# Vulnerability Management That Works

# Who Am I?

- Just a Security Guy
- OWASP Orlando
- Bsides Orlando
- FLSEC
- DC407
- Worked internal for 18+ years
- Sr Security Consultant GuidePoint Security

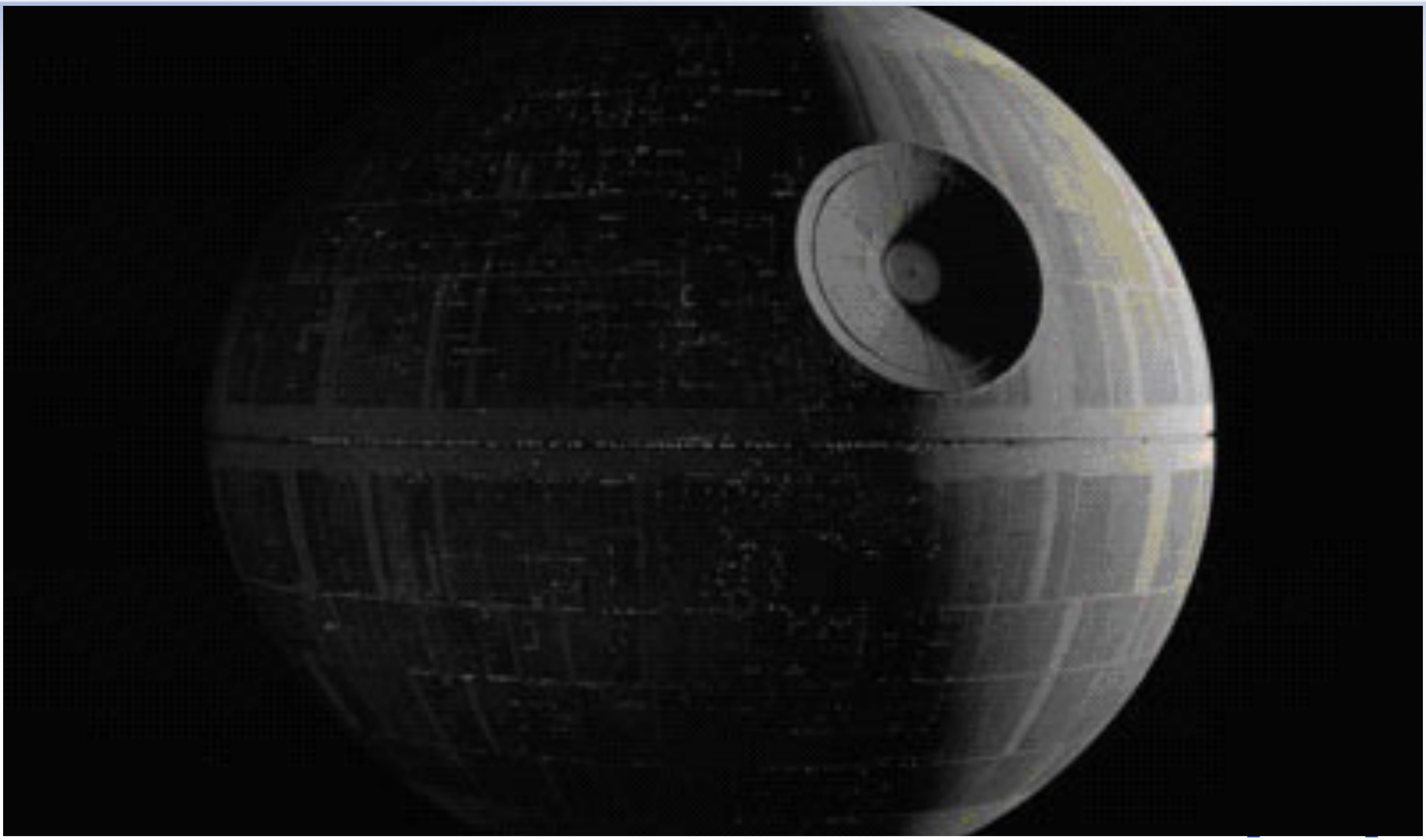
# CSIRT vs Vulnerability Mgmt

- Not mutually exclusive
- Consider VM as a CSIRT Program component
    - Preparation
    - Identification
    - Containment
    - Eradication
    - Recovery
    - Lessons Learned

