How do we vote?

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EmTech
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How should we vote?

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How do we vote?
Stats by number of voters

- 55% Voter marked paper ballots
- 13% mixed: paper ballots + DRE w/ VVPAT
- 5% mixed: paper ballots + DRE w/o VVPAT
- 6% DRE w/ VVPAT
- 21% DRE w/o VVPAT

Roughly: 79% use voter-verifiable paper!

(stats from Verified Voting)
And Who Do You **Hope** You Voted For?
Optical scanners are used for efficient tabulation
(Concern) Scanners may introduce systematic errors
Causes of scanner errors

- Differences in **interpretation** between machine interpretation and hand interpretation. Voter intent rules.
- **Stray marks** (e.g. caused by folds)
- Configuration errors
- Programming errors
- Hacking (adversarial attack)
How *should* we vote?
One week ago today...

National Academies issued report on "Securing the Vote"

www.nap.edu/futureofvoting

(159 pages; free pdf)

41 recommendations
Recommendation 4.12

Use voter verifiable paper ballots everywhere by 2020
Recommendation 5.11

No *Internet* voting!
Recommendations 5.7—5.9

Audit election outcomes!
Audit election outcomes!

A risk-limiting audit (RLA) uses manual interpretation of randomly chosen cast paper ballots to verify with high probability the reported election outcome (or correct it, if wrong).
What a RLA does not do

A RLA does not address:

- correctness of the *tally* (as opposed to the outcome)
- voter eligibility
- voter authentication
- usability
- privacy
- chain of custody of paper ballots
Who is a RLA for?

• **Losing candidates** – to convince them that “they lost fair and square”
• **The winner** – to provide a mandate
• **The public** – to assuage doubts about “rigged elections”
• **Election officials** – to help them provide accurate and efficiently-verified results
Other recommendations

• States and local jurisdictions should conduct and assess pilots of **end-to-end verifiable** voting systems.
• Voters should be able to **track their mail-in ballots**.
• EAC should be fully commissioned and funded.
• Funding should be made available on a continuing basis for equipment upgrades.
• Funding should be made available for research.
Other recommendations (cont.)

- Election systems should continue to have the DHS designation of ``critical infrastructure’’.
- Cybersecurity!
- EAC and DHS should develop and promulgate cybersecurity best practices for voting systems.
- NIST should complete the Common Data Format standard for voting systems.
The End

Thanks for your attention!