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Comments MR. WHITTAKER, ATTACHED IS SCYTH USA RESPONSE
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PRICING INFORMATION: Total Price through 12/31/2016 \$149,682.60

ITEM	DESCRIPTION	PRICE
Software License for 1 year	System configuration, hosting, ballot building process, initial setup	License Fee: \$68,619.00 Less Discount: (\$20,272.00) Net License Fee: \$48,347.00
Implementation	Internet site tested and ready for use no later than September 21, 2012	\$5,525.00
Training	Train the trainer sessions for Secretary of State and 55 County Offices either in person, by telephone or by internet. List the cost for each type of training session if applicable.	\$5,625.00
System support	Help desk support for election officials beginning 46 days before elections through the ballot receipt deadline during election office business hours. Online help support for voters beginning 46 days before elections through the ballot receipt deadline for each election. Must be available 24/7.	Included
System modifications	Cost of future modifications not included in annual maintenance.	Included
Annual software support and maintenance Year 1	Election hosting and configuration, error corrections (bug fixes), upgrades or enhancements that may become available.	Software Support and Maintenance is included in the Initial Software License for 1 Year (9/1/2012 through 12/31/2013)
Annual software support and maintenance Year 2 & 4	Election hosting and configuration, error corrections (bug fixes), upgrades or enhancements that may become available.	\$37,744.00 per year (1/1/2014 through 12/31/2014 and 1/1/2016 through 12/31/2016)
Annual software support and maintenance Year 3	Election hosting and configuration, error corrections (bug fixes), upgrades or enhancements that may become available.	\$14,697.60 (1/1/2015 through 12/31/2015) Note: Pricing reflects no elections to be held in the odd-year.

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CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Scythl, USA, LLC
(Company)

Dan Capelli - GENERAL MANAGER
(Representative Name, Title)

443-759-3168 / 443-759-3004
(Contact Phone/Fax Number)

7/9/12
(Date)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: SOS201207

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input checked="" type="checkbox"/> Addendum No. 6 |
| <input checked="" type="checkbox"/> Addendum No. 2 | <input checked="" type="checkbox"/> Addendum No. 7 |
| <input checked="" type="checkbox"/> Addendum No. 3 | <input checked="" type="checkbox"/> Addendum No. 8 |
| <input checked="" type="checkbox"/> Addendum No. 4 | <input checked="" type="checkbox"/> Addendum No. 9 |
| <input checked="" type="checkbox"/> Addendum No. 5 | <input checked="" type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Scyth USA, LLC
Company

Dan Cogburn
Authorized Signature

7/9/12
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.
Revised 6/3/2012

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RFO No. SOS 201207STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT**

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, Limited Liability Company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentally established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (West Virginia Code §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATUREVendor's Name: Scyth USA, LLCAuthorized Signature: Dan Capell Date: 7/9/12State of MarylandCounty of Baltimore, to-wit:Taken, subscribed, and sworn to before me this 9 day of July, 2012.My Commission expires Dec. 28, 2014

AFFIX SEAL HERE

NOTARY PUBLIC

SARAH O POPOOLA
NOTARY PUBLIC
BALTIMORE COUNTY
MARYLAND
MY COMMISSION EXPIRES DEC. 28, 2014

Purchasing Affidavit (Revised 12/15/09)

22

Rev. 09/08

State of West Virginia VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code, §5A-3-37*. (Does not apply to construction contracts). *West Virginia Code, §5A-3-37*, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. Application is made for 2.5% resident vendor preference for the reason checked:
 _____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 _____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
 _____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
2. Application is made for 2.5% resident vendor preference for the reason checked:
 _____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
3. Application is made for 2.5% resident vendor preference for the reason checked:
 _____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
4. Application is made for 5% resident vendor preference for the reason checked:
 _____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
5. Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:
 _____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
6. Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:
 _____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code, §61-5-3*), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Septh USA, LLC Signed: Del Caybell
 Date: 7/9/12 Title: General Manager

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

SEALED BID

BUYER: 44

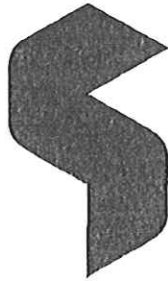
SOLICITATION NO.: SOS 2012-07

BID OPENING DATE: 7/10/2012

BID OPENING TIME: 1:30 PM

FAX NUMBER: 304-558-4115

Revised 6/3/2012



Innovating Democracy

State of West Virginia

Solicitation Number SOS201207

Electronic Ballot Delivery System for Uniformed
and Overseas Citizen Absentee Voters

Not to be opened before July 10, 2012

July 10, 2012

Contact

David Campbell

General Manager

david.campbell@scyt1.com

Scytl – West Virginia RFQ SOS201207_Electronic Ballot Delivery System
July 10, 2012

Scytl - Secure Electronic Voting

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Scytl – West Virginia RFQ SOS201207_Electronic Ballot Delivery System
July 10, 2012

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2 Executive Summary -- UOCAVA Ballot Transmission

2.1 Introduction

Scytl USA LLC and its parent company, Scytl Secure Electronic Voting S.A. are herein collectively referred to as "Scytl". Scytl is pleased to respond to the State of West Virginia Secretary of State (SOS) Request for Quotation to solicit proposals from qualified companies for the comprehensive development and implementation of a statewide computerized Electronic Ballot Delivery System for use during the 2012 General Election and continuing through the 2016 November General Election for each of the 55 counties.

Scytl secure solutions for electoral modernization are used by governments worldwide. The nature of elections is evolving at a rapid pace; new technologies to ensure the franchise is extended to all voters are being enabled by progressive legislation. The ability to provide secure and reliable election innovation through our solutions is based on a collaborative approach to harnessing new election technology and supporting our clients that use this technology. Election technology now has moved across the boundary of a single vendor supplier and Scytl has teamed with the principal equipment system provider in the state, Election Systems and Software (ES&S), to create a strategic alliance that provide bundled solutions that can achieve the required goals of our clients for all stages of the election process. Scytl's solutions achieve this and more – from protecting legacy investments in technology, to supporting the introduction and operation of newer technology. For example, Scytl's strategic alliance with ES&S permits the seamless integration of all 55 counties election management system and Scytl's online ballot delivery tool. Scytl's vision is to nurture this type of collaboration for our clients and achieve the goal of providing free and fair elections to all eligible voters. To this end, we are pleased to submit our electronic ballot delivery system for UOCAVA voters known **Secure Ballot**.

2.2 The State of West Virginia Needs assessment

The Scytl Team clearly understands your stated objectives to:

- Provide an electronic ballot delivery system for UOCAVA to use during the 2012 General Election and continuing through the 2016 November General Election for each of the 55 counties in West Virginia; and,
- System must be live and available for use by voters beginning September 21, 2012 for the General Election; and,
- Vendor must provide costs for optional yearly maintenance and software support through the November 2016 General Election; and,
- System should meet the requirements detailed in this RFQ.

2.3 Meeting your Needs for an Electronic Blank Ballot Delivery System

To meet your needs, the Scytl Team is proposing our fully compliant MOVE Act ballot delivery and on-screen marking system, **Secure Ballot**, to provide your overseas voters with the ability to quickly and accurately obtain their ballots, mark their ballots, and

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return their ballots-- ensuring their opportunity to participate in the election. The proven robustness, flexibility, usability, and innovations of **Secure Ballot** 's secure online tools will improve the participation and satisfaction of the overseas voter community and will pave the way to ensuring that the number of ballots sent equals the number of ballots returned successfully.

Secure Ballot is designed to facilitate simple data exchange and the movement of information from the jurisdiction's Election Management System (EMS) and Voter Registration (VR) System to tables in **Secure Ballot**. Scytl has extensive experience adapting their applications to provide smooth and simple interfaces with a number of various EMS and VR systems. Through its alliance with ES&S, Scytl can provide seamless data integration with the election management systems of all 55 counties at **no additional charge to the State of West Virginia**. This integration also allows counties to incorporate more data into the interchange and into the **Secure Ballot** features.

The State of West Virginia will be established in **Secure Ballot** with a unique "back office" web site. This is a secure portal for election and voter management. The **Secure Ballot** application is hosted in a secure data center behind a layer of redundant firewalls under 24/7 physical and application monitoring to ensure the security, health and integrity of the system around the clock.

Secure Ballot streamlines the process required to provide ballots to the UOCAVA voters and for them to obtain, complete and return their ballots. Once activated for the election cycle, **Secure Ballot** will sustain itself and ensure the voter's exact ballot style is available to them on an as-needed basis.

Secure Ballot supports multiple methods to identify and/or authenticate voters. This includes strong authentication with digital certificates, email address and password, personal identifying information (Name, DOB), anonymous access by address-to-precinct mapping, and others.

Overseas voters can be automatically notified by email when their ballots are ready and available in **Secure Ballot**. Upon notification, the authenticated voter can download a blank ballot for manual completion and return, or optionally they can use the On-Screen Marking Wizard to complete their ballots.

The **Secure Ballot** On-Screen Marking Wizard is extremely intuitive and conforms to the highest usability standards that have been tested for use with a broad spectrum of assistive devices which may be used by voters with disabilities. The On-Screen Marking Wizard also provides conventional protections against common mistakes made by voters, including over votes and under votes. Multiple languages, write-ins, straight party voting, candidate rotation, and other critical ballot marking requirements are also supported. The On-Screen Marking Wizard always concludes with a review screen where the voter can confirm the selections made or elect to change them before generating the marked ballot.

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Depending on the State laws, UOCAVA voters can also download their completed ballot along with all required return materials (envelopes, oaths, affidavits, instructions, etc.) which have been pre-populated for easy return via postal, fax, or email.

Secure Ballot provides election officials with an accurate and reliable automated remake of returned ballots with its Ballot Choice Barcode (BCB) feature. Using a barcode applied to the ballot through the voter's On-Screen Marking Wizard, the BCB can replicate the voter's selections onto the local jurisdictions optical scan readable ballot. This feature eliminates the need to manually remake the returned ballot before tabulation.

UOCAVA voters can easily track the movement of their ballot via their own private **Secure Ballot** account. Similarly, Election Officials can monitor, manage, and track events associated with the delivery and return of ballots from their UOCAVA voters.

The **Secure Ballot** solution does not store voter information or voted ballots; therefore the voter's privacy is never compromised. No voter information is cached or retained and all files containing such information are destroyed upon conclusion of any project. Confidential voter information is always protected from accidental disclosure or breach.