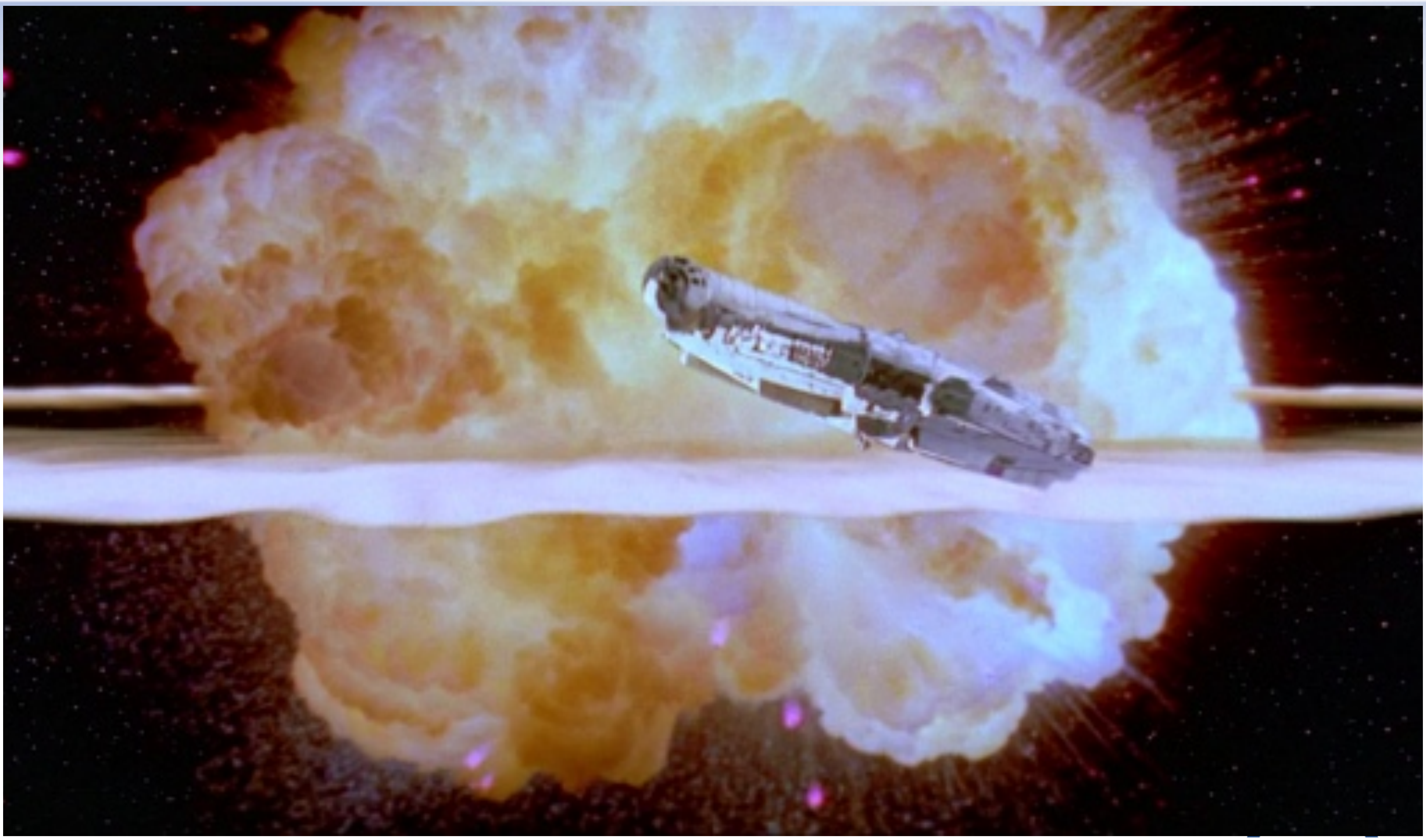
# Why Do We Care?

