Voting for IACR

Some low-tech options

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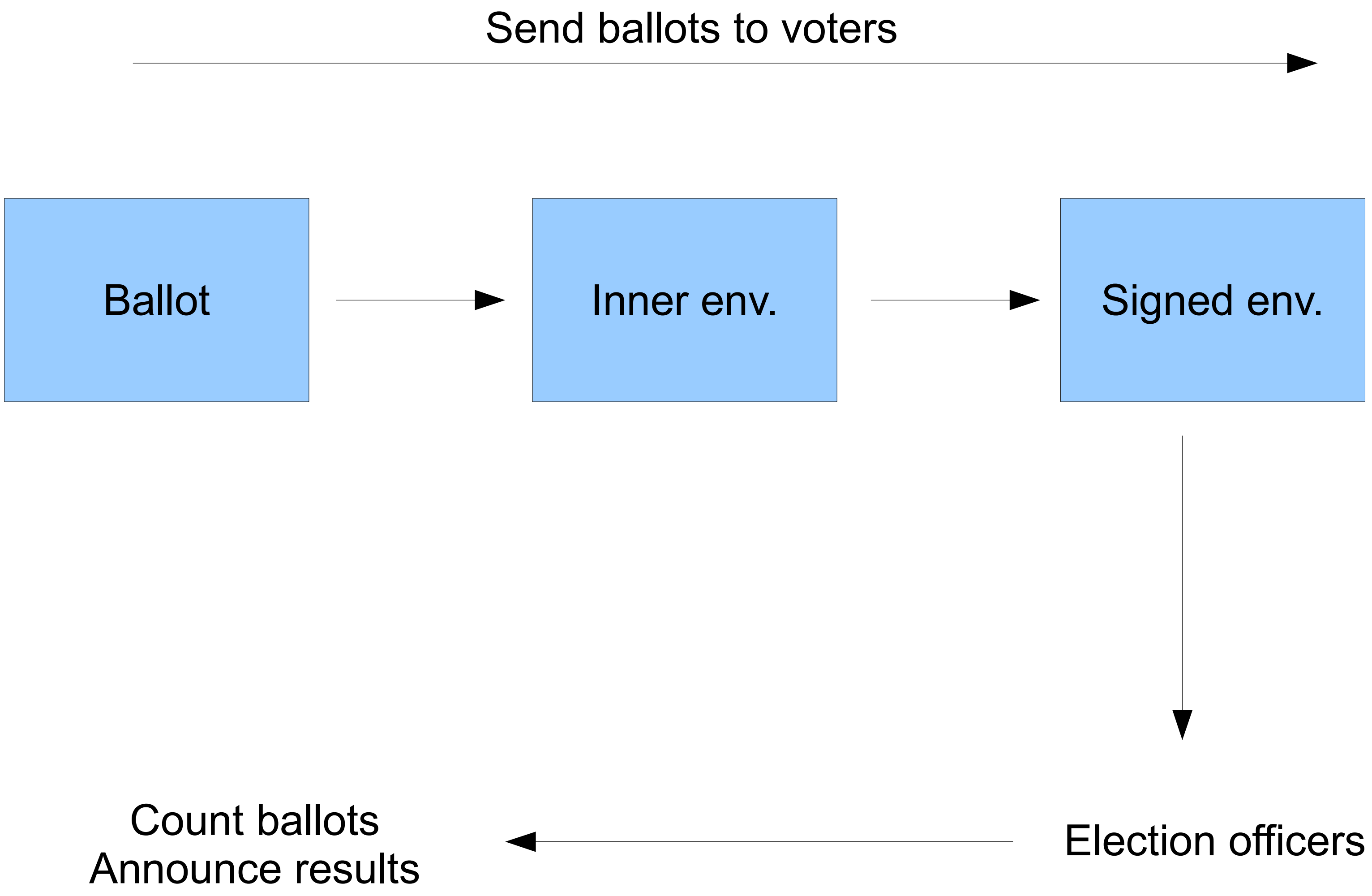
Current voting system



Send ballots to voters

Ballot

Inner env.

Signed env.

