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Item No. 4
Halifax Regional Council
March 27, 2012

TO: Mayor Kelly and Members of Halifax Regional Council

Original signed

SUBMITTED BY: Cathy J. Mellett, Municipal Clerk and Returning Officer

DATE: March 27, 2012

SUBJECT: NDP Leadership Process and Scytl (Secure Electronic Voting)

INFORMATION REPORT

ORIGIN

The motion of the Executive Standing Committee of March 26, 2012 stating;

That the Executive Standing Committee request that an information report be brought forward to the March 27, 2012 Regional Council meeting including a full review and update on the situation and the outcome of discussions. MOTION PUT AND PASSED.

BACKGROUND

In September 2011 Halifax Regional Council directed election staff to proceed with the planning and implementation for the 2012 Municipal Elections based on using e-voting for advanced polls for two weeks prior to Election Day. In order to secure a vendor to deliver HRM's electronic voting options for the 2012 Municipal and School Board Elections, a Request for Proposals was initiated.

Based on the criteria provided for under RFP #11-077 the evaluation team recommended that Regional Council award the contract for services to a new vendor Scytl (Secure Electronic Voting) based on the strength of the submission and references of Scytl and as the highest scoring and lowest cost proponent. Under the terms of the RFP the final contract for services is contingent on the successful outcome of a Proof of Concept within 8 week of award of the Purchase Order.

BACKGROUND CONTINUED

During the eight weeks leading up to the test voting event extensive discussions regarding HRM's business and technical requirements occurred between the HRM technical team, Datafix (MVV¹ provider) and the Scytl project manager. The Scytl project manager attended on site in Halifax for the final 10 days leading up to the voting event and Scytl's and Datafix's technical team attended the voting event conducted in the IT Training room on Wednesday March 14, 2012.

The voting event for the Proof of Concept was carried out by conducting the life-cycle of a "mini" election using the integrated Datafix municipal voter management (MVV) and Scytl (Pnyx²) products as outlined in the proposal for services submitted by Scytl and verified that the product was able to meet all of HRM's technical and business requirements as set out in RFP #11-077.

Scytl and HRM began final negotiations to enter into the contract for services for the provision of HRM's e-voting solution for the 2012 Municipal and School Board Elections.

In the interim Scytl conducted the electronic vote for the Leadership race for the New Democratic Party of Canada on the weekend of March 24th and a number of issues transpired that resulted in a delay of the vote and difficulty in accessing the voting system over several ballots.

DISCUSSION

HRM staff immediately began an evaluation and debrief of the events that transpired.

As reported in the media, the issue that resulted in the difficulty in accessing the system and delay of voting was initiated by a "denial of service attack" on the access and log-in pages of the electronic voting system.

A denial-of-service attack (DoS attack) or distributed denial-of-service attack (DDoS attack) is an attempt to make a computer or network resource unavailable to its intended users. Although the means to carry out, motives for, and targets of a DoS attack may vary, it generally consists of the concerted efforts of a person, or multiple people to prevent an internet site or service from functioning efficiently or at all, temporarily or indefinitely (Wikipedia March 26, 2012).

The reports of a denial-of-service attack have been confirmed publically by representatives of the New Democratic Party of Canada and directly to HRM by Scytl Systems Inc. A forensic audit is underway, being conducted by Scytl, to determine the type, extent and potential sources of the attacks.

¹ Municipal Voter View

² Scytl Election Voting Solution

Summary of events of March 24th voting:

Over 50,000 delegates voted in the advanced polls with no issues up to end of the advanced voting on March 23rd.

1st round of ballots – approximately 10,000 voters voted electronically on the floor of convention and on personal computers across Canada. No load issues or denial of service issues were identified in the 1st round of voting. All voting was successfully completed in less than 25 minutes

2nd round of ballots- Denial of service attack commenced. Protection measures and counter attacks from Scytl's network commenced. Several unique IP addresses were identified and blocked. Voting was extended by 1/2 and hour to allow voters to access the system.