- Compliance (I really wish this was farther down the list)
  - PCI DSS
  - HIPAA/Hi-Tech
  - Legislation
  - Others

# Who Needs Vulnerability Management?



# Whoops.



# (Hard) Costs of an incident

- Breach Monitoring Services
- Breach Notification
- Fines
- Lawsuits
- Incident Response/Remediation Services
- Overtime

# (Soft) Costs of an Incident

- Reputation Loss (Jury is out on whether this really matters)
- Lost productivity is hard to measure
- A lot of incident related work may never be fully documented
- Taking risks is part of business, becoming too risk adverse stifles innovation

# What if there is no impact?

**Try Harder**

**(Hint: There is always impact)**

# Resistance to VM

- Painful all around
- Ops guys have different priorities
- Security guys often have no authority
- Compliance driven
- Nobody has staffing resources
- Lack of proper QA
- Hard to keep up with VM (virtual machine) creep
- No workflows

# But We Have Remediation Reports!

# Current State of Vuln Management

- Lots of detection tools
- Really good at telling you how hopeless things are
- Really good at making money for tool vendors
- Huge Reports that aren’t terribly helpful
- Very few tools that actually help us fix anything

# Tickets

- Do you find tickets useful?
- Largely Self contained
- Don’t integrate with workflows
- How often does Ops log into VM tools?
- Can we integrate with Remedy already?

# Rapid7

- NeXpose Community, Enterprise
- Metasploit Integration
- Very easy to write custom vuln checks (XML format)
- PCI DSS leadership
- Awesome for consultants
- Sales guys not as pushy anymore

# Qualys

- SASS model
- Very PCI friendly – most popular ASV tool
- Web scanning - Most do this to some degree
- SSL Research (Ivan Ristic – SSL Labs)
- Reports painful to filter for uninitiated but reporting often listed as a core strength.

# nCircle

- Suite of purchased products
- Core developers went to Rapid7
- Support issues
- Excellent Metrics
- Can assign asset values granularly
- Excellent reporting
- Reporting is licensed SEPARATELY!

# Retina

- First to market with mobile scanning
- 3rd party patching w/ WSUS and SCCM
- Identity aware with Power Broker
- Easy to create custom checks
- Huge in Federal space – Gold Disk Compliance
- Runs on Windows
- Tends to be a little unstable

# Tenable

- Nessus vs Security Center
- Dashboards
- WSUS/Altiris Integration
- Dashboards
- Can rescan from within ticket
- Best workflows

# Commercial Webapp Scanners

- AppScan
- Netsparker
- WebInspect
- Acunetix
- Hailstorm
- Burp Suite Pro

# Free and Open Source Webapp Scanners

- Burp
- Skipfish
- W3AF
- Arachni
- Vega
- Zed Attack Proxy (OWASP ZAP)
- Specialty tools (Wpscan, joomscan, etc) and many more!

# 2012 Web App Vuln Scanner Review

2012 Comparison of 49 free and open source scanners

http://sectooladdict.blogspot.co.il/2012/07/2012-web-application-scanner-benchmark.html

