OSDV Positio Pape o Remot Voting

We believe that the current practice of remote voting, especially for UOCAVA voters, provides a lower degree of protection and assurance than local voting. We believe that this assurance gap can be substantially closed by the development and use of election technology, particularly for multi-state kiosk voting for UOCAVA voters, in an early-voting model. However, before providing a sketch of the technically possible future of remote voting, we must first define remote and local voting, the assurance properties sought, and nature of the assurance gap between local and remote voting.

1. Definitions and Assurance

We define local voting by operational context, rather than by mechanism. The same mechanism may be used for both local and remote voting, for example telephone voting and vote-by-mail. There are two forms of local voting widely used in the U.S. The historically earlier method is in-person polling place voting, initially in precinct-based polling places, but now also at early voting centers. Regardless of the method used – paper ballots, PCOS, CCOS, DRE, telephone – in-person voting has some critical assurance properties outlined below. The second form of local voting is local vote-by-mail (VBM), not to be confused with absentee voting or remote VBM.

Local VBM is appropriate for those parts of the country that have reached a sufficient consensus on these points: trust in election officials to preserve ballot anonymity in the process of VBM adjudication and counting; low risk and occurrence of voter bribery or coercion, and ability to detect and prosecute. Local VBM varies from in-person voting, in assurance properties and related risks; however, in such localities, large-scale local VBM usage is based on a consensus that local conditions have low risk.

The assurance properties of local voting are:

- **Eligibility enforcement** – local election officials or volunteer poll workers are responsible for ensuring that the only people allowed to vote are those people who present themselves as a voter on the voter rolls and who have not already voted. For in-person voting, the eligibility check is typically performed by a poll worker using a poll book. For local VBM, the eligibility check is typically performed by an election official as part of the process of adjudicating the admissibility of a VBM ballot. Local election officials are responsible for reviewing each VBM voter's attestation document, and denying or approving the corresponding ballot as countable; this adjudication ensures that the only countable ballots are those that are both attested as being from an eligible voter on the voter rolls, and also voters who have not already voted.

- **Supervised voting** – voters are able to mark their ballot in private, without the ability to prove how they voted, reducing the threat of bribery or coercion. With in-person voting, the privacy is in a local polling place where voters must mark their ballots. In local VBM, privacy is sometimes in a supervised drop-off location where voters may mark their ballots. Also, in all-VBM localities, there is a consensus assumption about low risk of voter fraud via bribery and coercion, and about the ability to locally detect and prosecute this type of voter fraud.

- **Non-attributable ballots** – voters are able to mark their ballot in a way that the ballot is not connected to voter identity. With in-person voting, this is a property of the ballot box and procedures for custody and transport. with local VBM, ballot non-attribution depends on three factors. First, the voter must comply with instructions on enveloping the marked ballot in the way required to keep the ballot not readable while it remains associated with the voter via the accompanying voter attestation document. Second, after these two documents arrive at BOE, staff must comply with procedures for handling these documents so as to preserve non-attribution. Third, the local transport (see below) of these documents must be trustworthy.

- **Trusted transport** – With in-person voting, voters must deposit their ballots at the polling place for controlled transport to the central elections facility. With local VBM, voters may deposit their ballots at drop-off centers or BOE facilities, or entrust the ballots to the local USPS for delivery.

- **Timeliness and availability** – in-person polling places are operated on election day in locations that are nearby to most voters, and can be supplemented by availability of early voting at election offices, and in some cases early voting center. Local VBM provides ample time for voters to obtain a ballot from their BOE and return the marked ballot locally; local USPS service may not be timely as the cut-off approaches, but voters have other options for ballot return (see above).

The most common form of remote voting is remote VBM, which we believe has significantly lower assurance, as described below. We believe that the assurance gap can be significantly reduced for at least a large subset of UOCAVA voters. **For remote VBM, the assurance properties are:**

- **Eligibility enforcement** – Less effective than local VBM, because of the greater difficulty in detecting changes in residency that could effect eligibility of voters.

- **Supervised voting** – Most UOCAVA voters have no opportunity for supervised voting, and operate in an environment of unknown risk for bribery or coercion. There is greater difficulty in detecting and prosecuting fraud; however valid the local VBM assumptions may be, about the ability to locally detect and prosecute voter fraud, these assumptions do not apply to the widely varying and mostly unknown (to election officials) voting environments of voters worldwide.

