Greetings Katy:

You presented us with five questions on the 23rd and herein our reply. We hope these answers will facilitate our participation in the June 3-5 conference in Santa Fe. Your questions appear in blue.

1. Do you see the “election business” changing from a product to a service model? What does that mean for your company and clients?

Before we answer this specifically, let’s make certain we’re communicating the same idea. Your question could be interpreted in one of two ways:

1. A Shift Toward a Systems Integration Business Model. That is, there is a shift away from the design, development, and sale of proprietary hardware and software products, and towards a business model where there is a well known, settled body of open source technology that vendors, known as “systems integrators” provide system solutions tailored for their customers and focus on the adaptation, delivery, deployment, service, and support of the resulting system; or

2. A Shift Toward a Cloud-Based Software as a Service Model. That is, there is a shift away from physical systems deployed internally to elections operations and potentially even polling places, and toward election administration and even voting technology delivered as a digital service—that is, the so-called “cloud based service model.”

If we take your sentence literally, then a “product” is a product regardless of delivery model. And therefore, we can interpret your question as more about a shift from a technology manufacturer-seller to a systems integrator and service provider. While cloud-based services may be viable for some portions of election administration functions, we believe there is a more pressing issue of where voting technology will fundamentally be developed and how it will get to market. We focus on that issue herein. There appear to be two paths to 2018:

- One path is where innovative election technology is available for delivery in more of a service model, based on largely non-proprietary election technology and voting systems developed by one or more sources, who contribute the intellectual property of the technology to a public repository under a public license for free adoption, adaptation, and deployment. The commercial aspect (and a healthy one at that) lies in technology services providers¹ who perform the technical work

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¹ We note that “technology services providers” in this sense will likely include a new class of “vendor” in the market of elections and voting systems and services. For example, we could easily expect to see stalwart service providers with deep government I.T. experience in other sectors like Accenture, HP, and IBM Global Services. We also imagine new market entrants with a strong combination of technology development and delivery capabilities. But we do not imagine it will continue to be only the legacy incumbent vendors (e.g., ES&S, Dominion, Hart-Intericvic, etc.)
to tailor, deploy, and service a finished system based on that technology (the 1st interpretation above).

- Another path is where the many local election officials (LEOs) who require a voting system refresh are compelled to re-up/lock-in for another 5-10 years with one of the existing vendors, with the existing products and their shortcomings including their cost to maintain and operate. We should recognize that the current approach really is a service model as well, but where proprietary products lock the customer into a specific product-vendor/service-provider, with cost obscurity by a confusing product/service hybrid pricing that is inconsistently applied.

**Prospective Impact.** If we put aside the notion of cloud-services for certain aspects of elections administration, then we believe the shift of the business model away from proprietary product development toward systems integration of publicly owned technology could have an enormously beneficial affect on five (5) aspects:

1. The industry itself (the business of election technology);
2. The quality of election technology itself;
3. The total cost of acquisition (TCA) and the total cost of ownership (TCO) for government;
4. The quality of user experience for election administrators and voters alike; and
5. The potential impact of re-engaging voters and improving turnout and participation.

**Industry Benefit.** It is well settled that the current market for elections and voting technology is dysfunctional—customer have no budgets to acquire innovation, producing innovations will not “pencil out” for the business models of current vendors, and so the status quo of the technology remains one of guaranteeing spare parts.

**Technology Quality.** A philanthropic approach to making election technology a public infrastructure asset, where innovation is freed of the restrictions of a commercial agenda, and where such improvements and new technologies can come from academic, private, and public sources will almost assuredly bring about the kinds of quality improvements within the elections administration and voting systems domain that we now take for granted in mobile communications, personal computing, and just about every digital aspect of life in the 21st century. We’re already witnessing philanthropists of all kinds recognize this is an imperative effort to build and preserve “critical democracy infrastructure.” When the mandates of commercial agendas are removed, freedom to innovate can reign.

