



08. February, 2009

**The Honorable Debra Bowen
California Secretary of State**

Offices of the Secretary of State
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Re: Invited Testimony for Public Hearing

The Future of Voting in California: the People, the Equipment, the Costs

Greetings Madam Secretary Bowen:

The Open Source Digital Voting Foundation (OSDV), a non-profit public benefits corporation developing open source voting technology and representing the general public and stakeholders comprised of States' elections directors and other voting systems experts across the nation, is pleased to offer our testimony and comments in writing, as attached.

We applaud the Secretary's effort and commitment to considering the important issues of voting technology reform, advancement, and innovation.

This testimony not only provides a detailed overview of our projects and work; it presents our recent accomplishments, milestones, progress, and the potential application of our work to the needs of California elections jurisdictions. For instance, our technology currently provides a ready-to-roll solution for the digital delivery of blank ballots pursuant to the mandates of the federal MOVE act.

We ask that you carefully consider the opportunity to build in open source principles and practices to your strategic elections technology plan as it continues to evolve. We also ask that you consider conducting a separate hearing on the open source technology, principles, practices, and application to elections and voting technology for the State of California. We believe a half-day hearing/seminar would allow a full consideration, discussion, and treatment of the subject, as we anticipate that allocating 15-20 minutes of the Hearing on Monday the 8th will too greatly compress the subject matter into sound bites that prevent an intellectually honest examination of the challenges and opportunities of open source technology in government IT in general and elections system in particular.

Respectfully Submitted,

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**Before the
SECRETARY OF STATE, STATE OF CALIFORNIA
Sacramento, CA**

In the Matter of)
)
The Future of Voting in California) Public Informational Hearing
)
The People, the Equipment, The Costs) 08.February, 2010, 10:00 a.m.

PUBLIC TESTIMONY OF RECORD

THE OPEN SOURCE DIGITAL VOTING FOUNDATION AND TRUSTTHEVOTE PROJECT

In this testimony and comments to the CA Secretary of State, the Open Source Digital Voting Foundation¹ (“OSDV”) and the TrustTheVote™ Project² encourage the Secretary to carefully consider the work of the OSDV Foundation and TrustTheVote (“TTV”) Project as a sound example of the potential to create publicly owned open source elections and voting technology. Open source software technology can have a pivotal role in increasing citizen participation in the processes of democracy, by improving accuracy, transparency, trust and security in all processes related to the casting and counting of ballots and the administration of elections. The balance of this testimony provides background on our purpose, work, and status. And it offers comment and insight to the potential business model of

¹ The OSDV Foundation is a California-based non-profit public benefits corporation committed to making voting technology a publicly owned infrastructure asset that is open source to achieve accuracy, transparency, trustworthiness, and security in public elections. Private philanthropists including the Mitchell Kapor Foundation and other Grantor Organizations back the OSDV Foundation. See: <http://www.osdv.org>

² The TrustTheVote Project is the flagship effort of the OSDV Foundation, actually designing and developing open source voting technology driven by the requirements and specifications of its stakeholder community, a volunteer group comprised of States’ elections directors, experts, and officials across the nation. The Project is led by some of the most experienced technical architects in the California Silicon Valley, Boston’s famous Route 128, and the Pacific Northwest’s Silicon Forest with key contributors formerly or currently with companies such as Netscape Communications, Lotus Development Corporation, Mozilla Foundation, Apple, Network Associates, Oracle, and others. See <http://www.trustthevote.org>

elections and voting systems built and deployed on open source software technology.

Background

The OSDV Foundation was conceived in a conference room of a Venture Capital Firm over three years ago to assemble a world-class team of technologists to address a perplexing problem of trustworthy voting machinery. A goal was established to build elections and voting systems that could be accurate, transparent, trustworthy, and secure, in a manner that could avoid the pitfalls of the voting systems industry. At the time we suspected, and the past three years have validated our suspicions, that the voting systems market is highly dysfunctional. However, we believe it has the potential to be re-invented in a manner that allows the business of voting systems to flourish, while delivering on the four goals of accuracy, transparency, trust, and security. Two of us felt so deeply about this that we left the comfort and security of our jobs in the Tech Sector and venture capital community to pursue a project that could deliver a real solution. Today, we're a team of eight, with dozens of advisers and volunteers. We had three problems to solve before we could say that what we envisioned had any hope of reality.

