RSAConference2015
San Francisco | April 20-24 | Moscone Center

SESSION ID: ASD-R02

A Case Study in Building an AppSec Program: 0-60 in 12 months

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Agenda

- The Problem
- Implementation Steps
- Control Points
- Implementation Hurdles
- Summary – Lessons Learned
- Apply It

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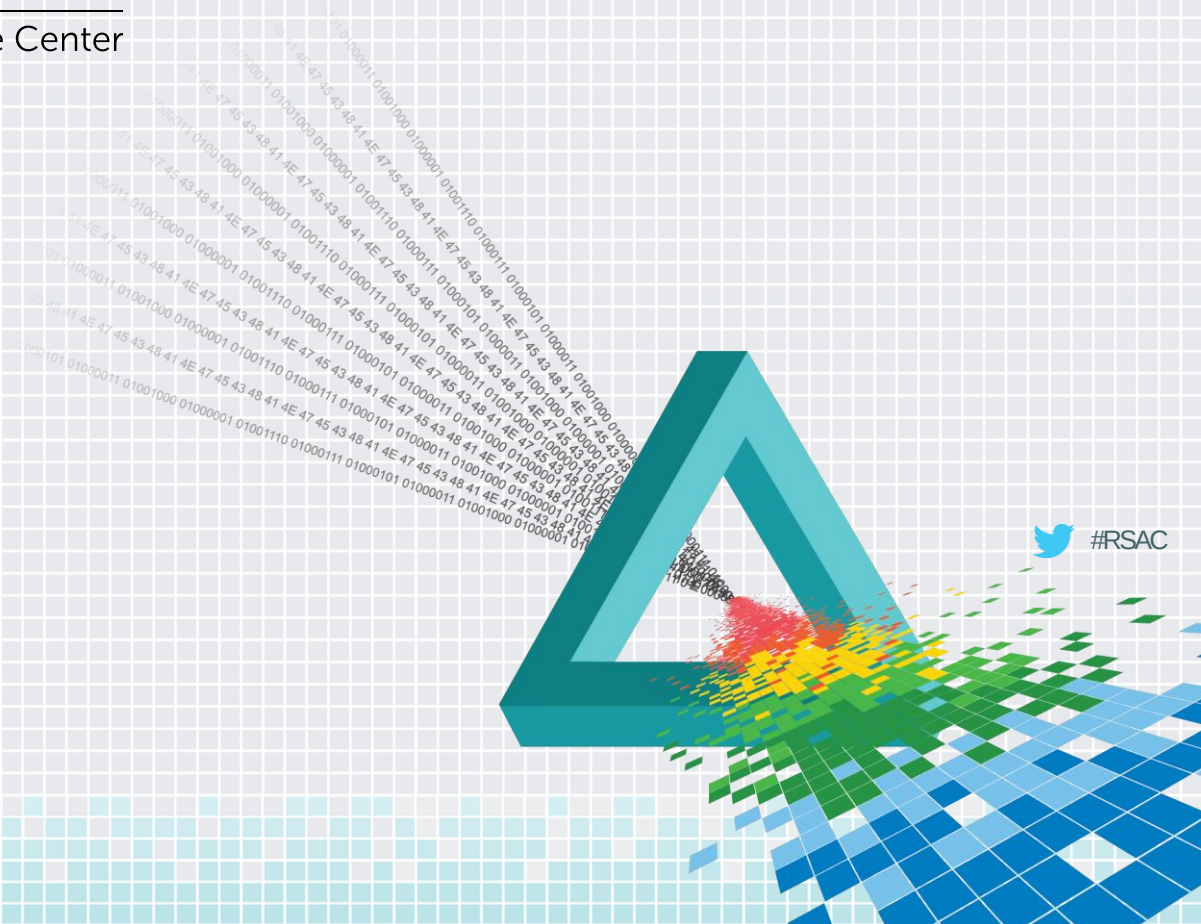
The problem



Can you image?

