

1. Technical Proposal

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Applicant: Arkansas Secretary of State's Office

Sub Contractors: Election Systems and Software, Inc and Scytl USA LLC

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3. Technical Approach and Justification

3.1. Executive Summary

While running a state-wide campaign for Secretary of State and three district campaigns for State Representative, Arkansas Secretary of State Mark Martin saw first-hand that every vote was important and every voter needed the ability to cast their vote in a timely, secure manner in order to have their voice heard. Unfortunately, due to his prior service in the United States Navy as a sub-mariner, Secretary Martin learned first-hand that the voices of members of our active-duty armed forces are not always heard, because they can not get their ballot in a timely, secure manner.

With personal knowledge of the challenges faced by UOCAVA voters, as well as the planned deployment in 2012 of over 3,000 Arkansans from the 39th Engineering Brigade, Secretary Martin is committed to changing the system. Immediately after taking office, Secretary Martin worked with the Arkansas Legislature to pass two key pieces of legislation. The first, Act 1185 of 2011, guarantees that absentee ballots will be sent to UOCAVA voters at least 46 days prior to all state elections, not just federal elections. The second, Act 1188 of 2011, authorizes the electronic transmission of election material. UOCAVA voters can now utilize all electronic means (not just fax machines) to request and receive all election material including, but not limited to voter registration applications, absentee ballot applications, and if funding is available, absentee ballots. The legislation also authorizes, if funding is available, the development of a free access system to verify that UOCAVA absentee ballots have been received.

Funding through the Electronic Absentee Systems for Elections (E.A.S.E.) Grants made available by the Department of Defense will allow the system to be implemented. Due to the intense poverty in the State, it will allow many counties who do not have the resources to afford this technology to fully participate. Partnering with ES&S and Scytl, as well as academic researchers from Cal Tech University and the University of Utah, the Arkansas Secretary of State will implement the UOCAVA System Enhancement Research (USE) Program.

The USE Program will provide electronic systems for UOCAVA voters that are innovative, repeatable, sustainable, and affordable, and will reduce the failure rates for UOCAVA voters in each stage of the absentee voting process. The Arkansas Secretary of State believes the efficacy of our efforts can be shared. The diversity of Arkansas' counties – ranging from the urban and moderately affluent counties in central and northwest Arkansas to the poverty-stricken and rural Delta counties – should provide research information that will benefit a number of different jurisdictions around the country.

Seventy-two of Arkansas' seventy-five counties currently utilize ES&S voting devices and technology for preparation of paper ballots. All seventy-five Arkansas counties utilize ES&S for voter registration. The current relationship between ES&S and the State of Arkansas should ensure a seamless delivery of data and increase the confidence of the county clerks who will utilize the USE Program.

The Arkansas Secretary of State views the collaboration with ES&S and Scytl and their electronic absentee balloting product – *BALLOTsafe*, as the best solution for Arkansas.

3.2. Goals and Objectives

3.2.1. UOCAVA System Enhancement Research (USE) Program Overview

The Arkansas Secretary of State's Office proposes a UOCAVA System Enhancement Research (USE) Program with ES&S and Scytl where state of the art secure online tools will be used to assess the ability of such tools to improve the participation and voter experience of the overseas voter community. At the same time, the program will propose and analyze the implementation of efficient and innovative technology and processes to reduce the costs and the error rate in the ballot return process.

3.2.2. Factors Achieved

The Arkansas Secretary of State's Office believes that our unique assets, capabilities, locations, and personnel through the UOCAVA System Enhancement Research (USE) Program with ES&S and Scytl will foster and develop products and processes which will lessen the impediments that exist for the UOCAVA voter and will strongly address the Evaluation Factors stipulated in the FVAP EASE Grants program. For example, these factors are achievable through the deployment and use of the *BALLOTsafe* solution complimented with customizations for Arkansas and related research and analysis. Our research and resulting reports will provide statistics and findings related to the progress towards achieving these factors.

3.2.2.1. Significance

Research indicates that UOCAVA voters experience a higher failure in every stage of the voting process than comparable populations in the general electorate. The failure rate for UOCAVA voters in Arkansas is alarmingly high. In 2008, of the 6,515 UOCAVA ballots transmitted, only 4,028 were returned and submitted for counting. That's only 61.82 percent. In 2010, that percentage decreased to 47.08. Those numbers must be improved. The USE Program will address each phase through greater information dissemination, monitoring, increased operational efficiencies, and multi-channel confirmation of voter success or failure at each stage of the voting process. These phases/stages include:

- Voter Registration – *BALLOTsafe* will work in coordination with any online voter registration system and through the use of tools and procedures will provide information to voters, enhance their voter registration interaction, and track the progress of the registration process.
- Absentee Ballot Request – *BALLOTsafe* will provide an online absentee ballot request wizard 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 *BALLOTsafe* 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.
- Absentee Ballot Delivery – *BALLOTsafe* will utilize the ballot data from any Arkansas election management system and deliver the precinct specific ballots via its secure and accessible online portal. Voters will be notified by email of ballot availability. To assist in the ballot delivery, the *BALLOTsafe* 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.

- Absentee Ballot Return and Tabulation – *BALLOTsafe* 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, *BALLOTsafe* will also use ballot tracking barcodes to assist in the correct receipt and tracking of ballots. Furthermore if state law permits and the state chooses, ballots may contain the ballot choice barcode which assists in the automated duplication of returned paper ballots into optical scan format for tabulation. Ballot return tracking updates are provided to the voter immediately through *BALLOTsafe* and through email notifications.

3.2.2.2. Sustainable

The Arkansas Secretary of State’s Office is focused on constructed cost-effective and sustainable solutions which successfully enhance voter awareness consistently across multiple election cycles. There are multiple factors in Arkansas’s assessment of sustainability shown below. The Arkansas Secretary of State’s Office believes these factors are achievable through a unique approach using lean principals and incorporating a research evaluation of improvements to sustainability.