In summary, **Secure Ballot** will provide your overseas voters with the ability to quickly and accurately obtain their ballots, ensuring their opportunity to participate in the election. **Secure Ballot** will allow the State of West Virginia UOCAVA voters to have control over their ballot and track their election materials both in receipt and return. Using **Secure Ballot** improves overseas participation levels and reduces processing errors, saving time and money. The table below summarizes how the features and benefits of **Secure Ballot** will benefit your UOCAVA voters and the County election staffs:

2.4 Secure Ballot Features & Benefits for the State of West Virginia

Election Phase	Description of Feature	Current System Limitations	Secure Ballot System Benefits
Absentee Ballot Request	Secure Ballot has the optional ability to provide online absentee ballot requests which will guide the voter through the completion and return of the AB request. Further, this process will also allow the voter to setup an account on Secure Ballot to track the return and processing of the AB request. With an account, the voter will also be able to setup email reminders to complete requests for each election.	Traditional postal delivery and return of ballot requests introduce unpredictable delays into the process which delay future steps. Voters can often forget when a ballot request is due for an election or may complete it incorrectly.	The provision of an online electronic ballot request wizard will shorten the time required to deliver ballot requests and will help ensure voters complete them correctly.
Absentee Ballot Delivery	Secure Ballot will provide online ballot delivery of precinct specific ballots via its secure and accessible online portal. Local election officials can notify voters	Traditional postal delivery of ballots is lengthy and unpredictable. It is	The electronic delivery of ballots through a secure internet based portal

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Election Phase	Description of Feature	Current System Limitations	Secure Ballot System Benefits
	by email of ballot availability. To assist in the ballot delivery, the Secure Ballot online portal provides instructions for all screens, a help and support section to assist with multiple help topics, a secure messaging service to the voter's local election official, a newsfeed to provide the latest important news items, and other helpful tools.	also costly in terms of logistics, printing, and mailing. Voters who often move or are in inaccessible areas receive ballots late or not at all.	will provide consistent access to eligible voters which will improve the successful completion and return rates of ballots.
Absentee Ballot Marking	Secure Ballot will provide an intuitive onscreen marking wizard which conforms to the highest usability standards and has been tested for use with a broad spectrum of assistive devices which may be used by voters with disabilities. The ballot marking wizard also provides conventional protections against common mistakes made by voters, including over votes and under votes. Multiple languages, write-ins, straight party voting, candidate rotation, and other critical ballot marking requirements are also supported. The ballot marking wizard always concludes with a review screen where the voter can confirm the selections made or elect to change them before generating the marked ballot.	Some absentee voters have difficulty understanding ballot content and completing ballots correctly. Voters with disabilities face significant problems marking paper ballots. Furthermore, manual duplication is often required of ballots which are returned.	Voters who use an intuitive and accessible onscreen marking interface will have a higher probability of completing the ballot correctly which will increase the number of ballots returned successfully. When a voter uses the onscreen marking wizard, Secure Ballot provides a mechanism for the automated replication onto an optical scan ballot.
Absentee Ballot Return and Tabulation	Secure Ballot will provide voters with exact state and county specific return information along with the ballot and will help facilitate the correct return. To provide faster and more accurate processing, Secure Ballot can also use ballot tracking barcodes to assist in the correct receipt and tracking of ballots. Furthermore, ballots may contain the ballot choice barcode which assist in the automated replication of returned paper ballots into optical scan format for tabulation. Ballot return tracking updates are provided to the voter immediately upon processing through Secure Ballot and through email notifications.	Voters can get confused or have misunderstandings about how and when to return their ballot. Voters are often not aware of when their ballot is returned and if it was accepted. Furthermore, without automated interfaces, there are delays in the processing and tracking of ballots.	The use of an online electronic portal to provide correct return information and return documents will improve the ease and rate of successful return of ballots. Automated interfaces and the use of barcodes will shorten the processing delay and shorten the time it takes to provide tracking information to voters. The ballot replication mechanism with Secure Ballot will provide greater operational

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Election Phase	Description of Feature	Current Limitations	System	Secure System Benefits	Ballot
				efficiencies in the return processing of the ballot.	

2.5 UOCAVA Portal

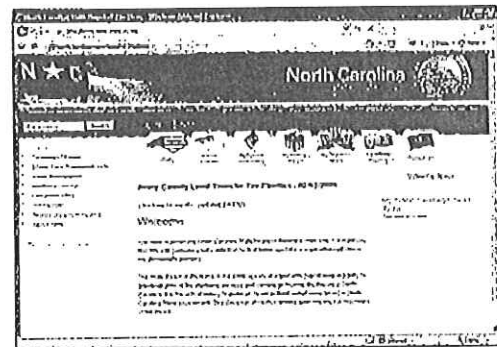
For no additional charge at all, the Scytl solution includes an interactive, user friendly learning tool to educate your voters about what they can expect from the voting process. The **UOCAVA Portal** was developed by Scytl to assist states more effectively promote and successfully execute implementations of **Secure Ballot**. There are many online sources for overseas and military voters to learn about their legal rights and the federal laws that protect their franchise; however, each state's implementation of UOCAVA, MOVE and UMOVA affect the processes that voters need to follow to ensure their valid votes are counted. Only you, as the state election officials can provide them with authoritative, trusted information and Scytl can provide you an easy to administer, graphically appealing learning platform designed specifically to answer the common questions raised by UOCAVA voters—the **UOCAVA Portal** platform meets those needs.

2.5.1 Platform Capabilities Include

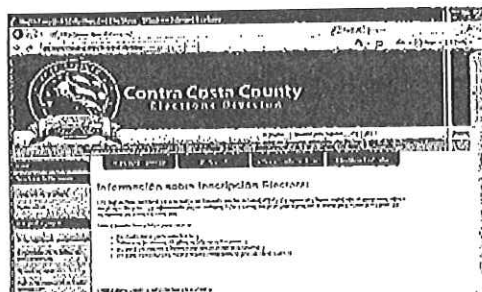
- User Friendly Introduction Page
- Welcome and Instructional Video Training
- 508/A.D.A. Compliant
- Multilingual Content Presentation
- Web Visitor-Specific Content
- Turnkey Solution

2.5.2 508/A.D.A. Compliant Presentation

Delivering a uniform presentation to every UOCAVA voter, regardless of ability, is a minimum requirement for providing an Online Ballot Delivery system. The **UOCAVA Portal** delivers fully 508/ADA compliant content empowering each and every voter with the opportunity to exercise their right to vote confidently and securely from wherever they may be. The **UOCAVA Portal** is compatible with all COTS screen reading and other assistive technologies.



2.5.3 Voter Focused Training



The UOCAVA voting process can be complicated and daunting even for seasoned election professionals. Voters are often confused about the process and will turn to online sources for answers.

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The **UOCAVA Portal** focuses its message and provides voters with an easy to understand message. **Secure Ballot**, allows you to provide custom developed online welcome and platform training videos for your voters. This secure landing page will help develop a sense of comfort from your UOCAVA voters and enrich their experience while voting abroad.

2.5.4 Administrative Education Materials

By using common adult education practices this online training platform may also be used to deliver online training curriculum for West Virginia's electronic ballot delivery administrative personnel. This training will be available 24/7 via a web browser and will provide training on common administrative tasks to ensure that West Virginia's staff is confident in its ability to administer the solution.

2.5.5 Collect Data on User Feedback

The **UOCAVA Portal** will provide the ability for UOCAVA voters to submit online exit surveys on their experience with the product along with many other types of surveys. This is completely secure and anonymous survey tool will allow the state to collect valuable information on how to improve processes.

Functionality Includes:

- Easily built survey templates
- Anonymous submittals
- Video based instructions
- Enhanced exit data

2.6 The Scytl Team Vision

To accomplish your objectives, you need election-savvy partners who have driven this road before — partners with a proven track record of online election modernization system implementations and election experience — partners like Scytl.

West Virginia's transition to our leading-edge technology solution, **Secure Ballot**, will result in significant technological and efficiency changes in every aspect of the State's process for delivering ballots to and receiving ballots from its UOCAVA voters — changes beginning with an online ballot request and marking wizard and culminating with the faster, and more accurate return and tabulation of the voter's ballot. The Scytl Team has decades of large-scale implementation and election management project experience to smoothly guide you through these changes.

The Scytl Team will work collaboratively to leverage the strengths of each its partners for the purpose of installing and supporting the development of your highly secure electronic ballot delivery solution. Our ability to offer you competitive pricing and leverage the skill sets of the Scytl team is good reason why it makes sense to pick the

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Scytl team to be your electronic blank ballot delivery vendor. Our pricing quote for **Secure Ballot** installation, service, support, and maintenance for your 2012-2016 election cycles is found in the pricing appendix.

For the **Secure Ballot** project, Scytl will provide development expertise in the areas of system integration for voter registration and election management systems. The Scytl training department will provide instructional information and facilitate training activities. The Scytl support team will install and coordinate the usage of **Secure Ballot** application with Scytl subject matter experts during the installation and acceptance testing phases. The Scytl Helpdesk will provide support to the State. Scytl will work jointly with the state to provide any support required.



Scytl is a worldwide leader in the development of secure solutions for election modernization. Headquartered in Barcelona, Spain with US offices in Baltimore, Maryland, Scytl's solutions incorporate unique cryptographic protocols that enable customers to carry out all types of electoral modernization processes and elections in a completely secure and auditable manner. **Scytl's** advanced election security technology positions the company as a leader in election modernization industry. **Scytl** has customers both in the private and public sectors. For the 2008 Presidential Election, Scytl provided Kiosk Based Internet Voting for Okaloosa County Florida where overseas voters could obtain and cast their ballots online. In 2010, working with the US Federal Voting Assistance Program, Scytl provide secure online ballot delivery and onscreen marking to eight states, and in addition provided separate solutions to two other States as well as full Internet Voting to West Virginia for its Primary, Special and General Elections. Scytl's customers represent leading references in the election modernization market (e.g., governments in Spain, the USA, France, Austria, Switzerland, United Kingdom, Philippines, Argentina, Mexico, Finland and Australia) and are pioneering new electronic voting applications. Scytl's solutions have been successfully used in multiple projects worldwide, some of which represent breakthrough projects for the election modernization industry.

