



Coordinated Vulnerability Disclosure

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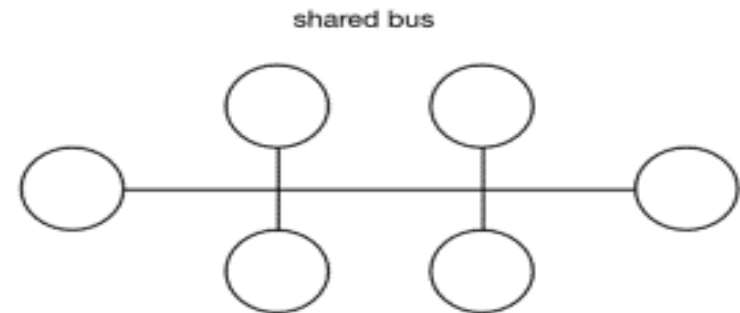
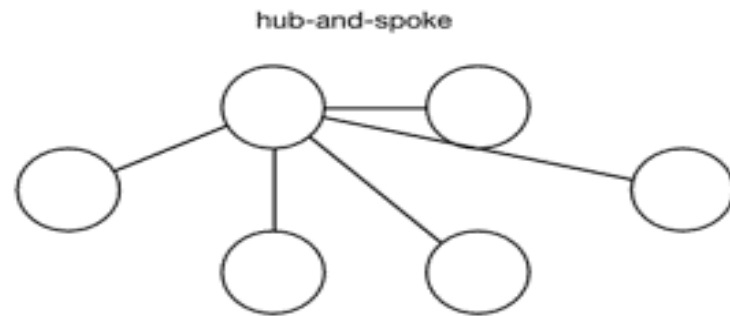
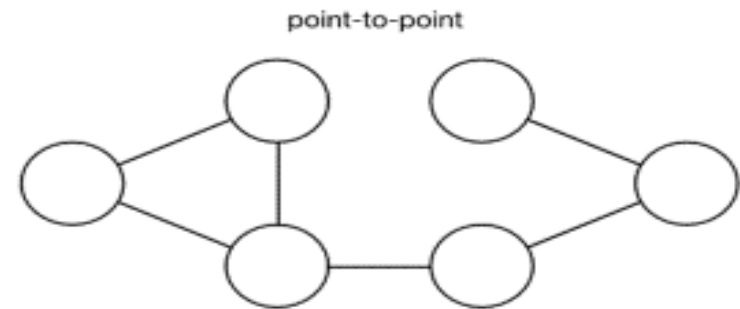
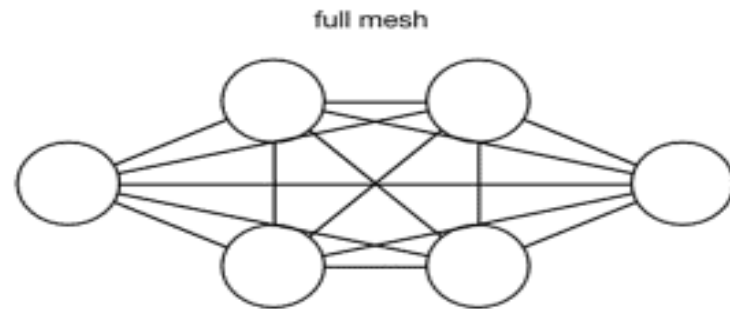
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DM18-0777