1. **Methodology.** We needed to establish whether it was possible to combine the structured discipline of high assurance engineering with the unstructured, sometimes chaotic approach to open source development. We did: we've developed a Core Team approach that ensures the required operational continuity of the effort. Further, we realized that there are 2 aspects of Open Source philosophy – development and deployment, and our strategy emphasizes the deployment aspects of open source software.
2. **Requirements.** We also needed to ensure that whatever we developed would amount to technology that elections jurisdictions could actually adopt, adapt, and deploy. We didn't want to end up with a Smithsonian relic, so we realized that although the entire population of U.S. citizens are the intended beneficiaries, the real stakeholders are you, the elections administrators, managers, officials, and technicians who are charged with delivering accurate and fair public

elections, wherein there is certainty that all ballots are counted as cast. We did this by creating a Stakeholder Community comprised of domain experts like you, to drive requirements and specifications and ensure we can achieve certification.

3. **Non-profit Funding.** Finally, we needed to be certain that if we could deliver on the first two challenges, then this Project could be properly funded in a sustainable manner to deliver the results. We've done this too.

So, what exactly are we trying to achieve? The past three years of traveling the country, attending countless meetings, speaking with elections officials, volunteering at polling places, observing elections processes, recruiting advisers, meeting activist organizations, and immersing ourselves in the world of elections has taught us an enormous amount, and yet we think we've just danced on the tip of the iceberg. But there is one very clear mandate that has emerged in this work, and it has become our charter.

The OSDV Foundation Charter

Our charter is *to restore trust in how America votes by fostering the design and development of open source elections and voting systems technology, as publicly owned critical democracy infrastructure that is accurate, transparent, trustworthy, and secure.*

In other words, the blueprints and specifications of the technology on which elections and voting processes must rely, should be a *national asset*; something *too critical* to our democratic processes to be privatized and maintained as a black box proprietary trade secret. This technology should be *publicly owned*; developed and maintained in a transparent manner. But equally important is our belief that there needs to be a flourishing industry for voting systems implementation, service, and support.

We believe the heavy lifting of the R&D to develop such trustworthy systems must be taken off the shoulders of the private sector. The evidence is compelling that today's business models cannot sustain the kind of innovation, research, and development required to build the kinds of machine we need for elections in the 21st century. However, we can catalyze their re-making themselves

into a viable, profitable, necessary business – a business based on their real domain expertise and competency, which is the systems integration, deployment, and technical support aspects of voting systems. In other words, with the technology already developed, these vendors, both legacy and new entrants, can focus on how they package, deploy, and support finished voting systems.

Vision

And that’s principally our vision. The Foundation is supporting projects that result in publicly available elections systems technology framework, addressing the entire ballot ecosystem from voter registration through election certification and audit. The framework is being designed using the latest software architectural principles to ensure easy extension and modification for any election jurisdiction to adopt, adapt, and deploy. These are the same principles that have delivered products from companies like Apple and services from Google.

The flagship effort of the OSDV Foundation is the **TrustTheVote™ Project**, a technology research and development effort sustained by full time senior technical staff, and contributed to by volunteer and paid developers, with the support of advisors in elections and voting technology policy and process. And essential to the work, and different from any other open source effort, the TrustTheVote (“TTV”) Project driven by a Stakeholder Community comprised of elections jurisdictions officials from all over the nation, who direct the requirements and specifications under which the Core Development Team design and develop the technology.

The Status of the TrustTheVote Project

I am pleased to report to you today that the state of the TrustTheVote Project is viable, sustainable, adoptable, and deployable.

Viable

The Foundation receives generous support from Silicon Valley Philanthropists as well as pursues development grants from elections jurisdictions and other non-government organizations, and also receives public support through individual donations. But what really makes this viable is a growing network of

collaborators. The Stakeholder Community who stands to directly benefit from the results of the TrustTheVote Project's is driving the requirements and specifications. Add into this a growing list of technology corporate supporters who are working with us in various R&D capacities or currently considering supporting our work. And these are not vendors who have any intention of ever delving into that market, but who, like us, believe there is tremendous opportunity and goodwill in bringing real innovation to what we consider "*critical democracy infrastructure.*" This includes companies like Sun Microsystems, Oracle, Red Hat, and HP Labs to name a few. With this kind of momentum and traction the TrustTheVote Project is a very viable alternative in the future of America's elections and voting technology infrastructure.