2.7 Summary

The Scytl Team provides the State of West Virginia voters and election staff with the cream of the crop in the election industry. As further described herein, the Scytl Team has extensive experience with complex implementations and support for large government municipalities and stands ready to provide you a secure and efficient solution for electronic delivery and return of your UOCAVA ballots. The success of the Scytl pilot project which ran in five West Virginia counties in the May 2010 Primary validates the efficiencies, security, and accuracy of the **Secure Ballot** application. Testimonial letters from two of the West Virginia county participants and other satisfied customers are attached in the appendices.

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Our solution, **Secure Ballot**, will result in significant technological and efficiency changes in every aspect of the State's process for delivering ballots to and receiving ballots from its UOCAVA voters – changes beginning with an online ballot request and marking wizard and culminating with a faster, and more accurate return and tabulation of the voter's ballot. The voter and the election staff will get immediate feedback from the system with regards to receipt and return of the official ballot – something missing in your current system. The features of our product solution will leave your overseas voters satisfied and confident that their voted ballot was received and was included in the final election tally.

Thank you for this opportunity and consideration. The Scytl Team looks forward to future successes as we provide the State of West Virginia SOS and its 55 County Election Managers with Scytl's unparalleled election service and support. Our proposal meets and exceeds the specifications outlined in your RFQ, and includes additional features that the State can incorporate into its delivery and return process when and if State laws are revised. Please address any questions you may have to Scytl USA General Manager, Dave Campbell, who can be contacted at 410-746-7985 or at david.campbell@scytl.com.

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3 Secure Ballot Product Overview

Secure Ballot's Wizard solution is an electronic ballot transmission and onscreen marking tool that completely fulfills West Virginia's requirements as set forth in the RFQ for an Electronic Ballot Delivery System.

Secure Ballot is specifically designed to help states meet the requirements of the MOVE Act. It is a secure web application that allows states to provide a reliable, flexible, and easy-to-use ballot transmission and onscreen marking tool for their UOCAVA voters. **Secure Ballot** is hosted for the state and is a uniform, interactive platform that is collectively operated by both state officials and county absentee election managers using separate user accounts and interfaces.

Ballot Access 07/03/2012

Please click on First Time Access if you have not indicated your account yet

First Time Access

- ✓ Easy form reprinting
- ✓ Easy access to your specific ballot
- ✓ 100% secure and private

FPCA

Street Looking Login

FWAB

Email

Password

Date of Birth

Login

[Forgot your password?](#)

West Virginia State Election System

Secure by ScytI

West Virginia State Election System

Secure Ballot offers two functionality sets: one for the election official and one for the voters. For the election official, **Secure Ballot** offers:

- An Internet-based statewide tool to facilitate the configuration and customization required for importing ballot contents and instructions from election management systems at both the State and local level. The **Secure Ballot** import and reporting tool provides an easy to use import capability that eliminates the need to re-key/enter information from one system to another and allows for the seamless movement of data between systems. **Secure Ballot** accepts data in a number of formats including VIP XML, OASIS EML, and other XML based formats as well as

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ASCII. The data entered at the local level will then be aggregated into the statewide wizard that is published as ballots for marking and downloading by the state's voters. Most significantly, only **Secure Ballot** is designed for seamless integration with election management data provided by ES&S election management and vote tabulation systems (Unity).

- In addition, the import and reporting tool can generate customizable reports to assess system statistical information. This tool has been carefully designed to provide a very simple, although powerful, user experience despite the use of specialized security measures.

For the voter, **Secure Ballot** offers:

- A universally accessible, front-facing wizard that allows the voter to obtain their correct ballot style based on the ballot programming of the state or county;
- Provides the voter the option to receive a blank ballot or to mark their ballot on screen;
- Allows the voter to download the blank and/or onscreen marked ballot for immediate printing or saving on their desktop for printing later – it will also allow for the completed ballot to be returned via fax or email if a state allows;
- Provides all state required forms and envelopes for return pre-populated with jurisdiction information;
- Is fully disabled, accessible and compliant with Section 508 of the U.S Rehabilitation Act of 1973 (as amended); and
- Provides a clear process flow which further facilitates the correct completion of the ballots, ensures compliance with specific election legislation, and prevents involuntary errors.

Election Official Interface	
State Official	Local Election Official
Configure State	Configure Jurisdiction
Manage Jurisdictions	Import Election Data
Create and Manage Elections	Create and Manage Voter Accounts if Allowed by State
Consult Statistics	Control and Monitor Voter Access to Account and Ballots Based on Voter Validity and Valid Ballot Request

Voter Interface
Access precinct-specific ballot
Mark ballot onscreen with state-specific voting options

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Download onscreen marked ballot or blank ballot

Choose between return options available (e.g. fax, postal mail) with appropriate cover letter and instructions for return

Download jurisdiction-specific return instructions and forms

Access online/email HelpDesk support

Secure Ballot is offered to West Virginia together with data center hosting services to ensure a reliable operation of the system during the project. Specialized help desk services for voters (Tier II) and election officials (Tier I & II) will also be provided to address problems or questions in a convenient manner.

3.1 Key Secure Ballot Differentiators

3.1.1 Bundled Solution – protection of legacy investments

The **Secure Ballot** solution leverages Scytl's experience and its alliance with ES&S to provide a seamless deployment. **Secure Ballot** depends on its required information from multiple sources – election management systems and voter registration systems. West Virginia has made significant investments in both these sources. The Scytl team brings together the ability to merge these systems, as well as support services, into a unified solution that when implemented can allow for the automatic movement of required data between components – this approach allows for a self-sustaining system to emerge that require little or no intervention on the part of election officials.

3.1.2 Usability

The **Secure Ballot** application is designed to provide voters and election officials an easy-to-use, powerful interface that supports voters and eases the burden on election officials. This is done, first, by providing a voter interface that is intuitive and follows the usability guidelines in the Voluntary Voting System Guidelines (VVSG) established by the EAC. By providing a highly usable interface, **Secure Ballot** lowers the error rate for marking the ballot (the voter selection is correctly conveyed to and represented within the system), provides efficient operation (time required to operate is not excessive), and enhances voter satisfaction. This is something that cannot be provided by simply using a fill-able PDF interface and is why Scytl has chosen a more dynamic and voter-friendly approach.

Some examples of the functional capabilities to support voter usability include providing specific feedback to the voter that identifies improper selections, providing the voter the opportunity to correct the ballot, and providing navigation controls that allow the voter to advance to or return to content. Secondly, the election official interface is designed to enhance the official's ability to manage the election and voters without causing an undo amount of labor. This is done by using setup wizards, a dashboard view, and a task management section that allows the official to see each pending item and address it directly.

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On top of the Usability, Accessibility is also very important in the design. The solution is Section 508 compliant to ensure the maximum Accessibility for voters with disabilities.

3.1.3 Advanced security

The groundbreaking cryptographic protocols developed by Scytl provide elections with the highest levels of security, in terms of voter's privacy, voter verifiability, election integrity, system availability, and access control. Scytl secures each of its applications through the use of a physically secure data center, complete redundancy of critical resources, and the application of cryptography at multiple levels that ensure authenticity, integrity, and confidentiality.

First, the **Secure Ballot** application is hosted in a secure Tier III data center behind a layer of redundant firewalls and where it is under 24/7 physical and application monitoring to ensure the security and health of the system around the clock.

Second, **Secure Ballot** is run on hardened operating systems updated with the latest security patches. The **Secure Ballot** application is also digitally signed to ensure its integrity and executed using Java Virtual Machines that require the software be free of any maliciously inserted source code. At the application level, each connection over the Internet is required to utilize the HTTPS protocol to establish a separate authentic and encrypted communication channel with each user. This also allows the voter's web browser to seamlessly verify the authenticity of the Scytl web domain which in a hosted environment will be accessed transparently to the voter from a specific FVAP or State provided URL before performing any actions. These measures combined create a layered and unparalleled protection profile around the **Secure Ballot** application and voter and election information.

Finally, as a best practice, the Scytl team takes care to ensure that sensitive data provided by any States in the execution of the contract will be kept secure and confidential. This will be done in a manner that is convenient for the State of West Virginia.

3.1.4 Auditability of the solutions

As a part of the Scytl suite of patented election security technology, **Secure Ballot** alone includes immutable audits logs that provide near absolute accountability and transparency to the system. This is done by recording the main actions of the application and users in special log files that are digitally signed on periodic intervals. The recording of each action provides that each important action is recorded and the digital signatures ensure that each entry into the log is protected from undetectable manipulation. The strong audit capabilities of the Scytl suite makes it ideal for sensitive applications like voting applications.

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3.1.5 Reliable data center

Scytl utilizes a Tier III data center in Dallas, Texas, to provide the best possible accessibility and response to its customers. The infrastructure and hardware supporting **Secure Ballot** provide a fault-tolerant platform where critical services are able to continue operation even in the event of partial system failure. This is achieved by providing fully redundant sources of power, cooling, Internet connectivity, hardware, and storage devices. For network infrastructure, the **Secure Ballot** application is connected to a carrier-neutral intelligent routing layer which determines the best connection between the connecting client and the servers. This is done by leveraging the physical infrastructure of several global Tier I telecommunication providers and calculating optimum transmission paths. Furthermore, each load balancer, intrusion detection system (IDS), firewall, and server is duplicated in an active/active configuration. Also, the **Secure Ballot** web application software is replicated onto at least two redundant servers and all sensitive election material is stored in an Oracle RAC database cluster: a high-availability database option that prevents data loss or corruption. The infrastructure, hardware, software, and security controls are also monitored 24/7/365 by trained onsite professionals. Physical and logical access control is also extremely limited to authorized personnel and is properly logged. As a safeguard, redundant, **Secure Ballot** servers are also maintained in Omaha, NE.

Scytl employs a data center intrusion detection System (IDS) that was designed around SNORT, which is an accepted standard IDS implemented around the globe. The IDS is connected to the data center border routers through the use of mirror ports. The IDS allows the data center network services staff to monitor all inbound and outbound traffic. It is not only versatile, allowing many configuration options and formatting types, but it is also supported by a large base of developers that constantly improve the software. Snort is kept up to date with new code and intrusion signatures but it is only half of Scytl's Data Center IDS solution. The data center has also implemented an analysis engine, Alert Console for Intrusion Databases (ACID), which allows the network services staff to review the data collected by the IDS for more detailed research. This detailed research assists the network services staff in tracking down the source and destination of packets that match the signature of known intrusion types. The IDS system is further monitored to verify its online and active state by data center's monitoring system.

