ANNUAL REPORT

2017

UNIVERSITY
of GUELPH

IMPROVE LIFE.

With significant change taking place in 2017 and much more on the horizon, it's an exciting time to be part of Computing & Communications Services (CCS) at this great university.

This year we said goodbye to two high-impact CCS leaders, our Chief Information Officer (CIO), Rebecca Graham, and Associate Director, Gayleen Gray. Under Graham's leadership, CCS made many leaps forward, with some of the most notable accomplishments being our vastly improved security posture, and a move toward cloud-based infrastructure. Graham began her term as University Librarian on September 1, 2017. Read more about her accomplishments as CIO on page 18. Gayleen Gray also moved on to become the Associate Vice-President and Chief Technical Officer at McMaster University. In her many years with CCS, Gray helped to embed CCS into the fabric of the University, building strong partnerships across campus. She also helped to set a clear vision and strategy for the organization, and was a champion in creating the great culture that we continue to enjoy today. While we will miss these colleagues and their tremendous contributions, change always presents an opportunity to reevaluate and reimagine our processes, plans and overall goals.

The Provost and Vice-President Academic, Charlotte Yates, remains keenly focused on the campus IT environment and on making improvements to ensure we are well set up for the rapidly-changing world of higher education IT. Yates initiated a campus-wide IT review in 2017, the results of which are included on the following page. A major finding was the need to firmly establish a framework for IT governance on campus. To help integrate these recommendations, and to help define the role and reporting structure for the incoming CIO, the Provost hired interim CIO, Ted Dodds.

Dodds - a long-time CIO at both the University of British Columbia and Cornell University, and a U of G grad and past CCS leader himself – has made significant headway in his time with CCS. He has created an IT Governance Council, a first step in achieving the required IT oversight by senior administration. Dodds has also spent significant time designing an appropriate structure for our IT environment, a model that divides IT services on campus into two main categories: critical operation services like email, desktop support, and security, and those IT services that directly support the academic mission of the University. This model creates opportunities for finding efficiencies in our practice, and unifying the various IT units on campus. I have also worked closely with our partners in Institutional Analysis & Research to help create the first U of G data portal, which will allow access to institutional data to inform evidence-based decision making. This represents another significant step toward our new shared vision for IT on campus.

As we move forward, we do so with a renewed sense of purpose and excitement, as well as a collaborative mindset that will ensure the success of our research-intensive, student-focused, innovative university.

DAVE WHITTLE
Associate Director, IT Operations & Infrastructure
Computing & Communications Services

In 2017, U of G engaged PricewaterhouseCoopers (PwC) to conduct a comprehensive review of major IT functions and organizational structures across the University.

The main outcome was a set of recommendations to help establish a strong IT foundation and ensure IT at U of G is positioned as a strategic enabler for the future of the institution.

01   **IT LEADERSHIP:** Clarify the role of the CIO for the University and hire a new CIO to drive the recommendations from the IT review forward.

02   **IT GOVERNANCE:** Establish institution-wide IT governance as a key vehicle in supporting decisions that advance U of G's Strategic Framework as well as departmental needs and the University's goals.

03   **IT STRATEGY:** Develop a five-year institution-wide IT Strategy and Implementation Plan that defines a vision, roadmap, and metrics for how technology will enable U of G's objectives.

04   **ENTERPRISE ARCHITECTURE:** Define a future-state blueprint and roadmap for core applications and infrastructure across the institution and how they integrate with each other.

05   **IT FUNCTIONS:** Define the target operating model for IT across the University with the core services to be invested in centrally or through partnerships to drive efficiencies while meeting the diverse needs across departments.

06   **PEOPLE MANAGEMENT:** Work with Human Resources to define a workforce plan for people in IT to manage risks within the University around application support, aging workforce, and IT skillsets required for the future.

07   **IT FUNDING MODEL:** Refine the IT Funding Model to align the IT budget (either centrally or departmentally) with the IT investment priorities and the scope and scale of service delivery.

08   **DATA:** Improve access to institutional data through data standards, clear roles and responsibilities on data ownership, and tools to analyze, visualize, and report on the data from a variety of sources.

09   **COMMUNICATION:** Foster an open and collaborative IT environment for departments to learn about common needs, current projects underway, leading practices, and emerging technologies.

