Microsoft offers software tools to secure elections

May 6 2019, by Frank Bajak

In this May 7, 2018, file photo Microsoft CEO Satya Nadella looks on during a video as he delivers the keynote address at Build, the company's annual conference for software developers in Seattle. Microsoft announced Monday, May 6, 2019, an ambitious effort to make voting secure, verifiable and reliably auditable with open-source software that top U.S elections vendors say they will explore incorporating into new and existing voting equipment. (AP Photo/Elaine Thompson, File)

Microsoft has announced an ambitious effort to make voting secure, verifiable and subject to reliable audits by registering ballots in encrypted form so they can be accurately and independently tracked long after they are cast.

Two of the three top U.S elections vendors have expressed interest in potentially incorporating the open-source software into their voting systems.

The software is being developed with Galois, an Oregon-based company separately creating a secure voting system prototype under contract with the Pentagon's advanced research agency, DARPA. Dubbed "ElectionGuard," it will be available this summer, Microsoft says, with early prototypes ready to pilot for next year's U.S. general elections.

CEO Satya Nadella announced the initiative Monday at a developer's conference in Seattle, saying the software development kit would help "modernize all of the election infrastructure everywhere in the world."

Three little-known U.S. companies control about 90 percent of the market for election equipment, but have long faced criticism for poor security, antiquated technology and insufficient transparency around their proprietary, black-box voting systems.

Open-source software is inherently more secure because the underlying code is easily scrutinized by outside experts but has been shunned by the dominant vendors whose customers—the nation's 10,000 election jurisdictions—are mostly strapped for cash.

In this March 18, 2014 file photo, voters cast their ballots in Hinsdale, Ill. Microsoft announced Monday, May 6, 2019, an ambitious effort to make voting secure, verifiable and reliably auditable with open-source software that top U.S elections vendors say they will explore incorporating into new and existing voting equipment. (AP Photo/M. Spencer Green, File)

None offered bids when Travis County, Texas, home to Austin, sought to build a system with the "end-to-end" verification attributes that ElectionGuard promises to deliver.

Two of the leading vendors, Election Systems & Software of Omaha, Nebraska, and Hart InterCivic of Austin, Texas, both expressed interest in partnering with Microsoft for ElectionGuard. A spokeswoman for a third vendor, Dominion Voting Systems of Denver, said the company looks forward to "learning more" about the initiative.

Anyone with an existing voting system or developing a new one will be able to incorporate ElectionGuard—at the state or local level in the U.S. or national level for jurisdictions abroad.

"Once the barrier to entry is low enough, hopefully one of the vendors will go for it, and that will bring the rest of them in quickly enough," said Dan Wallach, a Rice University computer scientist who assisted Travis County.

"It can be used with a ballot-marking device. It can be used with an optical scanner, on hand-marked paper ballots," said Josh Benaloh, a senior cryptographer at Microsoft Research and key contributor to the ElectionGuard project. Benaloh helped produce a National Academies of Science report last year that called for an urgent overhaul of the rickety U.S. election system, which Russian hackers infiltrated in 2016 in several states.

That report called for all U.S. elections to be held on human-readable paper ballots by 2020. It also advocated a specific form of routine postelection audits to ensure accurate vote counts—a requirement that "end-to-end' voting verification satisfies.

Election integrity activist Susan Greenhalgh of the National Election Defense Coalition said she hoped it would encourage innovative thinking at the level elections are actually managed.

"We can't have faith-based voting anymore," she said. "This is a great step forward in verifying election results."

ElectionGuard will let voters confirm that their votes are accurately recorded. Beyond that, the unique coded tracker it produces registers an encrypted version of the vote that keeps the ballot choice itself secret while ensuring votes are accurately counted.

That enables reliable postelection audits and recounts.

Microsoft CEO Satya Nadella delivers the keynote address at Build, the company's annual conference for software developers Monday, May 6, 2019, in Seattle. (AP Photo/Elaine Thompson)

Microsoft CEO Satya Nadella delivers the keynote address at Build, the company's annual conference for software developers, Monday, May 6, 2019, in Seattle. (AP Photo/Elaine Thompson)

Two men smile as they walk offstage after what was to be a recreation of the Apollo 11 mission to the moon using the HoloLens 2 failed to work before the keynote address at Microsoft's Build, the company's annual conference for software developers Monday, May 6, 2019, in Seattle. (AP Photo/Elaine Thompson)

Microsoft CEO Satya Nadella walks past audience members as he delivers the keynote address at Build, the company's annual conference for software developers Monday, May 6, 2019, in Seattle. (AP Photo/Elaine Thompson)

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In this Nov. 8, 2016, file photo a lone voter fills out a ballot alongside a row of empty booths at a polling station in the Terrace Park Community Building on Election Day in Cincinnati. Microsoft announced Monday, May 6, 2019, an ambitious effort to make voting secure, verifiable and reliably auditable with open-source software that top U.S elections vendors say they will explore incorporating into new and existing voting equipment. (AP Photo/John Minchillo, File)

With a screen displaying some of the new Microsoft Azure services and updates in the background, Microsoft CEO Satya Nadella delivers the keynote address at Build, the company's annual conference for software developers Monday, May 6, 2019, in Seattle. (AP Photo/Elaine Thompson)

It also lets outsiders such as election watchdog groups, political parties, journalists—and voters themselves—verify online that votes are properly counted without being altered.

Microsoft executives say they also plan to build a prototype voting system for reference.

One election official who has been in informal conversations with the ElectionGuard project leaders is Dean Logan, who runs elections for Los

Angeles County, the nation's most populous, and is building an open-source voting system for it.

A spinoff of Galois called Free & Fair developed the sophisticated postelection audits , known as "risk-limiting," for Colorado, which was the first U.S. state to require the audits recommended in the National Academies of Sciences report.

ElectionGuard is not designed to work with internet voting schemes—which experts consider too easily hackable—and does not currently work with vote-by-mail systems.

Microsoft CEO Satya Nadella delivers the keynote address at Build, the company's annual conference for software developers Monday, May 6, 2019, in

Seattle. (AP Photo/Elaine Thompson)

ES&S told The Associated Press via email that it was excited to partner with Microsoft and "still exploring the potentials" for incorporated the software kit its voting systems.

Hart InterCivic, the No. 3 vendor, said it planned a pilot project with Microsoft to "incorporate ElectionGuard functionality as an additional feature" layered over its core platform.

A spokeswoman for Dominion, the No. 2 vendor, said "We are very interested in learning more about the initiative and being able to review the various prototypes that are being planned, along with hearing more about other federally-supported efforts in the elections space."

Edgardo Cortés, a former Virginia elections commissioner now with New York University's Brennan Center, welcomed additional private sector support for election systems.

"I think it'll take a while to catch on and see how beneficial (ElectionGuard) ends up being," he said. "But I think it certainly does have a great deal of potential."

Columbia University will be partnering with Microsoft to audit the pilots.