



- "BRING ME YOUR SOLUTIONS... NOT JUST YOUR PROBLEMS."

- Who we are and why are we have.
 Our desarch on election integrity.
 Egul main tecommendations.
 Bet Practice solutions.
 Additional details and backup support available.



MGN 108 FEELIGN MILENIA METIMOSO COMELANTING

MOIN HAS BLECKER WITSBITY WILLS

WHAT WE'VE DONE

FIRST RECOMMENDATION:
ELIMINATE ELECTRONIC VOTING MACHINE VULVERABILITIES
VS. SIMPLE RECERTIFICATION

ALTERNATION DESCRIPTION OF THE

- confidence in election integrity everywhere significantly damaged
- THE ISSUE THAT BROUGHT US TOGETHER

 Cleable, widespread alegations of voter faud nationwide

 Voting makenine (<u>Insullatings, statistical</u> anomales, esp Dominion

 Ballot abnotimaties, and <u>voting process (buts</u>

 Nullification of legations and voting inve

 Counts that refused to look at sissues,

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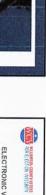
- Review of reports, documents, all flavirs, data preventations, documentaries, Dominor user manusc, other sources interviewed policy archives the record of the control of



- Our findings validated by Congressional testimony.
 J Alex Halderman
- University of Michigan professor, Computer Science, Engineering
 Director, Center for Computer Security & Society Election Integrity

2017 Halderman Senate testmony https://www.youtube.com/watch?v=3qr67h54VO0





ELECTRONIC VOTING MACHINE VULNERABILITIES

- Addedde disamings
 Otto Course arbt. Security Digital Democracy, How hack machines, 2012 Course arbt. Security Digital Democracy, How hack machines, 2016 Fox News One line code gave access to online valving; 2016 NYTimes I hacked an adviction, so cain the Russeams.
 2018 Celevitie American Vulewability of our bring machines.
 2019 CSPAN Vitamington Journal Election vulnishabilities.
 2020 The World Electronic order ginatemes put us at risk.
 2020 Elecumentary Vita Chain The Cybernair on America's Electronic.



PEN ELECTION INTEGRITY

MON SOLECTION WEEKEN

"THE THING THAT KEEPS ME UP AT NIGHT..."

<u>Essert presentations - ability to hack machines - have confirmed our fedings of viterabilities.</u>

20:0 DeCon 26 Two decades-long hacking conterence

Clips of DefCon presentation after hacking a machine so audience understands issue https://www.youtube.com/watch?v=4K0YZcbbzhc

ELECTRONIC VOTING MACHINE VULNERABILITIES

Halderman's insights about machine vulnerabilities did NOT evaporate once the 2020 election was over.



ELECTRONIC VOTING MACHINE VULNERABILITIES

- Other sources also validate our research about vulnerabilities;

 Dominion has been deemed unsecure, including
 DelCon 2019 ImageCast system numerous exposed security issues
- Tesas Danied certification for use in 2020 elections. SOS report
 Michigati. "Common intentionally designed with inherent errors to
 create systemic traul influence election." Autim florences 21/2/320.

 Also confirmed Flanked Choice Veting algorithm enabled.

 Geologia. Dominion volled its VVIOS 10 certification vinen a changed software immediately prior to election without issuing, certification.



ELECTRONIC VOTING MACHINE VULNERABILITIES

- Georgia Ham Hurst, voting systems cybersecurity 8/24/20 affidavit
 Multiple Dominion system irregularities that cause intentioned votes clearly not to be counted.
- System escalates the security risk to the extreme

- Troubleshooting via remote access to key parts of the system.
 Dominion employees working in also of CA election employees.
 Dominion floating administration of the hook to internet, 1917/20.
 Dominion (SQUII), Chrief administration can hook to internet, 1917/20.
 Dominion (SQUII), Chrief administration can be veddowise presentations.

 User manuals: vulnerabilities exist opening doors for fraudulent behavior.



Willo, Termessee, State Election Commission Public crecibilities

- An <u>overwhelming number of chizens don't trust Dominion</u>
 Loudly voiced in public meetings.

- Addisinsity consider.

 Is the company going to be around to service, support machines?

 Can we even it was trein per their behavior in AZ, MI, PAQ

 Oursationable performance in Williamson County 2020 election.

MON HALL MANNE COUNTY WHERE

ANGEL SON ELECTION STATEGROTY SES

RECOMMEND: DEEP DIVE

- Ifennessee Elector Commission subcommittee has committed to incertly all 5 brands areasing areas about the process.
 Strongly recommend. Security Back Audit of all brands
 Halderman validates this call for an audit.
 Audit adainst EAC's Volunter, Voting System Guidelines (VVSG) 2.0

TENNESSEE ELECTION COMMISSION SHOULD CONDUCT A DEEP DIVE INTO THE MACHINERY WHERE ARE WE NOW?

- Current (2/21) best standards, requiring highest lighel of security
 Dominion only current to 2005 VVSG 1.0 standards.

