

Transcript of Thad Hall's Aug 10, 2007 KCPW.org Radio Interview with Julie Rose

<http://kcpw.org/article/4128>

Thad Hall is responding primarily to the California Secretary of State Bowen's Decertification and Conditional Certification of Diebold:

http://www.sos.ca.gov/elections/voting_systems/tbr/diebold.pdf

and the Top to Bottom Review by CA SOS:

http://www.sos.ca.gov/elections/elections_vsr.htm

Thad Hall: the California Secretary of State initiated a top to bottom review of all the voting systems in the state. And the idea behind the audit was very simple, which is that she wanted to find what flaws existed in both the electronic and paper systems. The testing that was done for the systems was a little bit different, they weren't analogous, so the same attacks weren't done on paper systems as there were on electronic, and the idea behind that was that you could automate attacks a little bit easier on electronic systems but they weren't the same.

Julie Rose: so she audited both the paper...

Thad Hall: and electronic

Julie Rose: the old school paper version

Thad Hall: Right, but they didn't do the same attacks. So let me give you an example. So they determined how you would hack into the access card or the cards that store ballots on electronic systems, but if you do the physical attack on the paper system you just stuff the ballot box. So we know that you can do these analogous attacks. And so one of the key things is to know how analogous the attacks that were tested were.

But beyond that I think that there is a real benefit here for all states. And I think that the benefit is, is that California has taken this initiative to, and they've been doing this for quite some time, to evaluate electronic voting. And, so her predecessor Bill McPherson for instance did testing of voting systems on Election Day to make sure there was no tampering going on and all states have benefited from that too, because they can know that these systems are working effectively. And in the top-to-bottom review, um, what she's been able to do is to identify problems that exist in voting system that are used in many states including Utah. And what other states are able to do then is to leverage their relationships with vendors, like in Utah's case with Diebold to make sure their voting systems are as good as they can be. So for instance if there were security flaws found in the software that was used in California, then Utah should be leveraging their relationship with Diebold to make sure that they get the most up to date software possible for the system. And I think that is a real benefit for the state because I think it is pretty clear that companies like Diebold will be updating their software based upon this type of review.

Julie Rose: so Utah does use machines, were any of the machines that were evaluated in the California audit used in Utah

Thad Hall: yes, right, L.A. County uses Diebold voting machines in their early voting, and we use the analogous machines. Now the one thing to keep in mind, though, is that the tests that were done were tests that were what would happen if you could fully get access to a voting machine, and the whole of the software and nobody was around, and you could just play with it for a while. And of course in the real world we engage in a variety of security checks and have chains of custody that we use to secure these machines so that nobody could do that. And I think

one of the key lessons of the California study is how do we develop the system of checks and balances and having chains of custody and have effective poll workers that solve these problems

In the case of Utah, one of the things that the university of Utah and BYU have been working together to do a set of surveys of poll workers and voters, in the last two election cycles, and one of the things we've found is that you know for voters here, they are confident about the machines, they like having the paper trails, it makes them more confident. But the big issue for voters is their interaction with the poll workers. And I think that one of the benefits that we have here in Utah is that the state and the local county clerks have really done a great job of making sure the poll workers are well trained, because they are the front line people, and it's those people who make people confident or not confident that the ballots are going to be counted accurately. Because people recognize the fact that it is those poll workers who make everything work on Election Day.

Julie Rose: so when you talk about the paper where voters are satisfied with their paper trail, you're talking about the printer cartridges?

Thad Hall: Exactly, so when you vote on the DRE here in Utah, you know you vote on the screen, and then when you review your ballot electronically you're also reviewing the voter-verified paper trail. And the nice thing about that is that there's, not everybody has to check their paper trail for us to know that the machines are working effectively. As long as a certain percentage of people do, you know, we can be relatively confident.

And then, of course, Secretary Herbert, I mean, Lieutenant Governor Herbert was very, had the foresight in this and he put together a committee last year that developed audit standards for the state, and I think that that has kind of pushed Utah to the cutting edge at the moment to make sure that we audit our elections effectively. And that was a very smart thing that he did, and really is helpful.

Julie Rose: because California doesn't have

Thad Hall: They do have an audit, but it's, but in part what Utah did was leverage what's going on in California. What he did was make sure, was thoughtfully thought through how do we do this? How do we make it work for our system? What California is basically trying to audit things using the system that they had for paper ballots. And so, he was able to do this just for the DREs and think about how to make this work, and he put some procedures that made sure that candidates felt comfortable with how it worked, he kind of thought it through from, you know, "who are my customers in an election? They're both voters and candidates, and how do I make them both feel comfortable?"

