Building and Maturing your PSIRT

Lessons Learned from the trenches

Hello there!

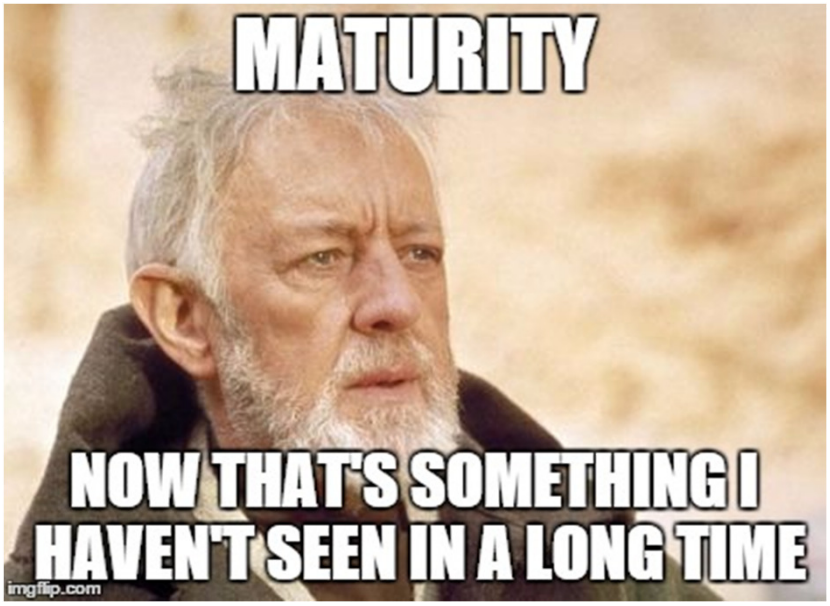
Lisa Bradley, NVIDIA

CRob, Red Hat

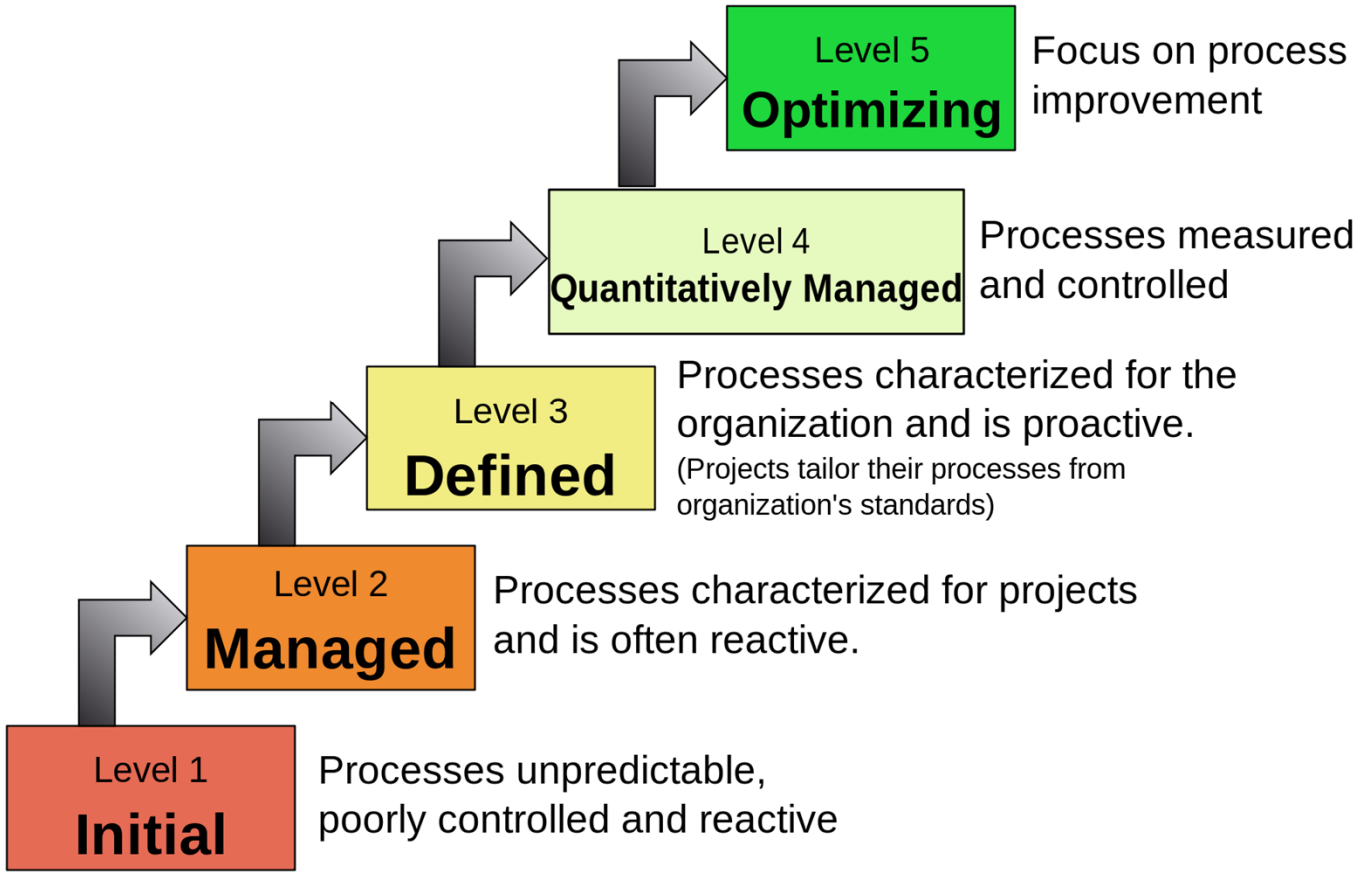
Agenda

Hi. We're Lisa and CRob, and we're here to talk to you about stuff and things.....

- Characteristics of the Maturity Model
- Novice PSIRT
- Advanced PSIRT
- Expert PSIRT