- The program and solution will be **financially sustainable**. Arkansas will see a future cost savings in the overall cost of UOCAVA absentee balloting through the execution of the USE Program. Further information can be found in the ROI analysis provided in the Budget Proposal.
- The program and solution will be **logistically sustainable**. The USE Program will seek to realize operational efficiencies over the current processes through the *BALLOTsafe* technology which will provide a lower level of effort which can be sustained even with decreasing budgets. Examples of this include easier exchange of ballot and voter information between technology systems, less effort and cost in the delivery of ballots electronically, quicker processing of returned absentee ballots, and quicker and more reliable replication of ballots upon return.
- The program and solution will be **technologically sustainable**. The *BALLOTsafe* solution is designed with an advanced technology platform which relies on advances in cryptographic protections, advances in Java based web platform technologies, and a redundant, robust, and reliable infrastructure setup to ensure sustainability.

By selecting the ES&S/Scytl product offering of *BALLOTsafe* Arkansas is ensured of a long term commitment from a vendor who has a long history of election experience and can continue to provide updates and enhancements to the product for many years to come. Furthermore, by incorporating the cost for the USE Program through the year 2016, Arkansas is ensuring a consistent and sustaining offering to its voters and election officials. Also, utilizing multiple election cycles to gather and analyze statistics and feedback will strengthen the USE Program’s findings and allow for a greater impact and significance. Specifically, the Arkansas Secretary of State’s Office expects to support the following through 2016:

- Maintain *BALLOTsafe* services with ES&S and Scytl through an annual Right to Use License
- Ongoing research and evaluation of *BALLOTsafe* for each election cycle
- Generation of Election Analysis and Assessment Reports (EAAR) after major elections

3.2.2.3. Impact

The ease of use and intuitive nature of *BALLOTsafe* in concert with its consistent availability over multiple election cycles will result in increased familiarity and expectation for its usage which provides for the broadest impact to voters and election officials. Some advanced concepts which may be utilized by the State of Arkansas will provide greater impact to voters. They are:

- **Sample Ballot** – The sample ballot feature of *BALLOTsafe* allows voters the opportunity to access the jurisdiction’s sample ballot before the election. Through the election official’s interface, officials are allowed to publish campaign statements from candidates as well as additional information that will be available to voters in the sample ballot.
- **News Feed** - *BALLOTsafe* provides specific news feed to voters. The news feed is provided in a sidebar of the voter web site and includes news events generated by the local election official. As desired, the news feed may also be linked to FVAP or the jurisdiction’s social media feeds.
- **Accessibility** – *BALLOTsafe* has been purposefully constructed to be in compliance with the applicable web accessibility standards and to provide an intuitive interaction when being understood or controlled through personal assistive devices. Below are the usability and accessibility standards which *BALLOTsafe* follows:
 - Web Content Accessibility Guidelines (WCAG) 2.0
 - User Agent Accessibility Guidelines (UAAG) 1.0
 - Section 508 of the US Rehabilitation Act, Web-based Intranet and Internet Information and Applications (1194.22)
 - NIST Accessibility and Usability Considerations of Remote Voting Systems, Draft – June 28, 2010

3.2.2.4. Strategic approach

The Arkansas Secretary of State’s Office has presented a credible hypothesis and will provide a well-defined and appropriate plan to test that hypothesis. The plan is further defined in 3.3 Schedule and Milestones and the Management Approach, Section 4. We believe the hypothesis advances the body of knowledge needed to alleviate the obstacles faced by UOCAVA voters in their absentee voting process. It also identifies risk areas and provides mitigating strategies and controls as well as benchmarks for success.

3.2.2.5. Innovation

The USE Program presents an innovative research and development approach that utilizes the best and most innovative technology component in the market with a credible research and analysis component. The Arkansas Secretary of State’s Office believes this will lead to further development of processes, technology, products and techniques that will be replicated in other jurisdictions. Included below are some of the innovative technological concepts of *BALLOTsafe* which may be selected:

- **Security**. The groundbreaking cryptographic protocols inherent in *BALLOTsafe* provide elections with the highest levels of security, in terms of voter’s privacy, voter verifiability, election integrity, system availability, and access control. *BALLOTsafe* provides security 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.

- **Ballot Choice Barcode.** *BALLOTsafe* provides accurate and reliable automated remake of returned ballots with its ballot choice barcode feature. Using a barcode on a ballot generated through the voter's onscreen marking wizard, the ballot choice barcode can replicate the voter's selections onto the local jurisdictions optical scan readable ballot.
- **Social Media Interaction.** *BALLOTsafe* provides mechanisms for the voter to interact with social media content (Facebook, Twitter, etc) through *BALLOTsafe*. This is done through multiple concepts such as a Newsfeed and interactive sample ballots.
- **FPCA barcode.** *BALLOTsafe* provides a feature whereby the voter can complete an FPCA through the *BALLOTsafe* FPCA wizard with an absentee data barcode. This barcode provides for the automated exchange of the voter's information from the FPCA through an FPCA import module, and into the local voter registration processing queue. This reduces the need to manually enter voter information.
- **UOCAVA community forum.** With *BALLOTsafe*, ES&S and Scytl have established and will maintain a pipeline of ideas, techniques and best practices of election officials and their services for UOCAVA voters. This is done through a secure online data repository and message board.

3.2.2.6. Scalability

The USE Program has been established with respect for the variances in election cycles, the electorate and changes in election statute, law or rules. Thus, *BALLOTsafe* has been designed to meet a broad range of voter and election official needs now and in the future without impact to its level of performance or efficiency. *BALLOTsafe* is constructed using a modular architecture with dynamic lifecycle management technology similar to OSGi. This allows for enhanced flexibility and scalability. The *BALLOTsafe* solution is the most scalable in terms of:

- **Usage** – increases in the number of voters and number of ballots styles it can support;
- **Impact** – changes to and increases in the types of voters and their requirements it can support (i.e. extendable to other types of voters);
- **Security** – changes to and increases in the types and number of changing threats it can mitigate and protect against; and
- **Scope** – changes to and increases in the features and functionality which it employs.

