RVASec 2015

Vulnerability Coordination and Concurrency

Allen D. Householder

@__adh__

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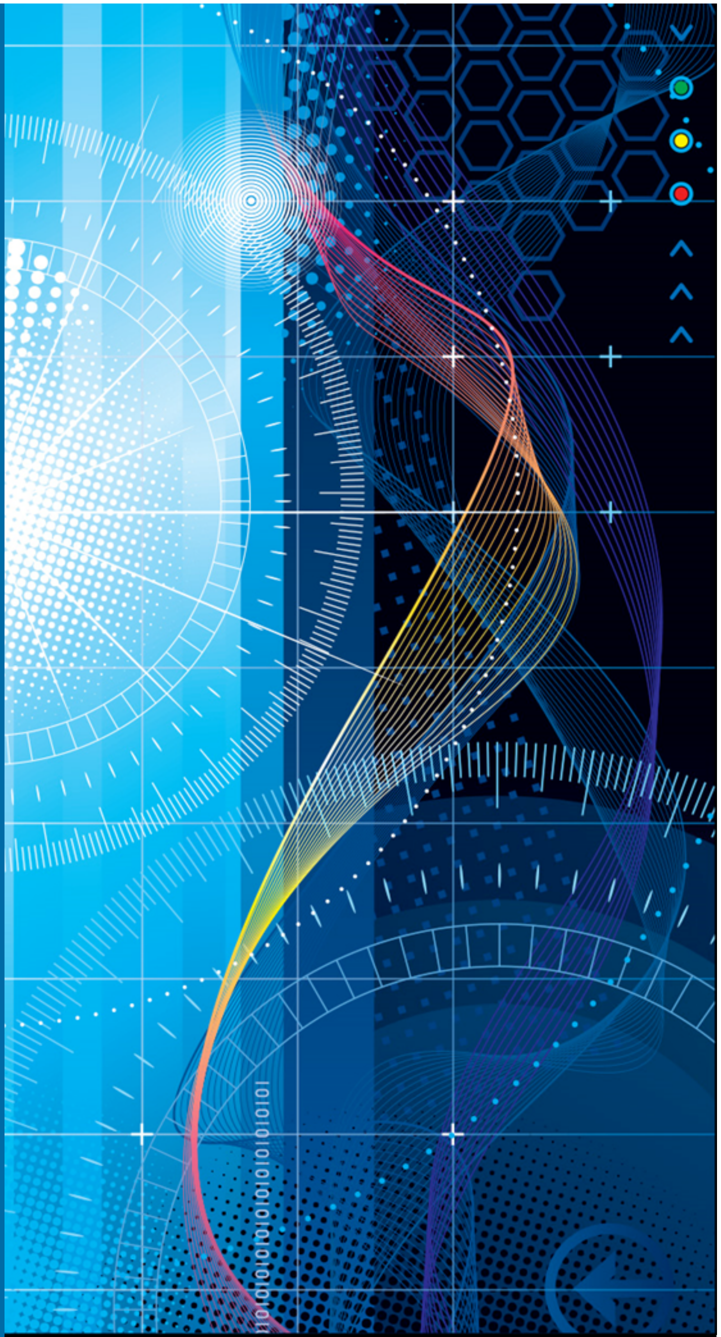
Carnegie Mellon University
Pittsburgh, PA 15213



CERT | Software Engineering Institute | Carnegie Mellon University

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DM-0002445

Vulnerability Coordination and Concurrency

Introduction & Motivations

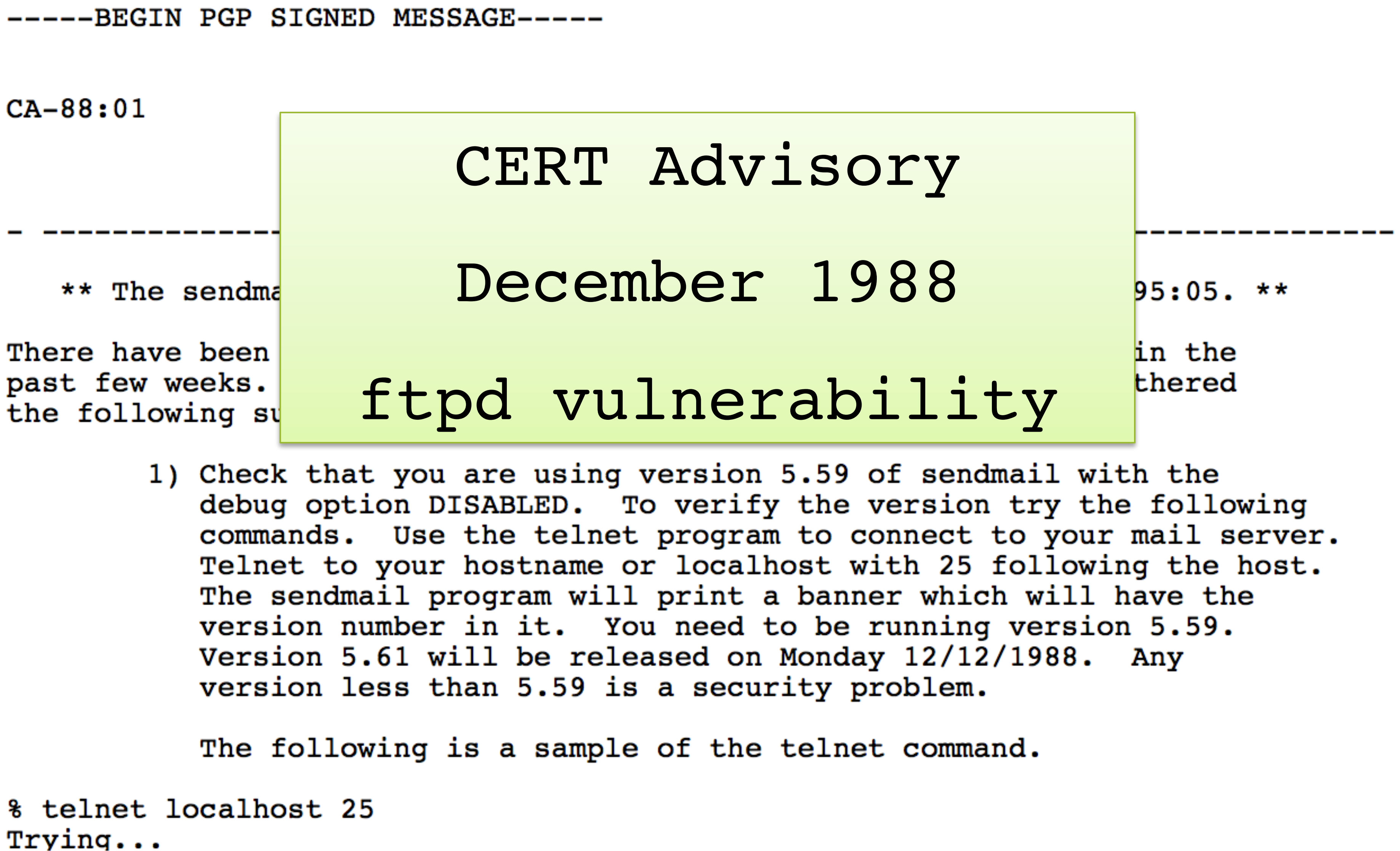
Survey of Vulnerability Disclosure Models

Modeling Coordination as Concurrency

What We’ve Learned (So Far)

Conclusion

CERT and Vul Disclosure Go Way Back

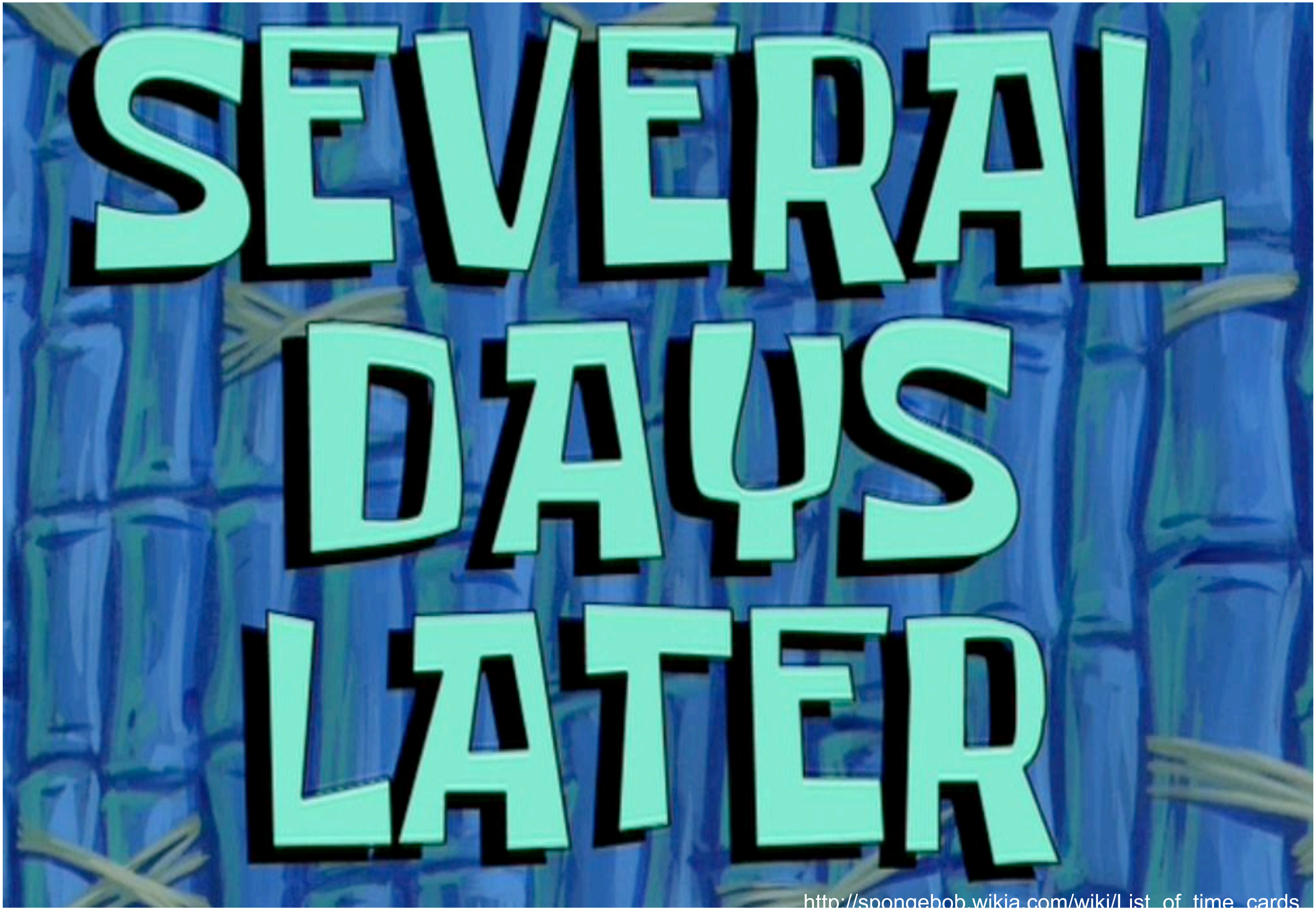


```
-----BEGIN PGP SIGNED MESSAGE-----


CA-88:01



- -------------                                                 --------------

   ** The sendma                                              95:05. **

There have been                                               in the
past few weeks.                                               thered
the following su

        1) Check that you are using version 5.59 of sendmail with the
           debug option DISABLED.  To verify the version try the following
           commands.  Use the telnet program to connect to your mail server.
           Telnet to your hostname or localhost with 25 following the host.
           The sendmail program will print a banner which will have the
           version number in it.  You need to be running version 5.59.
           Version 5.61 will be released on Monday 12/12/1988.  Any
           version less than 5.59 is a security problem.

           The following is a sample of the telnet command.

% telnet localhost 25
Trying...
```

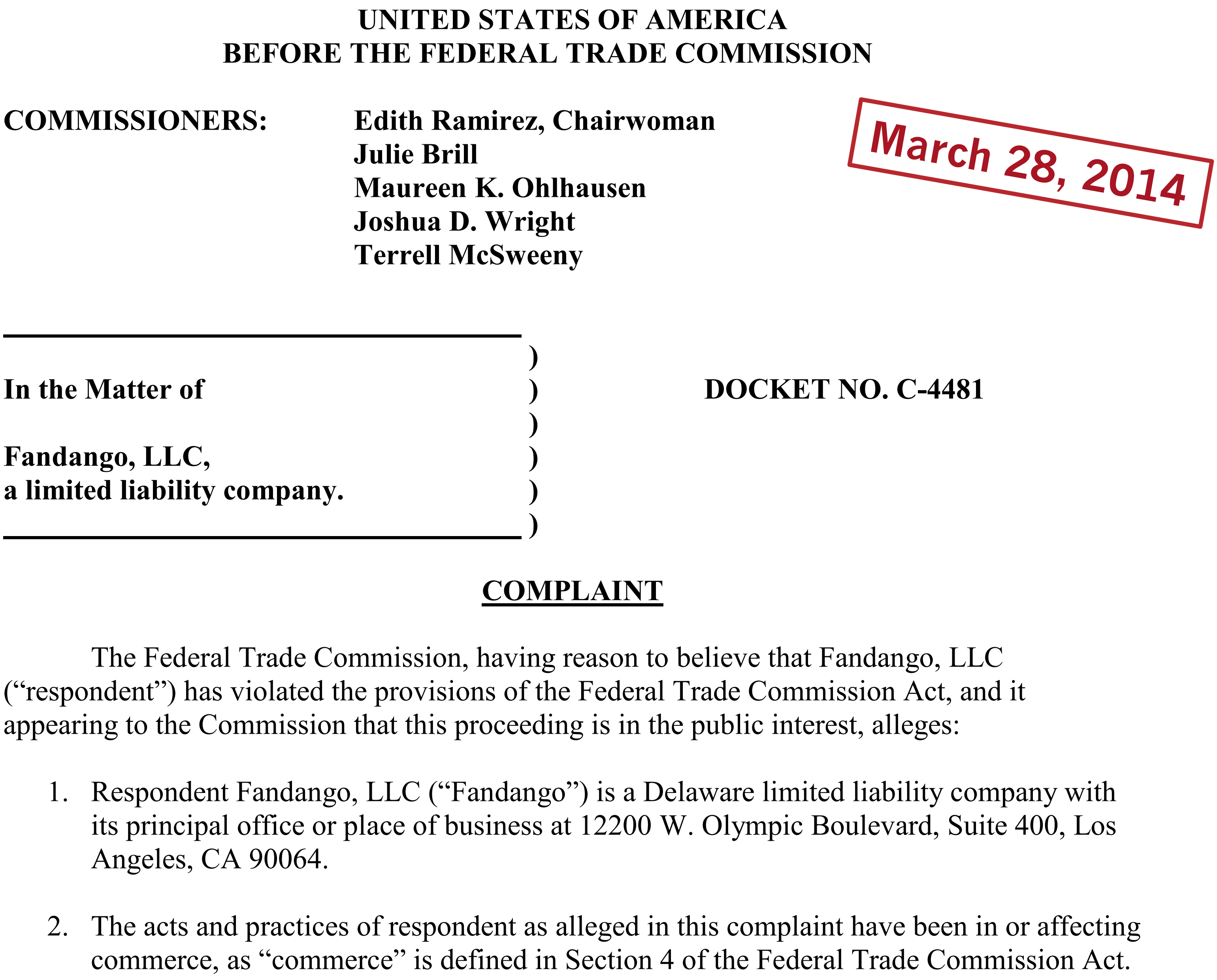
CERT Advisory

December 1988

ftpd vulnerability



http://spongebob.wikia.com/wiki/List_of_time_cards



UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

COMMISSIONERS: Edith Ramirez, Chairwoman
Julie Brill
Maureen K. Ohlhausen
Joshua D. Wright
Terrell McSweeny

March 28, 2014

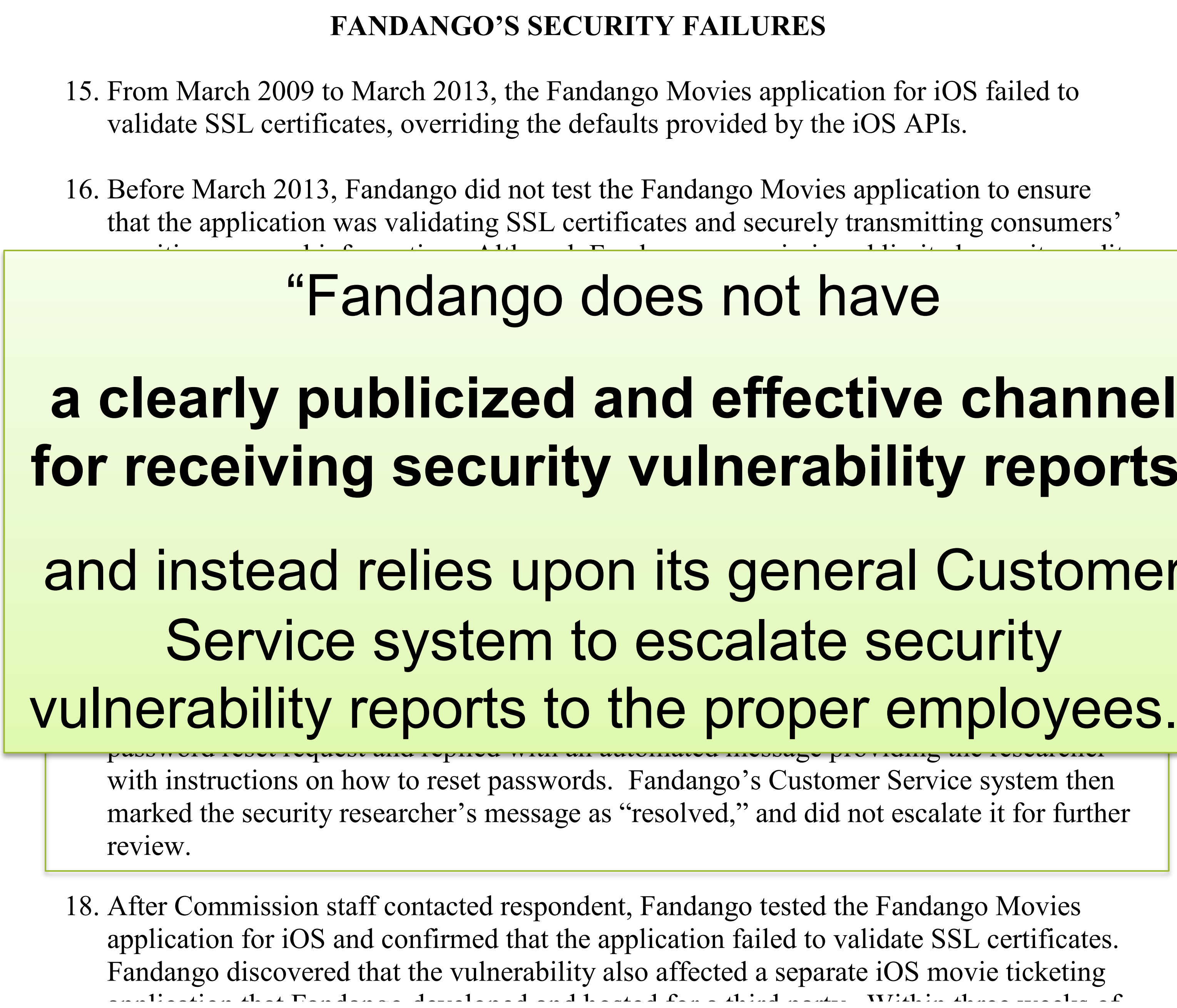
	)	
In the Matter of	)	**DOCKET NO. C-4481**
	)	
Fandango, LLC,	)	
a limited liability company.	)	
	)	

COMPLAINT

The Federal Trade Commission, having reason to believe that Fandango, LLC ("respondent") has violated the provisions of the Federal Trade Commission Act, and it appearing to the Commission that this proceeding is in the public interest, alleges:

1. Respondent Fandango, LLC ("Fandango") is a Delaware limited liability company with its principal office or place of business at 12200 W. Olympic Boulevard, Suite 400, Los Angeles, CA 90064.

2. The acts and practices of respondent as alleged in this complaint have been in or affecting commerce, as "commerce" is defined in Section 4 of the Federal Trade Commission Act.



FANDANGO'S SECURITY FAILURES

15. From March 2009 to March 2013, the Fandango Movies application for iOS failed to validate SSL certificates, overriding the defaults provided by the iOS APIs.

16. Before March 2013, Fandango did not test the Fandango Movies application to ensure that the application was validating SSL certificates and securely transmitting consumers' sensitive personal information. Although Fandango commissioned limited security audits

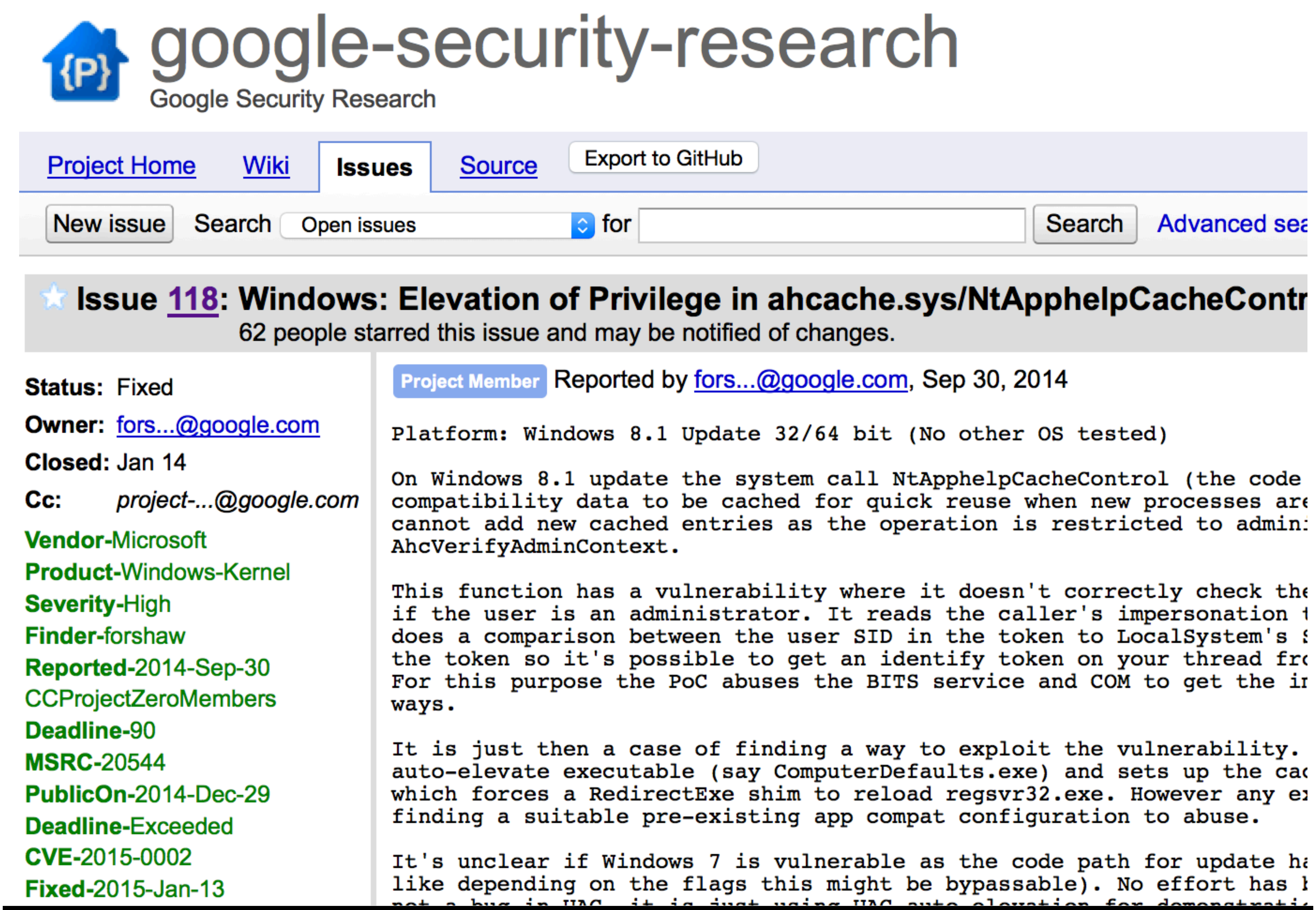
"Fandango does not have

a clearly publicized and effective channel for receiving security vulnerability reports,

and instead relies upon its general Customer Service system to escalate security vulnerability reports to the proper employees."

password reset request and replied with an automated message providing the researcher with instructions on how to reset passwords. Fandango's Customer Service system then marked the security researcher's message as "resolved," and did not escalate it for further review.

18. After Commission staff contacted respondent, Fandango tested the Fandango Movies application for iOS and confirmed that the application failed to validate SSL certificates. Fandango discovered that the vulnerability also affected a separate iOS movie ticketing application that Fandango developed and hosted for a third party. Within three weeks of



Issue 118: Windows: Elevation of Privilege in ahcache.sys/NtApphelpCacheContr

62 people starred this issue and may be notified of changes.

Status: Fixed

Owner: fors...@google.com

Closed: Jan 14

Cc: *project-...@google.com*

Vendor-Microsoft

Product-Windows-Kernel

Severity-High

Finder-forshaw

Reported-2014-Sep-30

CCProjectZeroMembers

Deadline-90

MSRC-20544

PublicOn-2014-Dec-29

Deadline-Exceeded

CVE-2015-0002

Fixed-2015-Jan-13

Project Member Reported by fors...@google.com, Sep 30, 2014

Platform: Windows 8.1 Update 32/64 bit (No other OS tested)

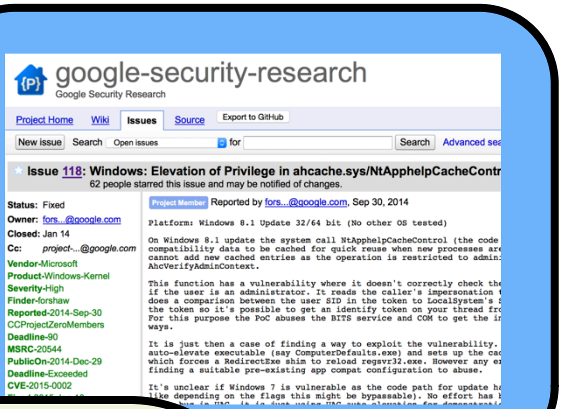
On Windows 8.1 update the system call NtApphelpCacheControl (the code
compatibility data to be cached for quick reuse when new processes are
cannot add new cached entries as the operation is restricted to admin
AhcVerifyAdminContext.

This function has a vulnerability where it doesn't correctly check the
if the user is an administrator. It reads the caller's impersonation t
does a comparison between the user SID in the token to LocalSystem's S
the token so it's possible to get an identify token on your thread fro
For this purpose the PoC abuses the BITS service and COM to get the im
ways.

It is just then a case of finding a way to exploit the vulnerability.
auto-elevate executable (say ComputerDefaults.exe) and sets up the cac
which forces a RedirectExe shim to reload regsvr32.exe. However any ex
finding a suitable pre-existing app compat configuration to abuse.

It's unclear if Windows 7 is vulnerable as the code path for update ha
like depending on the flags this might be bypassable). No effort has b
not a bug in UAC, it is just using UAC auto elevation for demonstratio

Google



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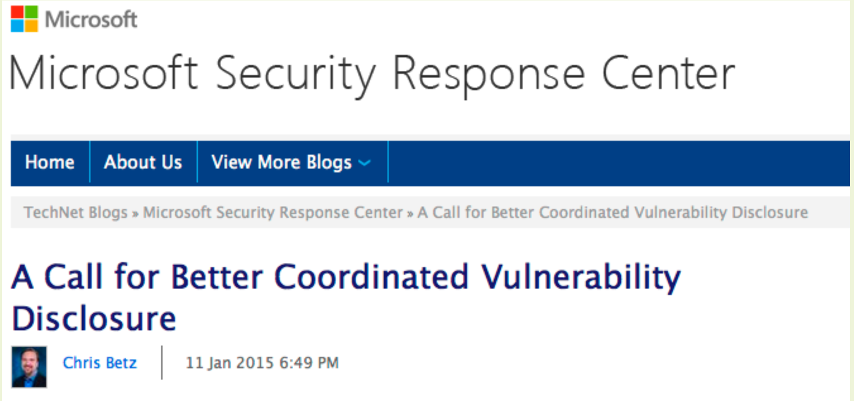


Microsoft Security Response Center

TechNet Blogs » Microsoft Security Response Center » A Call for Better Coordinated Vulnerability Disclosure

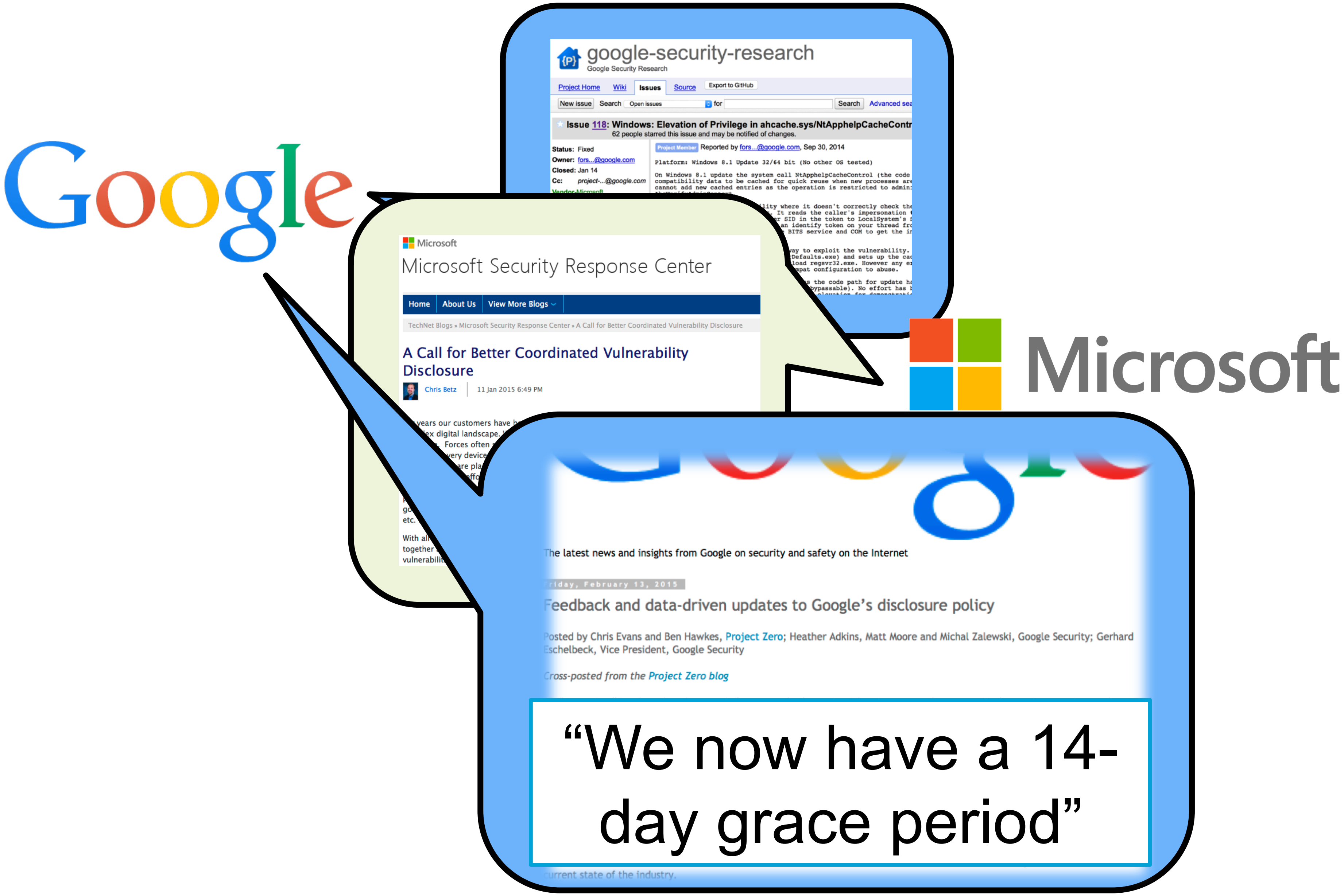
A Call for Better Coordinated Vulnerability Disclosure

Chris Betz | 11 Jan 2015 6:49 PM

"Google … released … two days before our planned fix"

together and not stand divided over important protection strategies, such as the disclosure of vulnerabilities and the remediation of them.

Microsoft



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A Call for Better Coordinated Vulnerability Disclosure

Chris Betz | 11 Jan 2015 6:49 PM

years our customers have b
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The latest news and insights from Google on security and safety on the Internet

riday, February 13, 2015

Feedback and data-driven updates to Google's disclosure policy

Posted by Chris Evans and Ben Hawkes, Project Zero; Heather Adkins, Matt Moore and Michal Zalewski, Google Security; Gerhard Eschelbeck, Vice President, Google Security

Cross-posted from the Project Zero blog

"We now have a 14-day grace period"

urrent state of the industry.

Why this? Why now?

Motivations

Resurgent disclosure kerfuffles

Proliferation of novice vendors

- There are more new vendors than there is vulnerability coordination experience to go around

- Networked services bolted onto existing products
  - cars, refrigerators, door locks, light bulbs, medical devices, industrial control systems

- Anyone can become an app creator

Why this? Why now?

Motivations

Vul markets & bug bounties change the flow of information

See also Katie Moussouris @ OWASP AppSec 2015 https://youtu.be/IPTYYg0OzYQ

Third party libraries are more important than ever

- Yet library vuls are significantly harder to coordinate well

See also Kymberlee Price & Jake Kouns @ DerbyCon 4 https://youtu.be/sLxcOtEfGvg

Rampant growth in both awareness of security and the security industry itself

- Vul disclosure discussions are older than today’s participants
  - “Rogues knew a good deal about lock-picking long before locksmiths discussed it among themselves, as they have lately done.” – A.C. Hobbs, 1853 (HT: Matt Blaze, Steve Bellovin)
    - http://www.crypto.com/hobbs.html

Why this? Why now?

Motivations

“We now have multiparty, multifaceted coordination needs. These are cross-industry requirements, which means we need to now consider phasing our disclosures. This requires us to open the genie box and **reconsider our approach in a more organized manner**. No longer can a researcher jump out and save the Internet from itself, since its complexity is beyond that stage. A researcher may understand the bug, but **the system of systems and the interactions require a broader group effort** .”

