# How We Learned to SPL C-o-m-p-l-i-a-n-c-e

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***The MITRE Corporation***

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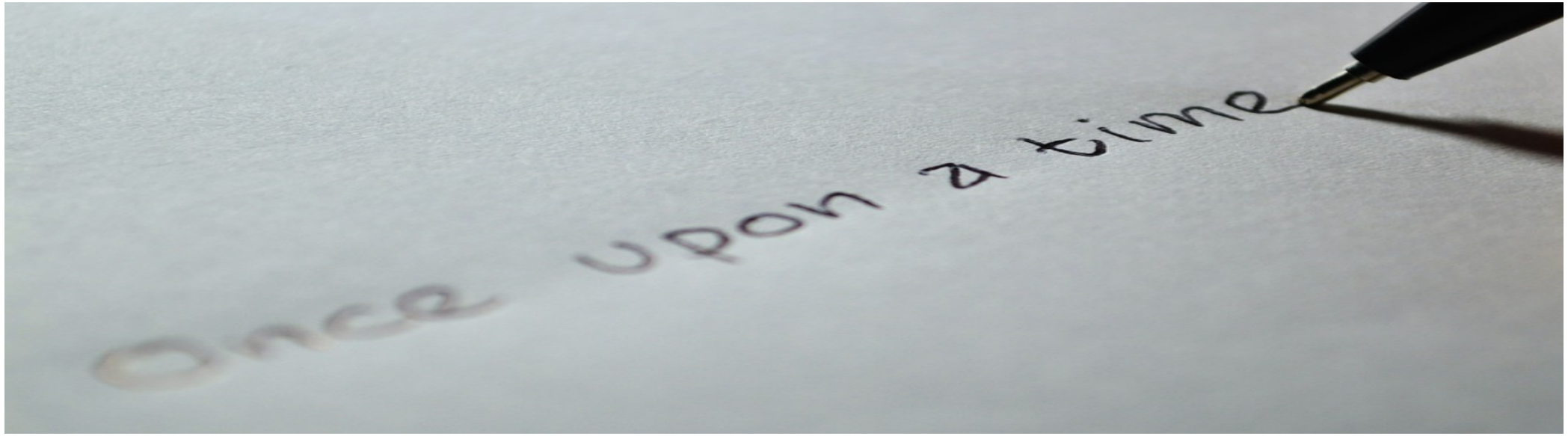
# Overview

- This is a story about how we:
  - Started leveraging Splunk to help us with compliance reporting
  - Are using it today for compliance
  - Are planning to use it in the future



# The MITRE Corporation


part of the ecosystem of federal research centers

established in **1958**
to serve the public interest

not-for-profit

science & tech support to federal government

**~8,000** employees

# Speaker Info

## Bob Clasen

- **Background**
  - Computer/electrical engineer
  - Retired US Air Force
  - At MITRE for 15 years
- **Current roles**
  - Team lead
    - Enterprise systems monitoring
    - Performance & automated testing
  - Splunk service manager
    - Been Splunking for 3+ years
- **Outside of work**
  - Baseball fan
  - Reading
  - Foreign movies

## Eugene Katz

- **Background**
  - Computer science
  - At MITRE for 19 years
    - 17 years software dev
    - Past 1.5 years: All Splunk
- **Current roles**
  - Bob's partner in ~~crime~~ Splunk service management
  - Splunk side of Compliance
  - Splunk Evangelist/User Advocate
- **Outside of work**
  - Tai Chi Chuan
  - Tabletop RPGs & Board Games

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# Background - Splunk at MITRE

MITRE

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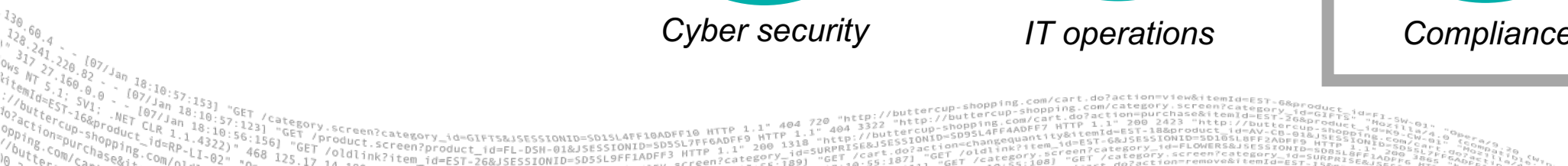
- **Primarily used for internal IT**
  - Some isolated labs – classified, etc.
- **Some stats**
  - ~925 GB/day ingestion prod
  - ~300 user accounts (~80 roles)
- **Use cases**

