

Defending against election hacking

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The threat:

- **Regardless** of whether there was collusion
- Russia tried to meddle in 2006, and they almost certainly believe it worked.

- It doesn't matter if it really worked

What matters is their belief

- We must assume **they will try again**

We must defend against

- Fake news, social media manipulation, etc.
Election officials can't really help here
- Attacks on **voter registration systems**
A huge issue
- Attacks on the actual **voting process**
A significant issue

Voter Registration Vulnerabilities

- HAVA forced **state wide voter databases**
these are **an attractive target**
- In 2006, **Russia got into the Illinois database**
- **The threat is serious**
Suppose they de-registered undesirable voters?

Voter Registration Defenses

- Provisional ballots
- Same-day registration
- A large scale attack would lead to
 - **long lines** because of paperwork
 - more **paperwork** at the election office

Weaknesses

- Long lines **disenfranchise** some voters
 - some people will not wait
- Paperwork will **disenfranchise** some voters
 - some people won't have necessary papers
- Long lines, even **the appearance of chaos**
 - play into fake-news narratives

Voting Process Vulnerabilities

- Worst case scenario
 - assume **Russia hacks the voting machines**
- Malware installed on **precinct tabulators**
- Malware installed on **county election servers**
 - **Stuxnet** shows how it could be done
- **Vendor support systems** penetrated

Voting System Defenses

- We use **paper ballots** in Iowa
 - they can be **recounted!**
 - we **recount enough** that we're competent
- Today's **voting systems are hardened**
 - **cryptography**
 - **digital signatures**

Weaknesses

- Recounts create the **appearance of chaos**
 - look at the big statewide recount in Minnesota
- Only the **newest** voting systems are truly hard
 - and are they really that hard?
 - security is in the **proprietary details!**

We could do better

- Iowa's **election audits** are a tentative first step
- California had **mandatory audits** since 1965
 - only 1% (not enough)
 - but done **before vote is certified**
- Modern **risk-limiting audits** offer much more
 - **too late** to change law this election cycle

Closing Thoughts

- **Transparency** is crucial
 - democracy depends on the trust of the voters
- Avoid the **Wizard of Oz defense**:
 - don't look behind that curtain, it's all OK!
- **The job of an election** is to convince the supporters of the losers that they lost fair and square.