- Peter Allor, Federal Security Strategist, IBM Security

http://securityintelligence.com/determining-the-responsibility-of-a-vulnerability-disclosure/

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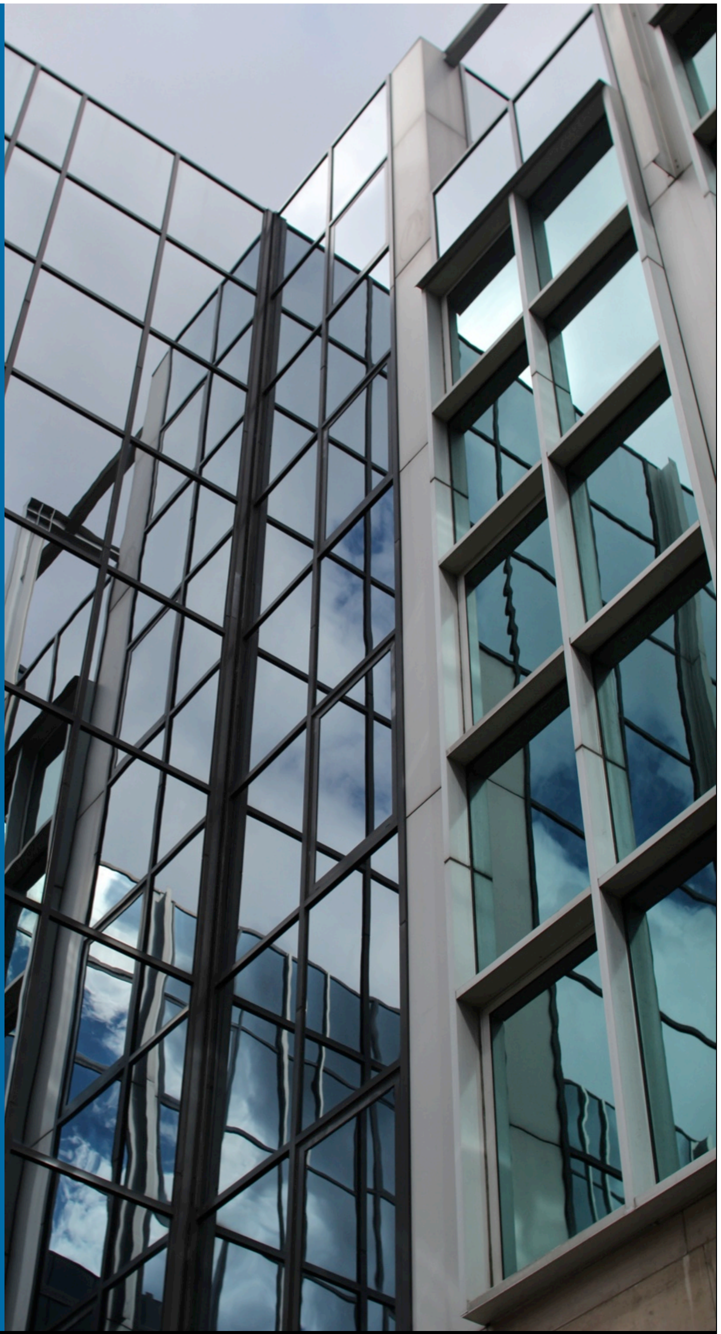
Modeling the Process



Why Create Models?

Models enable conversations about the process

- without devolving into arguments over the specifics of individual disclosures.

Models can be subjected to analysis

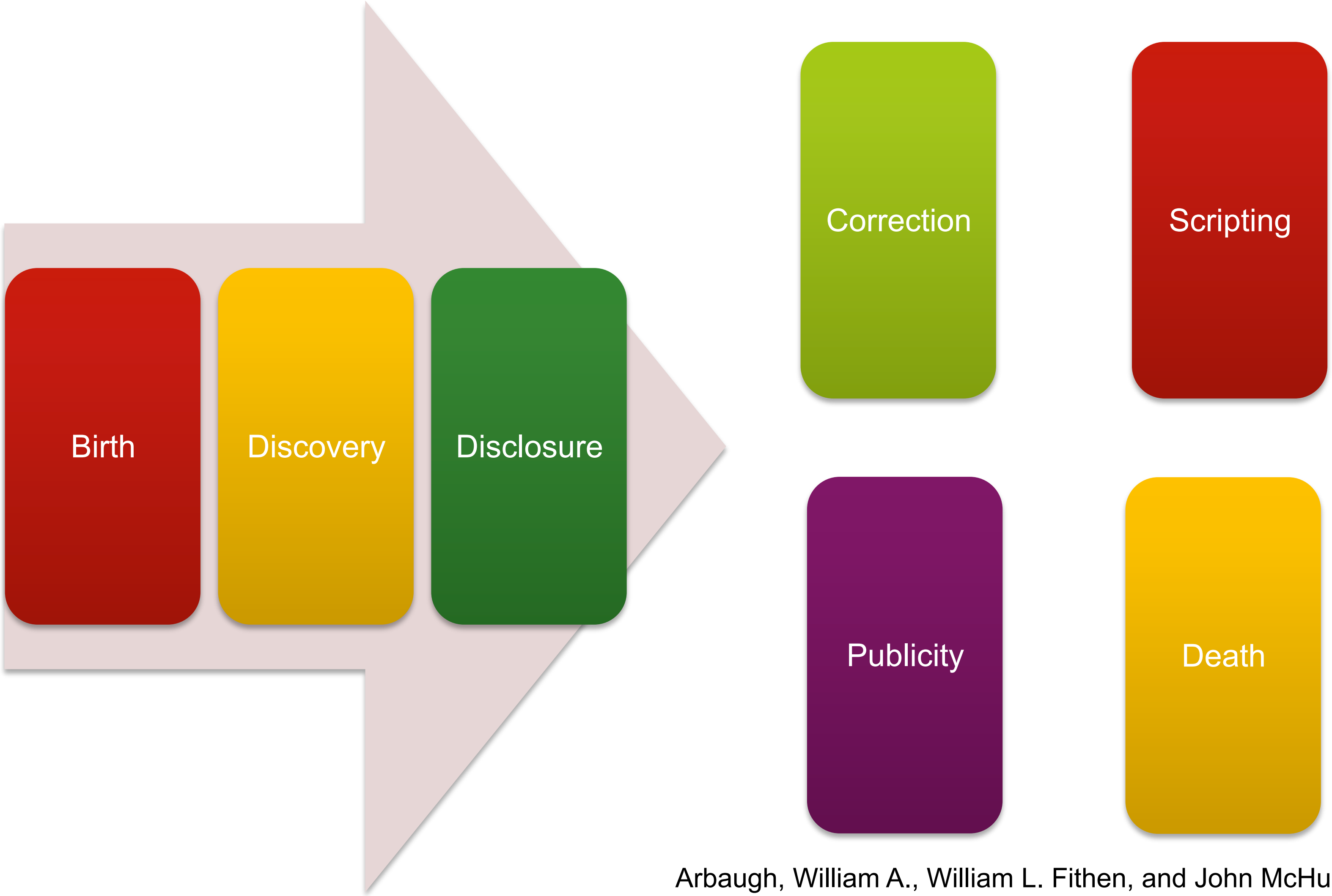
- and are easier to change than day-to-day operations.

Models promote learning and knowledge transfer

- by removing unneeded detail

Reasoned disagreement about a model leads to better models.

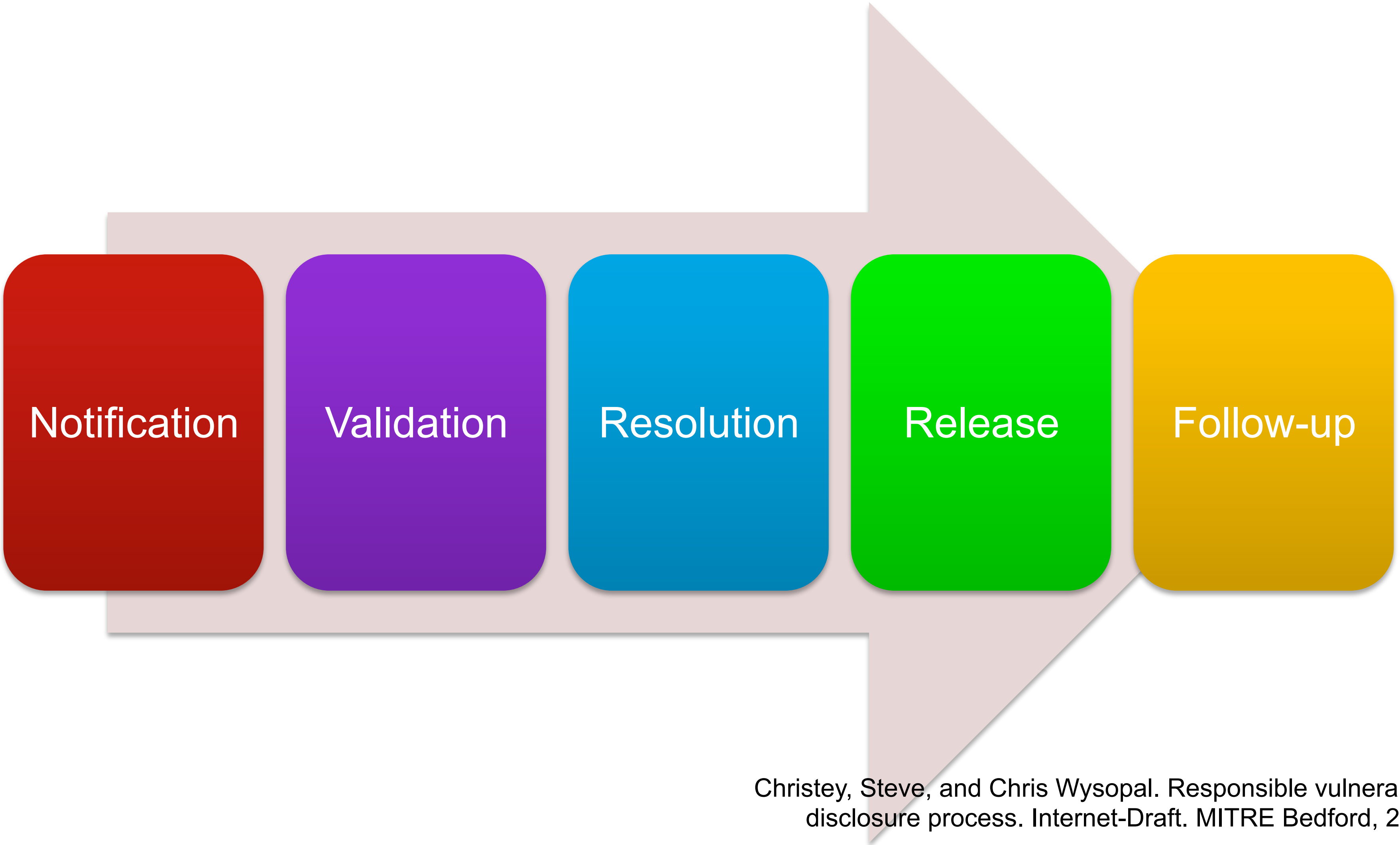
Arbaugh, Fithen, McHugh (2000)



Arbaugh, William A., William L. Fithen, and John McHugh. "Windows of vulnerability: A case study analysis." *Computer* 33.12 (2000): 52-59.

Other models

Christey, Wysopal (2002)



Christey, Steve, and Chris Wysopal. Responsible vulnerability disclosure process. Internet-Draft. MITRE Bedford, 2002.

draft-christey-wysopal-vuln-disclosure-00.txt

A Quick Aside

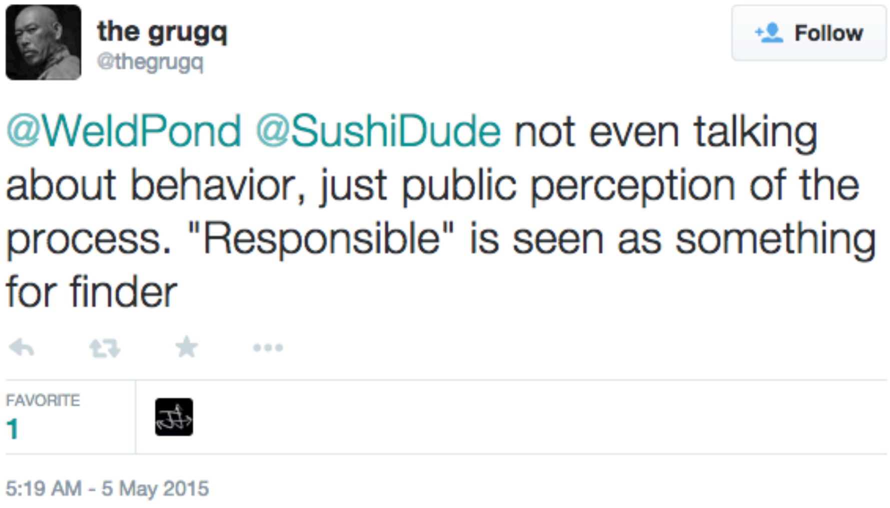
“Responsible” Disclosure?

Responsible implies a value judgment

…which turns it into an argument over competing perspectives

Coordinated Disclosure is our preferred term

…but that doesn’t always mean wait for the vendor to release a patch



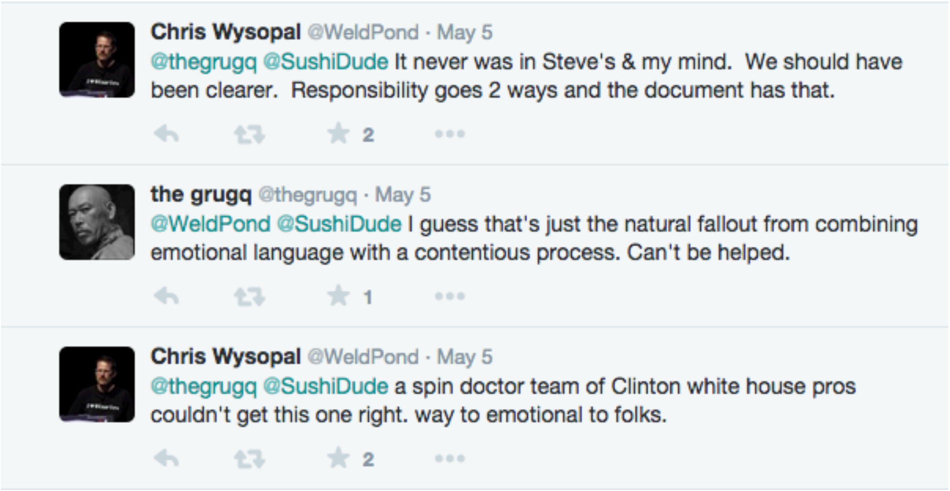
the grugq @thegrugq

Follow

@WeldPond @SushiDude not even talking about behavior, just public perception of the process. "Responsible" is seen as something for finder

FAVORITE 1

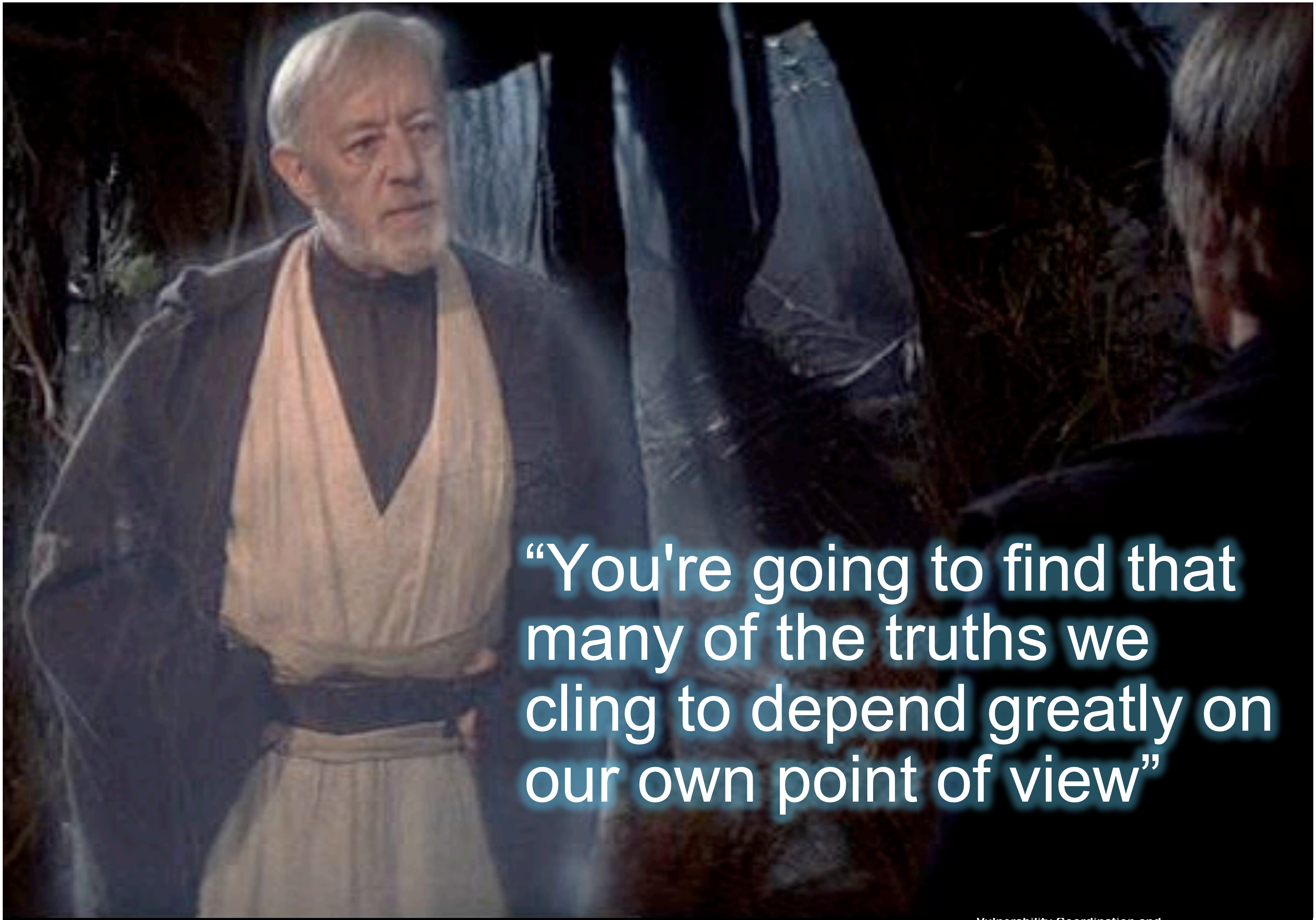
5:19 AM - 5 May 2015



Chris Wysopal @WeldPond · May 5
@thegrugq @SushiDude It never was in Steve's & my mind. We should have been clearer. Responsibility goes 2 ways and the document has that.
★ 2

the grugq @thegrugq · May 5
@WeldPond @SushiDude I guess that's just the natural fallout from combining emotional language with a contentious process. Can't be helped.
★ 1

Chris Wysopal @WeldPond · May 5
@thegrugq @SushiDude a spin doctor team of Clinton white house pros couldn't get this one right. way to emotional to folks.
★ 2



"You're going to find that many of the truths we cling to depend greatly on our own point of view"

Other models

NIAC Vulnerability Disclosure Framework (2004)

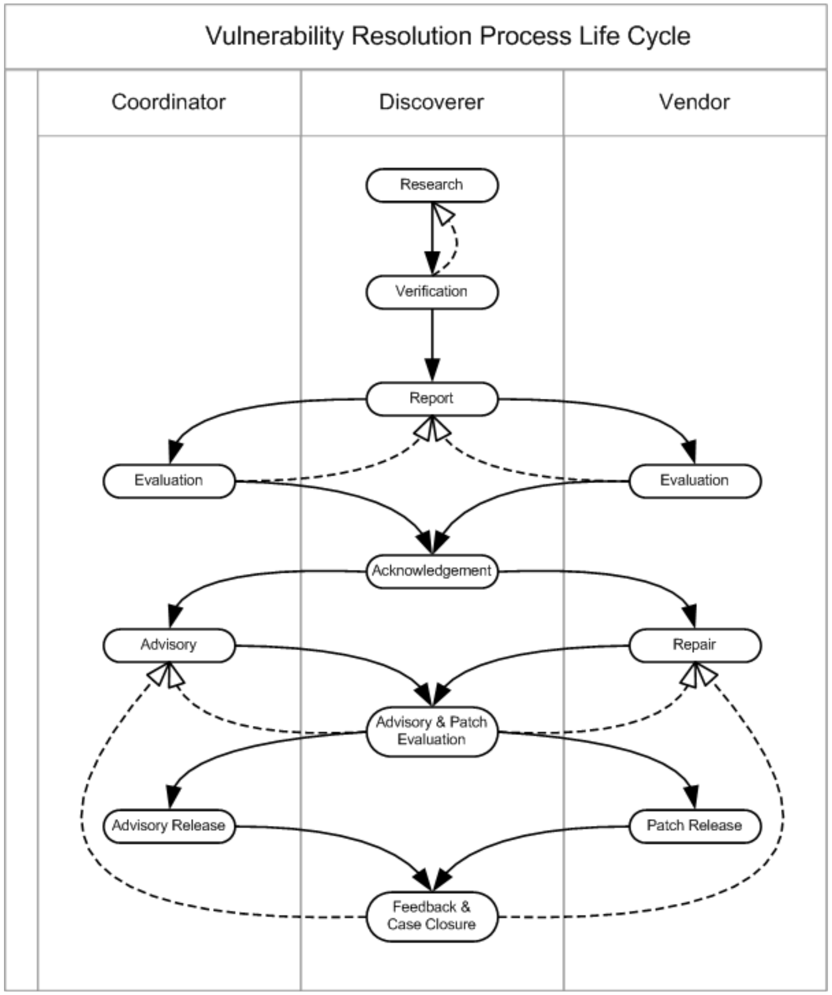


Figure 1: Vulnerability Resolution Process Life Cycle

https://www.dhs.gov/xlibrary/assets/vdwgreport.pdf

Chambers, et al.

OIS Guidelines for Security Vulnerability Reporting and Response (2004)

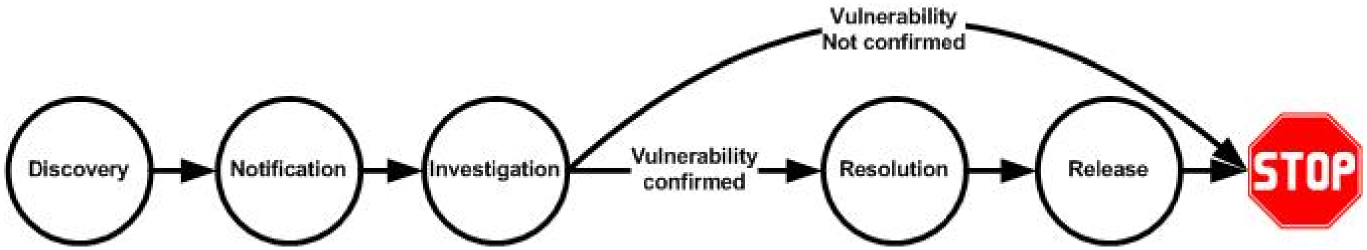


Figure 1. Basic Steps in the Security Vulnerability Reporting and Response Process

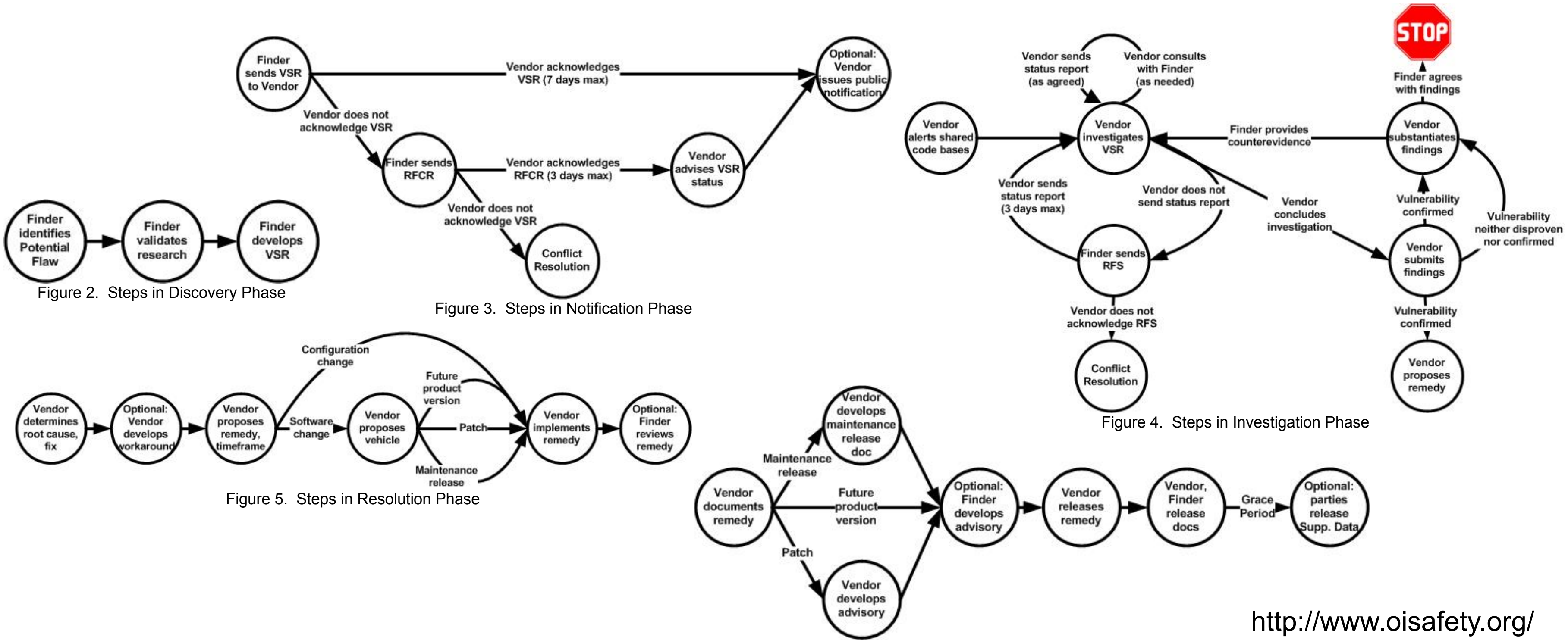

Finder identifies Potential Flaw
Finder validates research
Finder develops VSR
Finder sends VSR to Vendor
Vendor acknowledges VSR (7 days max)
Optional: Vendor issues public notification
Vendor does not acknowledge VSR
Finder sends RFCR
Vendor acknowledges RFCR (3 days max)
Vendor advises VSR status
Vendor does not acknowledge VSR
Conflict Resolution
Vendor sends status report (as agreed)
Vendor consults with Finder (as needed)
Vendor alerts shared code bases
Vendor investigates VSR
Finder provides counterevidence
Vendor substantiates findings
Finder agrees with findings
STOP
Vendor sends status report (3 days max)
Vendor does not send status report
Vendor concludes investigation
Vulnerability confirmed
Vulnerability neither disproven nor confirmed
Finder sends RFS
Vendor submits findings
Vendor does not acknowledge RFS
Conflict Resolution
Vulnerability confirmed
Vendor proposes remedy
Vendor determines root cause, fix
Optional: Vendor develops workaround
Vendor proposes remedy, timeframe
Configuration change
Software change
Vendor proposes vehicle
Future product version
Patch
Maintenance release
Vendor implements remedy
Optional: Finder reviews remedy
Vendor documents remedy
Maintenance release
Vendor develops maintenance release doc
Future product version
Patch
Vendor develops advisory
Optional: Finder develops advisory
Vendor releases remedy
Vendor, Finder release docs
Grace Period
Optional: parties release Supp. Data

Figure 2. Steps in Discovery Phase

Figure 3. Steps in Notification Phase

Figure 4. Steps in Investigation Phase

Figure 5. Steps in Resolution Phase

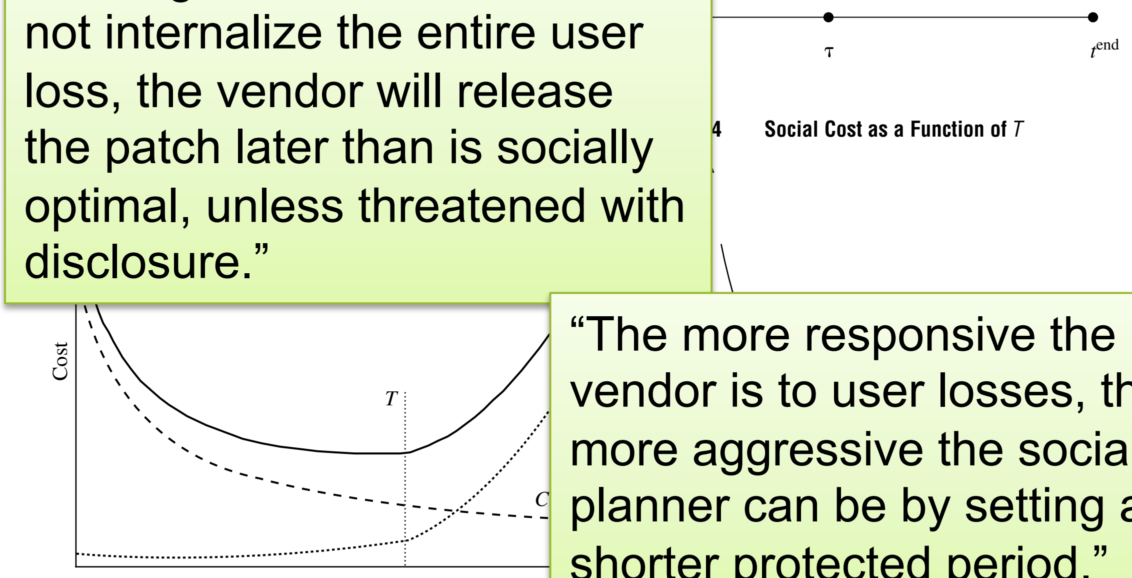
Figure 6. Steps in Release Phase

http://www.oisafety.org/

Other models

Arora, Telang, and Xu (2008)

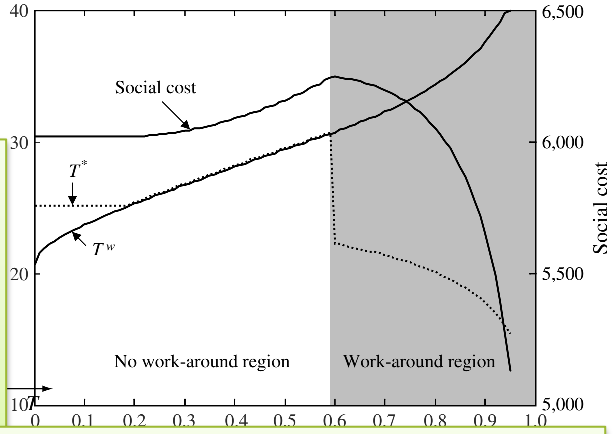
“as long as the vendor does not internalize the entire user loss, the vendor will release the patch later than is socially optimal, unless threatened with disclosure.”



4 Social Cost as a Function of *T*

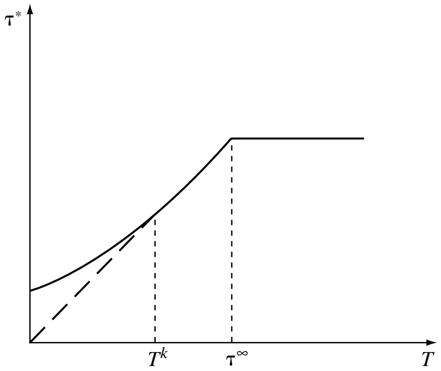
“The more responsive the vendor is to user losses, the more aggressive the social planner can be by setting a shorter protected period.”

Figure 9 Social Cost, T^* and T^w as a Function of Smart Users



“In general, both an instant disclosure and a secrecy policy are suboptimal, although numerical simulations suggest that instant disclosure is particularly inefficient.”