- Security department viewed as a roadblock, and avoided whenever possible
- Software that is used to process millions of banking transactions developed without an application security program in place
- Regulatory pressure to have an AppSec program in place yesterday

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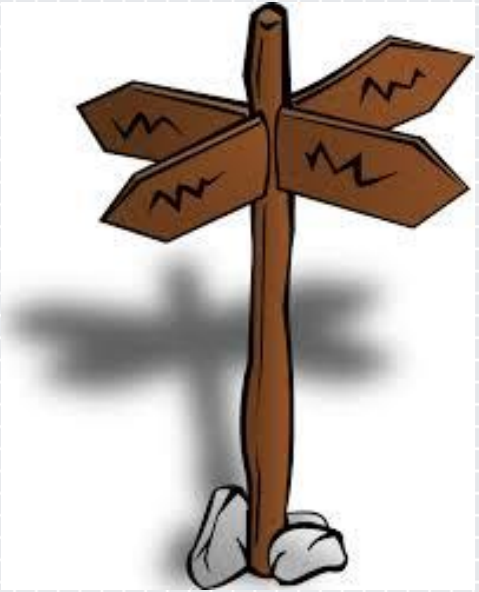
What would you do?



- I am not an application security guru
- Chances are, you're not an AppSec guru either
- Here is the story of what I did, and how it went

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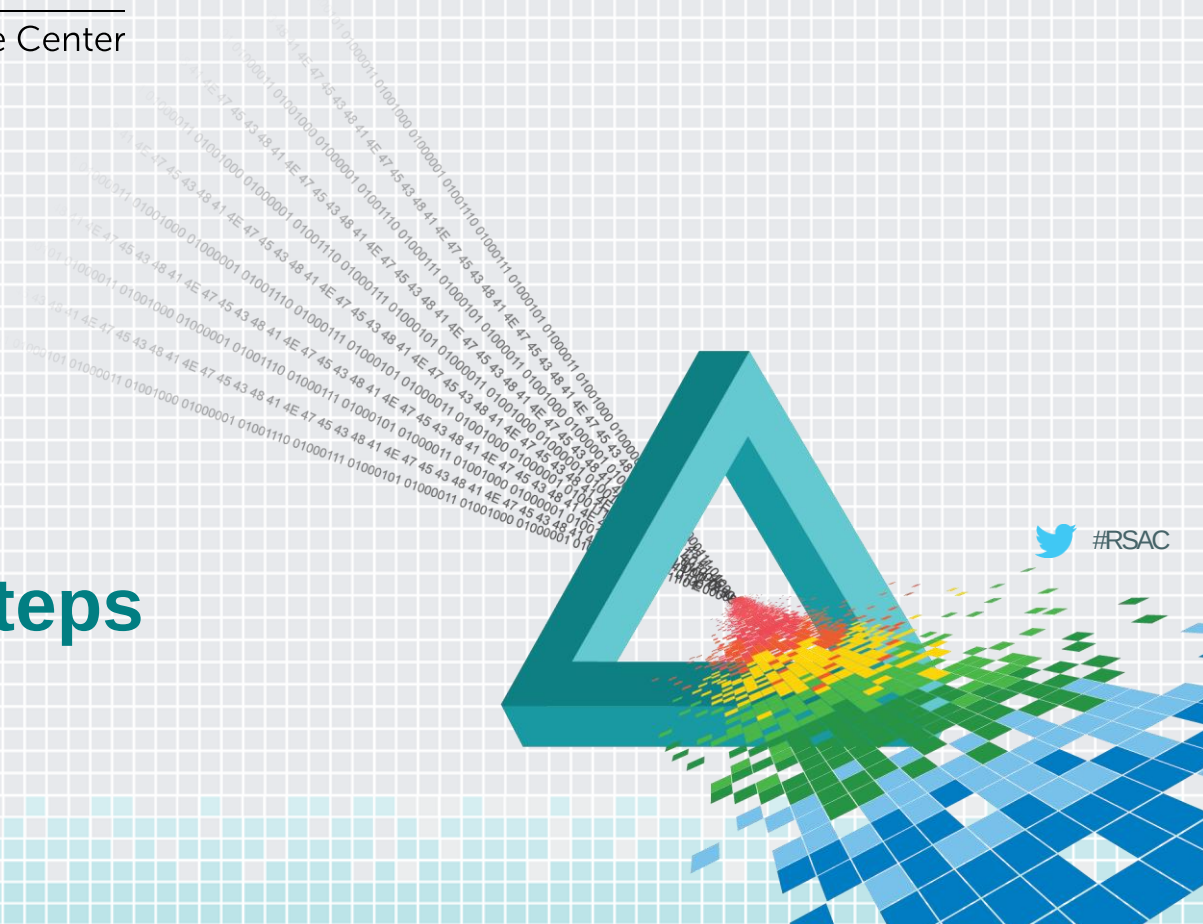
Implementation steps