Coordination Communication Topologies



Common network topologies

Single Vendor Vulnerability Report

Reporter Identifies a Vulnerability

Reporter contacts Vendor

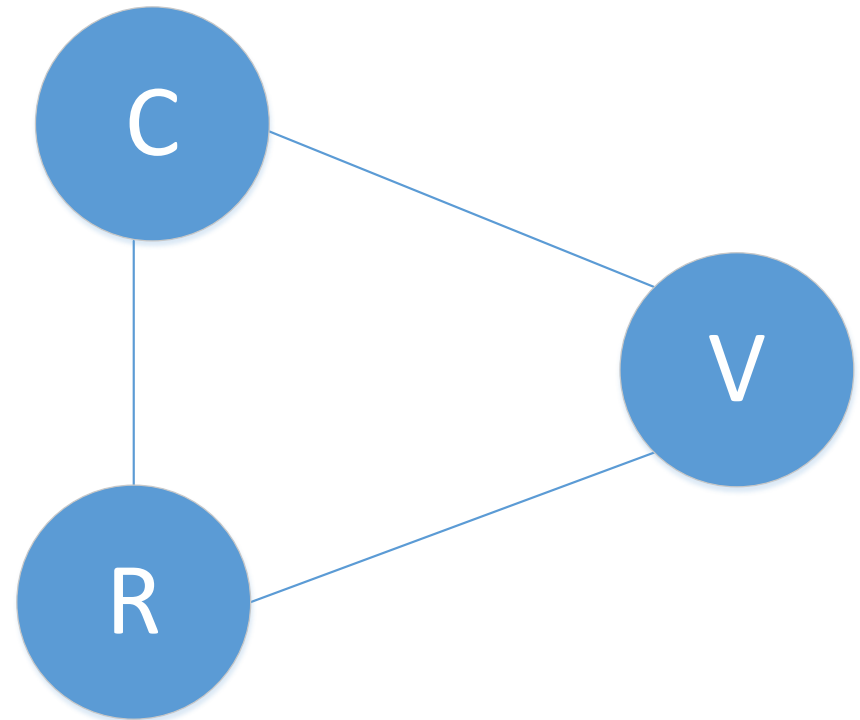
Vendor responds (or ignores)

Reporter

Reporter requests assistance:

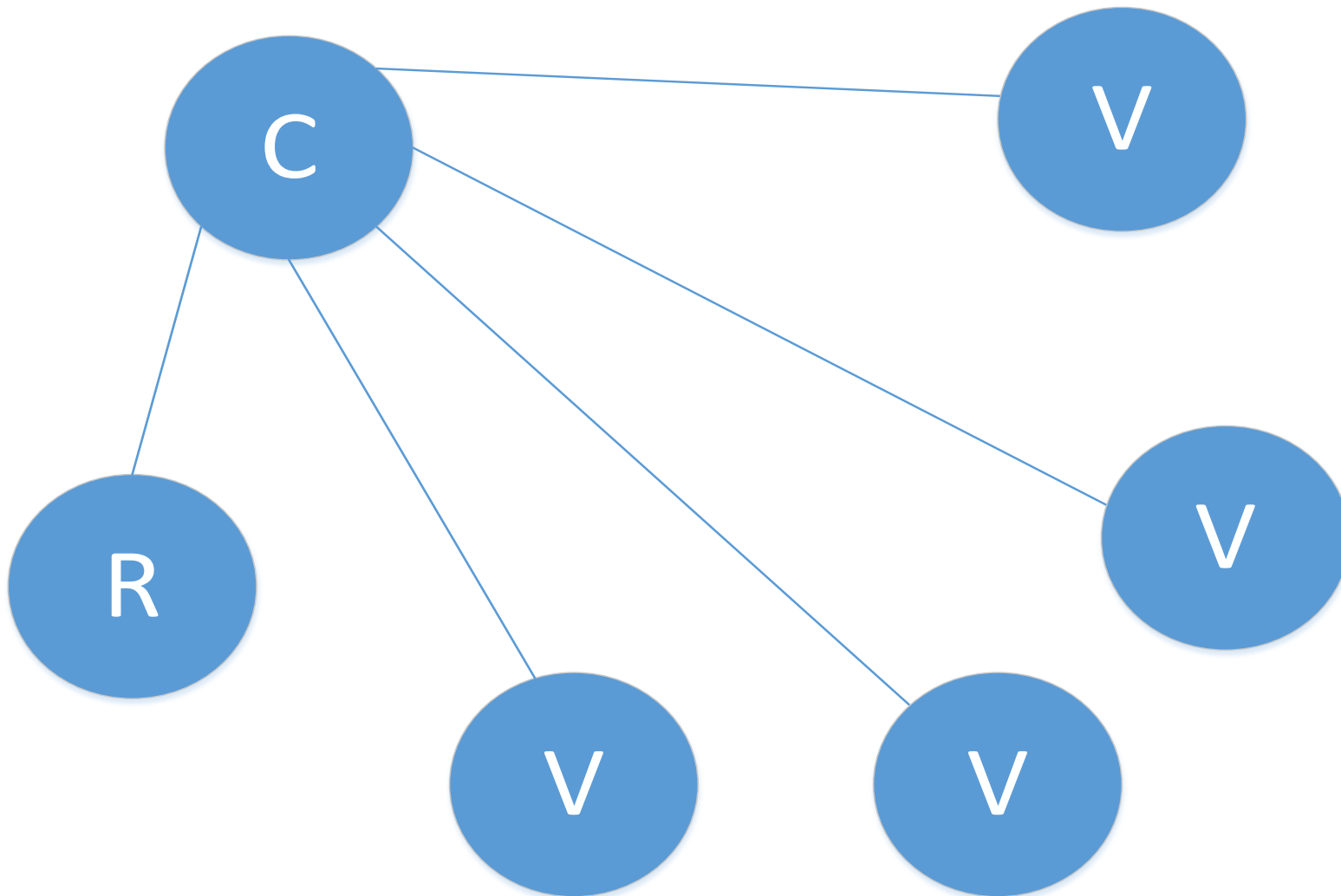
- Reporter contacts CERT/CC
- CERT/CC confirms VUL
- CERT/CC communicates with Reporter
- CERT/CC contacts Vendor