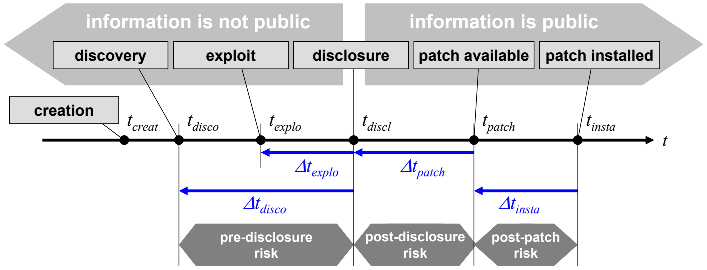
Figure 3 Patch Development Time *τ* as a Function of P
Period *T*



Arora, Telang, and Xu: Optimal Policy for Software Vulnerability Disclosure
Management Science 54(4), pp. 642–656, © 2008 INFORMS

Other models

Frei, Shatzmann, Plattner, & Trammell (2009)



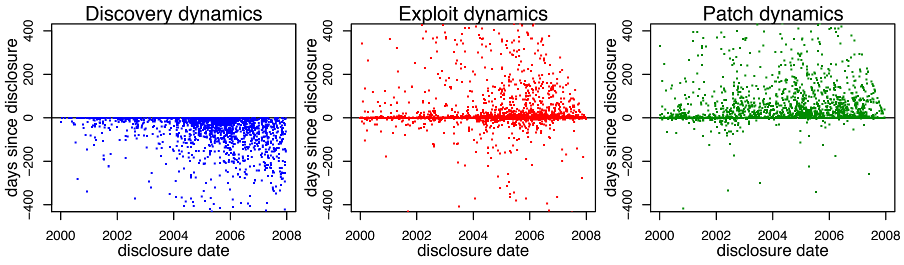
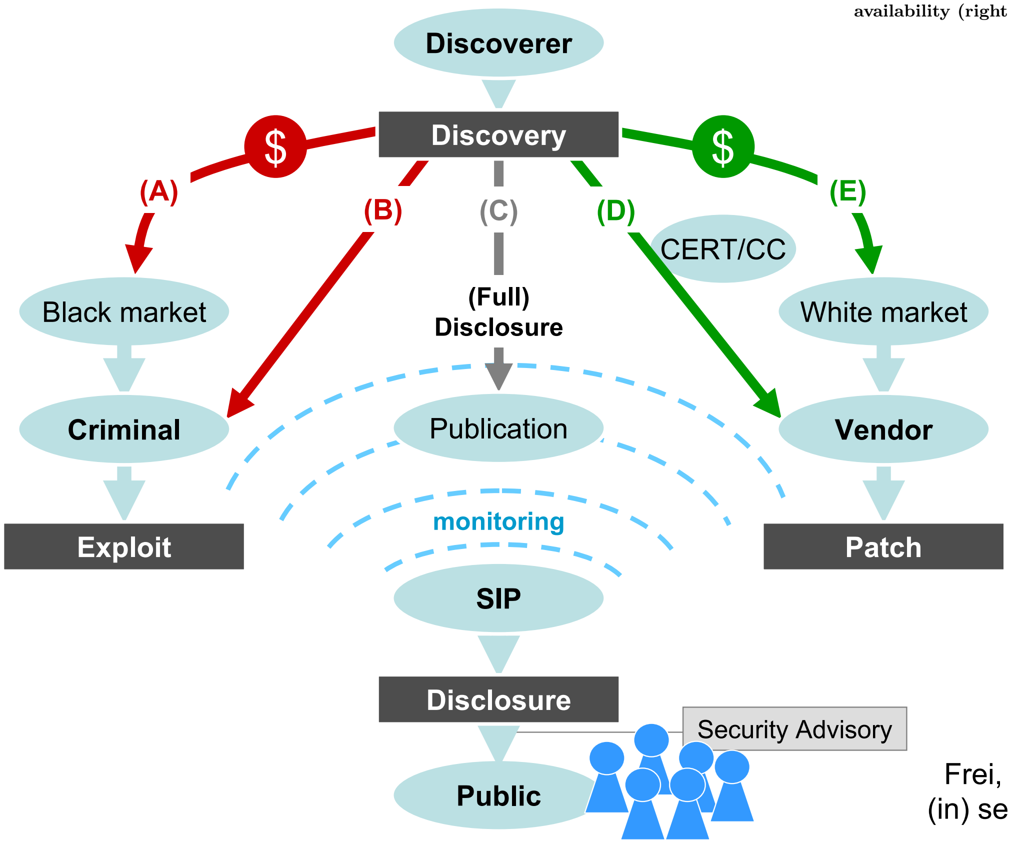


Figure 6: Scatter plot of time of vulnerability discovery (left), exploit availability (center), and patch availability (right) by disclosure date



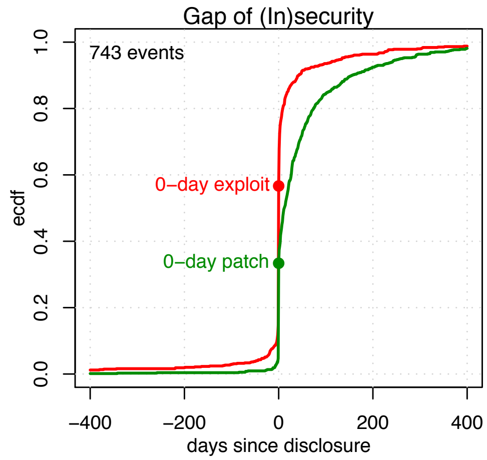
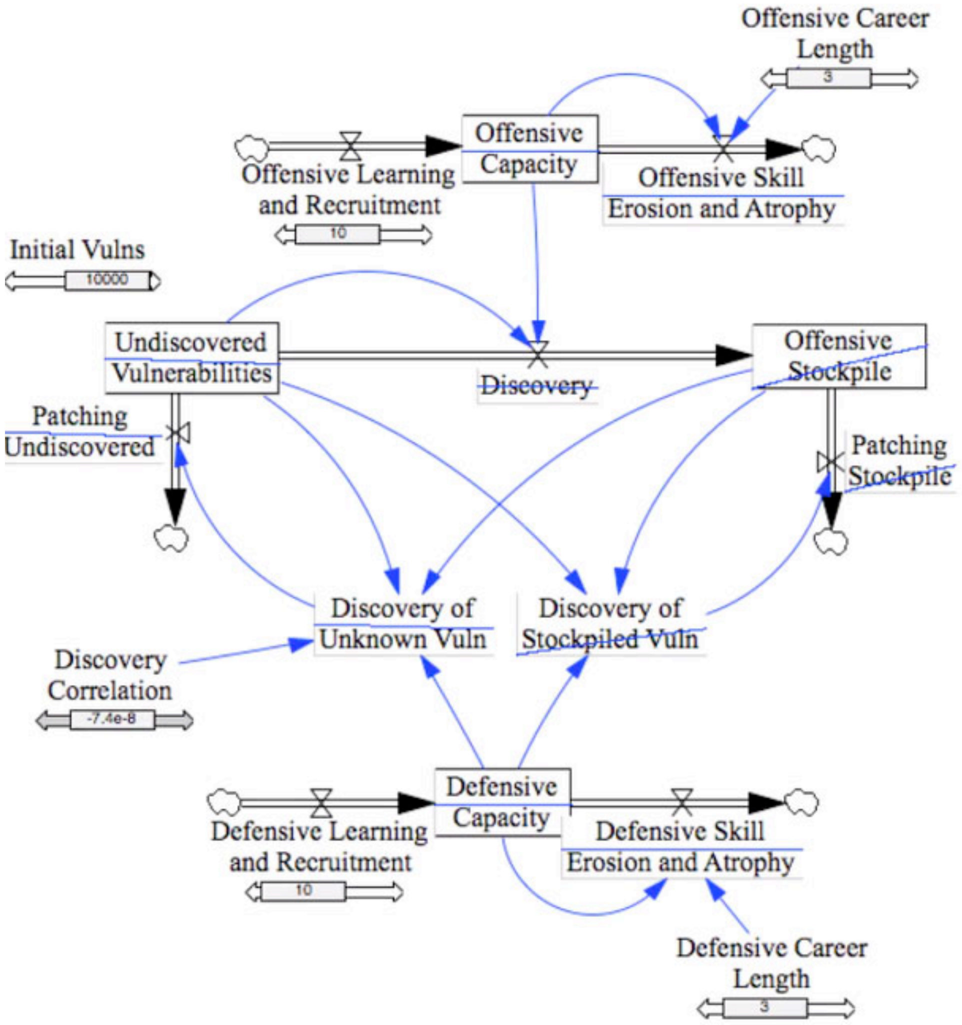


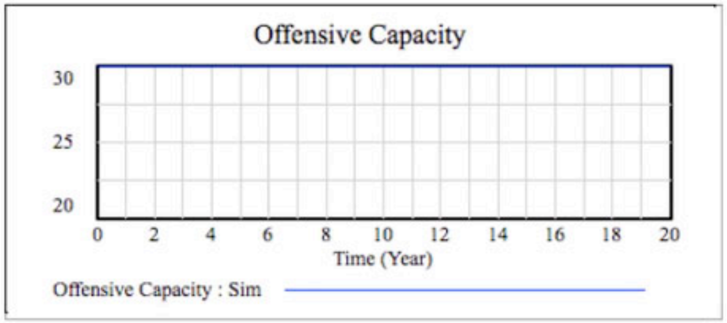
Figure 11: Direct comparison of patch availability vs. exploit availability.

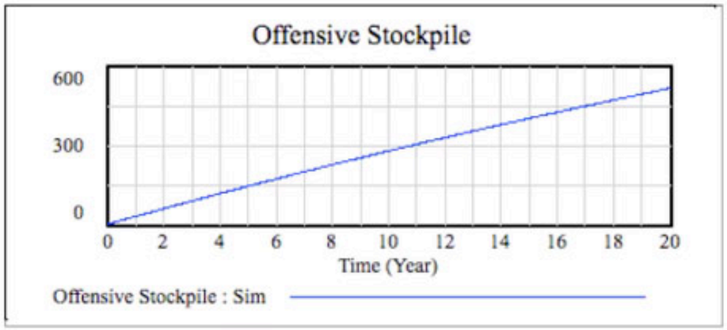
Frei, Stefan, et al. "Modeling the security ecosystem-the dynamics of (in) security." Economics of Information Security and Privacy. Springer US, 2010. 79-106.

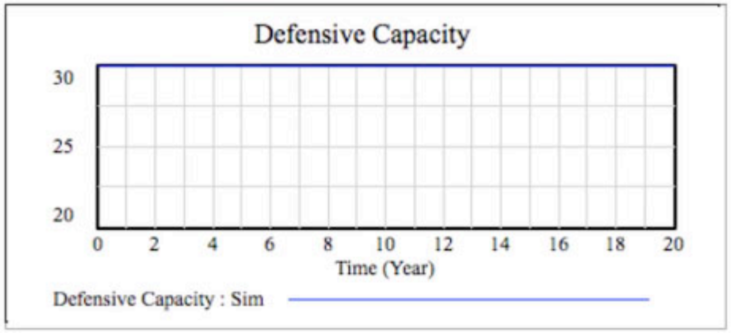
Other models

The Wolves of Vuln Street (2015)


Offensive Career Length
3
Offensive Capacity
Offensive Learning and Recruitment
10
Offensive Skill Erosion and Atrophy
Initial Vulns
10000
Undiscovered Vulnerabilities
Discovery
Offensive Stockpile
Patching Undiscovered
Patching Stockpile
Discovery of Unknown Vuln
Discovery of Stockpiled Vuln
Discovery Correlation
-7.4e-8
Defensive Capacity
Defensive Learning and Recruitment
10
Defensive Skill Erosion and Atrophy
Defensive Career Length
3







https://hackerone.com/news/the-wolves-of-vuln-street

Moussouris, Siegel, Houghton, & Ellis

What’s missing from prior models?

Early models were primarily narrative, prescriptive advice

- Many imply more synchronization than we observe in the wild
- “We rarely encounter cases with CERT/CC’s preferred ordering” - Arbaugh, et al. (2000)

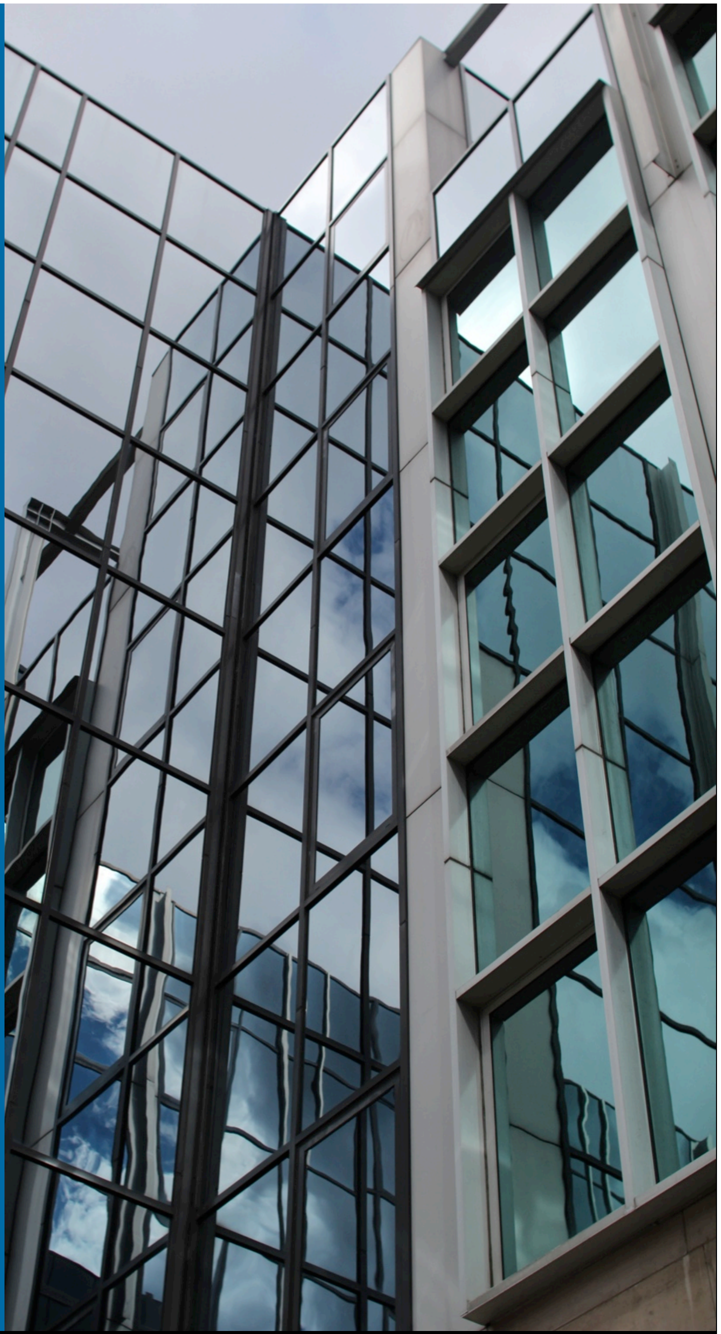
Later models start to incorporate

- social cost
- participant motives
- money and markets

But they don’t illuminate how and why coordinated vulnerability disclosure can fail

Modeling the Process

Concurrency



Why Create a Concurrency Model?

Vulnerability disclosure is a multiparty, human-centric, concurrent process

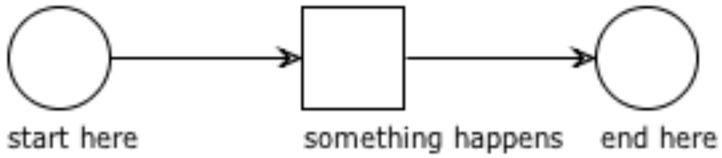
- Vendors
- Researchers
- Coordinators
- Other stakeholders
  - Service providers
  - Governments
  - Users

Each party represents a complex interaction of many people, processes, policies, and procedures

Intro to Petri Nets

Used to model distributed processes as a network of nodes and arcs.

Nodes can be either *places* (circles), or *transitions* (boxes).



Arcs (arrows) connect places to transitions and vice versa.

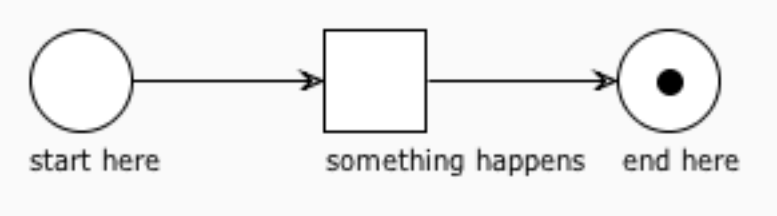
- Places can't connect to places
- Transitions can't connect to transitions

All Petri Net diagrams in this presentation were created using WoPeD

http://www.woped.org/

Intro to Petri Nets

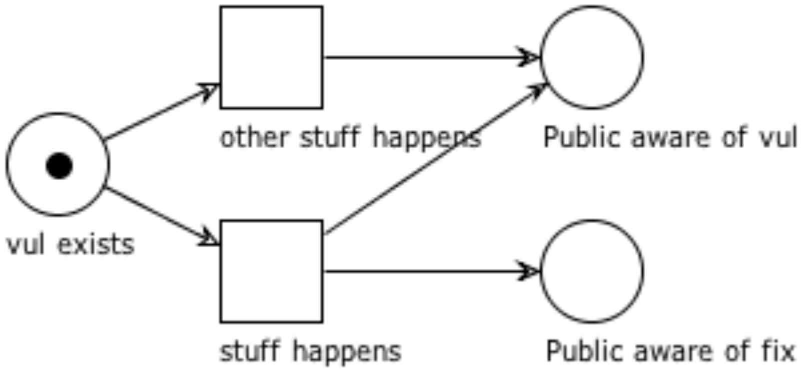
Places can hold *tokens*, which mark the state of a process.



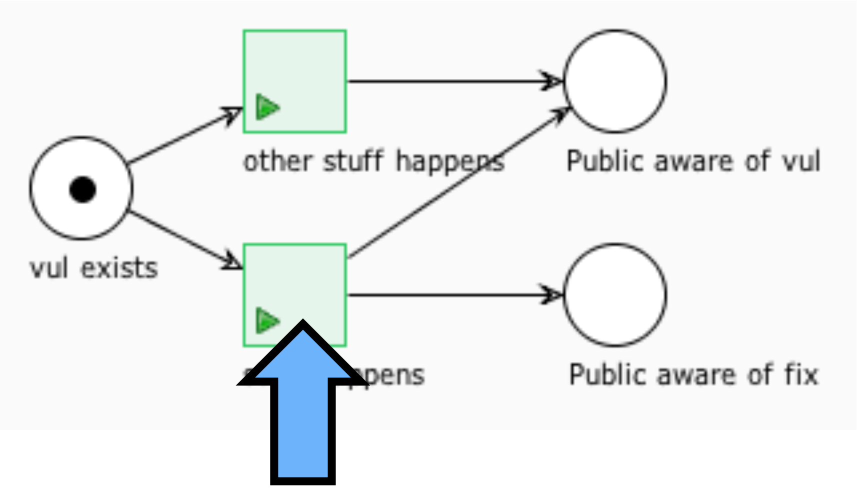
Transitions represent events that change the state of the process.

- A transition can *fire* when all the places immediately upstream of it are occupied by tokens (i.e., when it is *enabled*).
- When a transition fires, it consumes tokens from its inputs and places tokens in its outputs.

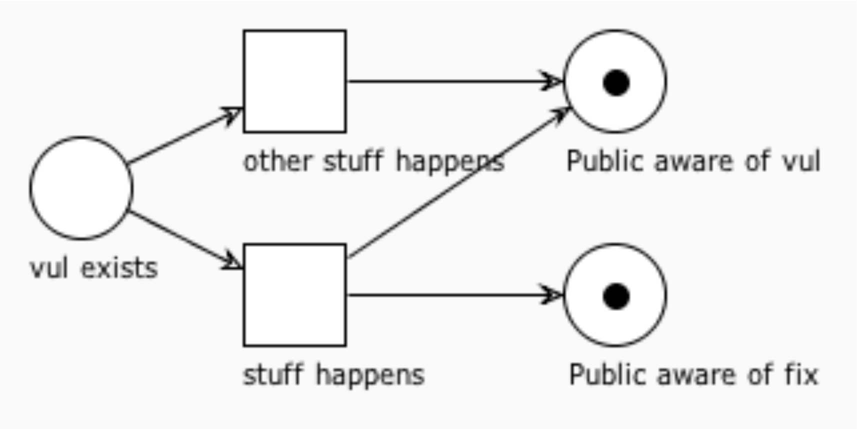
A Simple Model



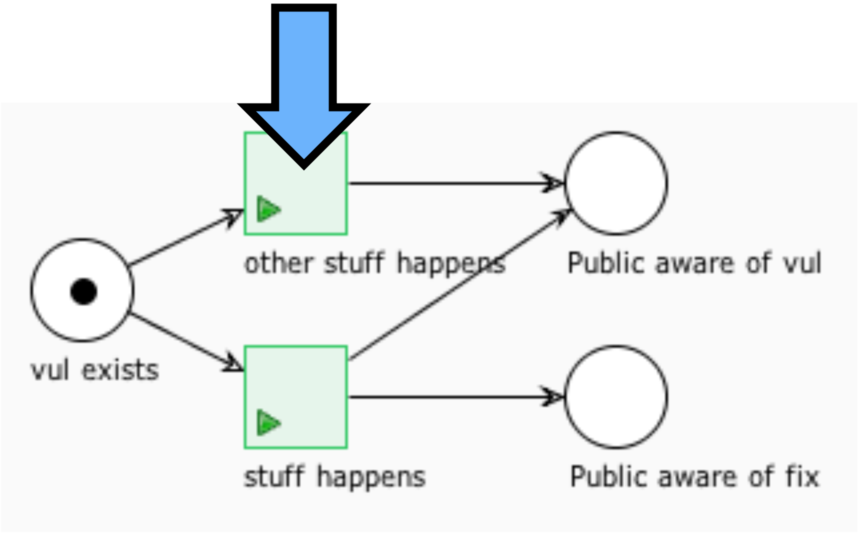
A Simple Model



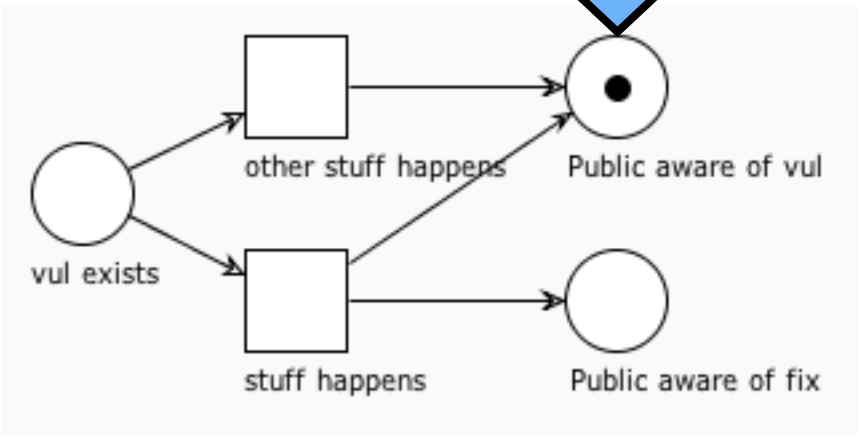
A Simple Model



A Simple Model



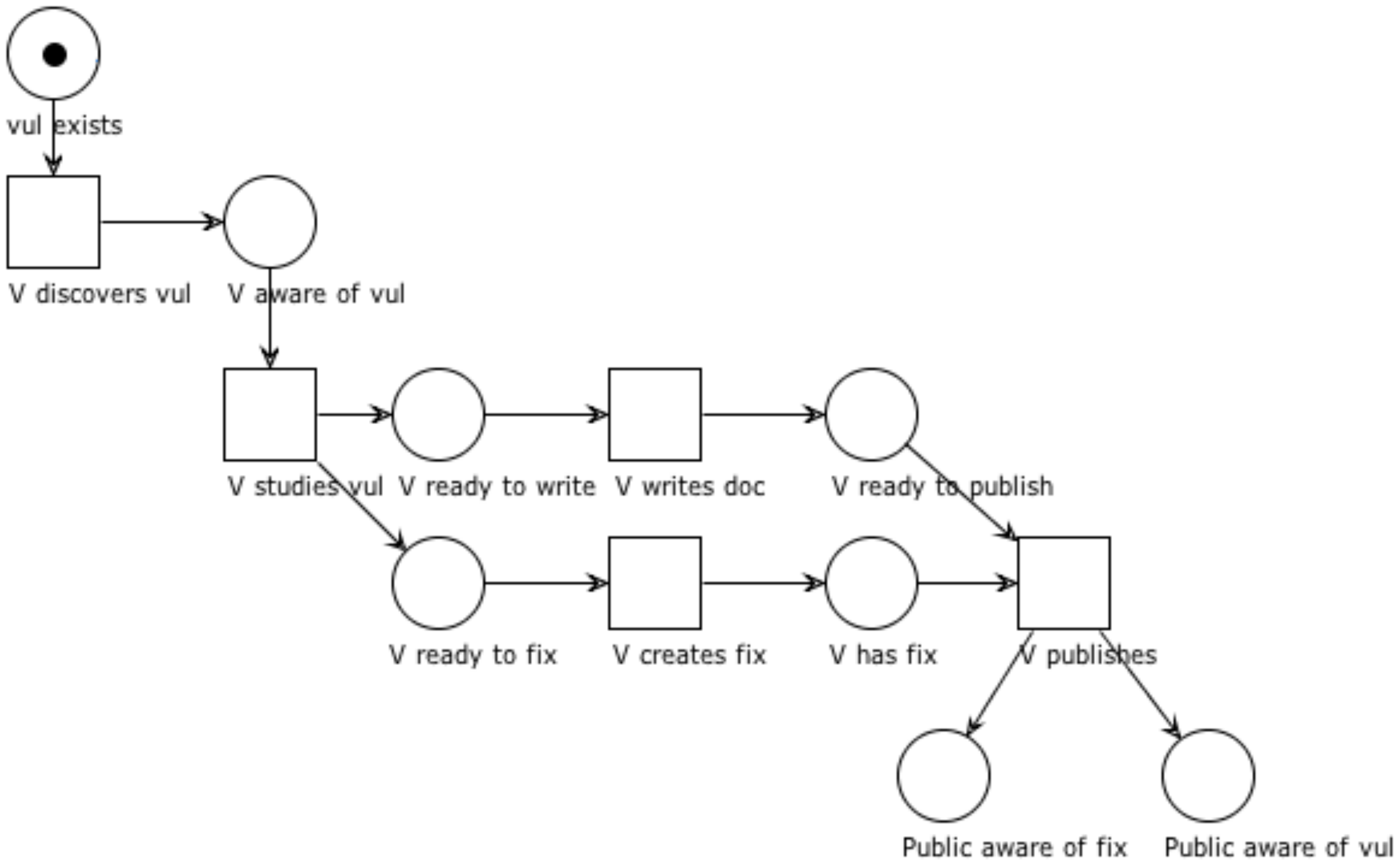
A Simple Model



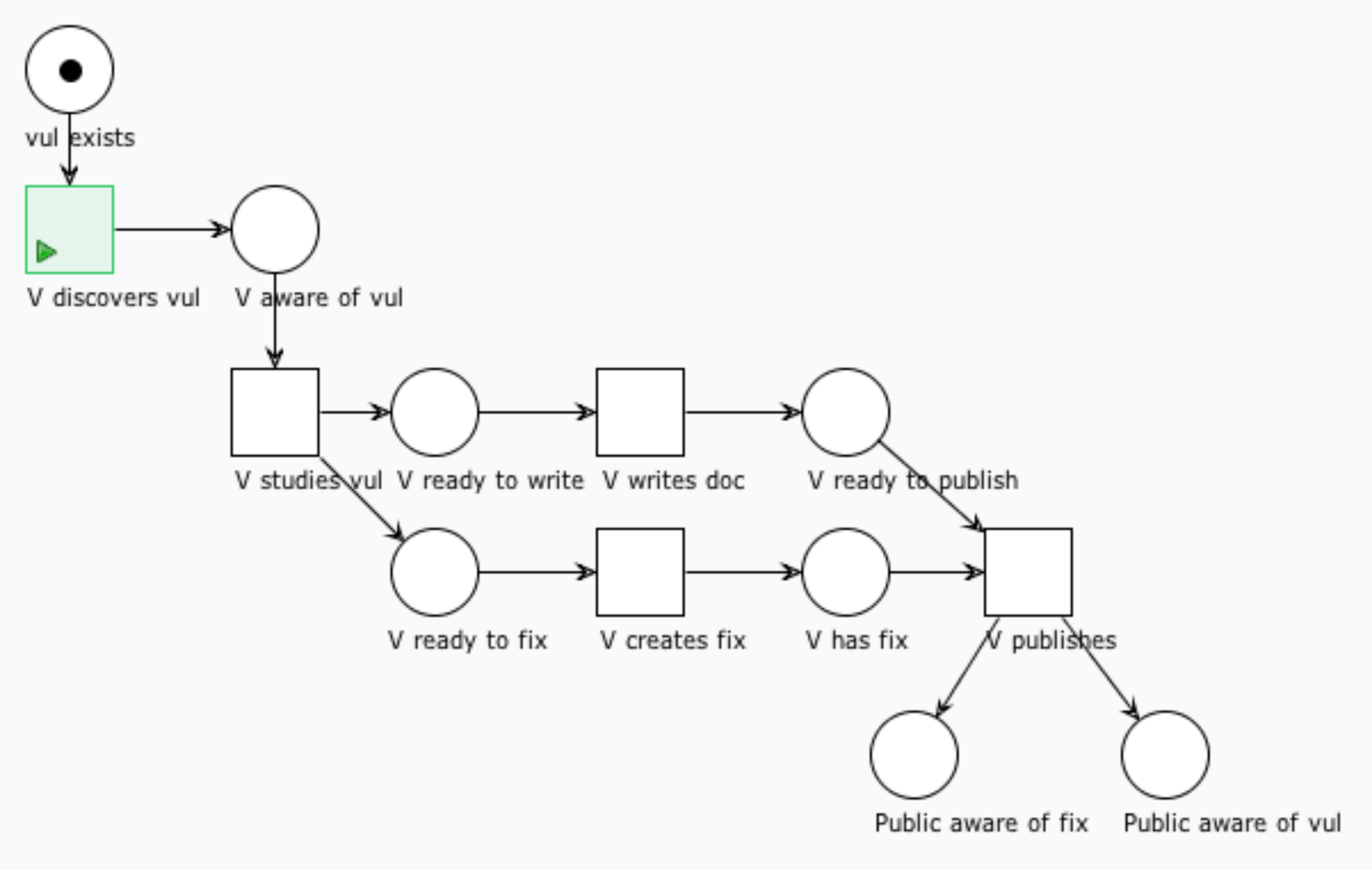
Oh No!

0-Day!