It's all about the relationships

- Got buy in
- Different relationships with different levels in the organization
- Built support both high and wide.
  - Started with the highest level of support I could find
  - Got executive champions from multiple departments – development, legal, product development, and more
- Figured out how to turn the project into a 'win' for every individual and team involved

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Prioritize the work

- Didn't try to do it all at once
- Risk ranked the applications (more on this later)
- Gathered input from as many stakeholders as possible – developers, infrastructure, legal, product management, finance, and many others
- Fed the plan back to the stakeholders – showed them what we created collaboratively, and what their role will be

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Creating champions

- Champions keep program momentum while I'm looking the other way
- The senior technical folks are often excited for the new challenge
- Junior level developers may see this as a way to differentiate themselves versus their peers
- In either case, worked with their managers to get their security responsibilities formally recognized in their review process
- Success breeds success, and champions breed other champions

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Putting the controls in place

- One control at a time!
- Identified an associated effectiveness measurement from the very beginning
- Didn't move on to the next control until I had achieved success with the previous

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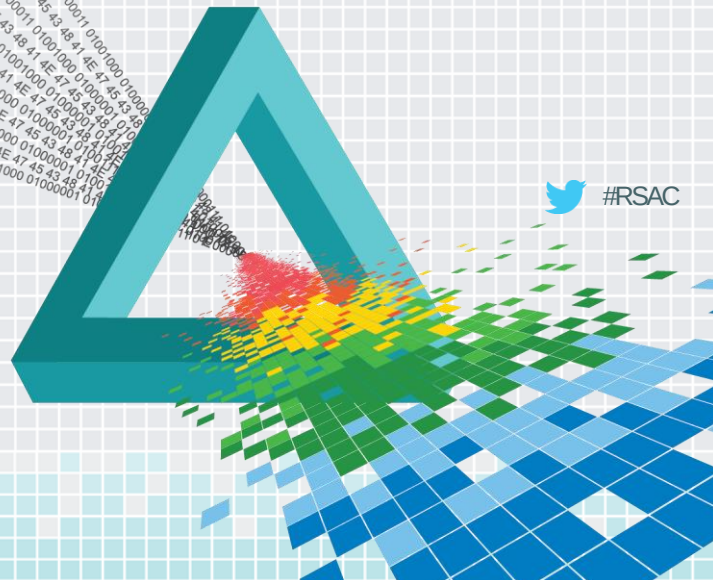
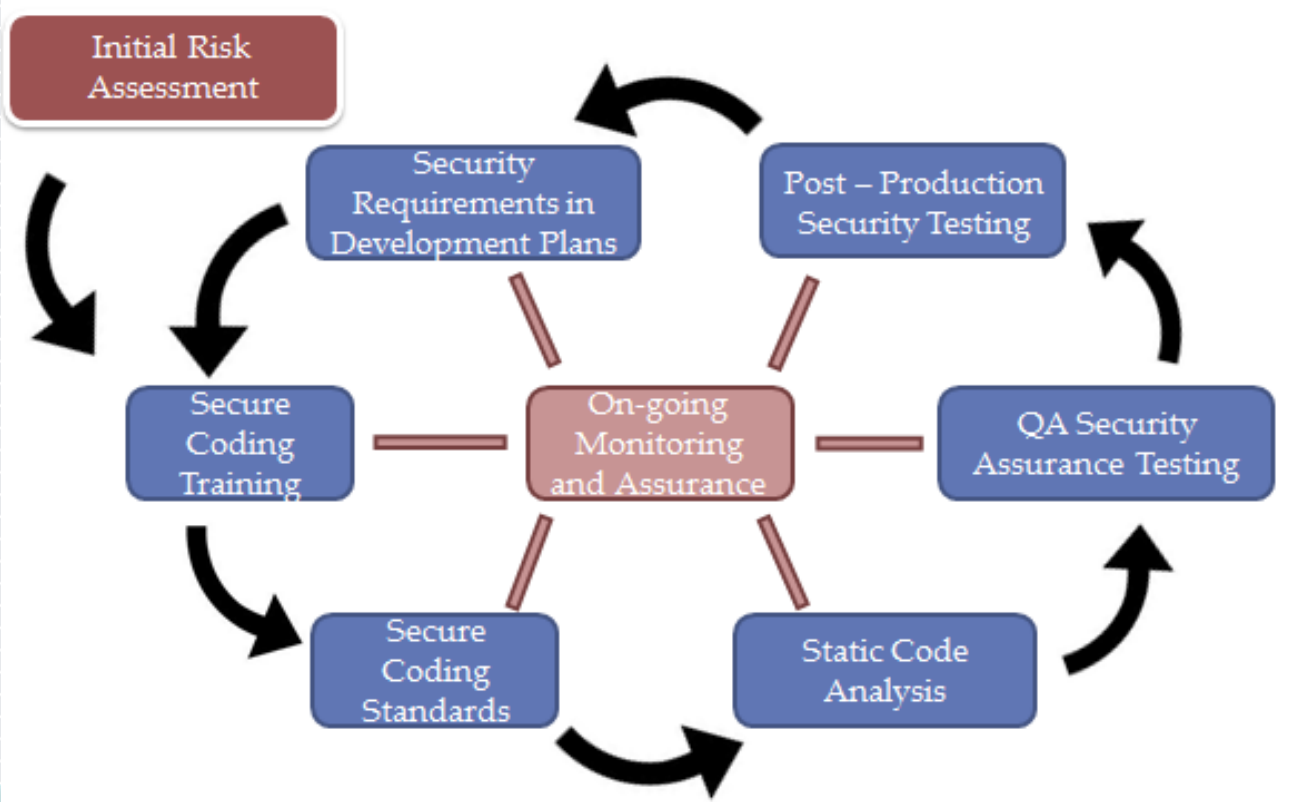
Control Points