Sustainable

The TrustTheVote Project is charged by its backers and the Foundation's Board to deliver open source elections technology. However, it is not an on-going enterprise, *it is not a vendor*, and it has *absolutely no commercial interests or intent*. It is a multi-year project with a life cycle. Once complete, this technology will be maintained in a repository with a license server to enable any systems integrator or elections jurisdiction itself to download the source tree and deploy on approved hardware. We say more about this in a moment. The repository will require a minimal maintenance effort by a very small custodial team, to manage on-going certification support, while coordinating contributions of extensions and localizations that will result from deployment and use of voting systems based on this open source technology. And that technology base will remain open and supported indefinitely, long after the dissolution of the Core Team of people involved on the initial development. A large part of the ongoing value and sustainability of the technology base stems directly from its openness – the ability of a wide range of commercial enterprises to deliver IT system integration, deployment, services, and support to those elections organizations that wish to use their assistance in deploying open-source-based voting and election management systems based on the OSDV Foundation repository. All of this is built from the requirements and specifications contributed by the intended beneficiary elections

jurisdictions. This is technology by the people, for the people. That's a digital democracy at work. And that's why what we're doing is sustainable.

Adoptable

One of our foremost goals in starting this project was to produce technology that actually could be embraced for real applications in American elections. We believe we've addressed adoptability by way of our Stakeholder Community. It is under their advice, comment, direction, and scrutiny that all development work takes place. This growing community is driving our design and development work. And that's very different from most open source projects. But what it provides is tacit approval of the resulting work product because these same jurisdictions that are engaged in creating what they ideally require to run accessible and accurate elections. This is not yet another blue ribbon customer advisory panel whose role is really for endorsement and PR purposes. This group is materially engaged in what they can one day freely adopt.

Deployable

Finally, and returning to mention we made a moment ago about hardware, we have no delusions of the challenges to producing publicly owned technology intended to be used in public elections. We want to be clear that an important objective of our work embraces, and does not dismiss, the challenge and requirement to successfully achieve federal and states' certification of our technology. We appreciate the investment required to do so and are prepared to make such. We understand the challenges and have a two-pronged approach. First, we're starting to work with NIST to explore how to bring testing and certification methods into the 21st century, shifting away from the monolithic voting systems model to a componentized, unit-level testing model. We understand this will not happen overnight, but we believe that technology will provide an excellent vehicle to advance this cause, and we know we cannot rely on any radical shift in those regulatory processes, so we have a second prong to our approach. We will identify and integrate our software technology to a reference hardware base to provide a "monolithic system" for purposes of achieving federal certification until such time as that testing model evolves. Our vision is for a reference list of "*qualified*" commodity

hardware on which the open source software voting technology framework will run. So what we're working on will be deployable.

Specific Milestones, Accomplishments, and Status

How are we doing? Development of the elections and voting systems framework proceeded on pace last year with a number of achievements. Reviewing the past 6 months, the momentum of our work is increasing, and the Project has delivered achievements, at an increasing rate. Here are our top dozen:

1. **Voter Registration Modernization.** The phrase "*voter registration modernization*" covers broad range of topics. While we acknowledge that modernization to many is focused on whether citizens should have an opt-in or opt-out system, our work addresses the reality that regardless of how and when such modernization at a legislative level takes place, there will be an on-going need to maintain registration databases and to serve individuals with the means to re-register, or modify their registration status. We advanced the cause of registration efficiencies – a clear *form* of "modernization" – this past year with new digital means and processes to dramatically reduce the cycle-time for processing, and dramatically improve the accuracy and reduce the errors and omissions problems. We deployed this new voter registration assistance system with Rock The Vote, and so far has prepared accurate voter registration forms for tens of thousands of voters since launch last September.
2. **Developing a Common Election Data Layer.** As suggested in our framework overview diagram (*attached as a separate exhibit*), an open standards common data layer is required to deliver a framework that provides the kind of transparency, accountability loops, extensibility and interoperability our Stakeholders are requesting. We delivered a *draft common data format* for the exchange of voter record data between digital 3rd party registrars and State voter records systems, and deployed the format in the Rock The Voter registration service.