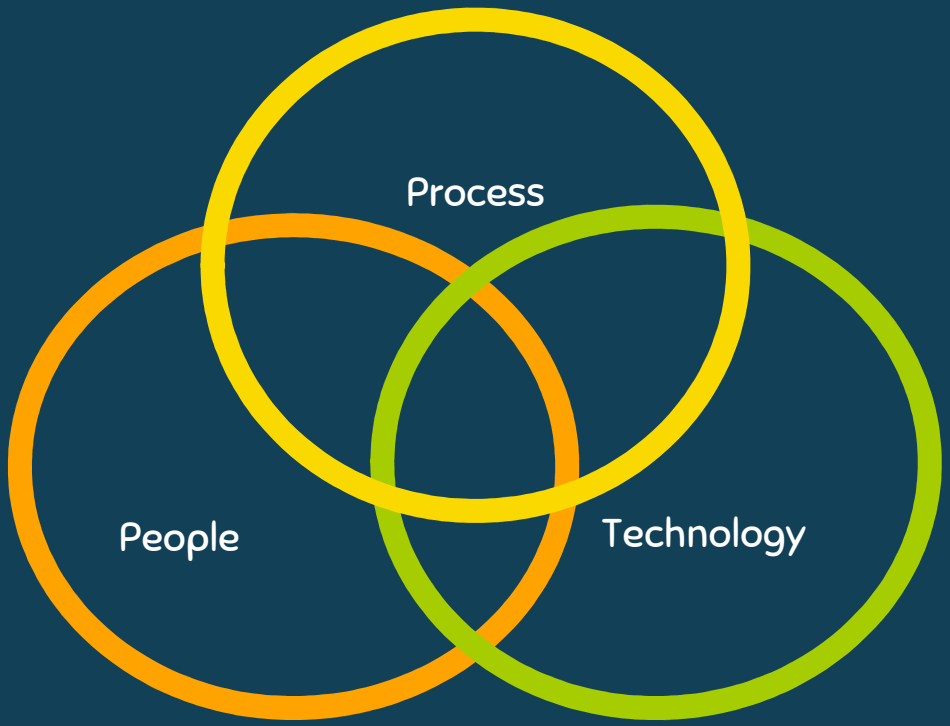


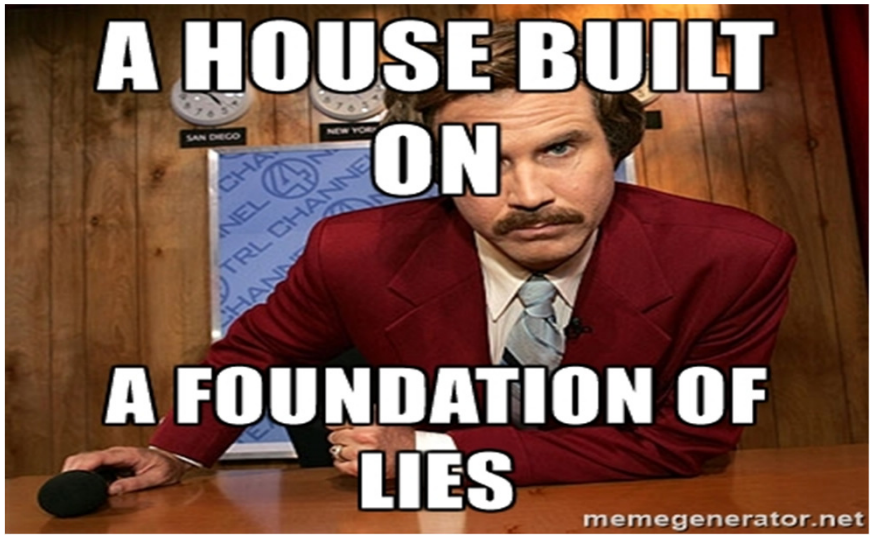
Characteristics of the Maturity levels



https://en.wikipedia.org/wiki/Capability_Maturity_Model_Integration

What will make you better is NOT new news

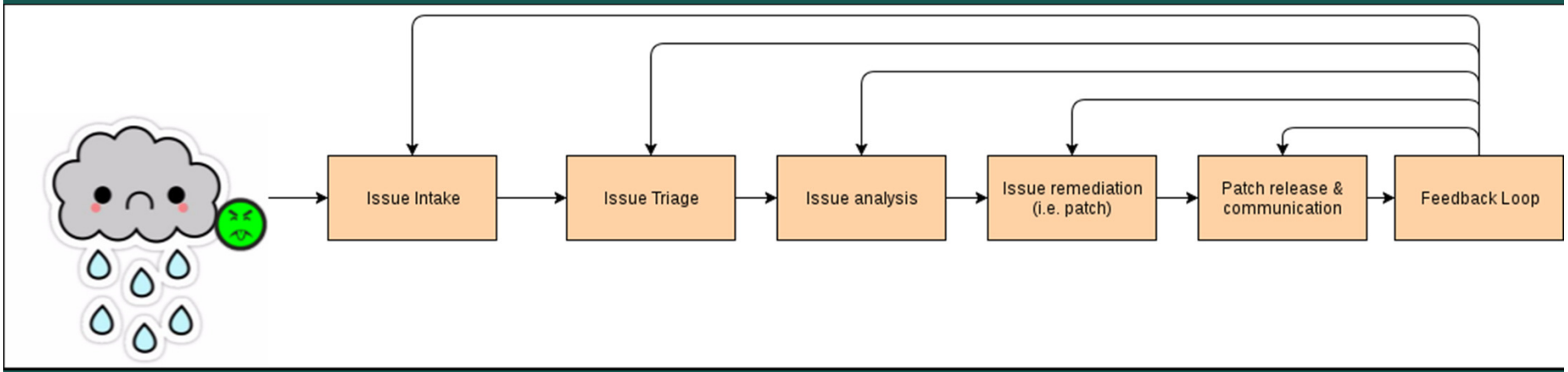




Novice

Let's start with the beginning

A High-level PSIRT process overview



Executive and Organizational Support

