2014 ANNUAL REPORT

An insider's look at the University of Guelph's information technology department

CCS Computing & Communications Services

www.uoguelph.ca/ccs

UNIVERSITY of GUELPH

CHANGING LIVES IMPROVING LIFE

Rebecca Graham
CIO & Chief Librarian

I am pleased to provide this inaugural CCS Annual Report envisioned primarily as an update for the University of Guelph community. As you will see from the report, we are increasingly focused on engaging and leveraging partnership opportunities across the campus. The nature of these partnerships is quite varied, ranging from taking on more "commodity services," such as desktop support, to collaborating on the development of business cases for new systems, overseeing reviews of IT operations within colleges and campus units, and supporting the transition of existing paper-based activities to automated, online processes. In all of these efforts, CCS managers and staff have been focused on providing outstanding service while contributing to beneficial solutions.

As is true for so many of the day-to-day activities of the University, the adoption and application of networked technologies has fundamentally changed the nature of much of the work we all do. Similarly, it is no surprise that the advances of technology also bring both opportunities and challenges.

Often we are able to leverage multiple opportunities. For example, the trend towards increasingly mobile work environments, combined with the website accessibility requirements of the Accessibility for Ontarians with Disabilities Act (AODA), have led to CCS' participation in the development of web templates in both HTML5 and Drupal to facilitate optimized screen sizes for mobile devices and web content that meet AODA standards. With the support of the University, and under guidance from the AODA Steering Committee, CCS has begun remediation efforts for a range of websites that will adopt these templates.

IT security challenges requiring greater focus and resource investment are also a continuous and evolving reality resulting from technology advances. A practical example arises from the University's adoption of a Research Data Classification Guideline. CCS is partnering with the Office of Research and the Research Ethics Board to identify and assess solutions and tools for supporting the collection, storage, and analysis of confidential research data.

I hope your reading of this report provides new insights into technology-focused collaborations across campus and enhanced understanding of the varied opportunities for CCS engagement.

Rebecca Graham
CIO & Chief Librarian

INTRODUCTION

1964
University of Guelph established

1968
Animal Science purchases University's first mainframe computer to manage herd improvement databases

1969
The Institute of Computer Science (ICS) is created to operate the IBM mainframe computer and support administrative computing applications

1973
Distribution of terminals across campus to administrative and research units

1975
ICS develops its own internal communication system (APLmail) allowing communication between departmental and research computer terminals

1978
Approximately 75 computer terminals on campus

1981
IBM introduces the 5150 personal computer

1983
ICS develops the "CoSy" (**Co**nferencing **Sy**stem) - an early social networking application still in use today as NLZero (Noise Level Zero) Conferencing Service

OUR HISTORY

The history of the University of Guelph's central IT department explains a lot about its current structure. At many universities, the IT department grew out of administration; at the University of Guelph, information technology has its roots in academic support.

In the 1960s, just a few years after the University of Guelph was established as a degree-granting institution, the department of Animal Science bought its first mainframe computer. Administered by the newly formed Institute of Computer Science (ICS), this enormous machine was used primarily for genetic monitoring.

As the computing needs of the new University of Guelph expanded, ICS grew from an offshoot of Animal Sciences to its own independent department, servicing the computing needs of the University.

Networking soon became key. Using the mainframe in the basement of Animal Science as its base, ICS set up terminals in every University department. By 1978 there were approximately 75 computer terminals on campus. This was the era of punch cards, dot matrix printers and massive overnight batch printing jobs. A personal desktop computer would fetch about $2,000, roughly equivalent to $9,000 today; very few faculty were able to secure a personal desktop computer as part of a research grant.

The early 1980s witnessed a rapid growth in both networking and the acquisition of personal computers. Additionally, both the telephone and the computing networking systems were moving to digital technology. Around this time former Chief Librarian Margaret Beckman was appointed the Executive Director of Information Technology.

Beckman created a department known as Communications Services (CS) to oversee all computer networking infrastructure and telephone systems. ICS, now known as Computing Services, concentrated entirely on servicing and updating the mainframe computer system as well as support for personal computers and software applications. It would take another several years before these two departments would merge to become what we know today as Computing and Communications Services (CCS).