Furthermore, our agreement with ES&S and Scytl is to obtain all of the existing features and functionality of *BALLOTsafe* regardless of our current need. With the ability to access and use features if selected by the state on an as needed basis thereafter, we are able to adjust our growth and use of the product in such a way that we can meet the demands of tomorrow as easily as the demands of today.

3.2.2.7. Collaborative

The Arkansas Secretary of State's Office has designed the USE Program to be a collaborative program involving key election technology providers – ES&S and Scytl, reputable academic researchers from Cal Tech University and University of Utah, and other election jurisdictions through a data and experience sharing portal in *BALLOTsafe*. This consortium of election officials, election service and system providers, and researchers will collaborate together to address and improve the absentee voting process. To do this, we will use a six-sigma approach to improving existing business processes:

- **Define** the problem, the voice of the customer (i.e. the voter), and the project goals.

- **Measure** key aspects of the current process and collect relevant data.
- **Analyze** the data to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the issue under investigation.
- **Improve** or optimize the current processes based upon data analysis to create an improved, future state process.
- **Control** the future state process to ensure that any deviations from goals and objectives are corrected before they result in issues. Implement control systems and monitor the process.

3.2.2.8. Cost Benefit Analysis

Each major component of *BALLOTsafe* can separately, or in total, be evaluated for ROI against current processes and associated costs. The ROI analysis is provided in the Budget Proposal.

3.2.3. Security Measures

The USE Program will provide administrative, technical, and physical controls to protect voter personal identifying information (PII) and sensitive election material. At a minimum, **administrative** security controls include personnel training and awareness, adherence to written privacy policies, separation of duties, use of tamper evident seals, and document control.

Technical and **physical** security controls include protections afforded by ES&S and Scytl through the *BALLOTsafe* solution. First, the *BALLOTsafe* 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, health and integrity of the system around the clock. The infrastructure, including all hardware, software, and security controls are also monitored by trained onsite professionals. Physical and logical access control is also extremely limited to authorized personnel and is properly logged.

Second, *BALLOTsafe* is run on hardened operating systems updated with the latest security patches. The *BALLOTsafe* application is also digitally signed to ensure its integrity and is executed using Java Virtual Machines that require the software to 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 web domain. Sensitive election materials such as ballot definitions are digitally signed to protect integrity and are encrypted while in transit. All personal identifying information (PII) is also protected through application level encryption and digital signatures. Furthermore, advanced routines are employed to protect voters' identifying information from ever being associated with their ballot selections.

3.3. Schedule and Milestones

The Arkansas Secretary of State's Office has identified the following as the initial schedule assuming an award date of August 1, 2011. During Phase 1, a detailed schedule will be agreed upon by the program team.

1. Initiation and Planning Phase

Start Date: August 1, 2011 Duration: 45 days

The initiation and planning phase will initialize the project and introduce all stakeholders. During this phase, full project management and quality management plans will be developed. These will include a detailed schedule, work breakdown structure, statement of work with each sub-contractor, incremental project goals and approach to achieve them, and risk management plan.

Milestones/Deliverables:

- a) Completion of Project Management Plan
- b) Completion of Quality Management Plan

2. Background Research and Specification Phase

Start Date: September 15, 2011 Duration: 60 days

With the program stakeholders, this phase will first consider the procedural and technological measures currently being employed to address UOCAVA voting barriers and establish a benchmark of success in this area. According to this analysis, the project team will conduct research into technological, legal, and logistical requirements which affect the development, feasibility, sustainability, and acceptance of an improved UOCAVA voting solution amongst the stakeholders. The approach will lead into a detailed requirements gathering and specification development effort to capture the analysis into quantifiable measures necessary to improve the UOCAVA voting process. This will result in procedural and technological requirements and specific information will be identified for each phase of the UOCAVA voting process. Much of these will be addressed directly through *BALLOTsafe* while others will be addressed through policy changes.

Milestones:

- a) Completion of Requirements Specification Document
- b) Completion of Technology Modernization and Sustainability Plan
- c) Completion of initial test plan and test cases for technology modernization

3. Technology Modernization

Start Date: November 14, 2011 Duration: 305 days

The technology modernization phase will provide for the customization, activation, and outreach efforts in preparation for the first election and continuously through the 2012 election cycle.

- Customizations – Based on requirements and the specification developed in Phase 2, *BALLOTsafe* and other systems will be customized to address Arkansas's requirements such that UOCAVA voters are best supported.
- Voter Education – During this phase, voters will be notified of the modernization and how it impacts them through multiple communication channels.

- Integration and Testing – The technology modernization effort will include an integration and test period where each component of the solution is tested and individual test cases are verified to achieve the proper results prior to going live to voters.

Milestones:

- a) Technology Modernization Completion – Primary Election
- b) Technology Modernization Completion – General Election

4. Election Operations and Analysis Phase

Start Date: January 9, 2012 Duration: 305 days

The election operations and analysis phase consists of iterations of elections followed by a period of analysis and reporting. Specifically, each 2012 Federal Election will be supported by the USE Program to enhance the technology and services provided to UOCAVA voters. Each progressive election will include greater enhancements to achieve the incremental goals established in phase 1. The incremental goals are designed to progress toward achieving the full program goals and objectives. After each election, the program team will collect data, analyze statistics and trends, consider environmental and circumstantial factors, and determine findings against the incremental and overall goals and objectives of the program. Based upon these findings, the team may decide to continue with the current approach or to make alterations to the program plan. Please note, Arkansas does not have a separate Presidential Primary election.

Milestones:

- a) Completion of Election Analysis and Assessment Report – Primary Election
- b) Primary Election Completion
- c) Completion of Election Analysis and Assessment Report – Primary Election
- d) General Election Completion
- e) Completion of Election Analysis and Assessment Report – General Election

5. Final Analysis and Reporting

Start Date: November 12, 2012 Duration: 90 days

At the conclusion of the 2012 election cycle, the final analysis and reporting phase will collect the relevant data from the 2012 General Election(s) as well as reports and data from the previous elections. This will include data related to the financial, programmatic, technological, and procedural factors of the program. During this phase, the final data will be analyzed by the program team to identify trends and ascertain important data points which will be used for generating findings and conclusions. This analysis will include considerations of environmental and circumstantial factors as well as an audit of anomalies reported. The findings and conclusions will include a comparison of the results against the goals and objectives, a report on lessons learned, and a final cost-benefit analysis.