The single most important thing a PSIRT needs is executive leadership buy-in and support. Without it, PSIRT will not be able to be effective in fulfilling its role.

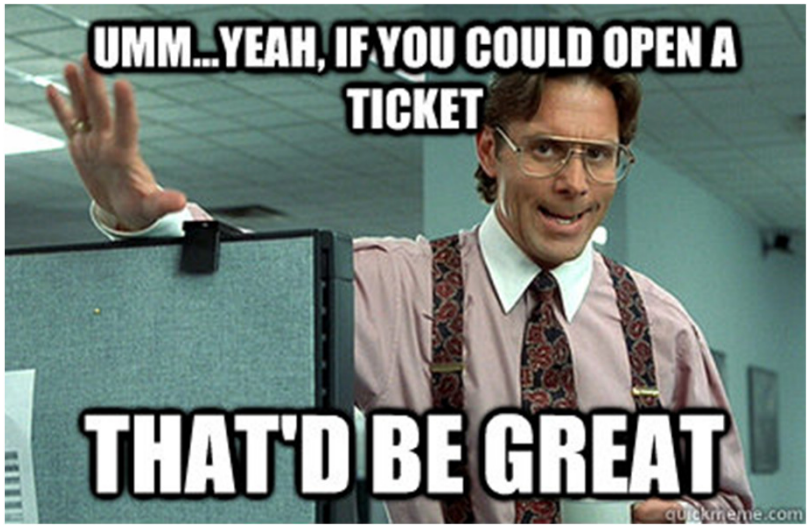
Using industry standards

Tools like CVE, CWE, CVSS, etc. are the common language that spans Products and Technologies and allows different organizations to understand

