



Multiple Casts in Online Voting

- Analyzing multiple casts as an easy approach to overcome open questions of online voting –

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- Introduction
- Open Problems of Online Voting
- Forms of Multiple Cast in Online Voting
- Needed Additional Mechanisms
- Advantages / Disadvantages
- Discussion



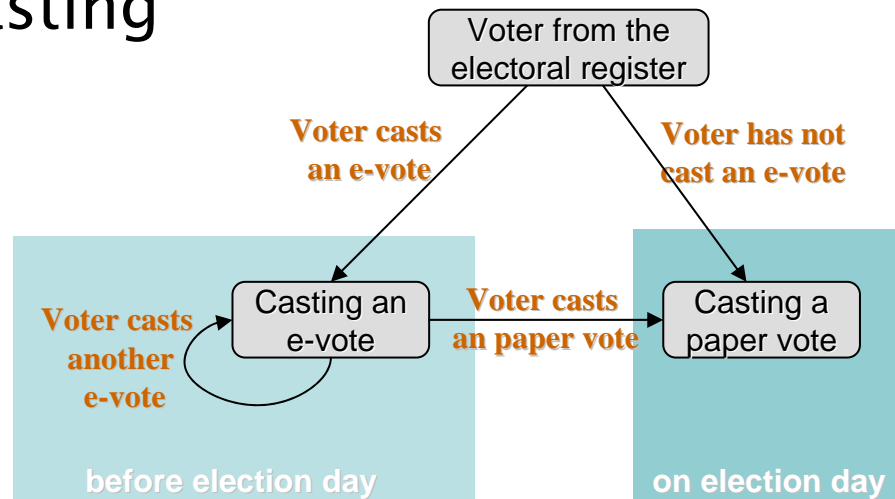
- Basic Idea of Multiple Cast in Voting
 - Cast more than one vote
 - At different points of time
 - Using different channels
 - BUT: only one of it is counted
- Reason for discussions: Online Election in Estonia
 - 2005: Local Government Council Election
 - Reason: To overcome distance voting problems
- Not a new or online voting specific approach
- Applied in traditional voting systems e.g. in Sweden



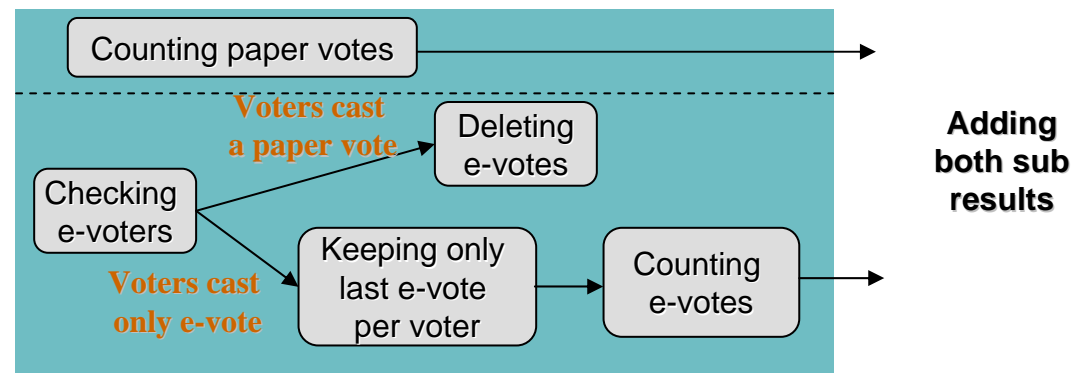
Online Election in Estonia



- Ballot Casting



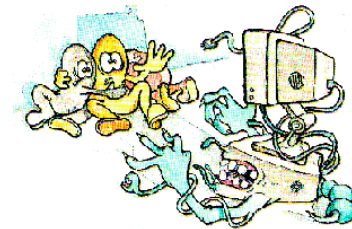
- Counting



Open Problems in Online Voting



- Observation problem
- Voting in advance
- Untrustworthy voting client



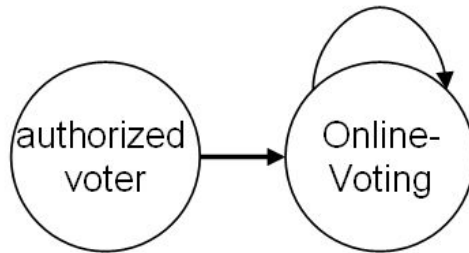
- Receipt freeness
- Casting one and only one vote in case of problems
- Temporary unlimited election secrecy