Security in the SDLC



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Initial Risk Assessment

- Performed initial risk assessment of all enterprise applications to tier them
- This assessment was used to determine which applications should get focus first
- Included numerous elements (many non-technical) to determine relative risk

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Project reviews

- Formal involvement in all software development projects
- Utilized the Project Management Office for access
- Created a series of questions to understand the impact of the project
- Created list of security action items based on project review – action items managed by project manager in normal project scope
- Medium level of effort for the first project on given application
- Low level of effort for subsequent projects

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Secure coding training

- Rolled out to highest risk development teams, based on the results of the risk assessment
- Partnered with a provider for a suite of CBT courses
- All developers, QA, and PMs were assigned a general secure coding principles CBT
- Developers were assigned a technology specific course
- QA were assigned testing specific course
- PMs were assigned an SDLC focused course

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Secure coding standards

- Organization-wide standard for how code will be (securely) written
- Championed by security
- Written by the development department
- Technology agnostic, but addresses key principles
- Used CERT's "Top 10 Secure Coding Practices" as the starting point
- Deployed and trained all developers on the standard

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Static code analysis

- Regularly recurring static application testing throughout the development process
- Integrated into the code repository, and tested automatically with a nightly build process
- Results integrated directly into the ticketing system
- All high flaws had to be remediated before the release could be approved

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Security QA testing

- Eventually QA should be the ones who own all application flaws (security or otherwise) found in the QA environment
- Initially the security team had the expertise to run application testing tools
- Partnered security resources with QA resources to cross-train

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Dynamic testing in production

- Similar to the testing performed in QA
- Regularly scheduled scans of all production systems
- Designed to find anything that slipped through the cracks or newly discovered system level vulnerabilities

