

1. Minutes of the Electronic Voting Implementation Subcommittee Meeting of 2018-06-07
2. The meeting was called to order by Dave Bernstein at 7:32 pm in the Wayland Town Building with Alan Reiss, Lynne Dunbrack, Beth Klein, and Jon Sieber in attendance. Options Technologies Interactive President Mark Fite later joined by phone.
3. Jon Sieber was appointed Secretary pro tem
4. There was no initial public comment
5. Minutes from our 2018-04-02 meeting were approved 5-0
6. Review of performance of EV during Wayland's 2018 Annual Town Meeting and recommended improvements:
 - a. Review of telephone call with OTI on 5/3/2018 (see attached notes)
 - We learned new information about what the different displayed messages could represent
 - in particular, if a handset just had "received" in the display you could not determine if it represented a counted vote or not. OTI also said that they had made changes to the check-in procedure that caused some handsets not to be added to the roster properly. This has been fixed.
 - b. Notes about how things went at Town Meeting
 - First and third nights good, second night had significant issues centered around the library vote for which ~1300 voters attended with hundreds showing up at the last minute.
 - Other stresses to the system:
 - Many new voters without experience using the handsets.
 - Unusually large crowd changed the configuration of the room from the normal one and led to multiple venues so people could be in the wrong venue where their handset wouldn't work.
 - Handsets could be farther from the base station than in the past (because the field house setup was larger) making for less reliable communications.
 - There was a flood of people coming in at the last minute from the busses and in the case of the auditorium waiting in a long line to check-in.
 - The field house had 5 base stations close to each other at the top of the bleachers with 300 handsets each and 10 check-in stations (there was never a line).
 - The auditorium had 1 base station with 300 handsets and 2 check-in stations (at the peak there were >20 people in each line)
 - The first library vote resulted in 35 assorted failures in the field house and 10 "not ready to vote failures" in the auditorium.
 - The failures in the auditorium all seemed to be related to people having checked-in after the roster was downloaded and they had no problems in the following test vote or revote
 - The failures in the field house were about 1/2 check-in related with the rest being a mix of issues; many handsets displayed the word "received".

- The real breakdown in the system was that in the case of handsets bearing the word “received”, we were unable to definitively determine if a voter's vote had in fact been cast or not because what is documented in our Electronic Voting Handbook differed from what OTI personnel were telling us in real time. Thus we were not sure that giving them a paper ballot would result in them being given a second vote. In the end it was decided there should be a test vote to verify the handsets followed by a revote. The problem with this solution is that there is a slightly different population of voters (people come and go) between the two votes. The fact that the outcomes of the two votes were the same avoided it being a more significant problem.
- In retrospect the problem would have been resolved if we had called for an audit of the in-question handsets but that wasn't part of the procedure for failed handsets which assumed incorrectly that if no vote was showing on the display, no vote had been counted.

c. We discussed the failures modes, their causes, and suggestions:

- **can't vote yet** errors
 - for handsets that were not checked into the roster properly, and for handsets that were checked into the roster after it was downloaded
 - Both of the above errors stem from our attempt to avoid having "live" handsets that can be used to vote sitting around. In particular we only enable the handset as part of the check-in process. Since the unused handsets are safely stored behind the check-in tables this is not where the most likely security failures would have come from. More likely the security issue would be when someone left the venue and either gave the handset to someone else (which we have developed a policy for) or if someone took a handset out of the return bin (which could be safe guarded by having a slot so you can easily drop it in but not get it out).
 - Three options discussed were leaving things as they are, making acquisition of the roster a formally designated point which would happen after registration for the current vote was stopped, or having all handsets be live at the beginning of the meeting.
 - We decided that simplifying the check-in process by having all the handsets be live before the meeting would solve the **can't vote yet** issue with no loss of security. We also determined that (independent of this change) the checkout process would not require the handsets to be scanned out. Instead they would be put in their cases and any missing ones would be determined by empty slots and their owners identified from the handset number (this would make ending the evening significantly faster).
 - This would also simplify the logistic load on the operator since the roster would no longer have to be acquired just before each vote. It would speed up opening the window since acquiring the roster leads to a delay. It would reduce the chances of someone voting too early. It would allow people to vote immediately after checking-in.
 - Nothing in this change would change our ability to: identify the owner of a lost handset, know when a quorum has arrived (though we would not know if we have dropped below a quorum), or perform an audit of a vote.
 - The change would be transparent to the check-in people and users so no retraining would be necessary

