

NASCIO State IT Recognition Award Nomination

Title	State and County Collaboration for the Cyber Defense of Voting
Category	Cyber
State	Iowa
Contact	Jeff Franklin jeff.franklin@iowa.gov
Project Manager	Leah Stott leah.stott@iowa.gov
Project initiation and end dates	March 2018 – November 2018

Executive Summary:

Protecting the integrity and security of a state's elections requires a massive team effort. Cybersecurity is one of the biggest issues election administrators face. The Office of the Chief Information Officer (OCIO) joined forces with Paul Pate, Secretary of State (SOS) to build cybersecurity partnerships with all 99 counties in Iowa and a variety of state and federal entities to ensure the sanctity of the vote. The County Auditor has the responsibility to serve or appoint an election commissioner. The local Auditor's office is responsible for executing elections. In the end, these groups came together to create a human and technological firewall to protect Iowa's elections.

Ensuring the cybersecurity of a statewide elections process is a mission far too great for one person to handle. Iowa has 99 counties and 99 different county commissioners of elections. Only half of them have dedicated IT staff. Around 25 percent use an outside vendor and the remaining 25 percent have neither. Further complicating the issue, all 99 counties are on different cyber networks, separate from the state's, with different infrastructures and designs. There was no simple, one-size-fits-all solution to improving the overall cybersecurity posture for Iowa's elections. It required a concerted effort from the SOS and OCIO, with reinforcement from the U.S. Election Assistance Commission (EAC), Department of Homeland Security, and many others about the absolute necessity to ensure the whole state is covered. One small mistake can create havoc across the system and have a disastrous impact on elections statewide, and even across the country.

This project demonstrated collaboration between all levels of government and private partnerships to protect the integrity of Iowa's elections with top-notch cybersecurity at every level. The project focused on: outreach to the counties, internal fortification, partnering with other entities, and boosting voter confidence. State CIO's are encouraged to build partnerships with their Secretary of State, local election officials, Homeland Security and others; broadly communicate with stakeholders and the public; deliver security services across jurisdictions; engage everyone in cyber security education training. This effort resulted in a roadmap that every state in the country can follow.

Concept

Clean and fair elections are the cornerstone of America's form of government. If our elections are tainted in any way, Americans will begin to lose faith in the process. There is no greater task for election officials than ensuring the integrity of the vote. It is the most important job for every Commissioner of Elections in the country.

The cybersecurity effort started with the Secretary Pate's requirement for his staff to undergo the OCIO's "Securing the Human" cybersecurity training on an annual basis. This training reviews how people can become the weak link in cyberdefenses and offers ways to mitigate these

weaknesses. Staff completing the training served as advocates for the training with the county election offices. The message that we are all working to secure our elections added credibility to the recommendations by the Secretary of State.

The SOS conducted a comprehensive review of their Information Technology (IT) infrastructure, including an exploration of the functionality and costs to revise the elections and voter registration system, IVoters. Through proactive system management the OCIO, their Security Operations Center (SOC) and the Secretary of State reduced internal cybersecurity risk scores by 90 percent. The SOS became the first State of Iowa office to engage in an independent IT analysis from the OCIO. This study identified areas of strength and opportunity for the office's IT operation and set a foundation for IT operational improvements.

In 2017, the statewide voter registration system, IVoters, by Arikkan, Inc., was moved to a new, privately-hosted, Criminal Justice Information Service (CJIS) compliant data center. This move transferred the system to new hardware, which offered many improvements, including next-generation intrusion detection systems. Programming changes were made for more secure access, and stronger defenses were put in place to protect personally identifiable information.

In April 2018, the U.S. Department of Homeland Security (DHS) conducted a risk and vulnerability assessment on the Iowa SOS systems. DHS continues to scan systems on a weekly basis. Two-factor authentication for access to IVoters was put in place to add an additional layer of protection for a database with approximately 500 users. All SOS staff were required to undergo security risk training provided by DHS and the FBI. On November 6, 2018, staff from the Secretary of State and several other entities monitored Election Day activities from the State Emergency Operations Center to ensure a smooth process throughout the state.

Costs

The project was executed with funding by Homeland Security which represented a direct benefit to counties of approximately \$425,000 for training and services.

Assessment

The initiative was deemed successful as the election balloting process was secure. We were also able to measure success by the increase of county participation in security activities and use of OCIO security services. Please see the Results section to review the measurable success of this effort!

Communications Plan

Throughout the process of securing the election, Secretary Pate conducted media interviews to inform the public. When Matt Masterson, then chairman of the U.S. Election Assistance Commission (EAC), visited Iowa in November of 2017, Secretary Pate announced his Cybersecurity Working Group with a news conference. On primary election day, when DHS official Chris Krebs visited Iowa, another media availability was conducted to announce the dedication of resources to all 99 counties to ensure the security and integrity of Iowa's elections.

