Cyber Security Update

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Presentation Overview

- Cyber Security Trends and Challenges
- Approach and Strategy
- Recent Improvements & Priorities
- Resourcing
- Strategic Alignment

What is Cyber Security?

Cyber Security is the practice of protecting systems, networks, and programs from digital attacks. These cyber attacks are usually aimed at accessing, changing, or destroying sensitive information; extorting money from users; or interrupting normal business processes.[1]

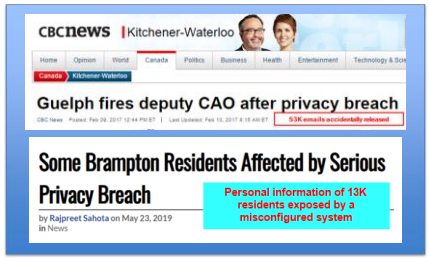
- Cyber crime is one of the fastest-growing criminal activities in the world and has surpassed illegal drug trafficking as a criminal money maker [2]
- The average financial cost of downtime to a Canadian business following a ransomware attack is 7.5 times higher than the average ransom requested per incident [3]
- 6.4 billion - The number of fake emails sent worldwide — every day [4]
- 550 million - The number of phishing emails sent out by a single campaign during the first quarter of 2018 [5]
- 1,946,181,599 The total number of records containing personal and other sensitive data compromised between January 2017 and March 2018 [6]

1. Cisco Systems [https://www.cisco.com/c/en/us/products/security/what-is-cybersecurity.html]
2. Symantec Corporation [https://www.symantec.com/about/newsroom/press-releases/2009/symantec_0910_01]
3. Scalar 2019 Scalar Security Study: The Cyber Resilience of Canadian Organizations
4. Dark Reading, August 27, 2018. [https://www.darkreading.com/endpoint/64-billion-fake-emails-sent-each-day/d/d-id/1332677]
5. Dark Reading, 26 April 2018. [https://www.darkreading.com/vulnerabilities---threats/new-phishing-attack-targets-550m-email-users-worldwide/d/d-id/1331654]
6. Chronology of Data Breaches, March 2018. [https://www.privacyrights.org/data-breaches]

Cyber Security Trends

- Common Methods of Attack
  - Malware i.e. Ransomware
  - Exploited Vulnerability
  - Social Engineering
  - Human Error
- Recent Municipal Experiences
  - Ransomware
  - Privacy Breaches
  - Fraud

Recent Municipal Experiences



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Cyber Security Challenges Facing The City

- Changing threat landscape
  - Targeted Malware
  - Monetized Threats
  - IT Infrastructure Complexity
- Emerging Technology Demand
  - E.g. Mobility, Cloud, Remote Access, Internet of Things
- IT Inventory Asset Management
  - We need to “know” what we “don’t know”
  - Managed vs. unmanaged

6

IT Security – Our Approach

7

IT Security - Our Program

8

Recent Improvements

- ✓ Build on existing strong foundational practices
- ✓ Have upgraded all safeguards in the past two years
- ✓ Strengthened security language in procurement practices
- ✓ Cyber Insurance - purchased in 2018
- ✓ Information Security Framework Implementation
  - ✓ ITS Security Maturity Assessment – *Completed 2018 Q4*
  - ✓ Maturity Assessment Remediation Plan – *Developed 2019 Q2*
    - ✓ Developed 5 Year Workplan
    - ✓ Strategic approach to strengthening administrative and technical controls
  - ✓ Staff Security Awareness and Training Program – *Implemented 2019 Q3*
    - ✓ Mandatory foundational security training for all staff with a City email address
    - ✓ 2019 will focus of security basics and social engineering

Priorities

- Implement the Information Security Framework
  - Pragmatic approach to build effective layers of control
  - Build detection and prevention techniques in equal measure
  - Work towards optimizing and enabling growth
  - Focus on a long-term alignment with NIST Cyber Security Framework
- Information Security Policy redevelopment – *In Progress, to be completed 2019 Q4*
- Corporate Incident Response Plan – *In Progress, to be completed 2020 Q1*
- Continuation of the Corporate Security Awareness and Training

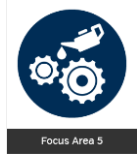
IT Security - Resourcing

- Staffing
  - 1 FTE (IT Security Manager)
  - Some responsibilities distributed among other ITS staff
- Previously Approved Capital Budget ($100k)
  - Information Security Framework
  - Awareness Training
  - Policy Development
- Future - 10 year Capital ($600k)
  - Annual IT Security Enhancements
  - 2020 Mobile (endpoint) Security
- Operating Budget (~$195k)
  - Security Safeguard Tools and Assessments (includes backup/recovery)
  - Assessment of additional needs being considered annually

Strategic Alignment

- IT strategic vision statement: *Innovative city services powered by tech-savvy people, modernized technology and meaningful information*

- Vision to Focus Alignment
  - Delivering Customer Centric Services with a Focus on Efficiency and Technology Transformation
  - Increasing corporate resilience to cybersecurity threats through effective and proactive IT security management practices



Questions?