Ticketing/Tracking

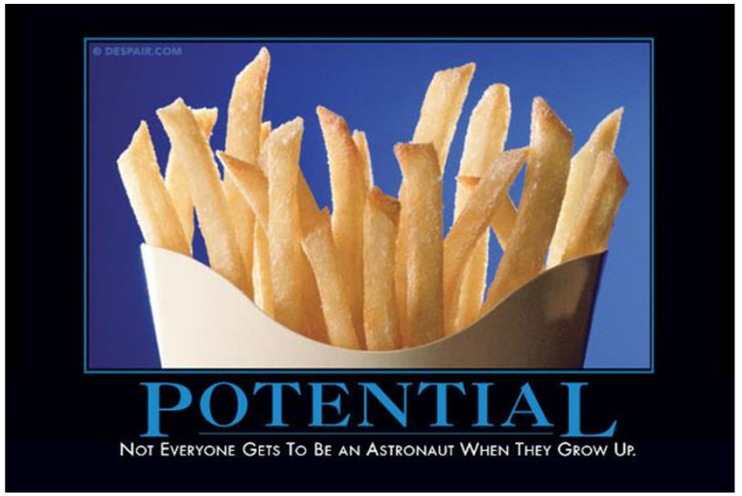
Core to PSIRT operations, making the right choices up front will drive your process/workflow down the road…. Choose wisely

Can you leverage an existing bug system?



External Product Security Page

Customers and partners should have a simple way to see your processes/policies and be able to contact you.



Advanced

Moving up the maturity scale

Slide 12

1 replace ron here

CRob Robinson, 2/23/2017

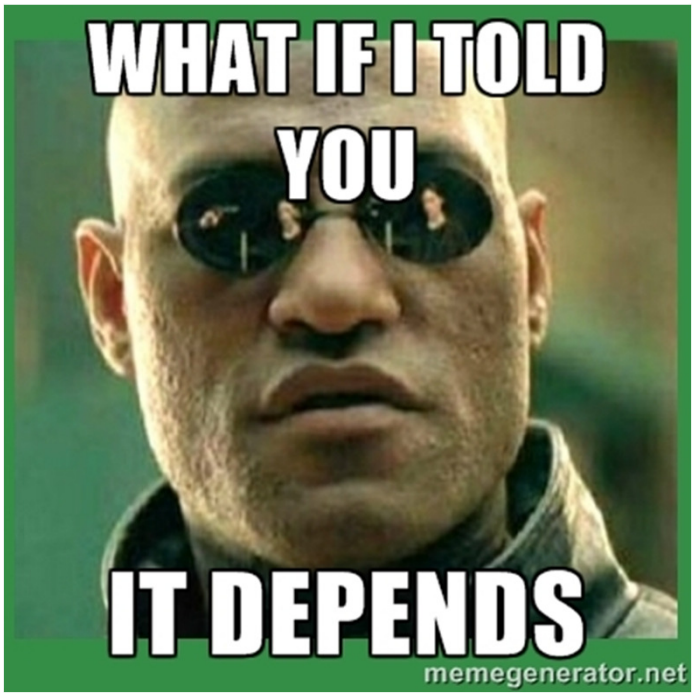
Maturity Improvement

What do we want to be when we grow ?

- Once the basics are put into place and running smoothly, you'll start thinking about how to improve things….

Dealing with 3rd party reporters

Odds are someone that isn't you will find flaws in your products...how are you going to work with them?



