Establishing the Demand Signal for Good Software Assurance (SwA)

Carol Woody, Ph.D.

Principal Researcher

Software Engineering Institute

January 23, 2024



Copyright 2024 Carnegie Mellon University.

The view, opinions, and/or findings contained in this material are those of the author(s) and should not be construed as an official Government position, policy, or decision, unless designated by other documentation.

NO WARRANTY. THIS CARNEGIE MELLON UNIVERSITY AND SOFTWARE ENGINEERING INSTITUTE MATERIAL IS FURNISHED ON AN "AS-IS" BASIS. CARNEGIE MELLON UNIVERSITY MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER INCLUDING, BUT NOT LIMITED TO, WARRANTY OF FITNESS FOR PURPOSE OR MERCHANTABILITY, EXCLUSIVITY, OR RESULTS OBTAINED FROM USE OF THE MATERIAL. CARNEGIE MELLON UNIVERSITY DOES NOT MAKE ANY WARRANTY OF ANY KIND WITH RESPECT TO FREEDOM FROM PATENT, TRADEMARK, OR COPYRIGHT INFRINGEMENT.

[DISTRIBUTION STATEMENT A] This material has been approved for public release and unlimited distribution. Please see Copyright notice for non-US Government use and distribution.

This material may be reproduced in its entirety, without modification, and freely distributed in written or electronic form without requesting formal permission. Permission is required for any other use. Requests for permission should be directed to the Software Engineering Institute at permission@sei.cmu.edu.

Carnegie Mellon® is registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.

DM24-0065

### **About this Panel**

### **GOAL**

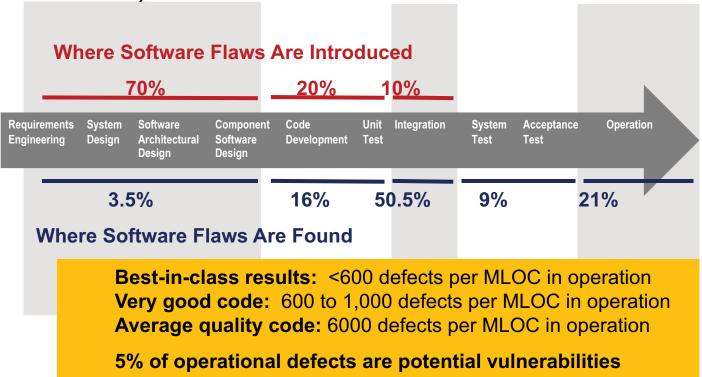
Instead of reacting to attacks and vulnerabilities, acquisition and development should build better technology with fewer potential vulnerabilities in the first place:

Software Assurance: Establish confidence that software is free from vulnerabilities, either intentionally designed into the software or accidentally inserted at anytime during its lifecycle, and that the software functions in the intended manner. [CNSS Instruction No. 4009]

Software Assurance: The level of confidence that software functions as intended and is free of vulnerabilities, either intentionally or unintentionally designed or inserted as part of the software throughout the lifecycle.[DoDi 5200.44]

Panel participants have demonstrated expertise in aspects of delivering better results and are here to share their experiences and lessons learned.

Research Shows All Software Has Defects (and Potential Vulnerabilities)



Sources: Critical Code; NIST, NASA, INCOSE, and Aircraft Industry Studies

## **Panel Participants**

### **Software Engineers:**

- Michael Murrah, Ph.D., Software Engineer at Missile Defense Agency (MDA)
- John J. Keane Jr., The Software Angel of Death
- David Brown, founder & CEO of Purposeful Cloud

#### **Educators:**

- Carol Lee, Director and Chief of the Center for Assured Software, NSA
- Tom Hurt, Professor, Information Technology (Cybersecurity) DAU Cybersecurity Learning Team
- Rita Creel, Adjunct Professor, George Mason University and Director, Software Architecture & Engineering, The Aerospace Corporation

# Instructions for Each Speaker (10 minutes per panelist)

Describe your experience in delivering good software assurance capabilities

Provide your input to the following:

- What has been your motivation for addressing the SwA challenge?
- If you were starting your career planning today, what would you want to learn about software assurance (SwA) to position you to be an exceptional job candidate?
- Where would you want to be able to learn this (school, OJT, online, ChatGPT)?
- What practices and environments do workplaces need for these educated workers to have an impact?
- How might you evaluate job candidates for this capability?

## Wrap-Up – Audience Input

Based on the discussion, what resources/education are needed to ensure you and your people can address SwA?

Any other thoughts or ideas about preparing for good software assurance?