We Need Another Grace Hopper

Presented to FISSEA

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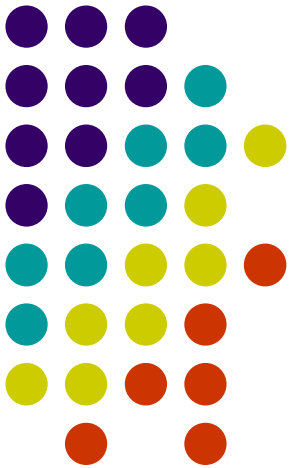

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John Ippolito, CISSP

John Ippolito has more than thirty years of Information Technology experience with a focus on security. From his initial position with the General Accounting Office to his current position with Allied Technology, he has been involved with the development of security best practices, auditing techniques, and security training. He has provided security support to a broad range of federal agencies, both civilian and military. He is a CISSP and member of the ACM, the Computer Security Institute, and served as Chairman of the ADP Committee for the National Council of Technical Service Industries. He has been a member of FISSEA since 1994 and is an author of NIST special Publication 800-16, *Information Technology Security Training Requirements: A Role- and Performance- Based Model.*

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Admiral Grace Murray Hopper

Born: New York, New York, December 9, 1906

Died: Arlington, Virginia, January 1, 1992

Pioneer Computer Scientist

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Life was simple before World War II.
After that, we had systems.

— Rear Admiral Grace Murray Hopper

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That Brings Us To Today

- Computers are everywhere
- Most computers are networked
- Bad guys use computers just as much as good guys and sometimes more effectively
- We have become more tolerant of system failures
- We are now beginning to relearn what we forgot about systems design

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In pioneer days they used oxen for heavy pulling, and when one ox couldn't budge a log, they didn't try to grow a larger ox.

We shouldn't be trying for bigger computers, but for more systems of computers.

— Rear Admiral Grace Murray Hopper

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We're flooding people with information. We need to feed it through a processor. A human must turn information into intelligence or knowledge. We've tended to forget that no computer will ever ask a new question.

— Rear Admiral Grace Murray Hopper

•We must have confidence in the integrity and availability of our computer systems, but we can’t ask users to become security experts.

•Security educators should be turning security knowledge and information into role-focused training. Training that is tuned to the organizational culture and uses the minimalist approach.

