



ETC Executive Director Remarks to the NACo Technology Summit
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The Future of Voting Technology

I would like to thank the National Association of Counties for inviting me to be a part of your Technology Summit. My name is David Beirne and I serve as Executive Director of the Election Technology Council, the national trade association of voting system providers representing 90% of the voting systems in use today throughout the United States. Our membership currently consists of Election Systems and Software, Hart InterCivic, Premier Election Solutions and Sequoia Voting Systems. Prior to my current role, I served as a local election official for the last ten years in both Florida and Texas so I come with a perspective of a practitioner.

Judging by the actions of a few states, the answer to “What is the future of voting technology?” is likely going to be less eco-friendly than one would hope with moves to paper based voting systems. While other industries increasingly automate and develop a means of digitally archiving information, the election industry is finding that jurisdictions are moving back to paper based systems in response to issues of perception. This is, in large part, due to a successful grassroots effort that has focused on an existential question, “How do I know my vote truly counted?”

On its face this question shouldn't appear difficult to answer nor should it be existential by its nature. However, the act of casting a ballot is rather unique as compared to other customer transactions. Unlike banking and other business transactions, the requirements of a voting system rely upon a voter's anonymity. It is this unprecedented relationship between the transaction (voting) and the customer (voter) that has yet to be fully discussed or reviewed in terms of voting technology. It is the absence of a direct linkage between the voter and his cast ballot that has led to this existential debate. Election officials can verify that the number of votes cast matches the number of voters accepted for voting, but an individual voter cannot verify that their unique ballot was tabulated. Voters must rely upon the system of procedures in use by election officials to verify that all ballots were counted and the software used counted all ballots correctly. Even with volumes of evidence and documentation regarding the performance of a voting machine, it is the absence of this direct linkage that is causing the biggest problem as election officials and the industry are forced to prove a negative.

For information technology professionals, your daily lives often involve the verification of inputs and outputs to verify the data stream and the integrity of the process or system. It is this same way of thinking that must be incorporated with electronic voting systems. Election officials are able to verify the integrity of an election on an electronic voting system by testing that the inputs (votes cast) matches the output (votes tabulated). The Election Technology Council released published a report entitled “Safeguarding the Vote” which attempts to outline the various procedures a local

jurisdiction can use to document the integrity of an election. These procedures, when taken together, provide a high confidence level that all votes were tabulated correctly and no security threat has materialized.

During the 2006 General Election, a Congressional District in Florida experienced a high rate of undervotes, over 13,000. In a recent report from the GAO which closed the matter, the voting system was found to have performed as it should. Although all sides took something positive away from the GAO report, the best result of the report was the recognition that an election comes down to three key aspects, the people, process, and technology. In recognition of the importance that procedures play in an election, the industry has pulled together a series of procedures that can be used to document the integrity of an election:

Acceptance Testing: This procedure involves received the equipment from the manufacturer and verifying the firmware and software incorporated on the system is the same version as the one federally certified. This procedure also incorporates basic functionality testing to verify the system is responding properly.

Logic & Accuracy Testing: This procedure is performed both prior to and after an election event. Once the election parameters have been established, test votes are cast on the system and tabulated to verify the inputs match the outputs, ballots cast match the reported numbers.

Hash Code Testing: This procedure is probably the most technical aspect, but this procedure involves running an application provided by the National Software Resource Library. This application uses an algorithm to verify the source code used in your jurisdiction has not been altered since it was deposited and federally certified.

Parallel Testing: This procedure involves the same practice as a Logic and Accuracy Test, but is conducted by removing a random sample of actual equipment scheduled for use on election day. This procedure will verify that the election parameters originally tested and have not been altered prior to Election Day.

Post Election Audits: Finally, we have post election audits. For those jurisdictions that incorporate a voter verifiable paper audit trail (essentially a paper printer attached to an electronic voting unit) this process involves verifying the paper records to the electronic records for any random sampling of precincts.

These procedures are where you can play an important role

As a County IT officer or a county leader, you can provide a tremendous value by assisting with troubleshooting and support personnel procedures, not just during an election event, but on a continuous basis. On behalf of the industry we would recommend the following:

1. Establish a good relationship with your local election official-be proactive and ask to assist.

2. Understand that elections are always last minute-this means support during odd hours of the night.
3. Support the election official to make sure their networks and computers meet the recommended configurations from their voting system provider.
4. Provide additional personnel to your county election official if you aren't already doing so.
5. Work with your local election official to recognize industry best practices that may be of use for your county: Hash code testing/parallel testing/logic and accuracy testing.
6. If your county lacks the personnel to dedicate to the election, work with your local election official to make sure they secure proper funding for support from their provider.

Your efforts in these areas will go a long way toward protecting your county's investment and provide a stopgap measure as new voting system standards are adopted and the United States Election Assistance Commission improves the certification process.

The Changing Environment

The future of voting technology is largely dependent upon the final form of the voluntary voting system standards currently being considered by the United States Election Assistance Commission. As drafted, the voting system standards currently up for consideration are robust, but also extremely prescriptive. The industry is currently working with the United States Election Assistance Commission to make sure that proper flexibility is incorporated into the voting system standards which permit innovative designs, but still require rigorous performance. The industry is pleased to see the inclusion of clear performance measurements and a focus on security, but the timeline for bringing new products to the market is extremely long. As an industry, we project the total lifecycle for new product development, federal and state certification, and deployment to be 54 months. In addition to new voting system standards and a lengthy product development cycle, the new certification process administered by the United States Election Assistance Commission has yet to yield a certified system. This is causing difficulties for the industry as companies try to deploy product upgrades for the November General Election, but may find that delays in the certification process will result in a delayed deployment at the local level.

What does it all mean?

All of this means that patience is a virtue and underscores the need to look at those procedures you may incorporate which provide high levels of confidence to the parties, candidates, and voters. All voting systems rely upon a series of procedures to verify the integrity of an election. Whether paper based or electronic, no single ballot can be traced back to a single voter as a guarantee of how the ballot was counted. It relies upon a series of procedures to verify all ballots cast were counted correctly. Recognizing this critical feature of the voting landscape will move us to the next step of building procedures around the voting system to verify its integrity and operation. The processes

outlined by the Council move us in that direction and your voters will be well-served with their usage and the protection it provides for your investment.

The Election Technology Council has documented that voter confidence has remained steady around 85% over the last 5-6 years. It is apparent that recent trends detailing concerns over electronic voting systems are voiced by skeptics. As my final thought on the future of voting technology, I would like to share with you a quote from Bertrand Russell on the potential dangers of arguing with complete skeptics.

“If we adopt the attitude of the complete skeptic, placing ourselves wholly outside all knowledge, and asking, from this outside position, to be compelled to return within the circle of knowledge, we are demanding what is impossible, and our skepticism can never be refuted. For all refutation must begin with some piece of knowledge which the disputants share; from blank doubt, no argument can begin.”