

The Colorado General Election 2014: Intermittent Loss of Connectivity between Voter Service and Polling Centers (VSPCs) and the Colorado Statewide Voter Registration Database

A Report of the Bipartisan Policy Center

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Introduction

Colorado implemented in 2014 an expansive new system of voting, which gives Coloradans a number of options for how to cast their ballots. Under the new system, all registered voters are mailed ballots twenty-two days prior to Election Day. During the 2014 general election, over 95% of voters chose to return their completed ballots either by mail or by dropping off their mailed ballots at designated locations.

Coloradans also have another option for casting a ballot. They can appear in person at a physical voting location, a Voter Service and Polling Center (VSPC). VSPCs are essentially an extension of the county clerk's office. At these centers, a voter may register to vote, update a voter registration, request a replacement ballot, cast a ballot on an ADA accessible voting machine, or drop off a completed ballot.

Each county operates a VSPC and many counties offer multiple VSPC locations within their boundaries. The law requires that VSPCs be open for a minimum of fifteen days prior to and including Election Day, although some counties' VSPCs are open for longer. The number of VSPCs each county is required to have is determined by a formula in statute that considers the number of registered voters in the county and differentiates between the number of VSPCs during early voting and the additional sites required on Election Day¹. The Colorado Department of State (CDOS) surveyed county officials in early-2014 to ensure that the planned infrastructure would accommodate the expected number of voters on Election Day.

Each VSPC must have a real-time connection to Colorado's statewide voter registration database, SCORE, in order to operate effectively during the election cycle. This connection is needed because Coloradans have options in the modes and locations for casting ballots. Since all registered voters are issued ballots by mail, a voter who shows up at a VSPC requesting a new ballot to replace a spoiled or lost one must first have his or her voter information verified in SCORE in order to properly cancel the old ballot. This action ensures that the voter has not cast a ballot at another location and identifies the ballot style the voter will receive. Similarly, a voter who is registering for the first time must be entered into SCORE before receiving a ballot. Finally, a voter who moves from one location to another between elections must first have his or her address updated in SCORE before receiving the proper ballot that corresponds to his or her new residence address.

The implementation of VSPCs necessitated a technological change to the existing SCORE Citrix voter registration system. A web application of the SCORE database (WebSCORE) was created for use during the 2014 election cycle that allowed for a two track process during voting. During the 2014 election, election officials and poll workers could use WebSCORE for address updates and ballot generation. Other activities, such as new

¹ House Bill 13-1303 establishes a formula for the allocation of VSPCs based on voter registration. Tier 3: 10,000 or fewer registered voters = one VSPC during early voting and one on Election Day; Tier 2: More than 10,000 but fewer than 25,000 registered voters = one VSPC during early voting and three on Election Day; and, Tier 1: Counties of more than 25,000 registered voters = one VSPC per every 30,000 registered voters during early voting and 1 for every 15,000 on Election Day.

registrations and name changes, were completed through the SCORE database by designated staff with appropriate system authorization.

When the connections between VSPCs and SCORE and WebSCORE do not function properly, election officials are forced to use backup procedures for confirming voter eligibility at the polls. The backup procedures are more complicated and time consuming than the traditional process of voting. On Election Day 2014, VSPCs across the state experienced problems accessing the statewide voter registration database. These problems affected the way that votes were cast, leading in some cases to delays for voters.

Overview of the Bipartisan Policy Center (BPC) Team

The Colorado Department of State contracted with the Bipartisan Policy Center (BPC) to examine the effectiveness of VSPCs during the 2014 election and, in particular, to report findings on the difficulties accessing the Colorado statewide voter registration database encountered by poll workers on November 4, 2014 at VSPCs.

BPC has significant expertise in election administration. It currently houses the work of the former commissioners of the Presidential Commission on Election Administration, and it employs former state and local election officials and election scholars. A three-person on-the-ground team interviewed Colorado county officials, state officials, and technology staff and consultants during preliminary research and data collection for this project.

The Presidential Commission on Election Administration was created in 2013 to identify best practices in election administration and to make recommendations to improve the voting experience. It was chaired by Robert F. Bauer, who served as general counsel to the Obama 2008 and 2012 presidential campaigns and as White House Counsel during the Obama Administration, and Benjamin L. Ginsberg, who served as general counsel to the Romney 2012 presidential campaign and as counsel to numerous other Republican candidates and party committees. Also on the commission were five election officials from the state and local level and three business leaders.² After the Commission issued its recommendations to the President and Vice President in January 2014, the commissioners asked BPC to work toward improving and implementing the Commission's recommendations.

BPC was founded by four former senate majority leaders, Republicans Bob Dole and Howard Baker and Democrats George Mitchell and Tom Daschle. BPC works to reach consensus recommendations on various policy issues including budget, tax, immigration, health, foreign policy and democratic institutions. This study is housed in the BPC's Democracy Project.

A three-person team of Tammy Patrick, Don Palmer and John Fortier visited Colorado and interviewed state and local election officials in January 2015. A fourth member of the team,

² More information about the Presidential Commission on Election Administration can be found at www.supportthevoter.gov.

Matthew Weil, also worked on this report. For full biographies of team members, see Appendix A.

Interviews

BPC researchers conducted extensive interviews in Colorado over the course of three days in January 2015 while attending the Winter Conference of the Colorado County Clerks Association (CCCA). The CCCA is a well-established professional organization recognized nationally as a model for the sharing of information and expertise among local election administrators. Colorado has a diverse stratum of county populations, geographic challenges, and resource inequities making critical an association such as CCCA for successful election administration. The CCCA Business Practice Group shared the draft of their report on the 2014 General Election, which was used, in part, while formulating our recommendations.

BPC staff interviewed local clerks and recorders and relevant staff, especially those in jurisdictions' information technology (IT) offices, who were responsible for the training and coordination of the VSPCs. Additionally, on January 22nd, BPC joined a meeting and conference call attended by 28 counties. Seventeen of those participating counties provided feedback on their preparations for implementing the new VSPC model, their Election Day experiences, and their perceptions of the impact of the failure of connectivity to the statewide voter registration database.

The interviews focused on how the counties prepared to implement VSPCs, trained staff and poll workers, developed and deployed contingency plans, and communicated on Election Day. Ultimately, BPC sought to understand how all of these variables affected voters casting ballots at VSPCs on Election Day. BPC researchers attempted to reconstruct the events of Election Day in an effort to identify factors that contributed to the problem and to make recommendations for mitigation in the future.

In addition to the interviews conducted with the county clerks and recorders and their staffs, we conducted interviews at the CDOS offices on January 22, 2015 with members of the SCORE Help Desk, members of the CDOS IT division, CDOS programmers, and representatives of the statewide voter registration database vendor, Engility.

Local Election Officials

The counties varied greatly in the amount of training offered to the pollworkers who would be staffing the centers and utilizing WebSCORE during early voting and on Election Day. Some counties conveyed that they spent as many as two weeks or more training their staffs and pollworkers through simulation activities, hands-on computer work, and testing. Other counties' training sessions lasted four hours. Some staff interviewed noted that they use the slower pace of voting during the first week of early voting as an on-the-job training

period. County officials visited their VSPCs during this on-the-job training with the intent to ensure that the temporary staff were following procedures.

Counties reported no difficulties logging into the statewide voter registration database during the early voting period before Election Day. Voting was lighter on the days before Election Day. Of the 101,060 ballots cast at VSPCs, 83,481 were cast during the last two days of voting—with approximately 75,000 of those on Election Day.

Shortly before the opening of the polls on Election Day, CDOS and Engility noted that one of the two SCORE data centers lost network connectivity. Several counties began to report problems with some of their connections to the statewide voter registration database. Others reported problems beginning later in the morning. Every county official BPC researchers heard from described having similar problems on Election Day. The problem was not in any way limited to particular jurisdictions. It affected every part of the state.

From a county perspective, the problem occurred with the connection to the statewide voter registration database via the WebSCORE application. Connections from some of the terminals at a VSPC would stop functioning. Pollworkers would be logged out of their connections. Pollworkers who tried to establish new connections or to reestablish connections were sometimes unable to do so.

While the problem was widespread, typically the connection problems affected only some of the terminals at a VSPC. In almost all cases, at each VSPC, there were some terminals with operational connections to the statewide voter registration database. Terminals that lost their connections were often reconnected eventually. And terminals with working connections often later lost their connections. Election officials staffing the VSPCs reported that the problems seemed to be akin to a rolling outage. The problems were not so severe that all terminals were unavailable, and the problems were not limited to particular terminals.

There were two exceptions during which two VSPCs lost connectivity in all of their terminals. One small county reported that it was not able to establish a connection for any of their VSPC terminals between 4pm and 7pm on Election Day. During that time, 63 voters were processed at the VSPC, and all of them cast provisional ballots. We were not able to verify whether election officials tried to reestablish connections from their terminals continuously throughout this three hour period or if they at some point stopped trying to reestablish connections. This example is the only unplanned case we found of a VSPC reporting no access to the statewide voter registration database on all machines.

The other instance of a lost connection that affected all terminals at a VSPC was the planned statewide shutdown of the system that state officials executed during the afternoon on Election Day. As we will describe in detail in a subsequent section, state election officials decided to take down the system at 2pm to add additional capacity to improve the overall performance of the system. All counties were notified of the outage in advance. The outage lasted just over five minutes. Election officials from every county we spoke with indicated that the communication from state officials about this outage was clear and timely. The outage was very short, even shorter than the time that the state had

communicated to the counties in advance of the outage. After the outage, VSPCs returned to serving voters. But counties did not notice any marked improvement after the planned outage. The counties with whom we spoke reported problems before the planned outage and the same problems after the planned outage. These problems did not seem any more or less severe before or after the intentional system-wide outage. Nor did election officials notice any change in the type of log-on and connectivity problems they faced.

