

What You Need to Know About InfoSec and Why You Should Care

Paul Gilzow



University of Missouri

What You Need to Know About InfoSec and Why You Should Care

Submit questions to
<https://2019.wpcampus.org/?p=734>

Paul Gilzow



University of Missouri

TL;DR



University of Missouri

TL;DR

Minimizing Risk



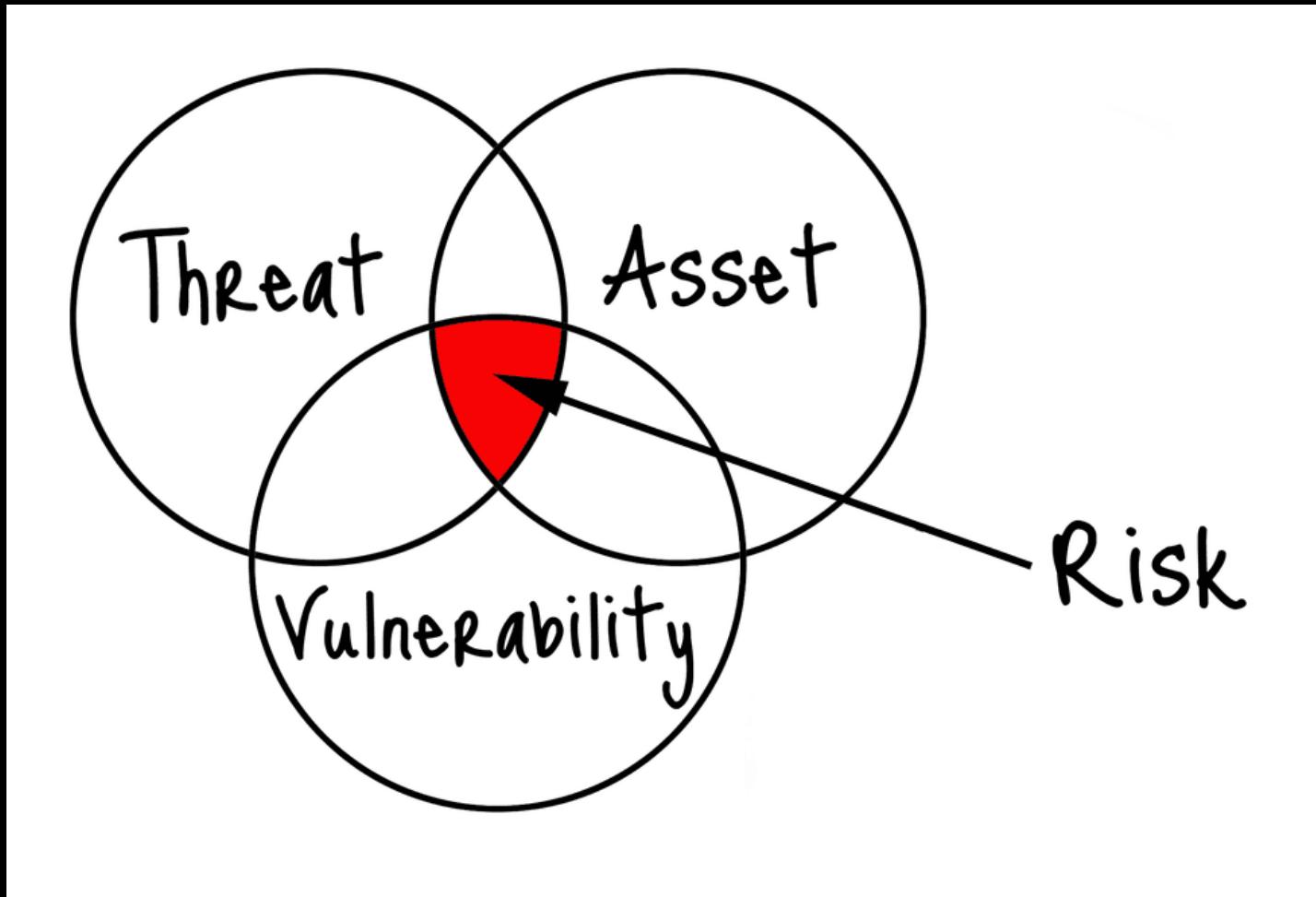
University of Missouri

What is “Risk”?