Extending your team – Security Champions

- Helps lead security activities
- Develops security strategies and processes
- Helps to evaluate issues
- Reviews exceptions to policies
- Scores vulnerabilities
- Proactively monitors security

Policies and Lifecycles

It’s important to have

- Branch/Version Support Policies
- Date Policy - Delivery SLA
- Exception process
- Lifecycles

Documented for customers and employees

In the middle of one isn’t the best time to figure that out

Metrics

Active reporting:
- Count by BU and source
- Aging for each BU

Fixed issues reporting:
- Count by source
- Time to fix by source and BU

Other:
- Exception stats
- CWE for fixed issues

Consider audience for your metrics

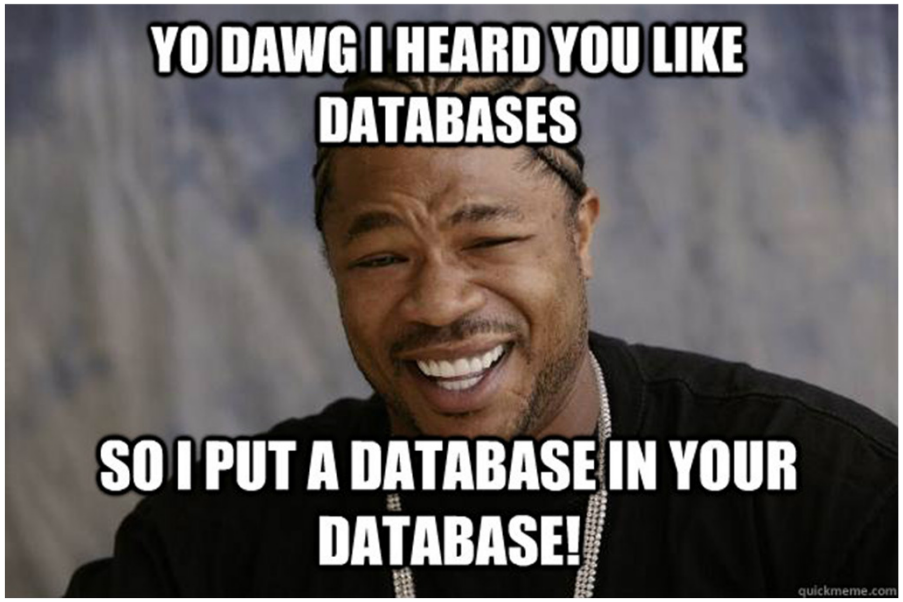
Embargos

Sometimes issues need to/are asked to be kept secret. How will you deal with it?

Is it in the best interest to the customer?

Product Registry

- Name and alias names
- What are you?
- Functional BU
- More info:
  - Product lifecycle
  - Supported versions
  - Release schedule
  - Partners
  - Download page
  - OSS dependencies



4-5

Level 4 **Quantitatively Managed**	Processes measured and controlled
Level 5 **Optimizing**	Focus on process improvement

Expert

It really is all flying cars and silver spacesuits...

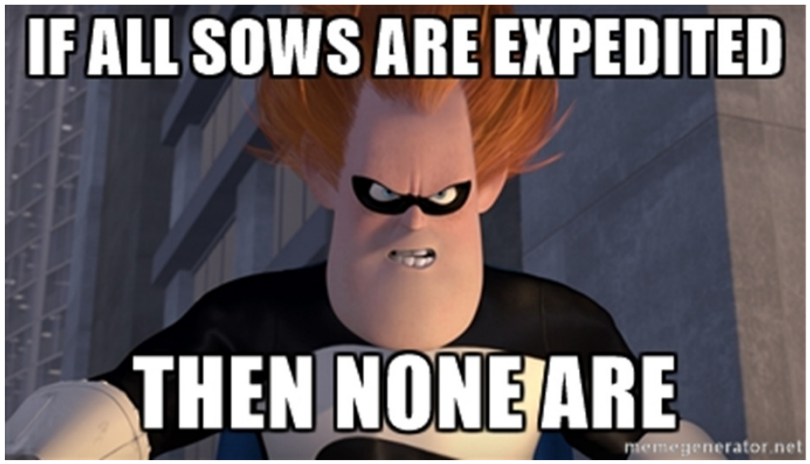
The Future of PSIRTs

So you've got a PSIRT, and you've got some process and tooling, you're doing some stuff….what next?

Advanced process and policies

Expedited Process

- Whatever you call it, High Touch, Media events, Branded flaw, Expedited, yada yada… what do you plan to DO about it WHEN it happens?



