Reinventing How America Votes Through Open Source Solutions

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Visionaries on the Front Lines of Electoral Reform & Democratic Process
America has a problem.


It's not overstating the case to suggest the integrity of our democracy is at risk.

<table>
<thead>
<tr>
<th>Year</th>
<th>State</th>
<th>Action</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Ohio</td>
<td>RECOUNT</td>
<td>Alleged malfunctioning voting machines cast election into doubt.</td>
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<tr>
<td>2008</td>
<td>Minnesota</td>
<td>RECOUNT</td>
<td>Eight-month legal battle over ballot counting Required to determine Senate race in tight election.</td>
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</table>
In 2002, the Help America Vote Act became law.
This gave states funding to install computerized voting devices.
It was supposed to make things better.

It hasn’t.
Because for-profit companies put shareholder interests over the public interest, we get mediocre, proprietary technology.

We’re seeing more, not fewer problems in the voting booth.
Lost votes. Difficult to recount. Security concerns.

PRESENTER NOTES:
The problem is a dysfunctional malformed market for voting systems.
Essentially, two vendors now control 88% of the nation's voting infrastructure, built on rickety, aging, antique, if not soon to be obsolete black-box proprietary technology.
When shareholder interests run into the public interest that train wreck nearly always favors the shareholder.
But the public interest is enormous -- its the foundation of our democracy!
Trouble is there is no incentive, perhaps perversely a disincentive to innovate
Results are jurisdictions are forced into multi-year maintenance contracts from vendors where innovation amounts to a spare parts strategy
Elections officials have no idea what innovations are possible or what to ask for
Vendors have no incentive to suggest or ask... [a] customers cannot pay for it; [b] there is no "ROI" for the vendor
The results are black box proprietary solutions teetering on top of commodity PC technology known for its vulnerabilities to hackers and malware
Introducing the Open Source Digital Voting Foundation

The OSDV Foundation is not a think-tank doing a study. OSDV is not about observing elections. And we’re not about lobbying politicians for change.

All important stuff. But that’s not us. 
We are the change.

We are a non-profit organization leading a nationwide movement to reinvent how America votes in a digital democracy.

We provide resources and organization to support the design and development of accurate and secure voting technology.

PRESENTER NOTES:
Enter the OSDV Foundation -- a public benefits (501.c.3) corporation chartered with building new innovative publicly-owned critical democracy infrastructure
To be clear: we’re talking real voting devices people can see, touch, and try.
We're doing the heavy lifting of research & development that the current industry has no incentive or means to do
Creating the blueprints, specifications, and reference implementation for truly trustworthy elections technology framework
To be sure, we know of no other public benefits project like this in the world, where the results are real technology as a public digital works project
Introducing the Open Source Digital Voting Foundation

The Foundation's work specifically:

- Increases civic and democratic participation
- Advances electoral reform
- Improves transparency and integrity in government
- Strengthens democracy and civil society

The vehicle is new freely available election technology through the TrustTheVote™ Project.

PRESENTER NOTES:
From Day 1 we've said that our work specifically must address four objectives
Heavy lifting of R&D to present a framework
Includes DNA from another famous non-profit effort: Mozilla Foundation that brings you Firefox Web Browser and associated Internet tools
Freely available to any elections jurisdiction – the OSDV public license (OPL, based on Mozilla Public License)
Core Team of Sr. Architects charged with designing this framework with the goal of achieving the 4 legs of integrity
Accurate
Trustworthy
Transparent
Secure

PRESENTER NOTES:
Those four legs are accuracy, trust, transparency, and security.
The work is driven by a stakeholder community comprised of elections officials from around the country and we'll say more about that in a moment.
Their charge is to look at the entire ecosystem of elections and that has given rise to an entirely fresh, innovative, architecture.
Critical Democracy Infrastructure

PRESENTER NOTES:
And we are talking nothing short of critical democracy infrastructure -- the core of our democratic electoral process. This is something simply too important to privatize. Done right, however, it reinvigorates if not reinvents the industry by demolishing barriers to entry; Significantly lowering total cost of ownership (2/3rds at least per ad-hoc napkin math by EDS); Brings new breed of vendors ("systems integrators") to bear on delivering solutions based on OSDV open source free framework This framework becomes a national asset, built by the people for the people and without commercial intent We move from black box voting to glass box voting; sunlight the best disinfectent.
PRESENTER NOTES:
Architecturally what this new system will look like: An adaptable, extensible, malleable framework
Appreciate no one size fits all jurisdictions
Componentized architecture – means not a monolithic system
Common data layer built on open standards for all elections and voting data types to ensure accountability, audit, etc.
Architecture: Paper based… Paper ballots of record; filled out by traditional means or by ABM; generating paper fed into OpScan plus image
This framework addresses all aspects of the elections systems administration and offers at least 5 breakthrough innovations