Julie Rose: So in a case like California, I understand that they have a lot of different machines that are being used.

Thad Hall: That's correct

Julie Rose: Now Lieutenant Governor Herbert made the decision that he wanted it to be standard across the state, and every DRE that's used, as I understand it, in Utah, should be this one specific Diebold DRE.

Thad Hall: That's correct.

Julie Rose: So, does that make us more or less vulnerable?

Thad Hall: Well I think that there are two sides to that. So, on the one, on the pro side to this, the benefit is that we can develop standard training, standard state-wide operating procedures for how to handle these machines. If problems arise, we can fix all machines at once. The state can

leverage their relationship with the vendor much more effectively because we are a common customer to them.

On the downside, if a problem did occur, it would be possible that the problem would be much more pervasive. Because it's all one system, so that is the downside. In California if they have a problem in a county, it could just be confined to that one county.

The other thing to remember though, too, is that, in Utah we also vote optical scan because people who vote absentee, and more and more people are voting absentee, we are using optical scan as well. And so one of the things to keep in mind is that we do have this mix of systems in the state. And that provides, and as more and more voters move to absentee voting, which I'm pretty confident is going to occur, and we're already seeing that, and voting early, and you have these different people voting in differing modes, and I think that that also takes some strain off the system as well.

Julie Rose: some of the concerns that I gather from the California audit have to do with the ability, I guess, it seemed like they are in kind of two areas with these election machines, and let's talk specifically about the Diebold machines because that's what we have in Utah. And what one of the things that I understood was a concern was that, these machines can be vulnerable when they are attacked, she's I guess outlawed modem connections?

Thad Hall: Right.

Julie Rose: and networked machines? Do we do that in Utah do you know?

Thad Hall: These machines don't have to be networked. There are systems where you do network the machines, and, the Diebold machine is not one, there is no requirement that they need to be networked. They can work as stand-alone systems.

So what you can do, for instance, in the case of the Diebold machine, is after the election is over you can take all of the ballot cartridges, and this is what they basically do, I've watched them close down the polling places here, and what you would do is you would take all the cartridges, seal them... What you would, let me back up. What you would do with the machines, the cartridges would be put in the machine, sealed, they would be tested that they were zeroed, and what you would do at the end of the election, you would take the cartridges out, seal them, and you would take them to the county clerk's office, along with the voter verified paper trails, in a sealed box also. And you would count those ballots electronically, one at a time, and you would audit the paper record to make sure the electronic tally and the paper tally add up. And that's what we're doing here in Utah, which I think should give people confidence in the process.

Julie Rose: and the audit only takes place in certain, with races with certain margins.

Thad Hall: It's actually, we do a state-wide audit of a certain percentage of precincts, and voting machines within those precincts. And then, what we do, what the state would do, is that if a race was close, they would do an electronic count, and they can do a 100% hand-count if they have to of the paper audit trail

Julie Rose: and in certain races where they are in a certain margin, then they are mandated to this.

So, okay, as I remembered it, at least in salt lake county, but the other option is, I guess, is that the machines are capable of instead of manually carrying these things over to the clerk's office, they can sort of be "beamed" over by them?

Thad Hall: And the way that has historically been done. You have this really funny tension in elections; which is that we want votes to be counted accurately, but we also want the results right

now. So, you in the media, and candidates, viewers on TV and radio, they want to know who won, right now. And so, one of the ways you do that is that you modem in the results. And so, think for instance of the geography of salt lake county. You know, if you're voting in the south, westernmost part of the county, it would take a while to get the ballots from that precinct to the county clerk's office, and so what you would do, hypothetically, would be to modem in those results and then those would be unofficial totals that you would give to the media or to the candidates, and the official tally would come off the card, off the cartridge. And so in a place like Los Angeles, for instance, they have to fly ballots by helicopter because in some instances it can take up to three hours to transport a ballot. And so what you want to do, (if you did it by car). And so what you want to do, is to, you know, get these totals as quickly as possible. Because people want to know right away who won. And I think that's one of the big tensions we're seeing right now, is this tension between immediate results and accurate results.

Julie Rose: so when it comes to that, to that networked issue, though, Utah doesn't do that largely.

Thad Hall: No, I don't think, no we don't. And I think that, and there is no reason why you have to. And the other side to this is that you would get results later. In some places

Julie Rose: which we already saw, because, I think the county clerk has only one machine that they're allowed to upload these cartridges into.

