Open Source Voting
State of the Art Briefing

A Project Briefing for the City and County of San Francisco

February 2020

SAN FRANCISCO
DEPARTMENT OF
TECHNOLOGY

Introduction

- History of Open Source Voting Projects

- Methods of Open Source Projects

- Best Examples of Non-Commercial Voting Systems

- Next Steps

Open Source Voting System Projects

- Open source voting systems could be publicly inspected projects that aim to improve the transparency of the election process through the publishing of voting machine software and/or through making the voting machine systems available for public inspection

- Open source projects seek to improve the quality and transparency of election voting, enable the sharing of the open source code within the elections community, deploy robust reporting capabilities, and drive improvements in election systems through participatory system development and agency cooperation

Open Source & Non-Commercial Voting Systems

Methods and analysis used to identify these types of projects

- Transparency, collaboration, and momentum are important indicators of a healthy open source project

- Transparency of the project strategy, plans, and contributions allows new individual contributors and commercial partners to feel safe joining the project and contributing time and money

- Consistent collaboration from multiple organizations is a strong sign of project health

- Momentum comes from a well-funded project leadership with a long-term strategy

Non-Commercial Voting Systems

1. Voting System of All People (VSAP) – Los Angeles Registrar-Reporter/County Clerk
2. Free & Fair – Galois
3. Sovereign – democracy.earth
4. Condorcet Internet Voting System (CIVS) – Cornell Department of Computer Science
5. TrustTheVote – Open Source Election Technology Foundation
6. VotingWorks Project
7. FollowMyVote Project
8. ElectionGuard - Microsoft
9. STAR-Vote – Travis County Clerk

1. Voting System of All People (VSAP)

Los Angeles Registrar-Reporter/County Clerk

- Vision to use a transparent process to develop and implement voting solutions that focus on the needs and expectations of current and future voters

- Developed with contractors and owned by the Los Angeles RR/CC

- VSAP product design published in 2017 as the latest generation of voting systems, including commercial options

- Full implementation by November 2020

2. Free & Fair – Galois

- Semi-independent company spun off from Galois working on election security projects, including open source implementations

- 2016: Qubie, a poll queue monitor, launched in Shasta County, CA

- 2017: ColoradoRLA (Risk Limiting Audit), a version of Free & Fair's OpenRLA project, launched in Colorado statewide elections

- Currently working on private or commercial projects with Microsoft and DARPA

3. Sovereign – Democracy.earth

- Democracy Earth Foundation is the sponsor

- Blockchain "liquid democracy" platform for online voting with Ethereum-based vote tokens

- Active community with ongoing contributions

- Uses tokens to cast votes and manage identity

- Used in Argentina and Columbia and has substantial funding

- Used for determining policy preferences and not an end to end voting system

4. Condorcet Internet Voting System (CIVS)

Cornell Department of Computer Science

- Simple, online Internet election tool

- 15-year-old voting system project that has hosted over 15,000 polls and 400,000 votes

- This project has transparency and steady momentum, with few contributions

- Simple, stable project and implemented product with a successful track record

5. TrustTheVote

Open Source Election Technology Foundation

- Developing a suite of open source software (no hardware) called ElectOS

- Planned for November 2020 implementation

- Third-party voter registration tools already in use – partnered with Pennsylvania and Virginia, and Rock the Vote since 2009

6. VotingWorks Project

Continuation of the Helios Voting Project

- Utilized the Center for Democracy & Technology as host organization

- Intended for online elections and not recommended for public elections

- Releases stopped in 2011

- The VotingWorks project has been "forked" several times for other projects and has a small community following.

7. FollowMyVote Project

Blockchain Proof of Concept

- Demonstrated in 2014

- Located in Longmont, CO, 5 people are published as employees and include 3 co-founders.

- Limited public information and no public implementations

8. ElectionGuard

Microsoft

- Launched in May 2019 as an open source SDK built in partnership with Galois

- Set of tools, repositories and storage spaces but not a complete end to end system

- Includes: Specifications, Software Code, Reference Verifer, and Ballot Marking Device Implementation

9. Star-Vote

Travis County Clerk

- Open source election system (software and hardware) designed by Travis County Clerk, academics, and election security experts between 2012-2016

- Design was well-received by open source and voting communities, but no vendors were interested in building the entire system (specifically the open source code base) and the project did not proceed beyond an RFP

- Travis County has since procured a commercial system meeting many of STAR-Vote's original specifications

Feedback Welcome

Open Source Voting System Project Briefing

SAN FRANCISCO
DEPARTMENT OF
TECHNOLOGY