The connection between the Library and CCS that began years earlier with Margaret Beckman would be formalized under the leadership of Mike Ridley, the University of Guelph's first Chief Information Officer (CIO) and Chief Librarian. This legacy continues today with Rebecca Graham.

CCS continues to be much more than a typical central IT department. Its vision is to be technology and knowledge solution leaders, partnering with University communities, enabling excellence in teaching, learning and research. In order to achieve this vision, CCS relies on three guiding principles or pillars: **People, Technology** and **Partnerships**. This report explores those pillars.

1984

U of G helps create NetNorth, an email and file transfer network linking most Canadian universities

1984

Margaret Beckman, former Chief Librarian, appointed Executive Director of Information Technology

1985

ICS divided into Computing Services and Communications Services

1992

Computing Services and Communications Services are merged to create Computing and Communications Services (CCS)

1992

Ron Elmslie becomes first Director of CCS

2004

CCS replaces an aging telephone system with Voice-over-IP technology

2004

Mike Ridley appointed the University's first CIO and Chief Librarian

2012

Rebecca A. Graham is appointed second CIO and Chief Librarian

Dave Whittle
Associate Director
IT Operations and
Infrastructure

When CCS talks about its people, it is usually referring to staff development, succession planning and education programs designed to ensure that its people have the skills needed to improve the effectiveness and efficiency of its services. But sometimes *people* refers to CCS' commitment to recruiting the brightest and the best. Case in point: Dave Whittle, the new Associate Director in charge of IT Operations and Infrastructure.

Dave looks like he might have played defense on a professional hockey team at one time: he's a stocky guy with broad shoulders and big hands. He's also quick with a smile and looks like he'd be comfortable leaning back in the dressing room after a game with a cold beer in his hand, sharing a few laughs. Dave does still lace up the skates a few mornings a week to play some pick-up hockey, but his greatest defensive moves these days are in the IT security arena.

Looking back, there are a lot of firsts that come up when discussing the journey that brought Dave to the University of Guelph. Dave was the first in his family to attend University. He graduated from McMaster University in 1988 with a BA and then moved to Sheridan College for a one-year course in micro-computer management. Dave understood early the value of combining theoretical knowledge with hands-on practical experience – a combination that would serve him well in business.

Dave was one of the first dozen employees at Unis Lumin, a fast-paced, fast-growing, entrepreneurial organization that taught Dave there was no such thing as *not my job*; an axiom that would stay with him throughout his career. Here, Dave learned the importance of leadership and of hiring and developing good people. Dave's own success was measured by how well his people performed; another lesson that would stick.

Dave was one of the first Canadians to acquire Cisco Systems top level accreditation: Cisco Systems Internetwork Expert (CCIE), and the first of ten Canadians to pass this exacting designation on his first attempt.

In 2007, Dave joined BlackBerry to design their global security architecture team. While mentoring a strong workforce, Dave helped to develop a robust security roadmap for BlackBerry; a proud legacy they still enjoy.

The University of Guelph marks a new chapter in Dave's life. When discussing his approach to IT security and guarding against the many sophisticated threats in the environment, Dave reflects on the words of one of his former hockey coaches: you can't win every game, but when you're on your home ice, you need to be tough to play against. Dave is building an IT Security team that will be just that.

Our Power
is in our **People**

22,266
QUERIES
handled by
help desk in 2014

24,000
requests for
service in 2014

If people don't notice technology, we're doing our jobs

There is a saying that the sign of a good waiter is that he or she is not seen. The same is true of technology. Students, faculty and staff expect their technology to work – so long as everything is working and connecting, CCS is doing its job. But in this current environment of rapidly changing technology, this can be challenging to accomplish.

Arguably, everything that CCS does involves technology in one way or another. To better understand the challenges and opportunities that CCS addresses in order to meet the changing needs of our campus community, it is helpful to consider one specific area of technology.

Probably the most ubiquitous area of technology within a university environment relates to wireless connectivity. In this BYOD (Bring Your Own Device) age, students arrive on campus expecting to access what they want, when they want it, and in the format that best suits their device of choice. And this is as it should be – the job of CCS is to help make this happen.

There are a number of ways in which CCS stays current with the changing needs of students and faculty on campus. A variety of systems audit the types of devices and operating systems accessing our wired and wireless connections. These data are analyzed and reported back to the CCS management team for planning purposes. But partnerships also play an important role.

