Background

This white paper has been prepared jointly by the District of Columbia Board of Elections (DCBOE) and Konnech Inc. as a contribution to the NASS Conference to be held in July 2014 in Baltimore, Maryland.

In 2011, the DCBOE submitted a grant proposal to the Federal Voting Assistance Program (FVAP) to deploy a solution for allowing military and overseas absentee voters the ability to register to vote and request an absentee ballot using their touch screen computing devices (e.g. iPhone, Android, tablets). The solution, a mobile app, allowed a voter to access a cloud based version of the Federal Post Card Application (FPCA) and the DCBOE's absentee ballot and voter registration applications. Using the cloud based system, voters would be able to complete the forms on their devices and transmit the data and a PDF of the application to the DCBOE. The information would be transmitted and received in an electronic format and uploaded into the DCBOE's existing voter registration system, thus allowing for faster, more accurate processing of application data.

Project Goal

The overarching goal of the project was to deploy a system which enabled the DCBOE to serve a continuous stream of voter registration, absentee ballot request and FPCA applications through a reliable and real-time process that improved voters' experiences. The system was deployed with the following enhancements designed to improve the voter experience:

- Fast access to precinct level voting information
- Easy submission or resubmission of applications
- Automated confirmation email for submitted forms
- Convenient storage of communications records
- Automated confirmation email for receipt of forms by DCBOE
- Easy feedback, with feedback icon ubiquitous on most screens or pages

How the System Works

The system uses a voter's residential address to automatically match them to their precinct, and generate precinct specific information. Users can be automatically matched with their address through GPS or web network information, or by manually entering their address if they are not at their residence. The system can also intelligently match partial addresses to a corrected address.

If the user completes an application through a smartphone or tablet device, the form can be filled, signed and submitted entirely through an electronic process. The mobile app captures the signature and transmits it electronically with the form. The process is faster, easier, and eliminates the issue of incorrect manual transmission of handwritten forms.

The system automatically sends an email to users to confirm the submission of their application. Smartphone and tablet users can save a password protected record of all submissions locally. Because each application form is barcoded, the system can automatically email a confirmation to users when received applications are scanned into the system.

Feedback from voters was one of the critical priorities of the project. On nearly every page of the system, users can select an icon to submit feedback. Voter feedback is reviewed and responded to promptly through the backend Feedback Communication Module. The real-time backend module allows for perpetual improvement of service quality and provides a collection of records for future system improvement.

Project Challenges

At the time of deployment, the team organized to address the following challenges:

- Meeting an extremely short deployment timeline
- Meeting the access capacity requirements
- Maximizing the security and privacy of the system
- Enhancing the back-office automation

Extremely Short Timeline

At the time of deployment in November 2013, there were only two months to install, modify and test the system for a February 2014 launch. The team was able to launch the testing website within the first week. The Android testing app was prepared within two weeks, and the iOS testing app followed shortly thereafter. After one month of daily conference calls and system programming and integration, the final system was ready for deployment. On February 25, 2014, DCBOE announced the launch of DCBOE Vote (Figure 1).

Access Capacity Requirement

In anticipation and preparation for heavy user traffic the load capacity of the system was increased to ensure consistent and reliable operations. Numerous tests were conducted to ensure stability. The finalized system was moved to Microsoft Azure with cloud Azure backup. The team also established a redundant back up site at a Lansing Metro datacenter with a hot-swap capacity. On April 1, 2014, the DC Mayoral Primary Election Day, user traffic (page views) swelled to over 20,000. The system functioned quickly and reliably and experienced no problems (Figure 2).

Improve Security

In addition to the security measures utilized for Data Center Security, high level encryption technologies, and operational and application security, the team discussed additional security controls designed to mitigate the risk associated with online voter registration and absentee applications.

In order to address the volume of applications and possible surges of duplicate submissions or fraudulent applications, the team developed a system of screening and intermediate storage to ensure that applications submitted were valid. In order to protect the DC back office system (the Integrity System), an intermediate storage was developed to receive and review submissions before filtering data into the Integrity System. The system was developed to include multiple levels of data screening and front-end and back-end alert modules, to ensure the validity of the applications. The alert modules were developed with rules for alerts for duplicate resident/email/IP addresses, voter names, dates of birth and telephone contact numbers.