Point to Point



Multiple Vendor Vulnerability Report

Hub & Spoke



Coordinated Vulnerability Disclosure

Problems with Multi-Vendor Coordination:

Hub & Spoke does not scale

Who do we notify?

Who did we miss?

More effort happens after Disclosure

Vendors must contact us for updating the vul note.

Balancing conflicting vendor disclosure policies.

Examples:

VU#484891 (the vul that enabled SQL Slammer)

VU#228519 (KRACK)

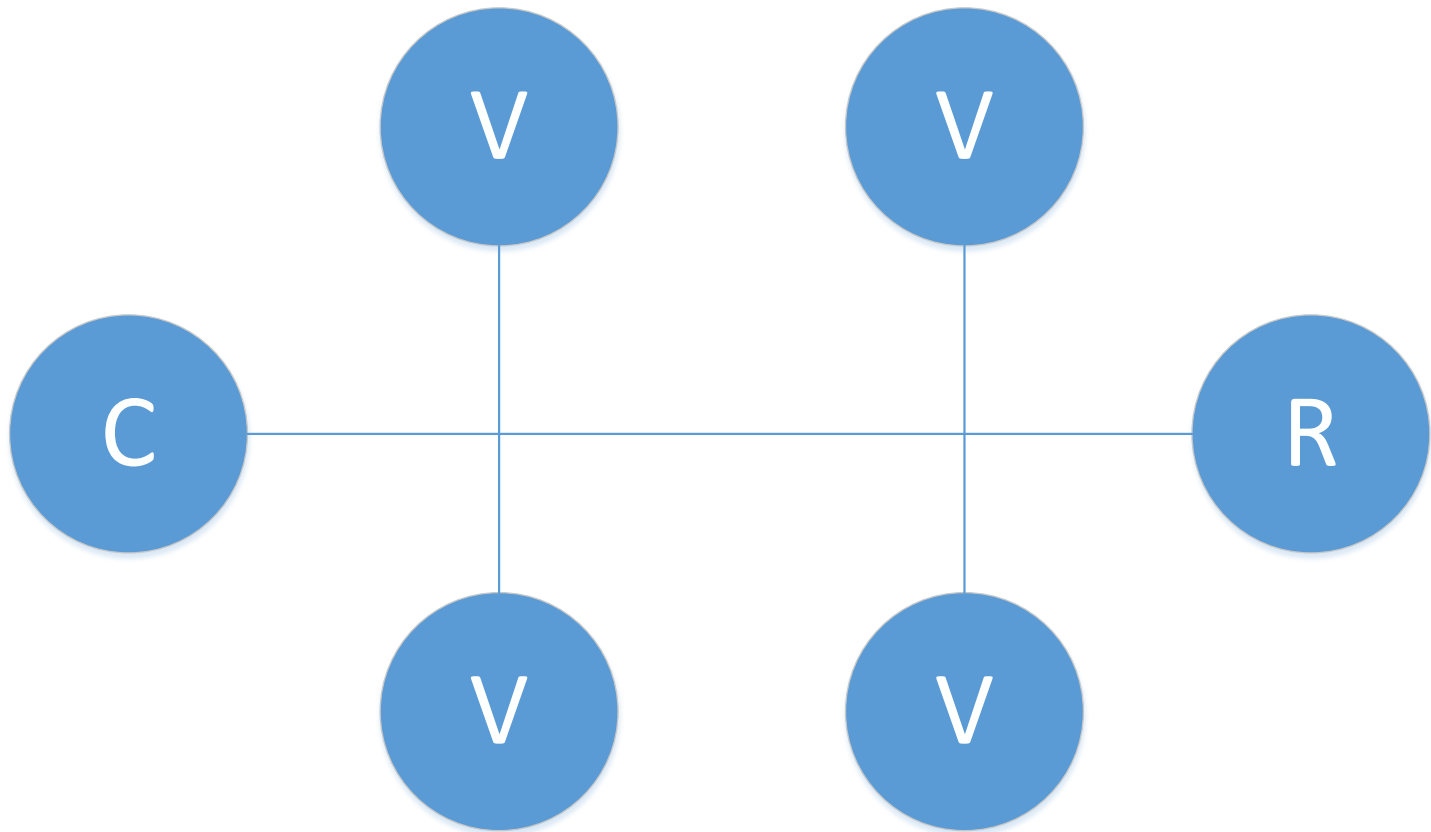
Is there a better solution?