10   **RISK AND COMPLIANCE:** Improve U of G's IT risk profile through better visibility and mitigation of cyber security threats at a University-wide level, ensuring regulatory compliance (e.g., AODA) and implementing IT disaster recovery in alignment with the Emergency Management initiative.

11   **INNOVATION:** Establish an IT-enabled innovation function to experiment with emerging technologies that will advance academic or research goals and differentiate the University.

U of G is not alone in the IT challenges it faces. The environmental scan by PwC of the higher education environment identified similar issues within peer universities both in Canada and internationally.

SUPPORT
REQUESTS
HANDLED BY THE
CCS IT HELP CENTRE

33,655

CAMPUS PRODUCTIVITY

65,000 Office 365 mailboxes

1,785 Desktop computers supported by the Managed Desktops team

35 Students (part-time and co-op) employed in the CCS IT Help Centre

INFRASTRUCTURE

3,300 Wireless access points on campus

687 Virtual servers

111 Physical servers

100 TB Data stored on CCS servers

6,500 Active phone extensions

5,000 Active phones

250 Emergency poles and elevator phones on campus

CAMPUS PRODUCTIVITY TOOLS

With all staff, faculty and students on the Office 365 platform, the entire U of G campus has more productivity and collaboration tools than ever before. In addition to email and calendaring, the Office 365 tool kit includes OneDrive for simple file sharing, and Teams, a chat-based workspace that creates a hub for simplified teamwork. Coming in 2018 are additional tools like Skype, Jabber, WebEx, and SharePoint, which will provide further options to support teaching, learning and research, and help to keep information flowing and project work moving forward. CCS is also working on Gryph Forms, the U of G implementation of Process Director, to help units improve efficiency when managing e-forms and workflow. The migrations to Office 365 were the first step to realizing a larger vision of greater efficiency in the office and classroom – with simple tools that are accessible from anywhere.

WEBADVISOR AND THE OSAP NET TUITION PROJECT

As part of the Ontario government's commitment to improving access to financial aid for university students, they launched an initiative called Net Tuition. By factoring in financial supports such as grants, bursaries and scholarships, Net Tuition allows students to see what they actually pay for post-secondary education, compared with the "sticker price" of tuition. As part of this initiative, institutions across Ontario were tasked with changing how students' financial information is displayed online. To comply, the U of G Office of Registrarial Services worked with the CCS Enterprise Applications team to provide a new student finance module on WebAdvisor for U of G students. In addition to displaying the financial information in the Net Tuition format through the new WebAdvisor student finance module, CCS also delivered an improved user interface and student experience, with responsiveness to different devices and improved accessibility.

NETWORK PLANNING A KEY COMPONENT OF CONSTRUCTION PROJECTS ON CAMPUS

There is always construction going on at U of G, however, this past year with the government's Strategic Innovation Fund and other projects, building on campus has gone into overdrive. Often with structural changes to buildings come required network changes, and the Network Infrastructure team has been heavily involved in many of these exciting projects. The team has been at the table during the planning and design phases of multiple construction initiatives, including the McLaughlin Library renovation, the Pavilion at Alumni Stadium, the Guelph Turfgrass Institute relocation, the Ontario Veterinary College modernization project, and many more. It's important for the team to listen in on the intent and planning of the project, in order to provide expertise on the potential impact on network infrastructure – things like moving data jacks, ensuring phone connectivity and ideal wireless coverage – to make sure these aspects are planned for and well executed.

CCS HELPS U OF G COMPLETE THREE-YEAR WEBSITE ACCESSIBILITY PROJECT

Complying with the Accessibility for Ontarians with Disabilities Act (AODA) – which aims to make Ontario accessible by 2021 – has been a significant priority for U of G. A big part of this initiative includes ensuring all U of G websites are able to be effectively utilized by a diverse variety of users. This includes things like appropriate colour contrast, text formatting that is readable by assistive technology, alt text for images, and content that is easy to navigate.

CCS executed a project on behalf of the University to remediate 71 websites over the past three years to comply with AODA standards. The Web & Development Solutions team used their Drupal platform to create accessible sites with a new and refreshed look. They worked closely with the site owners to migrate their content to the new accessible site and train them to effectively use the Drupal platform.