Dependency Management

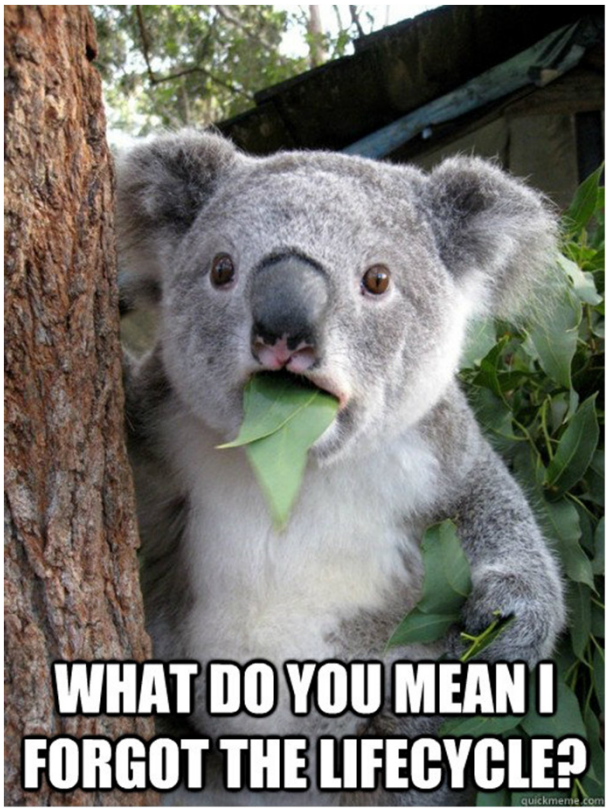
Do you really KNOW what's inside your products?

- How are you tracking what your devs are "baking in"?
- What will you do when THEIR stuff breaks?

End-of-Lifecycle

Is it really a lifecycle if nothing ever dies?

- Know thy Customers
- **DON'T LET SALES DEFINE YOUR LIFECYCLE!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!**
- How are products EoL communicated?
- Do you use a Phased approach?
- When the lifecycle changes, what are you going to do? Can it change?
- How are you managing "bundled" products?



Bug Bounties

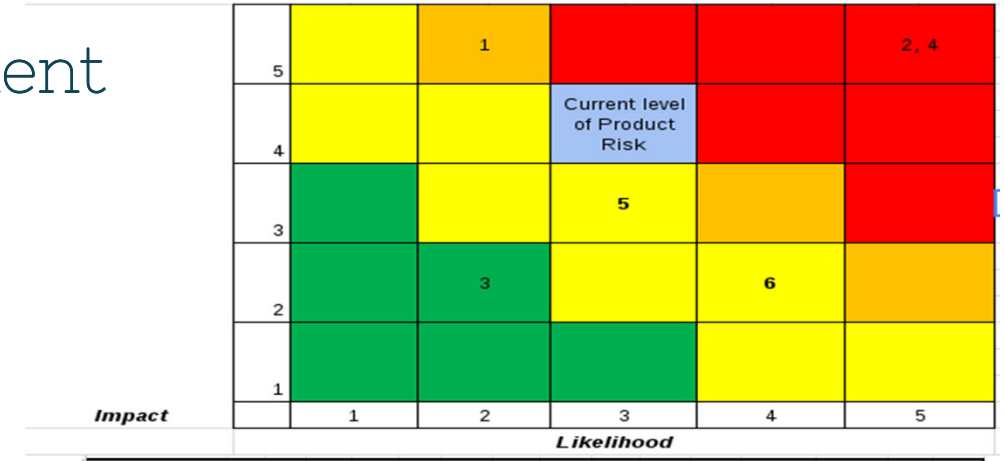
This is a thing that exists.
You may or may not elect to participate.

- You will be contacted by people brokering vulns. What will you do?
- B.B.'s do offer private services.

Advanced Risk Management

Using methods like STRIDE, threat modeling, risks matrixes, Options & Impacts, or others can help the PSIRT convey the level of Risk the organization is facing.

Once you get here, think about determining the costs of vulnerabilities & vuln mgmt.