In addition to the general problems that counties faced with their connections to the statewide voter registration database, some reported problems related to the direct log-on process itself. There were issues both with the log-on and authentication processes. For example, some poll workers repeatedly entered incorrect log-ons and/or left CAPS lock engaged and were eventually locked out of the system due to too many erroneous entries. Other issues encountered include differences in log-on policies between county and state computer systems and disconnected connections due to pollworker inactivity and screen timeouts. Some of these problems implicate the architecture of the statewide voter registration database and the practice of authentication being tied to COVR1 or COVR2³ that proved problematic under load-leveling between the two sites. These log-on issues contributed to wait times for voters by creating additional hurdles for poll workers who had been kicked out of the system and had to attempt to log back in, sometimes unsuccessfully.

Addressing Connectivity Problems

Generally, BPC heard that the pollworkers were the most impacted by the connectivity issues with the statewide voter registration database due to the interruption of anticipated procedures and the need to find alternative ways to service voters. Pollworkers throughout Colorado were faced with two challenges: Connectivity interruptions with WebSCORE and log-on difficulties. Despite some training on these issues, pollworkers were not as prepared as they could have been for these issues on Election Day. One county described experiencing major issues around 10am and there was a serious discussion of which contingency options to convey to their pollworkers. Many counties shifted to the absentee ballot issue function in SCORE to print replacement absentee ballots for voters impacted by connectivity issues at the VSPCs. Local election officials were frustrated with the “freezing” and periodic failure of WebSCORE.

County election officials described several ways that they dealt with the problem of connectivity to WebSCORE on Election Day. First, voters were asked to wait while workers reestablished connectivity. Second, VSPCs tried other ways of connecting to the statewide voter registration database. Some counties used a direct connection to SCORE instead of the WebSCORE application. Others tried accessing the WebSCORE application through different browser, such as Google Chrome, Firefox, Internet Explorer and others. Finally, some voters were offered and cast provisional ballots.

³ The architecture of the system is discussed at length in the section *Perspective of State Technical Staff*.

Contingency plans among the counties varied. Some counties said that they had contingency plans in place that they included in their training of staff and that they had participated in the conference call on contingency planning given by the CDOS (although they expressed that they thought the call was “very short”). Other counties said that their plan was “made up as they went along.” The counties that did have plans in place included in their contingency plans protocols about how to service voters during connectivity issues, communication networks to disseminate updates to pollworkers in the field, identified leaders in each VSCP tasked with maintaining order, and the availability back-up equipment (additional laptops, PCs, phones, etc.).

By 10am on Election Day most counties were aware that there were problems statewide with the WebSCORE application. CDOS had established a hotline for the counties to call specifically for WebSCORE concerns, the aptly named SCORE Help Desk. The counties relayed that they had nothing but excellent service from the SCORE Help Desk staff, but that they eventually stopped calling after the issues persisted and they were hearing repeatedly the same prescribed solutions that were not working. This is unfortunate because state officials had only partial information on the extent of outages.

There was some commonality to how the issues arose around the state. We heard that most commonly the end-user—a pollworker at the VSPC—would experience a screen freeze on the terminal, which required the user to log-off and then log-on again. This did not occur at all terminals in a VSPC at the same time, but was intermittent and arbitrary. The user was sometimes able to complete the log-on process within few minutes, though, it could take a half hour or more. We heard that user experiences varied, even for two users sitting side-by-side. One pollworker would be unable to log-on and the other would experience no delays, session issues, or log-on challenges.

When a user attempts to log-on, a dual-authentication process is necessary. A dual authentication process requires a pollworker first to provide his or her username and password. Then the individual was prompted to provide an alpha-numeric code associated to a grid card that he or she had been provided.⁴ This dual authentication proved to be problematic for many of the pollworkers who had computer literacy challenges. Some of the issues arose from common mistakes such as having the numbers or CAPS lock engaged. Pollworkers became frustrated and, after multiple unsuccessful attempts, would get locked out of the system. Some of the larger counties designated lead staff at each of the VSPCs who had the administrative capabilities to unlock terminals when this happened; others had their pollworkers call the SCORE Help Desk to unlock terminals remotely.

Use of Alternative Methods to Log on to the Statewide Registration Database

Another way that some counties chose to deal with outages of the WebSCORE application was to attempt to log-on using alternative methods. A number of counties used the older,

⁴ The grid card looked like a BINGO card and the user was asked to provide the value assigned to the requested coordinates in order to access the WebSCORE application.

direct connection to the SCORE database.⁵ Election officials using the direct connection to SCORE did not experience the magnitude of delays that some faced through WebSCORE, but a direct connection is not available to all VSPC staff.⁶ The direct connection is usually used for new registrants or those seeking a change of name, as the WebSCORE application used in 2014 could not process those types of transactions.

Other attempts to secure an alternative connection to the statewide voter registration database included trying to log-on to the WebSCORE application through different internet browsers (e.g., if a county first used Microsoft Internet Explorer, a second attempt to log-on would be used in Google Chrome or Firefox browsers). Some counties reported success with the change of browsers, but BPC researchers could not determine that a change of internet browser or use of a particular internet browser made any difference in the ability to log-on. Others stated that they found that making sure that the cache was cleared or that the user was in “incognito” or “in private” mode (depending on the browser being used) was helpful. This solution was not an available option for all counties because of some restrictions on the browser available to support their ballot-on-demand system. However, it appears likely that the multiple attempts to reestablish connectivity through different internet browsers may have contributed to an additional problem by increasing the number of “users” trying to access the system at one time.

Longer wait times

There were longer wait times due to the problematic connections to the statewide voter registration database. Because these problems with access to the statewide voter registration database were sporadic and almost never resulted in all connections to the database being lost, the most common downstream effect of the outages was to increase voter wait times. Except for the planned five minute outage at 2pm (and one afternoon experience in a small county), VSPCs could move voters through the regular process throughout the day. With fewer working WebSCORE connections than anticipated, voters experienced unanticipated wait times. The worst report we heard about lines was from Denver, which reported that at two VSPCs the peak wait time was 90 minutes.

During the planned outage, some counties offered voters the choice to cast a provisional ballot or to wait until connectivity was reestablished; most voters preferred to wait. Some voters who started the provisional voting process stopped when the connectivity was reestablished and voted through the regular process.

An additional security protocol that was in place statewide was to lock terminals after 30 minutes of inactivity. One of the clerks stated that they knew this could be an issue at their slower locations (and during the first week of early voting) and they trained the pollworkers to simply move the mouse on the computer periodically to “keep it from going

⁵ State and county officials reported that there were some issues with the direct connection to SCORE on Election Day, but these difficulties did not seem as pervasive.

⁶ There were a limited number of licenses for the direct connection, but there is at least one license for the direct connection available to a pollworker at each VSPC.

to sleep.” Once the terminal was locked it was necessary to complete the dual-authentication process and some counties reported that their pollworkers did not initiate the log-on process until they had a voter attempting to check in, which resulted in voters having to wait. Most counties conveyed that they either did not hear from voters at all about their voting experience or heard from only a handful of voters who were dissatisfied.⁷

Provisional Ballots

The final way that counties dealt with outages of their access to the statewide voter database was by issuing provisional ballots. If all access to the database had been out for a significant period of time, counties would have been forced to issue provisional ballots to all of their voters. But given that the connection issues were sporadic and the planned shutdown was only for five minutes, counties did not have to rely heavily on provisional ballots. The Business Practice Group Report states that of the 981 provisional ballots cast, 387 accepted provisional ballots statewide were due to the loss of connectivity or the inability to verify the voter’s eligibility as a result of the WebSCORE interruption.

Perspective of State Technical Staff

Given the importance of the statewide voter registration database, state officials maintain two copies of the database in separate locations. The two copies of the database communicate with each other. One serves as the database that is updated in real time by voting transactions, and it communicates those changes to the other database to ensure there is an accurate backup.

In addition to the redundancy of the database, the state also maintains two separate architectures of servers dedicated to the web browsers and application functions. For security reasons, one database and related servers for browser and applications is housed in one part of the state and the other database and related servers are housed in another part. State technical staff refer to these two architectures as COVR1 (Sherman/e-Fort) and COVR2 (GGCC/Kipling). Traffic coming in from the VSPCs across the state, as well as administrative activity in the County Clerk’s offices (I.E. signature verification) and the

⁷ Robert Stein of Rice University conducted some voter surveys after the election to quantify voter satisfaction with the new voting structure and identify voting behavior. Dr. Stein presented his preliminary findings (not yet published) at the CCCA Winter Meeting. The survey sample included 1560 voters. 8.2% of the respondents said that they completed their ballot in person at the VSPC. Many of these voters said they did so because they had not received their ballot in the mail (81%), and of those voters 79% said that they had registered to vote in 2014. Of the voters who went at the polls, 73% said that they did not mind waiting in line to vote (versus 45% of the voters who cast the ballot mailed to them). This is noteworthy because it is likely that some of these voters did have to wait in line due to the connectivity issues on Election Day. Dr. Stein concluded that “[v]oter satisfaction with their overall voting experience in 2014 does not vary by how the voter chose to return their ballot, i.e., by mail or in-person” and “[a]n overwhelming majority of voters were satisfied (37%) or very satisfied (59%) with their overall voting experience.”

online voter registration (OLVR) system, is balanced between the web and application servers at both sites.

There was concern that other administrative functions may have been impacting the level of responsiveness of the underlying SCORE system on Election Day, namely the processing of ballots already returned (signature verification, reports running that are necessary for ballot processing, etc.) and the generation of reports for the political parties and campaigns of voter turnout. Tier 1 counties, those with the greatest populations and those which would be most susceptible to draining the system with these activities, perform this work with locally stored data. For example, counties do signature verification against signatures stored within their own county datasets and public reports are pulled off of the VPN established by the CDOS. More review of the running of reports on Election Day needs to be done to assess if this is a factor in capacity concerns.