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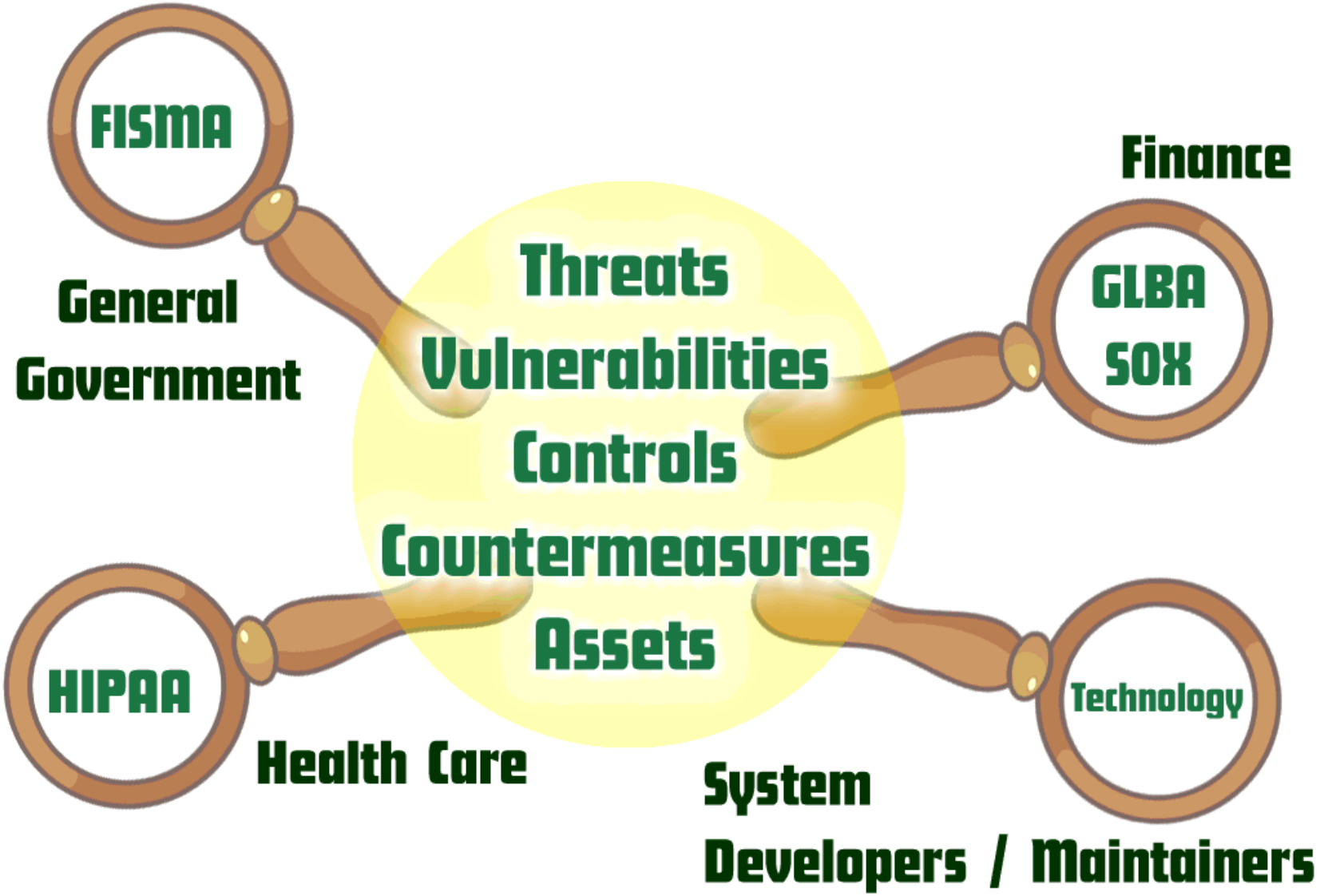
One Size Doesn't Fit All



Awareness and training efforts must adjust for perceptional filters to provide content that is relevant to the organization's mission and tailored to the needs and skill levels of the target audience.

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Why a Grace Hopper

- A person of stature to get attention
- A creative teacher to convey abstract topics

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Grace Hopper nanosecond

In education, a Grace Hopper nanosecond is a prop used by a teacher to help students understand an abstract concept. The teaching tool got its name from the foot-long lengths of telephone wire that Admiral Grace Hopper used to give out at lectures. Admiral Hopper used the wires to illustrate how in one billionth of second (a nanosecond) an electronic signal can travel almost twelve inches. In addition to being a gifted programmer, Admiral Hopper was quite famous during her lifetime for her teaching skills. Admiral Hopper believed that by providing the learner with a concrete analogy already in their frame of reference, it was possible to absorb and even understand an abstract concept that might otherwise be too difficult to comprehend. Towards the end of her life, when asked which of her many accomplishments she was most proud of, Admiral Hopper replied, "All the young people I have trained over the years".

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Management attention focuses when security fails or when a recognized "expert" tells them something is important.

Management gives awards for cleaning up security failures, but seldom recognizes prevention efforts.

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Security is an abstract:

- You can't hold it or touch it;
- You never know how much is enough or too little; and
- Perceptions are often more important than fact.

- We've been training people for years and still they –
  - Can't remember a password;
  - Don't understand that it is not very likely that a Nigerian will pay millions of dollars to launder" money – and with no risk; and
  - Don't recognize that banks won't send e-mails asking for Social Security Numbers, bank account numbers, and passwords.

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You manage things, you lead people. We went overboard on management and forgot about leadership. It might help if we ran the MBAs out of Washington.

- Rear Admiral Grace Hopper

Grace Hopper gave out nanoseconds to get people to focus on programming efficiency.

We need a similar approach to help system owners, developers, and users focus on security.

And…

We need another Grace Hopper

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