3. **Fostering Data Layer Standards.** We delivered an invited presentation on our Common Data Formats model at a NIST Workshop in October to foster the discussion of setting data election and voting data standards.
4. **Deploying the Common Data Layer.** We launched collaboration with two States IT staff to implement the common data format for data exchange between the Rock The Vote system and State registration databases. In the cases of WA and VA, our work has resulted in defining requirements for voter record data exchange to support for both overseas voter records and for voter record reconciliation services (*so that alternate databases – such as DMV, DoJ, and DHS, can be looked to for voter verification data*).
5. **Developing the Elections Manager Component.** We developed the election definition module of our Election Manager, in parallel with a draft definition of the election management data schema published in a White Paper that our Stakeholders are reviewing.
6. **Prototyping the Ballot Design Studio.** We developed prototype ballot image generation module of our forthcoming Ballot Design Studio, generating complete ballot images for a typical state ballot format, integrating AIGA best design practices guidelines where applicable as per the requirements of our Stakeholder Community.
7. **Developing the Ballot Counting Device.** We developed the alpha version of the ballot digital image-processing module of our ballot counting component.
8. **Developing the Tabulator Device.** We developed a complete prototype of the tabulator component of our Framework, with a Web-accessible test bed.
9. **Developing a Voter Data Interchange Layer.** We developed data layer elements for data exchange between the election manager, ballot scanner, and tabulator of our Framework
10. **Innovating an OS Licensing Scheme.** We began collaboration with our outside licensing counsel to define a new breed of open source license particularly for Government adoption, adaptation, and deployment of the TrustTheVote Project election technology Framework.

11. Defining a MOVE Act Implementation Roadmap. After assessing the amount of development completed or underway in the TTV Project we realized we have all of the components to provide a MOVE Act compliant solution today for the delivery of blank ballots to overseas voters. We published a MOVE Act Implementation Roadmap White Paper for our Stakeholder Community. Their review and comment helped us shift focus to preparing a specific MOVE Act solution for any elections jurisdiction.

12. Delivering MOVE Act Implementation Tools. The foregoing works led to us publish a Call For Participation document to deliver, on a state-by-state specific level, the wherewithal for digital distribution of blank ballots to overseas voters. That CFP went out this weekend and we're already receiving inquiries as of this morning.

Stakeholder Community Growth

All of this work could not have happened without the advice, comment, and contributions of our Stakeholder Community. As of today, that Community includes 200 individuals, representing the interests of over a dozen States. With an increasing outreach campaign, we anticipate more than 28 states will be represented in the Stakeholder Community by the end of this year.

Potential Application to California

First, consider our MOVE Act Implementation. So far, two elections jurisdictions have indicated sincere interest in participating, and 3 more States are in touch with us as of this writing (08.February.2010). We believe the CFP is timely for the State of California, and we're inquiring with your office now, Madam Secretary, on their recommendations of which counties we should specifically invite, or whether the State as a whole wants to collaborate. A copy of the CFP is available on our Project Wiki as of this writing.

Second, we believe a prime opportunity for our technology to have the kind of public benefit desired lies *eventually* in Los Angeles County. And we hope our work will be considered once L.A. County's leadership has developed a strategic plan and high-level design. The point of our project is to serve as a *world-class*

technology development resource, non-profit in nature and for the public benefit. To that extent, its important to note that few jurisdictions can afford to “roll their own team” with the caliber of talent and capability the TTV Project has to build their own next generation voting system. And that is precisely why we created this non-profit foundation.

We recognize that such a decision for L.A. County is some time off and many other determinations must be made well before that. Meanwhile, we appreciate having been invited to participate in their VSAP process. So, regardless of whether our deliverables are of long term interest or use to L.A. County Elections IT team, we hope the work that we’re undertaking now will provide valuable input to the VSAP process.

In closing, our technology – *real stuff that people can see, touch, and try and deliverables that can be adopted, adapted, and deployed* – will be available to any elections jurisdiction in California that is interested. And in light of the MOVE Act mandates, we have technology we can literally *deliver today, at no charge from that standpoint of the actual software itself*. Importantly, we understand *one size does not fit all*; we’re building a framework that can be easily extended or modified to support an individual jurisdiction’s requirements.