Improving Coordination

Collaborative Vulnerability Disclosure

A Better Solution?

Shared Bus



Microsoft's response to Congressional Letter

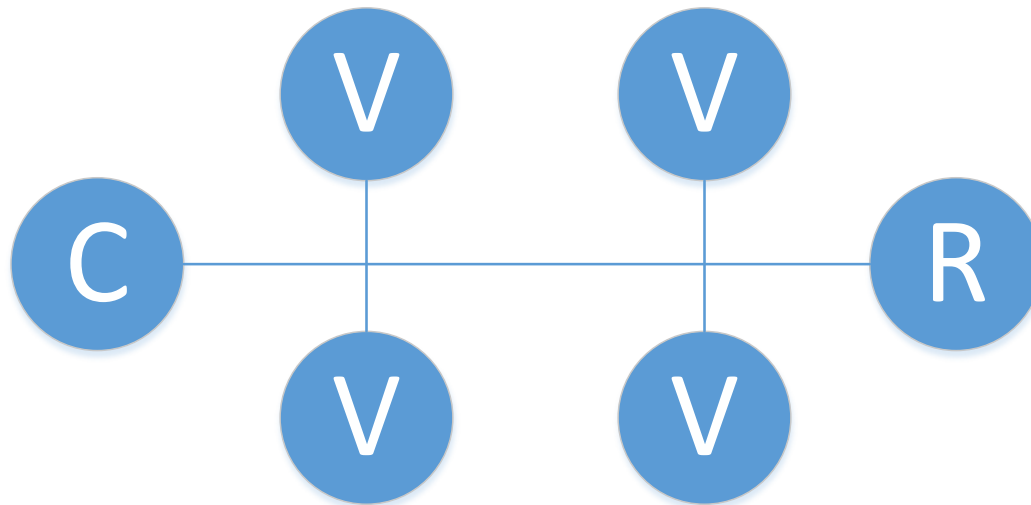
In less complicated scenarios, the CVD protocol calls for a **hub-and-spoke** model of communication through which a vulnerability owner communicates individually with each affected vendor.

In more complicated scenarios—like the one presented by Meltdown and Spectre—a “**shared-bus**” model can be required, to ensure affected companies can coordinate directly “through the use of conference calls, group meetings, and private mailing lists.”

<https://energycommerce.house.gov/wp-content/uploads/2018/02/MSFT-Spectre-Response-to-EC-Committee-.pdf>

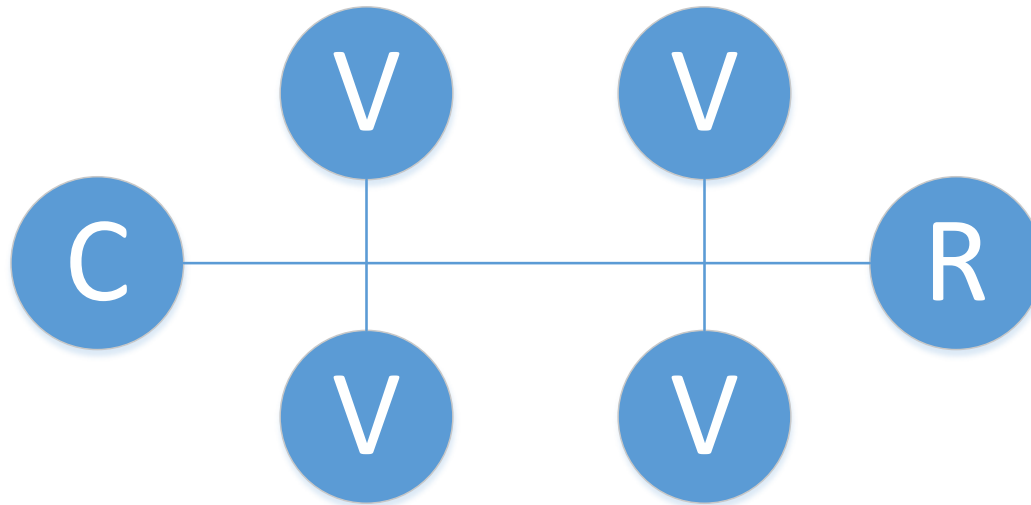
Communications

- Private shared venue
- Vendors are invited in.
- Shared file space
- Track threaded discussions
- Vendors can be added, immediate access to history



