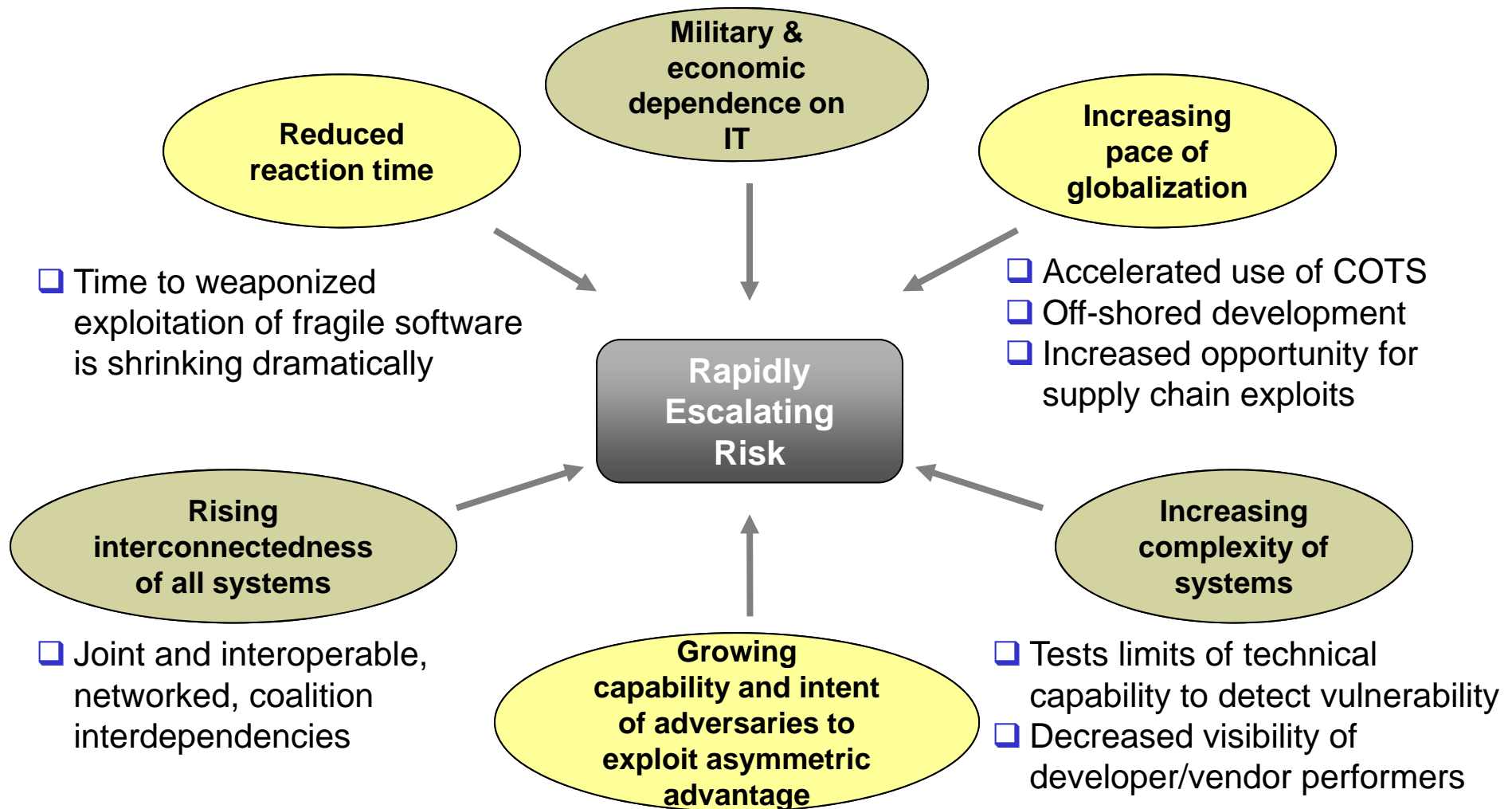
Principal Deputy

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Rationale for Software Assurance (SwA)