One of the biggest wins was helping U of G complete the project on budget and under very tight timelines. The secret to their success? Co-op students! "Over the course of this project, we employed 12 co-op students who did all the heavy lifting," explains Craig Hyatt, Manager of Web & Development Solutions. "They migrated all the content, and did all the auditing and testing to ensure compliance. We could not have done it without them."

This accomplishment is aligned with U of G's commitment to providing education and services in a way that respects the dignity and independence of all individuals.

ALL HANDS ON DECK

THE AMAZING CAMPUS WIFI EXPANSION

THE PROJECT

Connectivity has become a primary requirement for life on campus. Whether you are a student in residence or taking an on-line course, a professor leading a lecture, a researcher coordinating funding, or a staff member working on a collaborative project, life without connectivity is simply no longer an option.

As recently as 2014, U of G had only 920 access points on its main campus, which covered off most common areas like the University Centre and library. However, many buildings, including residences, classrooms, departmental buildings, and offices, had either no WiFi or very limited coverage.

To remedy this growing problem, Chief Information Officer Rebecca Graham, CCS Associate Director Dave Whittle, and Tom Herr, CCS Manager of Network Infrastructure, successfully proposed the project to U of G senior administration and the Board of Governors. Both groups quickly understood the significance of the initiative and provided approval to move forward, with the Board ultimately provided the funding and being a critical driver of the project. The Campus WiFi Expansion was launched.

The first phase took place during the summer of 2016 and focused on student residences – a major priority of this project and critical to student life on campus. This resulted in the deployment of more than 1,700 new access points, enabling WiFi in all residence rooms. WiFi for residence common areas followed in the summer of 2017.

Phase Two – enhancing and expanding WiFi in more than 50 high-impact buildings across campus – is well underway and on track for completion in December 2018, with nearly half of the 900 access points already deployed.

This expansion project has truly been an "all hands on deck" initiative, with key partnerships and collaborations critical to its success. Here is a glimpse into some of those on the front line, responsible for making this project happen.

THE TEEM

The Network Infrastructure team was the key driver of this project:

**TOM HERR:** project lead and team manager.

ANN CESAR AND MARK D'GABRIEL: project managers.

DENNIS XU: project technical lead; responsible for architecture of the wireless infrastructure; subject matter expert for WiFi; responsible for ongoing optimizations of campus WiFi environment.

VAMSHI AUDEPU: deployment support; pre-deployment system configuration; ongoing administration.

DAVE COOK, SAMEER BHANDARI, LIFENG CAI, AND BRENT DENSMORE: pre-deployment preparation; deployment coordination; WiFi testing; coordination with Physical Resources.