Back-Office Automation

In addition to the creation of the automated alert module, the system had additional needs for automated functions, requiring:

Real-time verification of application submission
Because each application form is barcoded, the system can automatically email a confirmation to users when applications are scanned into the system.

Real-time customer feedback internal review and response
Voter feedback is reviewed and responded to promptly through the backend Feedback Communication Module. The real-time backend module allows for perpetual improvement of service quality and provides a collection of records for future system improvement.

Real-time web traffic monitoring
The real-time traffic chart was created to provide the system and office administrators an intuitive visual sense of voter activities. Data on the access trends of web, mobile and WAP users are also documented in order to learn more about voters' preferred access interfaces or browsers for better future versions.

Real-time web content change
The password protected back-end also enables authorized administrators to alter the web content visible to users easily and in real time.

Conclusion

Although the debut of Vote4DC did not dramatically improve DC voter participation, the application did substantively increase the number of online new registered voters (Figures 3 & 4). The system aptly performed by processing 1,188 online voter registrations within the 30 day window prior to the April 1, 2014 Primary Election. That is over double, and in many cases triple, the number of online voter registrations DCBOE had processed in past years online.

As we review how voters interacted with the mobile app and the web version of the application, we will evaluate ways to ensure that the voters follow the instructions that are provided for finalizing an application. We will review methods in which a voter may be able to affix a signature from the desk top version of the application. We will also consider integrating the application into the online voter registration process that utilizes the District's DMV data and signatures on file to finalize the application process.

Vote4DC.com has proven to be a very useful tool in processing online FPCA, voter registration and absentee ballot requests. The amount of website traffic we experienced during the 30 days leading up to the election was very significant. Despite the minimal number of FPCAs received for the April Primary Election, we believe the presence of the mobile app has changed the manner in which voters will update their records and will speed the process in which DCBOE staff executes voter record changes.

About Konnech, Inc.

Konnech, Inc. designs and sells high performance software-as-a-service (SaaS) for governments in North America. Their strategy focuses on harnessing emerging technologies such as mobile applications, voting security, and intelligent communications integration. Their greatest asset is the history of election experience and knowledge of their team. Over a decade of experience in the election industry has made them experts in the execution of powerful and efficient software solutions.

Company History

Konnech, Inc. was founded in April 2002 in Okemos, near East Lansing, Michigan and is a leading designer of customized solutions in the election industry. Konnech's most recent developments include PollChief®, a complete elections management system for the streamlined management of election assets, locations, workers, election call centers and election night results posting. Konnech's latest system is ABVote, a smartphone/tablet app and web browser system which generates precinct specific voting information based on a user's IP-address or GPS based location. They distinguish themselves from other vendors with their complete oversight in every project---each solution is designed, built, and tested by their own talented engineering teams, and served and supported by their own dedicated service and support teams.

DISTRICT OF COLUMBIA
BOARD OF ELECTIONS
WASHINGTON, D.C. 20001-2745

For Immediate Release
February 25, 2014

Contact: Tamara Robinson
(202) 727-2511; trobinson@dcboee.org

District of Columbia Board of Elections Announces Launch of "DCBOE VOTE"

New Mobile App Allows Military and Overseas Voters to Use Electronic Signatures

WASHINGTON, DC - The District of Columbia Board of Elections (DCBOE) todayannounces the launch of its new mobile app, "DCBOE VOTE." Starting February 26, 2014, all District citizens currently serving or working overseas can use DCBOE VOTE to register to vote and request absentee ballots from any mobile device, tablet, or laptop computer.

Available for download at VOTE4DC.com, DCBOE VOTE is the first app of its kind to be used in elections administration. The app will be accessible on Android systems beginning tomorrow, with the IOS version being offered on February 28. Military and overseas voters who call the District home can complete a Federal Post Card Application and sign the form using a mobile device. The signature and election data is then captured and transferred to DCBOE for processing. Voters no longer have to print, sign, and mail request forms to DCBOE.

"We are very excited about DCBOE VOTE and the opportunities it provides our military and overseas voters to be a part of the electoral process," said Clifford Tatum, DCBOE Executive Director. "We believe DCBOE VOTE will help all voters in the District keep their registration status up to date."

Military and overseas voters can use DCBOE VOTE for all of their 2014 Primary needs until March 10, 2014. Any registrations or absentee ballot requests received after that date will be processed for the General Election on November 4.