Milestones:

- a) Completion of USE Program Final Report

3.4. Reports

1. Programmatic and Financial Progress Reports

Beginning with the fourth quarter of 2011 and concluding with the first quarter of 2013, the Arkansas Secretary of State's Office will prepare quarterly programmatic and financial progress reports. For the purposes of the USE Program, these reports will be prepared separately.

The programmatic report will provide

- Overall status
- Goals and Objectives progress
- Highlights during current reporting period. This includes current activity, accomplishments, and major and minor milestones met
- Highlights scheduled for next reporting period.
- Milestones. This is a log of major milestones, the goal date, and the current status
- Risk Log. This is a log of project risks, each with a description, probability, mitigation approach, and current status.
- Open Issues. This is a list of open issues and actions items being managed during the reporting period.

The financial progress report will provided:

- Will be provided in accordance with project requirements and schedule.

The following programmatic and financial progress reports will be prepared:

- a. Fourth Quarter 2011 Programmatic and Financial Progress Reports
- b. First Quarter 2012 Programmatic and Financial Progress Reports
- c. Second Quarter 2012 Programmatic and Financial Progress Reports
- d. Third Quarter 2012 Programmatic and Financial Progress Reports
- e. Fourth Quarter 2012 Programmatic and Financial Progress Reports
- f. First Quarter 2013 Programmatic and Financial Progress Reports

2. Data collection points reports

There will be several data collection point reports prepared throughout the USE Program. For the purposes of the program, these will be called Election Analysis and Assessment Reports (EAAR). Each EAAR will contain the data collected for each election, environmental and circumstantial factors considered, an anomaly report, and findings and conclusions. The types of data collected will provide sufficient detail for analysis at each phase in the absentee voting process. This includes:

- Total number of voters with accounts
- Number of first time voters accesses
- Number of ballot requests
- Number of ballot styles supported
- Number of ballot styles downloaded
- Number of ballots successfully returned
- Number of ballots not returned

- Types and number of problems incurred
- Number and type of email notifications sent successfully/unsuccessfully
- Voter feedback through survey

The following EAAR's will be prepared:

- a. Primary Election EAAR
- b. General Election EAAR (will be incorporated in the Final Report)

3. Final Report

The USE Program Final Report will be prepared during the Final Analysis and Reporting Phase and delivered at the conclusion of the grant performance period. The final report will include the final data collected, an analysis of the data, a report of important technological, environment, procedural, and circumstantial factors, findings; and conclusions for each of the following areas:

- Overall
- Financial
- Security
- Significance
- Sustainability
- Impact
- Strategy
- Innovation
- Scalability
- Collaboration
- Cost vs. Benefits

4. Management Approach

4.1. Introduction

ES&S and Scytl have formed a strategic alliance to provide the necessary technology and tools to allow Arkansas to meet the proposed research goals and grant evaluation factors for the purpose of assisting UOCAVA voters. The Arkansas Secretary of State's Office intends on using an organized project management methodology with ES&S and Scytl to achieve these goals in a sustainable and organized way. The approach will incorporate formal financial management and project management principles. Furthermore, the program will incorporate important stakeholders and experienced researchers to help guide the direction of the program and analyze the results. At a minimum, stakeholders will include military and overseas voters, local election personnel, and election officials from other jurisdictions. This cooperative of the Arkansas Secretary of State's Office, election officials, election service and system providers, and researchers will provide an important steering committee for the direction and execution of the project. Furthermore, this approach will utilize six-sigma principles for improving existing business processes:

- **Define** the problem, the voice of the customer (i.e. the voter), and the project goals.
- **Measure** key aspects of the current process and collect relevant data.
- **Analyze** the data to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the issue under investigation.
- **Improve** or optimize the current process based upon data analysis to create an improved, future state process.
- **Control** the future process to ensure that any deviations from goals and objectives are corrected before they result in issues. Implement control systems and monitor the process.

4.2. Project Organization

4.2.1. Project Director

The Arkansas Secretary of State's Office will serve as the project director. The project director manages the strategic aspects of the project, oversees the steering committee, reviews major deliverables, and provides direction to the project manager.

4.2.2. Project Steering Committee

The project steering committee will be comprised of the project director, project manager, key personnel from ES&S and Scytl, high level stakeholders, and research experts. The steering committee will provide guidance to the project director and will ensure alignment of project with the strategic goals and objectives and key factors in Section 4.4.

4.2.3. Project Manager

Election Systems and Software (ES&S) will serve as project manager for the USE Program. ES&S maintains a global team of PMI certified Project Management Professionals and Elections Experts with specific experience in election solution implementations. The ES&S Project Management Office (PMO) has over 285 years of combined elections experience, which has allowed the PMO to develop election specific best practices to accommodate the unique and challenging aspects of the election industry. This team of professionals is trained to manage projects pursuant to the Project Management Institute's project management principles. Each

Project Manager is supported by a team of Technical Engineers, Subject Matter Experts, and Support Specialists to assure that each aspect of the project is managed effectively and efficiently.

4.2.4. Project Research Team

The Project Research Team will consist of researchers from Cal Tech University and University of Utah and election research experts from Scytl. The research team will coordinate with the project manager and will be responsible for data collection and analysis. The research team will form hypotheses and will report findings. All research products will be validated with the steering committee which will prepare the conclusions.

4.3. Project Resources

4.3.1. ES&S

ES&S and Scytl will work collaboratively to leverage the strengths of each company for the purpose of installing and supporting the *BALLOTsafe* system. Specifically, ES&S will provide development expertise in the areas of system integration for voter registration and election management systems. The ES&S training department will provide instructional information and facilitate training activities. The ES&S support group will install and coordinate the usage of *BALLOTsafe* with Scytl subject matter experts. The ES&S Helpdesk will provide 1st and 2nd tier level support to the State and local election officials and ES&S and Scytl will work jointly to provide any 3rd tier level support required.