*Cyber security*

*IT operations*

*Compliance*



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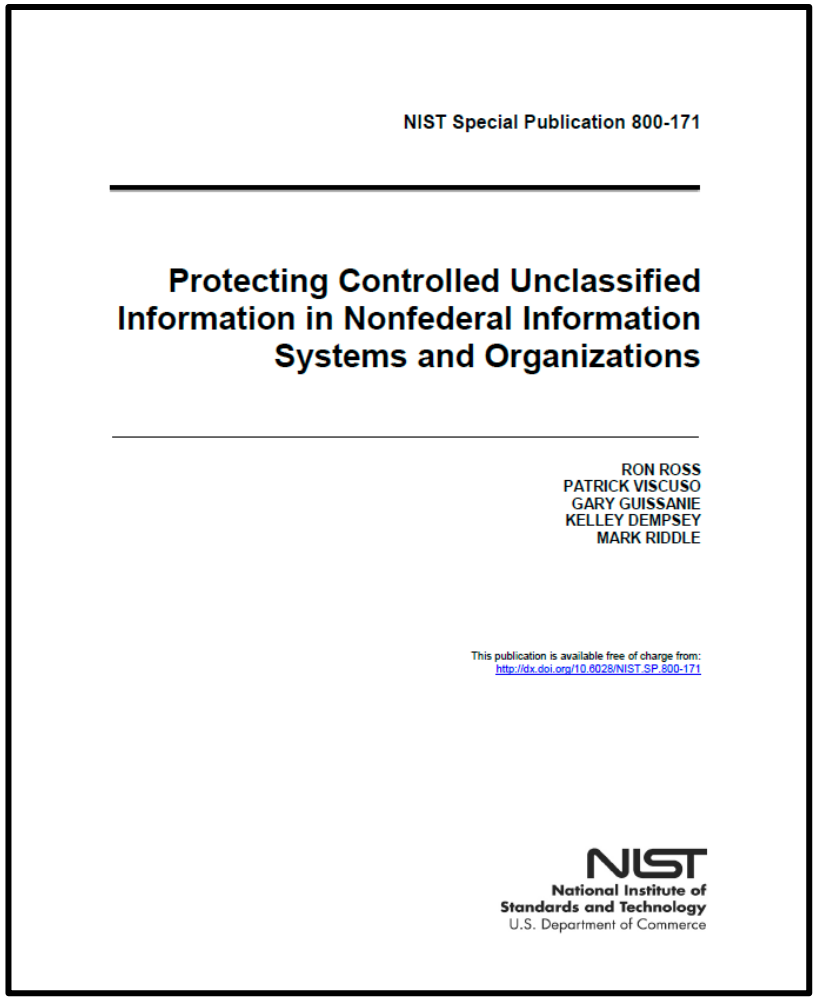
# The Story Begins…

- In late-2016, our IT staff started hearing about this new thing called **DFARS**
  - Defense Federal Acquisition Regulation Supplement
  - US Dept of Defense security requirements for federal contractors
  - Based on National Institute of Standards and Technology Special Publication (NIST SP) 800-171


NIST Special Publication 800-171

Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations

RON ROSS
PATRICK VISCUSO
GARY GUISSANIE
KELLEY DEMPSEY
MARK RIDDLE

This publication is available free of charge from:
http://dx.doi.org/10.6028/NIST.SP.800-171

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

# Problem

- **New requirement for DFARS compliance**
  - Initial reaction: Yikes, what is DFARS?
  - Some of us didn't even know how to spell compliance
  - But, we did know how to SPL with Splunk
- **How could we leverage Splunk to help?**
  - Could our ninja skills save the day?

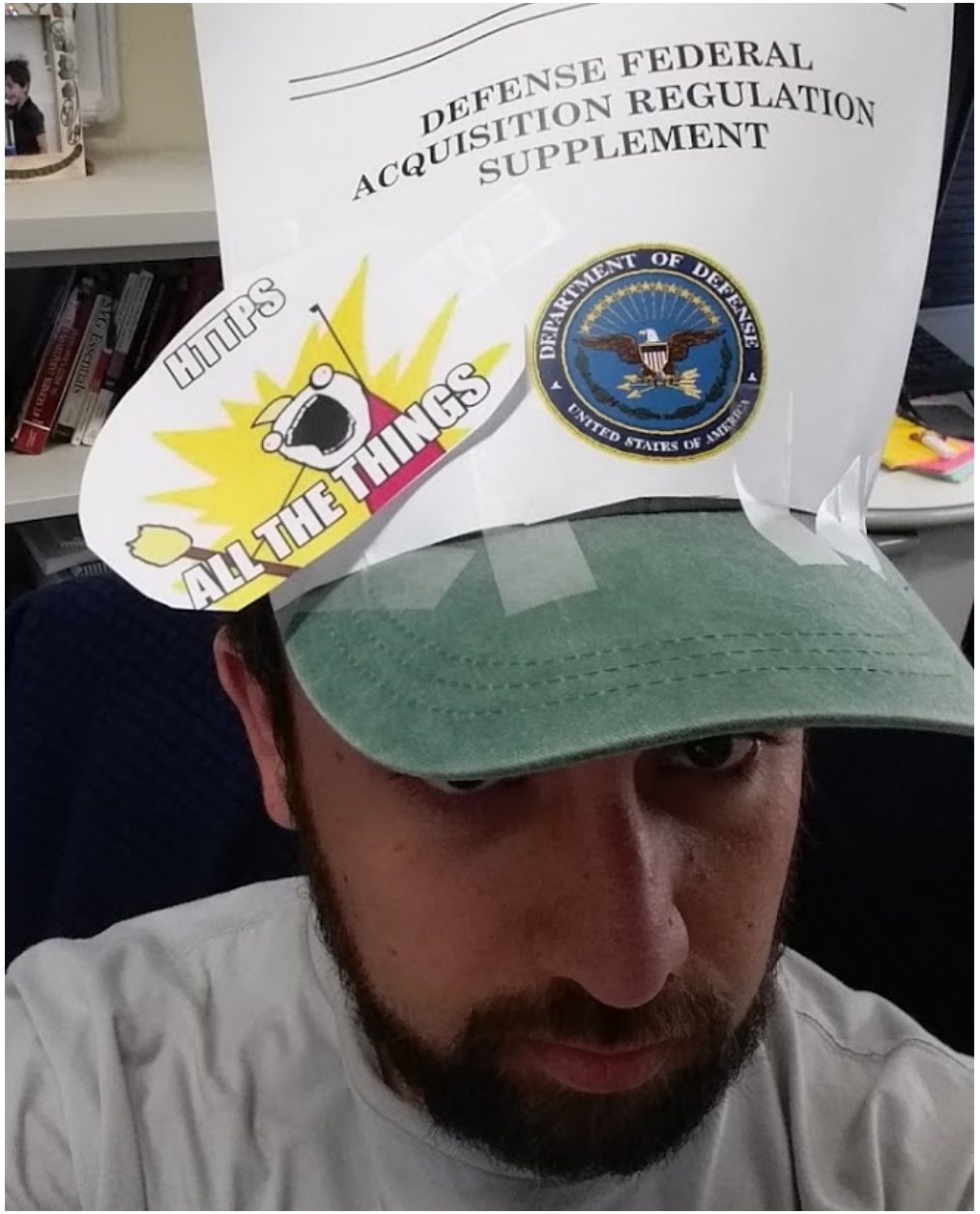
# Approach


- **Learn more**
  - Compliance, in general
  - Data already in Splunk that could be useful
  - Partnered with rest of our compliance team
  - Splunk DFARS data assessment
  - At this point, we knew Splunk could help
- **Assessed options**
  - Build a compliance app ourselves
    - With some help from professional services
  - Buy a commercial tool