**TCA/TCO.** If the underlying software technology is a public asset, available free of charge and without licensing fees, and what is left are the costs of integrating the software with off-the-shelf hardware and deploying the resulting systems, then the total cost of acquisition and total cost of ownership can be lowered. We’ve witnessed financial models produce a forecast of as much as an 80% savings from today’s commercial offerings through the revised commercial model that open source software can provide.

**User Experience.** If the underlying technology is designed and developed in an environment that encourages maximum innovation without regard to commercializing resulting products, then the quality of user interface and user experience can substantially improve. One reason for this is a willingness to invest in truly user-centered design (and testing). The resulting systems will be easier, more convenient, and dare we suggest, delightful to use.

**Voter Reengagement.** Taken to its logical conclusion, we believe that if the polling place experience can be substantially improved by way of new technology that is easier, more convenient, and is more verifiable, accurate, secure, and transparent in process than anything ever before, voters will become more willing to engage in the process, return to the polls year after year, and turnout will improve.
Lastly, as to the impact on our organization—the Open Source Election Technology Foundation and the TrustTheVote Project in particular—we believe this shift will have compelling impacts. Certainly the most obvious impact is delivering on our philanthropic mission, that is:

“...to catalyze the design, development, and availability of innovative elections and voting technology as a publicly owned open source asset to increase confidence in elections and their outcomes, and help preserve our democracy.”

Second, the impact of this shift will accelerate contributions to the TrustTheVote Project open source election technology repository. And finally, our Stakeholders (State and Local Election Officials) will benefit from unbridled (and unencumbered) access to the best innovations in election technology available with the perpetual entitlement to all enhancements, improvements, and new developments, as they are available. As stated above, their total cost of acquisition and ownership will lower.

2. What is the future of the industry in an environment where federal funding is gone and state/local funding is so challenging?

One could assume gloom and doom. Let’s consider first the potential upside of such a scenario, presuming some fundamental shifts in the industry and its structure that may be inevitable under these circumstances.

If government and industry both come to terms with the need to re-invent the business of election and voting technology by [1] recognizing that the technology of elections is fundamentally “critical democracy infrastructure” and therefore [2] working cooperatively to make the underlying software technology publicly owned and publicly-progressed, then the commercial industry can actually flourish, while the future of American elections can be more stable and secure.

The election technology industry, such as it exists, is not making any significant investment in engineering of innovation into their product. Frankly, there is no need to, from a business standpoint. We understand this as veteran technology product executives prior to undertaking our non-profit endeavor 8-years ago to improve the state of election technology, raise the quality of election experience, and reinvent the structure of this market.

Yet, while investing sufficient R&D into voting technology may not pencil out for vendors, the criticality of high assurance technology for elections administration and particularly the process of voting cannot be over-stated. Accordingly, it is a requirement of public interest that the machinery of our democracy can be verifiable, accurate, secure and transparent. Thus, the market dynamics are being pushed toward a different model for technology development and availability in this specific application of government I.T. A shift to open, publicly available technology is now, we believe, inevitable.

There is strong precedent for such a shift. The state of the World Wide Web at the crash for the so-called “dot com” era of 2000 required a similar shift. Web servers were generally relying on proprietary operating systems (Windows 2000 and SunOS server products) and where databases were required, Oracle and Microsoft were the dominant providers. The trouble was the cost of licensing and use (e.g., database software was often priced on a “per transaction” usage model). With time to reflect as the market recovered from the crash of 2000, there was a recognition that a shift in technology delivery was required in order to achieve the kinds of scalability the web was capable of sustaining. As the road to Web 2.0 was paved, open source software in the operating system and database layers proliferated. Along with it was a growing demand for technical services to administer, enhance, and maintain open source installations. Thus, we witnessed the resurrection of IBM as a service business and the emergence of the now $1B giant services professional, Red Hat.
We believe that kind of shift and rejuvenation can, and must occur in the industry of election technology. And in absence of new sources of federal money and continued budget woes at the State and county level, rethinking how to improve and innovate election technology will drive this shift. Thus the future can be bright if there is business and political will power to catalyze this kind of industry change. That may well be driven by all of: [a] emerging standards, [b] evolving certification process, [c] new design guidelines, [d] refined procurement policies, and [e] creative financing to make it happen.