Business and Market Considerations of Open Source Technology

If it may please the Secretary and readers, we wish to turn attention to four business transformation matters with regard to open source in government IT in general, and elections systems in particular. These matters are:

1. Re-inventing the voting systems industry to be more viable, more competitive, and better able to serve its customers;
2. The sustainability quotient of open source technology;
3. Emerging business models in the deployment of open source technology; and
4. The challenges and opportunities of Certification

Open Source Technology as an Enabler of Market Transformation

The development of open source election technology promises to be an enabler of market transformation for the currently limited market of voting

systems and other election technology. Far from harming the market, open source technology opens the market to new players who can provide more competition and more choice to the customers of election technology and technology services – U.S. election officials.

Today, the election technology services market is effectively closed to broad range of government IT service providers. In order to provide voting systems services and support to the U.S. market, a company must first pay the up-front cost and ongoing costs of developing, certifying, and delivering a proprietary voting system product to customers, along with the services and support contracts that go along with the products. Moreover, the lack of common data standards inhibits if not prevents interoperability, which in turn, artificially raises prices due to required single vendor lock in.

If an open source technology base for voting systems existed, then that broad range of IT service providers would be able to compete for government contracts for voting system integration, deployment, services, and support – without having the weight of a proprietary voting system product. Open sourcing combined with agreed-to common data standards would then be an *enabler* for market transformation, in which election officials would have more choices for election technology and services providers.

We believe that some election officials will, in fact, begin that market transformation in the next phase of technology adoption, in order to change the status quo of today's captive market where there is limited competition, few options, very limited customer power, and often very one-sided contracting terms³.

³ The "one-sided" notion is based on the research work of Joseph Lorezno Hall at the University of California Berkeley's Samuelson Law, Technology and Public Policy Clinic in the School of Information, published in a paper entitled, *Contractual Barriers to Transparency in Electronic Voting*, and based upon work supported by the National Science Foundation under A Center for Correct, Usable, Reliable, Auditable and Transparent Elections (ACCURATE), Grant Number CNS-0524745. **Disclosure:** Mr. Hall is an Adviser to the OSDV Foundation on matters of technology policy and law related to elections and voting systems.

In short, more players, more competition, more options, more bargaining power for voting systems customers, more ability lower customer costs – these are the prospective effects of a transformed market that can be enabled by open source digital voting technology used by election officials and their choice of a broader array of providers of IT services.

There is already some empirical evidence of this forecast: the market is experiencing the beginning of the *de-coupling* of products and services from the proprietary vendor with product and services lock-in model, outside of the part of election technology that requires the expensive and lengthy process of product certification. For instance, both boutique vendors and election officials themselves, are already developing separate components of election technology that previously were tightly integrated in monolithic certified systems: electronic poll books, election data management tools, and ballot preparation tools. We've seen election officials use only part of a vendor's offerings, declining to pay large software license fees for election management software, and opting to provide their own solutions with in-house technology, out-sourced services, and outsource contract software development.

The movement is already growing to restructure the prior business model of packaging large monolithic voting systems into a set of distinct components that can be acquired separately and integrated, with the choice of which offerings of particular component best need local needs and budgets. Development of open source election technology can only accelerate this movement, by providing more options for these components, by creating an open based for the enhancement and development of these components, and by creating open data standards for the interoperability of these components. And we are convinced, from our deep experience in technology architecture, development and open sourcing, that open source principles and practices will only accelerate this much needed transformation with a great public benefit. We encourage you, Madam Secretary, to take steps to further investigate the potential of open sourcing as a component of a Five-Year Strategic Elections Technology Plan for the State of California.

Open Source Technology Maintenance & Sustainability

The development of open source election technology can expand the current election technology base, and improve its robustness by alleviating sustainability risks of the current purely for-profit proprietary voting systems market. The current voting systems industry is a market with poor conditions, making it very difficult for new entrants let alone viable for incumbents of proprietary systems to foster a flourishing business. As much as a quarter – *and very likely more* – of the U.S. voting systems customers are at risk for holding end-of-life products (*i.e., where parts and service will disappear*), and/or having their vendor exit the business.

One complementary alternative is the option of publicly owned election technology, with less sustainability risks. For open source election technology, a development phase can be followed by a maintenance phase with a completely different model for sustainability. To be sure, there are real and not insignificant costs of the development phase, including the support of an adequately sized group performing the core technology development. But once the open source election technology components are developed, certified, and available for deployment, the organizational requirements dramatically lower. What is then required is a maintenance organization, a skeleton crew to support on-going tasks of ensuring the availability of the technology, and maintenance or modest enhancement services. This is certainly the model for our work at the OSDV Foundation.