The CDOS load tested the system based on the assumption that there would potentially be 1-1,200 users on the system at any one time. The load that they then tested to was double that with 1,000 users being processed each via COVR1 and COVR2. This testing may have been sufficient had users not encountered the issues necessitating repeated log-ons or concurrent sessions in both SCORE and WebSCORE.

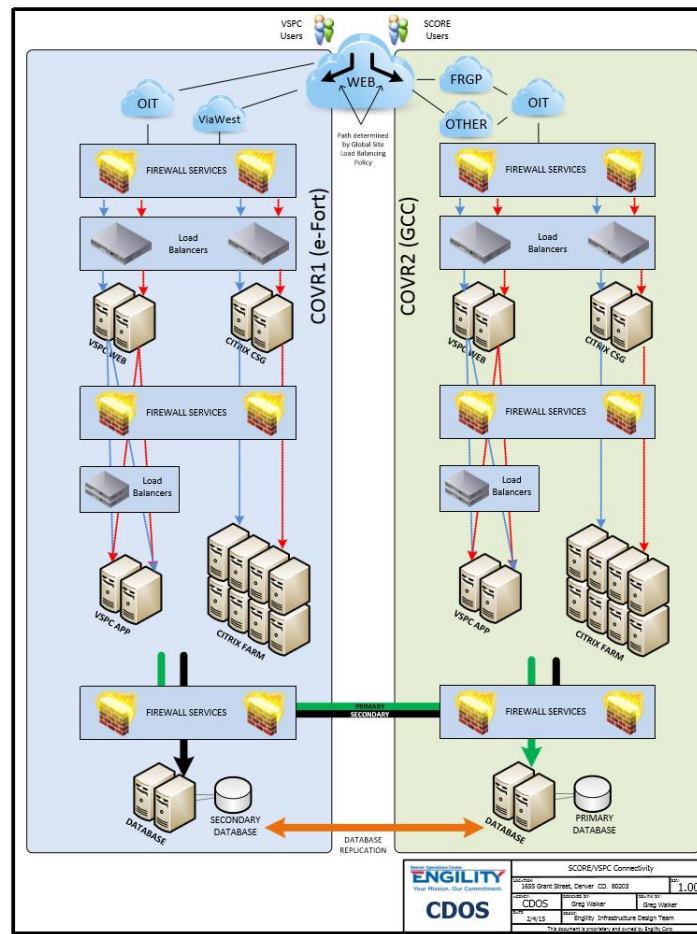


Figure 1. COVR1 and COVR2 architecture.

County and state officials did not seem to encounter any capacity or connectivity issues with either SCORE or the WebSCORE application during early voting. However, it was during this time that CDOS was made aware that there may be some communication issues between COVR1 and COVR2 in the ability to address load-leveling between the servers at the two locations. The vendor advised that there would be a patch that could be done to correct this potential issue and prevent it from happening. Due to the pervasive load-testing that had been done, with no adverse impact on the performance of the network coupled with the fact that voting had already begun, CDOS decided not to make any major changes to the system so close to Election Day. It did, however, do a standard reboot on the evening before Election Day after the close of the polls and conclusion of the day's report generation. The counties were apprised of the system being down for that period of time.

On the morning of Election Day,⁸ technical staff reported that COVR1 was offline. Technical staff was able to bring the system back online, but the system continued to exhibit issues with transactions queuing to the point where they were not interacting with the database. Technical staff had to continually cancel sessions and bring down the servers.

Technical staff indicated that several issues might have contributed to the communication problem between COVR1 and COVR2. One is that technical staff did not install a patch that would have improved load leveling between the two systems because this issue was raised after voting had already started and major system changes are historically avoided during an active election cycle. Enhanced load leveling might have mitigated issues, but technical staff is not certain that this would have been sufficient to prevent the problem and may have caused additional, unintended consequences.

As difficulties mounted throughout the morning, technical staff noted that the number of users attempting to access the statewide voter registration database was rising and approaching capacity. To alleviate capacity issues, technical staff scheduled a planned shutdown of the system to increase the number of users able to access the database simultaneously. This shutdown was successfully executed at 2pm with only a five minute outage. By increasing the number of users allowed to access the system simultaneously, the technical staff was able to preclude the danger of exceeding capacity. However, the added capacity did not solve the underlying connectivity problem.

Despite a great deal of analysis by the CDOS staff and database vendor into the cause of the interruptions of connectivity on Election Day, the exact source of the issue has not been determined. However, state technical staff believe that a larger number of servers at the browser and application levels would be helpful in avoiding future issues. Technical staff also recommend employing diagnostic tools in their future load testing and during future elections.

⁸ A detailed timeline of Election Day technical actions provided by the Office of Information Technology can be found in Appendix B.

Recommendations

BPC's recommendations are divided into four categories expounded upon in the full report. In summary, the first set of recommendations is to identify technical issues that need to be addressed. Second, BPC makes recommendations to improve contingency planning for dealing with connectivity issues with the statewide voter registration database. Third, training processes and procedures should be reconsidered.⁹ Fourth, BPC recommends establishing a working group to monitor developments in the implementation of WebSCORE and VSPCs going forward.

Technical Recommendations

The technical recommendations fall into three main categories. First, there needs to be an increased diagnostic functionality in the system in order to correctly identify the root cause of issues that arise. Secondly, capacity of the network must be increased. Third, certain limitations on access to the statewide voter registration database are necessary to ensure that essential requests can be met on Election Day. Improvements in the log-on procedure will allow for more efficient connectivity for election officials.

Diagnostic

RECOMMENDATION 1a. Technical staff has recommended the implementation of diagnostic tools to identify exactly where the capacity problems occur. These tools allow for visibility of all transactions within the system to allow for better understanding when issues arise so that they can be identified and addressed.

RECOMMENDATION 1b. Staff should implement these diagnostic tools and employ them in future load testing and real election settings to identify more precisely where capacity problems exist.

RECOMMENDATION 1c. Load testing should be performed to identify the underlying cause of the problems accessing the statewide voter registration database. Given that a higher turnout presidential election will occur in 2016, load testing should reflect the greater demands on the system of a higher turnout election and utilize lessons learned in 2014 on how the counties utilized the system. The potential impact of the OLVR system during a presidential election should also be considered.

RECOMMENDATION 1d. Colorado has conducted mock elections in the past to allow election officials to simulate live voting at a VSPC. Colorado should combine this mock election with load testing to make the most realistic scenario possible, where election officials will be interacting with the statewide registration database at the same time it is under the stress of many transactions simulated by load testing.

⁹ BPC makes additional recommendations for training and contingency planning in Appendix F.

RECOMMENDATION 1e. A review should be done to look at the estimated and actual number of simultaneous users attempting to access the statewide voter registration database. An extrapolation of the total number of users in 2014 and the number of attempted log-ons at peak times could prove to be illustrative when forecasting volume.

RECOMMENDATION 1f. A review should be made to determine if the inactivity period is too short and could be lengthened (training materials for the pollworkers note this will happen after 13 minutes, we were advised it was 30 minutes of inactivity).

Improve and Increase Capacity

RECOMMENDATION 2a. Increase system capacity at the browser and application levels. While there is no precise explanation for the problems on Election Day, some evidence points to a lack of capacity in these areas, and until a precise cause is determined, more capacity should be made available.

RECOMMENDATION 2b. Install load leveling patch that allows for better load leveling between the two systems, COVR1 and COVR2.

RECOMMENDATION 2c. Enable user authentication to be universal across the entire system thereby reducing users being kicked-off the network in busy times. As technical staff have recommended, authentication of the user should be moved from its current location between the web and application layers to the inception of the user's session so that a single session can then be load-leveled between COVR1 and COVR2 without authentication errors that expel the user. (A global load-site authentication.)

Limitations on Access

RECOMMENDATION 3a. Improve log-on procedures and train pollworkers on log-on procedures, internet browser use, etc.

RECOMMENDATION 3b. Establish a plan at the state level to limit and monitor connections.

RECOMMENDATION 3c. Better control and training on the use of various browsers and equipment that access the system.

RECOMMENDATION 3d. Determine standards for when it is appropriate for users to log-on to both SCORE and WebSCORE.

RECOMMENDATION 3e. Set guidelines for the periodic monitoring of users for capacity efficiencies.

RECOMMENDATION 3f. Reduce unnecessary strains on capacity during Election Day by limiting non-essential access to the statewide voter registration database.

RECOMMENDATION 3g. Review all reports and move nonessential reports to non-Election Day hours. Consider improved ways to provide information to political parties that does not unnecessarily strain the use of the statewide registration database during voting hours.

Contingency Planning

No matter how the problems that Colorado faced on Election Day 2014 are resolved, state and local election officials need improved contingency procedures to deal with any future issue involving the inability to access the statewide voter registration database.

BPC researchers were told by some county officials that the process of casting a provisional ballot takes “up to ten times” as long as casting a standard ballot. BPC recommends a process to develop improved and more efficient contingency procedures, including those concerning the use of provisional ballots.

RECOMMENDATION 4a. Explore options for counties to utilize a local dataset to process certain transactions on Election Day should the statewide system be unavailable.

RECOMMENDATION 4b. Reexamine rules regarding provisional ballots to determine if there are circumstances when a provisional ballot might not be necessary.

RECOMMENDATION 4c. Engage in a systematic study of the time it takes to cast a regular ballot, a provisional ballot, and other backup procedures for voting. County officials tell us that a provisional ballot may take as much as ten times as long to cast as a regular ballot. Testing of the time it takes to cast a ballot should be measured in simulated elections and at real elections to inform officials how long various backup procedures will take.

RECOMMENDATION 4d. Establishing at least one staff person at each VSPC with direct access to SCORE in the event that the WebSCORE application is not functioning.

Training¹⁰

RECOMMENDATION 5a. Review the training from the 2014 cycle to identify areas for further improvement.

RECOMMENDATION 5b. Develop a comprehensive set of procedures and training to better inform pollworkers on how to use browsers, log-on, etc.

