Canadian Cyber Defence Challenge (CDC) Program Overview

The Canadian Cyber Defence Challenge (CDC) is the first program in Canada that brings high school students and security professionals together in an attempt to raise cyber-security awareness amongst Canada’s youth. The CDC is led by a team of professionals representing three primary support organizations: Canadian Information Processing Society (CIPS), Manitoba, International Information Systems Security Certification Consortium, Inc., (ISC²), Manitoba/Saskatchewan Chapter and ISACA Winnipeg. The CDC is a Canadian Not-for-Profit organization that is governed by an independent board of industry professionals, executives, and education representatives.

The CDC’s goal is to educate and empower the local community to use the Internet safely and securely at home, work, and school, protecting the individual, the networks they connect to, and Canada’s shared digital assets. The CDC is aligned with the National Cyber Security Alliance whose mission is to build strong public/private partnerships that create and implement broad reaching education and awareness efforts to empower users at home, work and school with the information they need to keep themselves, their organizations, their systems, and their sensitive information safe and secure online and encourage a culture of cyber security. The consortia of CIPS, ISC², and ISACA have developed a multi-faceted program that incorporates the McAfee educational awareness components of StaySafeOnline.org and the applied learning concepts of CDC. These components include:

1. Safe Online Program – K to 12 Online Safety Information
2. High School Cyber Defence Simulation Challenge
3. Young Professionals Mentorship Program.

The Canadian Government published their strategy to invest in Canada’s Cyber Defense and Security in October 2010.

“Every year, we detect more attackers than the year before. And every year, those seeking to infiltrate, exploit or attack our cyber systems are more sophisticated and better resourced than the year before. They are investing in their capabilities. We must respond by investing more in ours.”

The Honorable Vic Toews, P.C., Q.C., M.P., Ministry of Public Safety

The members of the CDC believe a key component of the Federal Government’s investment strategy is and should be targeted at our future workforce leaders. This strategy marks a bold step forward to invest in securing provincial and national Government systems, as well as partnering with other governments and with industry to ensure systems vital to Canadian security, economic prosperity and quality of life are protected. In addition, the Government of Canada has commitment to boosting education and awareness to better help Canadians keep their personal information safe and secure when online. This Canadian Cyber Defence Challenge Program plays a strategic role in realizing this commitment.
CDC Program Components

The CDC program incorporates MacAfee's educational awareness principals along with the key learning components of the StaySafeOnline.org program and integrates them as part of the applied learning concepts of CDC. The result is a multi-faceted program that provides a rich and engaging learning environment for students to develop their understanding and awareness of Cyber Security. The program components include:

1. Safe Online Program – provides education and awareness information to students K to 12 by students and professional volunteers on safe online practices.
2. High School Cyber Defence Simulation Challenge – Hands on Cyber Defence simulation program designed to teach the basics of Internet and computer network security.
3. Young Professionals Mentorship Program – Job resources for information security professionals starting their career.

Safe Online Program

The CDC’s Safe Online Program is focused the most valuable and vulnerable of our assets – our children. The horror stories in the media are only the tip of the iceberg. Education is key to equipping our youth to have positive experiences online while avoiding the dangers of cyber-bullying, abuse, and those that prey on the innocent. The Information Security community is stepping forward to be part of the solution.

The program leverages the expertise of industry professionals to develop and present age-appropriate online security education for school children K-12. Through positive engaging presentations, videos, and online resources, kids are taught safe online behaviors, much as we have taught them safety in the playground for generations. We don’t teach them to fear the many great things in the online playground, we teach them how to enjoy them safely, and of course the old classic; “Don’t talk to strangers.”

Another key aspect of the program involves “Teaching a person to fish.” While we have a large base of industry professional volunteers trained as part of the program, we are also training mature students to present the material. By investing in student trainers we are helping them build valuable skills and creating peer leaders. Peer to peer teaching is a powerful tool, and with the proliferation of social media, the Safe Online knowledge can spread farther and faster than ever.

But the program does not stop there. We provide access to online materials for kids, parents, and others to use offline. And while our goal is to saturate the schools with the program, we also welcome opportunities to present at community centres or other locations and events. Knowledge is power, and we want to share our knowledge with as many people as possible.