- **VOTE TO RECOMMEND THIS SIMPLIFIED CHECK-IN PROCESS PASSED 5-0**
- If necessary, based upon any problems:
 - Returned handsets could be checked out of the roster,
 - The system could after a vote compare the set of handsets that voted with the roster as it stands after the end of the vote.
- **received** on handset (no note of what was received)
 - This can occur as the result of two voting scenarios:
 - Voting before the window opens so your vote isn't counted. It was noted this is made more likely by the Moderators mantra of "we are now ready to vote" which is meant to be a signal to the operator to acquire the roster and open the window, but which can be misinterpreted by new voters as time to vote.
 - Voting late enough in the window that the vote/respond loop was stopped before your handset got a successful response to a counted vote (which is made more likely by having a large number of handsets in the room).
 - The fact that this state could correspond to either a counted or uncounted vote makes recovery impossible
 - We discussed that doing away with the roster download as part of the previous recommendation would simplify the signaling and reduce the incidence of "voting before the window opens" scenarios
 - We further discussed that by putting the handsets in the broadcast state (as specified in our state diagram) would make it simple to determine if the handset had voted or not and how their vote had been counted.
 - Mark Fite said these changes would not be a problem but pointed out that it might take multiple sweep cycles for all the handsets to get the display message (he estimated 3 sweeps at 2.5 seconds each but will investigate to nail this down). This would cause a delay after the vote which would be most noticeable when two votes come in close succession.
 - **VOTE TO RECOMMEND CHANGE TO USING BROADCAST MODE AFTER ALL VOTES PASSED 5-0**
- **voter error** (people voting before the window opens or not knowing what button to hit)
 - Discussed that changing the moderator's "script" would help, as would reviewing how to vote and a practice vote when either a lot of new voters have arrived or before a particularly critical vote.
 - **VOTE TO RECOMMEND EDUCATIONAL CHANGES PASSED 5-0**
- **ELVIS changes:**
 - Voters with problems should come to us (which is how we have been doing it despite the fact that we say to raise your hand).

- Have one person who has a form with columns for handset replacement info (forego getting user info):
 - handset#
 - time
 - problem provide check-boxes for common problems
 - Then send them to ELVIS people capable of allowing at least 3 paper ballots to be done at a time. We need lots of ballots to avoid possibility of running out with clipboards and pens.
 - In the rotated field house configuration the main ELVIS desk should be more central than its current location with one person at the current location for people entering or exiting the field house.
- **Check-in / logistics suggestions:**
 - Open the auditorium earlier to get a better distribution of people
 - Have at least 4 check-in stations at the auditorium manned by people from the field house as its check-ins wind down.
 - For 2100 handsets
 - field house: 5 base stations * 300 handsets
 - auditorium: 2 base stations * 300 handsets
 - the base stations in the field house could be more spread either at the top of the bleachers or in the center aisle out giving better reception zones for each handset group
 - Elvis people should know what the map is so that we can either advise voters having reception issues where to move or swap their handset with the right color one for their seating area
 - **VOTE TO RECOMMEND ZONING FOR ROTATED SETUP AND OTHER SUGGESTIONS PASSED 5-0**
 - Although having people put their phones in airplane mode might reduce interference it would not be popular and is not recommended
 - OTI will get back to us with any issues that these recommendations might have by end of July

7. Discuss preparation of ELVIS Annual Report due on or before 9/30/2018

- a. Beth noted that the new check-in system took seconds to upload the data to the state instead of the hours of scanning it took in the past
- b. Dave will take a first cut at the report which we will discuss with our recommendations at a meeting in early august

8. There was no final public comment

9. The meeting was adjourned at 9:48 pm