# Approach (cont.)

- **Why build instead of buy?**
  - Cost trade-offs
  - We already knew Splunk
    - It was just compliance that was new
- **Getting started**
  - Services engagement to jump start
  - Hired dedicated person for this effort
  - Identified candidate controls for Splunk reporting
    - Use Splunk for ~35% of DFARS controls

# Scariest Halloween Costume



# Implementing Compliance: Expectation vs. Reality

## What we thought we were getting into


By Barry Lewis - Mobile Home, CC BY 2.0,
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## What we were *actually* getting into

U.S. Air Force photo by Master Sgt. Greg Steele/Released)
http://www.307bw.afrc.af.mil/News/Art/igphoto/2001567611/

# Three-Pronged Approach

**What is this NIST 800-171?**

1. Review compliance controls
2. Scope what we have in our environment
3. Test queries/dashboards

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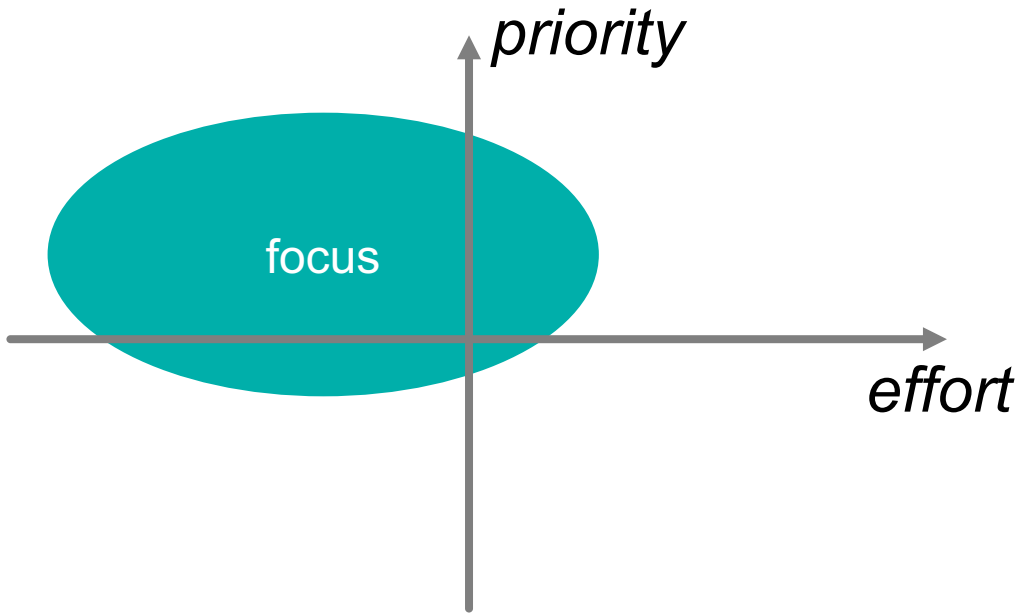
# 1 Review Compliance Controls

**What do we need to actually *do*?**




**For vendor engagement, focus on big wins.**

# 2 Scope What We Have in Our Environment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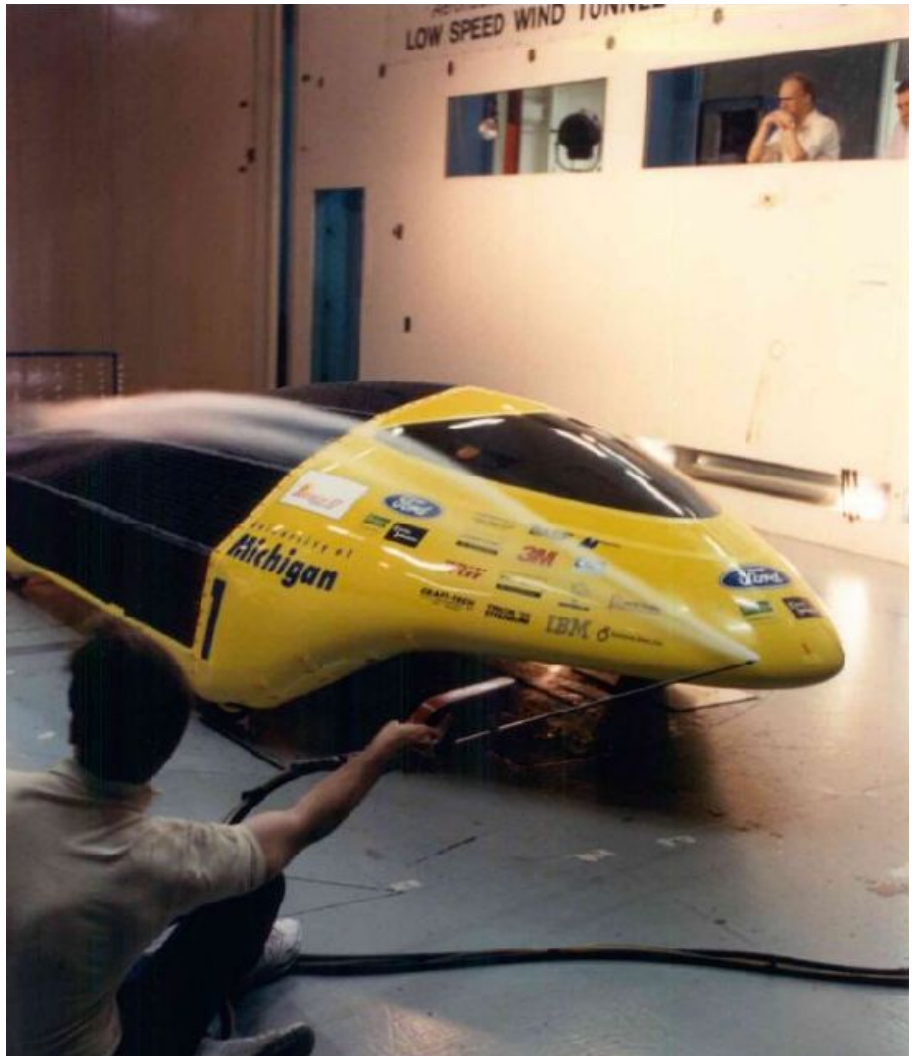
# 3 Test Queries/Dashboards in DEV and PROD