In summary we offer eight observations regarding the required catalysts of change:

1. Market competition needs to be revitalized in order to restore market-competitive pricing; the industry is in a staid oligopoly and unlikely to improve without impetus.

2. The impetus cannot and should not be more regulation, whether at the Federal or State level; rather if there is any government inducement it should be to incentivize and reward innovation.

3. There is no good reason (other than commercial agendas, constraints, and mandates) for the election technology industry to have experienced, at most, a single wholesale hardware and software platform innovation cycle (e.g., many voting machines still rely on Windows 2000), while mobile communications and computing (for example) have experienced at least two (e.g., from Symbian and PalmOS to Windows Mobile and BlackBerry, on to Android and iOS).

4. Real hardware costs have dropped by a factor of 10 to a few hundred or a thousand dollars per unit for what’s required from tens and hundreds of thousands of dollars per unit.

5. Given the scenario of publicly owned open source technology, recent technology developments and the potential of competitive systems integration offerings should reduce voting system product costs to be more in line with the prices of consumer digital products pay every day.

6. A couple of developments will need to occur to foster this shift, absent federal or State funding sources to allow the current model to persist. Those developments include: [a] evolved certification, [b] updated and reinvented voting systems design guidelines, [c] more open data and protocol standards, [d] refined procurement models to foster to new entrants to compete to deliver systems, and [e] incentives (as suggested above) to catalyze innovation.

7. The upside of the market, from a commercial standpoint, will lie with those who have the most domain expertise to offer their professional services and potentially value-added technology products. We see two vectors for that: domain expertise in the process of elections administration and domain expertise in the software technology itself. We genuinely believe a vibrant market with innovations heretofore unavailable will flourish for the benefit of LEOs, vendors, and voters.

8. So, what will remain is the basic cost model of professional services for delivering and adapting voting systems specifically (and election technology broadly), and providing training and support. But with transparent costing where services rates are not obscured by predatory pricing of proprietary products, current market rates and competition can flourish.

3. How can the private sector work with policy makers and election officials to support innovation and otherwise support election administration?

First, we observe that such collaboration is essential, yet often hampered by election officials’ lack of budget and other resources to take a leading role in defining requirements for innovation and participating with feedback in trials of new technology. There are numerous events with thought leading organizations such as the EAC, the Election Center, the Election Verification Network, IACREOT, the Bipartisan Policy Center, NASED, NASS, NCSL, NIST, the OSET Foundation, Pew, and others where elections officials should and need to be present, but travel and time constraints
make that difficult. Some of this can and should be addressed with innovative digital delivery of events (webcasts, etc.). There are certainly several standout exceptions—individuals from well-known jurisdictions who have established themselves as thought leaders and reliable participants, but more need to engage, participate, and have their voices heard.

Beyond the need for broader participation by SEOs and LEOs, we genuinely believe (without any intent to pander here) that the NCSL represents the most qualified organization to catalyze and foster education on the technology of election administration² for State policy makers and legislatures—where policy about elections is developed and implemented.