The TrustTheVote Project is in fact, a non-profit project, *not* an ongoing enterprise. There is technology development work to perform, but it has specific goals and outcomes, and will come to an end, or rather a hand-off to another Project of far more modest scope – a (*nearly*) automated technology repository and distribution service (*including licensing, download, bug reporting, etc.*). To be sure, the election technology need not be fixed or static, but it will require a custodian, especially to manage on-going certification support, while coordinating

contributions of extensions and localizations that will result from deployment and use of voting systems based on the open source technology base. And that technology base will remain open and supported indefinitely, long after the dissolution of the group of people involved on the initial development. A large part of the ongoing value of the technology base stems directly from its openness – the ability of a wide range of commercial enterprises to deliver IT system integration, deployment, services, and support to those elections organizations that wish to use their assistance in deploying open-source-based voting systems or election management systems.

Let's compare. The requirements for sustaining such a custodial organization are in marked contrast to those of a for-profit commercial vendor of proprietary systems. These companies must employ technologists to expand the scope of products, extend features for competitive advantage, employ sales and marketing staff to help the company compete for the new business using their hoped-for competitive advantage, etc. And all these activities must be conducted with the requirement to turn a profit and deliver increased values to shareholders. And if, as we have recently seen, this enterprise fails, the proprietary technology remnant is largely useless because it was supported by only one organization, with the corporate knowledge required for support remaining primarily in the minds of a dispersed set of ex-employees.

Elections Jurisdictions Business Models for Open Source

In some U.S. election jurisdictions, the board of elections (*or similar body; "BoE"*) is considering a possible shift from the use of proprietary voting system products to voting system technology that is non-proprietary, open-source, and freely available for public use. Such a shift raises questions about a BoE "business model" for acquiring voting systems and procuring services and support. There is a range of such models, based on two primary characteristics: [1] the degree to which the voting system is composed of commodity off-the-shelf (COTS) components, and [2] the extent to which the BoE bears the primary responsibility for servicing and supporting its voting system components.

1. Self-Vending COTS Model

At one end of the spectrum is a “Self-vending” COTS Model. In this model, the BoE acquires COTS hardware components (*e.g., commodity PCs, printers, scanners, etc.*) and integrates them with the open-source software that implements the functions of the various components of a voting system. The integration is performed by BoE employees, possibly supplemented by contractors, or by an integration services company retained to perform the project of installing and testing the voting system software on the COTS hardware. The BoE's IT staff are responsible for on-going support of the voting systems, including periodic supplement with contractors during the preparation phase of an election cycle.

2. Self-Vending COTS-Plus Model

A second model is a variant of the first, in which not all voting system components are COTS. Instead, some components of a voting system are vertically integrated devices. For example, consider the voting system component that is a polling place device for casting and counting paper ballots, using optical scanning and digital image processing technology. Such a system can be composed of COTS PC hardware and commodity scanner and display products, but this may not be suitable for some jurisdictions. In such cases, the BoE would prefer to use a vertically integrated device in which these commodity components have been integrated into a single chassis, designed for ease of transport and setup, including a simple but secure physical connection to a ballot strong-box. Such a BoE could engage with a custom device manufacturer to produce the required ballot-scanning device. Consultants could supplement BoE expertise with experience in translating operational requirements into manufacturing specifications. In this model, however, some election technology remains COTS-based. For example, in addition to acquiring an open-source a voting system, a BoE would acquire open source election software for related functions, such as data management of election process data (*contests, candidates, districts, precincts, etc.*), and software tools for the design of printed ballots and e-ballots. These software components typically run in a BoE IT environment on commodity PC systems, and need not be vertically integrated. The same may be true of central office ballot scanning and counting systems.

3. Self-Vending COTS-Outsourced Model

A third model is a variant in which the voting system is COTS, but the county outsources to an IT integration, services, and support company. The services company would perform the hardware/software integration and testing, be responsible for technical support, and provide other services such as deployment and training. Because the hardware is COTS and the software is open-source, there can be a competitive environment for the procurement of these services, and a BoE can be unconstrained in terms of periodic re-bid of support contracts.