High School Cyber Defence Simulation Challenge

The High School Cyber Defence Simulation Challenge introduces students to the basic fundamentals of Internet and computer security through a combination of classroom instruction and hands-on emulation and technology experience. The software emulation training system includes a cyber-defence curriculum designed for students to give them hands-on training in working with network technologies and system images in a real-time manner. The technology can be designed for individual one-on-one training – or set up for teams of students to compete in a time-based simulated game environment that challenges them on their ability to effectively solve real-time system vulnerabilities and network issues. The hands-on emulation and technology has proven to be an integral component of the program and is seen as a catalyst for effectively engaging students in the classroom.
The organizers of the CDC have modeled the program from similar leading programs that are already in place in the US and Europe. One such program in the US is called CyberPatriot. It is the premiere national high school cyber defence competition created by the Air Force Association (AFA) to inspire high school students toward careers in cyber security or other science, technology, engineering, and mathematics (STEM) disciplines critical to the nation’s future. The organizers, along with two Manitoba high school teams were invited to attend CyberPatriot in the spring of 2012 as part of an international pilot competition. At this event both Manitoba teams competed and performed exceptionally well. They ended up finishing (unofficially) second and fourth out of the 24 American regional winners they competed against. These results prove that with the right tools and support, students are capable of learning new concepts and performing at the highest level. The vision of the CDC is to eventually develop the Canadian version of CyberPatriot.

The CDC’s Cyber Defence Simulation Challenge is focused on becoming a national-based competition that will involve high schools across Canada competing for recognition, scholarships, and ultimately career advancement opportunities in the IT Security market. The CDC has already attracted interest from across the country from other professional organizations who are seeking the opportunity to join the program and host their own local high school competitions. The CDC is fielding interest from Alberta, Saskatchewan, Ontario, and Quebec. This bodes extremely well for the growth of the CDC in Canada to truly realize its vision. In addition, the CDC maintains a close working relationship with the Cyber Patriot competition and the AFA organization from the US. The two organizations share a close working relationship and are interested to develop a formal international alliance where each organization would have the opportunity to serve as a national host to teams from both the US and Canada competing every alternate year.

The CDC has established a corporate sponsor committee and has already partnered with Merlin, MTS Allstream, Daemon Defence, Seccuris, and Dell Canada as the premier sponsors for the event. The CDC maintains an open network with the industry and is keenly interested in growing the base of corporate sponsors. Companies that are interested are encouraged to contact the CDC.

**Young Professionals Mentorship Program**

The Young Professionals Mentorship Program provides job resources for information security professionals starting their career. This can come in the form of one-on-one mentoring as well as introductions to organizations through a professional network base that may be interested in recruiting and/or providing contractual opportunities to young professionals who have graduated from secondary and post-secondary education. In previous years, some of CDC’s corporate sponsors have hired secondary students that participated in the High School Cyber Defence Simulation Challenge directly for part-time and summer employment – as they prepare for post-secondary studies in computer science and information technology.

The CDC continues to explore value-add sponsorship opportunities with other organizations that are interested in getting involved. Corporate support is available in the form of cash contributions as well as qualified professional volunteers to work with the CDC in mentoring students. The time commitment varies between 2 to 4 hours per week and, depending on the individual’s professional profile, he/she would be recognized and granted professional development credits towards their registered professional designation(s) supported by CIPS, ISACA, and ISC².

As part of the sponsorship package, participating organizations are recognized on the CDC website, correspondence as well as on CDC posters and promotional material. More importantly, the sponsoring organizations are seen as a major contributors and sponsors for a program that is destined to become the premier national high school cyber defence competition in Canada.
The CDC encourages organizations and IT professionals to get involved and help develop and educate the next generation of workforce leaders. It’s time to step up and join the challenge!

**The Canadian Cyber Defence Challenge (CDC) Committee**

Kerry Augustine, Co-Chair, CDC, Regional Director, CIPS Manitoba
Karen Kabel, Co-Chair, CDC, President, ISC², Manitoba/ Saskatchewan
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