Thad Hall: exactly, and they do that for security purposes

Julie Rose: And even sending that information to the state website has its delay, because they have to do that manually, and so it has slowed things down, and there is a certain amount of tension.

Now, but what about the other issue of, and this was talked about a lot before the other election, also seemed to come up in this audit, that manually, these things can be, I mean, with a screwdriver you could open the back, right?

Thad Hall: Right, you can. There are two ways to think about the type of attack that you are proposing. One of which is that, hypothetically you could do this, you could break into a machine using a screwdriver and all this. Of course, in a polling place, if you do this, hopefully the poll workers will be paying attention, and notice that you are unscrewing the voting machine and taking it apart, much like you would hope that, in an analogous attack, if you started stuffing a paper ballot box, they would also notice. And so the analogous attack is stuffing the paper ballot box.

The other thing to think about, though, is whether or not the machines are sealed and secured properly so that you can't access those locations. I know that in Georgia, for instance, they had Diebold re-structure the stands that they used so that none of those openings could even be accessed. And so one of the things that states and localities need to be aware of is "how do I seal a machine, and how do I secure it so that these types of things can't happen?" and you know, that's one of the reasons why in Utah, and in other states, we require voting machines to be set up in a way that people can see the machines, so that an observer or a poll-worker can notice if somebody is doing something that seems untoward to a voting machine.

Julie Rose: so, I guess that when we get to the bottom line of this, and again, so that I understand, Secretary of State, I forget her name, in California

Thad Hall: Debora Bowen

Julie Rose: Yes, Bowen, the audit was focused on the security of these machines, not on the accuracy of the vote tallies.

Thad Hall: Right, well there were two studies that were done, one was on the, whether or not, the physical accessibility of the machines, so, one of the advantages of DREs, hypothetically, is that they are fully accessible. And one of the nice things that her study

Julie Rose: for ADA requirements

Thad Hall: for ADA requirements, for people covered under the Americans with Disabilities Act. One of the nice things that was done in her study was that in addition to studying the security she also looked at the accessibility for people covered under the Americans with Disabilities Act. So people with wheelchairs, people who are blind, and things like that. And what she did was that they produced a report that looks at this issue of accessibility, and one of the things that they found was that these machines are not as accessible as they should be. Now, obviously, the problem, one of the issues would be, is whether paper systems are accessible, and obviously to people who are blind, or who have physical dexterity problems, they're also not accessible. So you kind of, one of the issues and nice things she did was point out the flaws in electronic machines accessibility that can be addressed by the vendors. Some of them were simple things, like the stands weren't wide enough to roll a wheelchair under.

The other part of this is that you are absolutely right, they did not look at the vote tallying accuracy, and you know, there is some evidence that DREs can be more effective in making sure that people complete their ballot. For instance, it becomes harder to skip races down ballots that you wouldn't skip because you are pushed through the ballot and not flipping through some cards or things like that on a punch card. And so you do get greater ballot completion, some studies have shown, and you get fewer people just skipping races in general.

Julie Rose: right. Okay, so wrapping this up, let's talk about the implications then, again, for Utah. So you talk about how there's the additional information that we have about these machines now, although, when it comes to the specific concerns that caused her to decertify the machines in California, Utah seems to, have we addressed those?

Thad Hall: I think that... There are a couple of key take-aways that Utah's election officials can gain from the California study.

One is that we can leverage the information that the Secretary of State in California has produced about these machines, and that we can use that to leverage the vendors to provide us with the most up-to-date and secure software based on the modifications they make to meet the California requirements.

Secondly, I think, this is another impetus for state and local election officials to ensure that they have the effective procedures in place for maintaining the chain of custody for these machines. So if you look at a state like Oregon, for instance, they require all counties to issue a report to the state election officials so that the state has thought through the chain of custody of how they are going to handle both paper ballots and electronic ballots that are used on Election Day. And I think that's something that Utah should look at, given the importance that we see in the California study about Chain of custody.

And I think third, we need to think about the other half of this that is not covered under the California review, which is, "What are the "people" procedures we need to have in place, of training, and educating voters to make sure that there aren't problems with voting in 2008?"

Julie Rose: So just because the California Secretary of State has certified her Diebold machines saying these things are not secure, does it mean that Utah should say that ours aren't secure either?

Thad Hall: Right, that's, I mean, I think that we should watch and learn from her, but I don't think that the state needs to take the same type of actions she did.

Julie Rose: because we've already addressed some of these issues

Thad Hall: Exactly, and she has a different political environment that she's operating in. This is a, one of her promises that she made as an elected official, was to really do a hard, you know, scrutiny of electronic voting, and she was a very harsh critic of electronic voting prior to becoming Secretary of State, so I think that what we are seeing is her carry-through with her promise to be very hard-nosed with electronic voting.