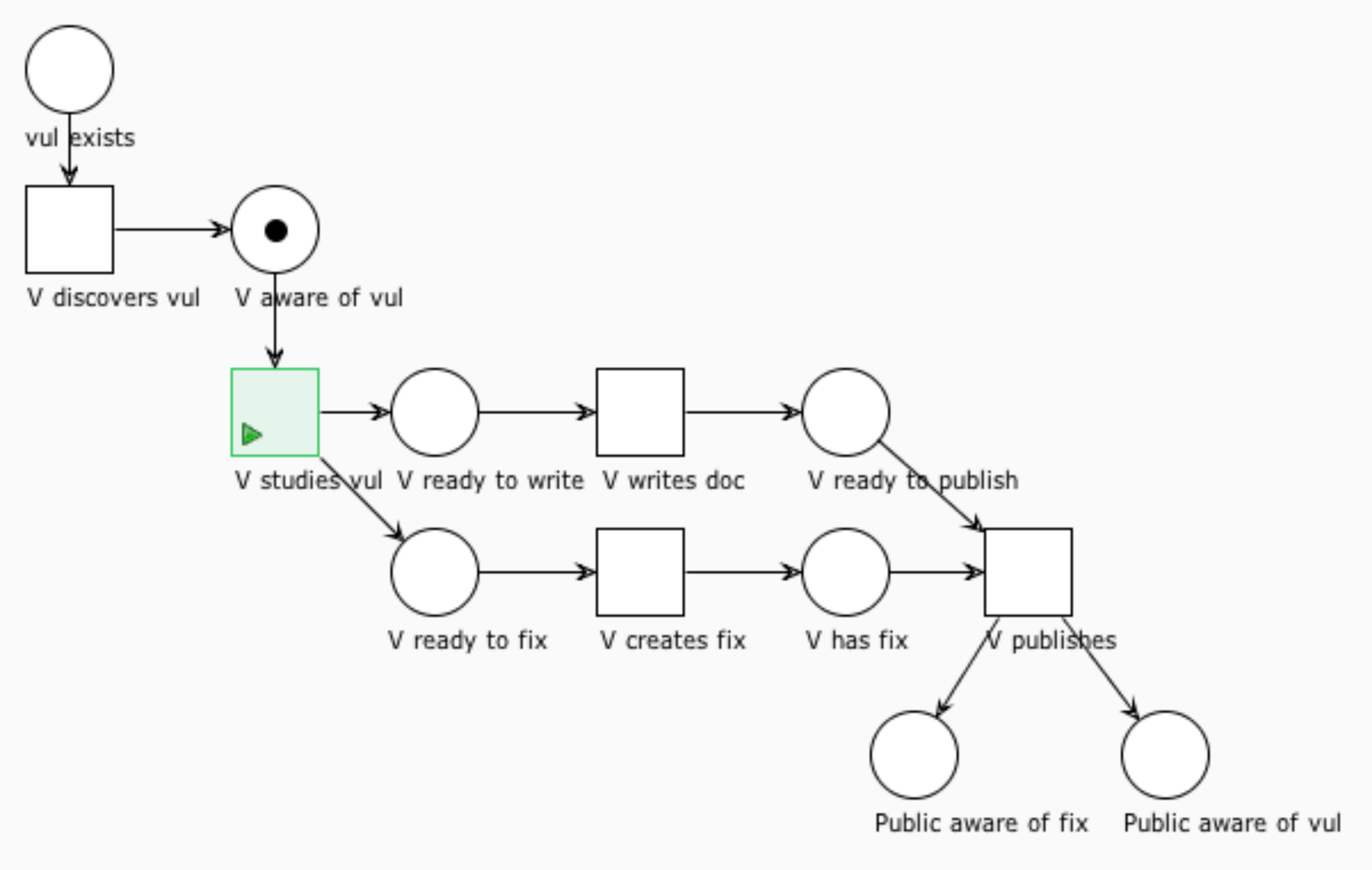
Vendor Model



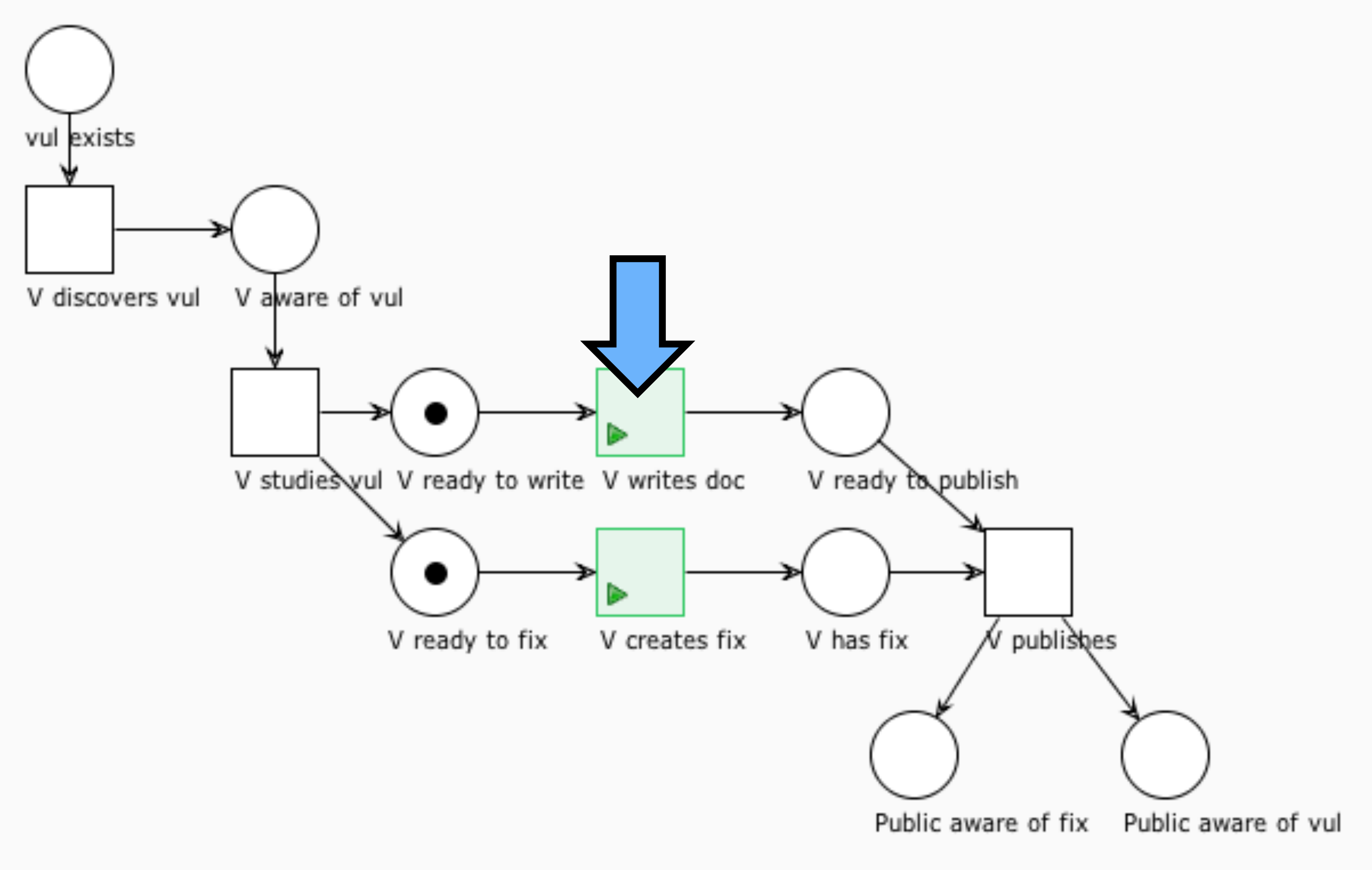
Vendor Model



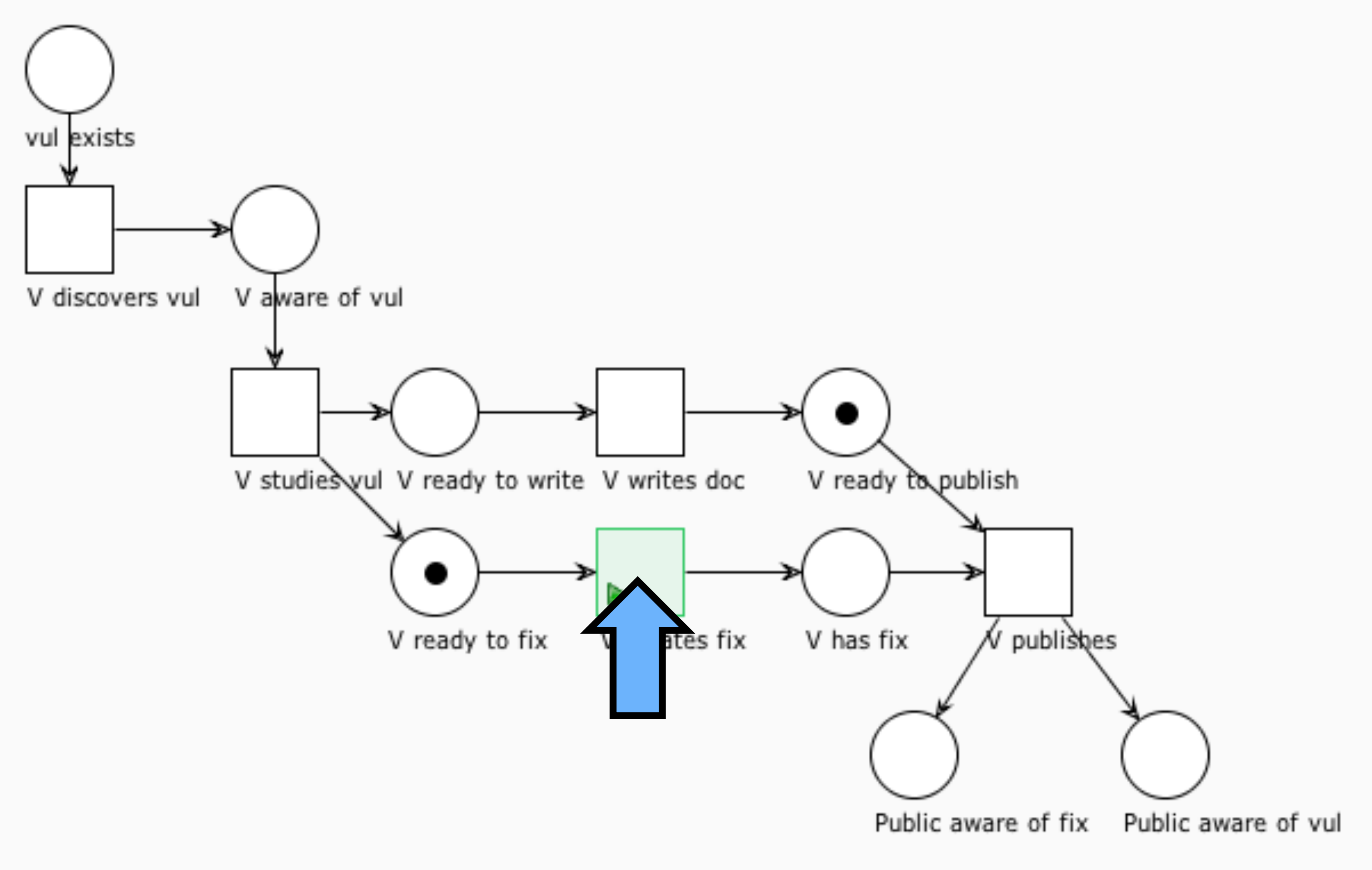
Vendor Model



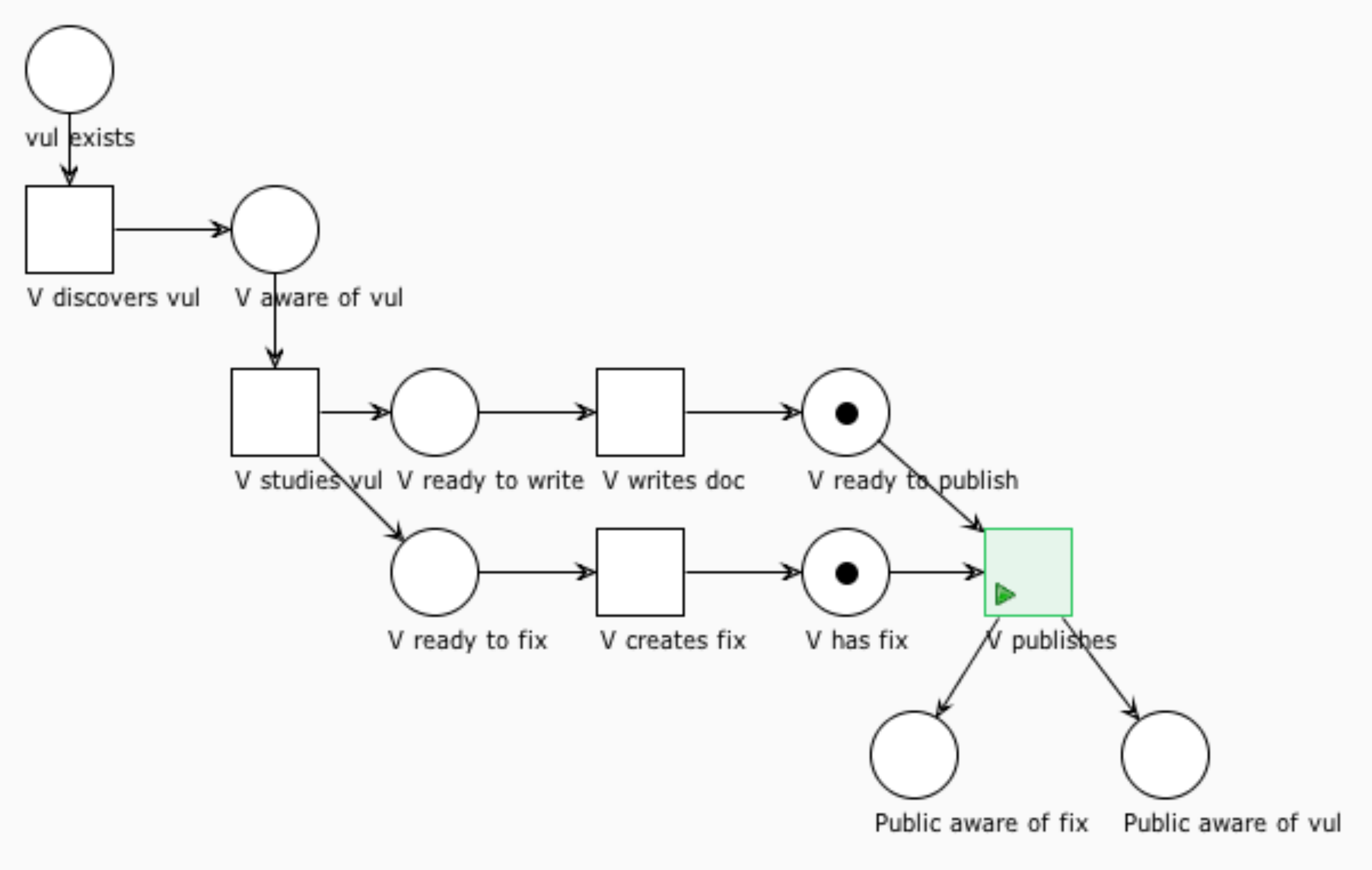
Vendor Model



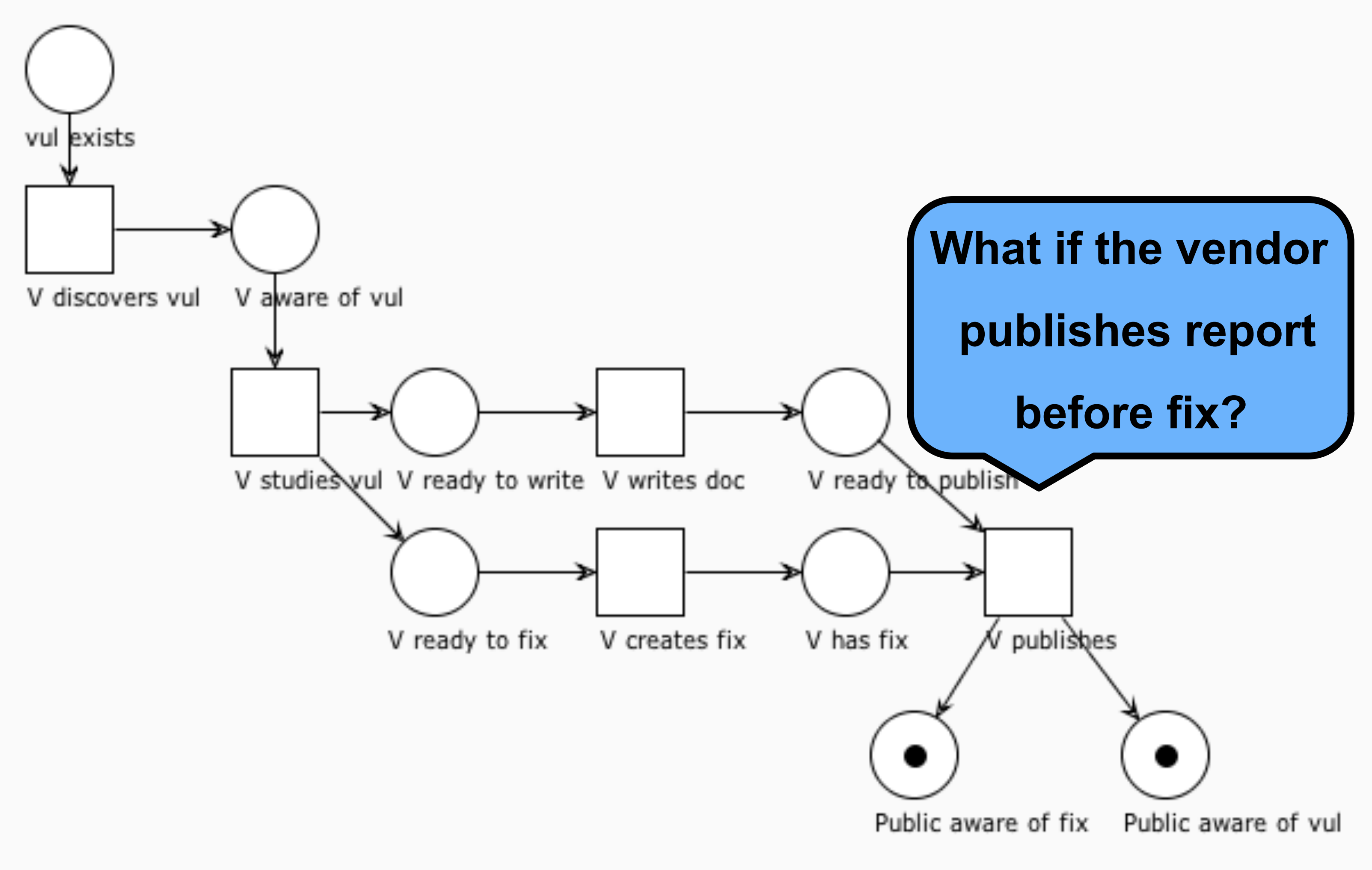
Vendor Model



Vendor Model

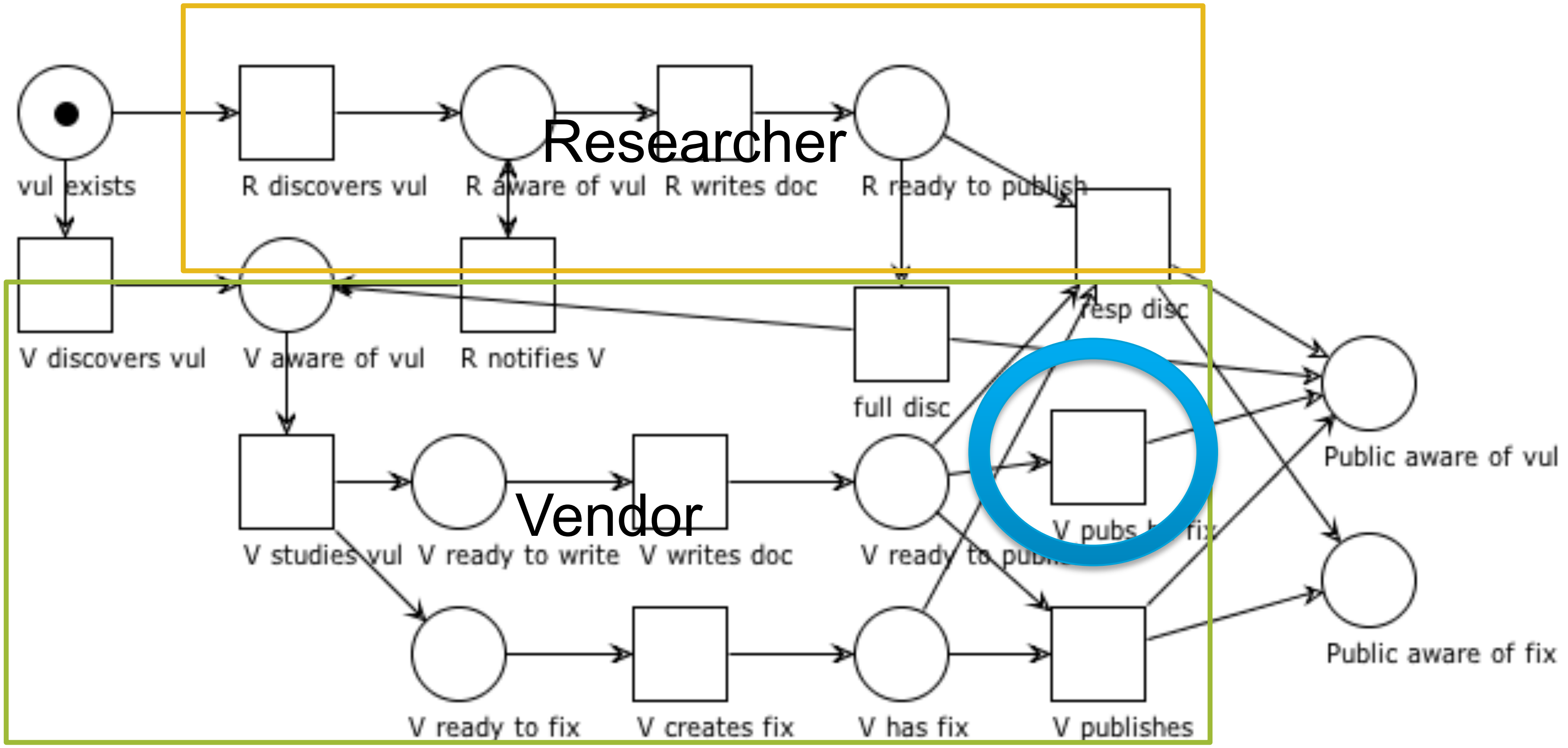


Vendor Model

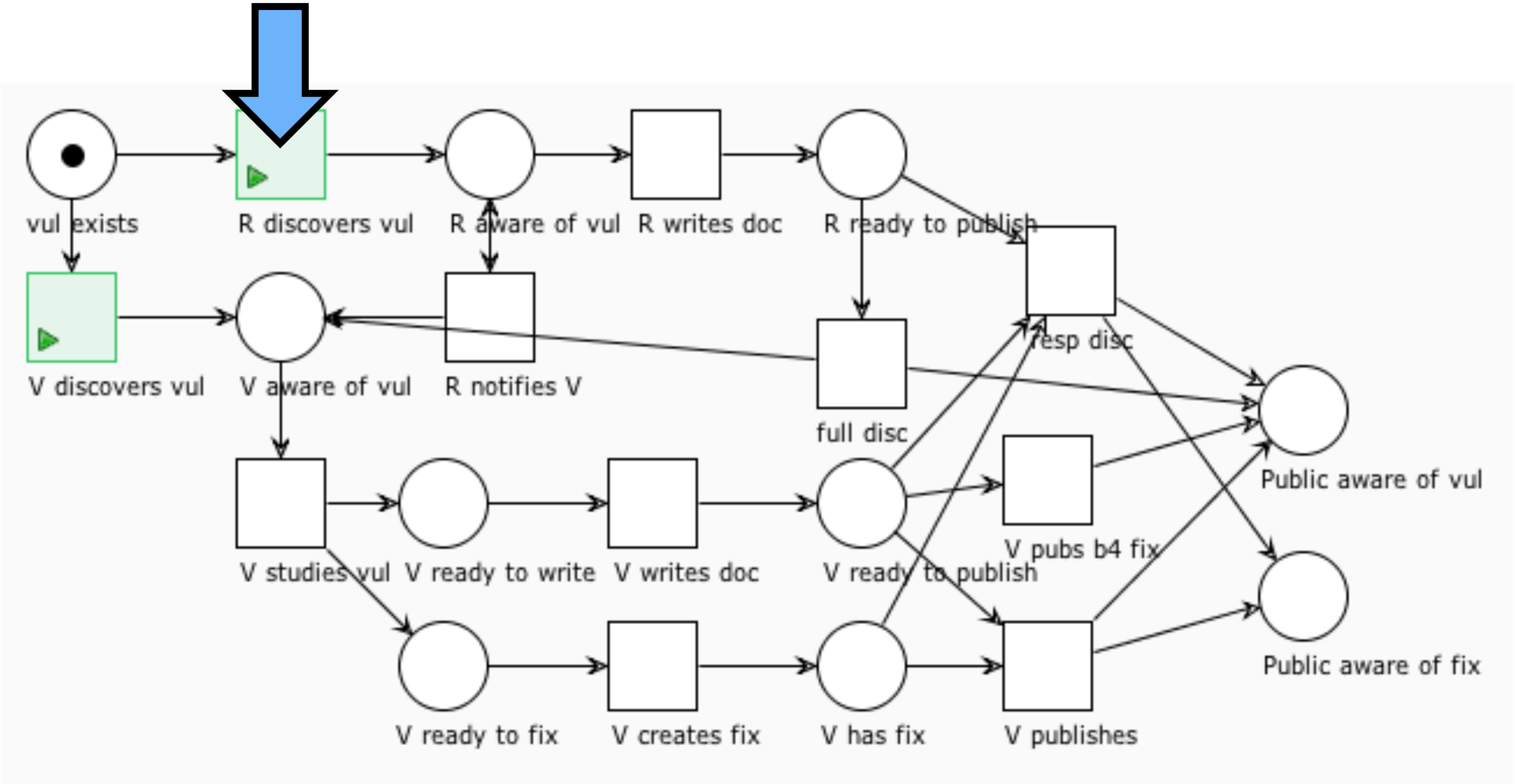


What if the vendor publishes report before fix?

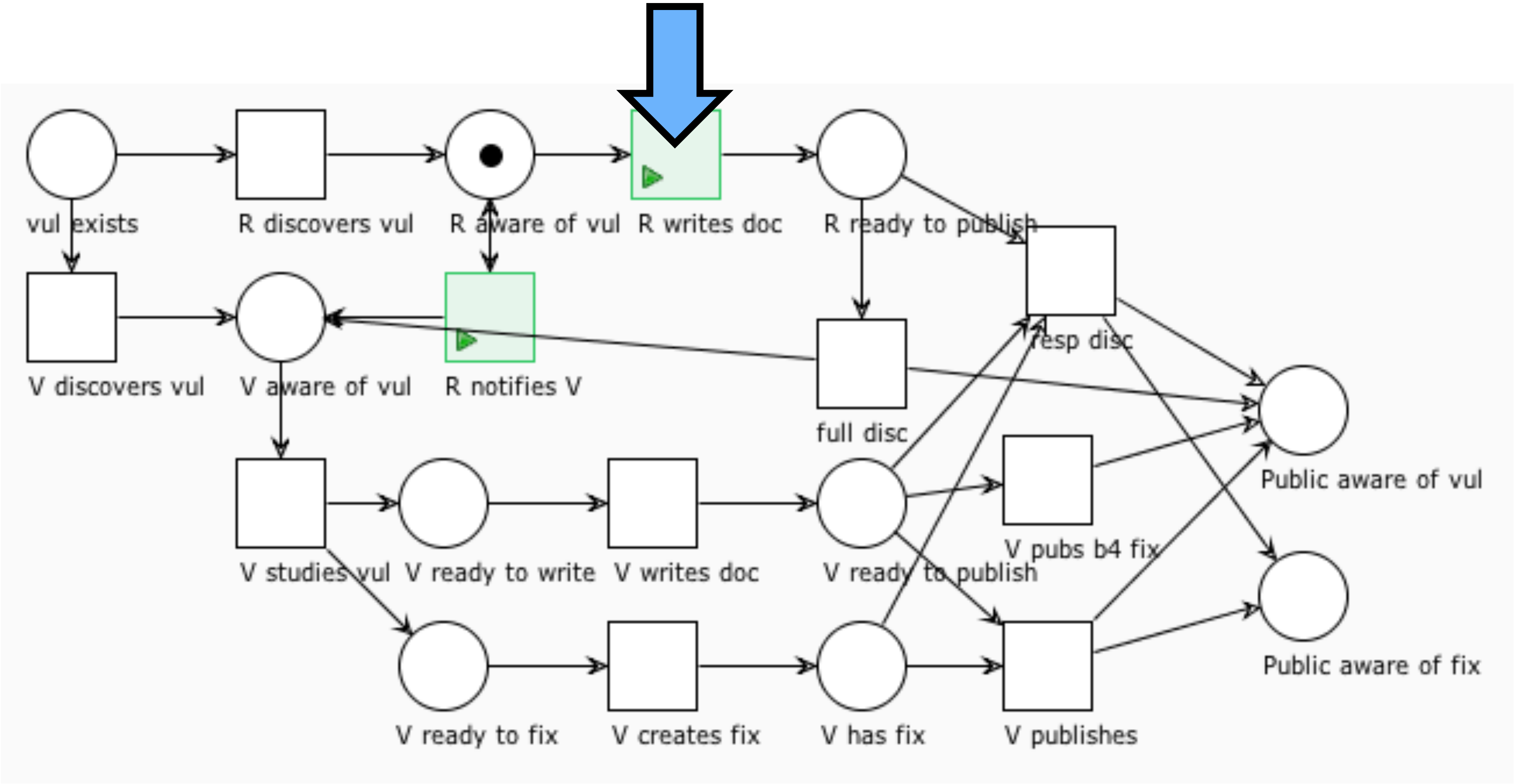
Vendor + Researcher Model



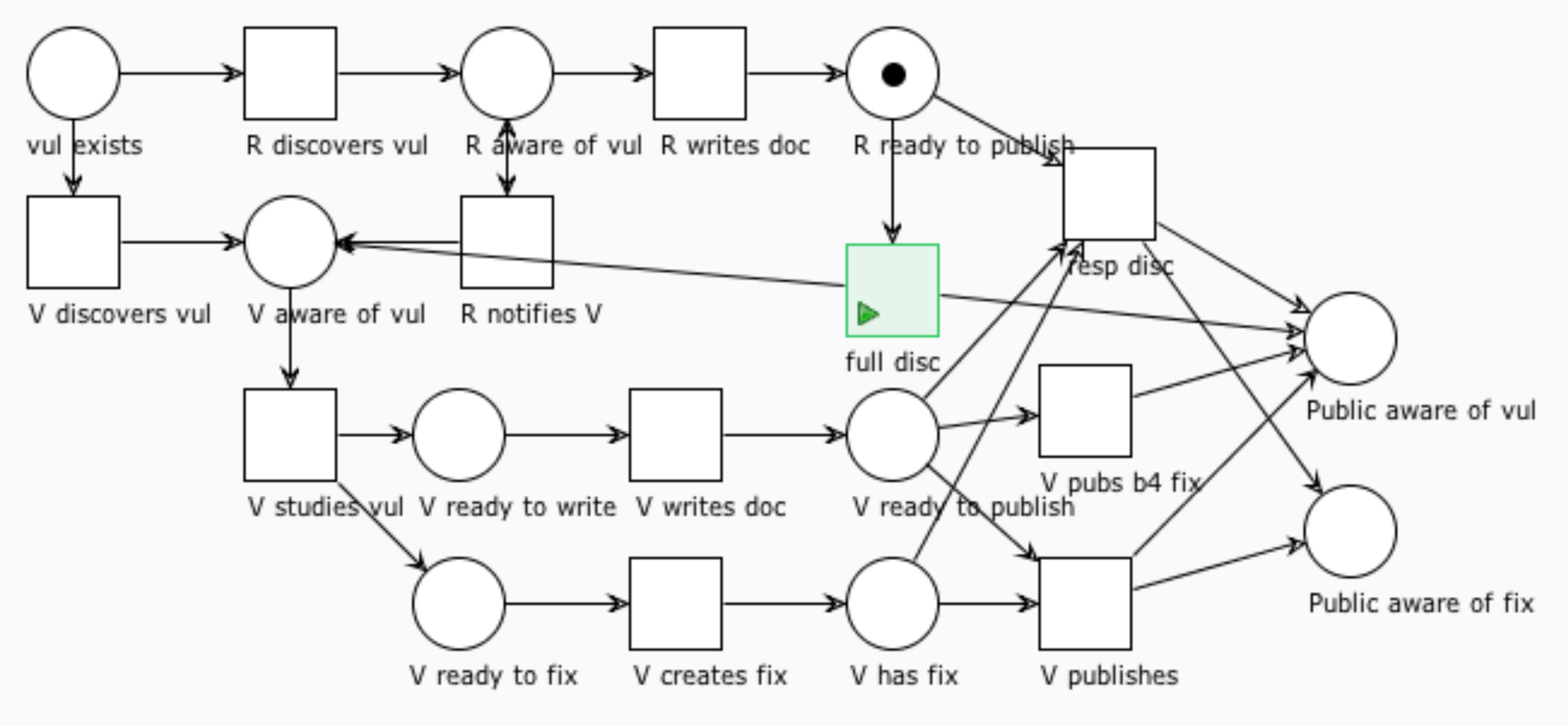
Vendor + Researcher Model



Vendor + Researcher Model



Vendor + Researcher Model



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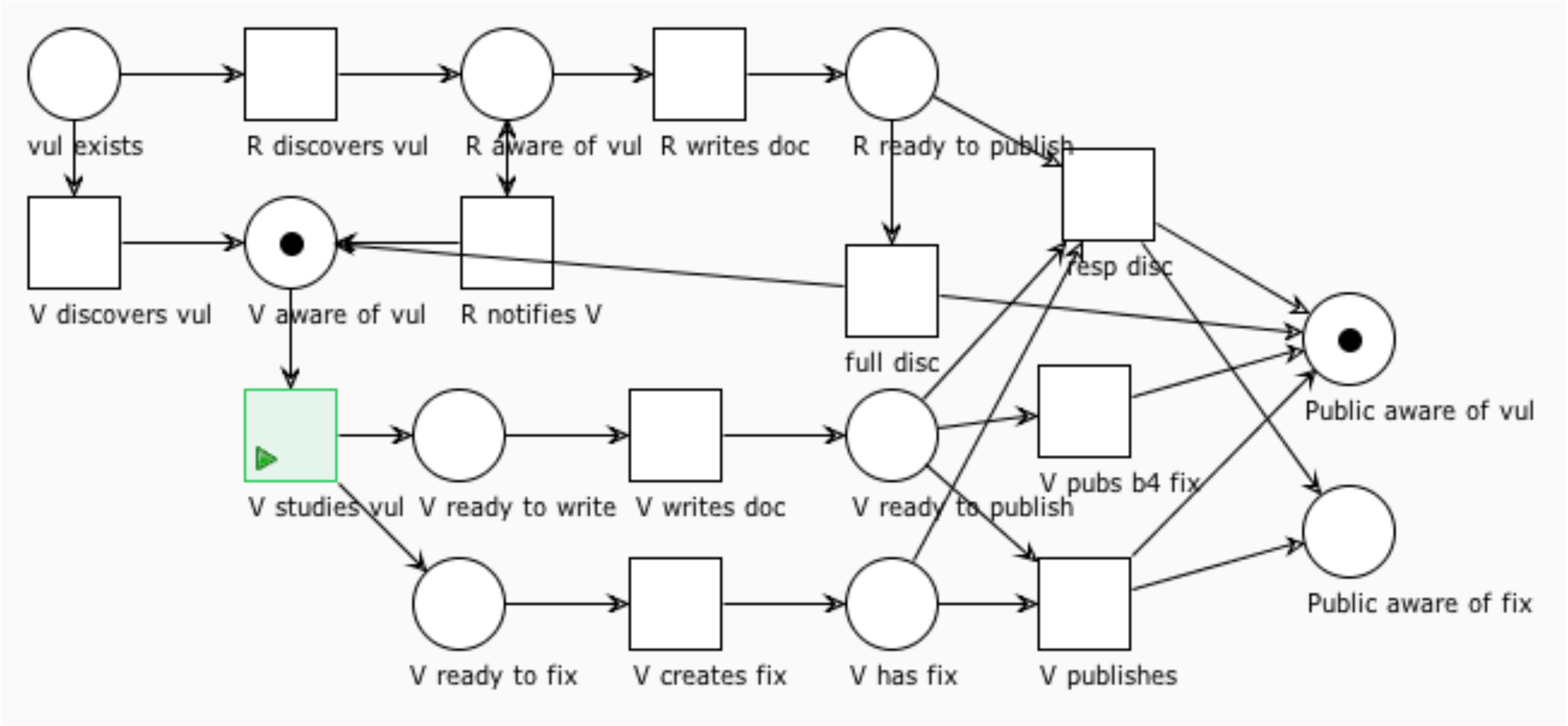

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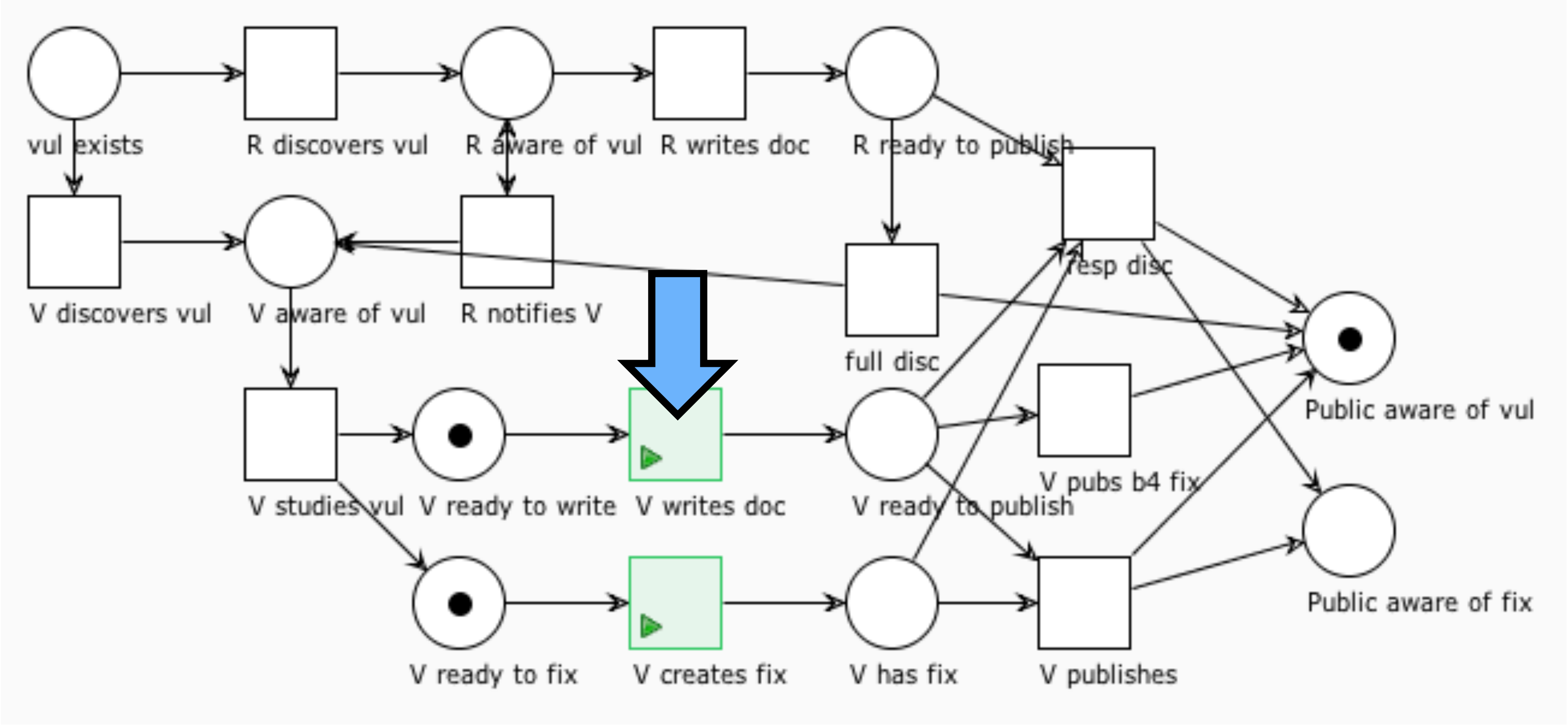