- **Non-attributable ballots** – As with local VBM, non-attribution depends on correct procedure being followed by voters and election officials. However, correct procedure may be less likely to be followed, as shown by election officials' experiences with time-pressed remote voters using fax to return attestation and marked ballot documents, with a non-enveloped ballot in election officials sight at the same time as the attestation document is in sight. Similar problems apply when voters choose email as a form of return; lacking IT automation of anonymity-preserving reception and storage of emailed ballots, non-attribution is fundamentally at risk.

- **Non-attributable ballots** – Also, as with local VBM, non-attribution also depends on the integrity of the service used to return marked ballots. Remote VBM voters by definition lack access to above-described local options for trustworthy transport. Among the options available to remote voters (see below), some transport options create problems for non-attribution.

- **Trusted transport** – Remote VBM voters by definition lack access to above-described local options for trustworthy transport. Each voter is on their own to decide among remote transport options of varying degrees of trust, privacy, and timeliness. And where timeliness is critical, some voters have chosen email or fax return that has both privacy/integrity risks en route, as well as creating the above-described risks for non-attribution. Further, local VBM involves assumptions about trusted transport that may be valid locally, but may not be valid for the variety of physical transport available to UOCAVA voters. VBM envelopes are subject to mischief by postal officials, contracted mail transports, or any third party involved in transport, unknown to local election officials. There are also risks from transportation aggregation, in several places where many UOCAVA VBM ballots are collected along with other mail -- APO and FPO offices, express delivery hub operations like the FedEx hub in Memphis, etc. Given local election officials' lack of insight into these global methods of VBM delivery, the retail/wholesale fraud distinction may be obscured.

- **Timeliness and availability** – Remote VBM voters by definition lack access to above-described local options for timely transport, and historically have been at significant risk of disenfranchisement. However, more recently, the UOCAVA time to vote problem has been significantly mitigated for many UOCAVA voters who have access to both digital distribution of blank ballots, and express mail services specifically made available for UOCAVA voters. Yet such access is not universal; it is still a matter of uncertainty and debate how many UOCAVA voters timeliness needs are fully addressed in this manner. In addition, the issue is further obscured by those election jurisdictions that have begun to actively encourage email voting.

Based on the above comparison, we believe that remote VBM has inherently lower assurance than local voting methods, even when timeliness is *not* a challenge. We believe that a kiosk-based approach can significantly bridge the assurance gap, for those UOCAVA voters who might in the future have access to remote kiosk voting. But this

statement simply begs the question of whether remote kiosk voting is sufficiently feasible to actually reach a large portion of UOCAVA voters.

2. Remote kiosk voting: methods, assurance, and feasibility

Remote kiosk voting has already been recognized as theoretically superior to remote VBM, but experiments such as the *Okaloosa Distance Balloting Pilot* have raised questions about scale and feasibility. We believe that recent events have made remote kiosk voting much more feasible and scalable. To argue for this claim, we describe a relatively low-tech approach. If such an approach is feasible and delivers higher assurance, then the same might be true of incrementally more complex elaborations of the scheme, if thoughtfully designed and implemented.

We propose a form of remote kiosk voting that uses an early voting model for ballot casting, and a central-count method for counting early-voter ballots. The simple linchpin of this scheme is a relatively low-cost and off-the-shelf-available device that serves as a *digital poll book* and ballot-on-demand device. Until recently, such devices have been impractical due to the difficulty of consolidating poll book data and blank ballot data from many jurisdictions across many States, and in making the data (*and tools to use them*) easily available to large numbers of remote early-voting sites. However, we have seen substantial advances in election data management and distribution, most notably from the *Pew/Google VIP Project*, and from FVAP's efforts in make available to states a state-managed system for delivering blank ballots to UOCAVA voters. These efforts have created real worked examples of multi-state data standardization, distribution, and use.

Consider the data management requirements for a state's FVAP solution. The state must consolidate information from each jurisdiction, describing each UOCAVA voter by name and address (*to identify the voter*), by precinct and party (*to specify which ballot the voter should receive*). This data is essentially the poll book information. Likewise, the state must consolidate digital versions of each ballot from each jurisdiction. This consolidated information drives the FVAP solution's voter-facing Web application. A voter identifies by name and address, and receives absentee ballot materials including an attestation document, and a digital blank ballot for the ballot style specific to the voter's precinct and party.