3.1.6 Ease of deployment

The **Secure Ballot** platform is a Java web application which will be deployed in our Tier III data center located in Dallas, Texas and managed by Scytl. Being a Java platform, its deployment is very straightforward and flexible to operate in numerous common web application environments.

By default, **Secure Ballot** will be deployed with an application service provider (ASP) model where **Secure Ballot** is hosted by Scytl in a secure and reliable data center. The **Secure Ballot** platform consists of four servers placed behind a layer of load balancers and firewalls: 2 servers provide the front end web interface and 2 provide the back end database management. This configuration provides redundancy and delegation of roles

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such that large database operations can be executed without affecting the web interface. Furthermore, each of these servers run Red Hat Enterprise Linux which is a reliable, module based operating system that is very common in web application environments. With this platform, Scytl is able to provide extremely high availability for power, cooling, and network availability. Furthermore, the deployed architecture allows for the platform to scale up and support more concurrent users if needed by simply replicating the software in new servers, without affecting already deployed nodes.

3.1.7 Strong reporting capabilities

Secure Ballot keeps record of the main activities done by the system, which can be mined to obtain different statistics on multiple areas/actions, including:

- Number of accesses to the system to include login attempts and failures.
- Number of blank ballots downloaded.
- Number of ballots attempted and ballots completed.
- Transaction accesses by date and time.
- Date of completion – completed transactions / ballots issued.
- Uncompleted transactions / no ballot issued.
- Errors.
- Technical details about visitors/voters (i.e. type of web browser).
- Time required to complete a ballot.
- Most visited pages/sections.
- Statistics generated out of the Help Desk tracking tool.
- Geographic distribution of voters (country/state) interpreted by originating IP address.

In addition to the previous statistics automatically gathered by the system, Scytl will be able to provide results from post-voting surveys (optional feature) which voluntarily can be filled out by voters.

3.2 Additional features available as options

The following sections describe some additional optional features that are not required according to the RFP documents, but the Scytl team thinks may be of interest to West Virginia to enrich the current system.

3.2.1 Ballot Choice Barcode

With the use of the onscreen marking tool, voter selections are captured and incorporated into a 2D barcode. This barcode is used to duplicate a returned ballot, if required, automatically. Returned ballots cannot be feed into optical scan tabulators for tabulation – the Ballot Choice Barcode allows for election personnel to reproduce using available office equipment a ballot that can be tabulated using optical scan devices. No

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voter information is contained in this barcode thereby ensuring the privacy of the voter; an original hardcopy of the returned ballot exists in the event of an audit or recount. In environments with significant voters using the system, this feature can save time and money and prevent duplication errors.

3.2.2 Interfacing with West Virginia's Voter Registration System

Secure Ballot can work as a standalone platform. Election Officials can then use the back office to perform all required tasks.

The Election Official experience though is better used if interfaced via web services with the Voter Registration (VR) system of the State is in place. With the interface **Secure Ballot** will:

- Exchange files with the VR system in order to load all the voters with access rights, even regular updates;
- Grant/deny rights to voters based on their status on the VR (for example, once the mail in ballot is received, the voter should not download another ballot); and
- Maintain as much as possible, a single point of data entry to avoid doing the same tasks repeatedly.

3.2.3 MOVE-compliant tracking

Secure Ballot provides election officials and voters the ability to track the status and progress of voting materials including ballot requests, ballot delivery, and ballot return. Furthermore, it allows election officials to directly communicate to voters through a secure messaging service, thus enabling a dialogue which can help many voters with the process and enable them to receive clarifications from or correct misunderstandings with the election official before sending their ballots. The tracking and messaging features are only available to voters who create or get voter accounts. The voter will be able to update and track their status as well as send and receive messages with their local election official. The status includes "Ballot Request Received", "Ballot Sent", and "Ballot Received". This functionality's greatest advantage is that each voter will be made aware of when his/her ballot reaches the election official. This election official can update the status manually or the status can be updated automatically through an interface with the local voter registration system. Also, **Secure Ballot** provides email alerts to voters when they receive a message or the status of their ballot has changed.

3.2.4 Optional survey

Secure Ballot can offer an anonymous survey tool that will present to the voters an optional survey at the end of the wizard process. Each question and the available options can be chosen by the state and the results will be compiled and reported at the end of the election. The collection of this survey information can provide a wealth of additional information for the State that can be used to raise the level of services provided to the overseas voting community.

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4 Project Details and Reporting Requirements

PROJECT DETAILS:

The system should enable the voter:

- 4.1 To access and mark their specific ballot online regardless of the location of the voter (the ability to mark the ballot online must be optional for the voter)

SCYTL RESPONSE

Secure Ballot is a web-based application that will be accessible to West Virginia UOCAVA voters, during the 2012 General Election and future elections, from any internet-connected computer through a secure, authenticated, and encrypted communication channel. The application provides the appropriate ballot style electronically to voters based on information provided by the election officials. During and throughout the election process, election officials are provided ballot and voter management functions which not only define the ballots but also define which ballot a voter will see when accessing the system. **Secure Ballot** will use the information to provide the correct display to the voter in an interactive and intuitive process, regardless the location of the voter. The voter is then prompted to complete the onscreen marking of his/her ballot or to download a blank ballot.

- 4.2 To be notified of an over vote or under vote and revise before printing

SCYTL RESPONSE

Once voters access the system, **Secure Ballot** determines the ballot style for the voter based on information extracted from the county election management system and the statewide voter registration system. The voter is then prompted to complete the onscreen marking of his/her ballot or to download a blank ballot. Assuming the voter chooses the onscreen marking, the voter is presented with the ballot in three sections:

1. **Title Page** – this provides the Header for the ballot and the basic usage instructions
2. **Ballot Contests** – shown one at a time, the voter is able to page through the contests and record his/her selections. **Blank, under, and over votes are detected and the appropriate West Virginia voting rules will be enforced.** Generally, states notify voters of under voted contests and permit the voter to continue and do not allow a voter to over vote a contest.
3. **Review Page** – the voter will review each contest and the selection(s) chosen. If not satisfied, the voter may return to a contest and edit the selection(s). If satisfied, the voter will proceed and the ballot provided will be complete with the selections are confirmed by the voter.

Once the voter has completed all contests on the ballot and confirmed the selections made, **Secure Ballot** will prompt the voter to choose a return type (i.e. postal mail, fax,

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or email- as permitted by the state). Based on the choice(s) made, **Secure Ballot** will provide the marked ballot along with the corresponding return materials and instructions. The ballot and all documents are provided in PDF format which allows the ballot to be printed, faxed, or emailed.

- 4.3 To print the marked ballot or blank ballot, a privacy waiver, ballot envelope templates, voting instructions and the oath of voter for submission to the appropriate county clerk

SCYTL RESPONSE

Once the voter has completed all contests on the ballot and confirmed the selections made, **Secure Ballot** will prompt the voter to his/her intended return type (i.e. postal mail, fax, or email). Based on the choice(s) made, **Secure Ballot** will provide the marked ballot along with the corresponding return materials and instructions. The ballot and all documents including dynamically generated privacy waiver, ballot envelope templates, voting instructions and the oath of voter are provided in PDF format which allow for the ballot to be printed, faxed, or emailed.

All additional materials provided to the voter may be directly uploaded into the **Secure Ballot** back office by the state or county officials. **Secure Ballot** also has the ability to customize content on return materials - such as local county office address to mail returned ballot.

- 4.4 To choose their desired method of submission - U.S. Postal mail, email or fax (at a minimum)

SCYTL RESPONSE

Please see our response to the previous question.

- 4.5 Track the status of their ballot from the point of transmission of a blank ballot from the county clerk to the voter to the point of receipt of the voted ballot by the county clerk from the voter

SCYTL RESPONSE

Secure Ballot provides election officials and voters the ability to track the status and progress of voting materials including ballot requests, ballot delivery, and ballot return. Furthermore, it allows election officials to directly communicate to voters through a secure messaging service, thus enabling a dialogue which can help many voters with the process and enable them to receive clarifications from or correct misunderstandings with the election official before sending their ballots. The tracking and messaging features are only available to voters authorized by the state to receive their ballots online and imported into the **Secure Ballot** system. The voter will be able to update and track

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their status as well as send and receive messages with their local election official. The status includes "Ballot Request Received", "Ballot Sent", and "Ballot Received". This functionality's greatest advantage is that each voter will be made aware of when his/her ballot reaches the election official. This election official can update the status manually or the status can be updated automatically through an interface with the local voter registration system. Also, **Secure Ballot** provides email alerts to voters when they receive a message or the status of their ballot has changed.

The successful vendor must provide a system that:

- 4.6 Provides for the development and distribution of a markable ballot, formatted according to the specifications set forth by the Secretary of State and applicable law

SCYTL RESPONSE

Secure Ballot offers a secure internet-based, statewide tool to facilitate the configuration and customization required for importing ballot contents and instructions from election management systems at both the State and county level. The **Secure Ballot** import and reporting tool provides an easy to use import capability that eliminates the need to re-key/enter information from one system to another and allows for the seamless movement of data between systems. **Secure Ballot** accepts data in a number of formats including VIP XML, OASIS EML, and other XML based formats as well as ASCII. The data entered at the local level will then be aggregated into the statewide voting system that is published as ballots for marking and downloading by the state's voters. Voters will be associated with the correct local ballot based upon logic that re-uses the same information used by county and state administrators currently.

- 4.7 Allows the voter to vote for an official write-in candidate

SCYTL RESPONSE

Secure Ballot allows for county and state administrators to identify contests for which voters may write-in a candidate. Where permitted, the voter simply types the name of the person for whom they wish to vote and the name appears on a line on the printed ballot similarly to paper ballots used currently. As with the existing mailed absentee ballot process, the eligibility of write-in candidates must be adjudicated at the local and state level.

- 4.8 Allows the ballot be sent only through direct action of the county clerk or designee

SCYTL RESPONSE

Secure Ballot receives voter information from the State and county clerk for only those voters eligible to cast ballots via the **Secure Ballot** solution. The State or county

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employee will be responsible for notifying the voter of the availability of the system and **Secure Ballot** can be configured to permit a variety of voter authentication methods to issue voter credentials and provide access to the ballot. Notification of voter's access to **Secure Ballot** will be performed by the State or county clerks.

