



# Coming soon to an E, L, E, C, T, I, O, N, near you

by David Eadie

**W**ITH A US ELECTION almost upon us, e-voting is a hot topic on the political circuit and everybody, it seems, is weighing in. Almost invariably the debate centres on the security, or lack thereof, involved with voting machines and the Internet. The cons have been getting most of the headlines with notables such as Senator Hillary Clinton arguing for paper copies of electronic ballots in the event of a recount. The Pentagon wavered then pulled back their support of Internet voting for US citizens abroad, and academics of all stripes are painting dire consequences for democracy should the voting process risk credibility for convenience.

The nub of the debate has been on the table for some time: Does voting by any method other than traditional polling booths and paper ballots jeopardize either voters' right to privacy or their guarantee that their vote will be counted fairly? Not only has it been debated, but the issue has been settled for several municipalities right here in Canada.

Talk to John Hollins, the chief electoral officer for Province of Ontario, and he'll give you the story. "It started back in 1976 when East York and Mississauga brought in punch card voting and evolved in the eighties with the optical scan in places like Etobicoke and Scarborough. At the time they used a centralized optical scan where you brought all the ballots into one place and the machine scanned them."

By the 1988 elections Toronto and North York went with the optical scan at the polling level because they didn't like the idea of ballots travelling from the polling locations. "They started with one machine for every three or four polls, but they ran into

a few problems, so by 1991 they brought in scanners to all the polls."

By 1996, the experiment was working well enough to encourage the Ontario government to advance things. "In 1996, the *Election Act* was changed municipally in Ontario to suggest that municipalities could try things like voting by mail and telephone, and so you saw individual municipalities go out and experiment. During the voting on Metro Toronto's amalgamation, the City of North York used telephone voting. They had so much success that other municipalities followed suit."

It's now reached the point that almost a million people were sent ballots in the 2003 municipal elections.

Why did Ontario decide to forsake the tried and true for something that, almost by definition, has a built in margin of error? Canada Post does have a loss rate. And small as that loss rate might be it is still not as certain as having your ballot handed to you by an elections official and then, after marking it in private, handing it back to that same official and watching them put it in the ballot box. Elections – at least the operational side – are about credibility. So, why did Ontario municipalities opt for systems which were, if only slightly, less credible?

According to Hollins, the quality of the people who were staffing the polling stations was not what it had been, or what it should be, and it was starting to show. "Post-election checks of ballots very often found a margin of error," he says. In one instance, a mayoralty candidate was declared defeated but won on a recount. Heads rolled. "Municipal administrators felt that they had to move to correct the

situation. The error margin was too big – they believed it could impact the will of the people."

The feeling was that by introducing new voting techniques and technology into the mix they could weed out incompetent staff, thereby increasing the quality and accuracy. In addition, voting by mail or phone would improve accessibility. Finally, it would be more efficient.

Though it's been a quarter-century since the first changes to voting technology were introduced, the results are far from conclusive. Municipal elections do not draw the numbers of voters that provincial or federal elections do. Nevertheless, the precedent had been set and the exclusive link between voters and the polling booth had been broken.

By 2003, CanVote Inc., based in L'Orignal, Ontario, had taken things even further. "I believe we're the first to do a real full Internet election in North America," said Joe Church, president of CanVote. By this widely-distributed quote it's clear that he takes a measure of pride in being first, but to talk to him he's hardly a firebrand electoral reformer. In fact, it appears he got into e-voting largely by accident.

Wispra Networks, a wireless tech company and the parent company of CanVote, had recently moved to L'Orignal when Church was contacted by local municipal officials. "They had done some telephone voting and didn't want to go back to paper voting. Since I was a high-tech kind of guy they approached me about doing it for them. I said that telephone [voting] was OK but I'd like to have Internet as well – what about if we throw that into the mix. They bought into it, and we went to the 12

local municipalities within driving distance and asked them if they wanted to participate. They all said yes and passed the appropriate local bylaws. We thought that was enough to start without making it too big as a first go and that was it.”

The CanVote website ([canvote.ca/en/](http://canvote.ca/en/)) will show you how the Internet voters in Prescott-Russell and Stormont, Dundas and Glengarry counties did it.