Julie Rose: So then, I guess then let's look at the final piece which is the voter confidence, because, you know, voters are hearing that California has decertified, the Secretary of State has said that these things can be hacked, and they are the same machines that I'm gonna use. So, I guess the voter, if the voter hears that Utah's officials are confident in the security of these machines, but California's are not, how does the voter interpret that?

Thad Hall: I think that, one of the things that voters here should keep in mind is that it's the Secretary of State that had these concerns, but many of the local election officials had chain of custody procedures to ensure that these type of attacks could never occur on their vote machines, so they would never leave their voting machine unsecured, unsealed, open where people could tamper with it and then never check the machine again.

Julie Rose: So that gets to this issue of the unrealistic attack

Thad Hall: Right, exactly.

Julie Rose: So this is a sort of an extreme situation where, yes indeed, you could hack into the thing

Thad Hall: The analogy that was given by the Los Angeles county registrar recorder was this is what would happen if you did a security test of a bank and you turned off all of the security systems and you opened the vault. Could you steal the money? Well the answer is, yes you could. And so, the question is, what happens when I put in the motion sensors and I lock the safe, can you still get in? And so, and the answer in the bank example is obviously, well yes you could, but could it be detected, and how hard would it be?

And so, we've known for 200 years how to steal an election. We've been doing this for a long time, you know; if you think about the evolution of voting, you know we moved to secret ballots because people were selling their votes. When we moved to secret ballots people started engaging in ballot box stuffing, and that's one of the reasons we moved to lever machines, because it turns out it was harder to steal a lever machine.

And so, we're moving to electronic voting, and we're seeing some of the same concerns today as we did in 1910 when people were moving to lever machines, and things like that; and so, this is kind of an ongoing concern people have about new voting technologies. It's not a new debate. People were in 1968, there were studies that showed that punch card machines could be hacked, and that you could not detect them. So we've had these kind of studies done over time, and the key is to have procedures in place that can address this problem.

Julie Rose: She unleashed, she's taken some criticism for doing just what you said, turning off all of the security systems and unleashing the hackers. So, is that, in doing that has she done a disservice to voter confidence do you think?

Thad Hall: Well, I think that, you know, voter confidence is a complex thing. We've actually done some recent studies on voter confidence here at BYU, at Cal Tech, and other places, and one of the things we see is that voters have varying concerns about confidence.

If you look at some nationwide surveys we did about confidence, absentee voters tend to be very, not be very confident. And if you think about the process that is involved in casting an absentee ballot, you can kind of understand why. It's just a logistically more difficult process. People's interactions with their poll-workers affect their confidence. People's partisanship affects their confidence - shockingly democrats in Utah, not as confident as republicans.

Julie Rose: Do you remember the number on that?

Thad Hall: Oh, there's a very large gap

Julie Rose: Really?

Thad Hall: Between democrats and republicans, and it's not surprising. And it was interesting, we did a pre-test post-test survey of voters in 2006, and one of the things that we found, was that prior to the election, democrats weren't as confident, and people who listen to a lot of media weren't as confident; and once they went and voted, and the process worked for them, it turned out that people tended to be very confident that their votes were counted accurately, and interestingly enough, for people in Utah, states with voter verified paper trails, with DREs, tended to be highly confident voters.

Julie Rose: So you're saying that democrats tended to be less confident, this was before they voted? And after they voted, everything kind of evened out.

Thad Hall: Right, and if you think about it, this makes sense, because one of the things that people do, is that they look at the most recent election results. If you're a democrat and you look at 2006 and 2004, and the presidential races, you know, you think "How did George Bush beat these two candidates?" and then in 2000 there was the added controversy of Florida; and in 2006 when the democrats win, well it's hard to say that the system doesn't work when our candidates won, because that would kind of undermine the legitimacy of our party winning; and so, partisanship plays a role in this.

And so, it's kind of an interesting effect that we're seeing in voting; and I want to go back. For people who vote on DREs in polling places, it is the poll workers who make the difference. And so the nice thing about Utah is that we have trained people well, the poll workers well, and they're really doing a great service.

Julie Rose: And we're a lot smaller than California, so it's a lot different of an animal to deal with.

Thad Hall: Yes it is; and we have a nice, you know, small set of counties, and we have a pretty, relatively homogeneous population. You know, Los Angeles has to do voting in seven different languages, and people don't realize the difference between here and there, and it's really different