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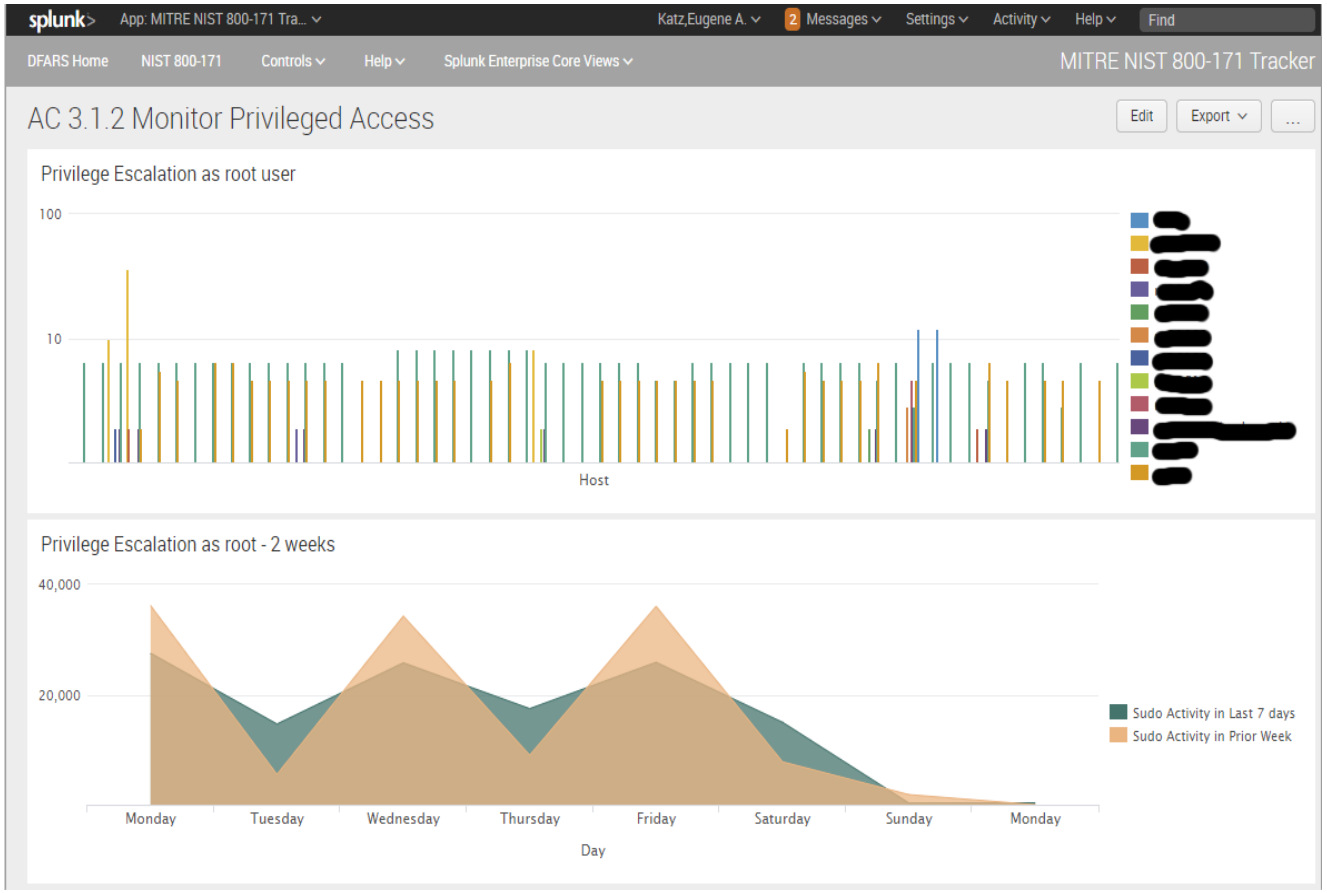
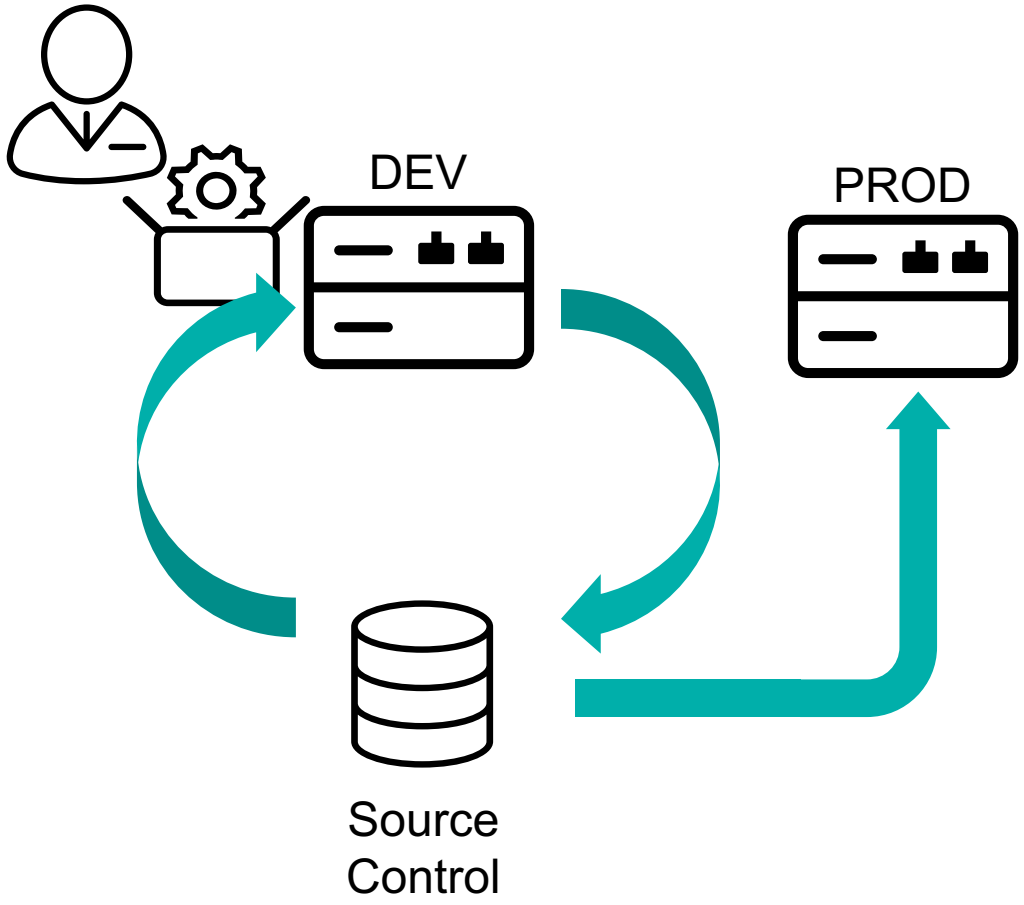
https://commons.wikimedia.org/wiki/File:Windtunnel_testing.jpg