4.3.2. Scytl

Scytl is a software company specializing in the development of highly secure election modernization solutions. These solutions incorporate unique cryptographic protocols that enable election administrators to carry out all types of election processes in a completely secure, transparent and auditable manner. For the USE Program, Scytl will provide the *BALLOTsafe* solution, election experts, and contribute to the research and analysis efforts with their dedicated research and development (R&D) department.

4.3.3. Academic Researchers

The USE Program will utilize outside academic researchers – Michael Alvarez and Thad Hall – for some of the research and analysis efforts. In their academic careers, they have focused on elections, voting behavior, election technology, and research methodologies. The Arkansas Secretary of State’s Office believes that the addition of these experts will enhance the quality of the program’s research and assist in tackling some of the prevalent challenges facing democratic elections.

4.4. Project Strategic Goals

The UOCAVA System Enhancement Research (USE) Program will deploy state of the art secure online tools and will assess the ability of such tools to improve the participation and voter experience of the overseas voter community. At the same time, the program will propose and analyze the implementation of efficient and innovative technology and processes to reduce the costs and the error rate at each point in the absentee voting process, particularly in the processing of documents and ballots received from voters. In addition, when the system has been demonstrated a success with UOCAVA voters, Arkansas intends to extend its utilization to other voters, including those with disabilities.

Goal: Provide successful, sustainable, and affordable electronic tools that will improve absentee balloting success rates for voters covered by UOCAVA.

Objectives:

- Increase the percentage of ballots successfully returned by UOCAVA voters to be either equal to, or greater than the percentage of ballots returned by the general absentee voting population in the jurisdiction.
- Improve the rate of completed UOCAVA voting transactions from registration to ballot return.
- Increase the percentage of UOCAVA voters participating and voting in Federal elections.
- Reduce the failure rates for UOCAVA voters experienced in each of the various stages of the absentee voting process.
- Provide tools and services that can benefit other jurisdictions.
- Provide security measures to protect users' personal identifying information and any transmitted election material.
- Provide evidence and findings generated from authoritative and documented research efforts to measure and report on the success of the previous objectives.

Hypothesis: By providing a repeatable and consistent portfolio of innovative tools and services over multiple election cycles to support overseas voters (independent variable), Arkansas will see an increase of ballots successfully returned by overseas voters either equal to, or greater than the percentage of ballots returned by the general absentee voting population (dependent variable).

Plan: Implement tools and services provided by ES&S and Scytl in a phased fashion to baseline, research and test their utility, functionality, risks, benefits and costs for improving Arkansas's capabilities to support our overseas voter population.

4.5. Research Methodology

The USE Program will provide for a research effort in parallel and in collaboration with the technology innovation and election support aspects. As a critical component, the research effort will extract data from and provide inputs into the overall project. Primarily, the project research team will analyze and measure the data points of current processes, identify each process and the elements which are related to it, provide suggestions for improvements, project the effectiveness of modifications, and measure and report on progress throughout the project. The following sections outline the primary concepts in the research methodology.

4.5.1. Analysis and Reporting

The project research team will be responsible for preparing the Election Analysis and Assessment Reports (EAAR) and the final report. This will include the data collection, analysis, considerations, and findings. The research team will work together with the steering committee to draw conclusions and finalize each report.

4.5.2. Analysis and measurement of current processes

Part of the research approach is to conduct analysis and measurement of the current processes. The project research team is already conscious of the challenges facing overseas voters and is prepared to suggest ways to grow and adapt services and support technologies to better meet their needs. As a starting point, the Arkansas Secretary of State's Office knows firsthand that the

logistics of overseas absentee voting is inherently difficult. Delays and limitations in traditional mail service can slow and, in some case, prevent mail delivery and return. Traditional mail cannot always reach military voters involved in rapid troop movements or find overseas citizens who are located in remote locations. In addition, although active duty military members complete Federal Post Card Absentee (FPCA) voting requests, sometimes this process cannot keep up with multiple address changes over the course of a year.

Furthermore, Arkansas citizens are likely to experience widely divergent voting experiences depending upon their country of residence. Worldwide postal delivery systems vary, and U.S. postal system coordination with other countries also varies widely. The aforementioned are but a few of the well known challenges faced by our overseas voters. These challenges will be addressed and cataloged by the research project team in an effort to design and deploy the most impactful and meaningful technology solution for voters.

4.5.3. Technology Enhancements

While Arkansas is already aware of many areas where *BALLOTsafe* can alleviate the difficulties faced by voters, this portion of research effort will seek to refine and propose exactly how *BALLOTsafe* can reach voters and provide them tools to fully participate in the absentee voting process. This effort will focus on meeting the specific needs of Arkansas’s voters in a significant, sustainable, impactful, innovative, and scalable way. The expectation is that the use of *BALLOTsafe* will mitigate or eliminate almost all registration and ballot delivery difficulties faced by UOCAVA voters. The following provides a description of proposed modification with *BALLOTsafe*, the justification, and the projection for the modification for each stage in the absentee voting process.