4.9 Is able to match the voter to the correct ballot style

SCYTL RESPONSE

Secure Ballot uses information provided by the State to ensure proper matching of voters with the respective ballot style associated with the voter's electoral districts. Through data extracts from the State voter registration system and the election management systems of the counties, **Secure Ballot** will determine the most effective method of matching these data sets. **Secure Ballot** uses contemporary data formats for data inclusion including OASIS EML, VIP XML, and text based data.

4.10 Supports any bandwidth connectivity to the Internet with no time outs

SCYTL RESPONSE

For network infrastructure, the **Secure Ballot** application is connected to a carrier-neutral intelligent routing layer which determines the best connection between the connecting client and the servers. This is done by leveraging the physical infrastructure of several global Tier I telecommunication providers and calculating optimum transmission paths. Furthermore, each load balancer, intrusion detection system (IDS), firewall, and server is duplicated in an active/active configuration.

The application itself, requires very little effective bandwidth for effective operation. The default configuration of **Secure Ballot** will timeout a voter's session after 20 minutes of inactivity, however, this option is configurable based upon the State's determination.

4.11 Utilizes a Secure Socket Layer (SSL) address for access by use on any browser or equivalent. At a minimum, the system should be fully compatible with the latest three versions of Internet Explorer, Firefox, Google Chrome and Mac Safari

SCYTL RESPONSE

The **Secure Ballot** platform forces the voter's web browsers to access the application using an HTTPS connection. This is conducted seamlessly for the user and establishes an encrypted channel using a 256/2048 bit Secure Sockets Layer (SSL) protocol for the transmission of all data. The use of HTTPS also allows for the **Secure Ballot** web domain to be authenticated to the user such that the voter can be sure of the site's legitimacy. See **Appendix B** for a complete review of ballot security. For the hardware requirements, all the user needs is a standard PC connected to the internet that can use

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one of the Operating Systems and Internet Browsers the system is compatible with (see the table below).

Legend:		Ballot Safe 1.5 Voter Domain BCT Matrix v1.2																
X = supported Not supported																		
OS/Browser		IE 6	IE 7	IE 7 (64)	IE 8	IE 9	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)	IE 9 (64)
Win XP	N/A	X			X													
Win Vista (32)	N/A	X			X													
Win Vista (64)	N/A	X		X	X													
Win 7.0 (32)	N/A	X		X	X													
Win 7.0 (64)	N/A	X		X	X													
Ubuntu (32)	N/A																	
Ubuntu (64)	N/A																	
OS X 10.5	N/A																	
OS X 10.7	N/A																	
Android 2.2 (Smartphone)	N/A																X	
Android 2.3 (Smartphone)	N/A																X	
Android 3.0 (Tablet)	N/A																X	
iOS 4.0 (Smartphone / Tablet)	N/A																	X

4.12 Provides ADA compliance

SCYTL RESPONSE

Accessibility is an important element in **Secure Ballot's** design. The solution is Section 508 compliant to ensure the maximum accessibility for voters with disabilities. Care was provided to exceed the standards of Section 508 and provide a more user friendly experience for voters using screen reading technology.

4.13 Provides an intuitive and user-friendly interface

SCYTL RESPONSE

The **Secure Ballot** application is designed to provide voters and election officials an easy-to-use, powerful web interface that supports voters and eases the burden on election officials. This is achieved by providing a voter interface that is intuitive and follows the usability guidelines in the Voluntary Voting System Guidelines (VMSG) established by the EAC.

Functional capabilities that support voter usability include specific feedback identifying improper selections, providing the voter the opportunity to correct the ballot, and navigation controls that allow the voter to advance or return to content.

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- 4.14 Provides access only to individuals with the proper credentials, protecting the identity of the individuals

SCYTL RESPONSE

Secure Ballot supports multiple methods to identify and/or authenticate voters. This includes strong authentication with digital certificates, email address and password, personal identifying information (Name, DOB), anonymous access by address-to-precinct mapping, and others. The State will determine the best combination of security and ease of use based upon its understanding of its voters.

- 4.15 Monitors access for intrusion and reporting any such attempts

SCYTL RESPONSE

Scytl deploys a data center intrusion detection System (IDS) that was designed around SNORT, which is an accepted standard IDS implemented around the globe. The IDS is connected to the data center border routers through the use of mirror ports. The IDS allows the data center network services staff to monitor all inbound and outbound traffic. It is not only versatile, allowing many configuration options and formatting types, but it is also supported by a large base of developers that constantly improve the software.

The data center has also implemented an analysis engine, Alert Console for Intrusion Databases (ACID), which allows the network services staff to review the data collected by the IDS for more detailed research. This detailed research assists the network services staff in tracking down the source and destination of packets that match the signature of known intrusion types. The IDS system is further monitored to verify its online and active state by data center's monitoring system.

- 4.16 Logs all transactions (Any on-line marking is not to be associated with a particular voter when providing this functionality)

SCYTL RESPONSE

As a part of the Scytl suite of patented election security technology, **Secure Ballot** alone includes immutable audits logs that provide near absolute accountability and transparency to the system. This is done by recording the main actions of the application and users in special log files that are digitally signed on periodic intervals. The recording of each action provides that each important action is recorded and the digital signatures ensure that each entry into the log is protected from undetectable manipulation. The strong audit capabilities of the Scytl suite makes it ideal for sensitive applications like voting applications. Please note that the on-line marking is not associated to the voter in the log files to ensure voter's privacy.

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4.17 Provides User Acceptance Testing of all system components prior to system deployment

SCYTL RESPONSE

Scytl will provide the State of West Virginia access to the **Secure Ballot** solution for performing User Acceptance Testing (UAT) for all components of the system prior to deployment. **Secure Ballot** will be configured with test data to provide users with an experience in configuring elections, importing voters and contests, uploading ballots and ballot materials, and all other functions required for system operation. Additionally, Scytl will perform support functions to assist the State staff in the configuration process. In the UAT process, **Secure Ballot** will also permit testing the voter interface, completing ballots in the UAT environment and printing ballot and ballot related material. Scytl will provide user documentation to assist in the process of conducting UAT.

4.18 Provides a "help" option for the voter to resolve technical issues during the entire period of absentee voting and ballot receipt periods (voter should be directed to clerk for non-technical performance issues)

SCYTL RESPONSE

Secure Ballot includes specific help sections in its ballot marking interface to guide voters through steps of the voting system. Help support contact information is provided to voters during each step of the voting experience. Scytl will provide voter support to address general and technical questions. All voter support provided by Scytl is conducted in a professional and efficient manner to increase voter satisfaction.

The election official help service is tailored to provide support and clarifications in the daily administration of **Secure Ballot**.

4.19 Provides system "help desk" support to county clerks and Secretary of State staff especially during live elections

SCYTL RESPONSE

Scytl offering includes a complete Help Desk service for voters and election officials.

Secure Ballot includes specific help sections in its ballot marking interface to guide voters through steps of the voting experience. Help support contact information is provided to voters during each step of the voting experience.

Scytl will provide online voter support to address general and technical questions. All voter support provided by Scytl is conducted in a professional and efficient manner to increase voter satisfaction.

The election official help service is tailored to provide support and clarifications in the daily administration of **Secure Ballot**.

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Located in the U.S., the Help Desk will be manned by experienced personnel trained to support project requirements. The Help Desk will be available through a toll-free telephone number via and email.

Scytl will provide support which will be composed of technical experts in **Secure Ballot** and will be responsible of addressing non-standard queries made by voters and election officials.

4.20 Provides training to County Clerk staff and Secretary of State office staff via email, internet or in-person. The training must include the functions of the system and how to operate the system with the responsibilities of each party emphasized.

SCYTL RESPONSE

SCYTL and Scytl will train designated elections personnel on the use and administration of **Secure Ballot**. Scytl proposes that in-person training be conducted on a regional basis (3-5 regions) and include handout material to support the training presentation. Further information of the training plan can be found in Appendix C.

REPORTING REQUIREMENTS:

4.21 The vendor must provide a variety of state and county reports for daily usage, weekly updates and a variety of user metrics to include but not limited to:

- the number of people who accessed the system
- the number of ballots downloaded
- the number of ballots downloaded multiple times from the same user which includes geographic location
- the number of ballots downloaded from a domestic IP address which includes geographic location
- the number of ballots downloaded from a foreign IP address which includes geographic location
- the number of times the ballot tracking system was accessed
- the number of ballots cast

SCYTL RESPONSE

Secure Ballot keeps record of the main activities done by the system, which can be mined to obtain different statistics on multiple areas/actions, including:

- Number of accesses to the system to include login attempts and failures.
- Number of blank ballots downloaded.

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- Number of ballots attempted and ballots completed.
- Transaction accesses by date and time.
- Date of completion – completed transactions / ballots issued.
- Uncompleted transactions / no ballot issued.
- Errors.
- Technical details about visitors/voters (i.e. type of web browser).
- Time required to complete a ballot.
- Most visited pages/sections.
- Statistics generated out of the Help Desk tracking tool.
- **Secure Ballot** can also be configured to determine the nation/state of origin of IP addresses and report on aggregated data collected from this geolocation feature.

In addition to the previous statistics automatically gathered by the system, Scytl will be able to provide results from post-voting surveys (optional feature) which voluntarily can be filled out by voters.

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5 Appendix A – Reference Letters

5.1 Mississippi



DELBERT ROSEMAN
Secretary of State

June 28, 2011

Re: Scytl USA

To Whom It May Concern:

I am pleased to recommend Scytl USA as a strategic partner in the field of secure electronic voting. Mississippi has partnered with this organization for over a year in implementing a UOCAVA/MOVE Act compliant electronic voting platform, which has enabled more military and overseas voters to vote quickly, efficiently, and safely from wherever their deployment or work has temporarily placed them.

From the outset of the Federal Voting Assistance Program's Initiative to construct and utilize a secure electronic voting platform to serve our deployed forces, Scytl has been an incredible resource. From Mississippi's perspective, the leadership, development and design team at Scytl has been proactive and aggressive in implementing a usable format, enabling State and local election officials to work directly with prospective military and overseas voters to ensure that they have the opportunity to cast their ballots in a timely fashion, with minimal lost time and instruction. Their product is user friendly, which, for us, translates into a better voting experience and increased voter participation.

Through their professionalism and expertise, Scytl has made my job easier, and made our military's ability to vote faster and easier. I would wholeheartedly recommend Scytl to any election official who wants to work with the very best.

