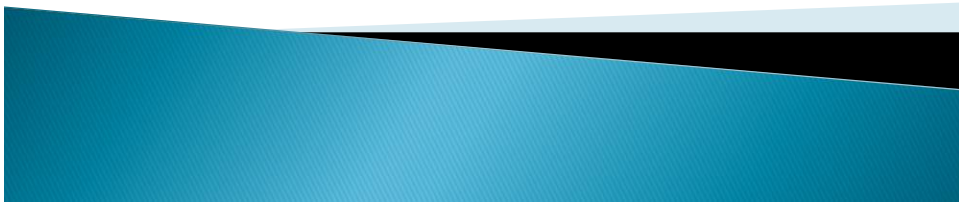


Internet Voting



1

What are the downsides?

- ▶ Internet voting enables coercion of voters / vote buying
 - Your ballot is no longer 'secret'
- ▶ Evidence suggests it does little to increase turnout, even among youth
 - Highest demographic for online voting is 45–55 yo
- ▶ Computer security experts say it can not be made secure



2

How does the secret ballot work?

- ▶ No one gets to go with you behind the screen at the polling booth to make sure you voted 'correctly'
- ▶ No matter what you tell someone, they have no way to know if you voted the way you said you would
 - Cameras banned in polling station
- ▶ Makes vote buying and coercion pretty much impossible
- ▶ Voters in many parts of the world do not enjoy voting free from intimidation



3

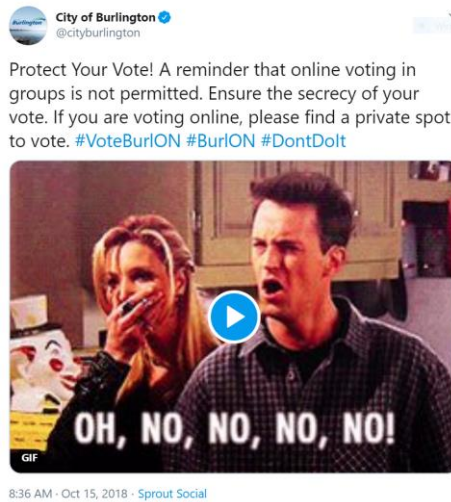
Voting at home changes this

- ▶ Voter can be bribed to vote for a particular candidate
 - Briber can confirm voter went through with it, and no one need ever know
- ▶ Voter can be coerced / intimidated, possibly even threatened with violence
 - It is unfortunate but abusive domestic relationships / elder abuse exist in our community
 - Spouses/Siblings/Parents/Children don't always agree when it comes to politics



4

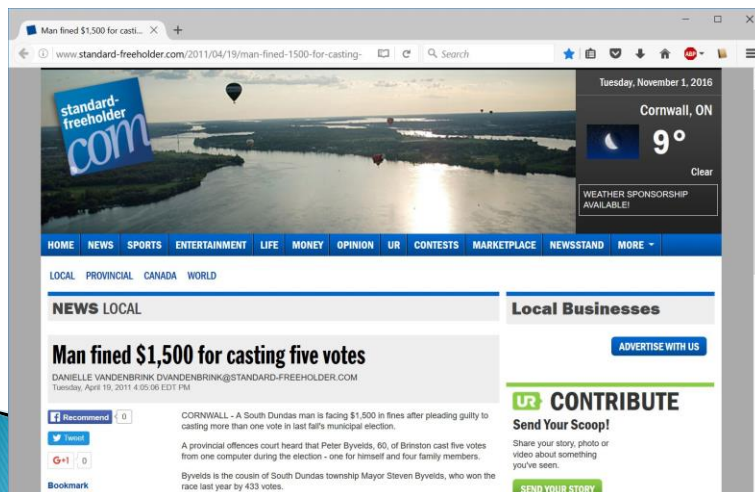
Find a private spot?



5

Multiple ballots cast by one voter

- It has happened right here in Ontario



6

Could it happen here?

Possible excuses someone might give for casting multiple ballots via the internet

- My kids are away at University so I voted for them
- My friend/neighbour/husband/wife wasn't going to vote anyway

Illegal, but chances of getting caught are low as having multiple votes from a single IP address not unusual / unexpected as several members of household may share one internet connection

7

Impact on turnout?



8

What about Security?

- ▶ We bank online and file our taxes online, why can't we vote online?
 - "Online banking transactions are individually **identifiable and reversible**. When people's banking accounts are hacked – and they are hacked all the time – the charges are reversed by the bank at no cost to the customer. Votes can't be either individually identifiable or reversible."
- ▶ We can't even make interbank transactions secure; in 2016 the core interbanking system SWIFT was compromised and millions of dollars were stolen.