# Finding and Tracking Issues

| Control # | Family | Derived Security Requirement | Dashboard | Chart Label | Chart Values | DEV status & notes | PROD status & notes | Demo link | Blockers | Next Steps |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.1.2 | Access Control | Limit information system access to the types of transactions and functions that authorized users are permitted to execute. | AC 3.1.2 Monitor Privileged Access | in progress | 1 | Windows: NEEDS WORK<br>Linux: READY<br>index=linux-syslog<br>why are there two 3.1.2? | Windows: NEEDS WORK<br>Linux: READY<br>index=linux-syslog | Linux:PROD | Windows Infrastructure App configs | ☐ review for expected functionality @Eugene Katz<br>Linux: review with SME |
| 3.1.4 | Access Control | Separate the duties of individuals to reduce the risk of malevolent activity without collusion. | AC 3.1.4 Review Membership of Privileged Groups - Win | in progress | 1 | NEEDS WORK | Windows: REVIEW | PROD | | Waiting to add DEV/ INT<br>[redacted]D/I |
| 3.1.5 | Access Control | Employ the principle of least privilege, including for specific security functions and privileged accounts. | AC 3.1.5 Account Creation and Deletion - Win | in progress | 0.5 | | NEEDS WORK<br>"No matching visualization found for type: horseshoe_meter, in app: horseshoe_meter_app" | | | Replace with a different vis or install horseshoe_meter |
| | | | AC 3.1.5 Account Creation and Deletion - Linux | in progress | 0.5 | | NEEDS WORK<br>index changed to linux-syslog<br>"No matching visualization found for type: horseshoe_meter, in app: horseshoe_meter_app" | | | same as above |
| 3.1.8 | Access Control | Limit unsuccessful logon attempts. | AC 3.1.8 Unsuccessful Logon Attempts - AWS | ready | 0.5 | | READY index=[redacted] | PROD | | |
| | | | AC 3.1.8 Unsuccessful Login Attempts - OS | ready | 0.5 | | Windows: READY<br>Linux: READY | PROD | | change url of dashboard from _linux |
| 3.1.12 | Access Control | Monitor and control remote access sessions. | AC 3.1.12 Login Activity | in progress | 1 | Data not in DEV (was initially, but cycled out) | NEEDS WORK<br>index=vpn sourcetype=cisco_asa on has only blocked events | | | PROD: Look at different ways to see "allow"<br>eventtype<br>Probably need to update to newer Cisco_ASA Ad-on - (Mon 10/23/2017 2:32 PM email) |
| | | | AC 3.1.12 VPN RA: Total Sessions, Total Unique Users, and | ready | 1 | Data not in DEV (was initially, but | READY | PROD | | |

# Finally, an App to Install!

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# Other Considerations/Challenges Along the Way

- Which (out of thousands of) our system have CUI?
  - Subnets help, but only so much
- Campus Compliance App came out on Splunkbase
  - Uses Common Information Model (CIM)
- Can we send the reports by email?
  - Are they too sensitive?
  - Do we need to track if they've been reviewed?
- Do users of dashboards need to have access to all the underlying data?
  - Depends

> Your [data] scientists were so preoccupied with whether or not they could, that they didn't stop to think if they should.