University of Missouri

What is “Risk”?



Asset

Approved for Release by NSA on 04-17-2018, FOIA Case # 83661



University of Missouri

Asset

- People



University of Missouri

Asset

- People
- Property



University of Missouri

Asset

- People
- Property
- Information/Data



University of Missouri

Asset

- People
- Property
- Information/Data
- An asset is what we are trying to protect



University of Missouri

Threat



University of Missouri

Threat

- Anything that represents a potential danger to an asset, whether deliberately or by accident



Threat

- Anything that represents a potential danger to an asset, whether deliberately or by accident
- A threat is what we're trying to protect against

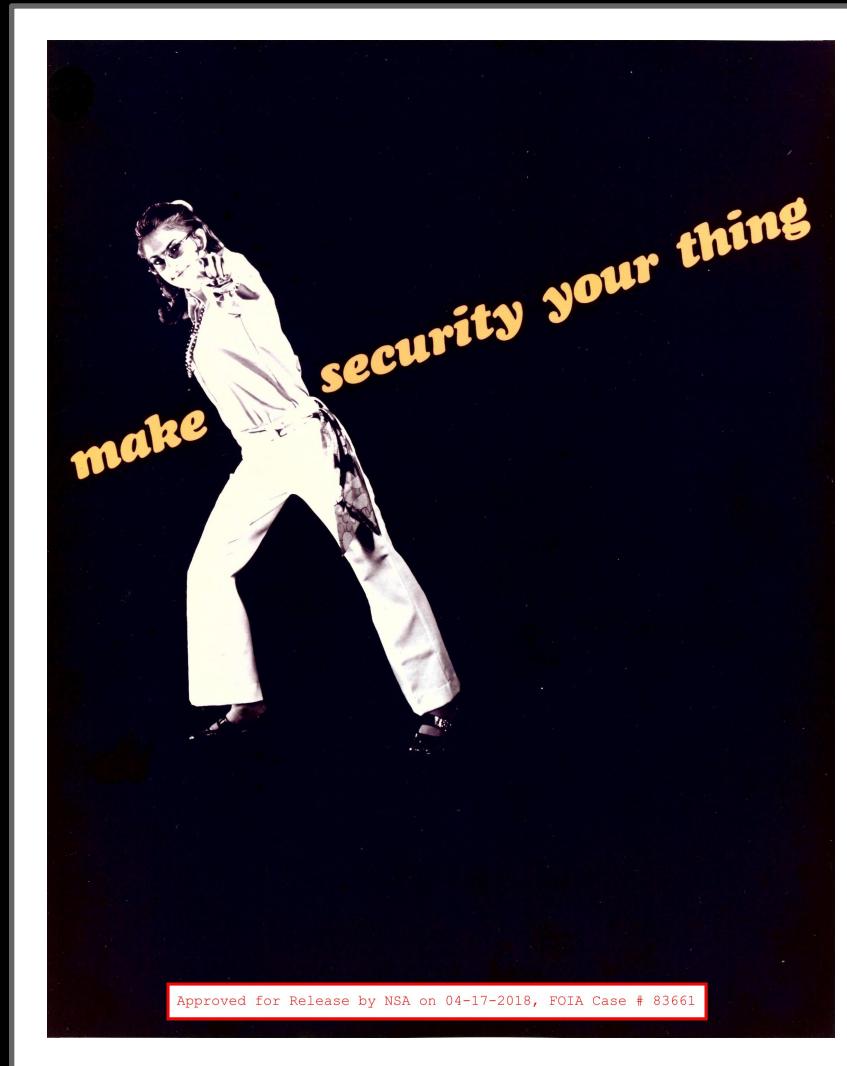


Threat

- Anything that represents a potential danger to an asset, whether deliberately or by accident
- A threat is what we're trying to protect against
- *Threat Agent* is a group or individual who exploits a vulnerability to manifest or cause a threat to occur