Secretary Pate collaborated with the EAC to create the "Election Security in Iowa" animated video. The video detailed the numerous steps Iowa election officials, primarily at the county and precinct level, were taking to protect the integrity of the vote and the physical security of ballots and equipment. The goal was to bolster public confidence in Iowa's elections. The video was shared and boosted on social media. Election Security in Iowa video:

https://youtu.be/tlg07_z8Gtk

The DHS' cybersecurity snapshot posters were designed not just for county election commissioners and election officials, but also to inform the public of the steps election officials are taking.

On October 1, 2018 Secretary Pate joined OCIO and Iowa Governor Kim Reynolds for a Cybersecurity Awareness Month ceremony in the State Capitol. The entities share valuable cybersecurity information with the public throughout the month. One week before Election Day, Secretary Pate, DHS, OCIO, the Iowa National Guard, and the Iowa Department of Public Safety partnered for a news conference to reassure Iowans that their vote is safe and to discuss protections they have put in place to ensure election integrity. The message was relayed in numerous media reports statewide.

Significance

Securing the statewide voter registration system in every county was vital to this cybersecurity initiative and a complex effort as each of the 99 counties in Iowa is on a different network, with different infrastructures and designs. About half of the counties have dedicated IT staff, about a quarter use an outside IT vendor and the remaining counties have neither. This required more than a one-size-fits-all approach to improving the overall cybersecurity of Iowa's elections.

Iowa's Office of Chief Information Officer's Information Security Division (OCIO-ISD), began providing State cyber services to counties at no cost to the counties. OCIO offered several security options, ranging from training and malware detection to intrusion detection systems. The partnership of the Secretary of State (SOS) and OCIO-ISD cannot be understated. The sustained advocacy from Secretary Pate lent substantial credence to the OCIO-ISD's cyber

initiative. The increased knowledge of cyber threats gave urgency to implement cyber services in all counties in advance of the 2018 elections.

Secretary Pate encouraged the counties to have all elections staff undergo “Securing the Human” cybersecurity training. This training is vital for the “human firewall” component of cybersecurity.

Stakeholders and Scope

Stakeholders are ultimately the citizens of Iowa and the candidates for public office. Project participants included County Auditors and their staff.

The OCIO and SOS made a concerted effort to conduct seminars and cybersecurity training for county election commissioners and staff. To engage counties, the OCIO was on hand at several conferences to answer questions and register counties for free services. Partnering with the Iowa Counties Information Technology organization was also vital as it kept the technology staff for the county aware of the activities with the Auditor. Everyone was informed and aware of the security improvements. In August 2018, county election commissioners, IT personnel and homeland security managers were invited to participate in cybersecurity exercises called “Table Top the Vote”, conducted by the U.S. Department of Homeland Security.

In September 2018, Secretary Pate’s staff and the OCIO contributed articles to the Iowa County magazine, encouraging participation in OCIO’s cyber services. In September 2018, the Secretary of State offered to pay conference fees for county election commissioners or staff to attend the National Election Security Summit in St. Louis. More than a dozen counties from Iowa sent personnel. In October 2018, Secretary Pate toured Iowa, visiting with county election commissioners, the public and media to discuss election cyber and physical security. By Election Day 2018, the sustained push from OCIO and SOS yielded impressive results.

Impact

Iowans benefited from a safe and secure election process. The State’s credibility was also on the line as Iowa holds the first in the nation presidential caucus every four years. The caucus process provides Iowans with a unique opportunity to meet and engage with candidates, provides positive national press about our culture of engagement, and represents a significant economic impact.

Results

There were no glitches related to cybersecurity during the November 2018 elections in Iowa. Post-election audits instituted by Secretary Pate confirm the votes are counted accurately. Iowa's 2018 general election sees the highest turnout for a midterm in the state's history.

In August of 2018, only 27 of Iowa's 99 counties were participating in cybersecurity services offered by the Office of the Chief Information Officer. With the combined effort by the Secretary of State and the Office of the Chief Information Officer all 99 counties have signed up for at least one cybersecurity service from the OCIO.

Other results include:

- Intrusion Detection System (IDS) services provided by OCIO increased from 5 to 66 before the November 2018 elections and currently 82 counties are participating in the IDS service.
- Malware detection (HX) services by OCIO increased from 25 to 66 counties before the November 2018 elections and currently 79 counties are participating in the malware detection service.
- OCIO Security Operations Center now monitors 90 counties.
- OCIO's Enterprise Vulnerability Management service provided to 50 counties.