Student Housing and CCS maintain a strong working relationship. CCS is responsible for all of the phone data ports in the residence rooms. University of Guelph was among the first universities in Canada to guarantee a "port for every pillow"; that is, every student living in residence has the convenience of a wired connection. Considering 97% of first year students live in residence and, of those, 98% bring a personal computer to campus, this is a commitment highly valued by our students.

Changing times create changing needs. Today, less than 10% of the in-residence phones are even used. While Ethernet cables are still popular for wired connectivity, wireless is today's preferred choice. In 2012, when Student Housing was planning to fully renovate the Lambton Hall Residence, they contacted CCS to supply wireless connectivity throughout. Taking advantage of these opportunities early is critical. The age and concrete construction of some of the University's buildings make them difficult to update. CCS needs to be involved from the planning stages in order to avoid unnecessary additional costs.

From a user's standpoint, the desire is to always have the latest and greatest, but CCS needs to balance usability with security requirements and accessibility needs. Each new upgrade inevitably drops off a certain percentage of users; each new device has its own proprietary solutions. Finding that balance is part of what keeps CCS engaged.

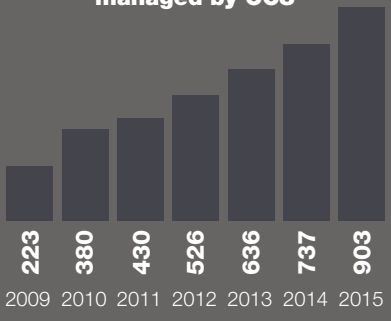
TECHNOLOGY

"I was very pleased with the IT Audit that CCS conducted for us last year. It pointed out opportunities for improving support to faculty and staff, as well as potential efficiencies. We are now using 'managed desktops' in core areas of the college and have been impressed with the service to date."

Julia Christensen Hughes
Dean, College of Business and Economics

24,200
WIRED DEVICES
computers, telephones, labs, environmental controls, security cameras, servers

Growth in desktops managed by CCS



Pauline Sinclair
Director, Office of Graduate Studies

Partnerships bridge the gap between **good and great**

Inter-departmental projects are very common at the University of Guelph; true partnership exists only when both parties gain from the experience. CCS is proud of its many strong partnerships on campus. Here are just a few.

The Office of Graduate Studies (OGS)

The Office of Graduate Studies historically moves a lot of paper. Each applicant generates a minimum of fifteen sheets of paper; twenty-three if it results in an offer of admission. These documents include various referee letters, funding forms, waivers of various types, the recommendation for offer and, if all goes well, the actual offer letter itself. Multiply that by 3,500 to 4,000 applicants per year and you get a sense of the volume of paper that was received, circulated, reviewed and filed.

David Handsor
Manager, Postdoctoral and Graduate Admission Operations

This volume of paper required a considerable amount of time, space and effort to monitor, track and safely store. Each document needed to be circulated to a number of individuals for review and sign-off prior to an admission decision being made. Finally, all documents needed to be collated and filed for future reference. Security and privacy of the student's personal information is also a primary concern.

It is difficult to estimate the human resource hours that were invested in managing, tracking and securing all of the necessary documentation; somewhat easier to measure is the physical space that such paper volume requires. Each term required close to three standard filing cabinets to hold the applications and accompanying documentation. The Office of Graduate Studies believed there was a smarter, faster, greener and more secure way to work. This need was emphasized by the small size of the OGS admissions team – just three full-time staff; about one-third the size of some institutions with a similar graduate student population.

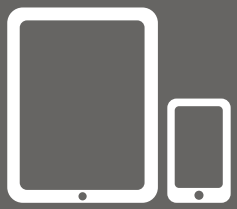
OGS and CCS worked to find a solution. Together, the ImageNow software solution was selected. The project plan set out to make the graduate student application process entirely paperless. Added benefits included enhanced security measures, easier electronic signature processes and the elimination of a huge footprint of filing cabinets. The additional benefits of reducing the volume of paper fit nicely with the University's environmental commitment.

Today, the Office of Graduate Studies, while not entirely paperless, has reduced the volume of paper that changes hands by approximately 45,000 sheets per year.