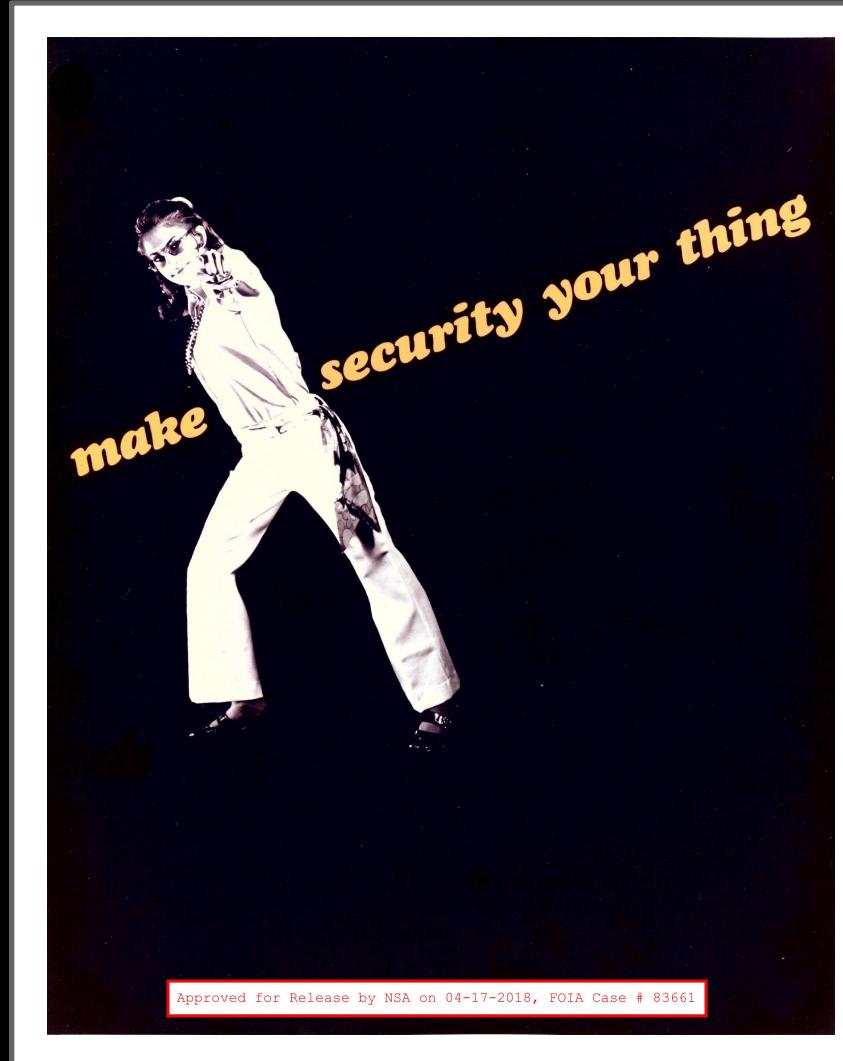
Vulnerability



University of Missouri

Vulnerability

- Weakness or holes/ gaps in security procedures or program that can be exploited by a threat to affect assets



University of Missouri

What is “Risk”?



University of Missouri

What is “Risk”?

- Asset = You



University of Missouri



University of Missouri

What is “Risk”?

- Asset = You
- Vulnerability = Hole in your umbrella



University of Missouri

What is “Risk”?

- Asset = You
- Vulnerability = Hole in your umbrella
- Threat = Getting wet



University of Missouri

What is “Risk”?

- Asset = You
- Vulnerability = Hole in your umbrella
- Threat = Getting wet
- Risk = Rain



University of Missouri

What is “Risk”?

The potential for loss, damage or destruction of an asset(s) as a result of a threat exploiting a vulnerability multiplied by the impact of the threat occurring



Higher Education Assets

Higher Education Assets

- Network bandwidth and availability

Higher Education Assets

- Network bandwidth and availability
- Computing power

Higher Education Assets

- Network bandwidth and availability
- Computing power
- SEO reputation

Higher Education Assets

- Network bandwidth and availability
- Computing power
- SEO reputation
- Brand and reputation

Higher Education Assets

- Network bandwidth and availability
- Computing power
- SEO reputation
- Brand and reputation
- Social Media accounts

Higher Education Assets

Higher Education Assets

- Personally Identifiable Information (PII) / Sensitive Personal Information (SPI)