For more information, please contact Tamara Robinson, DCBOE Public Information Officer, at (202) 727-2511 or trobinson@dcboee.org

The District of Columbia Board of Elections is an independent agency of the District of Columbia Government responsible for the administration of elections, ballot access, and voter registration.

###

Figure 1: DCBOE press release

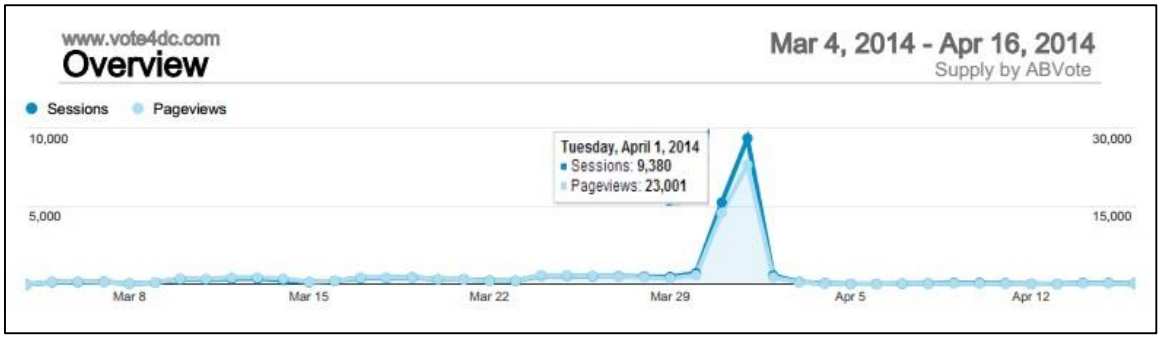

Figure 2: Page views and sessions per day in month prior to the DC primary election

New Voter Registration in Month Prior to Primary Election					
Year	2010	2011	2012	2013	2014
Number of new voters registered online	387	83	356	115	1188