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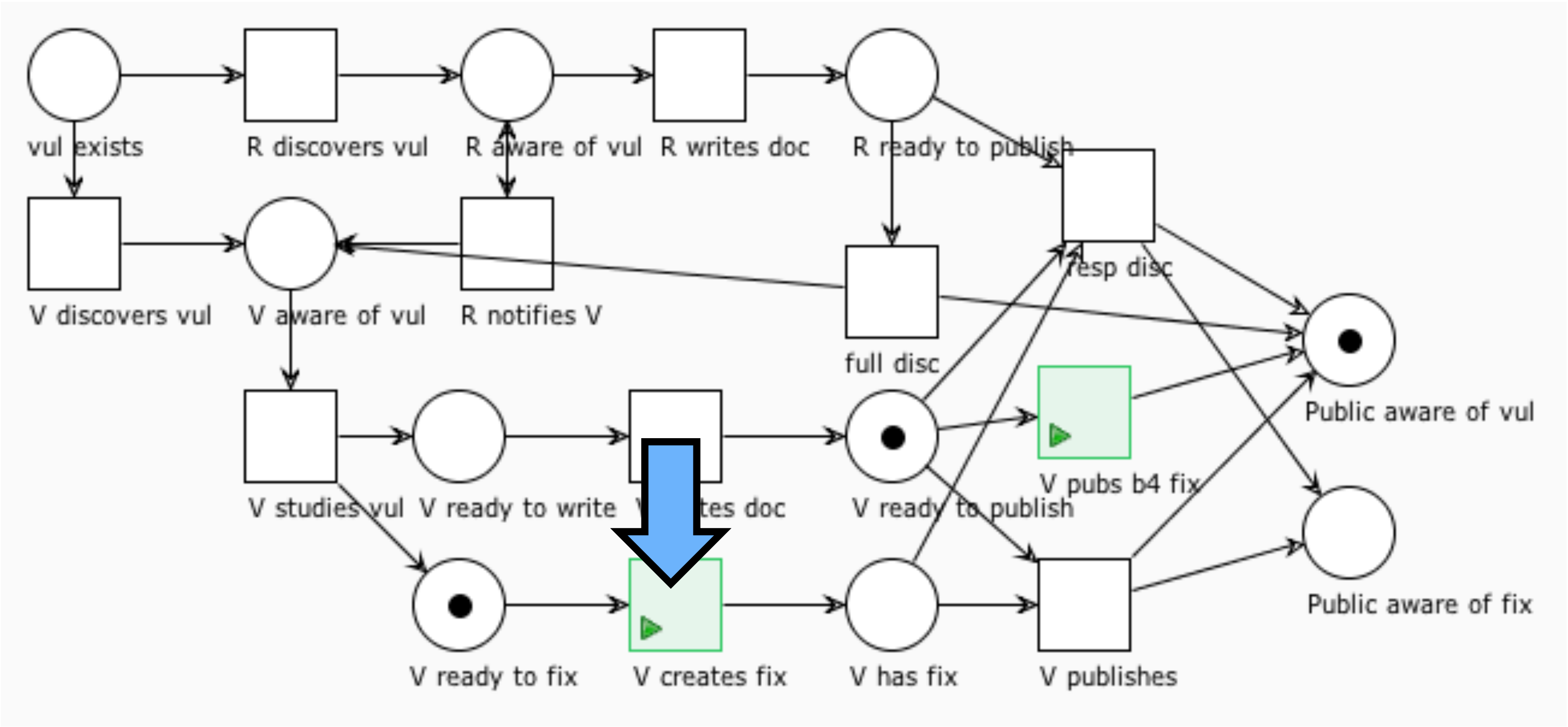

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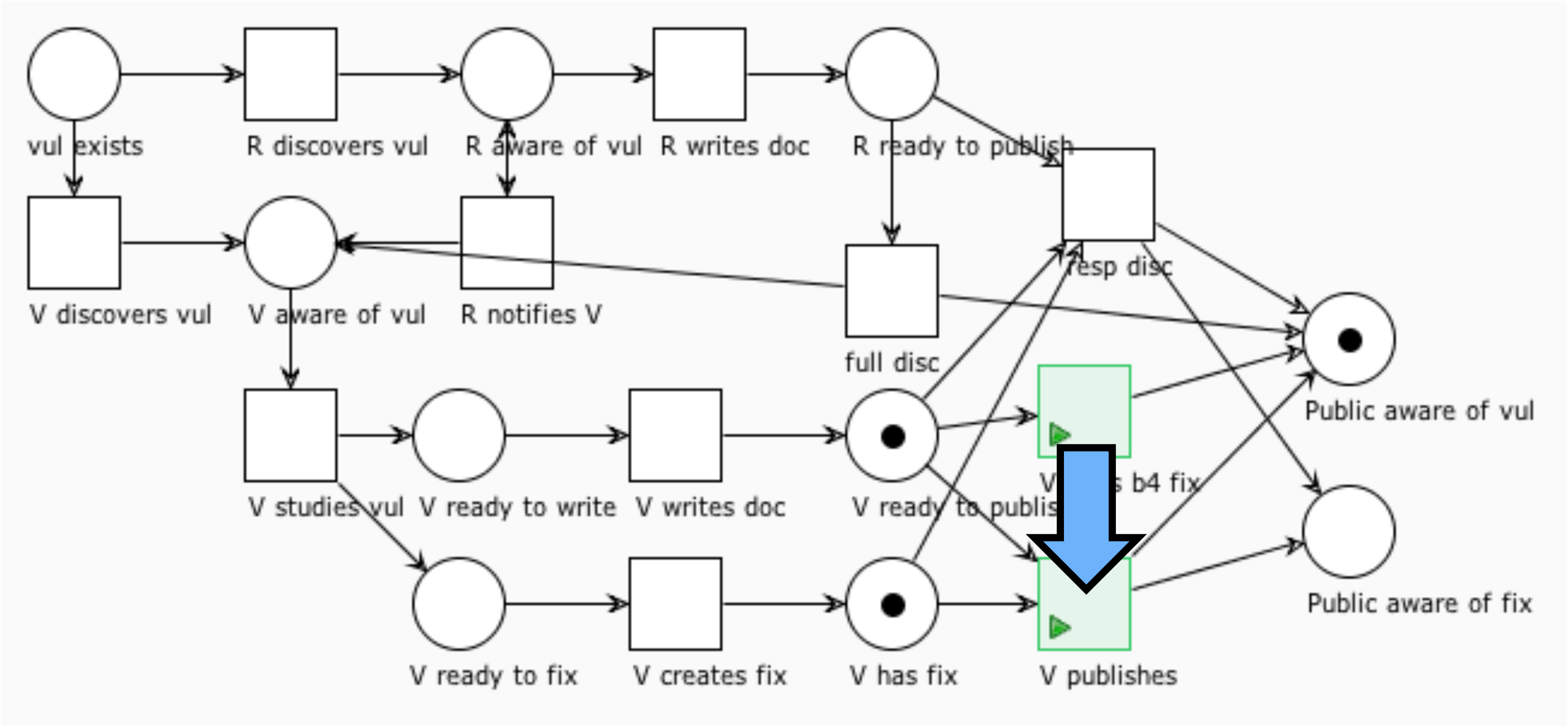

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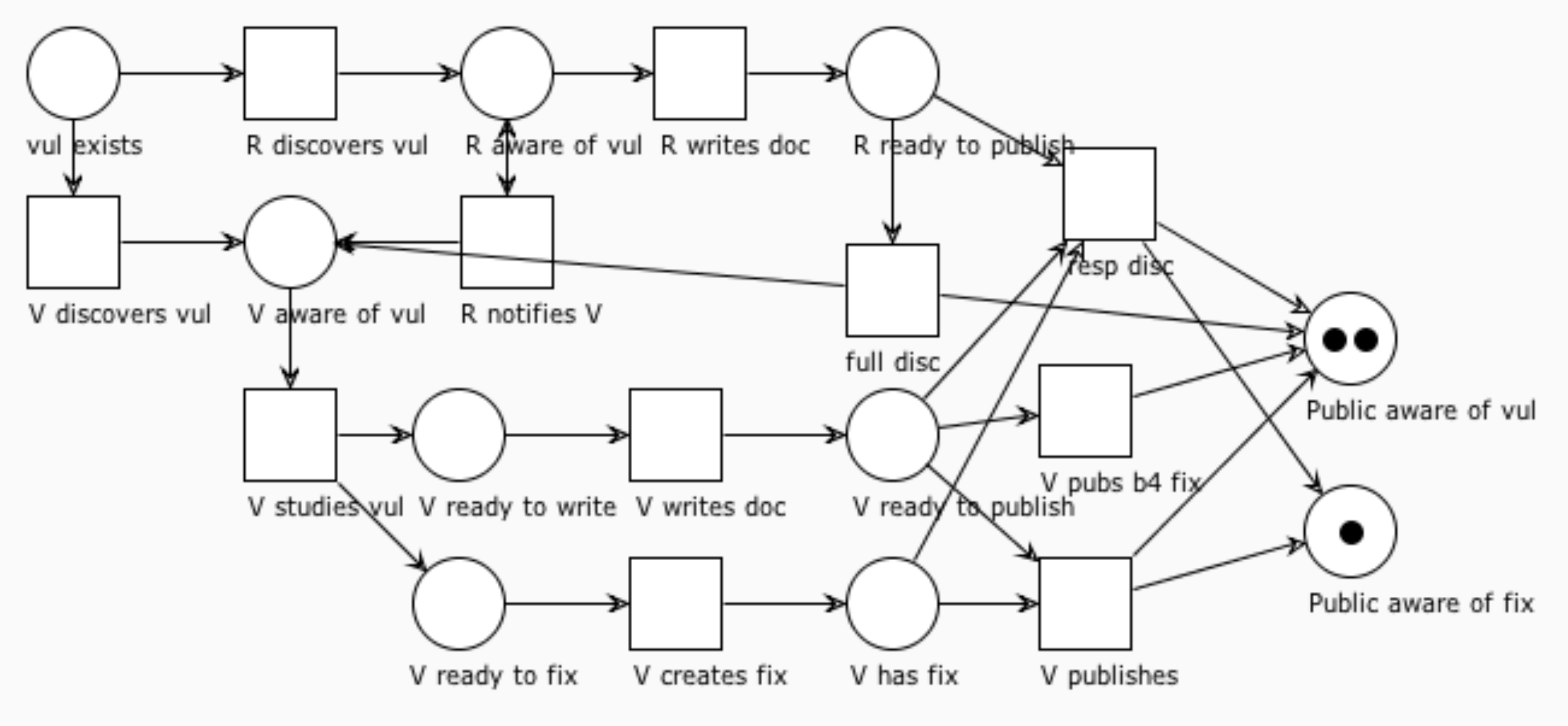
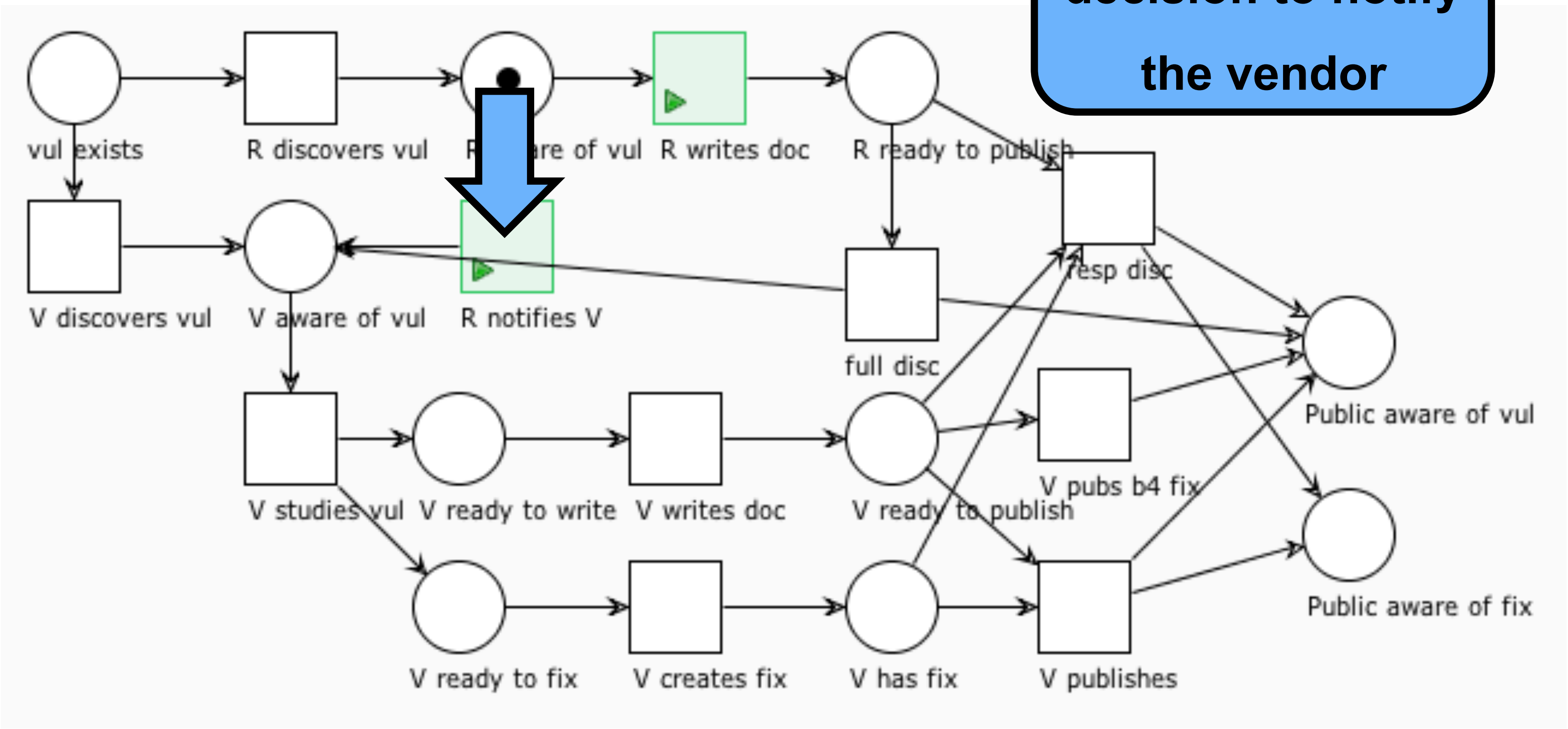
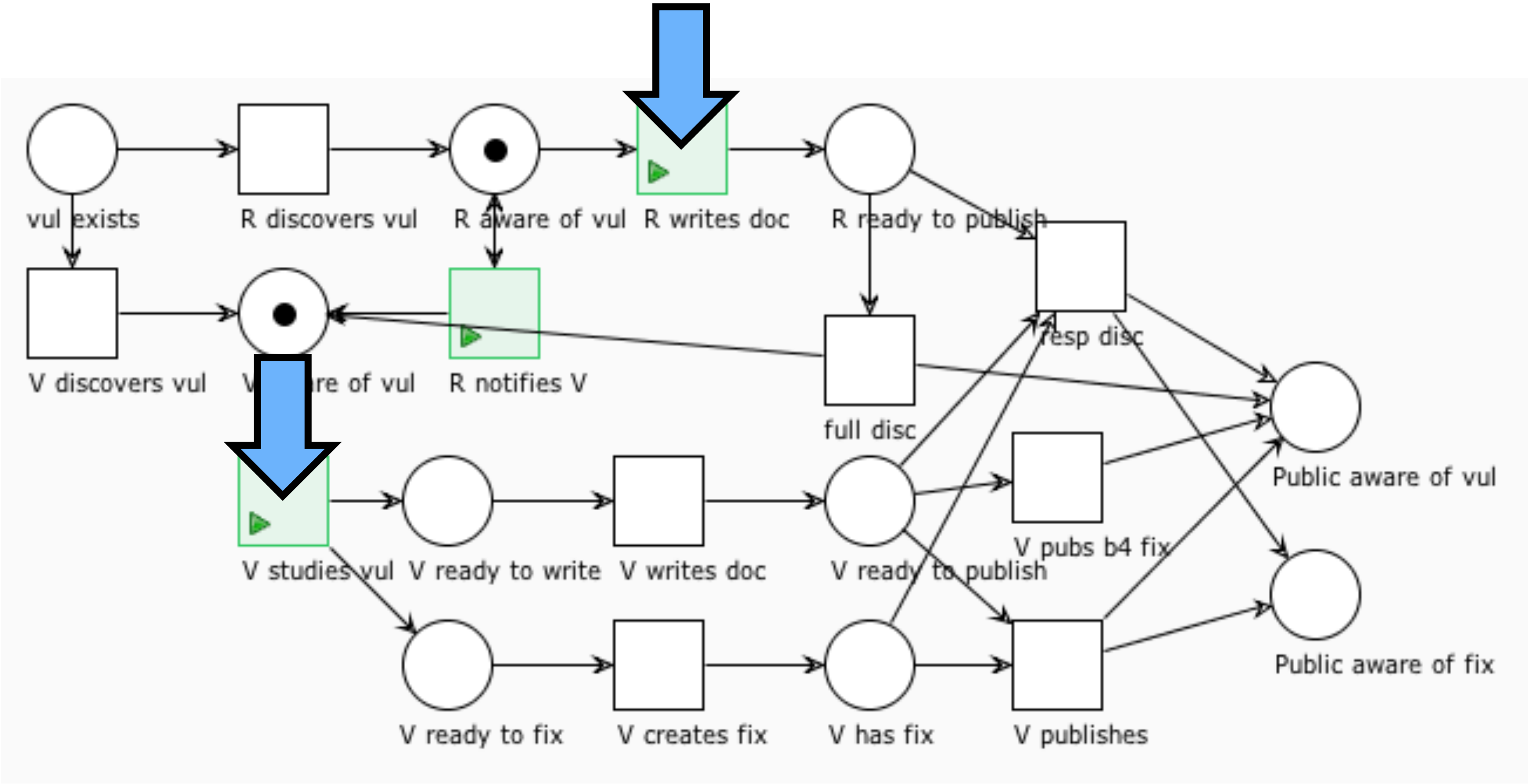


Vendor + Researcher Model

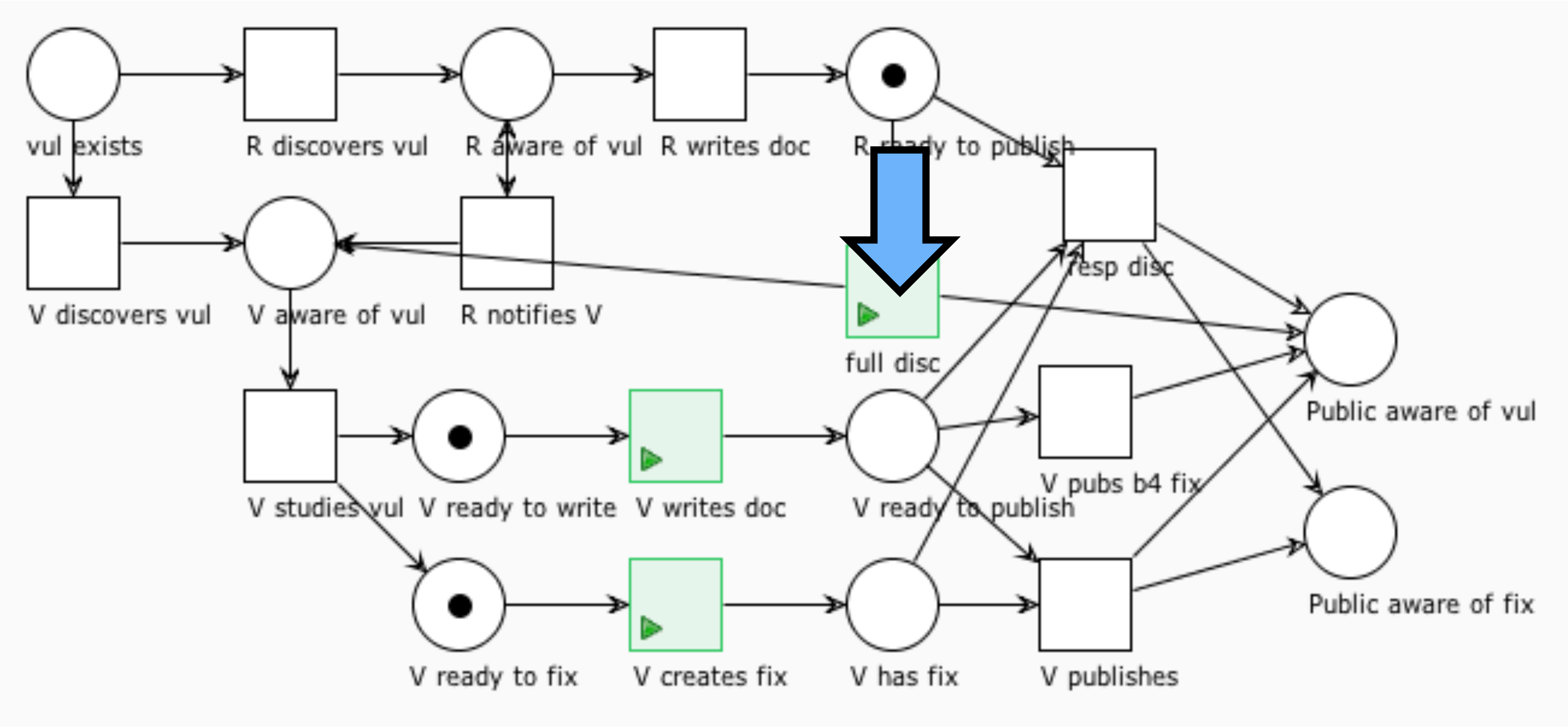
Rewind to the decision to notify the vendor



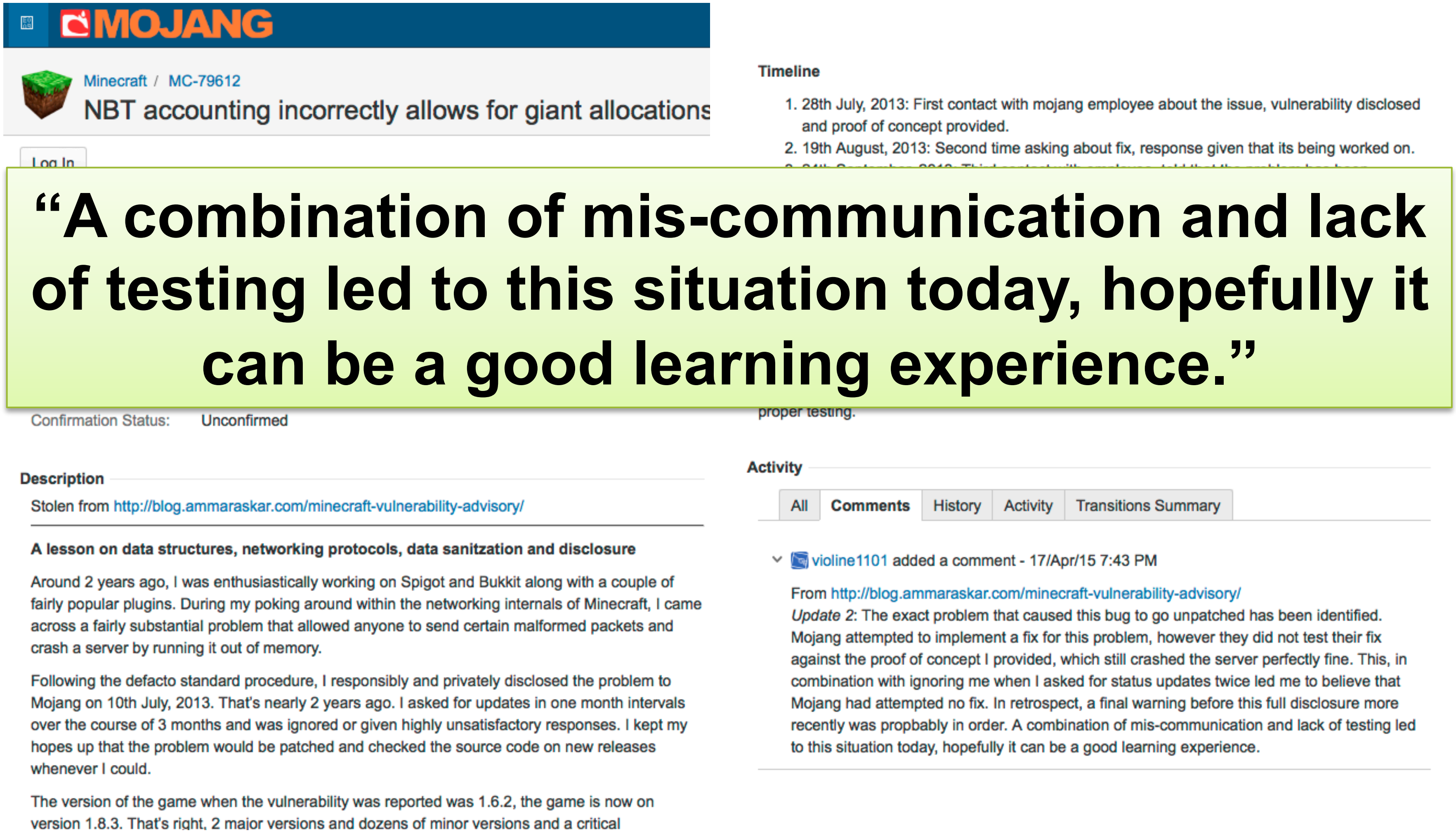
Vendor + Researcher Model



Vendor + Researcher Model



Researcher gives up on vendor, Vendor thought it was fixed



Minecraft / MC-79612

NBT accounting incorrectly allows for giant allocations

Log In

Confirmation Status: Unconfirmed

Description

Stolen from http://blog.ammaraskar.com/minecraft-vulnerability-advisory/

A lesson on data structures, networking protocols, data sanitzation and disclosure

Around 2 years ago, I was enthusiastically working on Spigot and Bukkit along with a couple of fairly popular plugins. During my poking around within the networking internals of Minecraft, I came across a fairly substantial problem that allowed anyone to send certain malformed packets and crash a server by running it out of memory.

Following the defacto standard procedure, I responsibly and privately disclosed the problem to Mojang on 10th July, 2013. That's nearly 2 years ago. I asked for updates in one month intervals over the course of 3 months and was ignored or given highly unsatisfactory responses. I kept my hopes up that the problem would be patched and checked the source code on new releases whenever I could.

The version of the game when the vulnerability was reported was 1.6.2, the game is now on version 1.8.3. That's right, 2 major versions and dozens of minor versions and a critical

Timeline

1. 28th July, 2013: First contact with mojang employee about the issue, vulnerability disclosed and proof of concept provided.
2. 19th August, 2013: Second time asking about fix, response given that its being worked on.

proper testing.

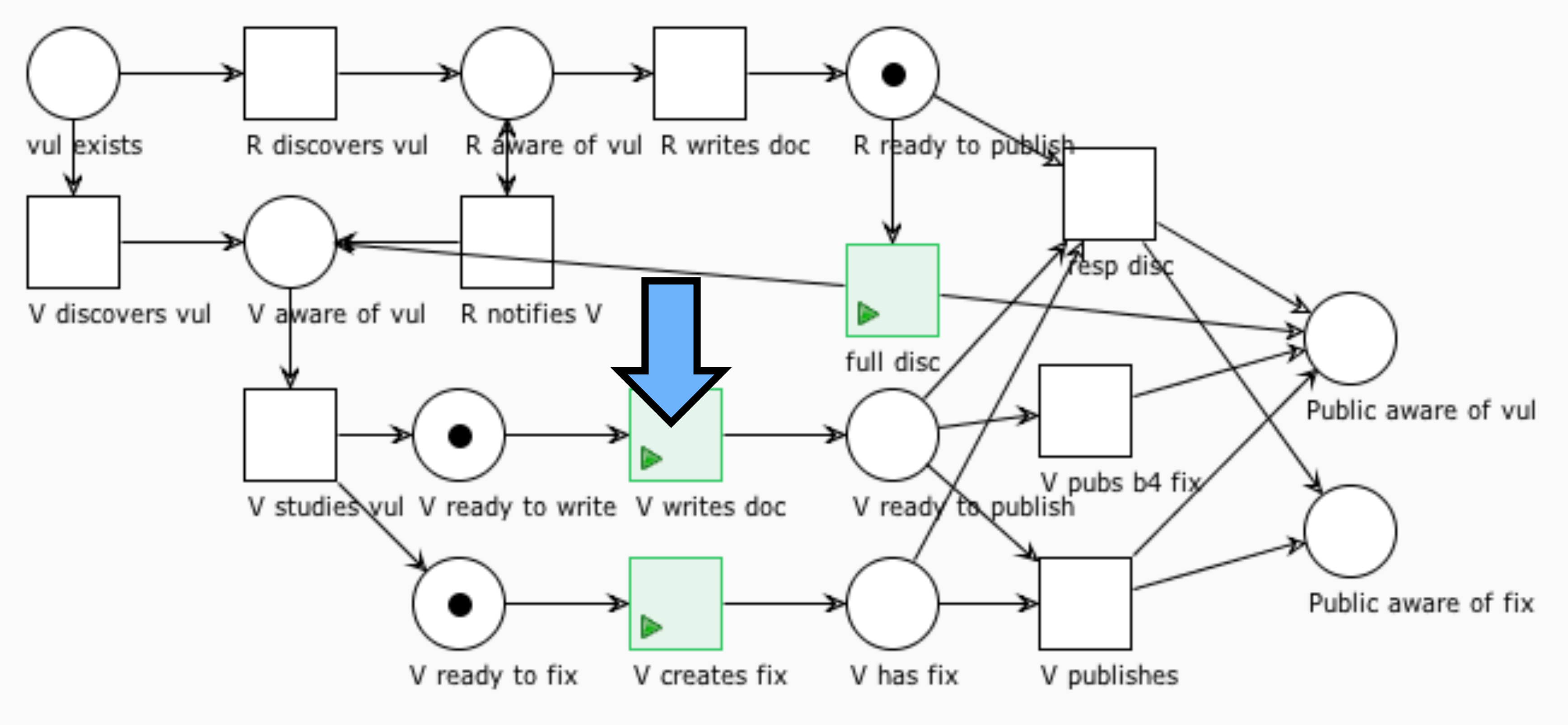
Activity

violine1101 added a comment - 17/Apr/15 7:43 PM

From http://blog.ammaraskar.com/minecraft-vulnerability-advisory/
Update 2: The exact problem that caused this bug to go unpatched has been identified. Mojang attempted to implement a fix for this problem, however they did not test their fix against the proof of concept I provided, which still crashed the server perfectly fine. This, in combination with ignoring me when I asked for status updates twice led me to believe that Mojang had attempted no fix. In retrospect, a final warning before this full disclosure more recently was propbably in order. A combination of mis-communication and lack of testing led to this situation today, hopefully it can be a good learning experience.

"A combination of mis-communication and lack of testing led to this situation today, hopefully it can be a good learning experience."

