SENG 460 / ECE 574
Practice of Information Security and Privacy

Cyber Threats to Canada's Democratic Process

Reading Review

Gary Perkins, MBA, CISSP

garyperkins@uvic.ca

University of Victoria

Threats to Canada's Democratic Process

- All material and notes are attributed to:
- Cyber Threats to Canada's Democratic Process
- produced by the Communications Security Establishment

- https://cyber.gc.ca/sites/default/files/publications/cse-cyber-threat-assessment-e.pdf

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Threats to Canada's Democratic Process

- Cyber threat activity against the democratic process is increasing around the world
- Canada is not immune
- small number of nation-states have undertaken majority of cyber activity against democratic process
- multiple groups will likely deploy cyber capabilities against future elections ranging in sophistication
- elections are largely paper-based and have controls in place

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Threats to Canada's Democratic Process

- threat to Canada's democratic process remains at 'low' level
- 3 targeted areas of democratic process:
  1) elections
  2) political parties and politicians
  3) traditional and social media
- highly probable threat activity will increase
- cyber capabilities are publicly available and cheap and easy to use

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Threats to Canada's Democratic Process

- rapid growth of social media and other factors without sufficient checks and balances means spreading 'fake news' is easier than ever
- **elections are increasingly using technology**
- **deterring cyber threat activity is challenging because it is difficult to detect, attribute, and respond to in a timely manner**

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Threats to Canada's Democratic Process

- different types of threats: strategic threats and incidental threats
- motivation for organized crime or "cybercriminals" is profit
- cyber threats can be a show of force to deter other nation-states
- adversaries may seek to change Canadian election outcomes, policy choices, government relationships

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Threats to Canada's Democratic Process

- one goal is to reduce trust in a free and fair democratic process
- another goal may be to shift policy in a preferred direction or promote core interests
- elections are targeted to prevent citizens registering, prevent voters from voting, tamper with election results, steal voter database
- three essential phases: registering voters, voting, disseminating results

Threats to Canada's Democratic Process

- if voter registration happens online, adversaries could use cyber capabilities to pollute the database with fake accounts
- could take the site off line or erase or encrypt the data
- it is more likely that adversaries could disrupt the voting process and cause doubt about the fairness than actually change the results

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Threats to Canada's Democratic Process

- two types of threats
  - known (those that you can anticipate)
  - unknown (those that you are unable to anticipate)
- two types of attacks:
  - direct (attacks directly against voting assets)
  - indirect (attacks intended to shift perception of the voting process)
- goal is to prepare for the known so when the time comes can focus on the unknown that arise

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Threats to Canada's Democratic Process

- threats to political parties and politicians include: cyberespionage, blackmail, embarrass/discredit, steal/manipulate voter or party database
- cyber capabilities to disable a website are simple to buy or rent
- adversaries may steal a voter database in order to sell it on the DarkWeb

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Threats to Canada's Democratic Process

- covert manipulation of traditional and social media to influence political discussion
- troll farms: groups of people paid to spread propaganda on social media
- social botnets: series of computers commanded by a single person
- DDoS: distributed denial of service attack – could be against a political or media website

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Threats to Canada's Democratic Process

- deface a website: attackers could modify the content to embarrass, discredit, or spread false content
- spearphishing: targeted phishing against a political target or other
- ransomware: restricts access and compels victims to pay to have access returned
- **the most effective defenses against ransomware are user awareness and offline or disconnected backups**

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- redirect/man-in-the-middle attack: when the attacker logically inserts themselves between the source and recipient of the traffic
- low sophistication: single capability, single target, little or no planning, no lasting effect
- medium sophistication: a few capabilities, more than one target, planning, multiple affected
- high: several capabilities used expertly, numerous targets, extensive planning, long impacts

Threats to Canada's Democratic Process

- possible attack - gain access, move laterally, monitor, analyze, contact rival
- "Many effective cyber capabilities are readily available, cheap, and easy to use.

  Deterring cyber threat activity is challenging. We are unable to attribute about 20 percent of incidents to a particular adversary. Of those incidents that are attributed, most appear to have gone unpunished."

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Threats to Canada's Democratic Process

- "The rapid growth of social media coupled with the decline in longstanding authoritative sources of information make it easier for adversaries to use cyber capabilities and other methods to inject disinformation and propaganda into the media to influence voters.
- Elections and election agencies are adopting more online processes, making them more vulnerable to cyber threats. "

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Threats to Canada's Democratic Process

- "There is a dynamic of success emboldening adversaries to repeat their activity, and to inspire copycat behaviour."
- during the 2015 federal election, Canada was targeted by low sophistication cyber activity
- next federal election is set for 2019
- nation-states have demonstrated the highest sophistication

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