MEMORANDUM

Date: July 26, 2016

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Security of Pima County's Voter Registration Database**

I previously communicated to the Board of Supervisors regarding the electronic security of computer systems associated with the Elections Department.

The attached report from the Information Technology Department describes the security systems associated with the Recorder's voter registration database.

This report was prepared due to the Secretary of State's voter registration system being hacked. County systems are as vigorous and secure as can be designed and implemented, and the County's system was not impacted by the Secretary of State's incident.

The attached report verifies the security of our local voter registration database and system.

CHH/anc

Attachment

c: The Honorable F. Ann Rodriguez Pima County Recorder
Tom Burke, Deputy County Administrator for Administration
Ellen Wheeler, Assistant County Administrator
Chris Roads, Chief Deputy Recorder and Registrar of Voters
Brad Nelson, Director, Elections Department
Jesse Rodriguez, Director, Information Technology

PIMA COUNTY
INFORMATION TECHNOLOGY

MEMORANDUM

Chuck H. Huckelberry
County Administrator

From: Dan Hunt
Information Security Officer

Via: Jesse Rodriguez
Chief Information Officer

Re: Vulnerability of Pima County's Voter Registration Database

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Per your memo to Jesse Rodriguez dated July 7, 2016, I visited the Pima County Recorder's office on July 20, 2016, to review their systems and ensure that County Recorder's databases were/are isolated from the Secretary of State's systems, and are not subject to hacking.

What I discovered while reviewing the thorough documentation that was provided along with a question and answer session with F. Ann Rodriguez and her staff, is that the Pima County Recorders staff have built an environment utilizing industry best practices, and have created an environment where they have very tight controls over all data entering and leaving their voter registration environment. The Help Americans Vote Act (HAVA) of 2002 requires a single state voter database by Federal Law, so being totally separated from the Secretary of State voter database is not possible.

A portion of the funding received by the State of Arizona from HAVA was used to implement a voter registration system (VRAZ-1) that is utilized by 13 of the counties within the state as their only voter registration system. Shortly after VRAZ-1 went live, Pima and Maricopa Counties chose to continue to utilize their own voter registration/management systems, as giving up full control of voter data, which would have been required, was not an option either County was willing to pursue. Though Pima and Maricopa County Recorders pay a large portion of the annual maintenance costs of the current State system (VRAZ-2; voter registration and elections), all processing of voter registration data continues to be done on "in-house" systems.

Voter registration is currently done in one of two ways. A person either has to fill out voter registration paperwork at an Arizona Motor Vehicle Division (MVD) office (registration documentation within the system is annotated with an "M" for MVD) or submits the registration paperwork online through ServiceArizona.com (registration documentation within the system is annotated with an "I" for Internet). The MVD uploads the data that they process to the Secretary of State system(s). Voter registration data is then compared to the databases belonging to the Secretary of State who in turn compares it against existing MVD data to help determine the County in which the person should vote. The data is also compared against data from Arizona Proposition 200 (2004), the "Arizona Taxpayer and Citizen Protection Act, to ensure the person that is registering is a citizen, and if further discovery is necessary it is compared against other State/Federal databases.

A Virtual Private Network (VPN) is currently in place between the Secretary of State's datacenter and the Pima County Recorder's datacenter that is housed within the Pima County Recorder's facility at 6550 S. Country Club Road. The VPN connection mentioned connects the Secretary of State ZIA server in Phoenix to their ZIA server in Tucson. This connection is

between Secretary of State purchased and managed equipment only and does not connect the Secretary of State system(s) directly into the Pima County system(s). I have physically reviewed the Recorder's datacenter and it is quite secure from a physical standpoint as cages have been constructed to keep it secure and separate from the rest of the Elections facility. There are also cameras throughout the facility that monitor all ingress, egress and internal traffic.

The Pima County Recorder voter registration system is fully owned and supported by the Recorder and is not directly connected with the State system. The Pima system is running on a Linux operating system running Advanced Encryption Standard (AES) 256 ciphers which are approved for top secret data. The database(s) are built on the Oracle platform and are also running AES-256 ciphers, as well as running Oracle's Table Space Encryption also known as Transparent Data Encryption can be implemented for greater levels of performance and security. Oracle utilizes business rules and data analytics to determine if a file is in the correct format before it allows the data to be written into the production database. This process is in place to ensure there is no additional data (viruses/malware/malicious code) within a file that could cause problems for the system (numerical hash values of what the data should look like are in place and are compared against known good file values). TIF files that contain signatures are checked for viruses and malware before they are imported into the production environment and matched with their voter registration records. Every portion of the VRAZ system schema supports AES-256 encryption algorithm. The user connects to the VRAZ schema from the Secretary of State's Office has very restricted access to only staging data to pull and push the data from the SOS. This user cannot access other sensitive data across Pima County's Voter system.

The State ZIA server located in the Recorders datacenter pushes and pulls data from an "interface database" environment within the Recorders' environment (this is an intermediary environment and not the production system environment) utilizing "pollers" that are set to compare files to determine if there is new data that Pima County needs to consume into our system. Data from the interface database is then moved into shadow data tables within the production environment where a Recorder staff member reviews the data and determines its validity before it is placed into the production database tables. Reports are sent between the State and Pima County to provide full disclosure on the data that was sent so a comparison can be run to determine that nothing more and nothing less was received. The only fully automated process that isn't checked by a person is the movement of a voter from one county to another.

Based on the incident that transpired on the Secretary of State voter registration system, all VRAZ users were required to change their password. There are five (5) Pima County Recorder staff members that have accounts on the VRAZ system. Since the Pima County voter registration system is fully controlled by Pima County Recorder staff, the Pima system remained fully functional even though the State system was offline for 9 days.

The Secretary of State has expressed an interest in having the Pima County Recorder be their backup datacenter to house their VRAZ-2 backup system on several occasions. However, to date, no agreement has been made, and Pima County is not hosting the VRAZ-2 backup system.

My findings are that that the Recorder is separated from the Secretary of State voter registration system, and that the Recorder has architected their voter registration system environment in a manner that it is protected from attacks. There is also no evidence that the incident that took place within the Secretary of State environment had any impact on the Pima County system. That being said, in the battle against cybercriminals, it isn't "IF" you will be hacked, it is "WHEN" you will be hacked. The checks and balances the Recorder has in place for data entering and leaving their systems are very valuable to knowing if there is an attack and being able to deal with that attack in a timely manner.

DH/mk

C: Tom Burke, Deputy County Administrator for Administration