¹⁰ BPC makes additional recommendations for training and contingency planning in Appendix F.

RECOMMENDATION 5c. Develop a comprehensive plan and training for pollworkers on the contingency procedures when the statewide database is not available.

Working Group

The working group should receive updates from technical staff on the progress of 1) diagnosing the underlying cause of 2014 issues with database connectivity, 2) load testing and the mock elections, 3) examining procedures for better contingency plans for when the statewide voter registration database is down including considering changes to provisional ballot procedures, alternative backup procedures at VSPCs, and the development of a statewide contingency plan for all counties.

RECOMMENDATION 6. A working group should be created with representation from all stakeholders in the administrative realm:

1. Department of State management
2. Department of State IT staff
3. SCORE Help Desk staff
4. Engility representatives
5. County Clerks (representing all tiers if possible)
6. County IT staff (representing all tiers if possible)

Appendix A: BPC Staff Bios

John C. Fortier is director of the Bipartisan Policy Center's Democracy Project and co-director of the Commission on Political Reform. He is a political scientist who focuses on governmental and electoral institutions.

Prior to coming to BPC, he was a research fellow at the American Enterprise Institute, where he also served as the principal contributor to the AEI-Brookings Election Reform Project, the executive director of the Continuity of Government Commission, and the project manager of the Transition to Governing Project. He was also a regular contributor to AEI's Election Watch series. He also served as the director of the Center for the Study of American Democracy at Kenyon College. In 2013, he was an advisor to the Presidential Commission on Election Administration during its deliberations.

He is the author of *Absentee and Early Voting: Trends, Promises and Perils* (AEI Press: 2006), author and editor of *After the People Vote: A Guide to the Electoral College*, and author and co-editor with Norman Ornstein of *Second Term Blues: How George W. Bush Has Governed* (Brookings Press: 2007), and numerous academic articles in political science and law journals. He has been a regular columnist for *The Hill* and *Politico*. Fortier is a frequent commentator on elections and government institutions and has appeared on ABC's Nightline, CNN, Fox News, PBS's News Hour, CBS News, NBC's Today Show, C-SPAN, NPR, Bloomberg, and BBC.

Fortier has a Ph.D. in political science from Boston College and a B.A. from Georgetown University. He has taught at Kenyon College, University of Pennsylvania, University of Delaware, Harvard University and Boston College.

Tammy Patrick is a senior advisor of the Democracy Project with the Bipartisan Policy Center, focusing on discussion on recommendations of the Presidential Commission on Election Administration (PCEA). Previously, she was a federal compliance officer for the Maricopa County Elections Department in Arizona. In 2013, Patrick became a voting member of the Institute of Electrical and Electronics Engineers' working group on developing standards for a universal format for election results reporting. She is also a representative on the Mailer's Technical Advisory Committee to the U.S. Post Office and serves as the co-chair of the Postal Task Force for the Election Center. Patrick has previously served as a member of the Election Assistance Commission's working group on Language Assistance for Unwritten Language, as an organizer of the 2007 Native American Voter Outreach Summit, and as a member of the Election Center's National Task Force on Education and Training. Ms. Patrick received her B.A. from Purdue University.

Donald Palmer is a senior advisor of the Democracy Project with the Bipartisan Policy Center, focusing on discussion on recommendations of the Presidential Commission on Election Administration (PCEA). He was appointed secretary of the Virginia Board of Elections by former Virginia Gov. Bob McDonnell in 2011 and served as the

commonwealth's chief election official until July 2014. He formerly served as the Florida Department of State's director of elections during the 2008 and 2010 election cycles. Since 2009, he has served on Election Assistance Commission advisory boards, including the Standards Board Executive Board and the Technical Guidelines Development Committee, representing the National Association of State Election Directors. Prior to his work in election administration, he served as a trial attorney with the Voting Section in the U.S. Department of Justice's Civil Rights Division, where he enforced federal voting laws and provided guidance to states on compliance. Earlier in his career, he was a U.S. Navy intelligence officer and judge advocate general deployed overseas onboard the U.S.S. John F. Kennedy and tours of duty in Italy, Florida, and Washington, D.C.

Matthew Weil is the associate director of the Bipartisan Policy Center's Democracy Project. Prior to joining BPC, Weil worked at the U.S. Department of the Treasury on domestic finance issues in the office of public affairs. Before that, Weil served as a research and policy analyst at the U.S. Election Assistance Commission, working on National Voter Registration Act regulations, drafting congressionally mandated reports, and directing the Election Management Guidelines program. He also served as a staff member on the AEI-Brookings Election Reform Project. Weil graduated from the University of Pennsylvania with a B.A. in philosophy, politics, and economics.

Appendix B: State Technical Timeline of Actions Taken on Election Day 2014 with Screen Shots

(as provided by the State of Colorado)

6:43 am: DRC sends the “all-clear” that infrastructure looks good. Seeing connections to SCORE, VSPC and OLVR.

6:50 am: Site 2 Netscaler reports Site 1 MEP down (This is the outside communications link between the two sites to support GSLB services).

6:50 am: Site 2 (Kipling) experiences a network issue. OIT reports later in the day that traffic is automatically routed through the backup connection at Sherman.

6:51 am: DRC at CCDOS gets kicked out of their sessions, Internet services were also interrupted.

6:53 am: CCDOS and Denver report IdentityGuard error popups. (See screen shot 1)

6:56 am: When users try to log into Citrix, they receive an error. Looks like a DNS error. (See screen shot 2)

7:08 am: All tests from CCDOS site show no access is available to COVR1 (e-FORT), Good access to COVR2 (GGCC). Denver County continues to report NO access to VSPC (hosted at COVR1). Local hostfile tests from CCDOS also show no access to COVR1, but COVR2 is available.

****DECISION POINT:** Due to the stability of COVR1 (e-FORT), the decision was made to evict COVR1’s front door and move all traffic for VSPC and SCORE through COVR2 (GGCC) until a complete analysis of the issues being reported from within CCDOS and Denver County

7:10 am: DRC modifies GSLB to move all traffic to COVR2 (GGCC) and all access tests show GOOD

7:14 am: Later in the day, OIT reports this is the time that traffic was switched back from the backup connection (Sherman) to the primary (Kipling).

7:16 am: Site 2 Netscaler reports Site 1 MEP UP (This is the outside communications link between the two sites to support GSLB services).

7:22 am: Getting reports again regarding DISCONNECTS

7:24 am: Have verified good connecting from CCDOS to COVR1

7:26 am: OIT is reporting issues on their SIDE, DRC recommends switching back to COVR1 (e-FORT)

****DECISION POINT:** Due to the stability of COVR2 (GGCC), the decision was made to evict COVR2's front door and move all traffic for VSPC and SCORE through COVR1 (e-FORT) until OIT could assess the issue at COVR2 (GGCC)

7:32 am: DNS switched from COVR2 to COVR1

8:02 am: DRC clears all DNS session table to make sure clients are no longer using an old record that would be pointing to COVR2DNS so that users are directed to Site 1 (eFORT).

8:00 am: Larimer reports an Oracle listener error in SCORE when running reports. It is not quite the same as the error seen later regarding a lack of listeners. Of note, the county reports that they saw this error on Saturday November 1 and several times on Monday, November 3 but it does not appear it was reported to CCDOS. (See screen shot 3)

8:05 am: Douglas internal email indicates VSPC is running slow. At 7:57 am, seemed to be running okay.

8:10 am: Douglas internal email indicates VSPC is spinning/clocking.

8:14 am: Douglas internal email indicates they received an Ajax error "error in Ajax call".

8:15 am: Douglas advised their users to log out and back into VSPC.

8:19 am: Douglas reports user are back in; "voters were cool about waiting".

8:21 am: Arapahoe users reports SCORE error. (See screen shot 4)

8:25 am: DRC restarts VSPC servers as applications are not responsive.

8:29 am: DRC DB check shows 703 connections (db looks good)

8:34 am: Douglas reports a VSPC error. Initially says an Ajax error, then a 501 or 502 error. (See screen shot 5)

8:38 am: Arapahoe reports another VSPC error. It is a "500 Internal Server Error". (See screen shot 6)

9:23 am: Douglas reports an Oracle listener error in SCORE. (See screen shot 7)

9:24 am: Douglas user reports internally that VSPC has been working sporadically. They log out and back in and that works. "Voters have been very patient, even joking with us".

9:25 am: Douglas reports to CCDOS that VSPCs are functioning, but sporadic.

9:41 am: CCDOS internal email that SCORE is "down again".

9:49 am: CCDOS internal email that SCORE is working but VSPC is down. CCDOS advising counties to issue mail ballots in SCORE or issue provisional ballots.

9:51 am: CCDOS internal email that all of SCORE is back up. Advising counties to stop issuing provisionals.

****DECISION POINT:** Both VSPC servers at COVR1 (e-FORT) experience congestion causing threads to stack up on the servers. This congestion caused users to report a slow or unresponsive VSPC application. Recommendations to add the COVR2 VSPC server into the mix to distribute the load across the 4 servers. However, a known issue with GSLB prevents users from sticking to a single site during a user's session. This has been resolved for SCORE application, but not tested fully for VSPC. Recommend applying GSLB policies fixes prior to adding COVR2 VSPC servers into the workload.

9:51 am: Changes prepared to add GSLB policy corrections for VSPC

10:31 am: Denver user reports receiving a SCORE error. It appears to be a lack of available Oracle listeners. In the same email, user reports that VSPC is performing without freezing or slowness. (See screen shot 8)

10:39 am: User reports Oracle error message, received and sent to DBS's for analysis

10:41 am: Garfield and Larimer counties report receiving the same database listener error as Denver.

10:41 am: DRC DBA's report we are hitting the configured process limit of 1000 on both DB servers. This would cause errors being reported by the client as a DB connection could not be made until this connection count is under the limit.