STUDENT STAFF: installation of access points in residences; WiFi testing; documentation.
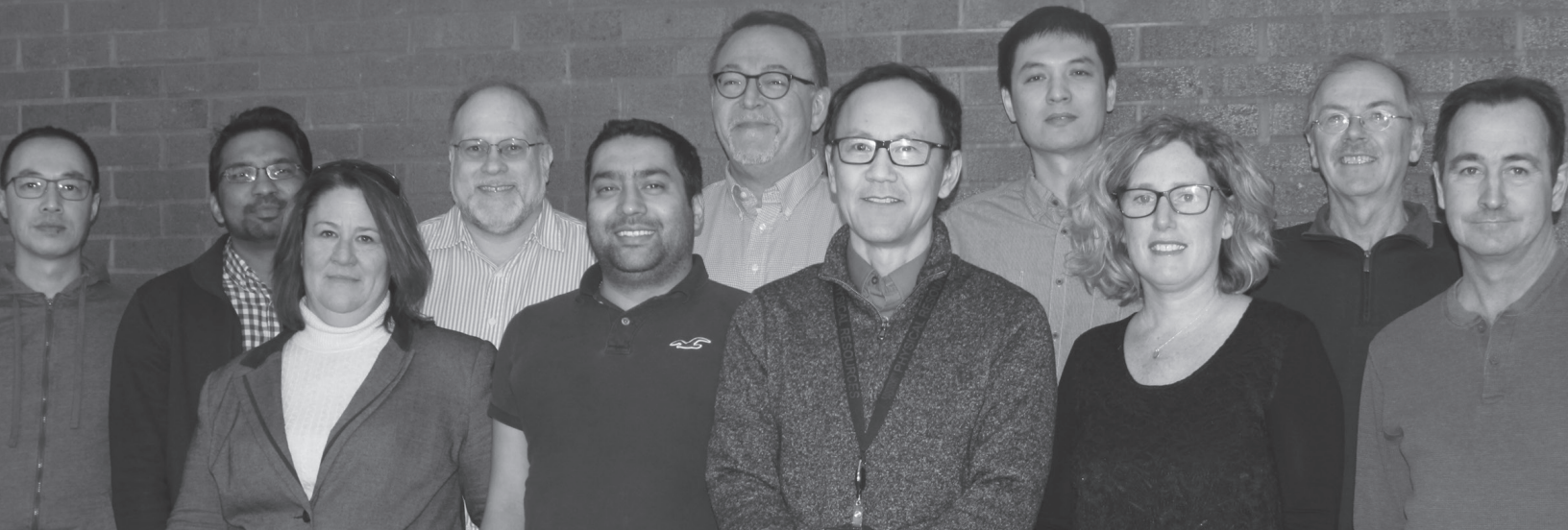
"The project team has done a phenomenal job. We haven't had the luxury of working on this project in isolation, so they are completing this massive undertaking while still tending to their daily operational tasks and challenges. This is a very dynamic team, all of whom are interested in doing things right the first time, with the least possible spend, and always willing to pitch in and help each other out. I'm very proud of them, and of this great accomplishment for our University."

– Tom Herr, Manager, Network Infrastructure

Left to right: Lifeng Cai, Vamshi Audepu, Tammy Arsenault-Irving (Classroom Scheduling), Mark D'Gabriel, Sameer Bhandari, Tom Herr, Ken Kudo (Physical Resources), Dennis Xu, Ann Cesar, Dave Cook, Brent Densmore. Absent: Brent Harwood (Student Housing)

NUMBER OF ACCESS POINTS ON CAMPUS

920
2014

1,000
2015

2,850
2016

3,300
2017

3,700
2018

THE PARTNERS

This project has been a campus-wide effort, and would not have possible without critical partnerships among various campus units.

PHYSICAL RESOURCES: coordination of the many construction projects on campus this year, including WiFi expansion work; coordinated the physical infrastructure (e.g., wiring, drilling, painting, etc.); owns relationship with all third-party contractors performing installations and necessary construction.

STUDENT HOUSING SERVICES: provided funding for the residence WiFi expansion; assisted with access to residence areas.

CLASSROOM SCHEDULING: coordination to ensure classrooms are unoccupied during installation and deployment.

BUILDING CONTACTS: key contact to help with scheduling; ensure access to buildings and restricted areas, etc.

THE CAMPUS IMPACT

The transformational shift from 920 to 3,700 wireless access points on campus – quadrupling the size of our wireless network – will provide an improved and far more connected environment at U of G. With a growing online component in many lecture-based classes, an increase in the number of online courses, a growing need for collaboration and group work, and the importance of staying connected to family and friends, the vastly improved campus WiFi network will improve productivity and quality of life on campus.

"In the past it was really stressful to be working in residence on an assignment with a hard deadline that had to be submitted online via Courselink, and the WiFi would cut out. Whether your router stopped working, or there was some interference shutting down the WiFi signal, it would send many of us into a panic. I am now a residence assistant, and for the first time at U of G, students are no longer faced with this issue. They can do their assignments using WiFi any time, day or night. I'm so glad to know they will never know that stress!"

– Tasha Reader, 3rd year student, Management, Economics and Finance.

DEFEATING 97% OF MICROSOFT VULNERABILITIES BY REMOVING LOCAL ADMINISTRATOR RIGHTS

It is very common for individuals to have local administrator rights on their primary user account on their computers. Having these administrator rights means users are able make changes to software and install new programs. However, hackers will specifically target accounts that have local administrator rights, in order to execute malicious programs or gain access to sensitive information. To address this security risk, the CCS Managed Desktops team has made it a priority to remove these administrator rights from the main accounts of users. In those rare situations where administrator rights are required, CCS has devised a method to allow this without compromising security. This change defeats 97% of the potential entry points left open to attack in Microsoft systems.