4. Self-Vending COTS-Integrated Model

A fourth model is like COTS-Outsourced, but with vertically integrated systems. The IT integration, services, and support company bears the responsibility for working with the custom device manufacturer and delivering the vertically integrated devices to the BoE. Similarly, the IT services company provides on-going support as in the third model. As a result, the IT services company appears at first to be a de-facto voting systems vendor, delivering custom systems, services, and support. However, after the initial delivery of the vertically integrated systems, support contracts can be re-bid with competition for ongoing support of both the already delivered vertically integrated systems, and the COTS-based components.

All four of these models share some common features and benefits. Hardware, software, services (*and optionally manufacturing: such as packaging, some final assembly and systems integration*) can be provided as separate components, with the BoE being in control of the costs of hardware and software (*and optionally manufacturing as noted above*), including direct acquisition separate from services⁴. The services components can be provided on a pure fee-for-services basis, with direct competition on rates, bundled services pricing, and discounting.

⁴ Note that acquiring the open source software will typically require accepting a license with terms and conditions on the use, modification, and redistribution of the software, and a means to digitally acquire the source and where applicable, the executable code. In some cases the BoE will directly acquire the software source through its IT organization; in other cases, some or all of it may already be in place where provided by a 3rd party services company or commercial voting systems manufacturer.

Certification Considerations in Self-Vending Models

One potentially non-uniform feature is *certification*. Currently, Federal and state voting systems certification regimes are designed for proprietary voting systems products, and place requirements on those products' vendors. These certification programs require the vendors participate in a testing program, to contract with accredited test labs, and bear certain costs of the testing and certification process. In the four variant self-vending models described above, there is no “vendor” per se. The hardware can be acquired from various sources; a variety of open source software packages can be used for various components: operating system, voting system software for various components, and a variety of support software that the voting system software depends on; and for hardware integration, device-specific software may come from yet other sources.

The OSDV Foundation is actively exploring next generation certification models that would enable this new breed of voting systems “vending” or acquisition. For its part the Foundation intends to seek certification of its software framework, integrated on to a reference hardware suite in order to qualify under current testing and certification processes. Going forward, the Foundation will work to foster a new paradigm that includes, but is not limited to, [1] a qualified hardware list, wherein hardware components are separately certified as being capable of providing the mechanisms required for the information processing capabilities of voting systems, and [2] a separate testing methodology that supports “unit-level” testing, allowing components to be examined individually for the application-specific purpose.

In the first purely self-vending COTS model discussed above, the BoE could be viewed in some sense as a “vendor” (*to its own jurisdiction*), or at least a systems integrator, however, there is no product per se, and no customer—vendor relationship. In the other 3 models, the “vendor” role is even more diffused among multiple parties. Therefore, we believe on the legal and regulatory fronts (*State and Federal*) it is an open issue (*or opportunity*), to define the conditions under which a self-vending BoE can legally (*for certification purposes*) use voting systems, which do

not have a single vendor, and wherein the software technology is “open source.” However, as we advance toward an environment where accuracy, trust, and security are achieved through the transparency of open source, and the systems evolve as a componentized, application-specific or purpose-built devices, we strongly encourage government leaders, legislatures, and regulators to earnestly begin discussing, exploring, understanding, and designing regulatory infrastructure that embraces this 21st century evolution of digital technology.

CONCLUSION

The OSDV Foundation and TrustTheVote Project are pleased to have an opportunity to provide testimony and comment on an increasingly vital aspect of the future of voting in California, particularly with regard to elections technology: *fostering publicly owned open source elections and voting systems technology*, treated as “critical democracy infrastructure.” We encourage the Secretary to carefully consider the potential of open source technology in elections and voting systems for the State of California. The OSDV Foundation’s TrustTheVote Project is a viable, sustainable, adoptable, and deployable example of such technology. The Project has technology that can be directly deployed to meet the mandates of the MOVE Act for the digital delivery of blank ballots for any California state county interested. And the elections systems technology framework under development should be carefully considered as L.A. County envisions its next generation system and considers how to actually design, develop, and deploy such a solution.

At the pleasure of the Secretary, OSDV Foundation technology experts and technology policy specialists in the domain of elections and voting technology reform are available to provide further information, insight, and testimony.

Respectfully submitted,

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