*Jurassic Park*

# What Does That Mean for Me?

## Forewarned is forearmed

https://commons.wikimedia.org/wiki/File:Philippines_road_sign_W5-2.svg

# Don’t Expect a Drop-in Solution

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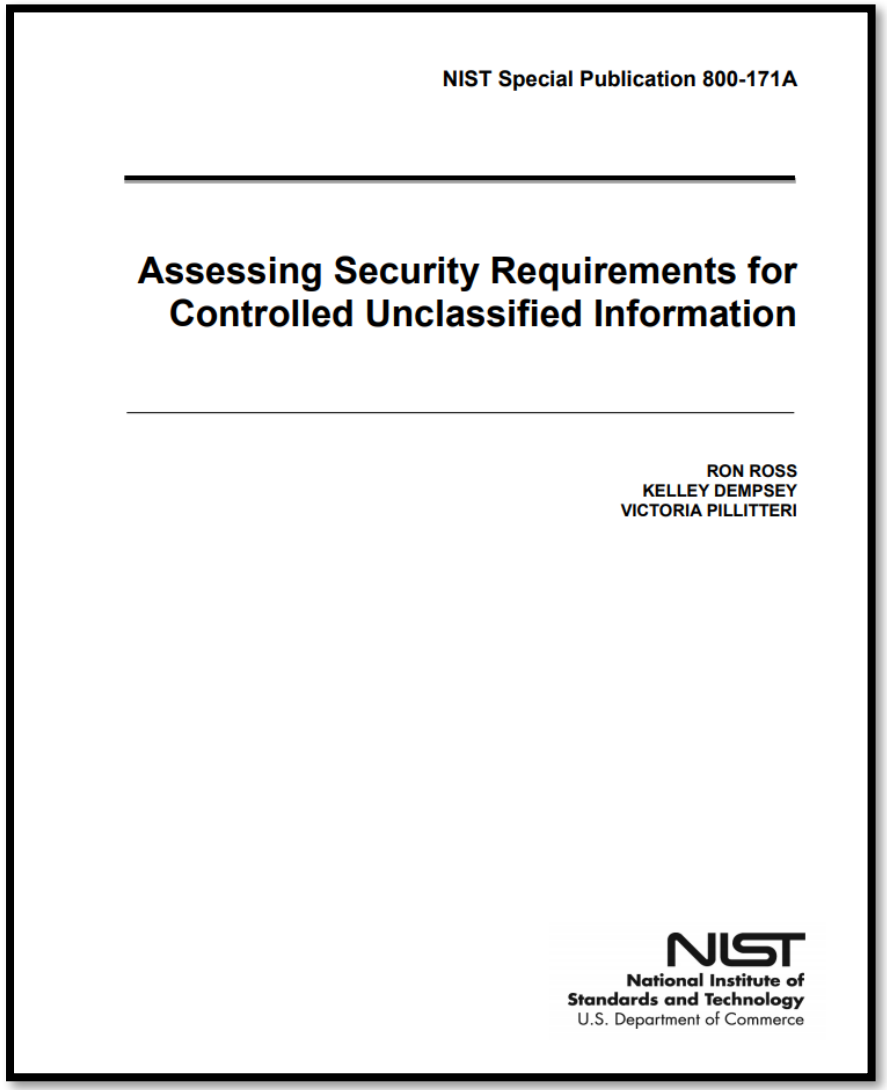
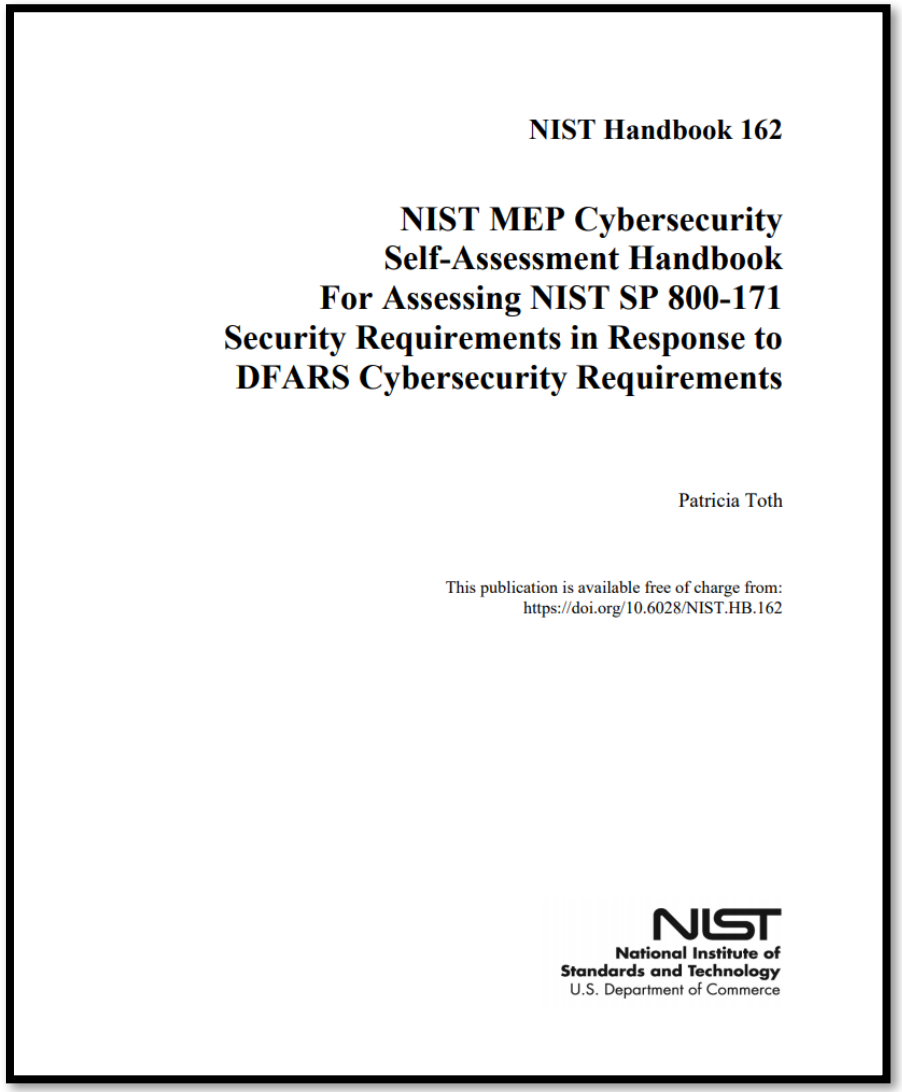
U.S. Air Force photo by Master Sgt. Greg Steele/Released)
http://www.307bw.afrc.af.mil/News/Art/igphoto/2001567611/