Stage	Description of Modification	Justification	Projection
Voter Registration	<i>BALLOTsafe</i> will work in coordination with online voter registration tools and procedures to provide information to voters, enhance their voter registration interaction, and track the progress of the registration process.	Traditional postal delivery is much slower than electronic delivery and does not provide easy tracking of progress. Some voters also experience difficulty completing the registration form correctly.	The provision of online electronic assistance to voters in an intuitive way will increase the number of voters who successfully register to vote on time.
Absentee Ballot Request	<i>BALLOTsafe</i> will provide an online absentee ballot request wizard 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 <i>BALLOTsafe</i> to track the return and processing of the AB request. With an account, the voter	Traditional postal delivery and return of ballot requests introduce unpredictable delays into the process which delay future steps. Voters can often forget when a	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

	will also be able to setup email reminders to complete requests for each election.	ballot request is due for an election or may complete it incorrectly.	correctly.
Absentee Ballot Delivery	BALLOTsafe will provide online ballot delivery of precinct specific ballots via its secure and accessible online portal. Voters will be notified by email of ballot availability. To assist in the ballot delivery, the BALLOTsafe 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.	Traditional postal delivery of ballots is lengthy and unpredictable. It is 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.	The electronic delivery of ballots through a secure internet based portal will provide consistent access to eligible voters which will improve the successful completion and return rates of ballots.
Absentee Ballot Return and Tabulation	BALLOTsafe 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, BALLOTsafe will also use ballot tracking barcodes to assist in the correct receipt and tracking of ballots. Furthermore, if selected by the state ballots may contain the ballot choice barcode which assist in the automated duplication of returned paper ballots into optical scan format for tabulation. Ballot return tracking updates are provided to the voter immediately upon processing through BALLOTsafe 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.

4.6. Performance Management

4.6.1. Performance Management Approach

To ensure that the project is developing as expected, Performance Management measures will be used during the project life cycle. The project performance objectives are as follows:

- To achieve the USE Program goal and objectives while testing the hypothesis in a quantifiable and reportable way
- To deliver the agreed project outcomes on schedule and within budget.
- To manage the project using a defined and documented methodology.

There are three major processes in performance management:

- **Performance Planning:** Performance planning is a process that supports overall project planning and should be performed regularly throughout the project lifecycle. Performance planning is performed in parallel with other planning processes and establishes a performance threshold for each major project milestone.
- **Performance Assurance:** Performance assurance is the planned activities of a project that monitor all other performance management processes to ensure that the project will meet the performance objectives. The project steering committee will be responsible for performance assurance.
- **Performance Control:** Performance control is the monitoring and analysis of certain project results and data to determine if they comply with the relevant performance standards and performance objectives such as meeting the project goal and objectives in Section 4.4. Analysis is performed to determine ways to eliminate causes of unsatisfactory results. The performance control activity will also include taking remedial steps to address unsatisfactory results and progress toward the project goals.

4.6.2. Performance Measurements

The following are the initial performance measurements indicated for each of the project objectives. These measurements will be defined in greater detail during the performance planning.

Objective	Measurement of Success
Improve the rate of completed UOCAVA voting transactions from registration to ballot return.	At each step in the absentee voting process, the number of voters who complete each phase of the process increases. This will be measured on a per election basis, comparing previous election of that type to the current election. For example, the 2012 Primary Election will be compared with the 2008 Primary Election.
Increase the percentage of UOCAVA voters participating and voting in Federal elections.	For each Federal Election, there is an increase in percentage of UOCAVA voters who participate in at least one portion of the voting process.
Reduce the failure rates for UOCAVA voters experienced in each of the various stages of the absentee voting process.	Based on a comparison of the average failure rates for each stage in the absentee voting process with the failure rates of the current election, there is a decrease in the failure rate in each stage.
Provide tools and services that can benefit other jurisdictions.	The solution provided supports the legal, procedural, and technical requirements of other jurisdictions.
Provide security measures to protect users' personal identifying information and any transmitted	Data collected through system audit logs, internal auditing, and interactions with voters does not indicate that any user's personal identifying information or

election material.	sensitive election material was compromised in any way.
Provide evidence and findings generated from authoritative and documented research efforts to measure and report on the success of the previous objectives	Reports provided through the USE Program include reliable data, complete analysis, and discerning conclusions for each of the objectives above.

4.7. Risk Management

4.7.1. Risk Management Plan

A Risk Management Plan, including procedural and security risks, will be implemented in order to identify the risks that could prevent voters from participating in the voting process. These risks will be focused on identifying possible obstacles in the process, design, logistics and implementation of different procedural steps during the election process. Risk management activities will be conducted to minimize negative risk impacts and maximize the positive (opportunity) risks identified for the project in order to meet the project’s objectives.

The purpose of the Risk Management Plan is to describe how risk management activities will be organized and performed during the project’s life cycle. Risk management activities are:

- **Risk Management Planning.** Determine the approach to risk management
- **Risk identification.** Identify all known project delivery risks, system security risks, etc.
- **Risk Analysis.** Perform an assessment of the probability of occurrence and potential impact of each risk
- **Risk Response Planning.** Create action plans to manage the identified risks
- **Risk Monitoring and Control.** Monitor, review and update risk status and plans
- **Risk Closeout.** Document lessons learned

The risk management plan does not address the responses to individual risks – these are documented in the Risk Log.

Risk planning is an iterative process, beginning as early as possible in the project and concluding at project close-out. The approach to and appropriateness of risk management activities should be reviewed throughout the project at the regular project status meetings, as defined above.

The risk identification activity will:

- **Commence at the Project planning stage,** be repeated at intervals as defined by the project and conclude at Project Closeout.
- **Identify a comprehensive list of potential risk** events that have a negative (threat) or positive (opportunity) impact.

The identification of risks will be based on several sources, including:

- Examining each element of the project work breakdown structure
- Comparing the current project with previous similar experiences
- Interviews with the stakeholders

Analyzed risks will be prioritized to identify the top ten risks with threats and opportunities. When selecting the top ten risks, consideration will be given to those risks with overall rating of “HIGH” as well as risks that are important to the customer or other stakeholders. The remaining risks that will not be the focus of immediate risk management effort will be reconsidered at monthly intervals.

Risk Response plans (Risk mitigation plans) will be developed for both threats and opportunities for each of the top 10 risks selected from the prioritization process.

Deliverables:

- **Risk Management Plan:** This document describes how risk management activities will be organized and performed during the project's life cycle.
- **Risk Log:** This document contains the details of all the risks identified, especially the ones with higher impact. This document will contain the following for each specific risk identified:
 - The risk owner who is the person responsible for managing the response plan
 - The risk response strategy that will be used
 - The description of the mitigation or contingency plan
 - Any stakeholders impacted by the risk
 - The cost of the risk response
- **Risk Mitigation plans:** This document, one for each of the high priority risks detected, describes the risk details, planned mitigation actions and possible contingency plan(s).