10:43 am: Kathy Overman reports that the CE-018 report has not been refreshed since 9:13 am and the CE-019 has not been refreshed since 8:25 am. These reports should be running hourly and posted for data subscribers and counties. (See screen shot 9)

****DECISION POINT:** In order to keep the number of Oracle sessions under the 2000 limit (1000 per server), we chose to clear any SCORE sessions that were IDLE for greater than 45min. Also, we recommended users only run up to 2 copies of CVR.EXE. Expecting this decision and action to reduce the number of connections and eliminate the reported Oracle errors.

10:45 am: Began to clear idle score sessions to free up DB connections.

10:49 am: Otero reports same database listener error.

10:57 am: Denver reports same database listener error processing 2 OLVR transactions in SCORE. User clicked okay to acknowledge and was able to continue to work.

11:19 am: Saguache reports same database listener error when clearing a residential address for a voter change in Citrix. User clicked "okay" and was able to continue working. (See screen shot 10)

11:32 am: Denver experiences slowness/freezing in VSPC. Reported to CCDOS at 11:42.

11:39 am: Kathy asks for an update on the CE-018 and CE-019 reports issue.

11:42 am: VSPC continues to experience issues with backlogged connections. Continue to restart web services when we see a stack up in connections.

11:49 am: CCDOS internal that the CE-018 and CE-019 reports ran at 11:10 and 11:25. Also noted that the reports did not run during the 10:00 hour.

****DECISION POINT: VSPC continues to stack up client connections. Decision to add in COVR2 (GGCC) to help off load traffic. Users will only go to this site, in the event their 60min idle session for DNS expires or their current connection is cleared from the table.**

12:08 pm: Added COVR2 (GGCC) VSPC servers into production

12:17 pm: CCDOS Notice #1 sent out. It acknowledged the initial network problem, the 9:00 hour VSPC problem, asks county user to limit the number of SCORE sessions they run, and asks them not to run the CE-018 and CE-019 reports, but to use the hourly reports dropped on the secure ftp site instead.

12:20 pm: RHWapp1 VoterMobile restarted due to slow/non-responsiveness.

12:50: Having received feedback from Denver, CCDOS chooses 2:00 pm as the time for bringing down the database to add additional listeners.

1:00 pm – 2:00 pm: CCDOS contacts counties and state party officials to notify them of database downtime planned for 2:00 pm.

1:23 pm: Notice of database downtime posted to counties. Counties are told to expect up to 20 minutes of downtime.

2:00 pm: SCORE, VSPCs and OLVR brought down for Oracle database listener change.

2:06 pm: Oracle back up after change. Email notice sent to counties that SCORE and VSPC are back in service.

2:08 pm: More than 400 SCORE connections made by counties.

****DECISION POINT: VSPC servers continue to stack up connections causing users to experience slow performance or unresponsive application usage in VSPC. SCORE remains stable. While with COVR1 and COVR2 VSPC servers and in to support traffic, the majority of load is going against the servers at COVR1. To relieve pressure from COVR1, we have decided to clear out all the DNS persistence tables in GSLB. This will cause any new DNS query for VSPC to get load balanced across the 2 sites.**

3:51 pm: Cleared all VSPC GSLP sessions to distribute VSPC load across both COVR1 and COVR2

3:57 pm: Douglas reports a VSPC error. The URL of the error, a 404, shows a call to WebSCORE.../VSPC/Scripts/Utilities..., which is not standard. (See screen shot 11)

3:59 pm: Douglas reports more VSPC errors. (See screen shots 12 and 13)

4:08 pm: Rio Grande reports same error experienced by Douglas.

4:09 pm: Chaffee reports a similar error. (See screen shot 14)

****DECISION POINT:** While we see a distribution of client connections for VSPC between COVR1 (e-FORT) and COVR2 (GGCC), there is evidence that users sessions are being load balanced between the 2 sites causing users to get error or are forced to login again, while working in VSPC. Recommend disabling COVR1 and moving back to a single site for VSPC.

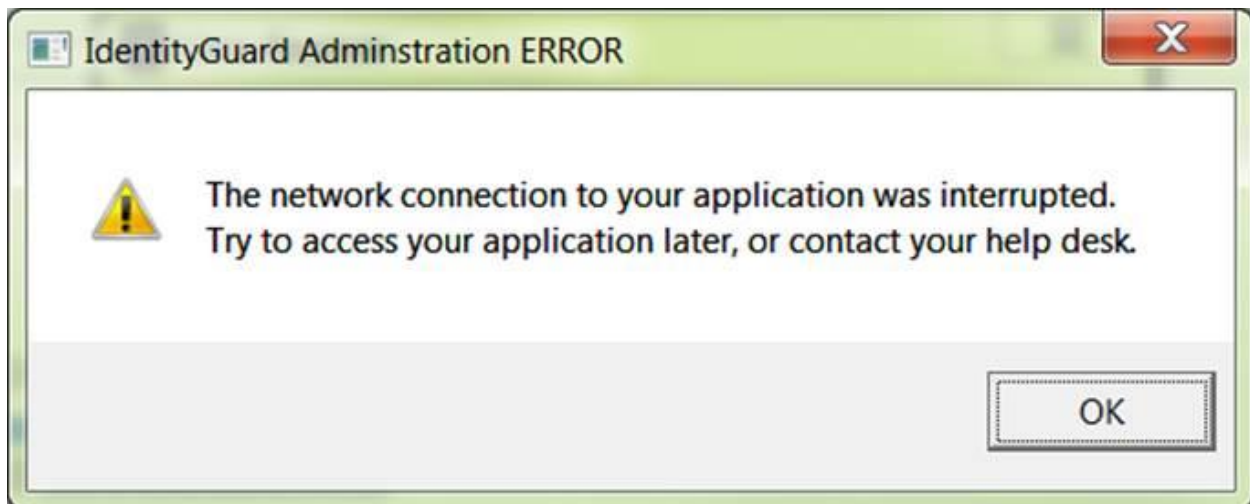
4:29 pm: Disable COVR1 (e-FORT) and moved all connections over to COVR2 (GGCC)

4:40 pm: Cleared session tables for GSLB policy, and disabled VSPC servers at e-FORT to make sure there are no sessions left in this load balanced state.

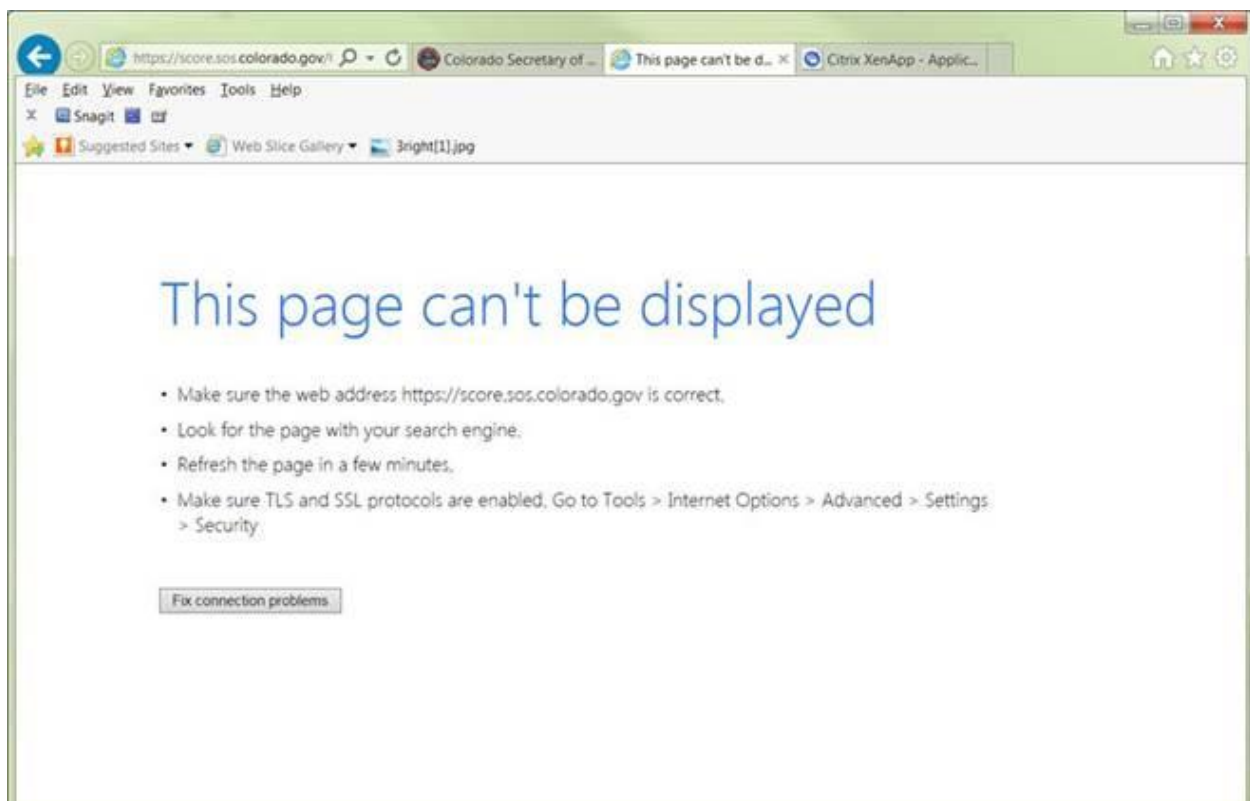
4:46 pm: CCDOS blocks two IPs due to high volume against OLVR.

4:59 pm: RHWapp1 VoterMobile restarted due to slow/non-responsiveness.