DIGITAL

33 Likes on our Halloween Instagram post

7,563 Impressions on our most popular tweet (a warning of a phishing scam claiming to come from President Vaccarino)

5,000+ Web pages remediated in AODA project this year

110 Drupal websites hosted and supported by CCS

uofgccs
University of Guelph

uofgccs Your wacky IT department - all dressed up for College Idol! Happy Halloween!

CCS SERVICES YOU SHOULD KNOW ABOUT

CCS IT HELP CENTRE

The CCS Help Centre provides IT support to U of G students, staff and faculty. Contact us at 58888help@uoguelph.ca | 519-824-4120 x 58888 | walk-up help at the IT Help Desk in McLaughlin Library.

DEPARTMENTAL WEBSITES

Need a departmental website? The Web Team can provide you with branded, University-approved, AODA-compliant tools to make that happen.

CCS BUSINESS ANALYSTS

Business Analysts can work with you to help find solutions for business problems. They are increasingly involved as key partners when planning major campus projects.

CCS MANAGED DESKTOPS

The Managed Desktop service looks after 1/3 of all campus desktop computers, creating efficiencies and automatically pushing out updates, maintenance and patching.

DISTRIBUTED ANALYSTS

Distributed Analysts are members of the CCS team who are distributed to, and provide tailored support for, your unit/department. Leverage CCS' expertise in hiring and co-managing IT professionals while receiving the expertise you require.

CCS MANAGED SERVERS

The Managed Servers team takes the burden off campus departments to procure, install, configure, secure and maintain their servers for them. This saves time and resources, freeing you up to focus on other responsibilities.

ENCRYPTION SERVICE

The Encryption Service provided by CCS offers full disk encryption to U of G staff and faculty, securing personal computers, laptops and portable storage devices that store sensitive data.

PROACTIVE SECURITY MEASURES:
OUR SHARED ROLE IN PROTECTING U OF G

The major security threats facing the higher education environment include phishing scams, external data breaches, internet-based scams and financial-related attacks. While significant investments have been made to enable expert monitoring of the traffic on our network, the CCS Information Security (InfoSec) team has also implemented and promoted proactive measures – both by utilizing technology to prevent malicious activity, and sharing best practices with our campus community through various awareness activities. Taken together, these measures help protect us all against these growing threats.

PROACTIVE MEASURES: CCS INITIATIVES

Greater endpoint security – installing the latest McAfee Endpoint Security products on user workstations to protect against zero-day threats.

Stronger security measures on our network perimeter – helps prevent malicious ransomware like WannaCry from gaining access to our systems.

Advocating for proactive patching of systems and applications – collaborating with our campus IT partners to encourage safe practices.

Aggressively targeting phishing – intervening even before users have a chance to click a malicious link.

PROACTIVE MEASURES: PROMOTING CAMPUS AWARENESS

CCS Security Awareness Roadshow – an annual event to engage students, staff, and faculty in safe security practices.

InfoSec orientation for new staff and faculty – presenting at "New at the U" days and faculty orientation days to orient new staff and faculty to safe practices intended to protect University information.

InfoSec blog posts – published monthly (or more) and addressing hot topics in security.

Monthly marketing campaigns – campus-wide poster and social media security campaigns with a new theme each month.

Security awareness sessions – presenting to departments on various topics, such as the threat landscape for higher education, and password managers.

CCS BUSINESS

106 CCS employees

6 CCS distributed analysts on campus

21 Co-op students employed across CCS

WE PROCESSED:

115 purchase orders
1,182 invoices
257 expense claims

CAMPUS EMERGENCY NOTIFICATION SYSTEM

U of G Campus Police have partnered with CCS on the development of a University-wide emergency notification system. This system will enable efficient broadcasting of critical messaging across campus, reaching as many devices and platforms as quickly as possible, in the event of a campus emergency.

The system will leverage existing platforms, such as the U of G home page, digital signage, smart phones, SafeGryphon app, Office 365, etc., and will also implement new tools that align with the notification system, such as a campus-wide siren and announcement mechanism if urgent action is required.