One of the challenges is the history of private and public sector interaction: both sides have necessary self-facing agendas. For the public sector, interaction with vendors and other institutions must occur with maximum transparency and without any specter whatsoever of favoritism or other unfair advantage to any single entity. Accordingly, the opportunity for such interaction intended to clarify requirements and needs is limited. Similarly, for vendors or those entities perceived to be having some gain (pecuniary primarily), their needs to interact have often been driven by marketing and business development agendas. Candidly, election officials are wary of being used solely for so-called “blue ribbon customer panels” only to end up as part of product promotion or perceived endorsement. Therefore, the challenge of agenda may best be addressed through technology and standards forums and venues. We have long believed that the best arbitrators of such activity are non-profits and government organizations such as the EAC, NIST, BPC, and NCSL, or institutions such as Pew or the OSET Foundation (and indeed, that is part of our 501.c.3 mission—facilitating education at the intersection of technology and election administration).

Then there is the challenge of current procurement practices, policies, and processes. The ways and means of procurement can drastically reduce the scope for election official participation with any form of election technology innovation, ideation, experimentation, discussion, feedback, etc. An interesting situation comes in the (RFI) process of LEOs attempting to educate and inform themselves on what’s available, what’s coming, and how they might structure a procurement cycle once they understand what is possible to be included in the requirements and specifications for an RFP. In this situation, incumbent vendors can quash interaction between election officials and any election technology organization (regardless of that organization’s intent or intended advisory role) by threatening to cry foul based on contact limitations from procurement regulatory requirements. Of course, these are regulations with very good and necessary intent to prevent undue influence when actual procurement is in play. But at the stage of a Request for Information ("RFI" with emphasis on the "I" for “information”), the intent of these regulations regarding appropriate contact become inverted in effect: incumbents can quash contacts with others, while retaining contact as part of existing service agreements. We’ve witnessed this phenomenon. And we point to the odd outcome of the recent Philadelphia, PA “RFI” that was intentionally closed to any outside organization, who might not have any interest in bidding on any work in the jurisdiction. Add to this the phenomenon that nearly every jurisdiction is always in some stage of exploration or acquisition process and the ability to engage outside organizations for purposes of insight and education is nearly always stifled.

² Calling to mind again the comparison to the dot-com era and the development of the commercial Internet, in early 2000 Congress and Industry both recognized the imperative need to educate Congress on the capabilities, challenges, issues, opportunities, and technology of the Internet. They formed the Congressional Internet Caucus, a bipartisan group of Senators and Representatives who were willing to assume leadership on the issues of the Internet as it was destined to become the driver of the digital economy. They formed an Advisory Committee to that Caucus, charged with providing education, insight, and input on legislative initiatives addressing the Internet. The Advisory is comprised of broad range of individuals and representatives from the technology sector. They do not act as lobbyists; only non-partisan advisors. NCSL might consider the formation of a similar Advisory for its constituents looking to the ICAC organization as a model.
In summary then, we suggest States need to decide whether to empower their SEOs and LEOs to have unfettered access to election technology individuals and organizations of all kinds, who could be exempted from current regulatory strictures, but with procurement organizations playing an inverted role of not blocking access, rather facilitating and documenting such access, while frequently and regularly disclosing contacts for full public disclosure. In other words, at this point, the “sunlight as the best disinfectant for transparency” may be more effective than quarantine or sequestering of those seeking information.

4. What developments in the field are you the most optimistic about?
Which ones worry you the most?

Standards work for data transparency and technology interoperability seems very techno-geeky, but its effects can be profound and even fast moving. Election data standards work is proceeding apace, expanding, with excellent input from entrenched vendors, election officials, and several other stakeholders. This work needs to be promoted and publicized more—the constituents of the NCSL should be particularly aware of this work and its implications.

We believe that innovation can only be driven on the rails of standards. Their effect in bringing about new thinking and ensuring interoperability of old and new machinery is an essential catalyst to market, industry, and deployment rejuvenation.

Second, standards work has been the enabler of greater transparency and more flexibility in component level acquisition. It will take more time before those outside the election technology epicenter will experience the accelerating benefits, but there is real cause for optimism.