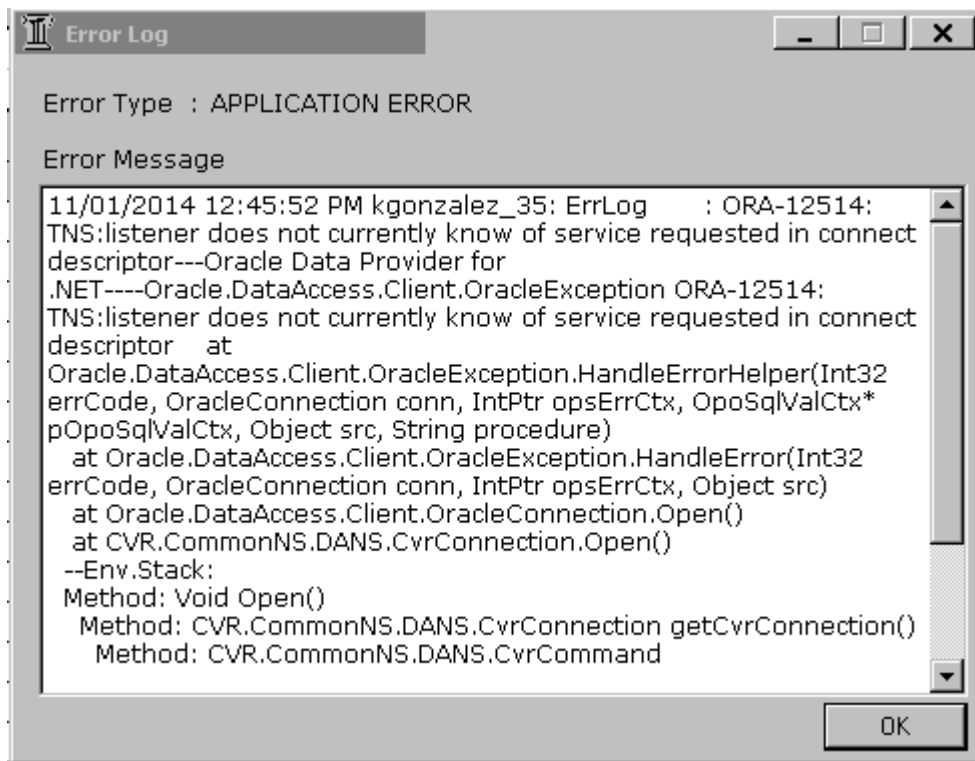
Screen Shot 1



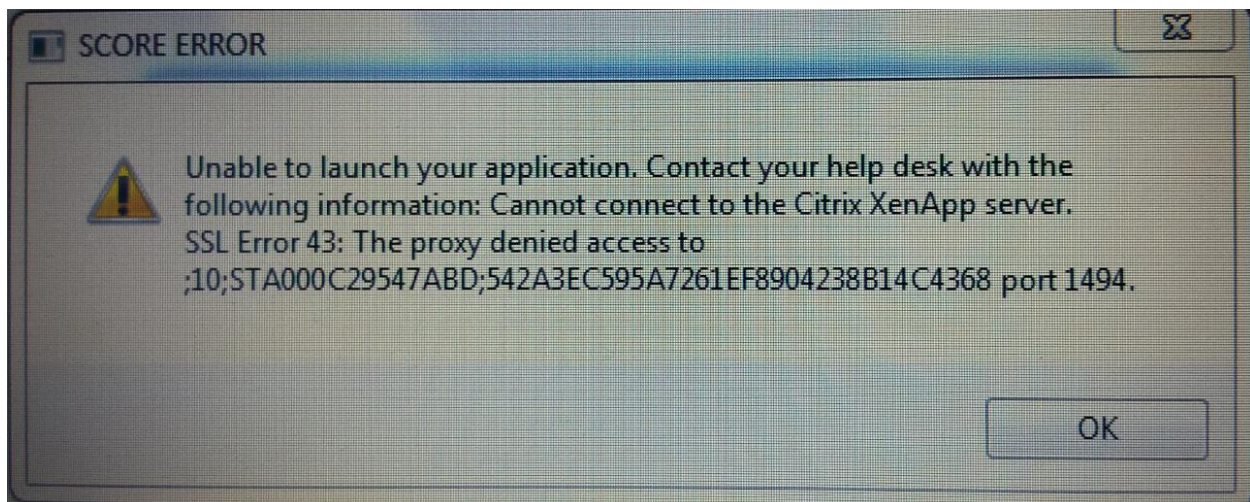
Screen Shot 2



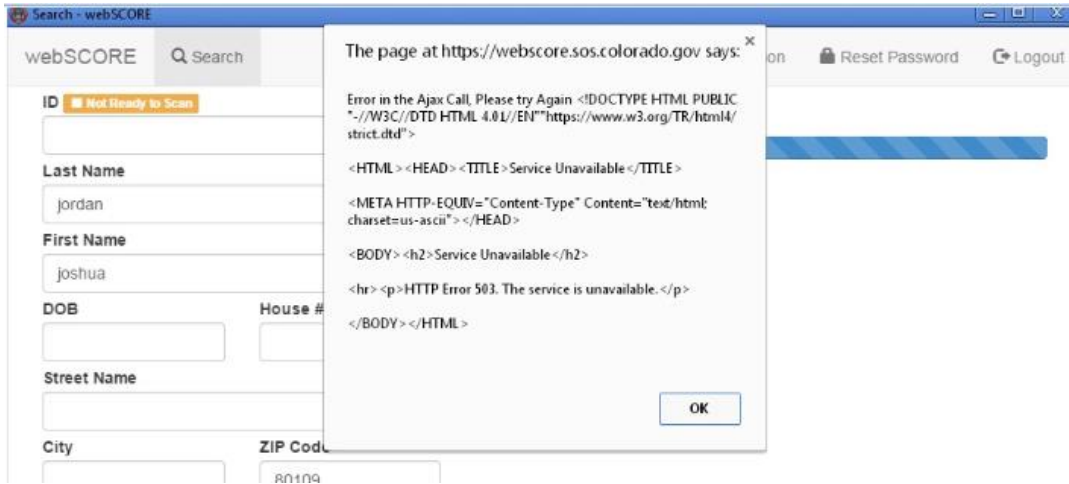
Screen Shot 3



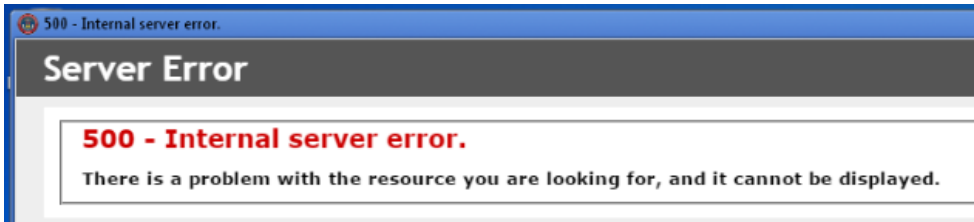
Screen Shot 4



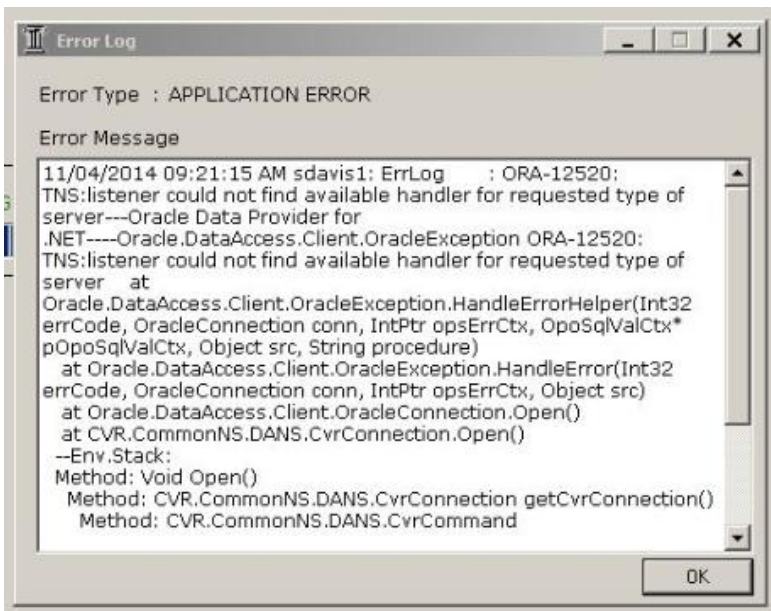
Screen Shot 5



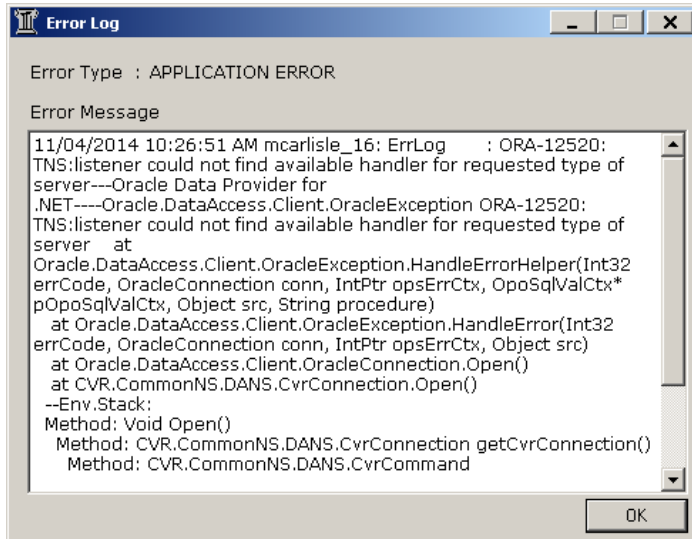
Screen Shot 6



Screen Shot 7



Screen Shot 8



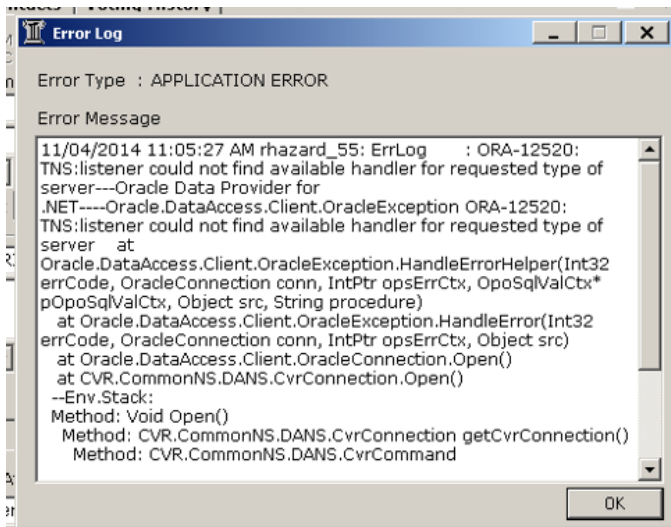
Screen Shot 9

From: Kathy Overman
Sent: Tuesday, November 04, 2014 10:43 AM
To: ITHelpDesk
Cc: Vicky Stecklein; [SCORE Customer Support]
Subject: Reports not updating hourly
Importance: High