Higher Education Assets

- Personally Identifiable Information (PII) / Sensitive Personal Information (SPI)
- Protected Health Information (PHI)

Higher Education Assets

- Personally Identifiable Information (PII) / Sensitive Personal Information (SPI)
- Protected Health Information (PHI)
- Confidential Intellectual Property

Higher Education Assets

- Personally Identifiable Information (PII) / Sensitive Personal Information (SPI)
- Protected Health Information (PHI)
- Confidential Intellectual Property
- Export Controlled Data

Higher Education Assets

- Personally Identifiable Information (PII) / Sensitive Personal Information (SPI)
- Protected Health Information (PHI)
- Confidential Intellectual Property
- Export Controlled Data
- National Security Interest (NSI)

Know Your Assets



Off the job

SECURITY is up to you

Approved for Release by NSA on 04-17-2018, FOIA Case # 83661

Know Your Assets

- You can't protect what you don't know you have



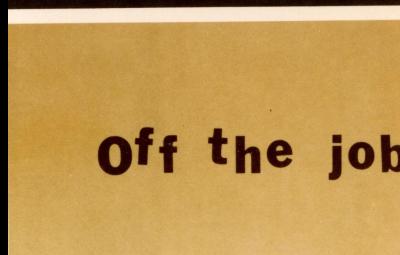
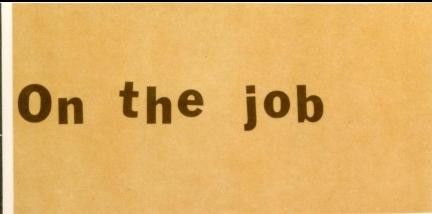
Off the job

SECURITY is up to you

Approved for Release by NSA on 04-17-2018, FOIA Case # 83661

Know Your Assets

- You can't protect what you don't know you have
- Know your assets intimately



SECURITY is up to you

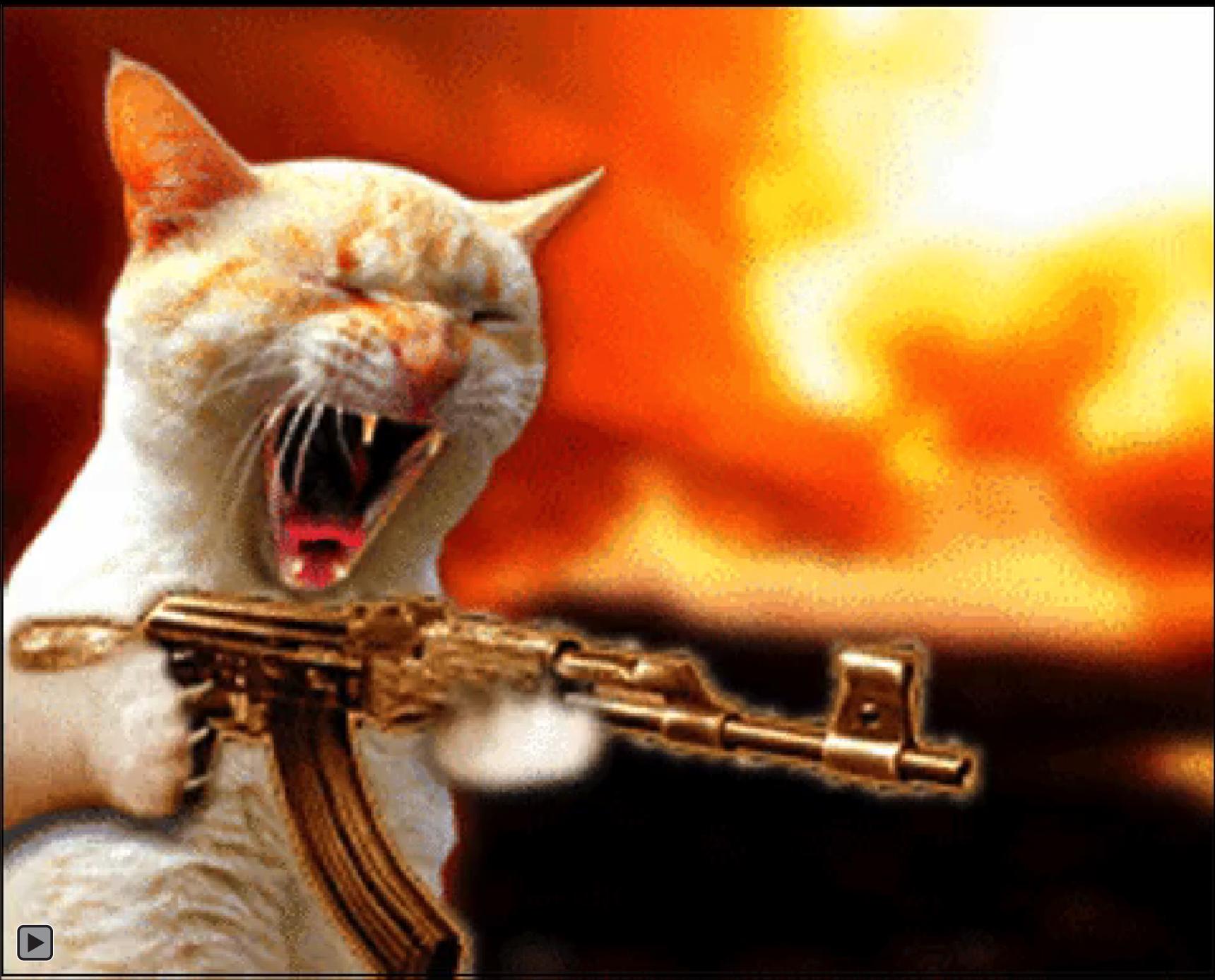
Approved for Release by NSA on 04-17-2018, FOIA Case # 83661