Proposed use of this system will be for University closures (e.g., snow days), chemical issues (e.g., gas leaks), security breaches, or any critical incident that occurs on campus.
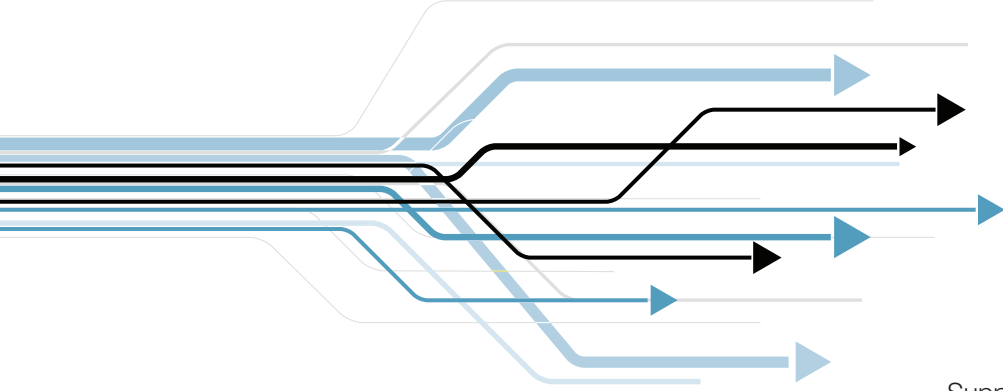
SEE WHAT ELSE WE DID IN 2017

Supported the launch of the new U of G homepage

Completed the Office 365 undergraduate student migration

Reported on the accessibility compliance of U of G's online multimedia practices

Partnered with School of Computer Science to move their servers into the CCS data centre

Partnered with Physical Resources to help manage their extensive surveillance video storage

Demise of the General server

Office 365 and LDAP integration with Security Information and Event Management System

Single Sign-On integration with many new tools and partners

Security patching of many systems

VPN and Data Storage Guidelines established

Established major incident communications protocol

Supported technology and networking integrations in new Athletics Centre

Supported the integration of The Cannon, Alumni Affairs & Development's new Customer Relationship Management tool
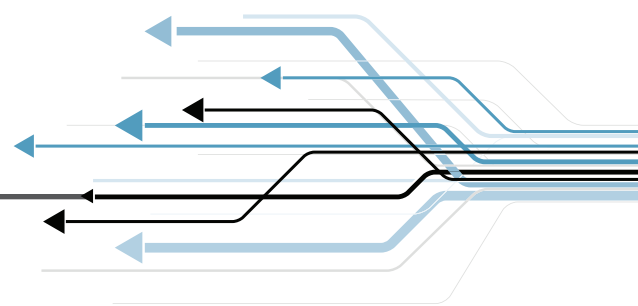
Implemented JAMF Pro – a Mac management tool

Campus-wide Oracle database license audit

New CCS Instagram account launched

Migration to entirely paperless workflow for CCS Business Office

Moved Office of Registrar, School of Engineering, and Ridgetown Campus to a private network address space

INFORMATION SECURITY

450 Attendees at the 2017
Security Awareness Roadshow

1,658 Accounts locked due
to security incidents

19,720 Authentication
requests/day

96.8M Blocked spam/phishing email
messages per month

1,923 Devices encrypted with SecureDoc
(centrally managed encryption service)

304 New inbound ports blocked
at the network perimeter

WINDOWS 10: THE UPDATE TO END ALL UPDATES

CCS is in the process of moving all Managed Desktops clients to Windows 10, a state-of-the-art and highly regarded operating system (OS). "There are many benefits, both for CCS as well as our users, which is why we are giving this project significant attention," explains Brian Thomson, Manager of Client Productivity in CCS. Some of the main benefits include:

No more cumbersome Windows upgrades! Windows 10 is the final version of Windows, meaning from this point on, Microsoft will automatically push out mandatory updates, similar to the Apple model of OS updates. That means no more disruptive upgrades or getting used to new operating systems.

A more modern user interface.

Enhanced security.

Increased productivity with faster speeds, improved functionality and more intuitive commands.

CCS began transitioning clients in the fall of 2017 with the remainder expected to be completed in early 2018.