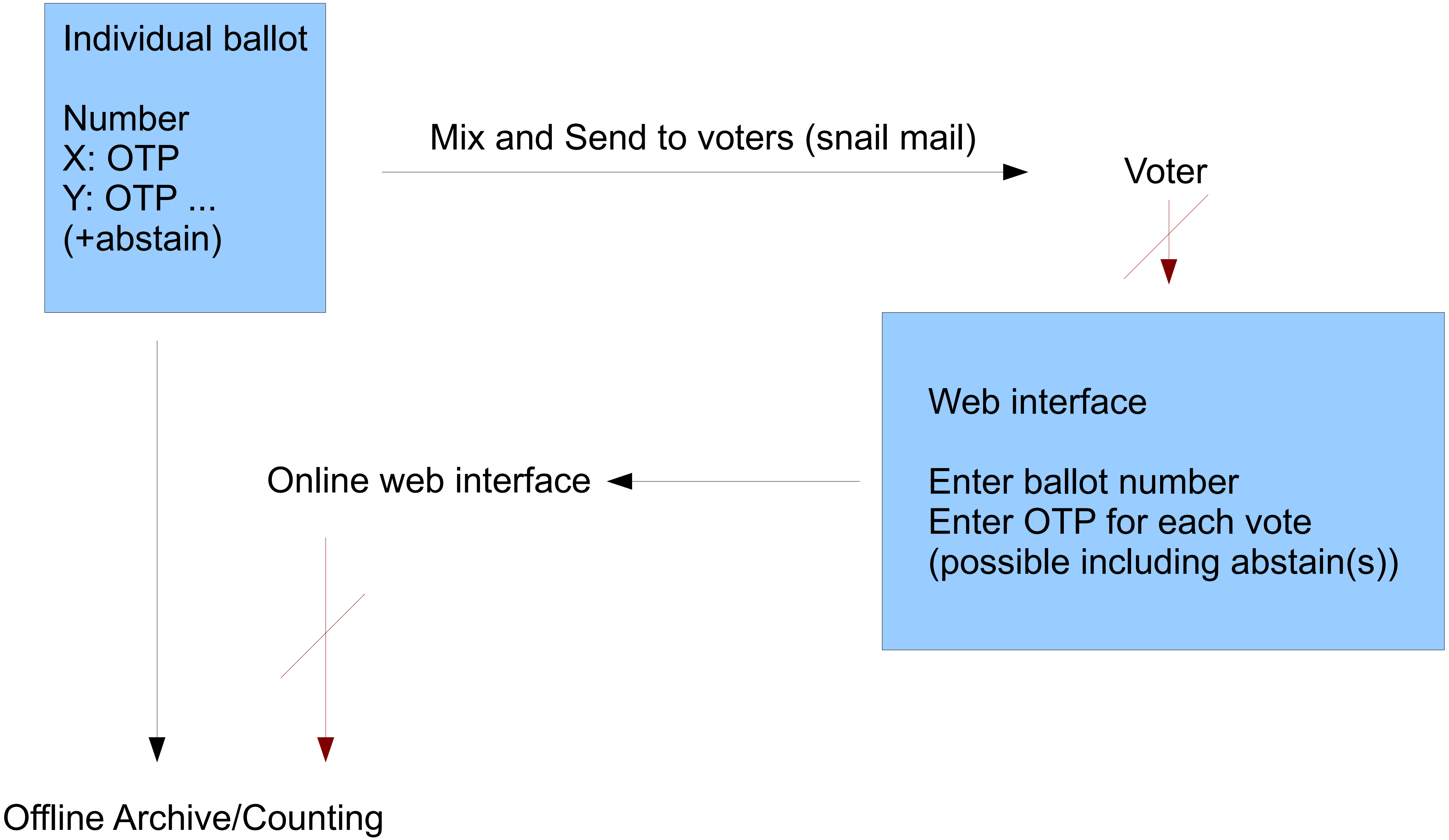
Election officers

Count ballots
Announce results

Weaknesses and Vulnerabilities

- Few returned ballots (many late/lost ?)
- Vote coercion/buying/stealing easy
  - But may be irrelevant, could create new members
- Cost of system (postal fees for IACR and members)
- Workload for election officers
- Need to trust election officers
  - For correctness and anonymity

Possible hybrid system



Individual ballot

Number
X: OTP
Y: OTP ...
(+abstain)

Mix and Send to voters (snail mail)

Voter

Web interface

Enter ballot number
Enter OTP for each vote
(possible including abstain(s))

Online web interface

Offline Archive/Counting

Quick security facts

- Need to trust mixing
- Need to trust outgoing postal service
  - Intercepted ballots can be used by Adversary
- Vote Coercion/Buying still possible

- Viruses on user's computer useless
  - Except to attack availability

Possible additional security measures

- Error detection to help OTP input
- Allow returning ballots by snail-mail for improved availability
- Return signed receipts to user to allow checking that ballots indeed arrived
- Write received ballots on write-only devices

- **Careful counting** (remove invalid votes, remove exact duplicates, cancel multiple voting, priority to snail-mail ballots)

Motivations

- Simple scheme to benchmark proposals
  - Security, cost, ...
- Removes need for securing computing device on user's side
- Clearly unsuitable for political elections (do not scale, easy coercion, ...)

- This is fun but probably not original
  - references anyone ?