Captures ballot data in at least 4 and potentially 5 locations (ABM data, paper ballot, scanned image, op-scan data, and optionally crypto bar code)
Device Builder to test and verify "virginity" of devices to be loaded with software; Well known Semiconductor Co. to help with hardware innovations (firmware)
Dedicated browser appliance
Ballot Design Studio
SHARP Platform – LINUX based

Components include the DevBuilder, EMS, BDS, ABM, Precinct BC, Central BC, Tabulator, & Auditor
The entire system rests upon this data layer and elections management service which also, of course, includes voter registration management, an area where we’ve made considerable progress towards open standards and cycle time reductions and efficiency gains that we’ll speak of momentarily. Importantly: an entirely new data format standard making it possible for entirely new levels of audit, reporting, study, and verification of accessibility, etc.

And what makes our work timely is its ability to serve the needs of MOVE Act compliance for overseas and military voters.

Important take-away here: we’re not doing this in a geek vacuum.
A growing network of collaborators.

PRESENTER NOTES:
We cannot go this alone lest we end up as a Smithsonian relic; we need to understand what we don’t and that has incentivized us to create a network of collaborators.
PRESENTER NOTES:
Core Team
Orgs: RTV, NAACP, LoWV, VotoLatino, Verified Voting, and of course OVF
Academia: Stanford, Berkeley, MIT/CalTech, Oregon State, and others
Corporations: windfall result… Sun, Oracle, Red Hat, HP Labs, and soon to announce others… but NOT traditional voting vendors
Input from domain experts at Mozilla, Apple, Google, and others.
Of course, the voters through constituent organizations
And our Stakeholders…
Important point: our work is informed and driven by the wants and needs of elections officials in our stakeholder community. That community is also comprised of domain experts and activists who are weighing in, but the first among equals are those elections officials who advise, comment, recommend, and inform our design and engineering and R&D work. No other open source project anywhere has taken this approach, and it is essential to the success of the cause and movement. And the stakeholders make that possible. These are the same people who make the adoption decisions. Our stakeholder community continues to grow; we have over 200 individuals representing...
PRESENTER NOTES:
some 22 states... 8 are vocal leaders and more ready to grow more involved as they see more results to assess, evaluate, and comment on. Bear in mind, this is without ANY real funding to support outreach activities, seminars, summits, and workshops. We attend NASED/NASS meetings and other important elections officials gatherings, but have been repeatedly told that once we begin pro-active outreach activities, we will engender enthusiasm and participation from literally every State of the Union. Elections officials from all over will attest to this potential
This is helping us design and build next generation public infrastructure and reach an unquestionable tipping point in support -- 62.5% of all U.S. registered voters. That's right: this movement to make accurate, transparent, trustworthy voting technology as public infrastructure will touch the majority of our electorate. In other words: we the people, are affecting real change in creating systems of our democratic process that are transparent and accountable. Indeed, as we've said since 2006, we're on the frontlines of democratic and electoral process reform, which means we are listening and hearing those who will ultimately deploy this work.
And this is allowing us to really shape the future of elections technology from the POV of publicly owned critical democracy infrastructure. What we've accomplished on hundreds of thousands of dollars over the first three years -- like any good start-up, has far exceeded the combined efforts of several election technology reform efforts.

With the reality that many jurisdictions will witness their systems retired and ready for replacements in the next three years, we MUST accelerate our development efforts and re-double intensity on development to be ready for them; lest they be forced to commit to millions of $ and years of commitment in re-upping their existing contracts which will amount to spare parts deals and the same problems.

2010-2012 is the time to power-up and it is time for a major round of capital commitment just like any good start-up ready to ramp to success of mission.