- Bi-partsan_independent ciscen committee
 Include credentiated IT/cybersecurity expens
 Identify, fix or replace the problems

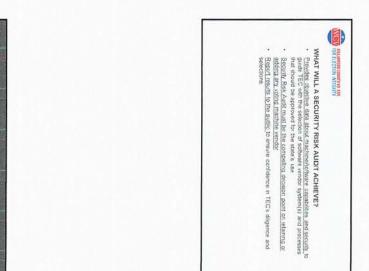
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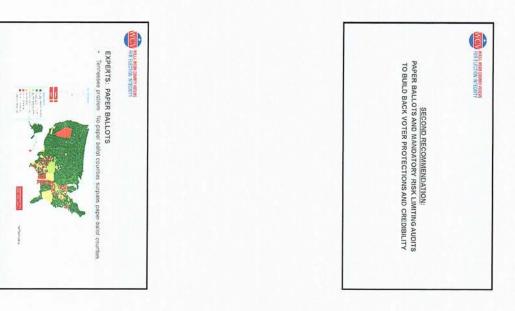
- HOW WOULD A SECURITY RISK AUDIT WORK?

 Hee a firm of internal control and IT/Cybersecurty expents
 Identify and analyze for each brand.

- Cyber threats.

- Machine vulnerabities
 Produce risks, determine the ikselhood and impaid
 Document wastes abilitylans to semidate risks
 Present results to State Electron Commission for next stops

















- Qui deep dive in Williamson Couth revealed distutoria issues
 Availling artivales to questions from Villamson Co. Election Commission
 Many Williamson Couthy sauss common with other Tennessee counties.
 Three categories of actuators
 Technologies solutions.
 Placess solutions
 Legislative solutions

WILLIAMS COUNTY WILES FOR ELECTION WITE BOTH

BEST PRACTICE SOLUTIONS: TECHNOLOGICAL

- Disk encryption must be verified.

- Add system log aliam to warn of ehernet traffic_esp outside system
 Tay Dishardware Schlage, allowed for 90 days pror to election
 All changes tested and certified before adoption
 Died access to fig. within the system administed and audited
 Run software verification hash prior to after day's role occumented.



BEST PRACTICE SOLUTIONS: TECHNOLOGICAL

- All printed reports directly from election software; not through third-party platform.
- Require logn for dual party, poll workers, observers at all stages
 Microsoft Winevt logs enabled, security/system events archives, not overwritten
- All system users should have separate UIDs, forced password changes
 Unencrypted paper ballot QR Codes.



BEST PRACTICE SOLUTIONS: PROCESS

- Devisio a Required Voton Statem Specification (RVSS) mapped to VVSG
 To Terriesse software selection and settification processes
 Look at other state ovariations to compare, undestand, megatan
 Tourny election officials must ensure sufficient resourceschaft is trained to perfite election system fully unflook involvement of machine variation.

 Require dual-quarry poll workers at key junctions of poll and sabulation procedures.
- Protections to ensure ease for dual-party observers



BEST PRACTICE SOLUTIONS: PROCESS

- Publish streamed video in poling/preencyballot processing areas.

 Formally specify and obsciment the process for arching portry pridate.

 Require printed year 0.8 statist reports at start, finesh each vocation period.

 Indispondent variation of accurate transfer of votes to read level of

- Appropriate chain of custody a must, audited prior to voting certification
 800 number to report election issues throughout Tennesses





ANTIMANTOS CONTENTAL DES

BEST PRACTICE SOLUTIONS: LEGISLATIVE

- Each voling system must usuvietare paper_3i [05]
 Replace mandatory audit of just tabulators in Voter Confidence Act (TCA 2-20)
 RO3 with a mandatory random sample, hand count Resk Limiting Audit of all

- All software configurations dictated by the state to ensure consistency in vote

- Aggressively, clean voting Lids, require introvine resources beyond based.

 US Postal Service National Change of Address (NGCA) System.

 E Worth, DMV Social Security's Master Death File.

 County tax records institutions of scommercial address, not a viscant/undiversigned bit in residential area.

NOW HER WORK COUNTY WHEN

BEST PRACTICE SOLUTIONS: LEGISLATIVE

- No exhausing at an vender engloyees working election processes the critical steps reparcing absence ballots Limit to valid excuses, require validated witnesses

- Received by election day nothing later
 Printed on uniform, waternative graper (architectural)
 Aggressively enforce law against yole bill-clengthalfol harvesting Sandardex yole careficiation (insughesis framessee and countees consider one viting system at nowinder.)



3RD PARTY BEST PRACTICE SOLUTIONS

- 35 General Best Fractices from nasonal integrity sources in booklet, including.
- Electron least/squiistoris can the changed within 180 days pro-te outgrade vider legislation, no days discle registration. No drop boxies— ease of tambering in other of craticity. Balot counting continues without pause until all votes faculated.





IN SUMMARY

- Transparent trustworthy and accurate voting experience desired innoughout tennessee:

 Our research uncovered questions, irregularities, valnerabilities bedding to be addressed to with back chizen confidence.

 Many recommendations are complicated time-consuming, costly.

 Many recommendations are complicated time-consuming, sostly.

 Many recommendations are complicated to enormity at stake.

 Protect as a most sacred gift. votice as Americans. right to vote and have it properly registered.

 And TRUST that occurs every time.



- IN SUMMARY

 Critical:
 Put all 5 machine brands under <u>Security Risk Audit</u> (vs. simple receiffication) to regain lost chizen confidence in our election equipment and elections.
 <u>Secure Bater habitis</u> especially with DREs:
 <u>Risk Limiting Audits</u> for all elections, all counties, end-2-end;
 <u>Standardized voting system/process</u>.



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IN SUMMARY

Tighten the machine/voting process in Williamson County.
 Ensure vendors are not running our elections.

- IN SUMMARY

 We speak for thousands of Tennesseans

 Help is stogice the furst in our elections that has been destroyed by the actions of others

 Tennessee can be the model of election integrity for the nation.

 And you can drive that!