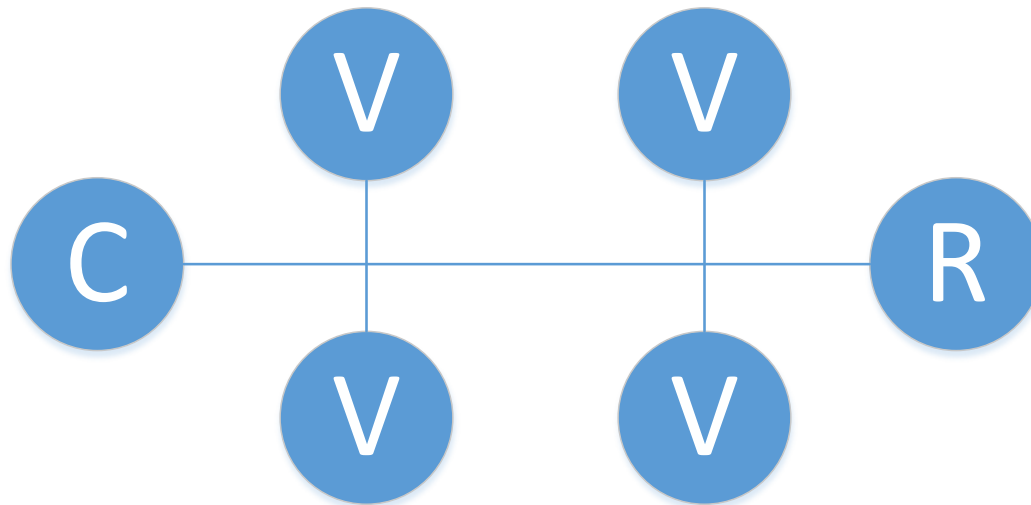
Coordinator/Coordination

- Sets target dates and milestones
- Identifies and invites affected vendors
- Invites additional vendors as identified



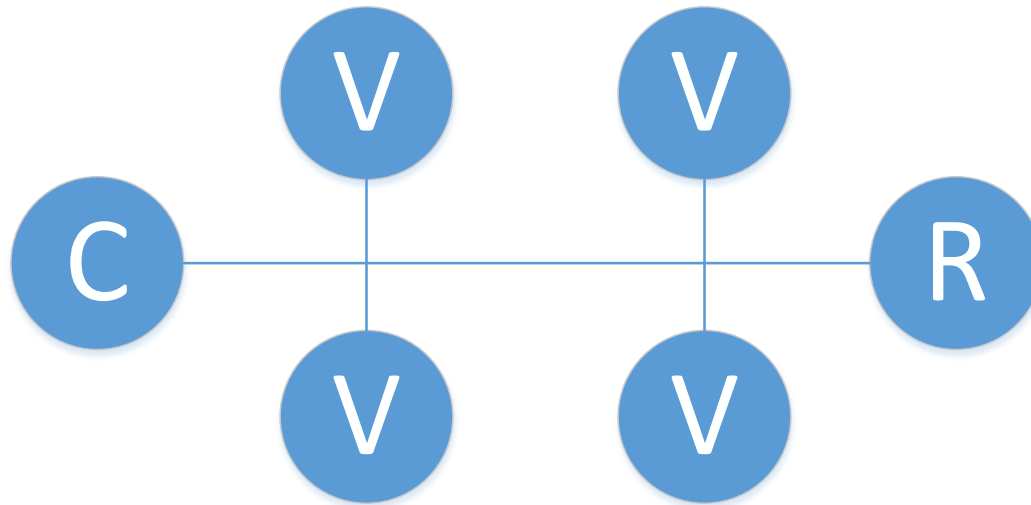
Reporter

- Identifies the vulnerability
- May/may not contact vendor(s)
- Contacts Coordinator



Vendors

- Vendors post statements, links to patches, etc.
- Possible Multiple vulnerability reports (separate venues)



Challenges

Coordination	Collaboration
Tracking threaded communications	
Secure Communications	
Contact Management	Account Management?
Disclosure Timing	Disclosure Timing – Everyone agrees?
Publishing	Publishing
Updating Reports	Updating Reports

Alternate Disclosure

Pre-Disclosure :

Group effort

Open comms within the group

Add new vendors

Discussion threads/
scheduling disclosure

Disclosure:

Artifacts
(publishable
docs)

Post – Disclosure:

Find new vendors

Update references

Refine Content



Who does Multi-Vendor Coordination?