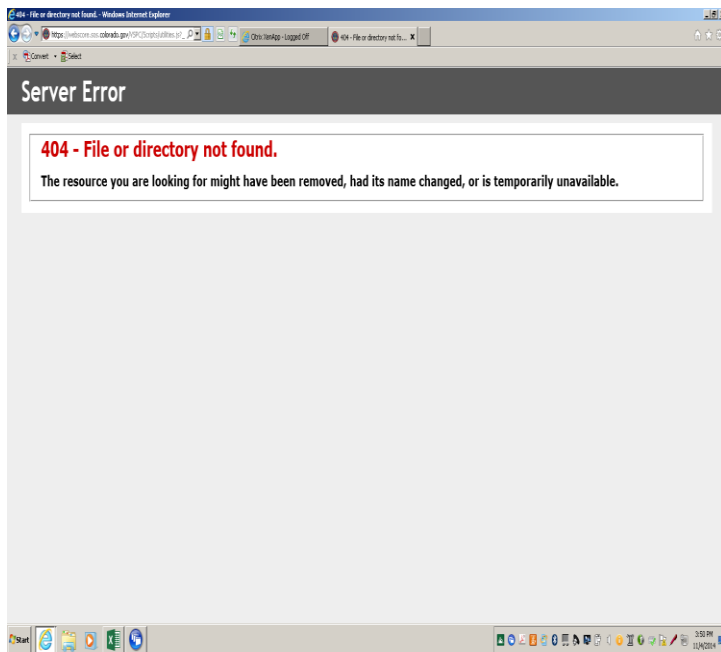
The CE-018 and CE-019 are supposed to be updating hourly on the FTP site, but the CE-018 hasn't updated since 9:13 and the CE-019 since 8:25. Subscribers are pulling these reports hourly and need the updated data. Please restart these jobs ASAP.

[Kathy Overman](#)

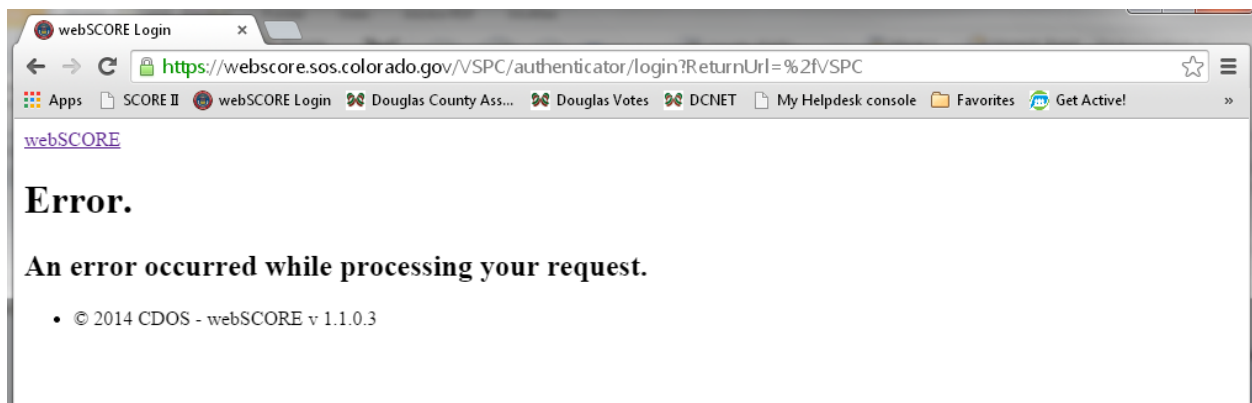
Screen Shot 10



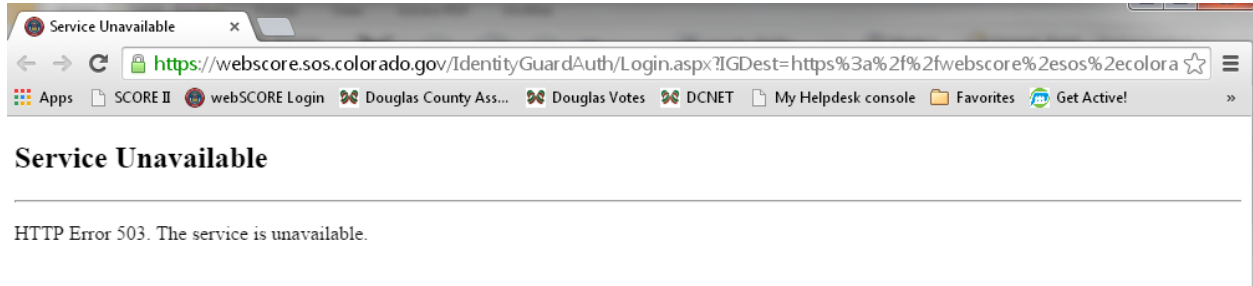
Screen Shot 11



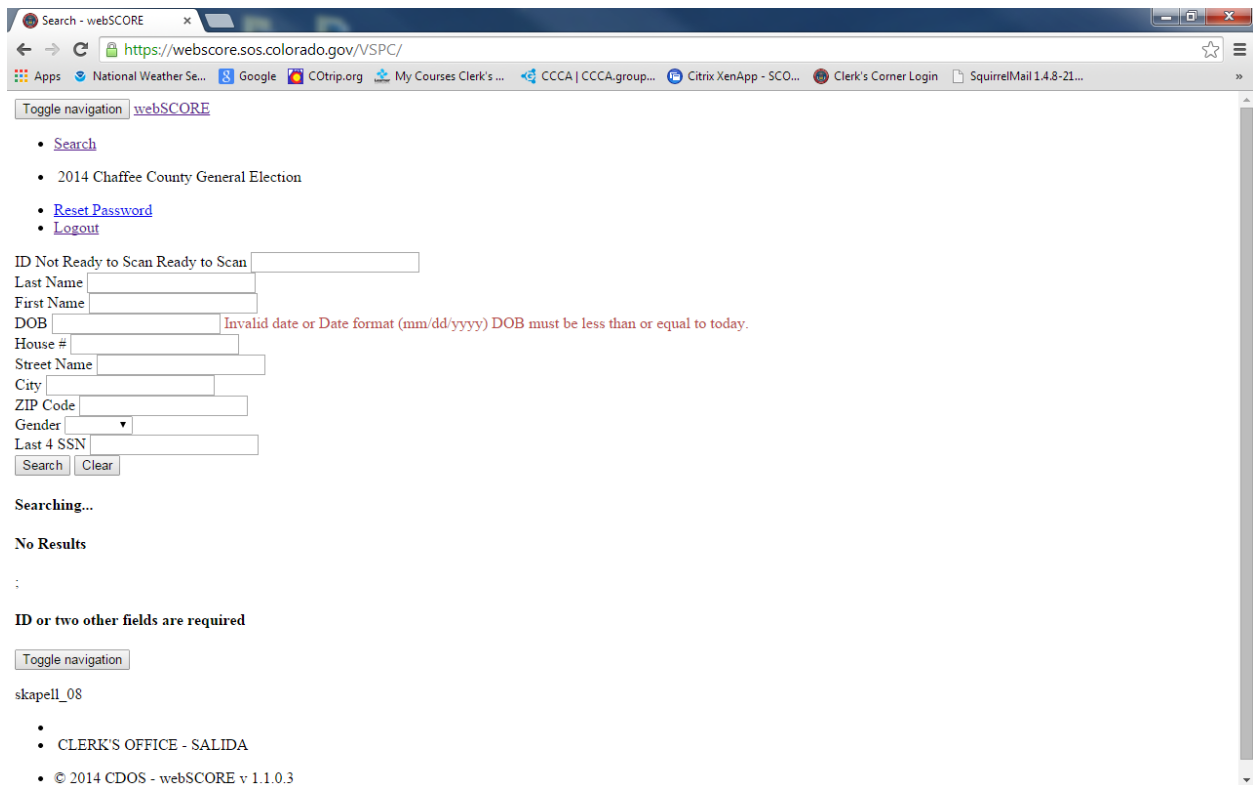
Screen Shot 12



Screen Shot 13



Screen Shot 14



Appendix C: Number of Terminals

The Business Practice Group of the CCCA surveyed the clerks and recorders about numerous election-related activities. The information provided to them shows that 1,124 computer terminals were used for voter processing on Election Day with 444 terminals reported as being used for new voters. It is not clear, however, how the counties reported the information as some reported the same number of terminals for both voter processing and new voters and others reported that none were for new voters. Terminals being used for both purposes could have been reported either way depending on the interpretation of the respondent. The survey stated that 1,862 temporary workers were working on Election Day at the 258 VSPCs in the counties that responded to the survey.

	# Locations	# Terminals	# New	# Temps
TIER 1	212	1033	402	1791
TIER 2	27	58	23	44
TIER 3	19	33	19	27
TOTALS	258	1124	444	1862

In general, a voter coming into the VSPC would fall into one of three paths for processing:

1. A voter comes in and needs a replacement ballot—either spoiling the one that he or she received by mail or replacing a ballot they not have received.