Sincerely,

A handwritten signature in black ink, appearing to read "W. Heath Hillman".

W. Heath Hillman
Assistant Secretary of State, Elections

/bh

401 Mississippi Street
Post Office Box 136
Jackson, Mississippi 39205

Telephone (601) 359-1350
Furnish (601) 359-1499
www.sos.ms.gov

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5.2 Jackson, WV



CLERK OF THE JACKSON COUNTY COMMISSION

Jeff Waybright

Post Office Box 800 • Ripley, WV 25271-0800 • 304-373-2258 (Office) • 304-372-1107 (Fax)

June 1, 2010

To Whom It May Concern:

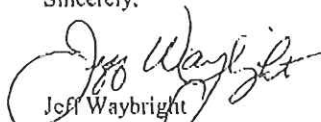
As County Clerk in and for Jackson County, WV, it is my distinct pleasure to report to you a very successful Overseas and Military voting pilot program implemented during our May 11, 2010 Primary Election.

With the assistance of Scytl USA Secure Electronic Voting, we were able to implement voting procedures that allowed UOCAVA voters to securely vote the correct ballot style for our Primary Election via internet access, and verify that their ballot had been received by us through tracking and checking procedures.

On Election Day we were able to download all voted ballots and enter those votes to our Election Day totals, via our absentee voting process, without any problems. All election laws and regulations for the State of West Virginia were met, and the system performed flawlessly during all the voting period with no security breaches detected.

In my opinion, after having successfully implemented this system in our Primary Election, which had Federal, State and local contests on the ballot, I would highly recommend Scytl USA, and their outstanding staff for future endeavors. The ease of use, functionality, and security not only met, but exceeded our expectations.

Sincerely,


Jeff Waybright
Jackson County Clerk
Jackson County, WV

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5.3 Marshall, WV

Marshall County Clerk's Office

P.O. Box 459
Moundsville, WV 26041

304-845-1220 (phone)
304-845-5891 (fax)

Janpest@aol.com
Coclerk@stratuswv.net

Jan Pest, County Clerk
Janice Gordon, Deputy

Winnie Raliff, Deputy
Teri Whitcomb, Deputy

June 1, 2010

To Whom It May Concern:

Marshall County, West Virginia, was one of five counties in West Virginia to participate in a pilot project to permit internet voting for UOCAVA (Uniformed and Overseas Citizens Absentee Voting Act) voters in the May, 2010 Primary Election.

The State of West Virginia implemented the pilot project in response to the MOVE (Military and Overseas Voters Empowerment) Act and partnered with SCYTL Secure Electronic Voting and another vendor to provide their service to the counties. Marshall County chose to partner with SCYTL because of their previous experience offering Internet voting both in Florida and in other countries.

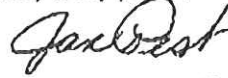
The process was very simple and completely user friendly. Scytl uses a military style encryption process to ensure ballot security and once the ballots were cast they were held in a secure server until they were retrieved by the 3 "key holders" on election night. The key holders were selected by the county clerk to diversify access to launching and closing the election. In this election they were the County Clerk, President of the County Commission and the Prosecuting Attorney. Each selected their unique password and held their own data card. Two of the three had to be present for operation of the opening and closing process.

Being a layperson, so to speak, regarding security and encryption, I had complete confidence in Scytl's product and never felt at any point that the ballot secrecy or safety was compromised by any type of weakness or deficiency. I felt that their highest priority was the integrity of the ballot and protection of the voter.

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Scytl was prudent in following all aspects of West Virginia Election Laws in the development of this pilot program and additionally, was cautious to follow all ballot layout rules as outlined in the Code. Their professionalism and knowledge were key to the success that Marshall County had with the pilot project.

Very truly yours,



Jan Pest, County Clerk

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5.4 New York

November 4, 2010

Pat Campion

Coordinator of Special Projects

New York State Board of Elections

40 Steuben Street

Albany, NY 12207-2108

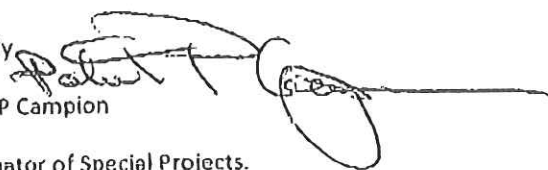
To whom it may concern,

New York State Board of Election has contracted with Scytl USA for the State's complete solution in compliance with the Military and Overseas Voter Empowerment Act 2009 (MOVE). Scytl has provided a robust web based solution that assists both County Election Boards and voters alike in the management of distance absentee ballot and tracking. This secure technology has improved ballot access for thousands of voters in New York State's military and overseas community.

Having piloted the project in the 2010 Primary Election, the easy to use online system allowed for 83% of New York counties to provide ballots electronically to voters for the first time. This performance was followed in the 2010 General Election with 100% participation and results that both the State and counties are pleased with. More than 84% of voters expressed that they would prefer to receive their ballot in the future using Scytl's technology.

The New York State Board of Elections looks forward to working with Scytl in 2011 and beyond to increase the use of the online distance balloting and realize a cost savings to the citizens of New York State.

Sincerely,


Patrick P. Campion

Coordinator of Special Projects.

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5.5 Okaloosa

Okaloosa County (FL)
May 31, 2010

Dear Sirs,


Hereby, we would like to inform you that Okaloosa County (pop. 190,000), in cooperation with Operation BRAVO Foundation, executed the Okaloosa Distance Ballot Pilot (ODBP) during the U.S. Presidential Election of November 2008. The ODBP project was based on Scytl's Pnyx technological solutions and its primary objective was to facilitate the voting process to UOCAVA voters from Okaloosa County through the use of an online system.

In the ODBP project, Pnyx was integrated with the Okaloosa County's Election Management System provided by Premier (GEMS) which allowed importing the correct ballot styles for each UOCAVA voter. Furthermore, Pnyx was integrated with the early voting registration process allowing the delivery of voting credentials to UOCAVA voters and their correct authentication. Once UOCAVA voters had been authenticated and they had received the correct ballot style, they could mark online their ballot following state rules, verify the selected voting options and print the completed absentee ballot which was subsequently sent to Okaloosa County. Finally, voters could track and check the correct reception of their ballots.

Pnyx was certified by the Division of Elections of the State of Florida after a thorough security review conducted by leading security experts from different Universities and a source code audit. The State of Florida did the final functional testing and certification. Furthermore, Pnyx conformed to all election laws and regulations in the State of Florida. The voting system performed flawlessly during all the voting period and no attacker managed to succeed. There were no security breaches.

In our opinion, after having successfully implemented Pnyx in a federal, state and local election, the functionality offered by Pnyx is substantially the same functionality required by the MOVE Act and even exceeds the required functionality in some aspects.

Sincerely,



Patricia M. (Pat) Mollarn, CERA
Retired Supervisor of Elections (1989-2009)
Okaloosa County, Florida

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5.6 Scytl's additional references information

Scytl has participated in multiple election processes in the U.S. both in the private and public sectors.

In the public sector, Scytl's election modernization solutions have been successfully implemented in U.S. elections at the federal, state and local level. The following are some recent examples: 2008 U.S. Presidential Election in Okaloosa County (FL), 2008 Primary election in Montgomery County (VA), 2010 Primary election in Marshall and Jackson counties (WV), 2010 Primary election in 13 counties in Texas, and the 2010 General Election in Alabama. In 2012 Scytl has implemented MOVE Act compliant ballot delivery solutions in New York State, Alabama, Mississippi and Arkansas. Besides federal and state elections, Scytl has also participated in multiple local elections and referendums including the King County (WA) Conservation District election in 2009 and 2010.

Furthermore, Scytl has worked on numerous high-profile election modernization projects for governments worldwide. The following is a sample of some projects executed with Scytl's election modernization solutions (references are available upon request).

5.6.1 MINISTRY OF FOREIGN AFFAIRS (FRANCE)

The French Ministry of Foreign Affairs selected Scytl to offer a secure online registration and voting platform to the French citizens living overseas. In May 2009, 310,000 French voters residing in Africa and Americas were able to register on-line, get their credentials, download their ballot style, mark the ballot online, optionally print the marked ballot and carry out a secure electronic transmission of their ballot to elect their representatives to the Assembly of the French living abroad (AFE). The online registration and voting platform was available 24/7 to cover the time zone differences between the continents involved. After the success of this initial election, the French government executed their option to purchase a permanent license of the Pnyx platform that will be used for over 1 million French overseas voters in the next Parliamentary and AFE elections.

5.6.2 MINISTRY OF SCIENCE AND TECHNOLOGY (AUSTRIA)

The Austrian Ministry of Science and Technology selected Scytl to provide its secure electronic voting software and election management solution (EMS) to carry out the first binding Internet voting election in Austria. This was a high profile reference project for both the Ministry and Scytl where 240,000 voters from 21 different Universities were able to securely login on-line, download their ballot style, mark the ballot online, optionally print the marked ballot and carry out a secure electronic transmission of their ballot in over 400 simultaneous elections in May 2009. The solution provided by Scytl was thoroughly audited and successfully certified by A-Sit, an independent accredited certification authority appointed by the Ministry. The certification included among others security and source code reviews, compliance with EC Recommendation (2004) 11 and common criteria ISO/IEC 15408.

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5.6.3 STATE OF VICTORIA (AUSTRALIA)

The State of Victoria used Scytl's election modernization solutions during the 2006 parliamentary elections. Reusable voting terminals, based on standard PCs and Scytl's e-voting software, running on Live CDs, were used to allow blind and visually impaired citizens to vote without assistance. The terminals supported 12 languages and included special features such as headphones and a specially designed keyboard. Scytl also provided its EMS to facilitate the configuration and management of the election. As a result of the success of this project, the State of Victoria has selected Scytl again for the 2010 Parliamentary elections in a project that will expand the use of Scytl's technology to overseas voters with new features and additional voting channels that will allow overseas voters to vote remotely over the Internet and from several hundred locations.

5.6.4 MINISTRY OF LOCAL AND REGIONAL GOVERNMENT (NORWAY)

Scytl was selected by the Norwegian Ministry of Local and Regional Government to provide a secure online platform to 11 of the largest Norwegian municipalities for the 2011 municipal elections. Voters in these selected municipalities will be able to register on-line, get their credentials, download their ballot style, mark the ballot online, optionally print the marked ballot and carry out a secure electronic transmission of their ballot over the Internet either from polling stations or remotely from anywhere in the world. A full nationwide rollout of this system is scheduled after the 2011 municipal elections.