- Plan accordingly
- Getting all the right data and add-ons might take some work, even if it looks like you’re ingesting all the right stuff at first glance

# There Is More Guidance out There Now




https://csrc.nist.gov/publications/detail/sp/800-171a/final




https://doi.org/10.6028/NIST.HB.162

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# There Is More Guidance out There Now (cont.)

https://doi.org/10.6028/NIST.HB.162

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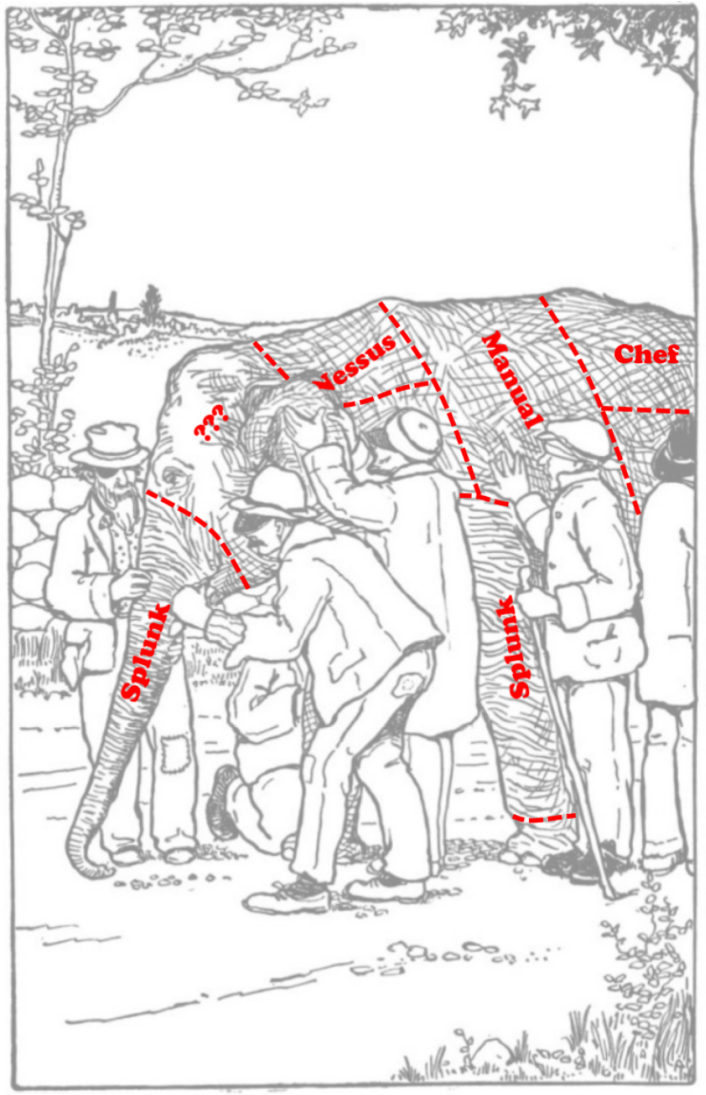
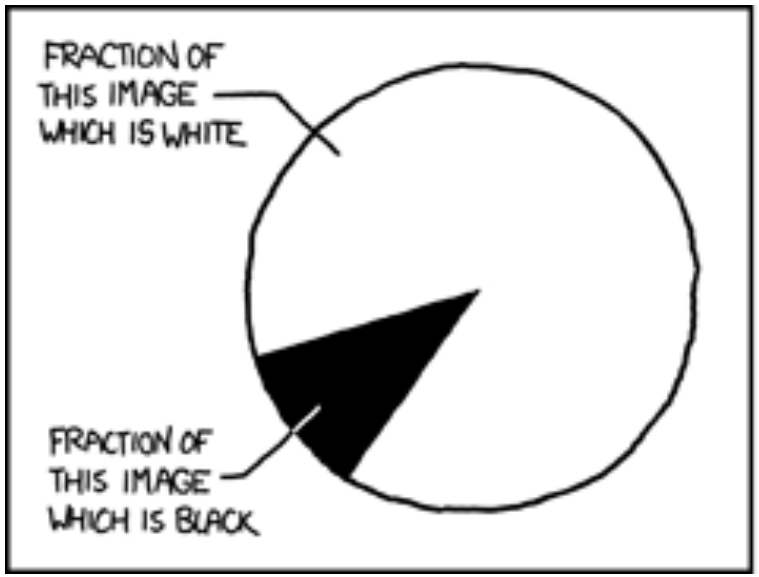
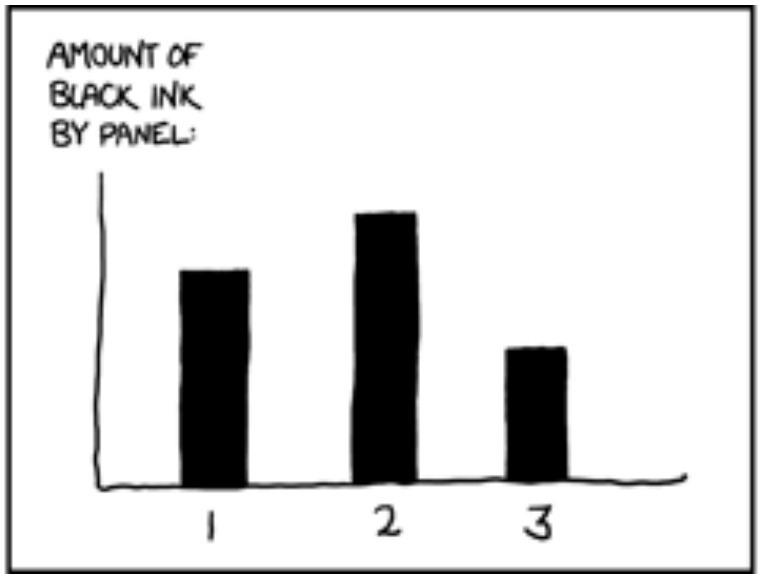
# Think it All the Way Through