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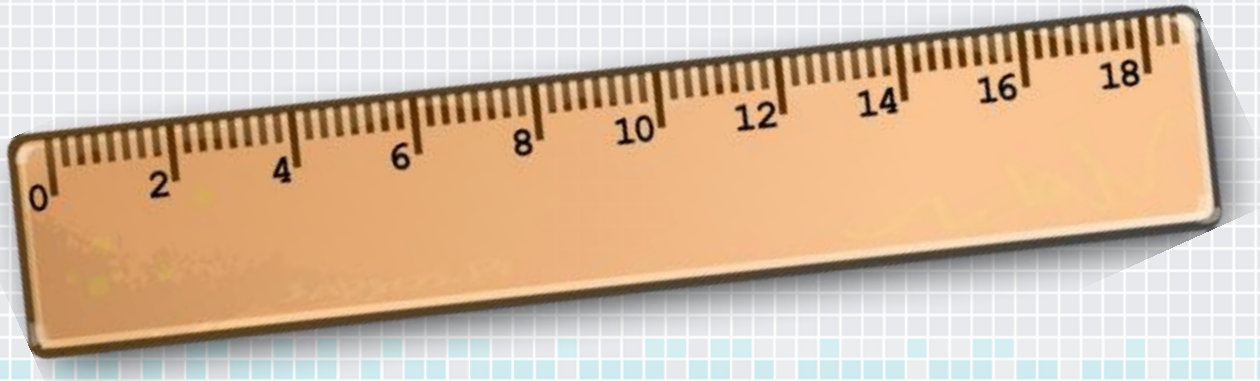
Metrics, monitoring and reporting

- What gets measured gets done
- Created a dashboard of application security metrics, showing the effectiveness of each control
- Promoted adoption among all teams



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Example Metrics

Secure Code Training

Training Completed on Time:

Status: COMPLIANT

Date	Training 1 (Due 9/30)	Training 2 (Due 12/31)
12/1/2014	47 of 47 complete	43 of 47 complete

App 1 Dynamic Testing

Flaws Fixed within SLO:

NON-COMPLIANT

Date	Critical	Outside SLO	High	Outside SLO	Medium	Outside SLO
12/1/14	0	0	1	1	7	0

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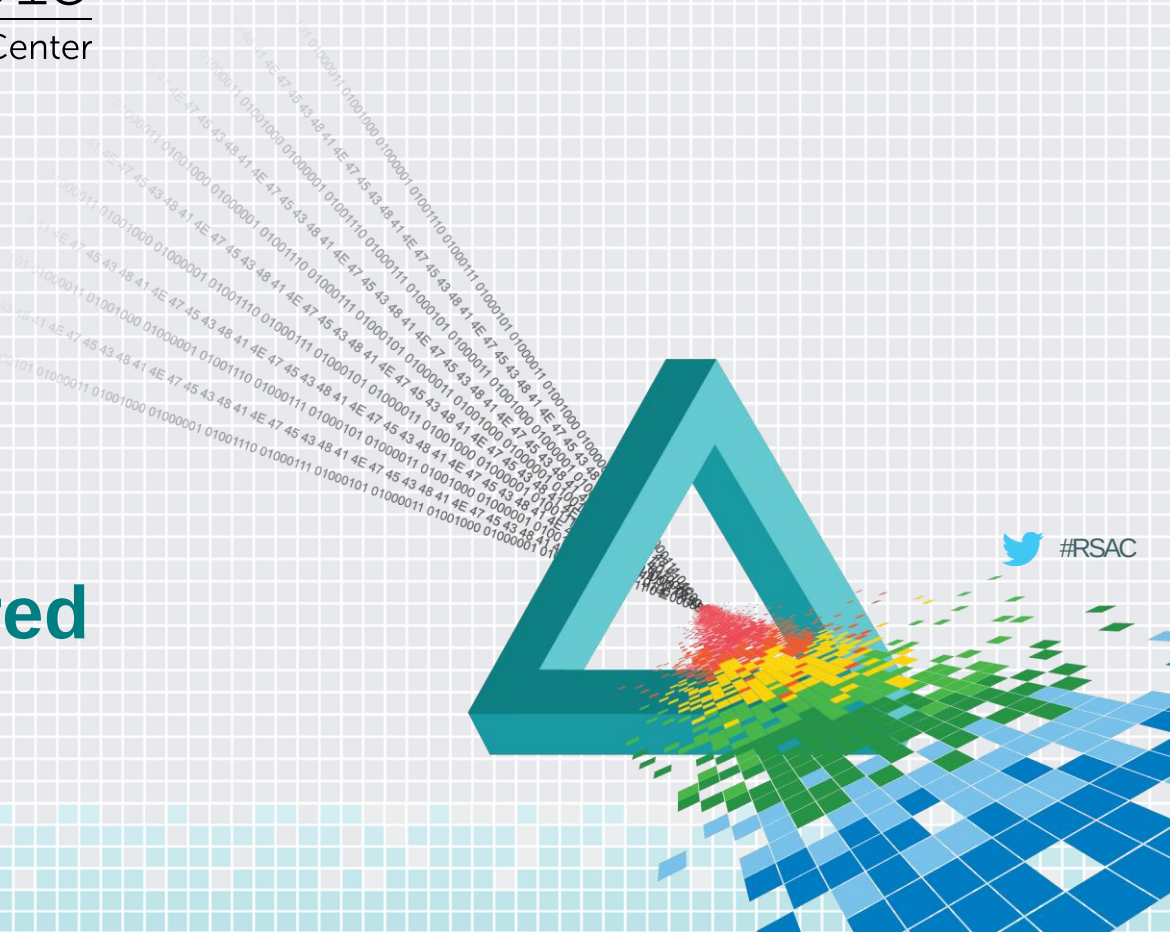
Hurdles encountered