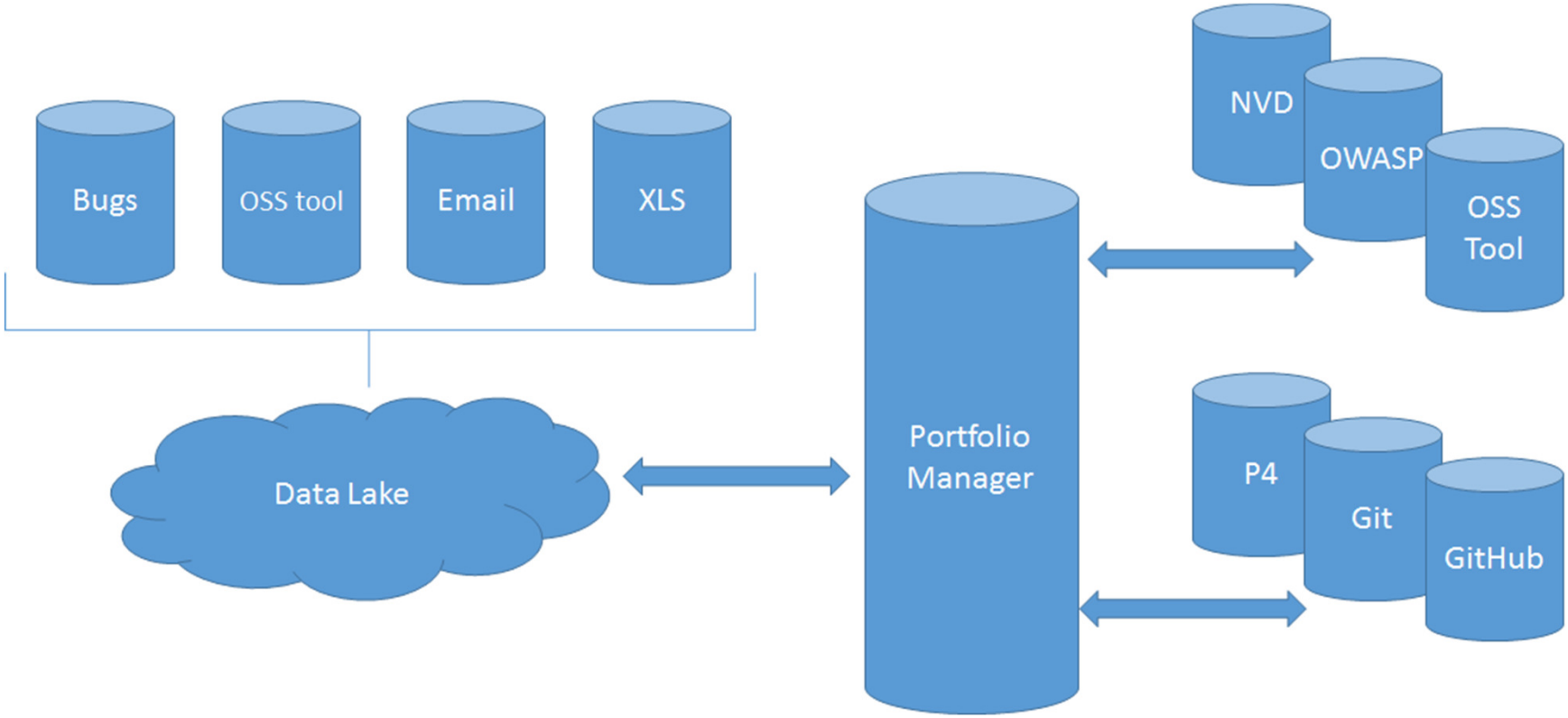
Risk Categorization Values					
Category	**5**	**4**	**3**	**2**	**1**
	100-81	**80-61**	**60-41**	**40-21**	**20-0**
Likelihood	Very likely to Virtually Certain	Quite Possible to Very Likely	Somewhat Possible to Quite Possible	Remotely Possible to Somewhat Possible	Very Unlikely (practically impossible) to Remotely Possible
Impact	(extremely material) to Extraordinary (survival is threatened)	Serious (very material) to Pervasive (extremely material)	Important (material_ to Serious (very material)	Small (immaterial) to Important (Material)	Very Small (inconsequential) to Small (immaterial)

RA Values L/I	Risk Assessment Scale
5/5, 5/4, 5/3. 4/3, 5/2, 4/4, 4/5, 3/5, 3/4, 2/5	High Risk: The loss of confidentiality, integrity, or availability, could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets, or individuals.
5/1, 4/1, 4/2, 3/3, 3/2, 1/5 1/4, 2/4, 2/3	Moderate Risk: the loss of CIA could be expected to have a serious adverse effect on organization operations, org assets, or individuals
2/2, 1/2, 2/1, 1/1	Low Risk: the loss of CIA could be expected to have a limited adverse effect on organization operations, org assets, or individuals.