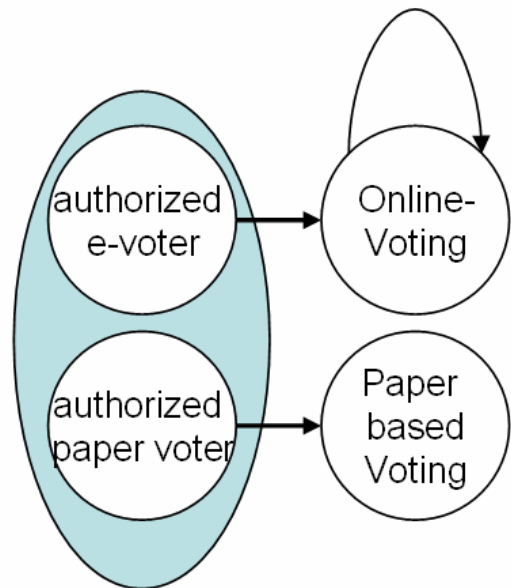
Forms of Multiple Cast



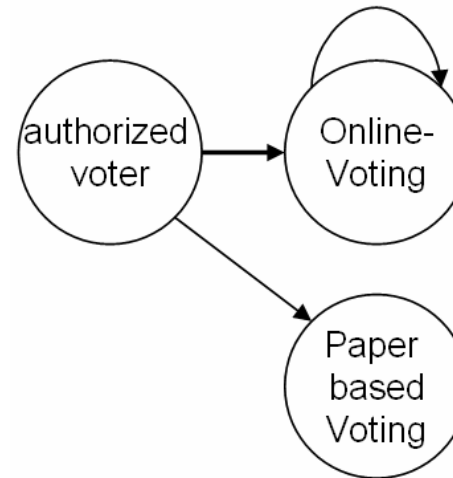
a)



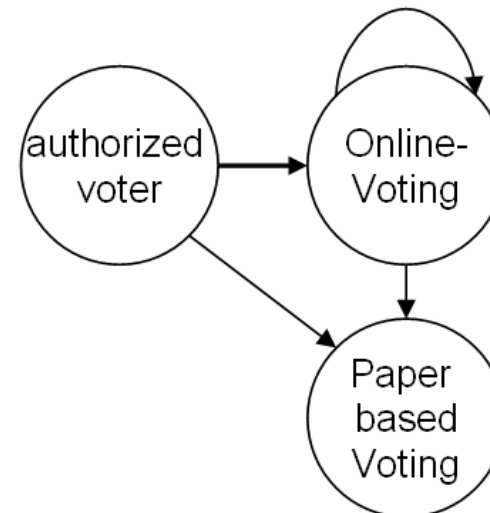
b)



c)



d)





- Give access only to voters but several times
 - ~~Check the right to vote only the first time -> token~~
 - Check the right to vote each time
- Identification of the last cast ballot
 - ~~Voter's PC clock~~
 - ~~Incoming Time -> Replay attacks~~
 - Authentic timestamps
- Identifying old votes from the same voter / removing of e-votes in case of a cast paper vote
 - Assignment voter/vote
 - loosing anonymity/receipt-freeness
 - Depending on the voting scheme



- Free and secret ballot casting in the private sector
 - Observation problem/ Ballot Buying
- Voters can change their mind
 - Voting in advance
- Sniffing becomes pointless (espec. case d))
 - Temporary unlimited election secrecy
- Sent Messages are no proof
 - Receipt freeness
- Handle System breakdowns
 - Casting one and only one vote

Untrustworthy voting client??



- (Untrustworthy voting client)
- Same chance to cast a vote for all voters (beside a))
- Is the counted vote the one the voter wants to be counted? / Timestamps
- Loose the seriousness and the value of elections
- Less degree of anonymity / not applicable to all voting schemes



- Nice concept to overcome the open problems of remote online voting and voting in advance
- But two main technical problems
 - Not applicable to all voting schemes
 - Integration of authentic timestamps
- And two social ones
 - Equality principle
 - Loose the seriousness and value of elections



Thank you for
your attention!

Discussion / Questions?

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