5.6.5 MINISTRY OF JUSTICE (FINLAND)

The Finnish Ministry of Justice decided to install accessible electronic voting terminals connected to servers via the Internet for the 2008 municipal elections. After a thorough analysis of different alternative solutions, the Ministry of Justice selected Scytl's ballot security backend software application and a custom-made voter front-end and authentication application provided by a Finnish vendor. The e-voting security software provided by Scytl successfully passed 2 thorough test phases, focusing on functional compliance and security, and performed well during the entire election process.

5.6.6 MINISTRY OF JUSTICE (UNITED KINGDOM)

The local councils of Rushmoor and South Bucks used Scytl's Internet voting technology during their 2007 local elections as part of the election modernization program funded and supervised by the UK Ministry of Justice. Voters from both councils registered to vote through the Internet voting channel over a one and two week period, respectively. The Internet channel was used alongside postal voting and traditional paper voting in council polling stations. Among the Internet voters, there were several British Army members on duty in different missions worldwide.

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5.6.7 COMMISSION ON ELECTIONS (PHILIPPINES)

As part of the Election Modernization Program, the Commission on Elections of the Philippines successfully used Scytl's Internet voting technology to allow their overseas citizens to register on-line, get their credentials, download their ballot style, mark the ballot online, optionally print the marked ballot and carry out a secure electronic transmission of their ballot over the Internet. The system was integrated with the Filipino Absentee Voter Registration system and used during 10 days to allow casting votes from any computer connected to the Internet. In an independent survey, over 90% of the voters considered that the platform was easy-to-use and highly secure.

5.6.8 STATE OF CATALONIA (SPAIN)

The Government of the State of Catalonia used Scytl's Pnyx to allow its overseas citizens to cast votes over the Internet in the 2003 Catalan parliamentary election. Overseas citizens could vote remotely from anywhere with a computer and an Internet connection and also from the Catalan government delegations in 5 different countries.

5.6.9 CANTON OF NEUCHÂTEL (SWITZERLAND)

Since 2004, the Swiss canton of Neuchâtel has been using Scytl's Pnyx to allow its overseas and resident citizens to download their ballot style, mark the ballot online, optionally print the marked ballot and carry out a secure electronic transmission of their ballot in elections and referendums. This permanent platform has been used to successfully carry out, with the highest security standards, an average of 4 to 6 elections and referendums per year over the last six years.

5.6.10 CERTIFICATIONS

Scytl is ISO9001:2000 certified, following the ISO/IEC 90003 guidelines for software engineering for electronic voting processes. ISO/IEC 90003 provides guidance in the application of ISO 9001:2000 to the acquisition, supply, development, operation and maintenance of computer software and related support services. It frequently references the ISO/IEC JTC 1/SC 7 software engineering standards: in particular ISO/IEC 12207, ISO/IEC TR 9126, ISO/IEC 14598, ISO/IEC 15939 and ISO/IEC TR 15504.

According to ISO requirements, the quality system is documented which includes project management, delivery, software development processes and software quality assurance, among others.

Scytl's election modernization solutions have also been certified in multiple countries, including the United States, France, United Kingdom, Finland, Austria, Australia and Switzerland. These certification processes have been carried out either by government entities or by independent auditors appointed by governments. Scytl's solutions have never been denied certification or de-certified in any country or jurisdiction.

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6 Appendix B - Secure Ballot Security Controls

6.1 Overview

Secure Ballot is an online delivery and ballot marking wizard that provides many services to voters and election officials via the Internet. Given the vast geographical differences between users of this system and the ubiquitous problems of other communication mechanisms, the Internet is the best solution to provide election services to the United States military and overseas civilians. Given the Internet's inherent insecurity; however, the approach requires the most advanced and proven security controls. Scytl recognizes this and has developed products over the last 10 years that leverage proven cryptographic primitives to protect sensitive election information in an Internet-based environment. Scytl has the most widely used and intensely-audited electoral security protocols in the industry.

6.2 Technology

Scytl was formed as a spin-off from a leading research group at the Autonomous University of Barcelona (Spain). This group has pioneered the research on e-voting and election management security in Europe since 1994 and has produced significant scientific results, including 35 scientific papers published in international journals and the first two European Ph.D. theses on electronic voting security, by Prof. Joan Borrell and Scytl's founder Dr. Andreu Riera (in 1996 and 1999, respectively). One of Scytl's key differentiators is its unique election security technology, which derives from over 16 years of pioneering R&D and is protected by a portfolio of international patents. The groundbreaking cryptographic protocols developed by Scytl provide elections with the highest levels of security, in terms of voters' privacy, ballot box integrity, and voter-verifiability. Around this core security technology, Scytl has developed **Secure Ballot**, a family of solutions that address all the segments within the election market. This innovative technology has received numerous international awards, including the prestigious ICT Prize granted by the European Commission, the Red Herring 100 granted by Red Herring magazine and the Global Innovator granted by The Guideware Group.

Secure Ballot wizard implements security with a defense-in-depth methodology using firewalls, OS hardening, and different FIPS-compliant security technologies which go beyond the standard security measures found in the market. These specific measures include advanced cryptographic protocols, CAPTCHA technology, encrypted databases, digital signatures, strong authentication access control measures and immutable log techniques to facilitate audit processes. With the previous combination of security techniques and procedures the system is very well protected against external and internal attacks, ensuring privacy, confidentiality, integrity, non-repudiation, and availability of the election data.

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6.3 Security Controls

6.3.1 Secure Ballot Application

A) Voters - Access Control

- Voters shall be authenticated through user and password mechanism, which ensures strong passwords (letters and numbers requirement, 7 characters of minimum length ...).
- Voters' passwords shall be stored encrypted.
- Voters' user accounts shall be locked after a certain number of unsuccessful login attempts (e.g. 5 attempts).
- Voters shall be able to change his password.

B) Election Administrators – Access Controls

- Election Administrators shall be authenticated through user name and password or strong authentication mechanisms (both supported). Strong authentication mechanisms will be based in standard X509v3 digital certificates. Pre-existing personal digital certificates (e.g., electronic ID) are supported but in case these are not available a key roaming mechanism is provided as a digital certificate provisioning system.
- User accounts and user rights shall be granted with the principle of least privileges.
- No generic user accounts shall be created. Application administrators and application operators shall use individualized user accounts.
- Access to digital certificates will be protected by using password based encryption mechanism.
- A secure password policy shall be established for password based encryption in order to ensure:
 - Only strong passwords are accepted (e.g. letters and numbers requirement, 7 characters of minimum length).
 - Users shall be able to change his password for encrypting the key.
 - Digital certificates shall be locked after a certain number of invalid password decryption attempts (e.g. 5 attempts).
 - Passwords are not stored in clear anywhere.

C) Auditing

- Application logs shall be kept, with "immutable logs" mechanism.
- Every critical activities performed by voters or election administrators, shall be recorded at the application log, e.g.:

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- Login attempts (successful and unsuccessful).
- Users and groups modifications.
- Election configuration management activities.
- Voters' registration.
- Ballot downloading and ballot casting.
- Detailed information about registered event shall be recorded, e.g.:
 - Date and time of the event.
 - Type of event.
 - Subject identity (user, session id, IP address and other location information from the user who generates the event).
 - The outcome (success or failure) of the event;
 - Related object identification.
- Log files shall be included in the backup policy and procedures.

D) Software

- Access to the software application code shall be restricted and audited.
- Software source code shall be digitally signed to prevent unauthorized modification.
- Periodical reviews shall be performed through automated tools, to ensure the source code / application code has not been changed.

E) Protected Data Types

The following information is managed and stored by the application, with different requirements about its privacy, integrity, and authenticity.

Data Type	Privacy	Integrity	Authenticity
Personal Data	AES – 128 bits	Digital signature	-
Voting Materials	-	Digital signature	Digital certificate
Configuration files	-	Digital signature	Digital certificate
Immutable Logs (auditing)	-	Digital signature	Digital certificate

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6.3.2 Personal Data

Personal data includes sensitive voter information.

The following security controls will be implemented in order to protect the privacy and integrity of the information:

- Communication between voter PC and central server is secured through SSL connections.
- Voter personal data is encrypted using the AES encryption protocol.
- Voter personal data is stored as a hash value using the SHA family of secure hashing algorithms published by NIST.

6.3.3 Voting Materials

The integrity of voting materials shall be protected against unauthorized changes that could affect to the election results (e.g. ballots templates). For this reason:

- Voting materials shall be digitally signed with the proper authorization level
- Voting materials shall be stored digitally signed.
- Files integrity and the digital signature shall be monitored, in order to detect unauthorized changes.

6.3.4 Configuration Files

The integrity of configuration files shall be protected against unauthorized changes that could affect to the election integrity, availability, and election results (e.g. election finish date and time). For this reason:

- Configuration Files shall be digitally signed with the proper authorization level.
- Configuration Files shall be stored digitally signed; even if they are stored in a database.
- The configuration integrity and the digital signature shall be monitored, in order to detect unauthorized changes.
- Any change to configuration files shall be properly authorized, and digitally signed by the proper authorization level.

6.3.5 Immutable Logs

As explained previously, the application shall register "activity logs" regarding any important or critical operation performed at application level (performed by both the voter as by the electoral officers).

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The integrity of these logs shall be ensured. For this reason, the logs will be protected by the "Immutable Logs" mechanism, which ensures that any change to the application logs would be detected.

6.4 Database

A) Access Control

- User accounts and user rights shall be granted with the principle of least privileges.
- Default users shall be removed or deactivated.
- No generic user accounts shall be created. System administrators and system operators shall use individualized user accounts.
- A secure password policy shall be established in order to ensure:
 - Only strong passwords are accepted (e.g. letters and numbers requirement, 7 characters of minimum length ...).
 - Passwords shall expire after a certain number of days (e.g. 90 days). A reminder of password expiration time could be implemented a few days before.
 - Password history shall be stored to ensure that a new password has not been used during the specified history (e.g. last 10 passwords).
 - User accounts shall be locked after a certain number of unsuccessful login attempts (e.g. 5 attempts).
- Database users and passwords shall never be stored or hardcoded as clear text, in database tables, configuration files, operative system scripts, scheduled jobs or daemons, database queries or procedures, application source code, ...
- Remote Connection of privilege users (database administrators) shall not be allowed.