Defense-in-Depth



Defense-in-Depth

- Strategy of protection using a series of defensive mechanisms such that if one mechanism fails, another will already be in place to thwart an attack.



Minimize the Attack Surface



University of Missouri

Minimize the Attack Surface

- The sum of all paths for data/commands into and out of the application



Minimize the Attack Surface

- The sum of all paths for data/commands into and out of the application
- Plus all of the code that protects those paths



Minimize the Attack Surface

- The sum of all paths for data/commands into and out of the application
- Plus all of the code that protects those paths
- Plus all of the data used in the application



Minimize the Attack Surface

- The sum of all paths for data/commands into and out of the application
- Plus all of the code that protects those paths
- Plus all of the data used in the application
- Plus all of the code that protects this data



What is “Attack Surface”?



University of Missouri

Principle of Least Privilege

Principle of Least Privilege

- Grant necessary permissions required to perform the intended activities

Principle of Least Privilege

- Grant necessary permissions required to perform the intended activities
- For a limited time

Principle of Least Privilege

- Grant necessary permissions required to perform the intended activities
- For a limited time
- But with the *minimum* rights required for the task(s)

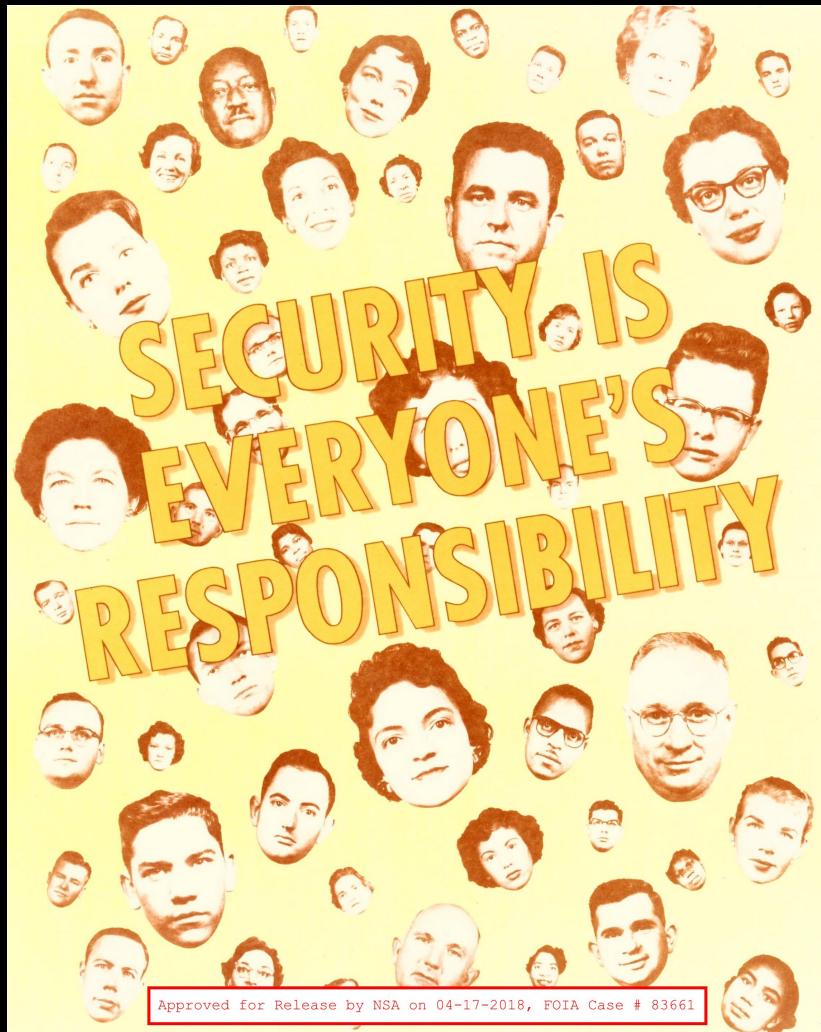
Principle of Least Privilege

- Grant necessary permissions required to perform the intended activities
- For a limited time
- But with the *minimum* rights required for the task(s)
- Removing permissions when no longer needed

Be Paranoid

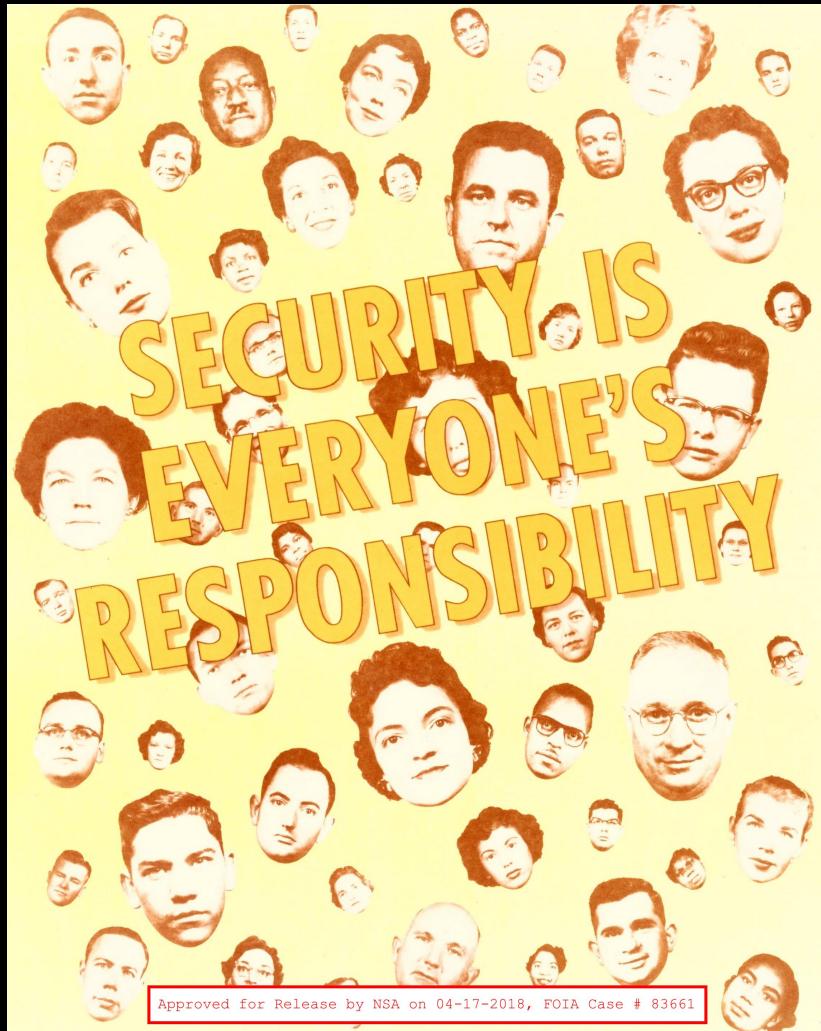


Ok, How About: “Be Skeptical”