Vendor + Researcher Model



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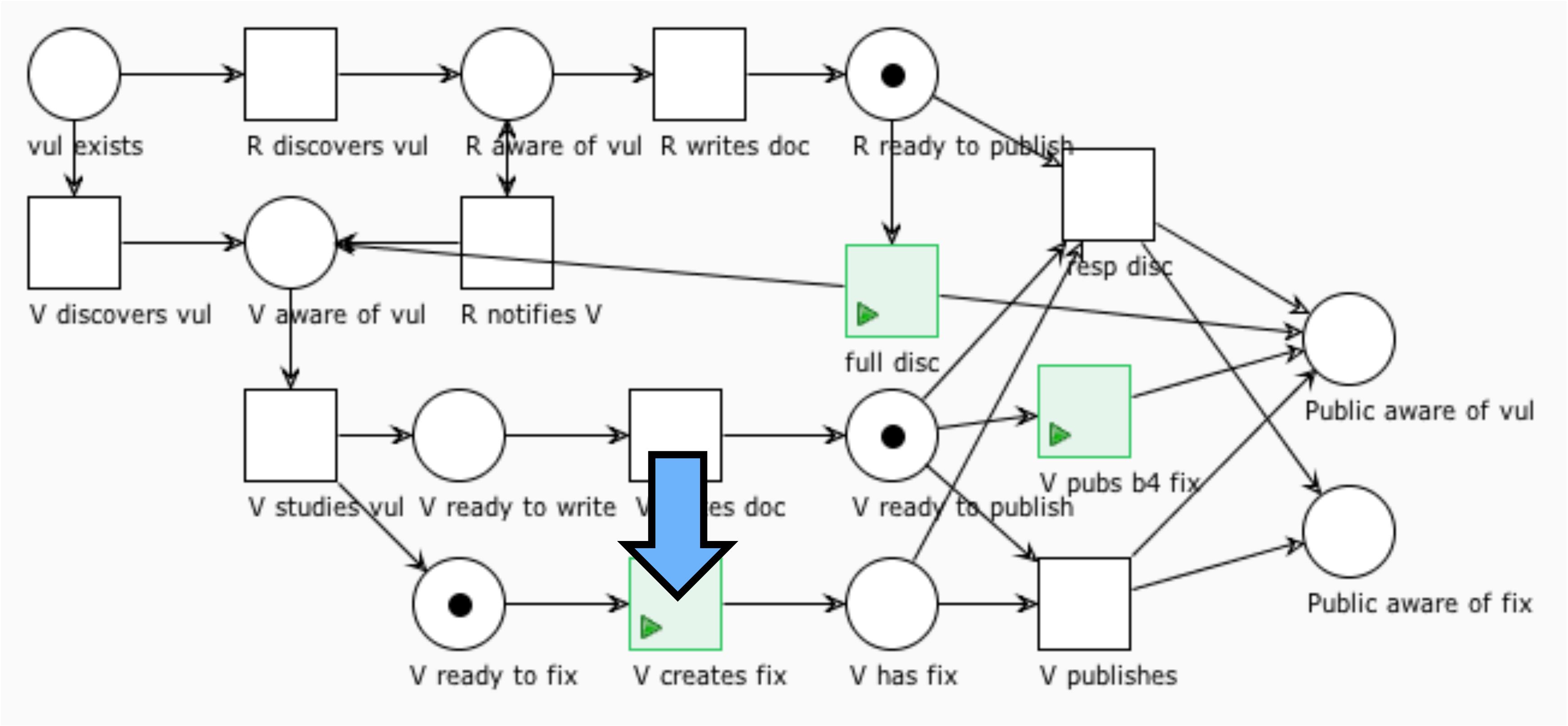

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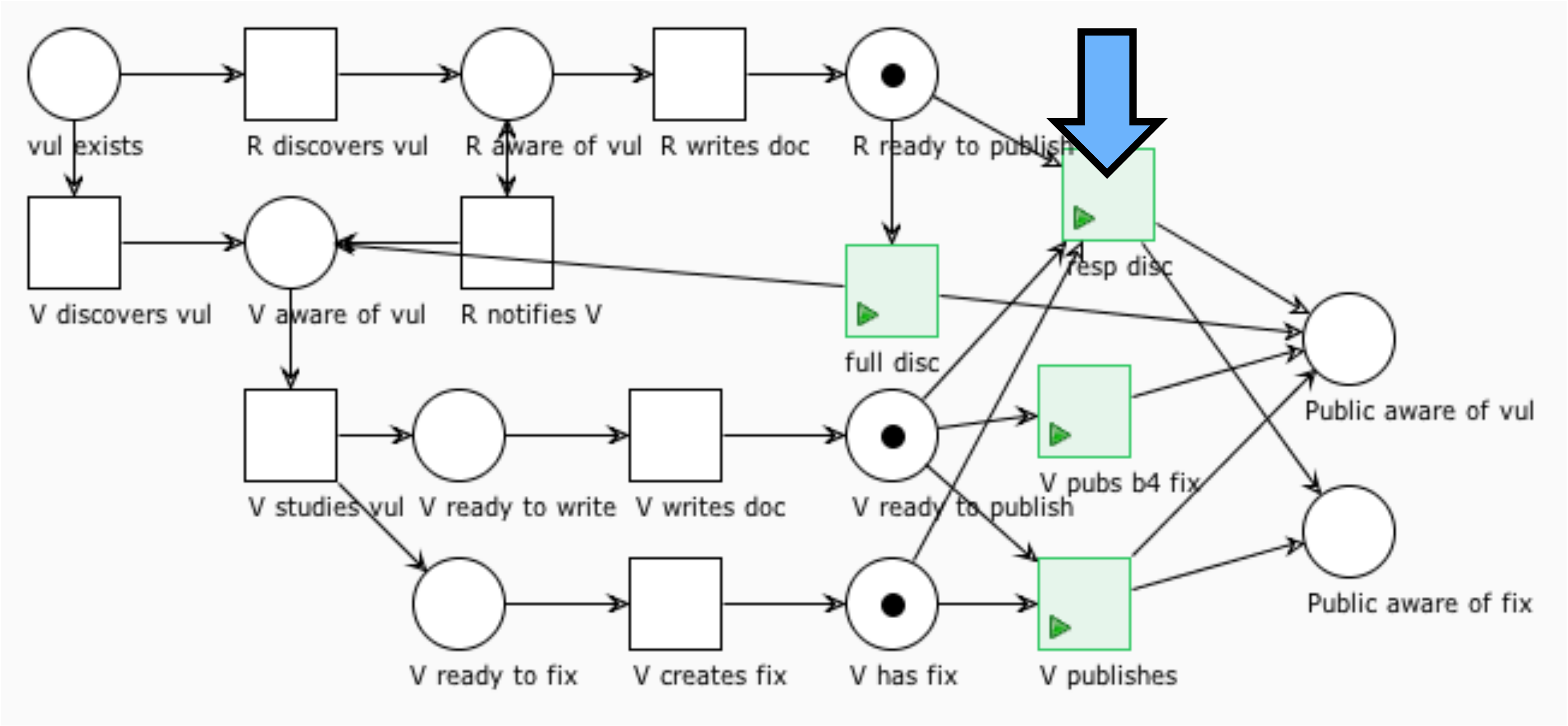

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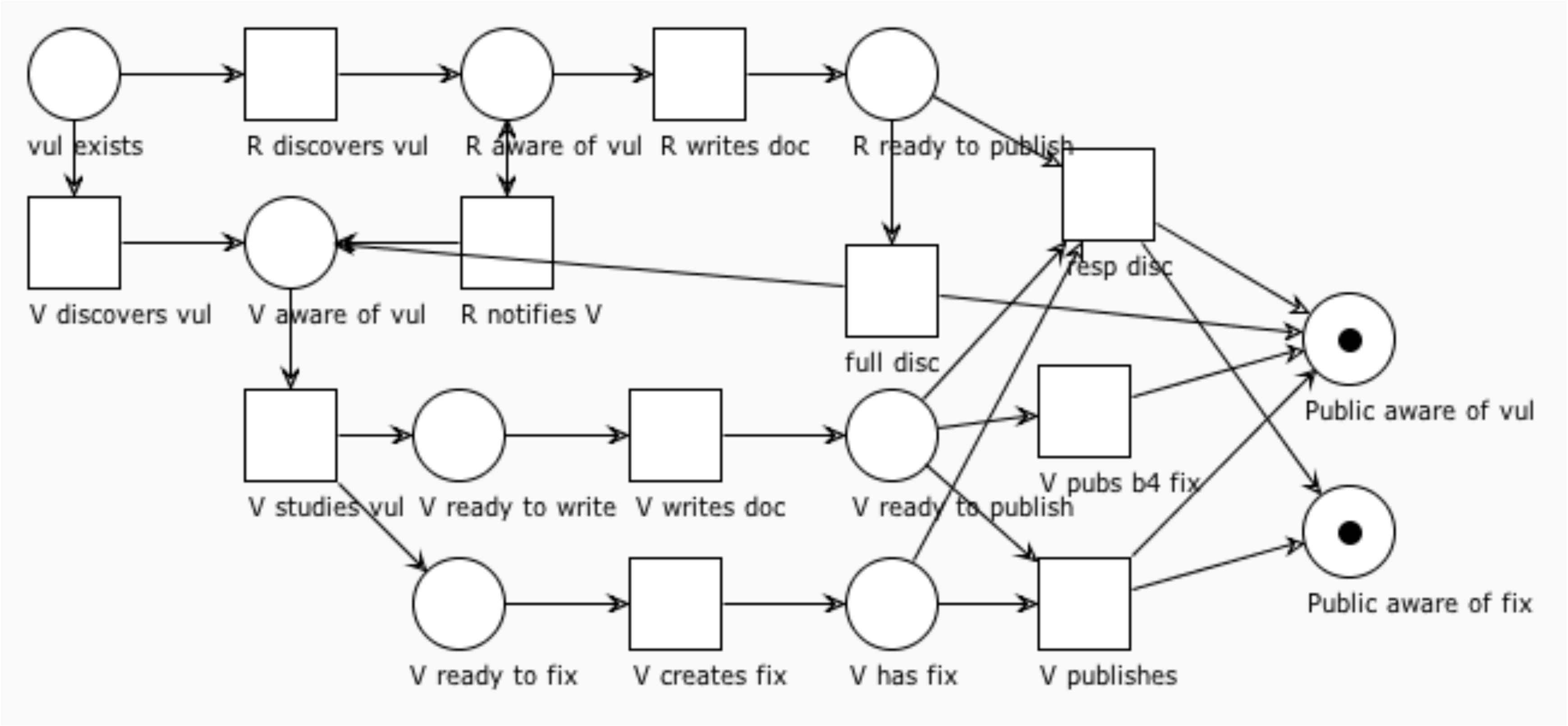
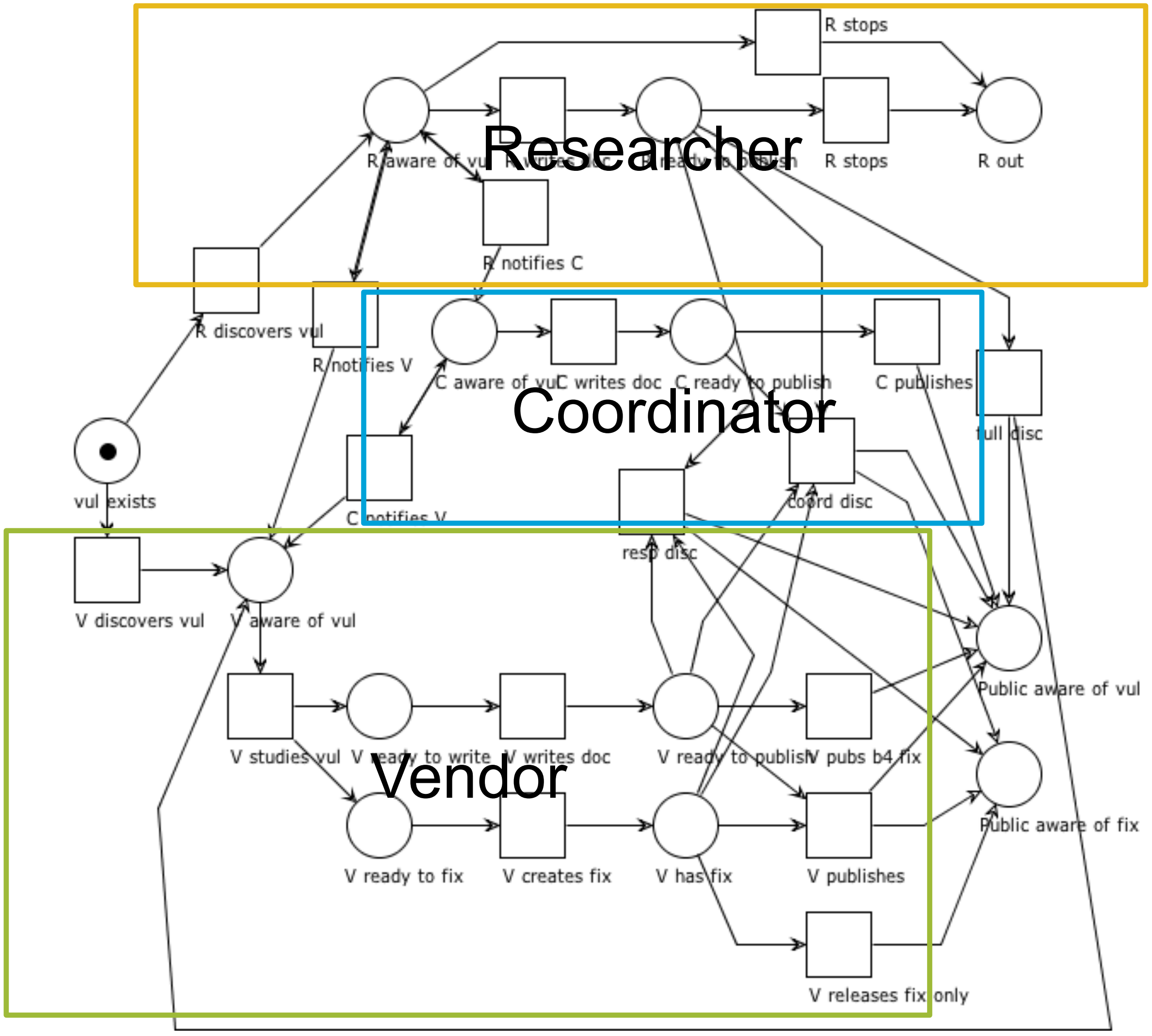


Vendor, Researcher, Coordinator



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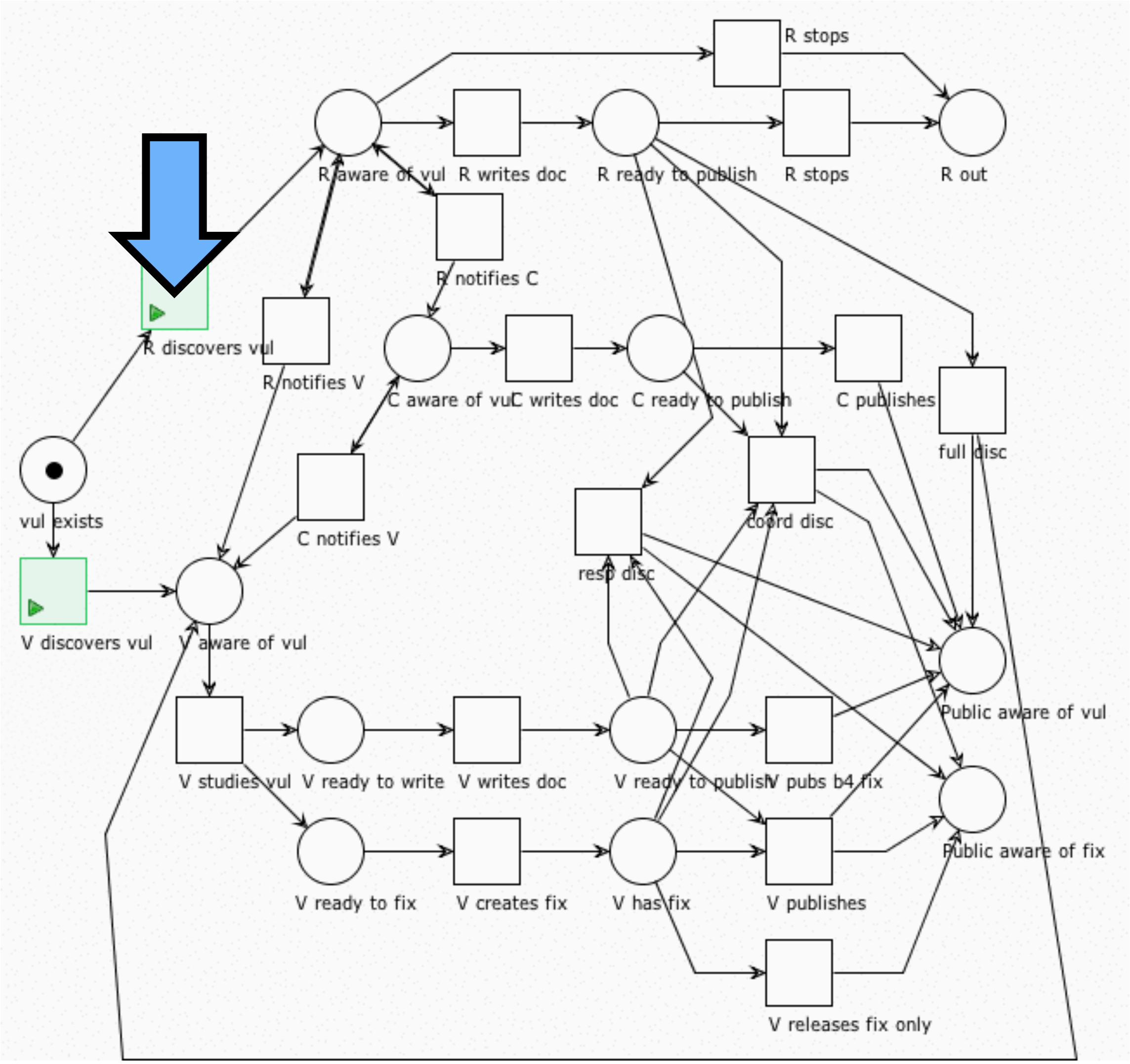

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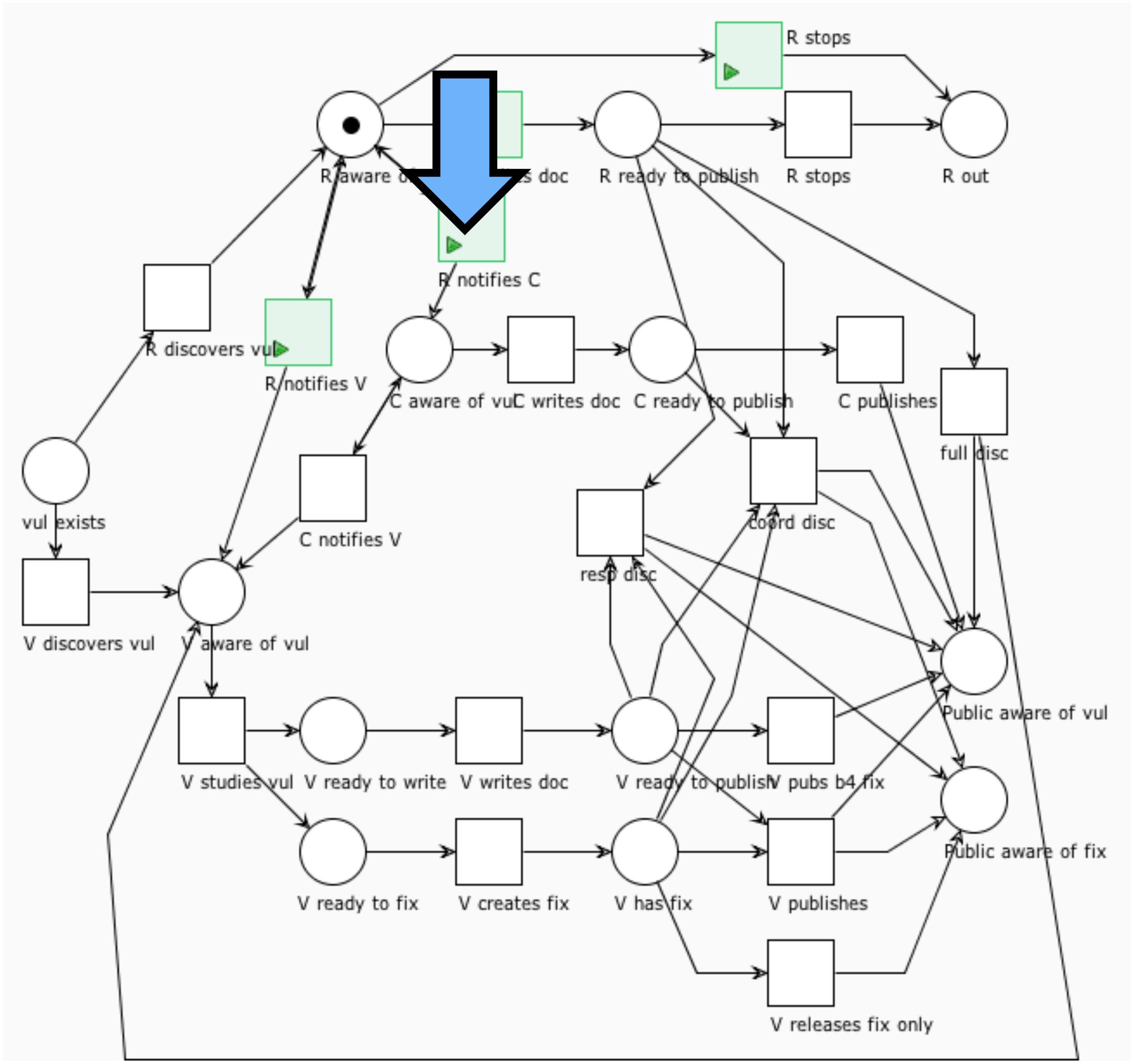

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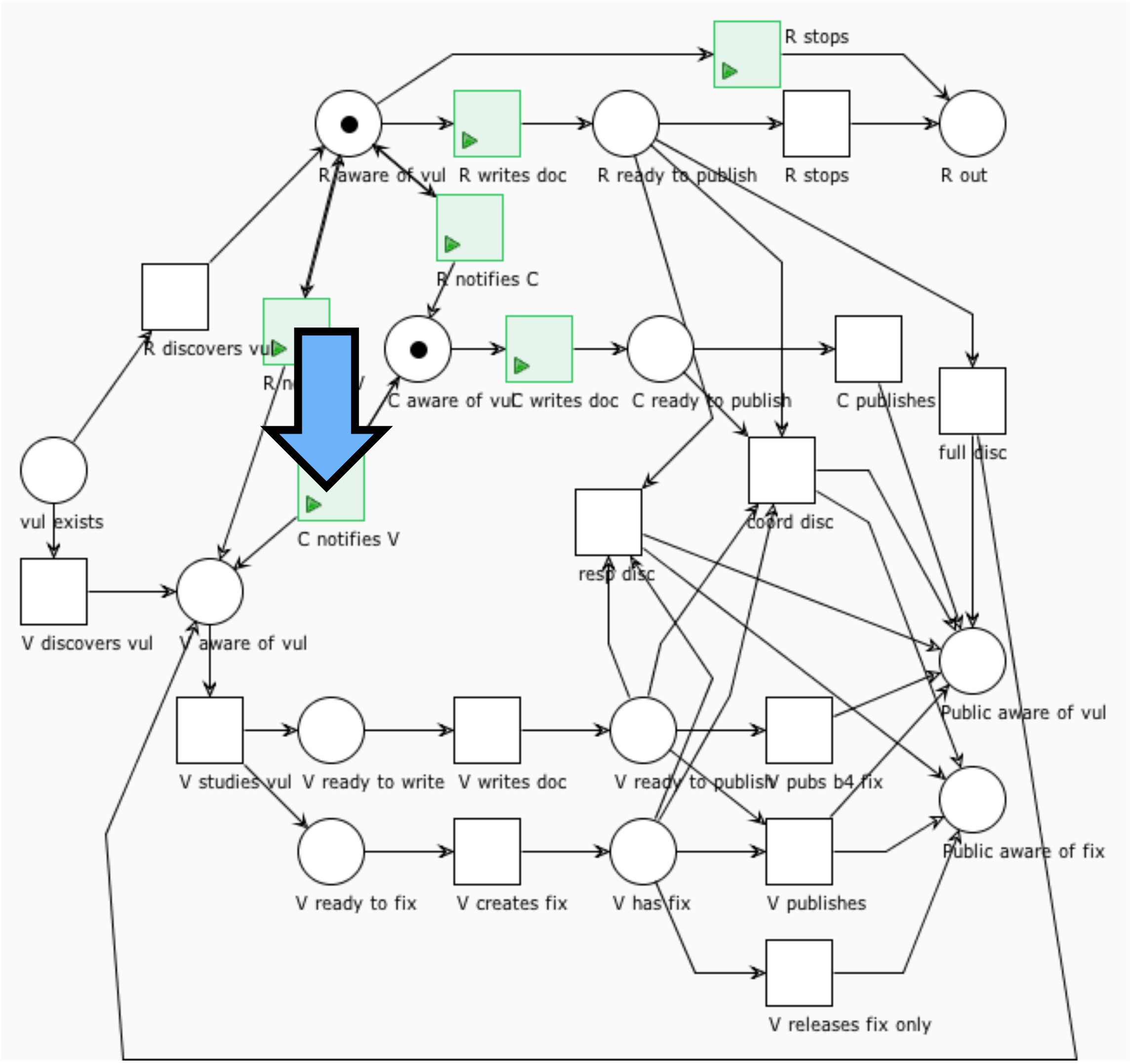

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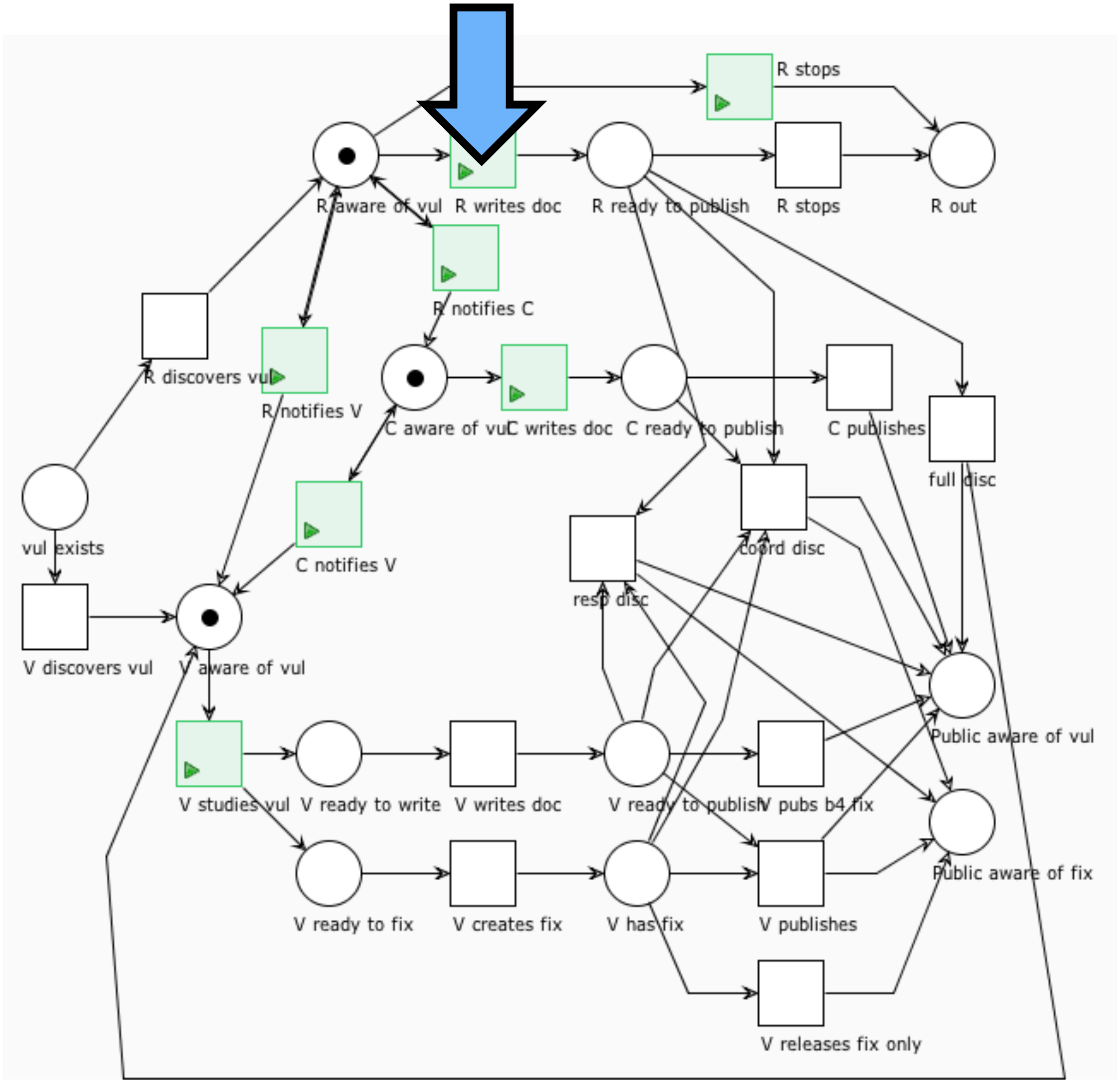

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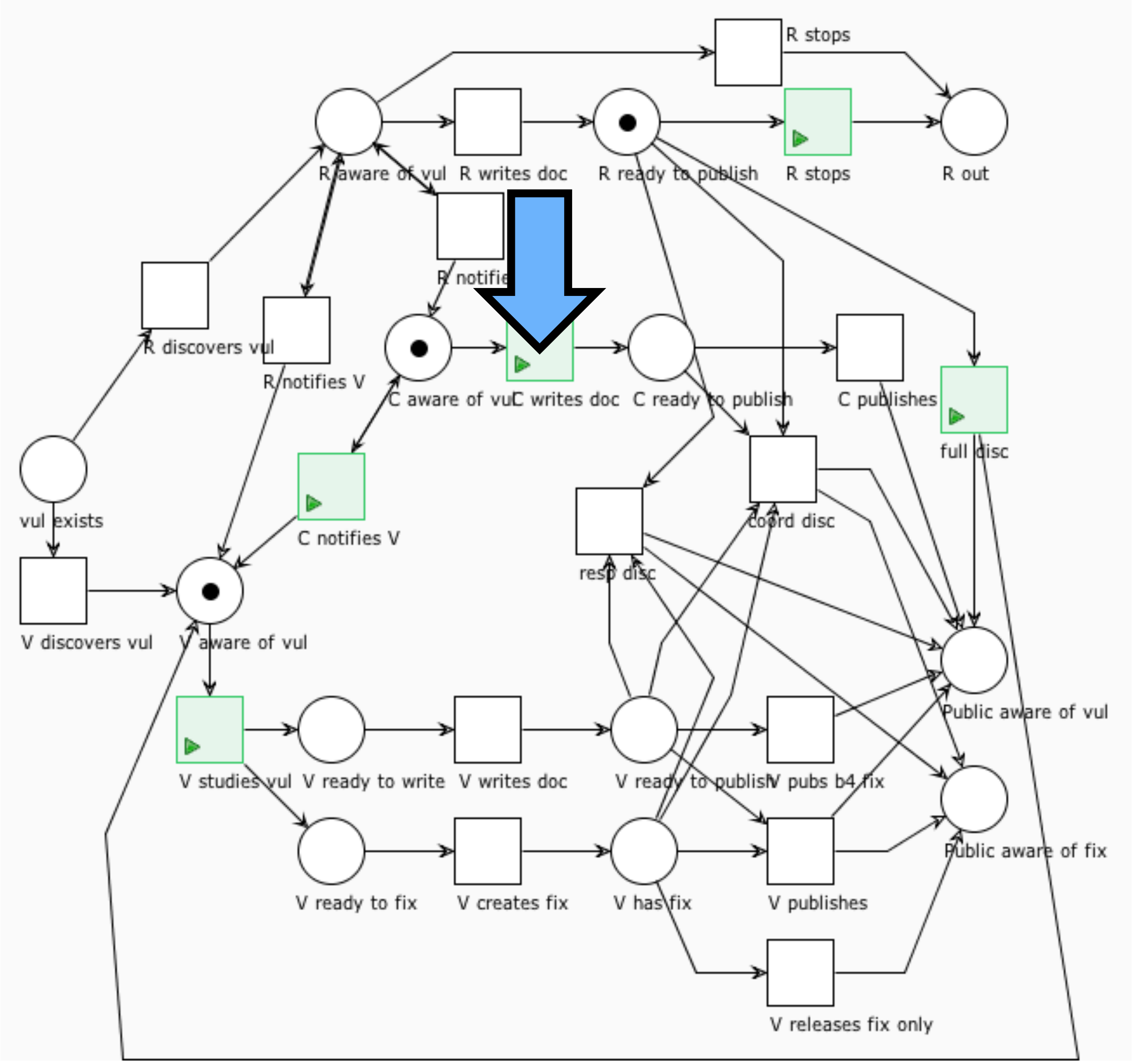

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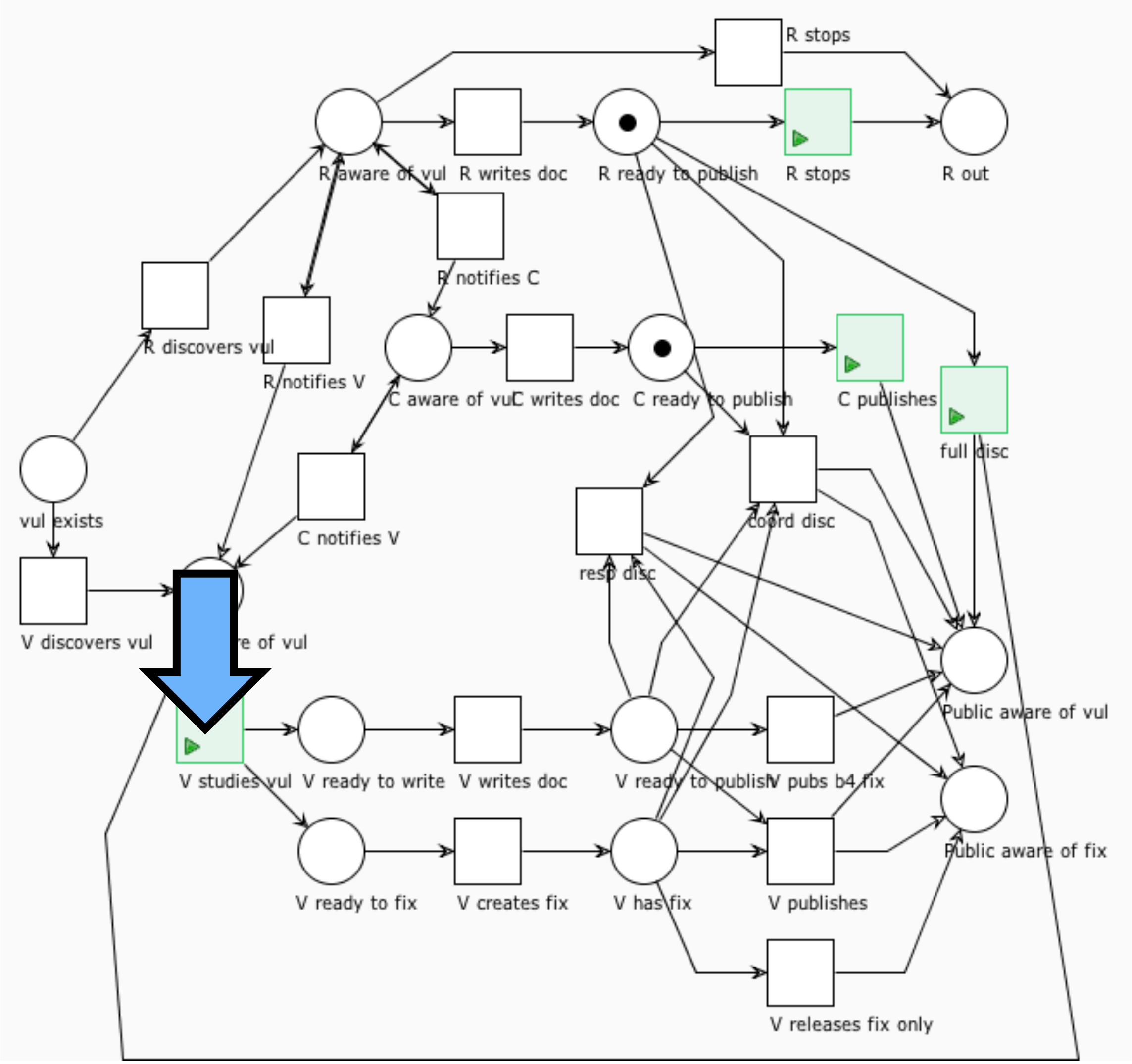

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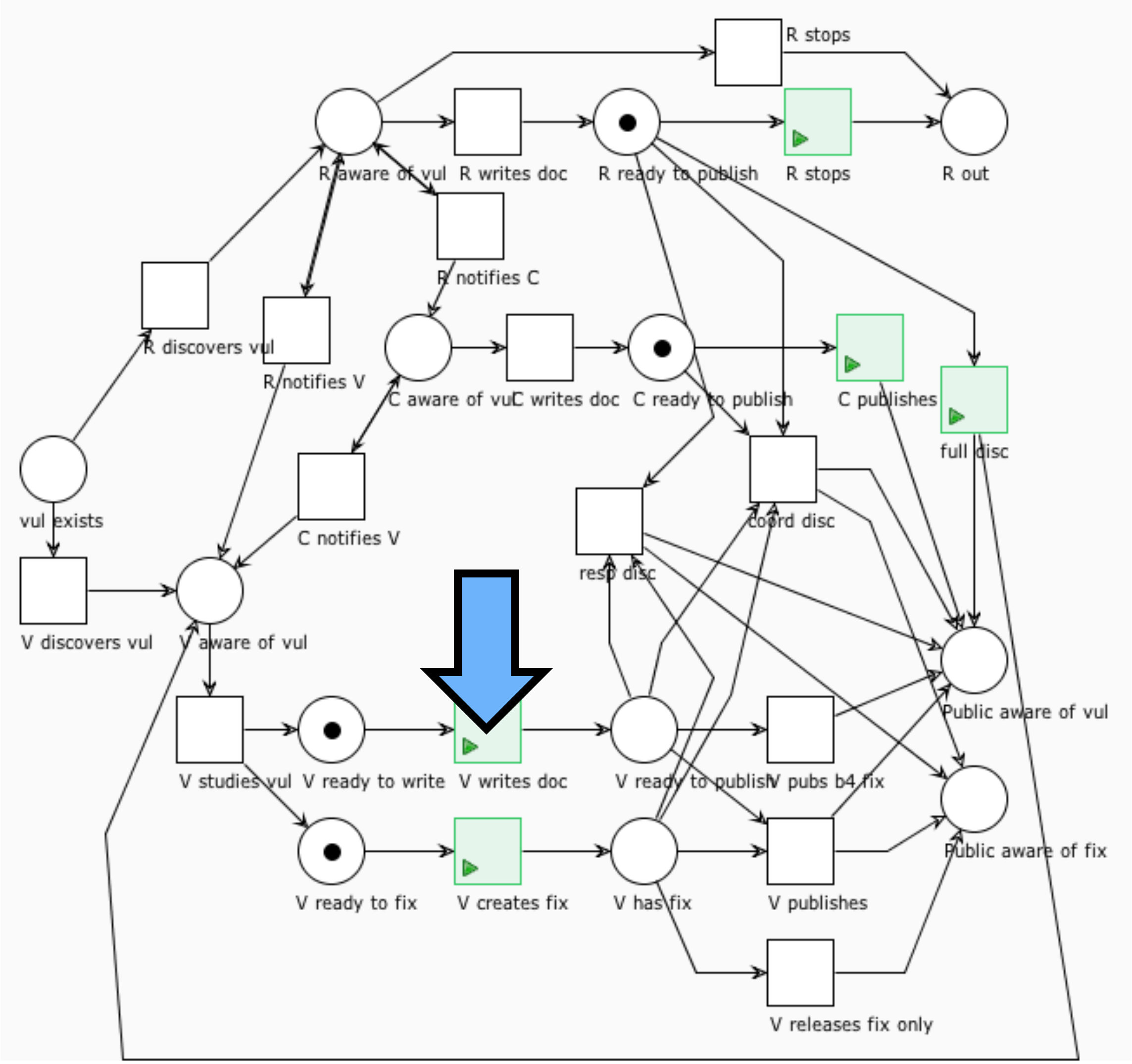