More organizations than expected...

Who does Multi-Vendor Coordination?

Microsoft

Intel

Google

CERT/CC

Other CERTs

PSIRTs

Microsoft

Coordinated Vulnerability Disclosure

<https://technet.microsoft.com/en-us/security/dn467923.aspx>

Minimizing cybersecurity risk through coordinated vulnerability disclosure

<https://www.microsoft.com/en-us/cybersecurity/content-hub/minimizing-cybersecurity-risk-through-coordinated-vulnerability-disclosure>

A Call for Better Coordinated Vulnerability Disclosure

<https://blogs.technet.microsoft.com/msrc/2015/01/11/a-call-for-better-coordinated-vulnerability-disclosure/>

Intel

Product Security at Intel

<https://www.intel.com/content/www/us/en/corporate-responsibility/product-security.html>

Bug Bounty Program

<https://www.intel.com/content/www/us/en/security-center/bug-bounty-program.html>

Vulnerability handling Guidelines

<https://www.intel.com/content/www/us/en/security-center/vulnerability-handling-guidelines.html>

Google

Google Vulnerability Reward Program (VRP) Rules

<https://www.google.com/about/appsecurity/reward-program/>

HackerOne – bug bounty program

<https://hackerone.com/google>

<https://www.google.com/about/appsecurity/reward-program/>

How Google handles security vulnerabilities

<https://www.google.com/about/appsecurity/>

Dell

Report a Potential Vulnerability in Dell Products or Software

<https://www.dell.com/learn/us/en/04/campaigns/report-vulnerability>

HackOne

<https://hackerone.com/dellsecureworks>

HP

Report a potential security vulnerability to HP (reporting form)

<https://ssl.www8.hp.com/h41268/live/index.aspx?qid=25434>

HackerOne

<https://hackerone.com/hp>

HP Enterprise Product Security Vulnerability Alerts

<https://www.hpe.com/us/en/services/security-vulnerability.html>



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The CERT® Guide to Coordinated Vulnerability Disclosure

https://resources.sei.cmu.edu/asset_files/SpecialReport/2017_003_001_503340.pdf

Report a vulnerability (form) <https://vulcoord.cert.org/VulReport/>

Guidelines for Requesting Coordination Assistance

<https://vuls.cert.org/confluence/display/Wiki/Guidelines+for+Requesting+Coordination+Assistance>

Vulnerability Notes Database

<https://www.kb.cert.org/vuls/>

CERT Vulnerability Data Archive & Tools

<https://vuls.cert.org/confluence/display/tools/CERT+Vulnerability+Data+Archive+and+Tools>

Cybersecurity Tech Accord

Cybersecurity Tech Accord

34 companies committed to:

1. Stronger Defense
2. No offense
3. Capacity building
4. Collective action

Background

<https://cybertechaccord.org/>

Agreement

<https://cybertechaccord.org/accord/>

..... Collective Action

“The companies will build on existing relationships and together establish new formal and informal partnerships with industry, civil society and security researchers to improve technical collaboration, coordinate vulnerability disclosures, share threats and minimize the potential for malicious code to be introduced into cyberspace.”

SIGNATORIES

ABB

ARM

AVAST

BITDEFENDER

BT

CA TECHNOLOGIES

CARBON BLACK

CISCO

CLOUDFLARE

DATASTAX

DELL

DOCUSIGN

FACEBOOK

FASTLY

FIREEYE

F-SECURE

GITHUB

GUARDTIME

HP INC

HPE

INTUIT

JUNIPER NETWORKS

LINKEDIN

MICROSOFT

NIELSEN

NOKIA

ORACLE

RSA

SAP

STRIPE

SYMANTEC

TEELFONICA

TENABLE

TRENDMICRO

VMWARE

What can you do today?

1. Provide current contact information for vulnerability reports.
 - generic email address
 - group that monitors incoming messages
2. Maintain PGP key(s).
3. Share this information with CERT organizations.

What are your thoughts?

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Team Lead