# Still Left Wanting…

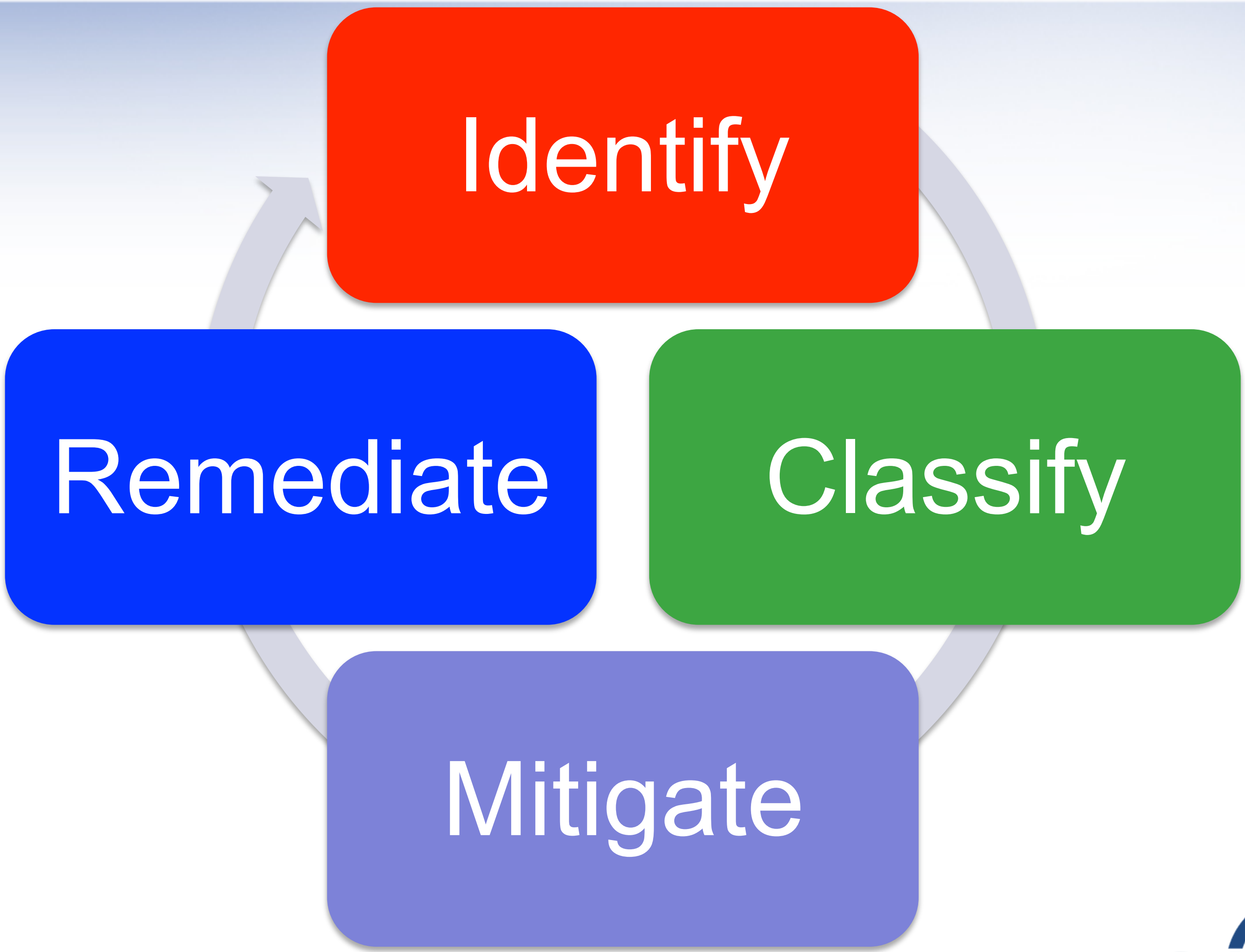
None (or few) of these tools actually help us **fix** anything

# Oh Good, It’s Broken. Now what?

# How do we Fix it?

- Lifecycle Management (See stages)
- Tracking Vulnerabilities
- Embedding Workflows/ticketing in operations teams
- Metrics reporting to management
- Embedding VM in security incident response team processes

# VM is a Lifecycle



Identify

Classify

Mitigate

Remediate

# Identifying Vulnerabilities

- Network Ranges
- Physical Locations
- Inventory Assets
- Classify Assets
- Examine Trust Relationships
- Attack Paths
- What’s Vulnerable?

# Classifying Vulnerabilities

Risk = Likelihood * Impact

- Assets already classified
- How likely is the vulnerability to be exploited?
- Does it matter?

# If a tree falls in the forest…

# Classification Continued

- Vulnerability Scanners may help to identify risk but typically have ZERO context.
- Include business value
- Trust relationships
- Operational impacts
- Need humans to decide

# Mitigating Vulnerabilities

- When the Fix is riskier than leaving it alone
- Compensating Controls
- Creating trust zones
- Reducing data footprint
- Reduce focus, wrap controls around the data
- Change Management

# Remediating Vulnerabilities

- Patch Management
- Configuration Control
- Writing secure code

# Tracking Vulnerabilities

- Centralized repository
- Spreadsheets are better than nothing
- Don’t wait for the perfect solution, start doing SOMETHING today!
- Enter SIEM!