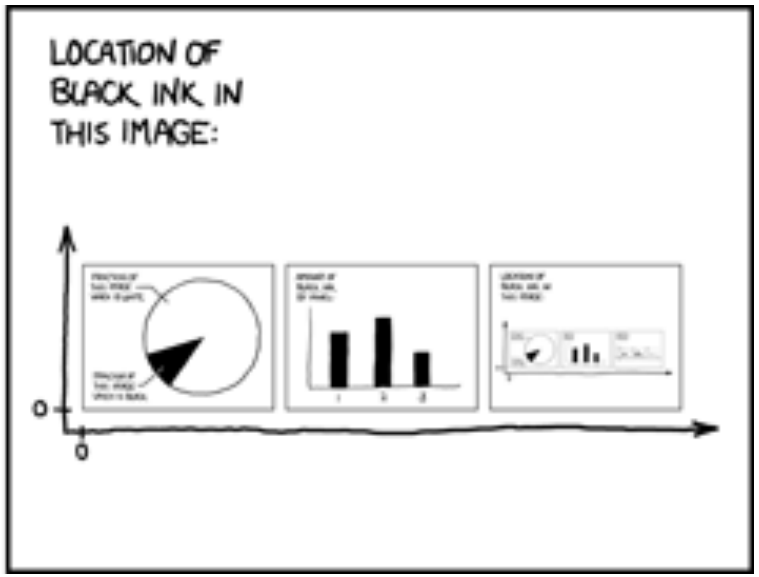
- What do you actually need to produce for the auditors? – Play pretend
- What are the correct tools for each control?
- Seeing everything in Splunk is nice, but doesn't have to be Phase 1



# Don’t Be Fooled by Pretty Dashboards



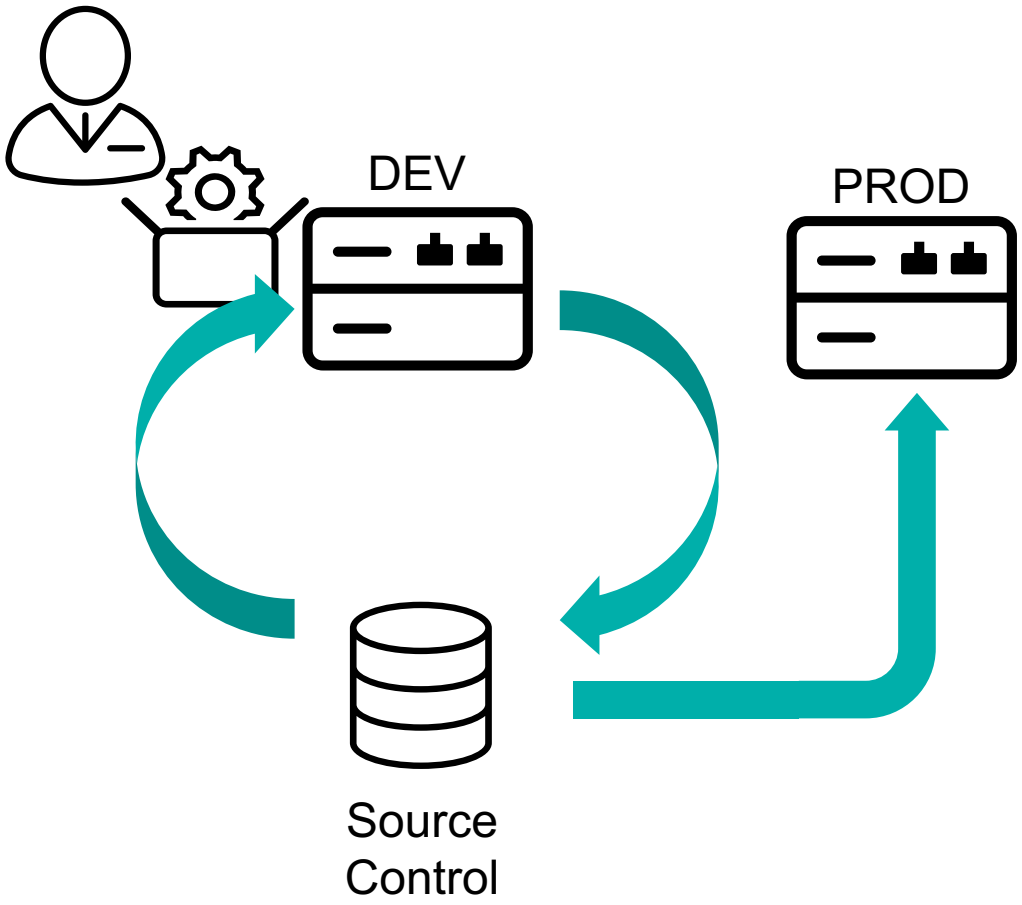






- How will each report/dashboard *really* get used?
  - How does a timechart of failed logins help you meet a control?
- It might be interesting, but is it useful for compliance?

# All the Best Practices Still Apply

## Think: maintenance



# Next Steps for Us

- Continue reexamining controls and using Splunk where appropriate
- Extend compliance services
  - To other teams (not just internal IT)
  - For other types of compliance (Risk Management Framework, classified labs, etc.)

# Thank You

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