THREATS TO VOTER REGISTRATION
Interaction of Voting and Election Systems

- Voting System
  - Ballot Marking System
  - (re)Districting Systems
  - Auditing Systems
  - GIS
  - E-pollbooks
  - Candidate Qualifying System
  - Auditing Systems
  - Voter Authentication System
  - Absentee Application

- VR System
  - DMV
  - Auto VR System
  - Pollworker/Staff Training System
  - Ballot Tracking System
  - Voter Information System

- Online VR System
  - UOCAVA / Ballot Delivery/Return
  - Ballot Printing

- UOCAVA / Ballot Delivery/Return
  - Precinct Mgt Systems

- Define Bal. Cap & Tab Reports Audits

- GIS
  - Barcode Scanner
  - Statewide Election Night Reporting
  - Administrative Reports

© 2017 Precinct Mgt Systems

Auto VR System Define Bal. Cap & Tab Reports Audits 2.0
Statewide Voter Registration Database

- Paper Poll Book
- Electronic Poll Book

Continual Updates

Data Exchanges

- Self Registration
- 3rd Party Registration
- Online Registration
- DMV
Source of New Voter Registration Forms, 2016

- Department of Motor Vehicles: 33%
- Online: 17%
- Mail, email, fax: 17%
- Other: 15%
- In person at local election office: 12%
Trends in Voter Registration 2000-2018

- Automatic Voter Reg.
- Same Day/Election Day Reg.
- Online Voter Reg.
Comparative chart of systems

Select a system
- Legislation
- Development
- Features
- Access
- Processing

States with online voter registration systems

YES  NO
Automatic Voter Registration

DMV (or other designated agency) → Election Officials
Protecting Voter List Information

• Who can access voter lists?
• What information on voters is available to requestors? Does it include personal identifiable information?
• What information is contained in the statewide voter registration database? If a hack occurred, what information on voters could be accessed?
• Restrictions on use of the voter list
• Voter roll audit
The Tech Angle

• Which technologies are used?
• What are the potential security gaps?
• How could you disrupt registration?
Technologies Used

• Local IT infrastructure
• Cloud-based infrastructure
• Web-based or App-based voter access
• Communication encryption
• Input Validation
Potential Security Gaps

• Phishing
• Network & Internet connectivity
• Security weaknesses in underlying commercial-of-the-shelf (COTS) products
• Errors in authentication & access control management configuration
• Data validation
• Backup & auditing
Disrupting Registration

• Fake registrations
• Misinformation
• Unauthorized access
• Targeting upstream state & cloud-based infrastructure
Group 1 Scenario:

Before Election Day you discover that a local election official has fallen prey to a spear phishing attack that has permitted nefarious actors access to the statewide voter registration database. It is unclear if any voter registration records have been changed. What can you do in the moment? Is there a legislative choice to consider after the fact?
Group 2 Scenario:

The media is reporting that all of your state’s voter registration records, which include voters’ full addresses, driver’s license numbers and dates of birth, have been posted online. What can you do in the moment? Is there a legislative choice to consider after the fact?
THREATS TO VOTING ITSELF
Where We Vote

Mail Voting

Vote Centers

Traditional Neighborhood Polling Places
Returning Ballots

Ballots Received by Local Election Official

- Absentee Ballots
- Electronically Transmitted Ballots
- In-Person Locations
Accommodating Voter Groups

• Voters with disabilities
• Rural voters
• Native American voters
The Tech Angle

• What are security procedures are usually in place during the voting process?
• Where are the potential gaps?
Security Procedures

- Administrative controls
- Technical controls
- Physical controls
Potential Security Gaps

• No paper trail
• Exploiting accessibility features
• Information siloes
• Malware
A Brief History of Voting Technology
A Brief History of Voting Technology
A Brief History of Voting Technology
# How States Plan to Use 2018 HAVA Funds

<table>
<thead>
<tr>
<th>Category</th>
<th>States</th>
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<tbody>
<tr>
<td>Cybersecurity</td>
<td>AL IA NE SC WY AS ID NJ SD AZ IL NM TN CA IN NV TX CO KY NY VI CT MA OH UT DC MD OK VA FL MI OR VT GA MN PR WA HI NC RI WI</td>
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<td>Voting Equipment</td>
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<td>Reserve</td>
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<tr>
<td>Voter Registration</td>
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<td>Election Audits</td>
<td>AL MI VA CA MN VT CO NC WA CT NJ GA NV GU OH IA OR ID RI KY TX MD UT</td>
</tr>
<tr>
<td>Communication</td>
<td>AS MI CO NE CT NJ DC NV FL VA GU VI IA WV MD</td>
</tr>
</tbody>
</table>

**Source:** United States of America, Department of Homeland Security
Post-Election Audits
Things Legislators Could Address

• Require post-election audits
• Voting equipment with a paper trail
• The audit scope – what is audited and what percentage?
• Consider a risk limiting audit
• When is the audit conducted
• What happens if there is a discrepancy?
Use of the Internet to Facilitate Voting

- Blank ballot delivery
- Electronically transmitted ballots from some
- Remote ballot marking tools
- Voter information and polling place lookup
- Publish unofficial results
The Tech Angle

- Which technologies are used?
- What security issues could there be with using the Internet to facilitate voting?
Technologies Used

• Two-factor authentication
• Social media
• Blockchain
• Local IT infrastructure
• Cloud-based infrastructure
• Web-based or App-based voter access
• Communication encryption
• Input Validation
Potential Security Issues

• Spoofing identity of voters
• Outdated encryption
• Misinformation
Group 1 Scenario:

Three months before the election, a news report indicated that some of your optical scan vote counting equipment has the ability for the vendor you bought it from to “remote access” the software. This is intended to allow fixes without a service call to the site. And yet, security advocates say having that ability causes a vulnerability for hackers. What can you do in the moment? Is there a legislative choice to consider after the fact?
Group 2 Scenario:

On Election Day, an unusual number of people have arrived to vote, only to find that their names are not on the electronic poll book in that precinct. It is possible they are in the wrong polling place, or that an error was made. Is it possible to help them vote? What might be the problem? Is there a legislative option to consider next session?
THREATS TO REPORTING RESULTS
The Tech Angle

• Which technologies are used?
• What are the potential security gaps?
• How could you disrupt an election?
Technologies Used

• Scalable infrastructure
• Social media
Potential Security Gaps

• Dedicated devices
• Polling place support
• Network & Internet connectivity
• Security weaknesses in underlying commercial-of-the-shelf (COTS) products
• Errors in authentication & access control management configuration
• Data validation
Disrupting Reporting Results

- Denial of service attacks
- Misinformation
Scenario

After the polls have closed, the election night reporting website, where unofficial results are posted for the media and the public (and where tallies from local jurisdictions come together), goes down. There is a closely watched Senate race so the national media are anxious for results. How can this event be handled in the moment, and after the election is over?
Questions?

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