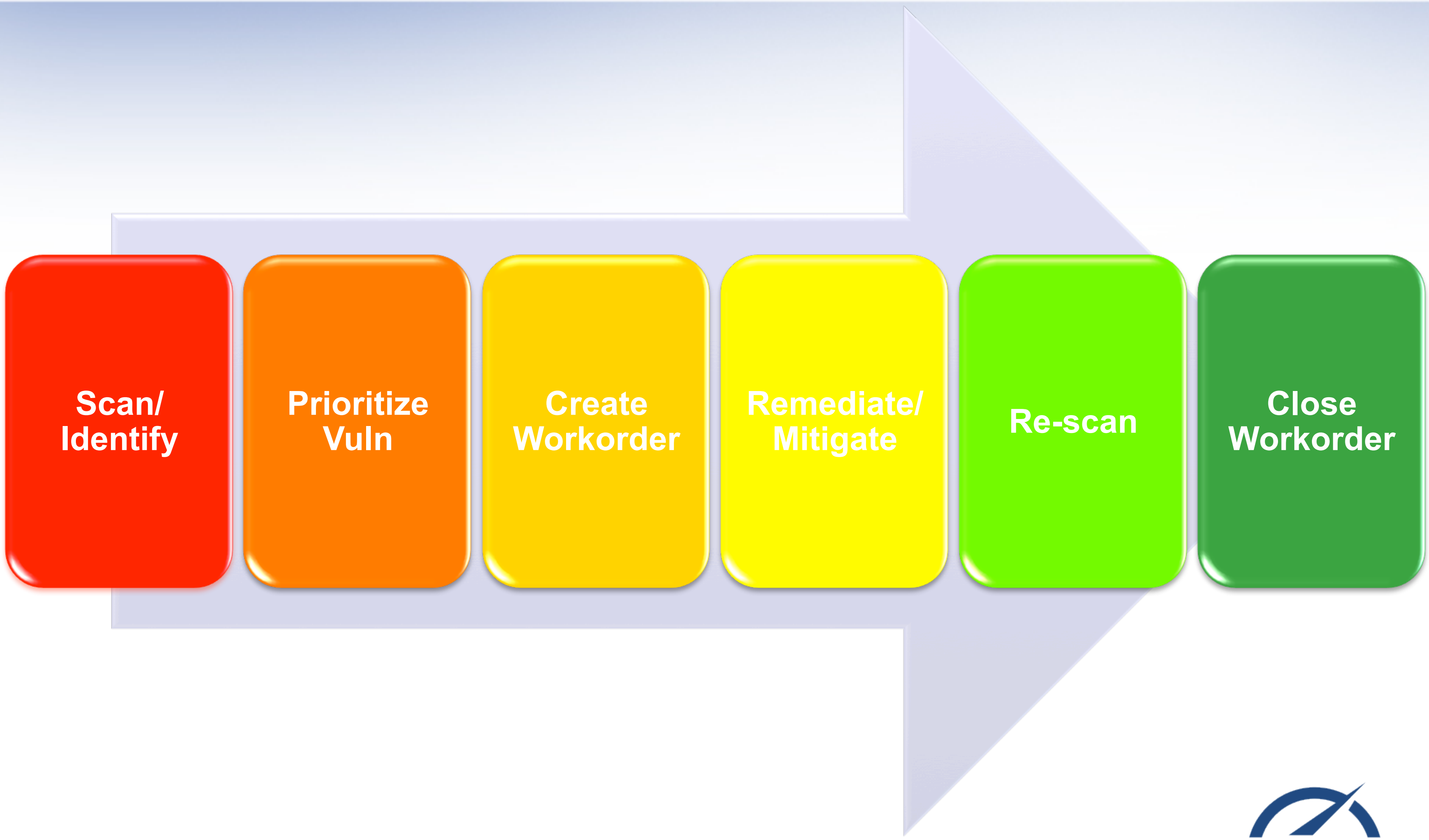
# SIEM Monitoring

- Can consume most logs, email events or other tool output.
- Consistent formatting to generate emails into ticketing system
- Single pane of glass to compare and correlate detected vulnerabilities with ongoing events

# Custom Applications

- Only useful if people use them
- Need to understand the tools staff are using today and integrate with whats working currently.
- These are operational tasks.

# Vulnerability Mgmt Process



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# Management Buy-In

- Operations gets their priorities list from above
- We have to educate management
- Metrics help

# Metrics that Work

- % of Critical Assets w/significant Vulnerabilities
- Lag time to remediate vulnerabilities
- FTE time or other resources required to fix
- Vulnerabilities contributing to root cause for past incidents or similar
- Correlation between attacks seen and prevented by vuln mgmt

# Useless Metrics

- We remediated X number of vulnerabilities.
- Metrics and trending from groups that are also experiencing scope creep or reduction
- Base CVSS scores

# Questions?

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