Note that exactly the same data are sufficient to drive an e-poll-book and ballot-on-demand device, in a kiosk setting. The voter checks in by name and address with a poll worker, who records the check-in on the device, which then prints the appropriate paper blank ballot for the voter to mark. Using the same data as in an FVAP solution, such a device would serve all UOCAVA voters in a particular state. However, for feasible operations of a remote kiosk, the device would need poll-book data and ballots from multiple States, which means that States would have to present the ballots in a common data format (PDF) and poll-book data a common data format. The VIP project has already demonstrated the ability of multiple states to present voter-record data in a common data format.

Therefore, we believe that the time is ripe to test the technical and operational feasibility of remote kiosk voting, leveraging the efforts of FVAP solution deployments, and using relatively inexpensive tablet devices with robust platforms for tablet applications. Our technical proof-of-concept efforts are based on the Apple® iPad™ as a tablet device as a platform for open source software for poll book and ballot-on-demand operations.

Before considering data management in more detail, let us consider the assurance properties of such a kiosk based approach:

- **Eligibility enforcement** – comparable to local in-person voting, using the same data and procedures. However, for completely comparable enforcement, pollbook voter records must transported back to local election jurisdictions, just as with early voter center records being used to ensure that an early voter does not vote again on election day.

- **Supervised voting** – Comparable to local in-person voting, but depends on remote voting operations being conducted with similar privacy procedures.

- **Non-attributable ballots** – Comparable to local in-person voting, but depends on remote voting operations being conducted with similar privacy procedures. Also depends on logistics of ballot transport back to local jurisdictions; if local election officials know that a batch of ballots came from a particular

overseas voting location, and the batch contained only one marked ballot of a given ballot style, then local election officials could infer the identity of that ballot's voter.

- **Trusted transport** – Can be comparable to local in-person voting, but depends on the logistics of transporting marked ballots back to local jurisdictions.

- **Timeliness and availability** – Similar to local early voting. Given the 45-day mandate of MOVE Act, and the ability to rapidly distribute poll-book and ballot data, early voting operations could conducted for many days, while still leaving time for marked ballots to be transported to their destinations.

In addition to greater assurance that remote VBM, remote kiosk early voting may also positively impact enfranchisement. In the past, many UOCAVA VBM ballots have been subject to risks of rejection for administrative or timeliness issues that are inherent to VBM, but these risks can be removed by shifting to the early voting model.

As these assurance properties show, much of the assurance of remote kiosk voting depends on the logistics of transportation of poll-book data, and custody and transportation of marked ballots. These assurance issues include both technical issues, and practical issues of using the existing organization and infrastructure of U.S. embassies and consulates, and military installations with Voting Assistance Officers and unit administrative officers to manage the computing and logistical aspects of operating a remote kiosk voting operations in a controlled environment for voting and for transfer of ballot-box contents to a specific trustworthy physical transportation service.

3. Early Voting Data Management

Of course, use of an e-poll-book/BOD device addresses only the human side of remote kiosk voting procedures, for poll workers and voters. There is also a set of distributed data management tasks that is required, as well as physical transport of marked ballots.

The following list itemizes some of these tasks and some possibilities for how they could be performed. The possible approaches listed are by no means exhaustive, but illustrate the scope of planning required for a complete method that has relatively low operational complexity for the people charged with operating remote early voting kiosks.

- **State-level data consolidation** – State elections organizations can consolidate local jurisdictions' poll-book data and ballot data, in the same manner as performed for support of a state level FVAP solution.

- **Multi-state data consolidation** – Each remote voting kiosk operator could obtain data from each of several participating states, but a clearing-house could help operators deal with scale and authentication. For example, for operators associated with embassies or consulates abroad, the State Department could undertake to obtain an authentic copy of each state's e-poll-book data, and to provide a single authenticated distribution to such operators of the consolidated data.

- **Device configuration** – The operator of each e-poll-book device must use an administrative interface to configure the device with poll-book information from one or more states. One approach would be for the operator to be trusted to obtain configuration from a trustworthy source (*e.g., download from an authenticated clearinghouse Web site*) and to provision the device locally.

