Defending against election hacking

Douglas W. Jones
Department of Computer Science
The University of Iowa

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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.