Figure 3: Number of newly registered DC voters in 30 days prior to Election Day

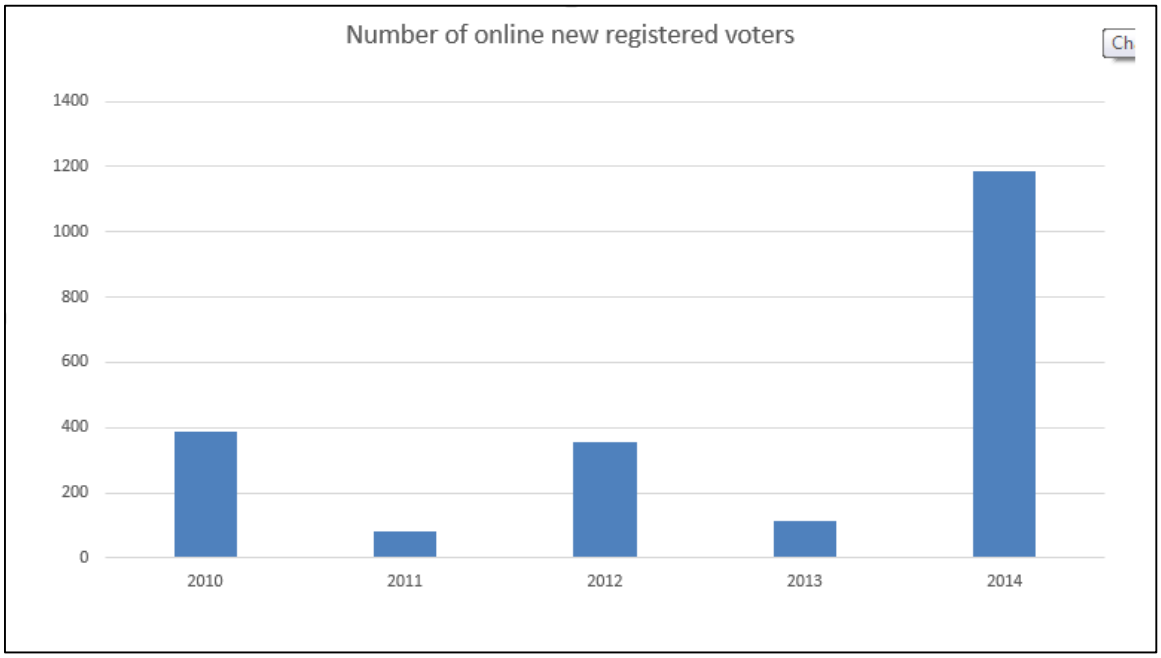

Figure 4: Number of new voter registrations completed online

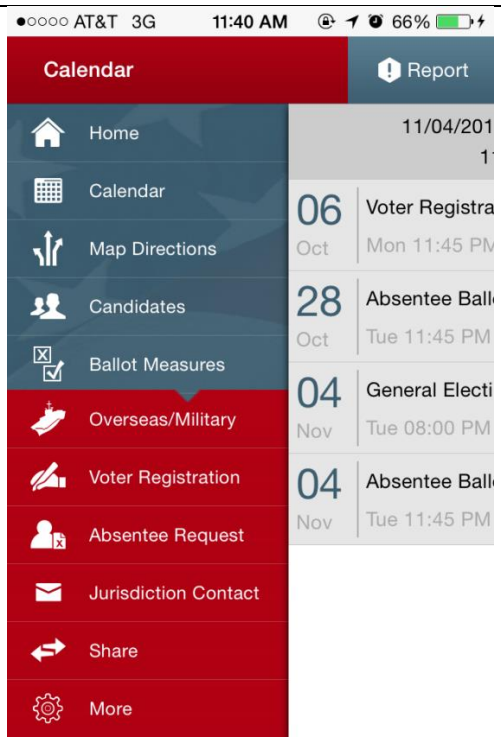

Figure 5: Screenshot of i.OS menu

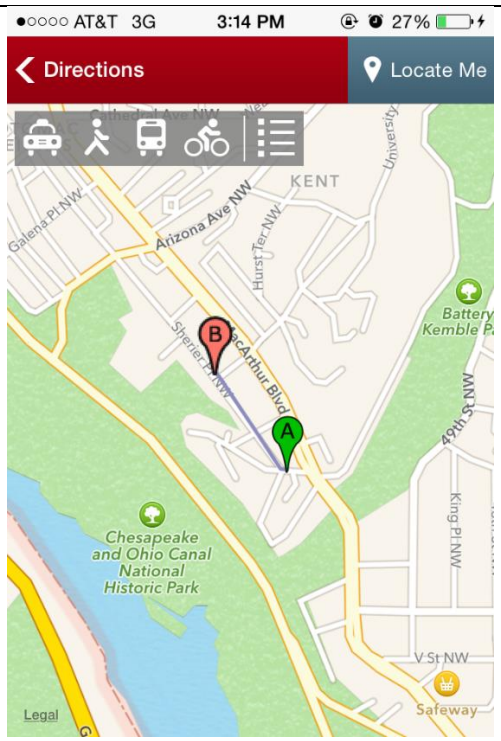

Figure 6: Screenshot of i.OS polling location directions

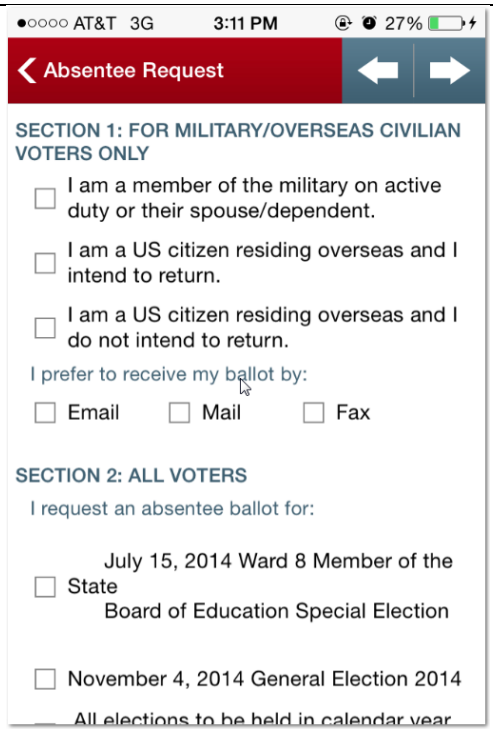

Figure 7:Screenshot of i.OS Absentee Ballot Request form

Figure 8: Screenshot of digital signature capture using finger-tip or stylus