Church claims a 52 percent turnout (the Ontario average was about 40) using a combination of Internet and telephone. “We gave people the choice,” he says. “I don’t think that the Internet is the whole answer because [not everyone has access or is comfortable with it], but those that are, are really keen.”

CanVote calls itself a “voting solutions” company and now that they have experience with municipal elections under their belt, “We’re now looking at other various voting situations where using electronic and other voting technologies would be appropriate. We’ve talked to federal and provincial governments about it – probably starting with by-elections as a test.”

While Church has been talking with government, he’s not hanging his hat on anything happening anytime soon. “We’ve also been talking with union associations – contract ratifications and certifications

– that sort of application. The thing that gets all the attention is the federal election. That’s a big opportunity, but you don’t know when its going to happen, and it’s once every three or four years. You can starve to death in between.”

While there are a lot of “ifs” and “whens” for e-voting companies when dealing with big government, there is no doubting the size of the prize. Elections are big business – really big. Leaving aside the barrels of cash the political parties pour into polling, advertising and more advertising – and not counting the various and sundry “get out the vote” campaigns – the amount of public cash it takes to run an election is staggering. John Hollins said that the cost was roughly \$6.00 per voter for the last election in Ontario. Estimates for the cost of federal elections are even higher.

No wonder so many folks are into the election business. Leading the pack are the big US hardware and systems people who are gearing up for November because, even with all the negative publicity, it is expected that as many as 30 percent of American voters will be casting their ballots without setting foot in a traditional polling booth.

In Canada things are not quite so frenzied and the same scale of pressure is not being brought to bear on legislators to change the rules immediately, if not soon-

er. Politicians quite naturally feel that whatever system elected them must be a good one, and therefore a certain resistance to alter the playing field must be expected. At Elections Canada “wait and see” seems to be the operating principle. At last notice they’re in a period of testing and evaluating the various options that could last indefinitely.

Nevertheless, change is in the air. Ontario’s Democratic Renewal Initiative talks about e-voting, and according to John Hollins, Elections Ontario is going to approach not only the government but the individual parties to engage in pilot projects, perhaps in upcoming by-elections. Given Ontario’s relatively long history with out-of-poll voting it wouldn’t be a big surprise to find as many choices for how to vote as there are candidates.

To put the technology in perspective, pilot projects in Great Britain that tested Internet voting, voting machines and other options showed the only one to make appreciable gains in usage over traditional voting procedures was mail-in voting. Maybe that’s progress. *mm*

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## eHealth: technology news

by Anne Phillips

**I**F YOU BUY HEALTHCARE technology, your shopping list could soon be getting longer. Precarn – a not-for-profit industrial R&D network that supports the development of intelligent technologies with commercial potential ([www.precarn.ca](http://www.precarn.ca)) – showcased emerging medical technologies in mid-September at the National Arts Centre in Ottawa.

A group of Ontario public and private sector organizations are developing an Intelligent eHealth Portal. The portal will gather test results and other medical information from a multitude of sources, often siloed in nature, to provide a complete picture of the patient to authorized medical personnel in a manner tailored to the user’s needs and readily available on a device of their choice – even a wireless device.

Other organizations are developing advanced ultrasound systems: one for deep

venous thrombosis screening and another, a 3-D system to assist and guide surgeons. For example, when the skull is opened for surgery the brain can move up to 25mm. At this point the 3-D ultrasound system could capture a digital image of the brain in its new position, which is then matched to the pre-surgery MRI image to provide the surgeon a more accurate map of the area.

Yet others are using 3-D computer models that allow surgeons to practice “virtual surgery” and prepare a plan for the real thing. The information garnered is integrated with surgical instruments and an optoelectric system to guide them through the actual procedure. Adaptations to the technique now allow bone tumours to be removed through small incisions in half the time it took before, and patients are discharged the same day with only a week



to spend in post-op recovery – a vast improvement over the previous 6-8 weeks and six months of rehabilitation. Researchers are looking at adapting the technology for neurosurgery and dentistry.

Several Canadian universities are working to develop systems to help people with cognitive disorders, such as Alzheimer’s disease, retain their independence and quality of life for a longer period. Software systems identify and tag speech patterns like “I’m 85, aren’t I?” as markers to assist in early diagnosis and ongoing monitoring, and eventually patients may have wearable systems. *mm*