Before we say more about that, let's turn attention to an example (just one of several) of how we're innovating in elections administration today, then we'll shift to looking at the immediate projects on the schedule to roll into production and keep us on track of re-inventing how America votes.
We mentioned an example of innovation earlier in going over our framework. Here is one such illustration. By incorporating an encrypted bar code containing all of the relevant registration data, and digitally sending that data to the registrar, we create a postulate record to be immediately reconciled by scanner on receipt of the application with wet-ink signature. No longer re-keying the data which inevitably introduces errors and omissions. Creating a tracking system (think FedEx waybill tracking) online so registrants can monitor progress and know they are registered. Combine this with poll book technology we'll speak of later, this innovation is astounding to elections officials who have suffered from an inability to enjoy even a fraction of the capabilities of the digital age that we all take for granted in our daily life.
PRESENTER NOTES:
5 major areas of innovation that we need to accelerate to stay on track to be there in time for jurisdictions to deploy
Each offer amazing innovation, cost savings, and most important public ownership without being at the mercy of commercial vendors
PRESENTER NOTES:
Ballot Design is an enormous opportunity to create dramatic improvements in creation, design, and production of the actual artifact of the process: the ballot.
PRESENTER NOTES:
An incredible opportunity that we are already prototyping and plan to work closely with Apple to develop.
PRESENTER NOTES:
We dare say we can substantially lower (some have gone so far as to say eliminate in the field) disenfranchisement on election day. No more paper rolls; faster look-up
PRESENTER NOTES:
Easy to use touch screen experience with touch-stylus signature capability, and ability to print ballot on-demand for the voter in their jurisdiction
This isn't fantasy: this is real technology in early design phase that re-thinks polling place accessibility
But it doesn't stop there...
PRESENTER NOTES:
Indeed, the ability to reduce that disenfranchisement can include same day registration (if allowed, not illustrated here), provide for provisional participation by creating a postulate record with signature for near-real time reconciliation once integrated to back-end systems; and if all else is good, but the poor soul simply arrived at the wrong location (check this out) to re-direct them with a map ...and potentially even notify the correct polling location of an impending arrival of a redirected voter. Now that's accessibility and enfranchising.
Add in the portability and mobility of the iPad (for example) and now you can have roaming registrars, checking in voters to reduce lines.
That's because these devices can securely speak wirelessly to printers (for instance) to prepare ballots, maps, etc.
PRESENTER NOTES:
The accessible ballot marking device is a companion to the remote ballot marker, enabling a new level of ease-of-use in the voter experience at the polling place. This could be "insanely great," to quote a great technology visionary. But it will take some significant engineering beyond the prototyping phase to ensure user-drive design, usability testing, and a result that reflects what a diverse group of citizens need to cast a ballot.
2010-2012 Projects Roadmap
Remote Ballot Marker

Voting Overview
- Ballot Created
- Ballot
- Ballot Cast
- Marked Ballots
- Ballot Counted
- Election Results

Technology
- Election Manager
- Ballot Design Studio
  - A web-based, visual design tool for ballot creation
- ePollbook
  - ePollbook on Demand
  - Electronic pollbook for voter check-in & votes tabulated via electronic pollbooks
- Accessible Ballot Marking Device
  - A voting device that features digital marking of votes through enhanced accessibility
- Central Ballot Counter
  - A device for scanning paper ballots and counting votes based on electronic vote data
- Tabulator
- Precinct Ballot Counter
- Remote Ballot Marker
  - A software application for digital marking of votes designed for wide geographic accessibility

PRESENTER NOTES:
Not to be lost is the role of tabulation in re-inventing the election process and ballot life cycle. And we're making enormous advances here too.
## 2010-2012 Projects Roadmap
### Impact, Results, and Public Benefits

<table>
<thead>
<tr>
<th>Project</th>
<th>Impact</th>
<th>Results</th>
<th>Public Benefits *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballot Design Studio</td>
<td>• Innovation in ballot creation and generation/distribution</td>
<td>• Faster ballot production</td>
<td>• More consistent ballots</td>
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<tr>
<td></td>
<td></td>
<td>• Easier distribution</td>
<td>• Fewer counting problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lower cost</td>
<td>• More enfranchisement</td>
</tr>
<tr>
<td>Electronic Poll Book System</td>
<td>• Innovation in polling place productivity and services</td>
<td>• Faster check-in</td>
<td>• Faster services</td>
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<tr>
<td></td>
<td></td>
<td>• Improved routing</td>
<td>• Superior usability</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• More enfranchisement</td>
</tr>
<tr>
<td>Accessible Ballot Marking Device &amp;</td>
<td>• Innovation in ballot marking</td>
<td>• Ends over/under voting</td>
<td>• Superior usability</td>
</tr>
<tr>
<td>Remote Ballot Marker</td>
<td>• Produces paper ballots</td>
<td>• Ends interpretation issues</td>
<td>• User-driven design</td>
</tr>
<tr>
<td></td>
<td>• Available for all voters</td>
<td>• Improves counting</td>
<td>• Best of breed technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Addresses special needs</td>
<td>• More enfranchisement</td>
</tr>
<tr>
<td>Central Ballot Counter</td>
<td>• Innovations in ballot reading and counting</td>
<td>• Far greater accuracy</td>
<td>• Improved auditing</td>
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<tr>
<td></td>
<td></td>
<td>• Far faster counting</td>
<td>• Strong verification</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Ballots counted as cast</td>
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* Over-arching Public Benefits include:
  * Publicly owned, royalty free voting and elections systems technology – “critical democracy infrastructure”
  * 100% open, transparent, audit-ready, and verifiable – no more “black box proprietary technology”

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**PRESENTER NOTES:**
Thank you for your interest!

To learn more, connect with:
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