DoD is dependent on the integrity of supply chain, software/hardware/IT



DoD SW Assurance Definition



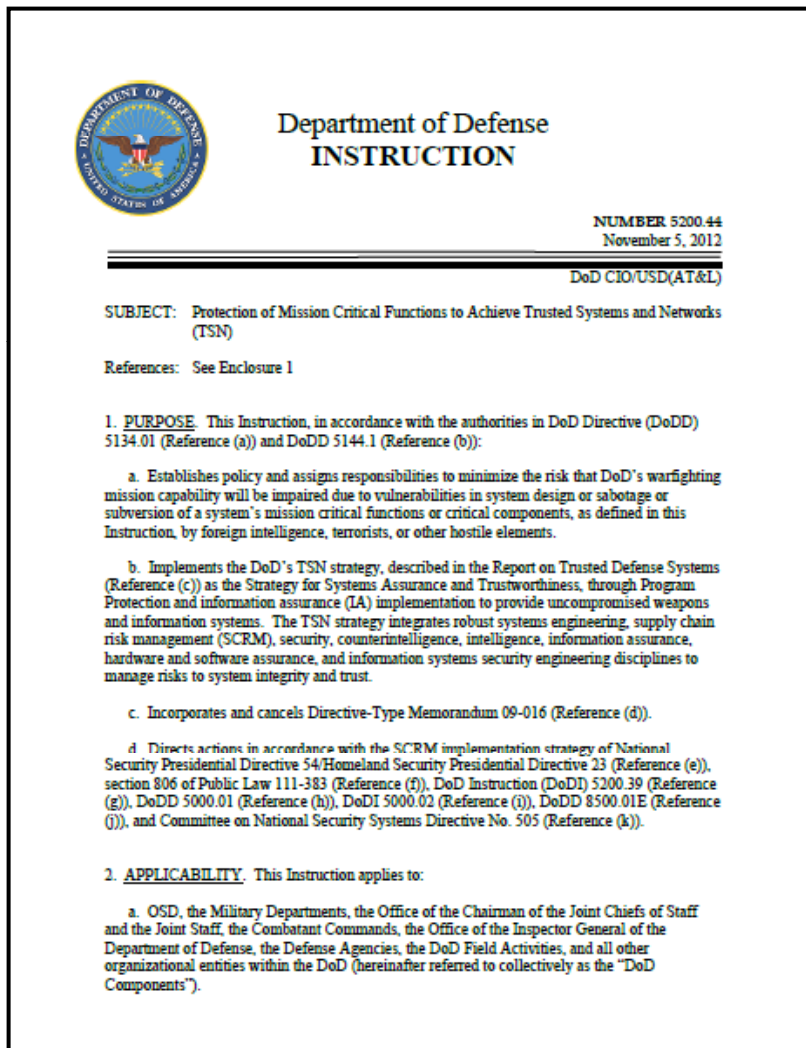
The level of confidence that SW functions as intended and is free of vulnerabilities, either intentionally or unintentionally designed or inserted as part of the software throughout the life cycle.

Source:

***DoDI 5200.44 Protection of Mission Critical Functions to Achieve Trusted Systems and Networks (TSN), and
2013 NDAA S933***



Nov 2012: DoDI 5200.44 Trusted Systems and Networks



- Implements the DoD's Trusted Systems and Networks (TSN) strategy
- Manage risk of mission-critical function and component compromise throughout lifecycle of key systems by utilizing
 - Criticality Analysis as the systems engineering process for risk identification
 - Countermeasures: Supply chain risk management, **software assurance**, secure design patterns
 - Intelligence analysis to inform program management
- Codify trusted supplier requirement for DoD-unique application-specific integrated circuits (ASICs)



FY13 NDAA Section 933



14 SEC. 933. IMPROVEMENTS IN ASSURANCE OF COMPUTER
15 SOFTWARE PROCURED BY THE DEPARTMENT
16 OF DEFENSE.

17 (a) BASELINE SOFTWARE ASSURANCE POLICY.—The
18 Under Secretary of Defense for Acquisition, Technology,
19 and Logistics, in coordination with the Chief Information
20 Officer of the Department of Defense, shall develop and
21 implement a baseline software assurance policy for the en-
22 tire lifecycle of covered systems. Such policy shall be in-
23 cluded as part of the strategy for trusted defense systems
24 of the Department of Defense.