4.7.2. Security Risk Assessment

Security risks are also considered for detecting possible issues that could damage the election accuracy or voter privacy. A security risk assessment will be performed to ensure that security risks are properly considered and mitigated against.

To perform the Security Risk Assessment, the following steps will be executed:

- a. Assets Identification: The assets managed or accessed by the election processes shall be identified as well as the interactions with them and their importance/value (e.g. voter credentials, votes, ballot box, election configuration ...).
- b. Issues/Threats Identification. Identification of the adverse actions, such as workflow execution problems or security threats that could affect the assets of the election. This includes the analysis of the context that generates these issues.
- c. Issue/Threat Assessment. An estimation of the complexity of the issue, the occurrence probability, and the impact in case it happens.
- d. Controls/Countermeasures identification. Identification of measures that are reducing the issue/threat probability or the impact level. The effectiveness of these controls shall be evaluated in order to estimate the issue probability/impact mitigation.
- e. Risk Assessment: Finally, an estimation of the risk level that the voters are facing is evaluated combining the issues/threats assessment and the implemented controls/countermeasures studies.

4.8. Current and pending project proposal submissions

Not Applicable.

Title of proposal and summary: NA

Source and amount of funding: NA

Percentage of effort devoted to each project: NA

Identity of prime applicant: NA

List of subcontractors: NA

Technical contact:

Name: XXX

Address: XXX

Phone: XXX

Fax: XXX

eMail: XXX

Period of Performance: XXX

Award period: XXX

Award amount: XXX

Man months: XXX

Relationship (if any) with the current request: XXX

4.9. Qualifications

4.9.1. Introduction

To assist personnel from Arkansas, the Arkansas Secretary of State's Office has selected ES&S and Scytl to provide operational, research and technology support with their key personnel list below. Arkansas believes ES&S and Scytl have the best product and personnel to provide the services and support sought for the EASE grant execution in Arkansas.

4.9.2. Key personnel

Martha Adcock, Director of Elections- Martha Adcock is an attorney with over 25 years experience. During her career she has handled both trial court litigation and appeals while serving as in-house counsel for a telecommunications company, enforcing environmental regulations, and working extensively with nonprofit organizations. While working with a nonprofit she served for a number of years as a reviewer of federal grant applications. Her experience working on state-wide campaigns to place issues on the ballot and working to educate voters and encourage voter participation in elections, prepared her to serve in her current position as the Director of Elections for the Arkansas Secretary of State.

Rob Hammons, Assistant Director of Elections- Upon graduation from the University of Mississippi in 1999 and a move to central Arkansas, Rob began a career in elections with the State Board of Election Commissioners. From 1999 until 2003 Rob acted as the Agency Program Coordinator for the State Board overseeing the training of election officials, the certification of voting systems, the compliance of polling sites statewide with the Americans with Disabilities Act, investigating elections irregularities and reviewing reimbursements to counties for state funded elections.

In October of 2002 the Help America Vote Act was passed through Congress which included new legislation and requirements for states beginning in 2006. During this time a team was assembled under the Secretary of State to oversee the implementation of those guidelines and requirements. In the summer of 2003 an invitation was given to Rob to join this team.

From July 2003 until January of 2011 Rob acted as an election coordinator overseeing and monitoring elections for 21 counties, as well as being the administrator of grants statewide for polling site accessibility grants through the US Department of Health and Human Services. During this period, Rob assisted his counties through the implementation of the new mandated voting systems, training of election administrators, and election night reporting.

In January of 2011 Rob was promoted to Assistant Director of the Elections Division by Arkansas Secretary of State Mark Martin.

Justin Clay, Voter Registration Administrator- As the Voter Registration Administrator, Justin plays a central role in maintaining Arkansas's uniform statewide voter registration database and is responsible for assisting local election officials to ensure compliance with the National Voter Registration Act of 1993 (NVRA) and the Help America Vote Act of 2002 (HAVA). Justin serves as a liaison between the Office of the Secretary of State, Arkansas's local election administrators, and ES&S, the voter registration software vendor.

Before joining the Office of the Secretary of State in 2005, Justin received a BS in Business Administration from the University of Arkansas. As the Ethics Compliance Officer in 2006 and 2007, Justin assisted with the implementation of a new internal filing database for Candidate Contribution & Expenditure, Lobbyist, and PAC reports. Justin was also a key player in the initial implementation of online Financial Disclosure filing functionality and acted as a liaison between the Office of the Secretary of State and the Arkansas Ethics Commission. In addition to his duties as Voter Registration Administrator, Justin also assists with the design and testing for online applications, maintains the election results reporting website, and fulfills various requests from the general public.

Fletcher Allen, Programmer Analyst - Fletcher started in 1985 in the Computer Industry and has over 26 years experience as a programmer, team leader, project leader and supervisor. He has worked with UNIX, Linux, C, bsh, Ksh, csh, Mainframe's with COBOL and SAS, PC's with MS-DOS, Windows, Linux and SQL databases on PC's, Linux and Windows. Of the 26 years, he has 14 years of experience in Elections, starting in 1995 at the Pulaski County Election Commission.

Fletcher's current duties with the Arkansas Secretary of State Elections Division include but are not limited too maintaining the SOS Statewide Voter Registration (VR) System; interfacing with the ES&S vendor to design, test and upgrade their VR system; ensure that all aspects of the VR system are Arkansas compliant; verification process checks (daily, weekly and monthly); and ADHOC reports.

Thomas H. Ferguson, National Sales Director, Electronic Ballot Access, Election Systems and Software

Thomas Ferguson is currently serving as the National Sales Director, Electronic Ballot Access and an Election Product Specialist for ES&S. He has approximately ten years of government management experience as the Director of Elections for the Office of the Secretary of the State of Connecticut. Prior to taking the position with the state, Mr. Ferguson served as the Registrar of Voters for the Town of Manchester, Connecticut for six years. Additionally, he is a past-president of the National Association of State Election Directors. During his tenure with the Secretary of the State, he was the Project Manager for the development and implementation of the Statewide, Centralized Voter Registration System. Mr. Ferguson was also the Project Manager for the development of Connecticut's browser based Campaign Finance Information System, as well as systems that house and manage the Connecticut Statement of Vote, Annual Election Calendar and the certification criteria for Connecticut's chief polling place officials. He has an extensive elections and project management background from his 25 years of work and experience in local and state elections.