- **Voted ballot security and transport** – Each remote voting kiosk operation must have a means of for voters to deposit marked ballots into an appropriate container, for the container to be stored with appropriate physical controls, and for the ballots to be physically transported from the kiosk locale to their destinations. The physical ballot-return logistics are perhaps the most detailed part of this approach to remote voting. One approach relies on a clearinghouse operation. Voters can be provided with an envelope in which to place voted ballots, and specifying the BOE or other local election jurisdiction to which the ballot is to be sent. The clearinghouse can be a point of reception for ballots, sorting them, and forwarding them to their destination. One advantage of this approach is that it is only the clearinghouse(s) that needs to authenticate the senders (operators of remote early voting kiosks), and only the clearinghouse(s) that need to be able to authenticate to recipients (local election offices).

- **Device poll-book data export** – At the end of an early voting period, the poll-book records indicate which voters have voted. To complete the early voting process, these updated poll-book records must be sent back to the BOEs from which they came, in order to record which voters have early-voted and hence are not eligible for other forms of voting. One simple method of doing so is for kiosk operators to print the updated records, in per-jurisdiction reports, and send those reports back to the BOEs via the same physical transport used to return marked ballots. Another method is electronic return, which would require authentication of data transmissions from kiosk operators -- another operational feature where clearinghouses can help with scalability. The choice of method(s) likely would be made in part on desirability of timely return.

As the above indicate, scalability of data distribution and return (*including scalability of authentication*) is the main challenge, *not* technology infrastructure. With full adoption, there could be thousands of participating BOEs, each receiving ballots and poll-book data from each of hundreds of remote early voting operations. However, rather than addressing scalability for a full scale, we believe that much can be learned first from pilots and then (*if justified by pilots*) incremental adoption. Initially, each of a few participating states' state-level election authorities could undertake the state-level consolidation described above, and act as a clearinghouse for physical ballot return and physical poll-book data return – the latter much in the same way that state election authorities centrally receive and redistribute voter registration requests. Each kiosk operators would have to manage communication with each of a handful of states. Each state would define its own methods for communicating with kiosk operators, initially. With learning from pilots and information sharing between states, it may be that the actual requirements for clearinghouse operations could emerge from practical usage.

4. Three Groups of UOCAVA Voters

We believe that the remote early voting model provides overseas and military voters with a voting method that much more closely approaches the accuracy, transparency, and trust of in-person voting. However, it is very unlikely that every UOCAVA voter will be able to from this approach; some voters will still require the use of remote VBM. The ultimate impact of the kiosk approach, in terms of the proportion of UOCAVA voters who benefit from it, can only be measured over time if incremental adoption makes remote early voting available to more UOCAVA voters. However, the potential impact can be framed by dividing UOCAVA voters into 3 distinct groups: (1) those with timely access to an overseas early voting site; (2) those without such access, but with timely access to both digital distribution of blank remote VBM materials, and express-delivery return of completed VBM materials; (3) those without timely access to either.

Service to remote voters in the third group is the most difficult in terms of reliability, and the most contentious in terms of methods. Our hope is that exploration of remote early voting can help to clarify not only the proportion of UOCAVA voters in each group, but also the highest-assurance remote voting method possible for each voter: remote early voting for those can access it; physical express-return VBM for others; for the fewest possible number, a choice between physical and digital return methods with tradeoffs in risks of timeliness, reliability, and integrity. In the latter case, the choice (*including the choice to let the voter choose*) would be made at either the state or local level, in accordance with state election law, regulations, and practices.

5. Summary

We assert that the greatest potential improvement in UOCAVA voting can be made by exploration of a method of remote early voting using kiosks based on an e-poll-book/BOD device. The core technology for the device is largely in place -- hardware, application platform, application software, data standards, and existing practice of state-level consolidation of the needed poll-book data and ballots — the latter being the result of efforts by VIP and FVAP. The core technology can enable practical work in addressing the logistical requirements for a complete early voting process, and — *eventually if adoption progresses* — approaches to scaling the logistical operations. In the early stages, many of the logistics and State-level scalability management could be performed by those states that already do the data consolidation as well as act as a clearinghouse for registration document delivery to localities. We believe that near-term technology development work can set the stage for practical exploration of the use of kiosk-based remote early voting.