B) Auditing

Every critical activities performed by interactive users shall be recorded at the operative system event log, e.g.:

- Login attempts (successful and unsuccessful).
- All administrators' activities (SYSDBA).
- Users and groups modifications.
- System parameters configuration.
- Audit Functions start / stop.
- Modification / deletion over critical data tables.

Detailed information about registered event shall be recorded, e.g.:

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- Date and time of the event.
- Type of event.
- Subject identity (user, session id, IP address and other location information from the user who generates the event).
- The outcome (success or failure) of the event;
- Related object identification.

C) Security Configuration

- Database Management System shall be updated in front of security updates.
- Restrict rights granted at the operative system, to perform:
 - Start / shutdown the database service.
 - Access to the database configuration files.
 - Access to the database data files.
- Database administrator user shall not have administrator rights at the operative system, and vice versa.
- Create and protect an independent service to administrate the database.

D) Backup

- Database server shall be clustered.
- A redo-log from the database shall be kept, protected, and stored in a different server, to ensure the restoring of the database is possible.
- Database files shall be included into the backup policies and procedures.

6.5 Operating System

A) Access Controls

- User accounts and user rights shall be granted with the principle of least privileges.
- Default users shall be removed or deactivated.
- No generic user accounts shall be created. System administrators and system operators shall use individualized user accounts.
- A secure password policy shall be established in order to ensure:
 - Only strong passwords are accepted (e.g. letters and numbers requirement, 7 characters of minimum length ...).
 - Passwords shall expire after a certain number of days (e.g. 90 days). A reminder of password expiration time could be implemented a few days before.

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- Password history shall be stored to ensure that a new password has not been used during the specified history (e.g. last 10 passwords).
- User accounts shall be locked after a certain number of unsuccessful login attempts (e.g. 5 attempts).
- Operating System users and passwords shall never be stored or hardcoded as clear text, in database tables, configuration files, operative system scripts, scheduled jobs or daemons, database queries or procedures, application source code, ...
- Remote Connection of privilege users (system administrators) shall not be allowed.

B) Event Logging

Every critical activities performed by interactive users shall be recorded at the operative system event log, e.g.:

- Login attempts (successful and unsuccessful).
- Users and groups modifications.
- System parameters configuration.
- Files modification or deletion.
- Privilege escalation functions (sudo, su ...).
- Event log configuration / activation / deactivation.

Detailed information about registered event shall be recorded, e.g.:

- Date and time of the event.
- Type of event.
- Subject identity (user, session id, IP address and other location information from the user who generates the event).
- The outcome (success or failure) of the event;
- Related object identification.

C) Security Configurations

- Operative System shall be updated in front of security updates.
- Unnecessary software and unnecessary system services shall be removed or deactivated.
- Disable / restrict operative system capabilities to execute operations as root / administrator (sudo, su, UID ...).
- Disable system services which are sending or storing the passwords as clear text (FTP, telnet, rsh... or rhosts).

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- Files integrity shall be monitored through specific software which detects any file change (tripwire, AIDE, ...)

6.6 Network

A) Communications Security: A secure network connection shall be established through SSL – HTTPS:

- Every operation shall be performed through HTTPS (both authentication operation as normal operations).
- No-HTTPS requests shall be rejected.
- Mixed zones are not allowed.

B) Servers Connections. Only the application layer (front end) can be connected to the Internet. Other servers (back end, databases ...) shall not be connected to the internet directly.

C) Network Security:

- Firewalls systems must be implemented and configured to protect internal services from external attacks.
- Firewalls policies must be applied with the principle of least privileges.
- Personal firewalls shall be implemented at a server level (e.g. iptables).

6.7 Physical Security

Data Center Physical Controls shall be established in order to ensure the availability of the service, and avoid the disclosure of information stored in servers.

A) Access Controls. Data Centre shall be protected by appropriate entry controls to ensure that only authorized personnel are allowed access:

- Strong authenticated, password or Biometric access controls.
- Restriction sluices to ensure each individual shall be authorized.
- Video cameras protecting data centre door and weak points.
- Strong-room conditions (no glass panes or weak windows).

B) Procedural Controls shall be designed and applied, regarding:

- Data Center access management.
- External providers management / guest management.
- Physical protection and guidelines for working in secure areas.

C) Environmental Controls. Protecting against external and environmental threats:

- Data Center shall be located in a geographic zone without high-risk of environmental threats (far from river banks, sea, volcanoes, earthquakes zones, ...)

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- Data Center room shall be located in a building room without high-risk of environmental threats (far from water-pipes, gas-pipes, bathrooms, chemical zones ...).
- Data Center location shall not be indicated.
- Fire detectors and homologated fire extinguisher.
- Humidity and water detector.
- False floor and ceiling – with fireproof equipment, pipes classification, and cables classification.

D) Equipment Security. To prevent loss, damage, theft or compromise of assets and interruption to the organization's activities:

- Supporting Utilities like UPS's or energy powers, to protect the equipment from power failures and other disruptions caused by failures in supporting utilities.
- Energy Panel independent from building energy panel.
- Cabling Security - Power and telecommunications cabling carrying data or supporting information services shall be protected from interception or damage.

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7 Appendix C - State of West Virginia Training Plan

7.1 Training Plan

Scytl's **Secure Ballot** is an intuitive-based product, which once operational, requires little or no intervention on the part of election officials. Its training requirements are in fact minimal. We are committed to working with the West Virginia Secretary of State to provide a training plan and schedule that will most effectively reach the State and County staff. Given the 2012 election cycle schedule, Scytl will follow a rapid approach to training users of **Secure Ballot**. Due to the nature of **Secure Ballot**, the provided training will be concise, direct, and short in terms of duration. Our design and development has resulted in a product offering that requires virtually no interaction on the part of State and Local election officials. It is a product that will manage itself and direct voter's through the process.

7.2 Training Methodology

The **Secure Ballot** training system is forged from a training methodology which utilizes multiple communication mediums, clear course objectives, and logical course breakdowns by functionality sets and user groups.

7.2.1 Training Levels

Each course is designed to reach users at multiple levels, beginning with an introduction to **Secure Ballot** on through personal experience. Scytl designs courses to reach users at four levels:

- **Awareness** – This is the introductory level where trainees are taught about the presence of **Secure Ballot**, what it is useful for, and which aspects of it that they going to be interacting with.
- **Knowledge** – At this training level, trainees are taught about the distinct capabilities and functions of **Secure Ballot** and what is function is able to accomplish.
- **Understanding** – This level is where the trainee is able to apply the capabilities and functions of **Secure Ballot** to a given scenario.
- **Skill** – This training level is where the trainee is able to complete system operations with only the help of supporting documentation.

7.2.2 Delivery Mechanisms

In order to effectively and efficiently reach trainees at each of these four levels, Scytl employs the use of three different delivery mechanisms. Each mechanism is used to accomplish a specific goal as described below:

- Deliver an easily mastered skill set to Election Administrators though classroom style training opportunities.

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- Reinforce training with webinar sessions as needed to offer a forum for Q&A, refreshment training and an opportunity to train additional users. Enhanced functionality and election specific training can be delivered to users in this flexible manner.
- Provide comprehensive training materials in the form of detailed documentation and easy to use graphical quick reference guides.

7.2.3 Customer Input

The Scytl training methodology relies heavily on feedback from the customer. The training manager will work closely with State officials to fine tune content and course structure to achieve the most effective training system based on West Virginia's unique needs.

7.3 Course Structure

It is envisioned that we will schedule half-day training classes as required and determined by the Secretary of State. Attendees will be provided training materials in the form of detailed documentation and graphical Quick Reference Guides for notes during the group led session and reference material.

The classroom style format will provide counties with a detailed demo of the Secure Ballot tool with opportunity for Q&A and discussions.	Approximately 90 minutes
Review and Discussion	Approximately 30 minutes

7.4 Course Materials

Scytl will provide training documentation in these formats:

- **User Documentation** – Comprehensive detail and description on using the **Secure Ballot** Software Tool with step-by-step instructions, suggestions for users and a troubleshooting guide.
- **Quick Reference Guides** – Graphical, task-specific instructions that guide the user through using **Secure Ballot**.

7.5 Course Library

The following are the course titles and descriptions of the training courses that Scytl will provide. This course library is based on our projected use of the system and may be amended as necessary for West Virginia.

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7.5.1 State Administration

Required Attendees: Primary state-level personnel

Optional Attendees: Secondary (backup) state-level personnel

Objectives:

Prepare trainees in the utility and functionality of **Secure Ballot**:

- What is **Secure Ballot** and what does it do
- How **Secure Ballot** improves the UOCAVA experience
- How **Secure Ballot** can collect useful statistics to better serve the UOCAVA voter environment
- How **Secure Ballot** can provide useful statistics to the Federal Voting Assistance Program for reporting purposes
- How **Secure Ballot** provides an additional voting channel to UOCAVA voters
- How **Secure Ballot** can be extended in the future
- How the Scytl Help Desk supports the State and Voter

Description:

The course will cover that information necessary to understand the utility and functionality of the **Secure Ballot** platform and how it can be used by the State to extend the franchise in a more timely fashion to those overseas voters traditionally at a disadvantage due to being overseas, and provide useful statistics based on empirical data to the Federal Government.

7.5.2 County Administration

Required Attendees: Primary county-level administrators

Optional Attendees: Secondary (backup) county-level administrators

Objectives:

Prepare trainees in the full spectrum of **Secure Ballot** functionality and capabilities:

- What is **Secure Ballot** and what does it do
- How **Secure Ballot** improves the UOCAVA experience
- What is required of Local Election Officials
- How voter verification and authentication to use system is accomplished
- How voters use the system
- What **Secure Ballot** provides to voters at the end of the voting process
- Ensuring required return election materials and instructions are properly updated
- Ensuring eligible UOCAVA voters are aware of the availability of the platform

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- Upload ballot information as required
- Upload UOCAVA voter information as required
- Questions you can expect and how to answer
- How the /Scytl Call Center and Online Help Desk supports the State and Voter

Description:

The course cover topics necessary to ensure election officials fully understand the capabilities and functionality of **Secure Ballot** and what is required of them. It is intended to ensure complete familiarization with the services provided to UOCAVA voters who will utilize the platform in the course of an election, and the type and level of support that is available to both local election officials and voters.

Scytl may incorporate distance learning opportunities to West Virginia and its counties, to be used in conjunction with initial on-site training.