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1 (b) POLICY ELEMENTS.—The baseline software as-
2 surance policy under subsection (a) shall—

3 (1) require use of appropriate automated vul-
4 nerability analysis tools in computer software code
5 during the entire lifecycle of a covered system, in-
6 cluding during development, operational testing, op-
7 erations and sustainment phases, and retirement;

8 (2) require covered systems to identify and
9 prioritize security vulnerabilities and, based on risk,
10 determine appropriate remediation strategies for
11 such security vulnerabilities;

12 (3) ensure such remediation strategies are
13 translated into contract requirements and evaluated
14 during source selection;

15 (4) promote best practices and standards to
16 achieve software security, assurance, and quality;
17 and

FY13 NDAA SEC. 933: IMPROVEMENTS IN ASSURANCE OF COMPUTER SOFTWARE PROCURED BY THE DEPARTMENT OF DEFENSE

- USD(AT&L), in coordination with the DoD CIO... “shall develop and implement a baseline software assurance policy for the entire lifecycle of covered systems. Such policy shall be included as part of the strategy for trusted defense systems of the Department of Defense.”
- ... “(1) require use of automated vulnerability analysis tools during the entire life cycle of a covered system...”
- ...“(2) require covered systems to identify and prioritize security vulnerabilities and, based on risk, determine appropriate remediation strategies for such security vulnerabilities;”

NDAA: National Defense Authorization Act <http://www.gpo.gov/fdsys/pkg/BILLS-112hr4310enr/pdf/BILLS-112hr4310enr.pdf>



DoD SwA Actions



- **Compliance**
 - NDAA Compliance (2011: S932, 2013: S933)
- **Policy and guidance**
 - Implemented DoDI 5200.44 SwA language
 - Updating DAG Ch. 13 Program Protection Planning Guide
 - Crafting DoDI 5000.02 updates for SwA
- **Implementation**
 - Engaging Programs of Record through Program Protection Planning
 - Tutorials for programs, engineering centers, industry
- **DoD SwA Community of Practice (CoP)**
 - Government SwA Core Group (AT&L, CIO, NSA, Services, Agencies) provides operational direction
 - SwA CoP established. Quarterly meetings and ongoing working groups.



SwA Implementation Progress



Implementation Mechanisms

- **Support to programs**

- Provide SwA tutorials to the community
- Program mentoring for SwA as part of Program Protection Plan (PPP) reviews

- **PPP review and approval**

- All PPPs reviewed in accordance with PPP Outline & Guidance (est. July 2011)
- 22 PPPs approved FY12 and FY13
- Upward trend in SwA content

PPP Reviews	MS A	MS B	MS C	FRP	Total Approved
FY12	0	2	0	3	5
FY13	1	4	4	8	17
Totals	1	6	4	11	22



DoD Software Assurance Community of Practice (CoP)



- **Membership**
 - OSD, NSA, Services, Agencies, COCOMs
- **3 Ongoing Workgroups**
 - Contract Language, including contractor liability for SW defects and vulnerabilities
 - Enterprise Coordination and Collaboration (SwA Security Classification Guide, Intelink portal)
 - Workforce Education & Training; ongoing survey and availability of needed and emerging SwA-related skills
- **Workgroups being organized**
 - SwA Metrics
 - How to assess implementation of DoD SwA policy
 - How to assess program implementation of DoD SwA policy over life cycle
 - SwA in Testing
 - DT&E, OT&E
 - Facilities, tools, methodologies



FY14 DoD SwA Interest Areas



- **Operationalize SwA-related policy**
 - Engage programs, software centers
 - Measure progress and effectiveness – define metrics
 - Adaptive to threats, attack patterns
- **Promulgate tools, practices**
 - Promote best practice, tools, standards
 - Establish software assurance analysis support capability
- **Workforce, training and education**
 - SwA course content updates, new SwA courses
 - SwA competencies
- **Explore business model to capitalize on commercial interests, capabilities**