PARTNERSHIP

4Gb
OF INTERNET BANDWIDTH IN 2015

800%
from **500Mb** in 2008



14 MILLION
wireless connections to the University network **in 2014**

Genevieve Gauthier
Privacy Officer

Guidelines for categorization and security of research information

Office of the University Secretariat

The University of Guelph is a research-intensive institution. The Office of Research oversees a $140 million research enterprise across seven colleges, four regional campuses, 10 research stations and the University of Guelph/Ontario Ministry of Agriculture, Food and Rural Affairs partnership. The University and the Office of Research are committed to supporting the research programs of University of Guelph faculty across all disciplines.

The rapid growth of research activities throughout the University has implications beyond the colleges and campuses that are conducting the research. A large number of departments and campus groups including the Office of Research, the Research Ethics Board, the Research Services Council, the Senate Research Board, Dean's Council and others are all impacted by and involved with research activities.

With so many stakeholders involved, directly or indirectly, with research activities, it became evident that greater consideration and assessment of research data was needed. The University required a consistent approach to assessing the sensitivity and risk-level of research data, as well as best practices regarding how and where research data should be stored, encryption processes, how to securely share data and, ultimately, how to safely expunge the data.

Under the joint sponsorship of the Office of the CIO and Chief Librarian and the Office of Research, and with a clear mandate from the Provost's Office, the IT Security Office and the Privacy Officer collaborated to develop comprehensive guidelines for the categorization and security of research information.

The primary goal of this project was to ensure that the privacy and security of all University of Guelph research information is properly safeguarded, not only meeting the requirements of the Privacy Commissioner of Ontario and the Tri-Council Policy Statement but, if possible, exceeding those conditions in order to ensure compliance and the best possible protection.

A large undertaking, this project involved engagement and consultation with many stakeholder groups on campus, including all of those mentioned above. After conducting dozens of interviews and meetings, real progress on this project is now being made. Provisional categories for risk assessment have been established and a formal guideline was approved in April 2014. Still in process, and close to final formalization, are protocols for storing and sharing research information and mechanisms for encryption of sensitive data. The development of training and information sessions, including online tools, are also in progress.

The University's research activities will be more secure as a result of this collaborative effort.

PARTNERSHIP

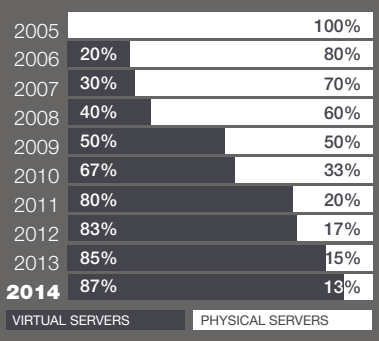
"The University is committed to making our campus as accessible as we can for all individuals. CCS has been an important partner in helping us create more accessible websites. They have provided expertise, countless hours of their time, and even resources to help support this important initiative."

Brenda Whiteside
Associate Vice President, Student Affairs

100
TERABYTES
of enterprise storage

OVER
650
SERVERS
in Data Centre

Virtual and physical servers



2014 - 684 SERVERS IN TOTAL

Jill Rogers
Managing Director,
Research Operations
Office of Research

The Office of Research (OR)

Collaboration between CCS and various units on campus have proven time and again to be mutually beneficial. The relationship between CCS and the Office of Research has been a strong and active affiliation spanning several years and leveraging numerous IT services of mutual interest and benefit to the institution. These include managed desktops, project organization, purchasing and IT procurement, and shared services such as managed servers.

CCS has shared personnel with the Office of Research in order to provide the necessary expertise in several technical areas and this has served both departments well, creating an environment of shared understanding and awareness for the demands and circumstances that each department faces.

The need for a Research Administration and Information Management System, or RAIMS for short, provides a good example of how this partnership works. Senior leaders within the OR and CCS have met on a regular basis over the past year for project planning purposes. They continue to seek the support and experience from colleagues across campus to advance this important project.

The purpose of the RAIMS project is to improve the processes, and hence the services, provided by the Office of Research. The provision of an online application system for the submission of research proposals, human ethics protocols, animal care utilization protocols and biosafety and radiation approvals will move what are currently disparate and manual processes into a unified and common system. In addition to streamlining the processes, making them faster and more efficient, this system will improve tracking procedures, interaction, and communication between and among all members of the research community. The success of this project will result from the full cooperation of CCS and OR personnel.