On August 31, 2017, Rebecca Graham finished her five-year term as Chief Librarian and Chief Information Officer (CIO) at U of G. Under Graham's leadership as CIO, many centralized IT services on campus took a significant leap forward, enabling a safer, more efficient, and more connected environment.

Having a keen understanding of the threat landscape within higher education, a top priority for Graham was to bolster the security posture at U of G. After recruiting Dave Whittle from Blackberry for the role of Associate Director, IT Operations and Infrastructure, the two worked together to create the initial iteration of the U of G security roadmap. The roadmap outlined the recruitment of a manager to lead the Information Security (InfoSec) efforts, investment in leading-edge technology and staffing to effectively monitor our IT environment, and the establishment of a Security Operations Centre. Their security roadmap proposal was successfully approved by the U of G Board of Governors Audit Committee. As a result, the InfoSec team now includes four cyber security specialists under the leadership of Stephen Willem, Manager, Information Security. The team proactively monitors and protects the U of G network, investigates security incidents, develops security policies and processes, and educates the campus community to ensure strong security practices and a keen eye for malicious activity.

Graham also propelled U of G forward by initiating and securing funding for the U of G WiFi Expansion project (the success of which is documented in this report). Now nearing completion, this massive expansion will result in a quadrupling in size of the wireless network on campus. Graham worked with Tom Herr, Manager, Network Infrastructure, prioritizing WiFi access in all student residences for the first phase of the expansion (now complete). Phase two is currently underway, which will see the implementation of 900 additional access points in more than 50 high-impact buildings across campus. This is a big win for both student recruitment to U of G, as well as connectivity supporting teaching and learning on campus.

There were many more accomplishments during Rebecca's five-year tenure that have set up CCS, and in turn U of G, for long-term success. These include the migration to the Microsoft Office 365 platform, the University's first substantial move toward cloud-based infrastructure; creation of the CCS Annual Report, a tool to report back to our clients on CCS contributions to the University; and the evolution of Mac support on campus. With the number of Mac users rapidly growing, the CCS Help Centre and Managed Desktop teams have invested in tools, training and sufficient resources to ensure that Macs are now a fully supported platform.

Graham's impact has been significant, and these projects, as well as many other initiatives set into motion during her tenure, will continue to enable excellence at our institution for many years to come.

Graham began her second term as University Librarian on September 1, 2017.

IN THE PIPELINE

NEXT GENERATION DATA CENTRE: critical to keep up with increasing demands for reliability, responsiveness, and to meet the increasing complexity of applications.

UNIFIED COMMUNICATION AND COLLABORATION TOOLS: a suite of tools like Skype, Jabber, WebEx, SharePoint and Teams to support and enhance collaboration across campus and beyond.

CAMPUS EMERGENCY NOTIFICATION SYSTEM: this system will send urgent messages to the entire campus via multiple devices to notify of severe weather or campus emergencies.

U OF G FREE ACCESS TO LYNDA.COM: the Government of Ontario is providing free access to Lynda.com, a popular video-based training library. CCS is working with many other campus units to ensure access for U of G students, staff and faculty.

LAUNCH OF U OF G'S FIRST INSTITUTIONAL DATA PORTAL: in partnership with Institutional Analysis and Research, this portal will enable users to access institutional data to support data-driven decision making.

NEXT GENERATION FIREWALL: a next generation security appliance that will allow more visibility and greater defense opportunities against modern-day, rapidly-evolving threats.

LAUNCH OF GRYPH FORMS: a tool to help streamline workflow and collaboration.

BUILDING IT GOVERNANCE ON CAMPUS: much-needed oversight, prioritization and approvals by senior administration for IT initiatives.

CCS

IT SUPPORT | EMAIL | NETWORKING/WIFI
INFORMATION SECURITY | STORAGE & BACKUP
WEBSITES | UNIVERSITY SYSTEMS

WALK UP: IT HELP DESK, FIRST FLOOR, McLAUGHLIN LIBRARY
EMAIL: 58888HELP@UOGUELPH.CA
WEBSITE: UOGUELPH.CA/CCS
PHONE: 519.824.4120 X58888
FACEBOOK, INSTAGRAM & TWITTER: @UOFGCCS