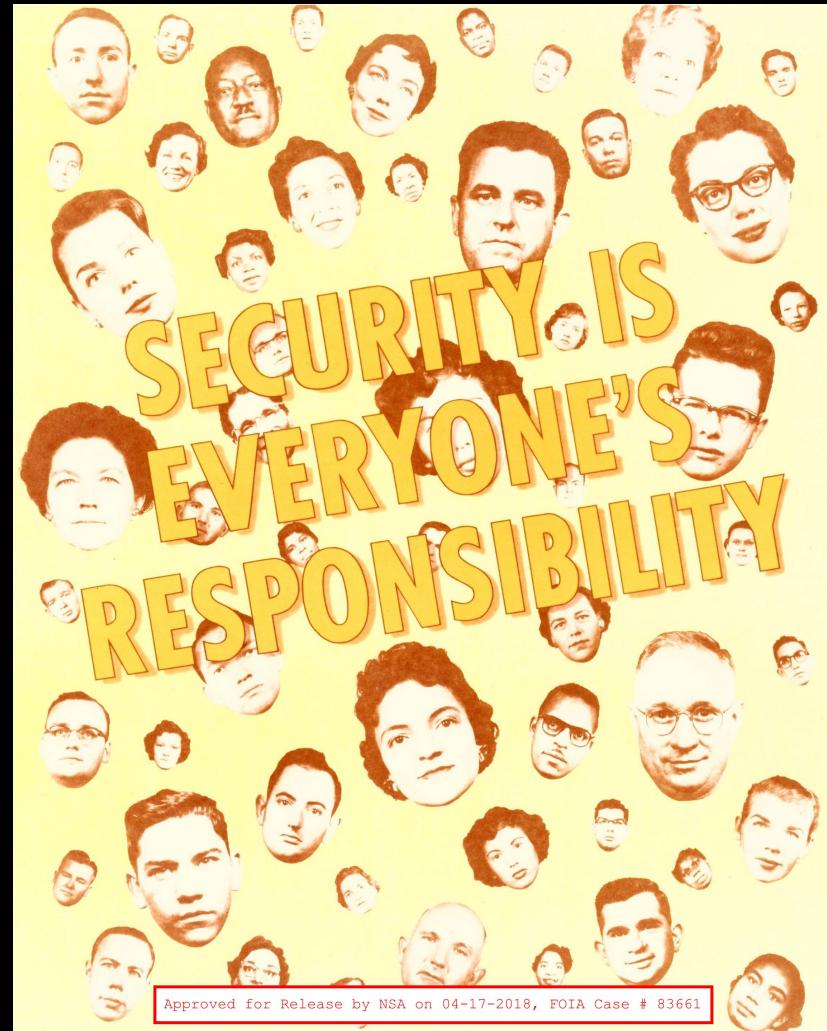
Ok, How About: “Be Skeptical”

- *Treat all third party code/
data as tainted and hostile*



Ok, How About: “Be Skeptical”

- *Treat all third party code/ data as tainted and hostile*
- Humans remain the weakest link in the InfoSec armor



Security is a continual process;
you're never “finished”

Your Challenge

Always be thinking in terms of
how you can reduce risk

Any way you look at it...



SECURITY

IS

YOUR

RESPONSIBILITY

Approved for Release by NSA on 04-17-2018, FOIA Case # 83661

NSA SECURITY EDUCATION PROGRAM 35

Paul Gilzow

- Programmer/Analyst / Security Analyst at the University of Missouri
- Contact
 - gilzow@missouri.edu
 - @gilzow on twitter
 - <https://fb.me/gilzow>
 - <https://profiles.wordpress.org/gilzow>
 - <https://github.com/gilzow/>

Submit Session Feedback!

You'll win points towards the conference game and you'll be entered for a door prize!

<https://2019.wpcampus.org/?p=734>