Resistance to security

- Legacy of being “The Department of No”
- Perception of security being an infrastructure problem (“Aren’t they the firewall guys?”)
- The need to create relationships in new areas

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Consensus on the controls

- More stakeholders help get buy-in, but too many cooks…
- Many have worked with technologies in the past
- Nobody wants to be held accountable to a standard they didn't create
- Lengthy process testing controls across vastly different teams

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Varying teams and SDLCs

- Waterfall, Agile, Ad Hoc and more
- .Net, Java, KOBOL, and more
- Multiple states, and even multiple countries
- Different release cycles
- Each difference required flexibility, but thrived when relationships were strong

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Moving from compliance to security

- We started this as a compliance initiative, how do we turn it into a value-add?
- Finding the ‘win’ for every team
- Reduce security incidents, reduce bug fixes
- Increase productivity

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Summary: Lessons Learned

Recruit their smart guys

- Every team has a couple of key players
- Sit down with those people, and genuinely seek their help
- Let the others be swayed by their own leaders

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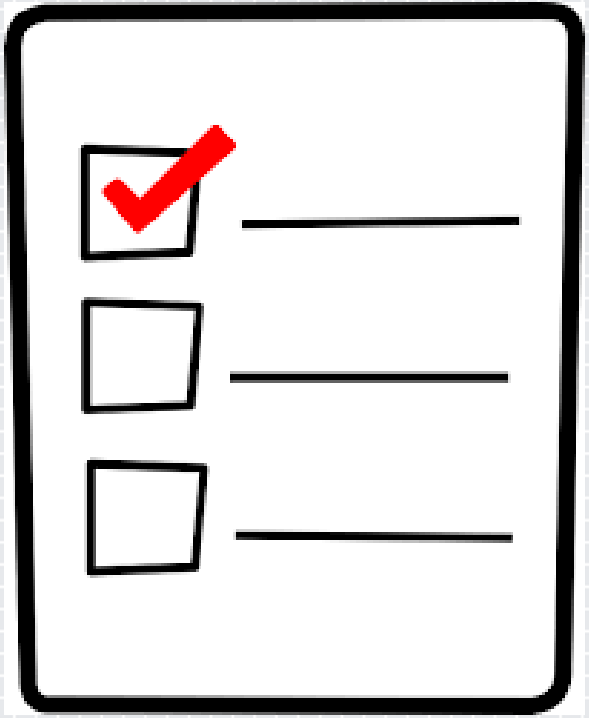
Don’t tackle it all at once

- Triage!
- Focus on the highest risk first
- Work your way down the list until you’ve managed the risks appropriately



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Find the right technology partners

- Secure Code Training
- Static Application Analysis
- Dynamic Application Analysis
- Think flexibility and scalability
- Slaughter a few (figurative!) sacred cows

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Key Lessons Learned

1. Recruit their smart guys
2. Don’t tackle it all at once
3. Find the right technical partners

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Apply It!

- **Week 1:**
  - Schedule times to talk with key stakeholders, determine importance of an AppSec program
- **Month 1:**
  - Assess the relative risks of your applications. Determine which should be handled first.
  - Begin vetting technical partners for:
    - Training
    - Static scanning
    - Dynamic scanning
    - Testing
    - Remediation work
- **Month 2+:**
  - Roll out the program to the highest risk applications
- **Month 3+:**
  - Track, report and repeat. Regularly scheduled check-ins with key stakeholders to measure progress

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Questions / Contact me

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