The RAIMS project will require continued partnership between CCS and the Office of Research in the years to come to ensure that the system is implemented, fully secure and supported, and maintained as planned.

PARTNERSHIP

Our Administrators and Executive Assistants

Several years ago, CCS along with the Library and the Office of the Chief Information Officer invited all of the University's administrative personnel, including executive and administrative assistants, to join us for a group information session and discussion. CCS felt that it could benefit from the collective wisdom of this important group of professionals. These meetings have been held ever since, usually once or twice per year.

And here's what some of our administrative partners have to say about these sessions…

"This is a purposeful network of colleagues that benefit from reciprocal information exchanges. By gathering the stakeholders that dispense information to the University community, those involved are better able to employ effective communication channels. Communication is a powerful tool and it is nice to work with colleagues that strive to create access to public information."

Jessica Westlake

Executive Assistant
to the Associate Vice-President
Student Affairs

"Meeting regularly as a group of administrators is extremely helpful in keeping everyone aware of changes to University technology. This is increasingly important in an age of rapid technological advancement. Thank you for arranging these meetings."

Robin McGinnis

Secretary to the Director,
School of Fine Art & Music

"The communication sessions held with the administrative and executive assistants have been most informative and useful. The increased awareness and understanding of potential updates and changes has been extremely helpful. Discussion of the Gryph Mail upgrade and migration, the brainstorming session for the integrated plans and the departmental updates were, in particular, very informative."

Cathie Hosker

Assistant to the Dean,
College of Social & Applied Human Sciences
Dean's Office

"I have found the meetings to be very beneficial. We have similar responsibilities and shared issues - it has been useful to gain a better understanding of how my colleagues in other departments deal with a particular problem."

Jo-Anne Scarrow

Secretary to the Director,
School of Environmental Sciences

The IT Help Desk

The CCS Help Desk is a good example of what can happen when people, partnerships and technology intersect.

With upwards of 13,000 people walking through its doors each day, the Library is one of the busiest buildings on campus. Not surprisingly, the vast majority of these visitors are students. In 1999, the McLaughlin Library introduced a Learning Commons into its suite of services. The concept was deceptively simple: create a "one-stop" place for learning support in the Library. This would include help with writing, time management, study techniques, research, learning methods, proper use of citations and, of course, technical support.

Already hosting a Lab within the McLaughlin Library, CCS was the Library's natural partner for technical support.

Today, the CCS Help Desk in the Library is run exclusively by students under the supervision of CCS. For some, this is a co-op placement allowing for a regular, full-time work week. For others, it's a part-time job of a few hours per week to help pay for tuition, books and other student essentials. For all of them, it's an opportunity to test drive a possible future career choice.

The Help Desk is administered by individuals who can best be described as equal parts Bill Gates and MacGyver. A TV cult classic of the 1980's, MacGyver has become synonymous with creative problem solving. By noon on any given school day, the Help Desk has solved any number of frustrating technical problems. These will include such services as removing a range of viruses and malware from students' laptops, assisting Library patrons to connect to the secure wifi network, helping folks change their passwords, or providing advice on how to download McAfee Antivirus. The variety of service calls and their solutions is limitless.

Many of the students that work at the Help Desk are computer science majors. They all seem to share certain characteristics including a fascination with technology, an interest in how things work and a desire to help others. This is how one of the Help Desk staff described the job: "There is real satisfaction in helping another student get their computer working again. Especially when they are stressed out because of assignment deadlines, or an exam is coming and they can't figure out why their computer won't boot up – we take a look, get it all sorted out, and you can feel their stress level subside." That *is* a great feeling.

The CCS Help Desk in the McLaughlin Library successfully brings together people, technology and partnerships.

Equal parts
Bill Gates and MacGyver

PARTNERSHIP

3,700
TELEPHONES
in student residences
4,500 TELEPHONES
deployed to faculty and staff

142,000+
UNIQUE WIRELESS CONNECTIONS IN 2013

1,700%
from 7,000 devices in 2006

Coming together is a beginning; keeping together is progress; working together is success.

- Henry Ford

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