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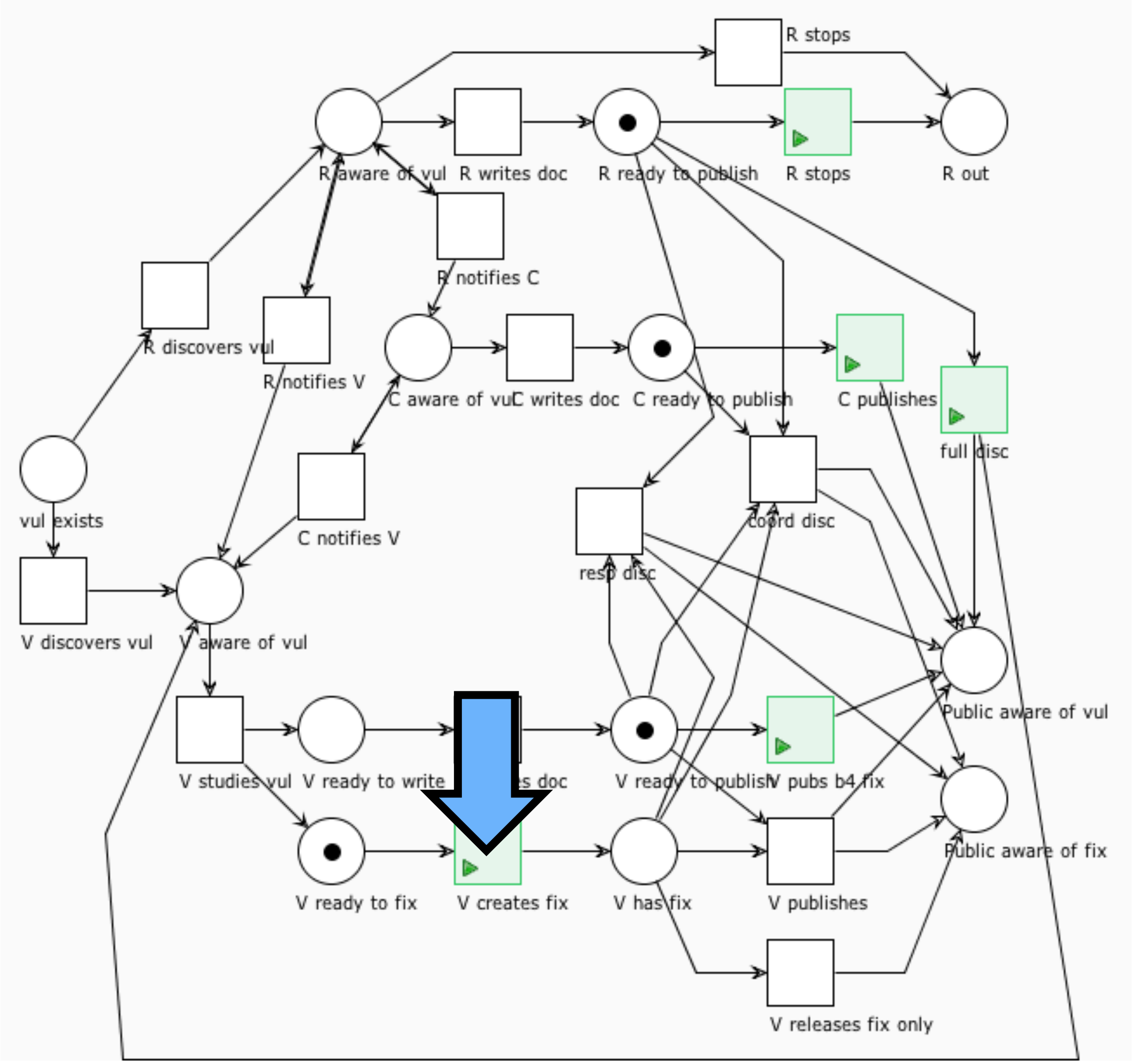

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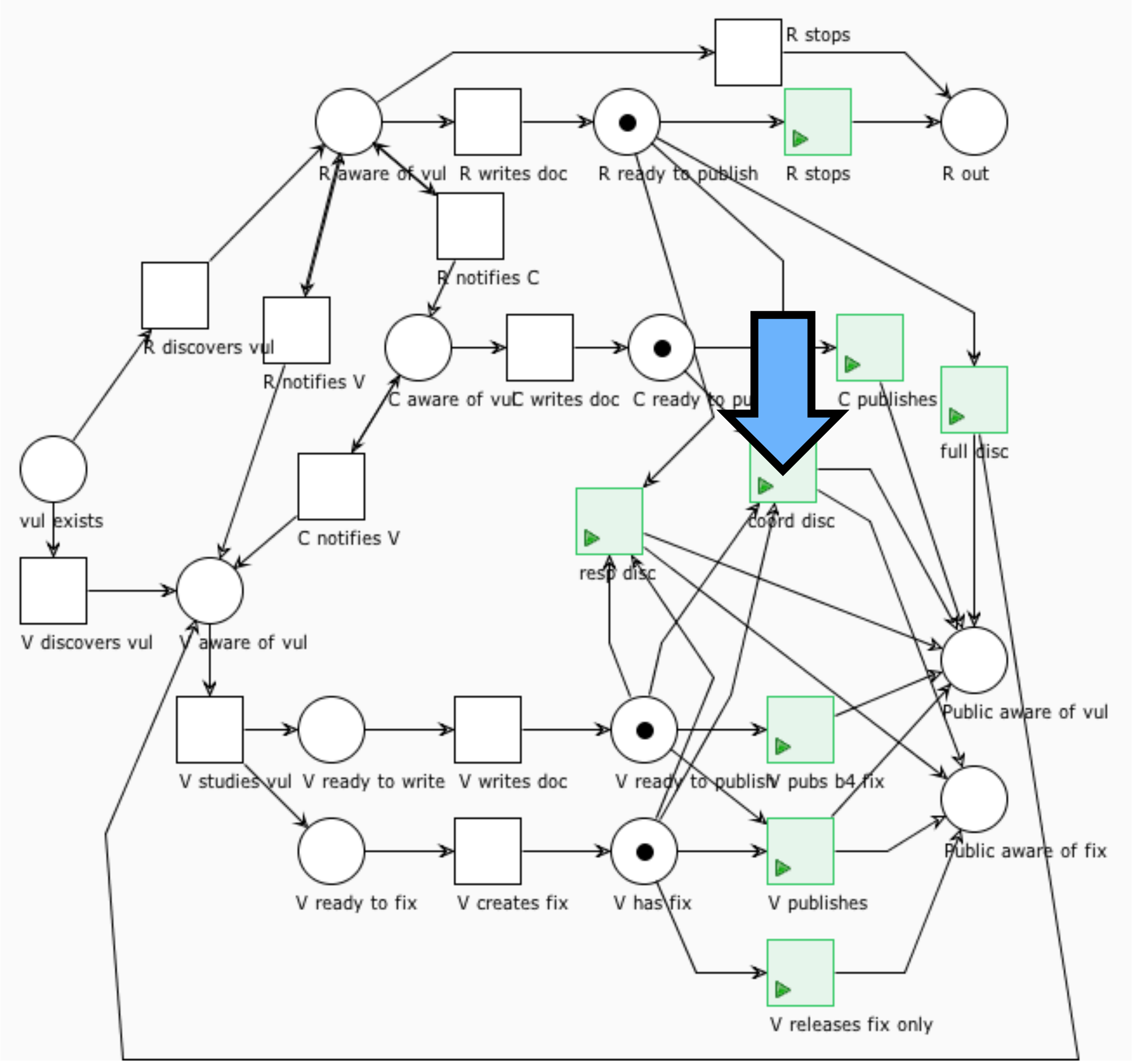

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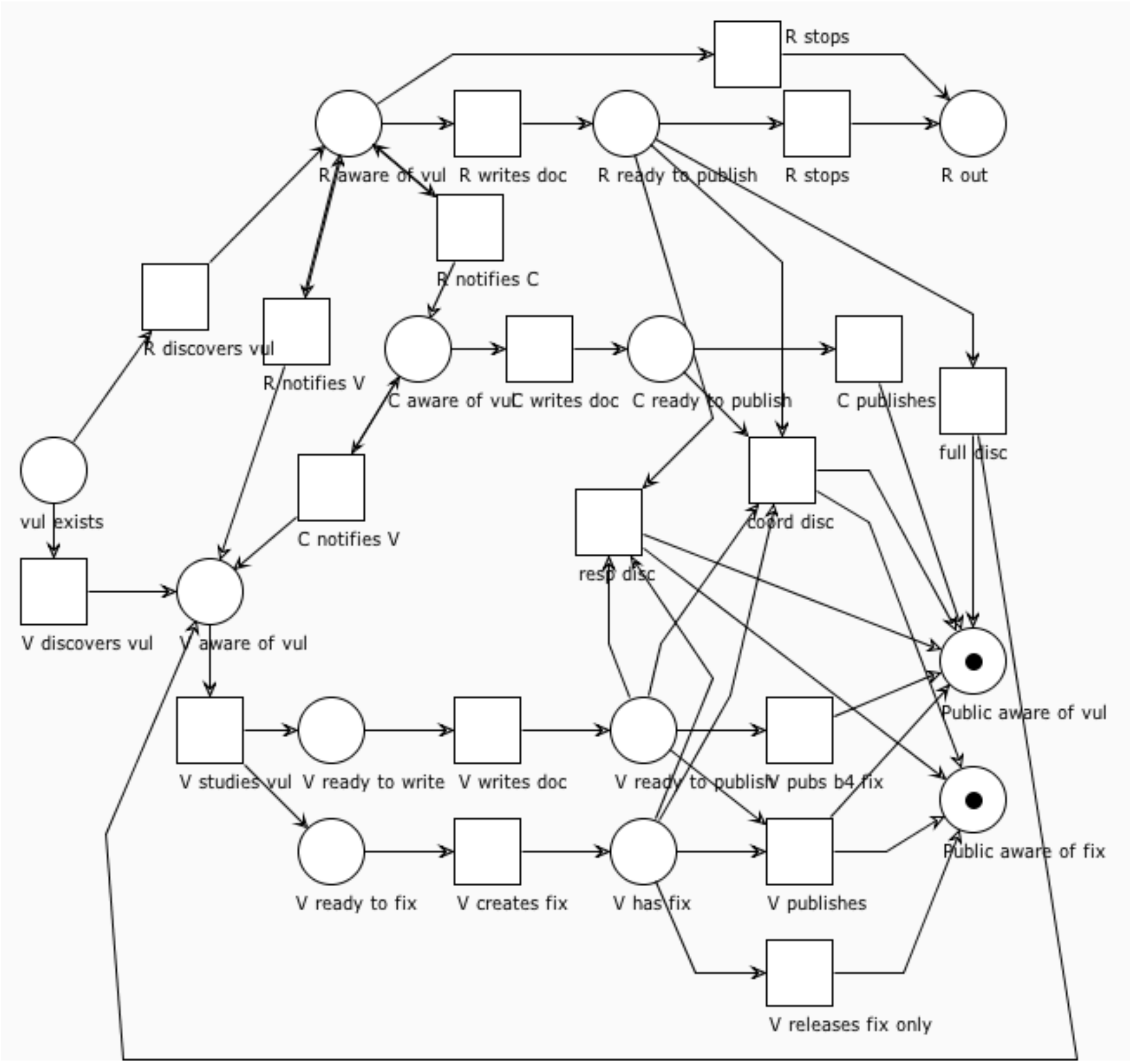
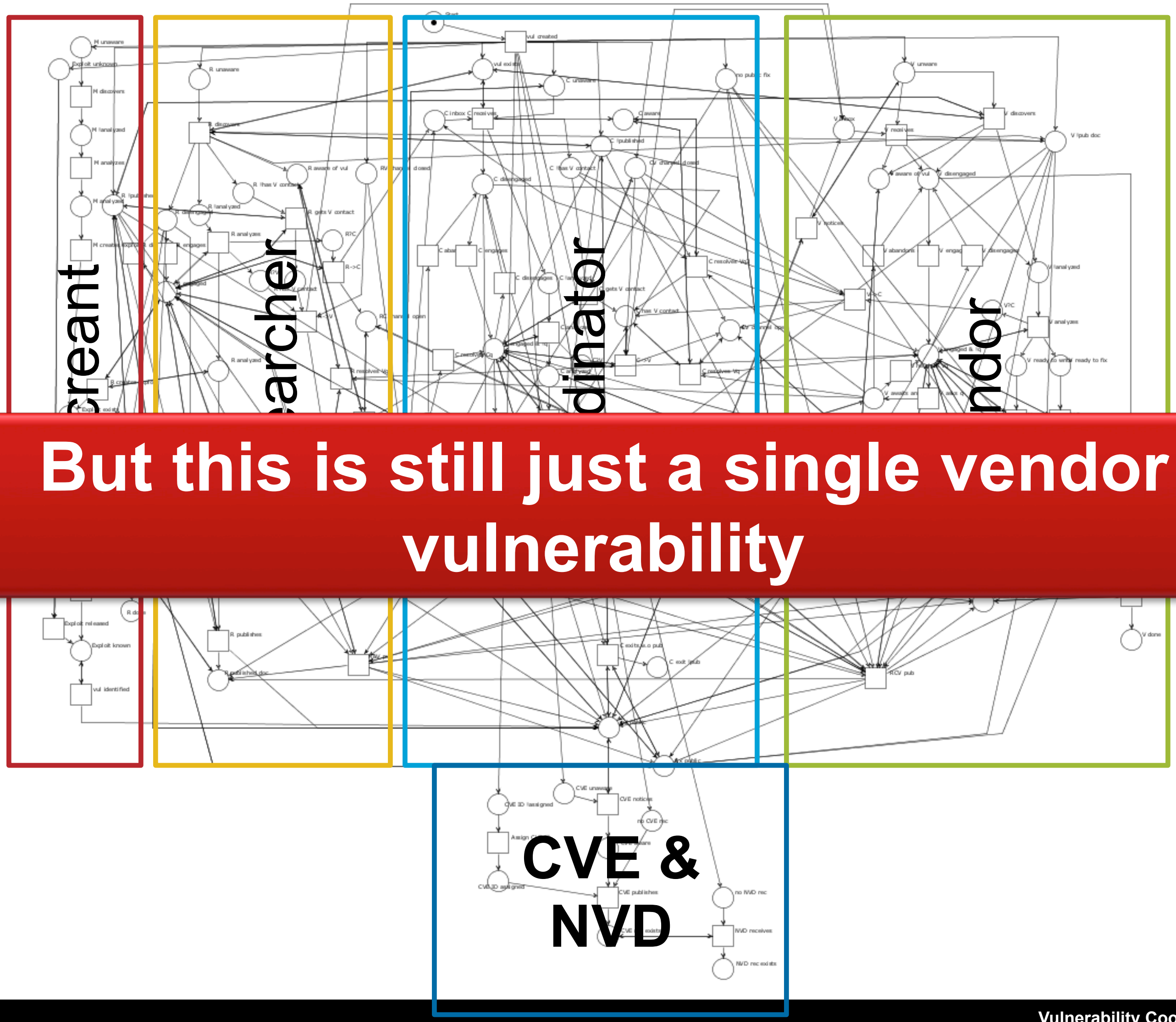
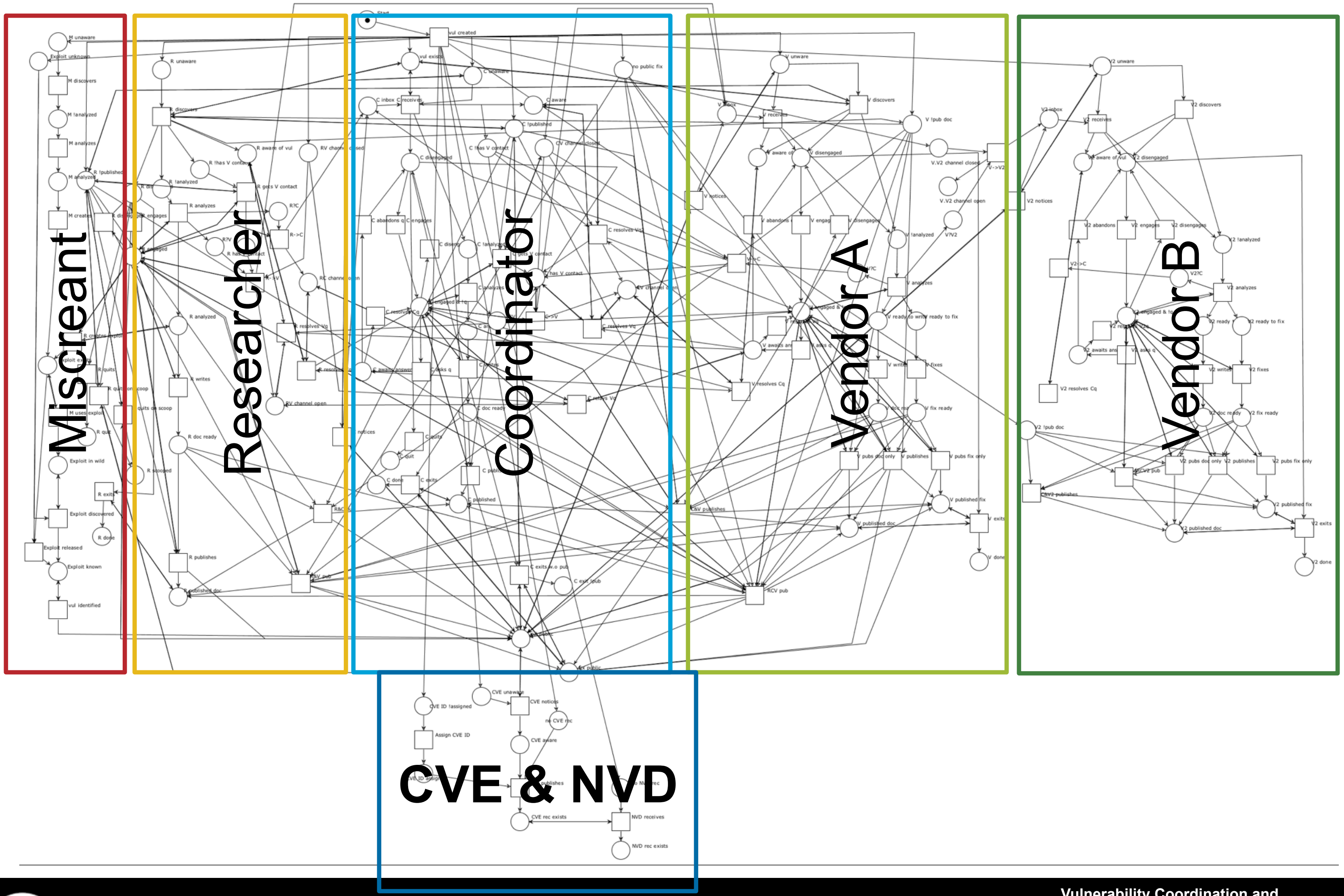


Vendor, Researcher, Coordinator, Miscreant

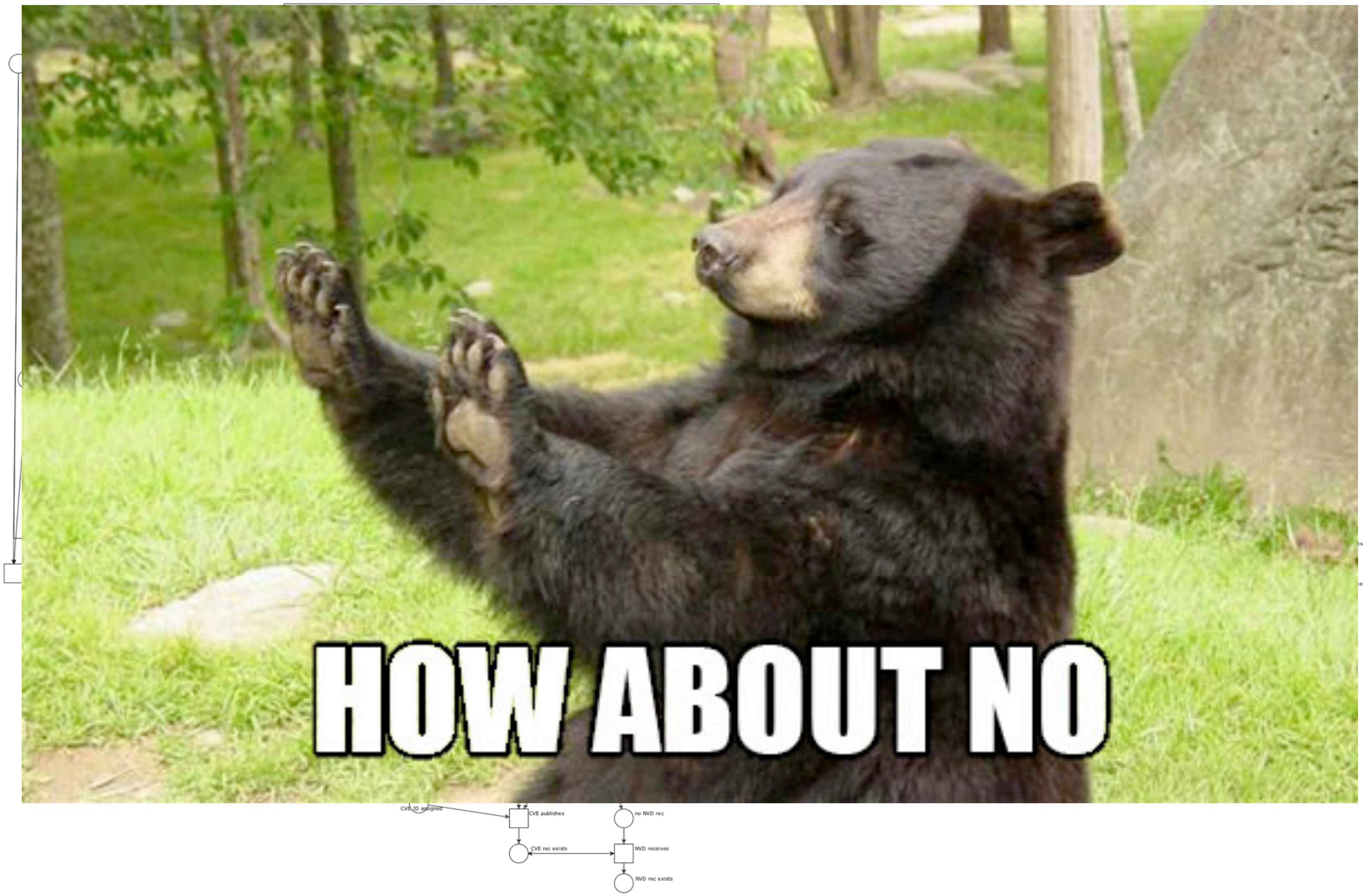


But this is still just a single vendor vulnerability

Multivendor, researcher, coordinator, miscreant



Multivendor, researcher, coordinator, miscreant



Limits of Concurrency Modeling using Petri Nets

It’s hard to present this stuff in a way that is understandable once you get so many interactions

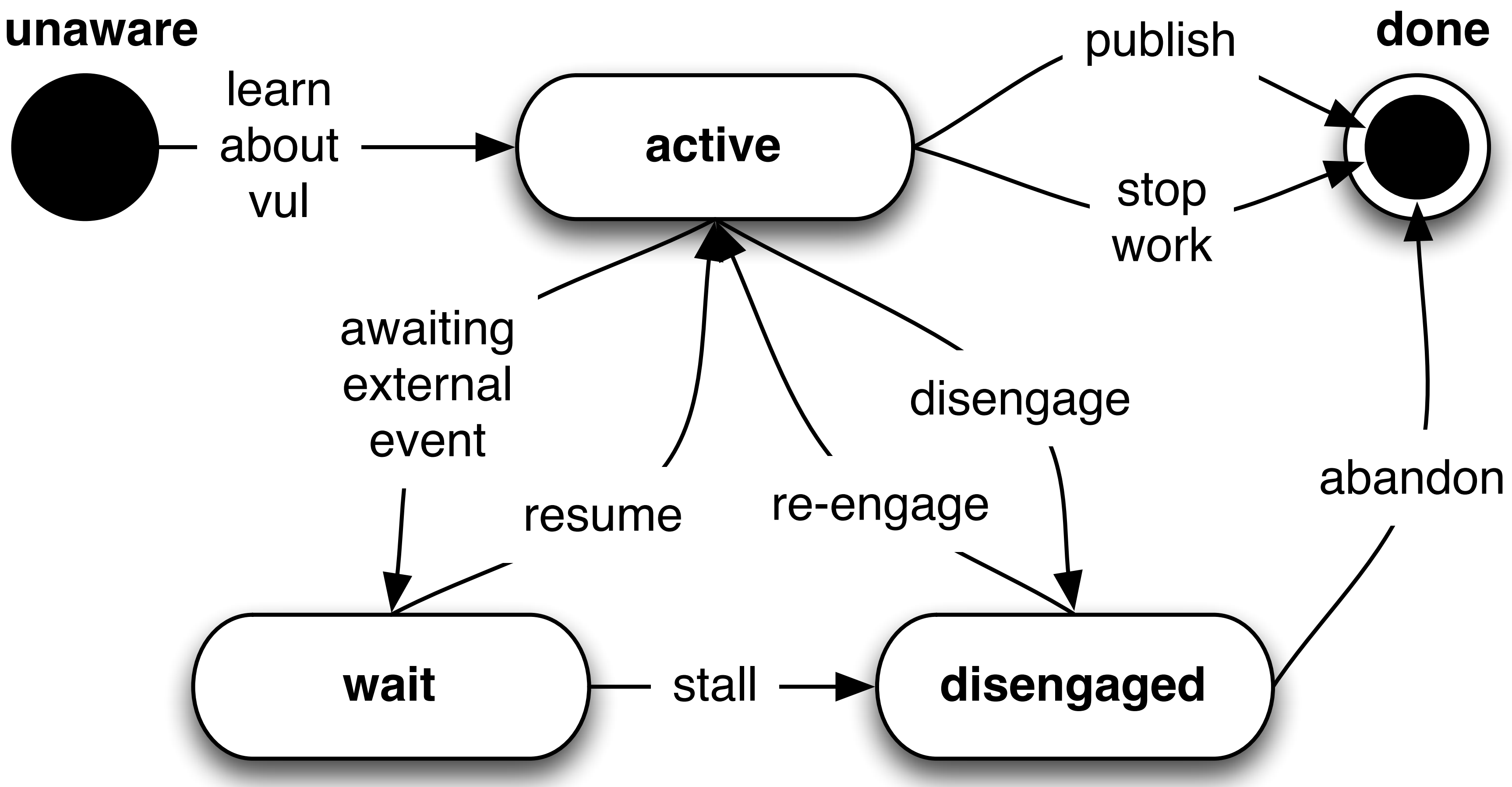
State space grows quickly and the model becomes unwieldy

Hard to model history as it evolves

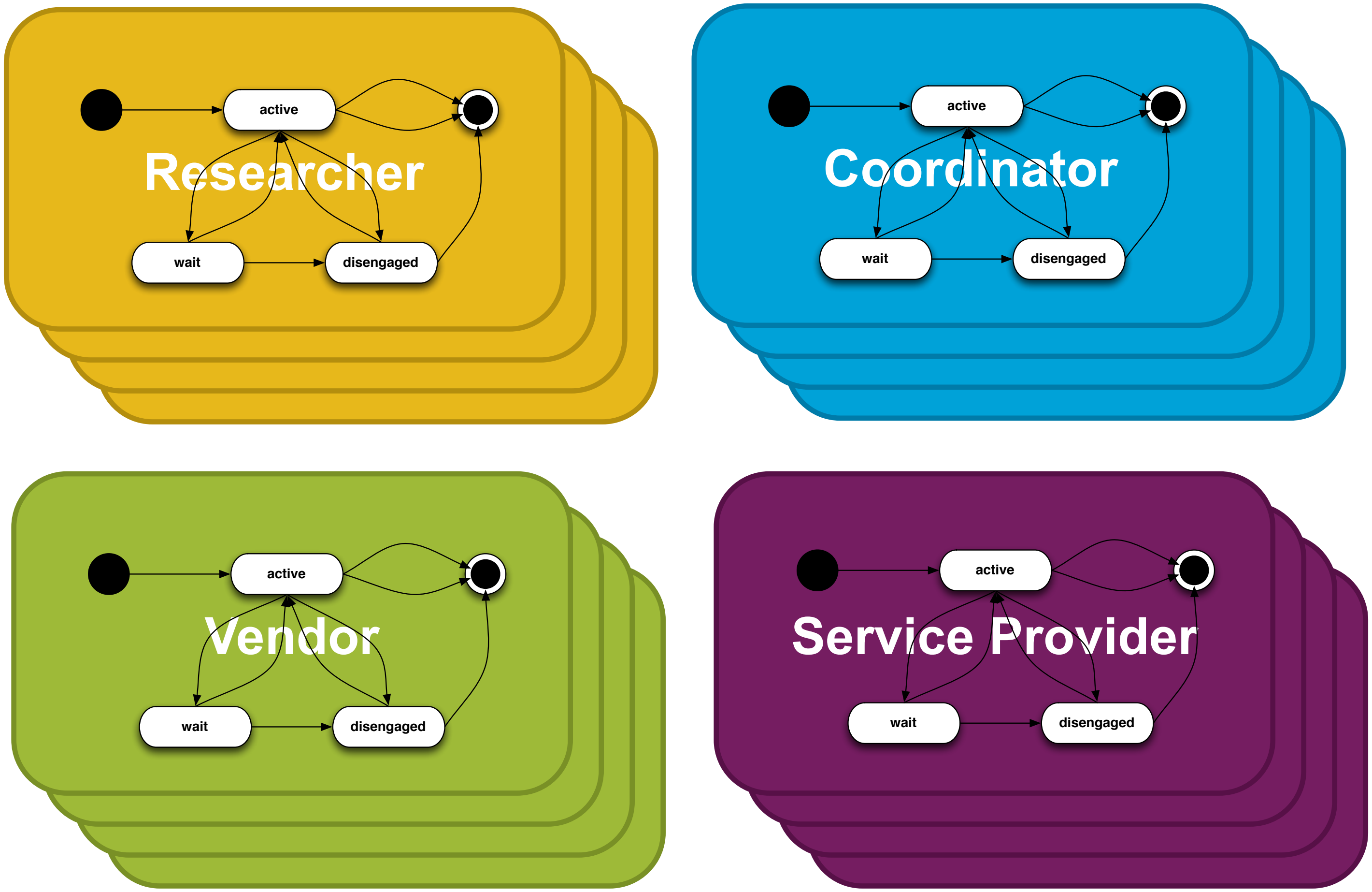
- E.g., when something different happens based on whether you passed through some particular node on the way here

Agent-based models seem promising since they can basically model a state machine per participant and the interactions between them

Other Ways to Think About It: State Machines

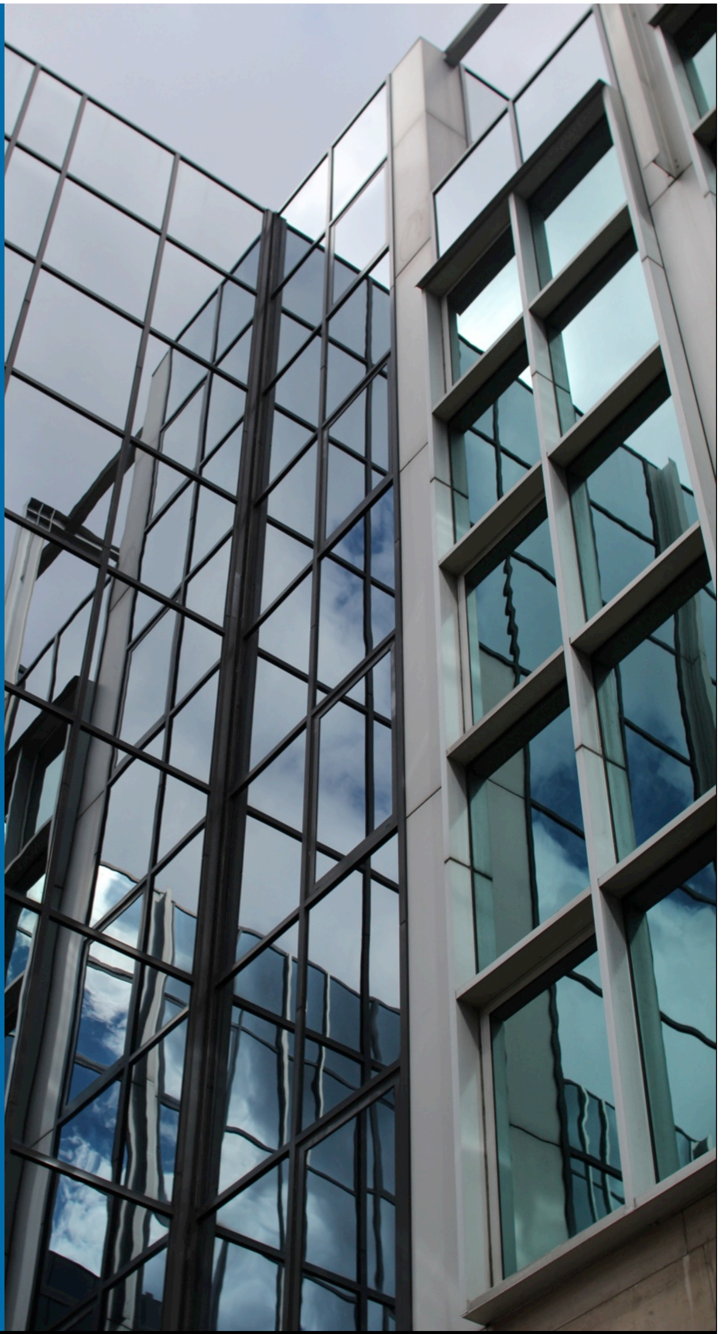


Modeling Helps You Reason About a Bigger World



What we’ve learned so far

Things that break



Things that break

Humans

Have

- Knowledge
- Motives (fortune, fame, altruism, challenge, spite, pride, etc.)
- Limited attention
- Emotions
- Biases
- Perceptions
- Expectations

All of these affect decisions and actions

See also Katie Moussouris @ RSA 2013 Flash Talk https://youtu.be/T6e70upcfl4

Researcher / Vendor Communications

Channel is never established

- Can’t find vendor contact
- Contact is nonresponsive

Receiver saturates / Channel capacity exceeded

- Usually on recipient end
- Human-process / cognitive load

Channel breaks down

- Synchronization is lost
- Mismatched expectations
- One side goes nonresponsive
- One side goes hostile

Chilling effects of prior behavior & experience

- See also *iterated prisoner’s dilemma strategies*
  - Nice, retaliating, forgiving, non-envious

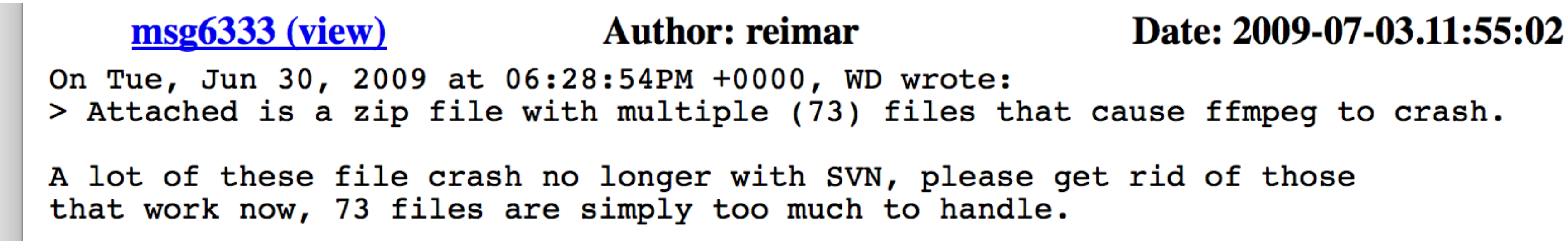
https://en.wikipedia.org/wiki/Prisoner's_dilemma

Things that break at scale

One Vendor, Many Vuls

Fuzzing + uniqueness + exploitability analysis = vulplosions

CERT BFF & FOE (fuzzers) highlighted bottlenecks in our own processes and in vendor vul coordination capacity



msg6333 (view) Author: reimar Date: 2009-07-03.11:55:02

```
On Tue, Jun 30, 2009 at 06:28:54PM +0000, WD wrote:
> Attached is a zip file with multiple (73) files that cause ffmpeg to crash.

A lot of these file crash no longer with SVN, please get rid of those
that work now, 73 files are simply too much to handle.
```

Things that break at scale

Many Vendors, One Vul (Type A)

Heartbleed draws attention to OpenSSL disclosure policy

“The more people you tell in advance the higher the likelihood that a leak will occur. We have seen this happen before, both with OpenSSL and other projects.”