More generally, standards work is an example of a broader and encouraging development of an increasing number of types of organizations engaging with election officials on innovations in election product, process and policies. In the last 10-years there has been a major increase in relatively newly election-focused organizations and people learning from and interacting with election officials and one another. The Election Verification Network, for example, is just the tip of the iceberg. The gating factor now is election officials' limited time and attention, but that is a good problem to have.

More concerning though, are organizations that with perhaps good intentions of changing the way that elections are run (and priced and paid for), are not as engaged with election officials, and have a top-down agenda of their own view of change, rather than a bottom-up approach of learning what today’s elections need; what are the gaps in technology or practice or policy; and how to fill those gaps in a future looking way to meet current needs with a forward path. Thus, we strongly encourage a stronger process of vetting because new organizations and efforts full of zeal for change will continue to emerge and can bring continued confusion, uncertainty, and doubt. We’ve seen one such organization invent and reinvent itself in our 8-years in CA causing such consternation. And just this past week, pundits added to the noise with an op-ed article in a reasonably respected technology media channel about the ability to utilize technology to enable and push for “mandatory voting.” With the demand for rapid change pressing on the technology and processes of elections—particularly when driven by issues of voter turnout and participation—the “signal to noise” ratio and “reality distortion fields” will continue to wreak havoc on intellectual honesty so necessary to a well informed legislature. NCSL and several other organizations will continue to have their hands full in addressing this to ensure real progress in the improvement of elections and the technology thereof moves more forward than sideways or worse, backward.
5. Anything else you think the election community – and especially state legislators and staff – should know?

Those were four good questions demonstrating that NCSL is addressing the right issues. We’re humbled to participate in offering answers. In summary, there are 6 points worth restating:

1. First, there is freeing election officials from constraints on engagement with anyone about election technology for fear of running afoul of a procurement regulation. A nuance of that is about how to evolve and advance technology “at the speed of elections” as the EAC characterizes the operating environment. There must be a way to enable proof-of-concepts, trial environments, and the ability for organizations attempting to innovate elections to work directly with officials outside of election cycles to foster research without concerns of undue influence, pecuniary gain, or unfair advantage. Perhaps the EAC, NIST, or NCSL, or some entity needs to make a facility available where these kinds of efforts and exchanges can occur.

2. Second, there is one more point about the state of the industry and business transition addressed in questions 1 and 2. A “shout out” is due to the incumbent vendors who remain and have made best effort in a terrible business climate to foster innovation to the extent it is practical for them to do so, rather than simply ride service and support contract revenues, having milked the cash cow so to speak and then gone home. They would not still be here, struggling to help their customers if they didn’t care about “getting elections done right” as much as their customers and policy makers and regulators do. The human and intellectual capital of these companies is a national resource for election officials nationwide.

3. Third, we cannot emphasize this enough: The transformations described in answers 1 and 2 will not hamper legacy vendors. With increased competition, they still have their incumbent customer relationships; they still have their domain expertise; and they still have the service-business experience that others lack, although new entrants will bring other advantages.

4. Fourth, the benefits of transformation are not without precedent, as shown by other technology industry evolution in the last 20-years. Every major “enterprise-computing company that re-focused on services for technology their customers needed regardless of ownership of the underlying technology, rather than selling proprietary technology with related services, ultimately flourished in that reinvention, rather than dying on the vine of acquisition. The enterprise-computing sector is full of case studies about such transition success.

5. Finally, like the remaining enterprise technology titans, legacy election technology vendors should shift to a service-focus where their costs are for delivering services rather than propping up proprietary technology. The technology always decays in value over time, while the value of sustained excellence in service offerings does not.

6. Legislators should [1] recognize that such business transformations are a normal part of orderly market behavior; [2] seek to foster this change by reducing restrictive regulation, and [3] encouraging (perhaps even fund) election officials involvement in demanding and fostering the change. The status quo is unsustainable. With the clock ticking on voting systems end-of-life, caution and adherence to existing practice and status quo offer no public benefit.

Hope this helps.
Respectfully,

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