ICTC chooses Cyber Range®, transforms its cyber security training programs.

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Case study **at a glance.**

Company	Information and Communications Technology Council (ICTC)
Website	www.ictc-ctic.ca
Industry	Not-for-profit
Need	Improve the delivery and expand the reach of ICTC's CyberDays and other cyber security educational programs.
Solution	Field Effect's Cyber Range® training and simulation platform.
Results	• Enabled an effective and secure transition to a virtual cyber security training environment. • Improved efficiencies in program delivery by 100% and reduced time required from teachers and IT teams by up to 80%. • Gained an effective tool to expand ICTC's reach, engage more students, and advance cyber security learning.

The **company.**

Preparing a country for the challenges of a digital economy is a daunting mission, but that hasn't stopped the Information and Communications Technology Council (ICTC) from delivering results. The Ottawa-based not-for-profit organization conducts research and develops and implements solutions to help Canadians take advantage of the fast-evolving future.

According to Steve Abouldahab, Digital Skills Education Lead, training tomorrow's workforce to ensure labour needs are met in the technology sector, specifically cyber security, is a big piece of the puzzle.

"We believe if we can change students' perceptions of their role in the digital economy at an early age, we can shift the labour force to meet the demand."

Steve says while a lot of programs focus on coding, not many organizations work with students to develop cyber security skills. "Through our research, we estimate a need for more than 305,000 digitally-skilled workers in Canada by 2023. This includes cyber security, and we see this as a critical need," he explains. "We believe if we can change students' perceptions of their role in the digital economy at an early age, we can shift the labour force to meet the demand."

Prior to joining ICTC, Steve was a high school French and Spanish instructor. He sought to partner with ICTC for programs at his school district, applying for his current role simply to make a connection to start discussions.

"In my classroom, I saw the importance of developing digital skills and wanted to find a way to integrate non-traditional learning to advance this," he adds. "While I didn't envision taking on a position at ICTC, I'm proud to be part of the team now with an opportunity to directly contribute to ICTC initiatives like CyberDays, CyberTitan, and other efforts."

The **challenge.**

Over 9,000 Canadian K-12 students have participated in ICTC's CyberDays, along with its CyberTitan competition. These hands-on experiences are designed to practice digital skills and create awareness for cyber security roles and requirements.

For example, a past CyberDays exercise tasked students with the fictional scenario of protecting Justin Trudeau's data. Students downloaded virtual images on their own machines and then followed instructions and clues, with direction from teachers, to improve security measures and secure his computer.

"The biggest gap in a lot of IT and cyber security courses is the lack of real-time interaction. Most rely on traditional learning methods with static content and quizzes," says Steve. "That's something we're trying to change."

The challenge for ICTC had been deploying these programs efficiently and reducing any issues in-session, without requiring a lot of time from teachers and IT teams. The large gigabyte files required a Windows 10 environment and would take hours to load on each student's machine. Then IT needed to prepare and set permissions for students to work safely in a virtual environment. With coordination between teachers and IT, a single CyberDays event could take up to five hours to set up.

Adds Steve, "It was like trying to fit a square peg in a round hole. In addition to the time required, many times images wouldn't load properly, causing delays or interruptions while we were in live sessions."

When the pandemic hit and students transitioned to virtual learning, Steve says CyberDays came to a full stop. "We realized we could not proceed without a different approach and technology. We immediately started looking for a web-based solution to deliver this efficiently and securely."

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The **solution.**

With a goal of finding a Canadian web-based training solution, Steve looked at several options, including cyber ranges. Used by military and government agencies to simulate real-world training for cyber security response, cyber range solutions are quickly becoming critical for companies in financial services, higher education, and other markets.

Steve contacted the team at Field Effect, an Ottawa-based global provider of advanced cyber security training solutions, as well as threat monitoring, detection, and response services. "We hit it off from the start," says Steve. "Field Effect was very motivated to bring this content to a younger age group. It was obvious right away that they were really interested in our mission, beyond any financial gain."

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After seeing a demo of Field Effect's Cyber Range® platform, Steve's search was done. He chose the company's hosted version.

The solution was quickly customized for ICTC's next CyberDays, taking into account the estimated number of users, frequency of training, and potential demands on the platform.

ICTC's existing training scenario was imported into the Cyber Range platform and the Field Effect team also created anonymized logins and passwords for every student to ensure a safe and private virtual environment.

Field Effect's Cyber Range enables users to easily create and replicate realistic cyber security training environments in minutes, either in the cloud or using their own hardware, with the ability to repeat, reuse, and replicate training. An extensive content library of cyber security scenarios and courses can also be accessed or customized for any training needs.

For Steve, the difference was dramatic. Designed for a fast set-up and one-click start, Field Effect's Cyber Range platform is extremely flexible and offers multiple features. Users can shape the environment they need in real-time with access to easy-to-use tools, metrics, monitoring, and controls.