Peter M Zelechowski, MBA-TM, CISSP, CISA, Election Systems & Software

Mr. Zelechowski has 9 years experience in the voting systems business sector with experience at county and state levels (US) and in international countries defining, customizing, and deploying voting systems, and operating voting systems/machines in elections. Mr. Zelechowski has experience as president, board, committee chair and committee member levels for large and small non-profit and not-for-profit groups. With 30+ years experience in computer systems, he has hands-on experience with data interchange in financial, business, and election applications

and as an architect for computer systems integration across platforms, networks, security boundaries. Mr. Zelechowski is a Certified Information Systems Security Professional (CISSP), Certified Information Systems Auditor (CISA), a member of IEEE P1622 Voting Systems Electronic Data Interchange standards workgroup, and a member OASIS EML task group (Election Markup Language). He has a Master of Business Administration in Technology Management.

Paul Miller, Business Development Manager, Scytl USA, LLC

Mr. Paul A. Miller, a former State and County Elections Official, is a highly qualified Project Manager, Elections Subject Matter Expert, and Technologist with more than 30 years' experience in technology and software development industries, foremost being in State and County Government Elections. He has been called upon by the EAC time and again, to provide Election Subject Matter expertise to panels, workshops, working committees, and testimony before the EAC commissioners. He was selected by the National Association of State Elections Directors (NASD) to serve as one of two NASD representatives to the Technical Guideline Development Committee (TGDC). The TGDC is a small panel of national experts tasked to work with the EAC and NIST to draft next generation voting systems standards.

Mr. Miller's election related experience has made him a nationally known subject matter expert within the elections community. Beginning with his tenure as Assistant Elections Superintendent-Data Processing in King County to Senior Technology/Policy Analyst at the Washington Secretary of State, he has gained a comprehensive knowledge of County Administrative Processes, Election Processes and Procedures, State and local Voter Registration Databases, Voting Systems, State Certification procedures, the Federal Testing and Certification Processes, Voluntary Voting System Guidelines and Federal and State Election Statutes. He has led innovative changes to county elections processes, most notably the most extensive use of its day in the nation of high-speed scanning to sort, process, and validate signatures in the absentee return ballot processes. He led the state's efforts to completely modernize its petition/signature checking processes, upgrade its voting system certification program in a high-visibility environment, and develop the state's HAVA-compliant Voter Registration System.

After being the state project manager for the 2010 implementation of U.S. Federal Voting Assistance Program's Electronic Voting System Wizard project in Washington state, Mr. Miller joined Scytl as Business Development Manager in April 2011.

Aaron Wilson, Project Engineer, Scytl USA, LLC

Mr. Wilson serves Scytl as a project manager and engineer for its U.S. based electoral modernization projects. He has managed multiple electoral modernization projects for a dozen counties and states in recent years. Mr. Wilson joined Scytl from a background in both the elections and defense industries. He was previously an auditor for the Florida Division of Elections' Bureau of Voting System Certification and, before joining Scytl, was an embedded software engineer for Lockheed Martin's information assurance department. With the Florida Division of Elections, Aaron tested various voting systems at the state and county level and is an expert in a variety of election and voting technologies. Mr. Wilson is a Systems Security Certified Practitioner (SSCP) and received his Bachelor of Science in Computer Engineering from Florida State University.

Thad E. Hall, Ph.D. (Researcher)

Thad Hall is an associate professor of political science at the University of Utah. His primary research is in the area of public administration and public policy, with a focus on election administration and policy development in legislatures. He has authored or coauthored five books, most recently, *Electronic Elections: The Perils and Promise of Digital Democracy* (Princeton University Press) and *Abortion Politics in Congress: Strategic Incrementalism and Policy Change* (Cambridge University Press).

Hall has also published more than 20 research articles and book chapters and his research has been supported by The Pew Charitable Trusts, Carnegie Corporation of New York, the Election Assistance Commission, the Smith Richardson foundation, and the IBM Center for the Business of Government. He has testified before the United States Election Assistance Commission and the United States Senate Judiciary Committee.

Hall has conducted many studies on election administration and reform, including studies on Internet voting, electronic voting, election auditing, public attitudes toward various aspects of the voting process, poll worker attitudes toward the election process, and observational studies of election administration in the United States and abroad.

He has a Ph.D. from the University of Georgia (2002), a Masters in Public Administration from Georgia State University (1992) and a B.A., with honors in political science, from Oglethorpe University (1990). Before coming to the University of Utah, he worked as a Program Officer for The Century Foundation in Washington, D.C., a policy analyst for the Southern Governors' Association in Washington, D.C., and in various positions for Georgia Governor Zell Miller.

R. Michael Alvarez, Ph.D (Researcher)

R. Michael Alvarez received his B.A. from Carleton College, and his Ph.D. from Duke University, both in political science. He has taught at the California Institute of Technology his entire career, focusing on elections, voting behavior, election technology, and research methodologies. He has written or edited a number of books (most recently, *New Faces, New Voices: The Hispanic Electorate in America*) and scores of academic articles and reports.

He has studied elections throughout the world, including recent research in Argentina and Estonia, and has worked closely with public officials in many locations to improve their elections. Alvarez's research has been funded by the National Science Foundation, the John S. and James L. Knight Foundation, the Pew Charitable Trusts and JEHT Foundation, the Carnegie Corporation of New York, and the John Irvine Foundation. He was named to the Scientific American 50 in 2004 for his research on voting technologies. Alvarez is a Fellow of the Society for Political Methodology, co-editor of the journal *Political Analysis*, and co-director of the Caltech/MIT Voting Technology Project.