3rd round of ballots- Denial of service attack increased. Of the 26,000 separate IP addresses attempted to participate in voting. Approximately 9,000 IP addresses were identified as legitimate voters. The 15,000 unidentified IP addresses created over 1/2 a million requests for service. A normal request for service lasts a portion of a second. Each request from the attack held up traffic for over 10 seconds. The system was reset to allow the terminals on the convention floor to cast ballots and block all other IP addresses prior to opening up for external voting. Convention voting occurred in less than 20 minutes but external voting was delayed by an hour.

4th round of ballots – Denial of service attack continued. Protection measures and counter attacks continued. The system was again reset to allow the terminals on the convention floor to cast ballots and block all other IP addresses prior to opening up for external voting. Voting was extended to allow voters to access the voting site.

Denial of Service Attacks

Denial of service attacks that have shut down service have been experienced by Indigo.ca, Visa, PayPal, PlayStation and a number of other large internet service providers. Service denials are meant to be disruptive and to occur when they cause the most damage to the provider. A forensic audit is being undertaken by Scytl in order to verify the cause and/or source of the disruption. The report has been completed and has been provided to their client and, under confidential cover to HRM. Appropriate actions will be taken once the results of the audit.

Security of the E-voting System and the Vote

Scytl systems are a robust and secure voting system. Scytl has conducted over 70% of internet voting world wide and has been international recognized for their system security. In spite of the denial of service attacks the voting system was not comprised at any time, only delayed.

The Scytl system provides a voting receipt that allows voters to determine if their ballot was counted in the final tally. Voting results from the NDP Leadership Vote were verified by PricewaterhouseCoopers. HRM also conducts a 3rd party audit of the electronic voting system, process and results to ensure the integrity of the vote.

Going Forward

HRM staff from ICT and Election Services met on March 26, 2012 to consider what additional security and preventative systems may be required for the 2012 Municipal and School Board Elections.

HRM's service contract has requirements for extensive penetration, load testing and disaster recover plans to be in place with the vendor as well as 3rd party penetration and audit service. It is HRM's intention to review the testing requirements and to add any additional audits and checks determined as necessary to the testing process, including an independent risk/threat assessment and independent (3rd party) load testing.

HRM's approach to Internet Voting

Unlike the NDP Leadership Vote, which was to occur over very tight time frames, HRM is entering into 13 days of advanced internet/phone voting over 24 hours each day from October 6 through to Thursday October 18th. There will be no internet/phone voting on Election Day Saturday October 20th, and the advanced internet/phone voting ends well in advance of the opening of the Saturday Polls. The extended time period enables HRM and the e-voting provider time to evaluate and respond to any attempts to interrupt electronic voting. Response and contingency plans are part of the overall planning for any election.

Indemnity

HRM is currently negotiating the indemnification clauses in the contract to ensure that the financial interests the tax payers of HRM are fully protected.

Senior executive of Scytl met today (March 27, 2012) with the Mayor and CAO to provide an overview of the events around the NDP leadership vote and to assure HRM that Scytl intends to take every possible measure to ensure that the advanced internet/phone voting for the 2012 Municipal Elections is accessible to the voters of HRM during the entire voting period.

Scytl will be conducting elections in France in May of 2012 and Mexico City in June of 2012 and HRM will continue to monitor voting processes in both those elections.

At this time there is no known technical or business factors that would deter HRM from proceeding to enter into agreement with Scytl for the provision of e-voting services for the 2012 Municipal and School Board Elections.

BUDGET IMPLICATIONS

Should Regional Council wish to reconsider the award of Tender No. RFP #11-077 to Scytl Services Inc. additional costs would be incurred by HRM. A further report to Regional Council would be required outlining those costs.

Should additional audits and checks be determined as necessary to the testing process, costs will be incurred by the Election Office. Those costs would be within the proposed budget for conducting the 2012/2013 Municipal and School Board Election.

FINANCIAL MANAGEMENT POLICIES/BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Project and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Project and Operating reserves, as well as any relevant legislation.

COMMUNITY ENGAGEMENT

Not applicable

ATTACHMENTS

None

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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