Steve was also impressed with Cyber Range's ability to reuse, repeat, and retrain. In the past, if ICTC ran into issues with CyberDays trainings, the team would have to start again, download the virtual private network, do the initial virtualization, and many other elements.

"We can develop something from the ground up and really utilize the cyber range platform and challenge the students."

"Now students can log in from home, get started right away, and pick up anywhere they left off without new obstacles. If they accidentally delete a key file, you can reset the starting stage with just a click without going back to square one."

Steve also plans to advance the training experience, adding challenge to the scenarios as well as evaluation and results tracking. Using Field Effect's Cyber Range platform, real-time elements can be added to scenarios, such as introducing malware or controlling the sequence of threat events to improve the realism and elevate the training. "We can develop something from the ground up and really utilize the cyber range platform and challenge the students," he adds.

The platform offers instructor-aided engagement tools, enabling instructors to log in and take control of a student's computer to provide direction. They can access features to add hints as students need them, for example, showing a specific directory to look in to find the information they need. Previously, CyberDays students would need to refer to printed instructions or PDFs.

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The **results.**

Using Field Effect's Cyber Range, ICTC has already run two CyberDays for small groups of students with positive results. For Steve, the time savings, improved efficiency, and ability to scale the program nationally are some of the biggest benefits.

"It has really transformed our cyber security training and learning experience," he says. "We can now offer a secure virtual environment, accommodate different machines and student needs, manage the trainings in real-time, and easily deploy it when we need it."

Cyber Range has instantly removed ICTC's barriers to modern cyber security training. "It has taken the pressure off teachers and IT teams, saving time and significantly improving the experience. We can now focus on the learning aspects, enabling teachers to engage with students virtually, and provide realistic challenges."

Steve says ICTC has also gained an effective way to expand its education programs nationally and demonstrate value. "Field Effect's Cyber Range offers so much potential to broaden our goals and really take our program to the next level. With its ease-of-use, repeatability, and multiple features, we can unlock incredible participation numbers. We can also access usage reports and scores that will help us justify funding requests to our board and continue our expansion. We now have the toolset we need to bring cyber security learning to every student in Canada."

And ICTC is already taking action. The not-for-profit will use Cyber Range for its Cyber Security Education Initiative, CyberTitan. Affiliated with the U.S. Air Force Association's CyberPatriot Program, this is the largest cyber competition for middle and high school students in Canada.

"We're thrilled to partner with Field Effect and help transform training and learning in cyber security," Steve shares. "If we can draw just 5-10% of the participating kids that are interested in learning more, we can increase the talent pool significantly."

Steve adds, "Field Effect provided us a really easy-to-use, safe virtual training platform for exactly what we wanted to do, without any complexity or surprises. This not only transformed our process, but enabled us to continue CyberDays and our other cyber training programs."

> "It has really transformed our cyber security training and learning experience."

100%
SECURE AND EFFECTIVE TRANSITION TO A VIRTUAL TRAINING ENVIRONMENT
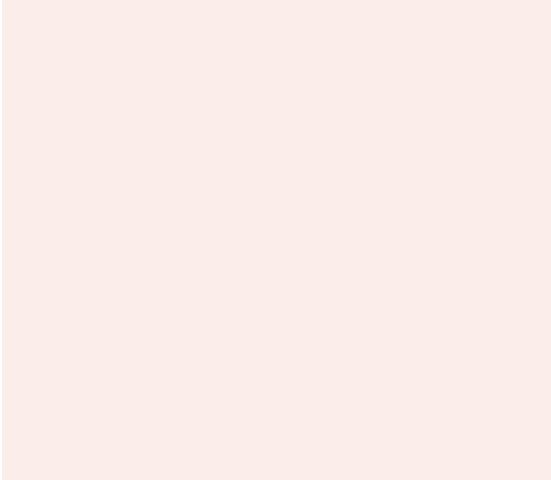
100%
BETTER TRAINING PROGRAM DELIVERY

100%
ABILITY TO EXPAND THE REACH AND ADVANCE CYBER SECURITY TRAINING

"Field Effect's Cyber Range is a game changer for us. It enables us to continue our mission, expand our reach, and deliver our cyber security education in a very easy, safe, and progressive way.

Steve Abouldahab
Digital Skills Education Lead
Information and Communications Technology Council (ICTC)

Experience on-demand cyber security training and simulation — all from a single, easy-to-use platform.

Field Effect Cyber Range® provides a powerful, flexible, virtual training environment to simulate and run realistic cyber threat scenarios, ensuring you're always prepared for the unexpected. In just a few clicks, you can test, train, and evaluate your security teams or students in real-world conditions.

Create and replicate dynamic training environments that can react to user activity, in minutes, on your own hardware or in the cloud. Design your curriculum, access training and assessment tools — and track, assess, and report on progress from one easy-to-use, cost-effective platform.

With quick, flexible deployment and our extensive content library, be ready to train or compete in under 15 minutes. Whether you're looking for individual learning or team-based exercises, Cyber Range is the solution you need.

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