[Maintaining vendor contacts] “is a significant amount of effort per issue that is better spent on other things.”

“We have previously used third parties to handle notification for us including CPNI, oCERT, or CERT/CC, but none were suitable.”

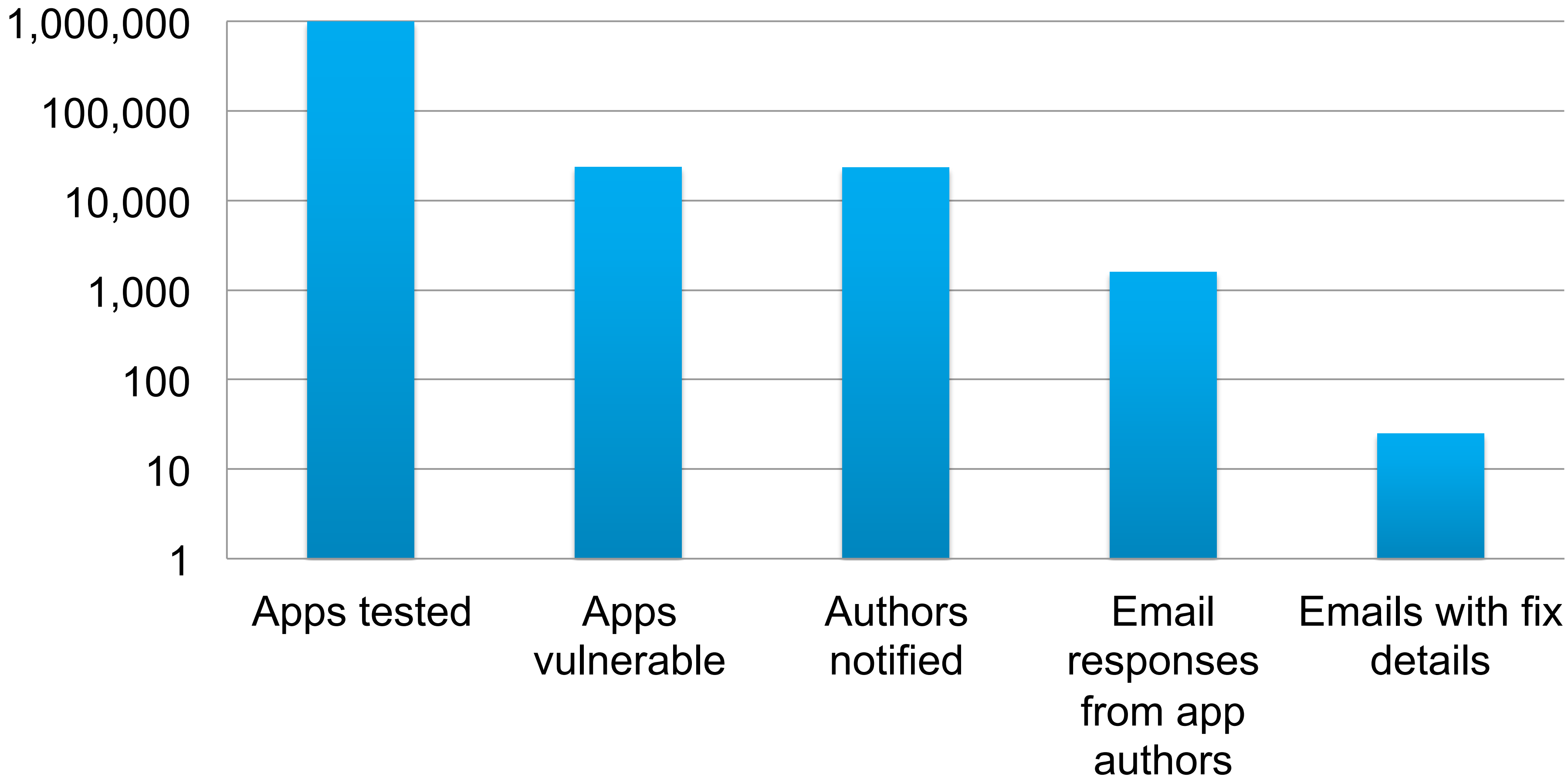
“It's in the best interests of the Internet as a whole to get fixes for OpenSSL security issues out quickly. OpenSSL embargoes should be measured in days and weeks, not months or years.”

https://www.openssl.org/about/secpolicy.html

Many Vendors, One Vul (Type B)

CERT Tapioca and the Android SSL MitM avalanche

Find one vul in lots of things, in parallel, as fast as you can



https://www.rsaconference.com/events/us15/agenda/sessions/1638/how-we-discovered-thousands-of-vulnerable-android

Things that break at scale

Questions We've Asked Ourselves

How do you sustainably notify hundreds of vendors per day for 5 months?

- Use email contact from app store, no attempt at crypto
- Frustrated known vendors because we didn't notify their established security contact

Does the "45 Day Rule" apply to SSL MitM vuls?

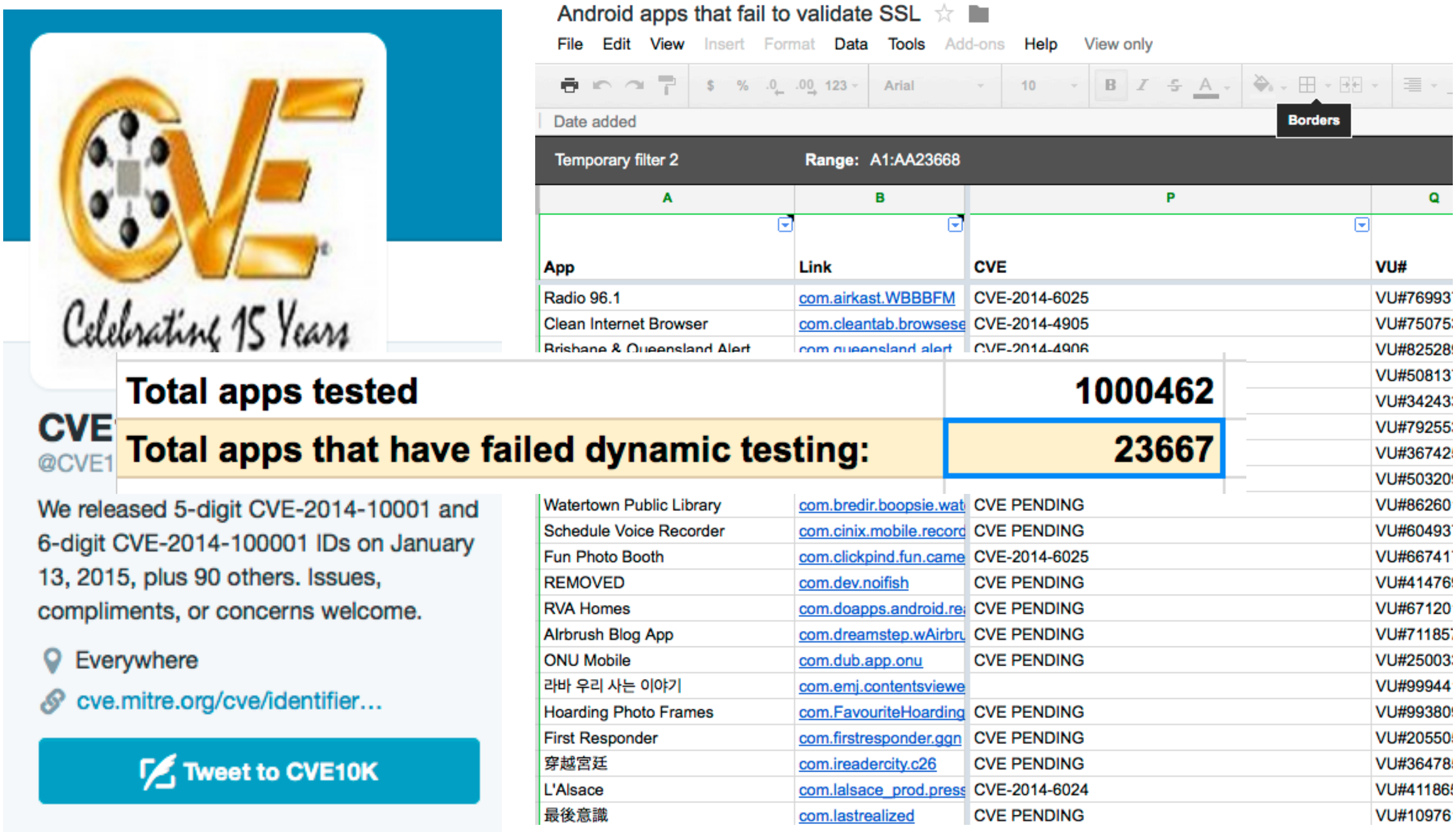
- In this case, the attacker doesn't get to pick which apps you use, but you do. (Advantage is to the defender.)
  - Plus, MitM already happening ("Active exploitation" policy clause)
- Originally no advance warning
  - Changed to 7 day advance warning based on vendor feedback

How do you publish 23,000 vulnerability records?

- Used a Google Drive Spreadsheet, our own publishing system couldn't do it easily

Things that break at scale

CVE?



CVE

@CVE1

We released 5-digit CVE-2014-10001 and 6-digit CVE-2014-100001 IDs on January 13, 2015, plus 90 others. Issues, compliments, or concerns welcome.

Everywhere

cve.mitre.org/cve/identifier…

Android apps that fail to validate SSL

File Edit View Insert Format Data Tools Add-ons Help View only
$ % .0 .00 123 Arial 10 B I S A
Borders

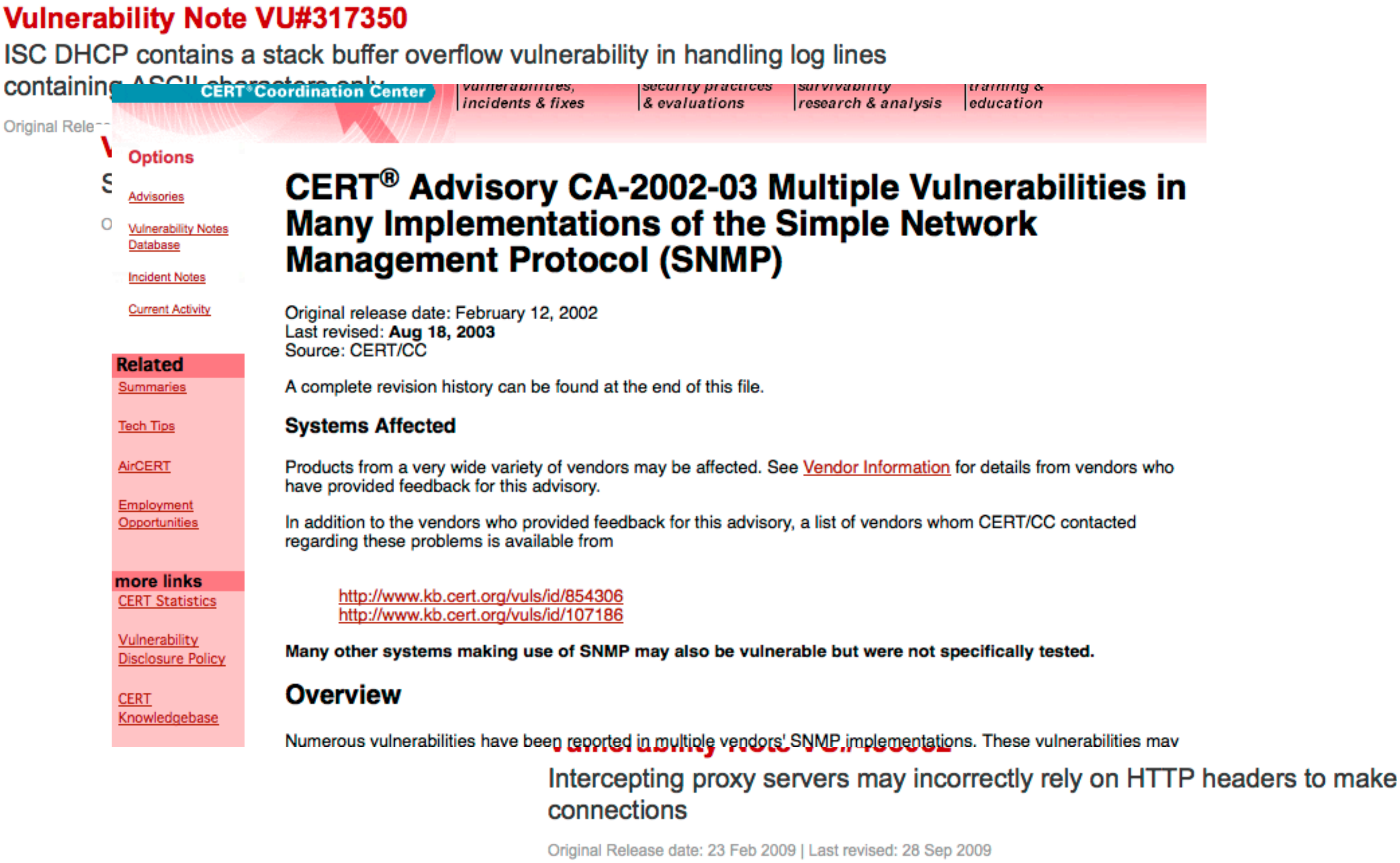
Date added

Temporary filter 2 Range: A1:AA23668

A	B	P	Q
App	Link	CVE	VU#
Radio 96.1	com.airkast.WBBBFM	CVE-2014-6025	VU#76993
Clean Internet Browser	com.cleantab.browsese	CVE-2014-4905	VU#75075
Brisbane & Queensland Alert	com.queensland.alert	CVE-2014-4906	VU#82528
			VU#50813
			VU#34243
			VU#79255
			VU#36742
			VU#50320
Watertown Public Library	com.bredir.boopsie.wat	CVE PENDING	VU#86260
Schedule Voice Recorder	com.cinix.mobile.record	CVE PENDING	VU#60493
Fun Photo Booth	com.clickpind.fun.came	CVE-2014-6025	VU#66741
REMOVED	com.dev.noifish	CVE PENDING	VU#41476
RVA Homes	com.doapps.android.re	CVE PENDING	VU#67120
Alrbrush Blog App	com.dreamstep.wAirbru	CVE PENDING	VU#71185
ONU Mobile	com.dub.app.onu	CVE PENDING	VU#25003
라바 우리 사는 이야기	com.emj.contentsviewe		VU#99944
Hoarding Photo Frames	com.FavouriteHoarding	CVE PENDING	VU#99380
First Responder	com.firstresponder.ggn	CVE PENDING	VU#20550
穿越宮廷	com.ireadercity.c26	CVE PENDING	VU#36478
L'Alsace	com.lalsace_prod.press	CVE-2014-6024	VU#41186
最後意識	com.lastrealized	CVE PENDING	VU#10976

Total apps tested	**1000462**
Total apps that have failed dynamic testing:	**23667**

Many Vendors, Many Vuls



Vulnerability Note VU#317350

ISC DHCP contains a stack buffer overflow vulnerability in handling log lines containing ASCII characters only

Original Rele

CERT® Coordination Center
vulnerabilities, incidents & fixes
security practices & evaluations
survivability research & analysis
training & education
Options
Advisories
Vulnerability Notes Database
Incident Notes
Current Activity
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CERT Knowledgebase

CERT® Advisory CA-2002-03 Multiple Vulnerabilities in Many Implementations of the Simple Network Management Protocol (SNMP)

Original release date: February 12, 2002
Last revised: **Aug 18, 2003**
Source: CERT/CC

A complete revision history can be found at the end of this file.

Systems Affected

Products from a very wide variety of vendors may be affected. See Vendor Information for details from vendors who have provided feedback for this advisory.

In addition to the vendors who provided feedback for this advisory, a list of vendors whom CERT/CC contacted regarding these problems is available from

http://www.kb.cert.org/vuls/id/854306
http://www.kb.cert.org/vuls/id/107186

Many other systems making use of SNMP may also be vulnerable but were not specifically tested.

Overview

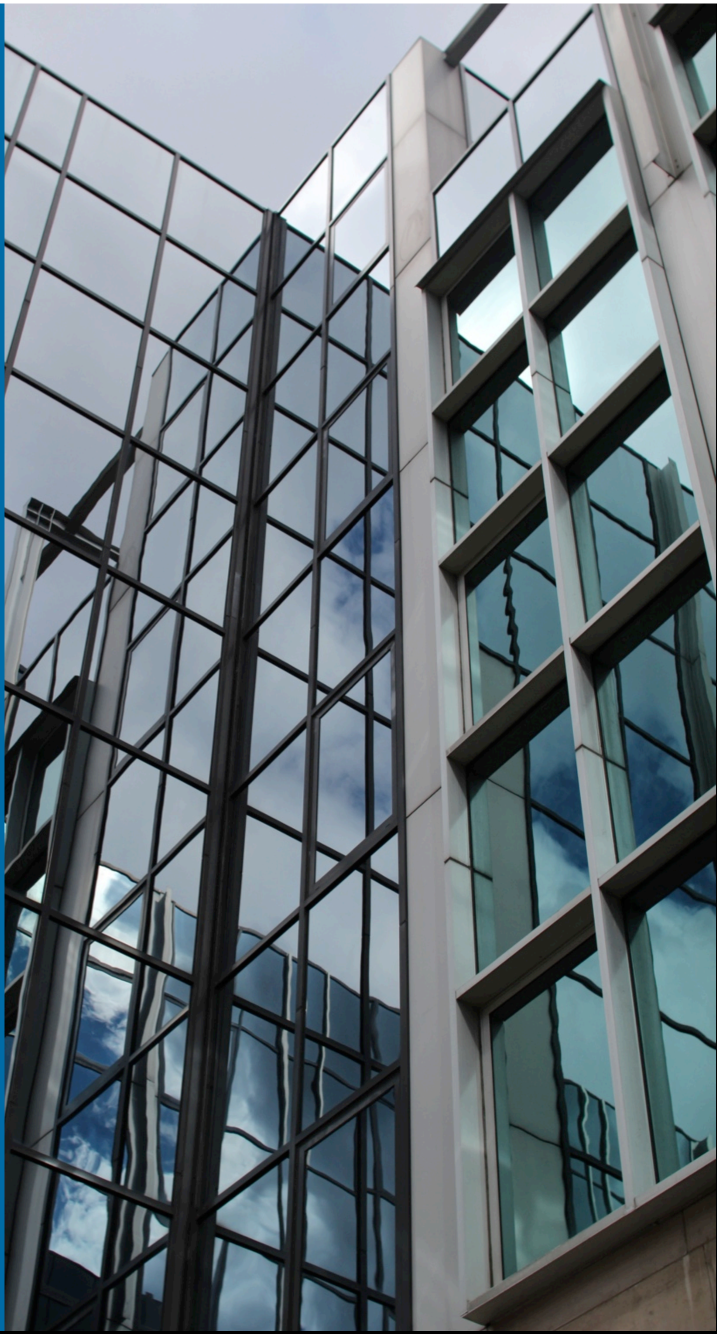
Numerous vulnerabilities have been reported in multiple vendors' SNMP implementations. These vulnerabilities may

Intercepting proxy servers may incorrectly rely on HTTP headers to make connections

Original Release date: 23 Feb 2009 | Last revised: 28 Sep 2009

What we’ve learned so far

Things that work



Advice for Vendors

Clear and findable instructions for reporting vulnerabilities

- An email address (security@example.com)
- Web forms, bug report systems are okay too
  - if they allow easy marking of security issues

Acknowledge receipt of reports quickly

Set expectations clearly

Things that work

Advice for Vendors

Maintain open communication channel with vulnerability reporters

- Occasional "We're still working on it" notes can keep things from going sideways

Offer a bug bounty

- Be careful to incentivize the right things at the right times

Don't sue (or threaten to sue) researchers

- Publicity works in counterintuitive ways

Have a "cooperation bias"

Things that work

Advice for Researchers

Attempt to contact the vendor before going public

- If you can’t find vendor contact or vendor is not responsive, contact a coordinator (like CERT/CC)

Provide clear and concise reports

- Steps to reproduce, proof-of-concept code if possible

If you have constraints, articulate them upfront

- Conference publication deadlines, etc.

Give vendor a final warning before publishing

- Waiting for the vendor is not always possible

Things that work

Advice for Researchers

Don’t assume the vendor is ignoring you intentionally

- Tickets get closed by mistake
- People change jobs
- Priorities shift
- Errors happen

Know your rights

https://www.eff.org/issues/coders/vulnerability-reporting-faq

Have a “cooperation bias”

Conclusion

Lies, Damned Lies, and Statistics

Photo: Katie Steiner, 2011

Average stats (like vul reports/year) hide the structure of the vul coordination picture and can mislead you into thinking that the effort involved is trivial.

It’s not.

You don’t build storm sewers to handle your average daily rainfall.

You build capacity for the worst flood you expect over a given timeframe.

And sometimes you’ll be wrong.

There Is No One-Size-Fits-All Disclosure Policy

Traditional shrink-wrapped software

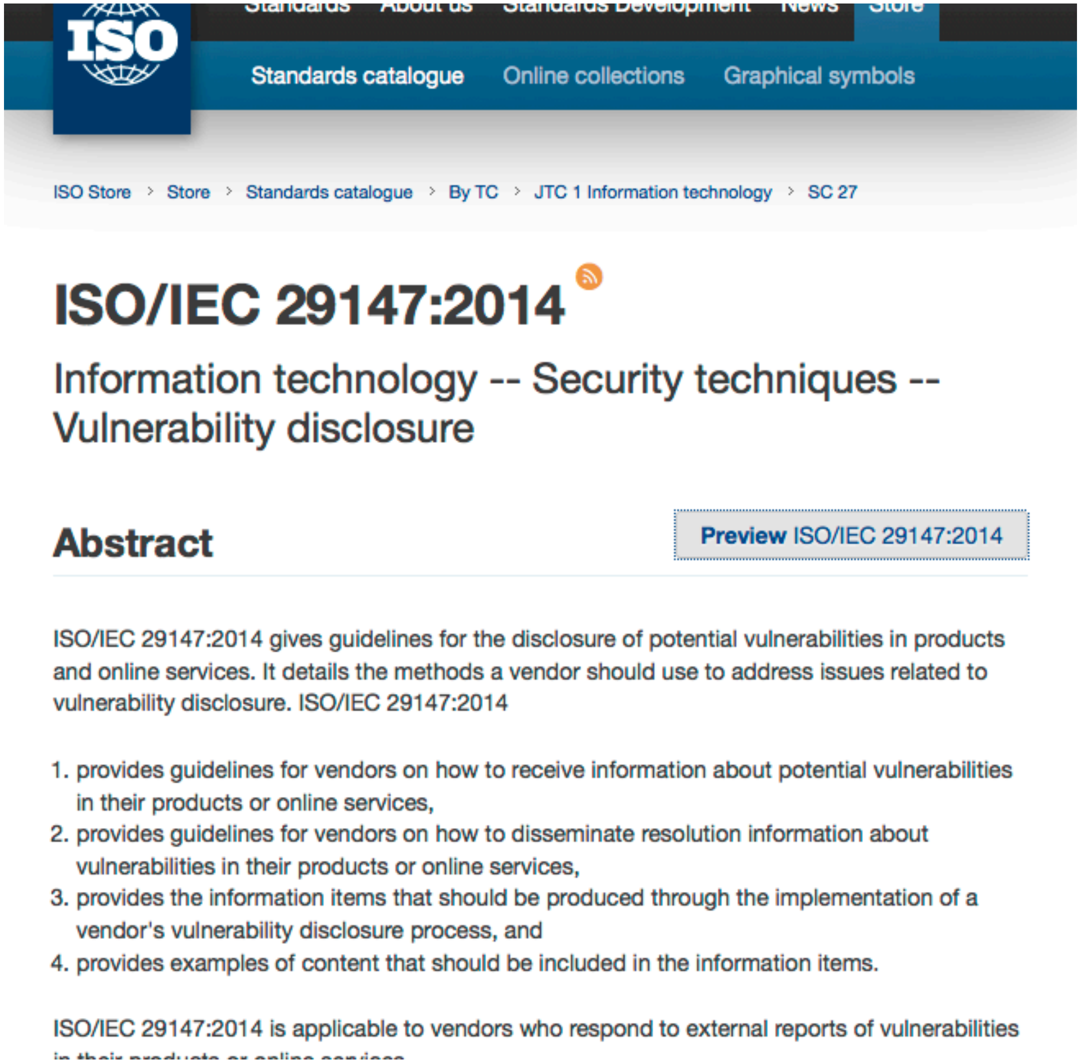
Enterprise customization

Continuous deployment

Mobile apps, App stores

Cloud services (IaaS, PaaS, SaaS)

Embedded devices and smart things


Standards About us Standards Development News Store
ISO
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ISO Store › Store › Standards catalogue › By TC › JTC 1 Information technology › SC 27
Preview ISO/IEC 29147:2014

ISO/IEC 29147:2014

Information technology -- Security techniques -- Vulnerability disclosure

Abstract

ISO/IEC 29147:2014 gives guidelines for the disclosure of potential vulnerabilities in products and online services. It details the methods a vendor should use to address issues related to vulnerability disclosure. ISO/IEC 29147:2014

1. provides guidelines for vendors on how to receive information about potential vulnerabilities in their products or online services,
2. provides guidelines for vendors on how to disseminate resolution information about vulnerabilities in their products or online services,
3. provides the information items that should be produced through the implementation of a vendor's vulnerability disclosure process, and
4. provides examples of content that should be included in the information items.

ISO/IEC 29147:2014 is applicable to vendors who respond to external reports of vulnerabilities in their products or online services.

If you have a vulnerability, if no one else can help…

Multiple vendors needed to fix

- Internet Infrastructure
- Third-party libraries

Vendor problems

- Non-responsive vendors
- Hostile vendors
  - or fear thereof

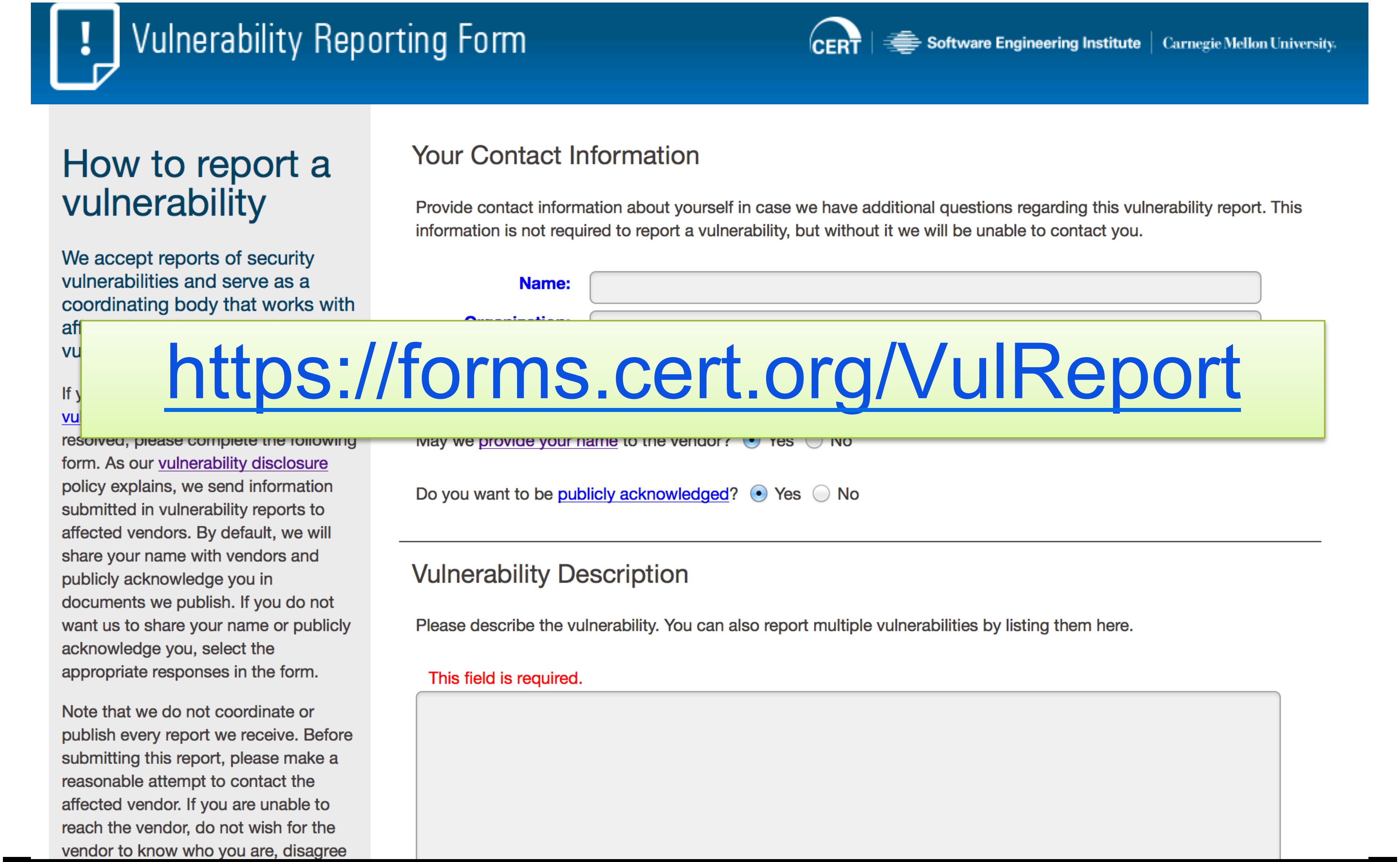
Bug bounties may not apply

- The vendor doesn't offer one
- The terms are unacceptable (or payouts are lame)
- You're otherwise ineligible

Desire to remain anonymous

- Either during disclosure process or long-term

…and you can find them…



Vulnerability Reporting Form

How to report a vulnerability

We accept reports of security vulnerabilities and serve as a coordinating body that works with af

vu

If y

vu

resolved, please complete the following form. As our vulnerability disclosure policy explains, we send information submitted in vulnerability reports to affected vendors. By default, we will share your name with vendors and publicly acknowledge you in documents we publish. If you do not want us to share your name or publicly acknowledge you, select the appropriate responses in the form.

Note that we do not coordinate or publish every report we receive. Before submitting this report, please make a reasonable attempt to contact the affected vendor. If you are unable to reach the vendor, do not wish for the vendor to know who you are, disagree

Your Contact Information

Provide contact information about yourself in case we have additional questions regarding this vulnerability report. This information is not required to report a vulnerability, but without it we will be unable to contact you.

Name:

Organization:

May we provide your name to the vendor? ● Yes ○ No

Do you want to be publicly acknowledged? ● Yes ○ No

Vulnerability Description

Please describe the vulnerability. You can also report multiple vulnerabilities by listing them here.

This field is required.

https://forms.cert.org/VulReport

…maybe you can coordinate with

For more information

https://www.eff.org/issues/coders/vulnerability-reporting-faq

http://blog.osvdb.org/2013/08/07/buying-into-the-bias-why-vulnerability-statistics-suck/

https://www.cert.org/vulnerability-analysis/vul-disclosure.cfm

https://www.cert.org/blogs/certcc/post.cfm?EntryID=202

ISO/IEC 29147 Information technology -- Security techniques -- Vulnerability disclosure [Externally focused]

ISO/IEC 30111 Information technology -- Security techniques -- Vulnerability handling processes [Internally focused]

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