Advanced Tooling

- PSIRT Tool
- Scoring Tool
- Feeding reporting/CWEs - feedback into Secure Engineering
- Monitoring feeds and external sites - automatically pulling data from upstream sources to auto-generate a ticket (Dependency Tracking)

Portfolio Management System



To Summarize

Back to Basics…
Do this and that

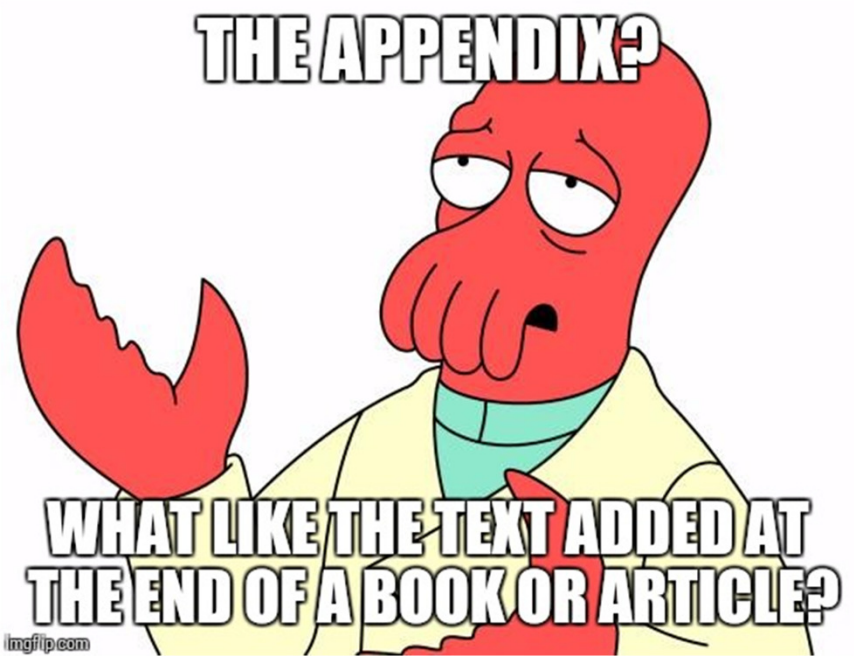
Walk, then Crawl
Do that and this

Flying Cars
MOAR Awesomeness

THANKS!

Any questions?

You can find us at
www.linkedin.com/in/lisambradley and Lisa @ nvidia.com
@RedHatCRob and CRob @ RedHat.com


THE APPENDIX?
WHAT LIKE THE TEXT ADDED AT THE END OF A BOOK OR ARTICLE?
imgflip.com

Appendix

Level 1

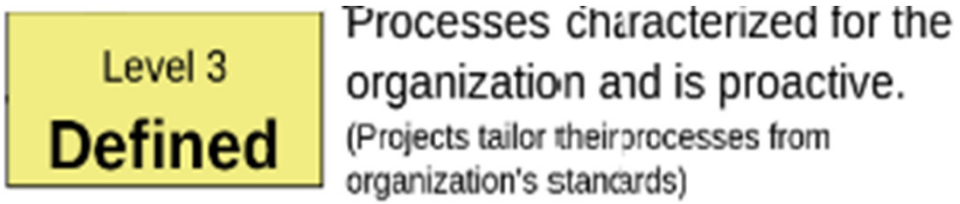
Initial

Processes unpredictable, poorly controlled and reactive

Defining PSIRT Process, Steps
Email/submit/basic ticketing
Define Severity CVSS
CVE/CVSS industry standards
External Product Security Page
External Communication/Disclosure
Templates for Communication
Executive Support

Processes characterized for projects and is often reactive.

Dealing with 3rd party reporters
Cross organization support - Security Champions
Branch/Version Support Policies
Date Policy - Delivery SLA
Exception process
Lifecycles
Baseline Metrics
Embargo
Product Registry
Educating



Community internal support - helping each other
External Groups FIRST
Alignment of security fixes for all versions/products
Enhanced Severity definitions
Integrating into SDLC
PSIRT Operations - having a real team

Level 4
Quantitatively Managed

Processes measured and controlled

Expedited Process
OSS tooling
Dependency Management
Risk Management
Determine cost of vulnerability management
Operational, trends, broad level Metrics
Fully established Lifecycle
PSIRT Tool and Scoring Tool
Feeding reporting/CWEs - feedback into Secure Engineering (RCCA)
Monitoring feeds and external sites - automatically pulling data to auto-generate a ticket

Focus on process improvement

Bug bounties - reaching to find issue