This voter would have his or her registration verified via WebSCORE with the pollworker checking that the voter had not already returned a ballot. The pollworker would then update the voter’s record to reflect that the voter had been issued a ballot and would issue the correct ballot to the voter.

Depending on the county the voter would then place the voted ballot into a ballot box for central tabulation or cast it in an optical scan voting machine at the VSPC. If the voter wanted to take the ballot with them, they were provided the appropriate envelopes with voter affidavits to allow for signature verification upon return of the voted ballot.

2. A voter wants to same day register and vote.

A new voter at a VSPC would need to be entered into SCORE directly. Once the registration was entered, a pollworker would update the voter’s record to reflect that the voter had been issued a ballot and would issue the correct ballot to the voter.

If the voter was registered at a previous address, the pollworker would update their address in SCORE and update the voter’s record to reflect that the voter had been issued a ballot and would issue the correct ballot to the voter.

Depending on the county the voter would then place the voted ballot into a ballot box for central tabulation or cast it in an optical scan voting machine at

the VSPC. If the voter wanted to take the ballot with them, they were provided the appropriate envelopes with voter affidavits to allow for signature verification upon return of the voted ballot.

3. A voter whose eligibility cannot be verified.

When a voter's eligibility cannot be verified, either due to lack of connectivity to the system or other concerns, a provisional ballot is issued. The process requires that a provisional ballot application be completed that includes the voter's information. The provisional ballot application contains the data that a pollworker would have confirmed through SCORE or WebSCORE, but it is more time-consuming to collect the information by hand rather than to confirm it electronically. It is estimated to take an average of 15 minutes to complete the provisional voting process from start to finish. Pollworkers determine which ballot to provide to the voter by checking a local database, map, or paper roster. The ballot is the same ballot as a standard ballot and is voted in the same manner. The only distinction is that the form must be completed manually and there exists a time-intensive process after Election Day to determine voter eligibility prior to the ballot entering into the standard ballot processing stream.

Appendix D: SCORE Help Desk

Issues at the VSPCs resulted in calls being made to the SCORE Help Desk at CDOS. Every attempt was made by the staff to keep a good accounting of where the calls were coming from as well as their outbound calls. This task was challenging in the cacophonous, high-paced environment of an elections office on Election Day. According to the data provided by CDOS, there were 412 calls recorded by 57 counties during Election Day. However, a quarter of all call records were from “untracked” or “unknown” counties. All 64 counties were called about the 2pm scheduled interruption of service. Only three calls were logged before 7am from two counties.

SCORE Help Desk email communications were also reviewed. There were 47 emails sent from the Help Desk. At 1:23pm, an email was sent out to all counties regarding the upcoming system interruption along with a follow-up call. The Help Desk staff divided the counties among themselves with to ensure all counties were communicated with during the day. When the statewide voter registration database was available again at 2:06pm a notification email and call were placed to all counties.

The staff said that their greatest challenge arose from the variation in the expertise of the end user. They agreed that there were pollworkers on Election Day who were logged into the Sandbox function, who had exceeded their log-in attempts and had to be administratively re-admitted, and that there were 19 counties managed by the Help Desk to augment the counties’ resources. There was agreement that these common issues comprised a large portion of the calls coming into the SCORE Help Desk on Election Day.

Recommendations for SCORE Help Desk:

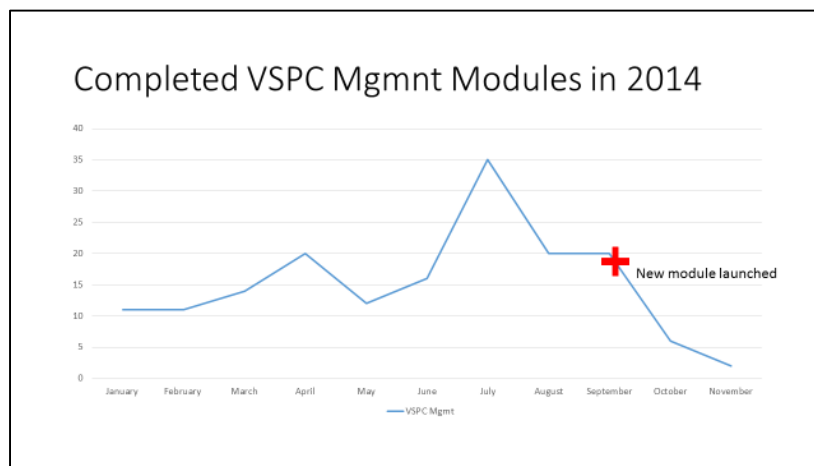
- Having an established division of labor worked well at the Help Desk. In future elections, the Help Desk staff believe that identifying alternates for each staff person is essential to maintain continuity of operations should one individual become unable to fulfill his or her assigned function on Election Day.
- Additionally, the process for the remote re-admittance of a locked-out individual needs to be reviewed to determine if that is only done when the user contacts the system administrator at the Help Desk (or their proxy in the lead at the VSPC), or if a periodic review of locked-out users and the verification of their authenticity is enough for removal of the block by Help Desk staff or IT administration.

Appendix E: Description of Training

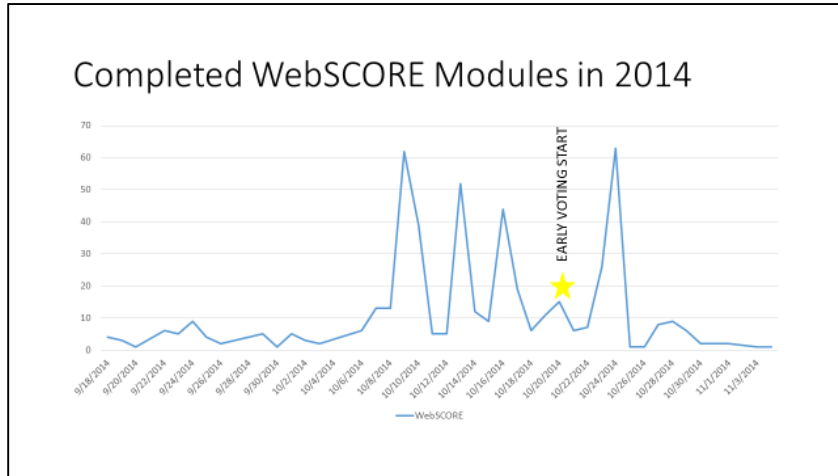
CDOS has an online system for the training and certification of their election administrators. Two additional modules were added to the program to accommodate the new VSPC implementation. The first new module is the “VSPC Set Up and Management Course.” The curriculum for that course was further tailored to twenty-three specific staff positions. The second new module is the “SCORE Admin and Judges Course,” which offered fifteen position-specific trainings. These trainings were made available to all counties at no cost for both the use of the permanent staff of the clerk and recorders and for their temporary staff. Some counties availed themselves to the training, some augmented with their own training, while some only offered their own training and did not utilize the online training provided by CDOS.

“VSPC Set Up and Management Course” This course provided instruction to two separate audiences: VSPC administrators and judges. The module included setting up staff to access WebSCORE and explained the functions of checking in voters, issuing ballots, printing of ballots/issuance of DRE card activators and labels, and updating voting history. The intended audience is reflected in the various categories of the training, which covered staff from the warehouse to the front office. This training was made available prior to the fall elections in 2013 and updated for the 2014 election cycle. It was available for the counties to begin the training at the beginning of 2014 with the updates completed on September 4, 2014.

In 2014, 55 of the 64 counties had at least one person on their staff begin this module of the online training offered by CDOS, with 47 completing the training. Fifteen of the county clerks and recorders completed this module. The level of participation among the counties ranged from a single person to 19 individuals completing the training, with a total participation of 167 completed sessions. However, only 28 users completed this module after the update was made at the beginning of September.



“SCORE Admin and Judges Course” This course provided instruction on the new WebSCORE application and was made available to the counties in August 2014. In contrast to the participation rate of the VSPC set-up module, this training was completed by everyone who started it—all 494 users representing 36 of the 64 counties. Some counties had dozens of employees, both permanent and temporary, take the training.



In addition to online training, CDOS provided checklists to the counties for setting up and configuring their terminals with compatible browsers as well as how to ensure connectivity to the SCORE system.

Appendix F: Additional Training and Contingency Planning Recommendations

BPC makes additional recommendations as it relates to the training provided to the counties.

- It is well understood that providing training far enough in advance so that the counties have time to incorporate into their own procedures is critical to success. It is also known that the timeline for development and testing of the new system and then the subsequent training materials was short. It may prove beneficial for CDOS to reach out to the counties that did not participate in the training and ascertain why. Additionally, surveying those who did take the training for input on the successes and shortcomings of the training modules would improve the product. We recommend this be done, along with any subsequent changes, before the end of 2015 so that all counties taking the training in 2016 will have time to react accordingly. The timeline of when training was done can be utilized for future roll-outs to ensure maximum benefit.
- The “Notes” and “Tips” portion of the “Admin and Judges” training contain many of the common problems pollworkers faced on Election Day (i.e. - passwords, log-on, etc.) These notes and tips should instead be prominently displayed during the training and not subject to the individual selecting to view additional content.
- Training answers should be reviewed for those who made incorrect selections to determine if there are common misperceptions about the process that could be further clarified in the training module.
- The training did not contain a section of “troubleshooting” issues or of recommended contingency plans and would benefit from those additions.
- Additional training of pollworkers on efficient log-on procedures to VSPC terminals and step-by-step procedures after interruption to the SCORE or WebSCORE systems including browser preferences, clearing of caches, and incognito sessions.
- The “sandbox” or training/test environment of WebSCORE should be easily discernible from the official production application so that end users are not in the wrong application at the wrong time. Alternatively, access to the two systems could either be tied to the election cycle dates or perhaps to the user (i.e.- only the sandbox is available to that user until they are granted access to the official system at which point sandbox access is denied.)