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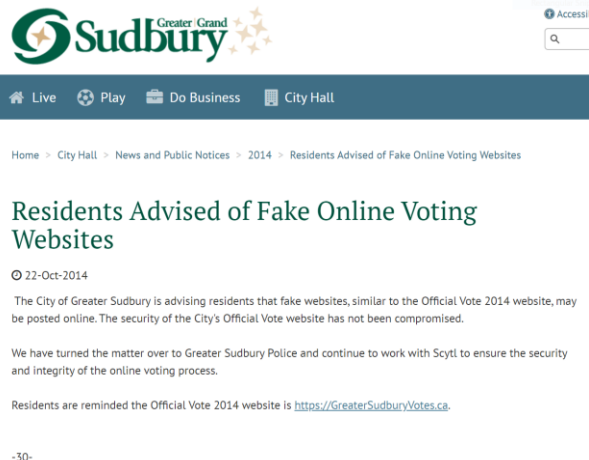
Data Breaches & Hacks 2019–2020

- ▶ July 2019 – 100 million Capital One customers data stolen
- ▶ October 2019 – LifeLabs exposed data of 15 million Canadians
- ▶ March 2020 – Marriot hack revealed personal data of 5.2 million guests
- ▶ May 2020 – EasyJet 9 million customers personal info stolen
- ▶ July 2020 – 130 high profile Twitter accounts including Apple, Bill Gates, Barack Obama compromised as part of Bitcoin scam



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Some 'hacks' are simpler than you think...



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Spot the difference?



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The latest method – hijacking Google

Hijacked search results lead to phishing

Over the years, phishers have become better at evading detection by hiding malicious artifacts behind benign ones. This tactic manifests in, among many others, the use of URLs that point to legitimate but compromised websites or multiple harmless-looking redirectors that eventually lead to phishing.

One clever phishing campaign we saw in 2019 used links to Google search results that were poisoned so that they pointed to an attacker-controlled page, which eventually redirected to a phishing page. A traffic generator ensured that the redirector page was the top result for certain keywords.

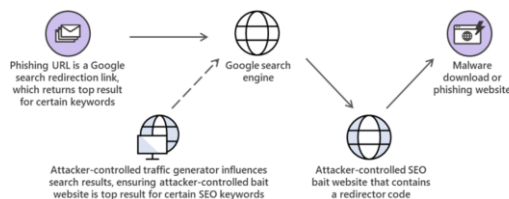


Figure 1. Phishing attack that used poisoned search results

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Phishing attacks continue to get more sophisticated

- ▶ “A phishing email sent to Hilary Clinton campaign chairman John Podesta may have been so sophisticated that it **fooled the campaign's own IT staffers**, who at one point advised him it was a legitimate warning to change his password.” CNN, October 30 2016

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Even if the system is secure, what about the user's device?

- ▶ Up to 30 percent of computers in the U.S. are already infected with malicious software, and malware could prevent ballots from being transmitted or replace them with entirely different votes.



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Where have they studied the issue and stopped or said no to internet voting?

- ▶ Mississauga, ON (2016) rejected due to security concerns, lack of turnout effect, cost
- ▶ Huntsville, ON (2013) experienced issues with online system in 2010, returned to paper ballot for 2014
- ▶ Kitchener, ON – detailed 2012 staff report considered a number of factors and recommended against. Council agreed.
- ▶ Alberta – Minister of Municipal Affairs banned internet voting in 2013
- ▶ B.C. – a five-member expert panel chaired by the Province's Chief Electoral Officer opposed online voting in a 2013 report
- ▶ Quebec created a moratorium on all electronic voting in 2005 which is still in effect
- ▶ In December 2016 the Federal Government's Multi-Party Committee on Electoral Reform recommended against online voting
- ▶ Waterloo, Guelph and Toronto all rejected internet voting in 2018



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Third Party Security Analysis of City of Toronto Internet Voting RFP

- ▶ “It is our opinion that no proposal provides adequate protection against the risks inherent in internet voting. It is our recommendation, therefore, that the City not proceed with internet voting in the upcoming municipal election.” – Jeremy Clark (Concordia University), Aleksander Essex (Western University), February 2014



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Third Party Analysis con't...

- ▶ The report looked at three internet voting system vendors including the one used by Burlington in 2010, 2014 & 2018
- ▶ Burlington's system achieved a grade of *Satisfactory* on 13 of 25 categories
- ▶ It received a grade of *Needs Improvement* or *Insufficient Detail* in 7 categories
- ▶ It received a grade of *Weak* on 5 categories



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Concern crosses party lines

- ▶ “When we started, it seemed that online voting could be a solution to a lot of our problems, including accessibility. You've just taken that and thrown it in the trash can for me.” Liberal MP John Aldag (Cloverdale – Langley City, BC)
- ▶ “I'm now firmly committed to not moving to electronic voting.” Conservative MP Scott Reid (Lanark—Frontenac—Kingston, ON)
- ▶ “When it comes to our democracy it has to be sacred – the vote must be sacred and experts can't seem to guarantee it yet and they don't feel that's coming anytime soon.” NDP MP Nathan Cullen (Skeena–Bulkley Valley, BC)



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Best Practices?

- ▶ “Coming up with the best practices for Internet voting is like coming up with best practices for drunk driving.” – Professor Ronald Rivest, MIT



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Summary

- ▶ All of these technical challenges are damning, but the concept fails long before we get to this point because internet voting fails to protect the secret ballot
- ▶ Internet voting is not fit for purpose



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Options for Burlington?

- ▶ 1) Direct staff to perform further consultation within the community presenting the negative issues in conjunction with the more obvious benefit of convenience.
- ▶ 2) Direct staff to consult further with academic experts in the field of electronic voting.
- ▶ 3) Consider limiting internet voting to residents with accessibility issues or those who can prove that they are not able to attend traditional polls due to travel or illness.



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