STRENGTHENING THE CORE, BUILDING FOR TOMORROW
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Welcome to the 2014-2015 Information Technology Services annual report. This year’s theme, Strengthening the Core, Building for Tomorrow, captures the purpose and vision of information technology at UNC-Chapel Hill. As IT leaders and professionals, we must constantly balance the call of innovation with the need to focus on and improve our core operations.

Over the past year, ITS has introduced innovative new services and initiatives across our organization. A few of particular note include:

• A web chat support implementation that provides our customers with a new and immediate way to get tech support;
• Cutting-edge classroom upgrades that enable our faculty to teach material in exciting new ways;
• CloudApps, a managed platform for developing apps that has been well-received by our campus technology community;
• The expansion of Lynda.com access to include faculty, staff and students.
• Piloting voicemail-via-email around campus;
• Enabling exciting and groundbreaking research to happen thanks to our research computing capabilities.

Perhaps the project that most embodies this year’s theme is the implementation of ConnectCarolina’s finance, human resources and payroll systems. This change to the University’s business systems software is one of the biggest technology projects in campus history. Not only did the University replace nearly all of its major administrative systems with ConnectCarolina, but it also changed the chart of accounts, business methods, budget rules and reporting. Our organization continues to collaborate with Finance, Human Resources and Research Administration to resolve problems and improve processes.

"Projects, both big and small, keep our students, faculty and fellow staff connected and facilitate their extraordinary efforts to make Carolina the best it can be.”
With ConnectCarolina we are truly building for tomorrow. The project’s go-live date of October 1, 2014, began an ongoing and sometimes difficult transition to a new way of doing administrative business. It’s important to remember that what may feel like an immense change today will become a familiar, foundational piece of our core operations in the years to come.

Collaboration on campus has also been a big part of the past year for ITS. Our work with the Information Technology Executive Council (ITEC), a group comprised of IT leaders from across campus, has been particularly rewarding. The members of ITEC are valuable contributors to our University—talented colleagues who share ideas and develop technology strategies that address the needs of our decentralized campus. ITEC members also help shape services, improve communication of those services, and identify new opportunities for foundational IT capabilities at Carolina.

In closing, I would like to thank the hundreds of IT professionals both in our organization and throughout the University who enable technology success on our campus. Projects, both big and small, keep our students, faculty and fellow staff connected and facilitate their extraordinary efforts to make Carolina the best it can be.

Regards,

[Signature]
Thanks to technology, the classroom experience has come a long way — and it’s time for the infrastructure to catch up. Since the summer of 2013, ITS has been working to make classrooms more interactive and more device-friendly.

Some of these changes include replacing analog equipment with digital technology and improving wireless capabilities so that professors can use their mobile devices to control the classroom projector.

“The fact that the instructors have this technology at their fingertips helps the students — it makes it more interactive, and it makes the students collaborate more with the instructors and with each other,” said Gina Bradford, ITS Manager of Classroom Supplies and Learning Space Design.

Take Phillips 335, for example. The newly upgraded science and math classroom features round tables with outlets and lab tools in the middle for students to congregate around, as well as projection screens on all four walls.

The classroom technology upgrades will continue through the summer of 2016, fostering further interaction and engagement.
Sakai supports courses and groups across campus

I TS Teaching & Learning continues to make Sakai, the University’s open-source collaboration and learning-management system, more valuable to the campus community. More users are adopting Sakai as a solution to assess learning outcomes, distribute resources, collaborate on projects and provide feedback to students.

Over the last year, Teaching & Learning integrated additional third-party tools with Sakai to extend the system’s functionality. Teaching & Learning also redesigned the Sakai homepage and tutorials page to make it easier for users to locate information.

In summer 2015, the Sakai team made its first major upgrade to the University’s system since it rolled out in January 2013. Sakai 10 brings significant improvements in functionality and workflow.

In addition to supporting the Sakai application, Teaching & Learning continues to offer personal consultations and workshops to provide direct assistance to faculty, staff and students.

In the Sakai system for Spring 2015, Carolina had 3,923 courses taught by 2,276 unique instructors and 2,250 project sites.

Faculty success stories with Sakai

“The multi-section course-management function on Sakai allows me, as the course coordinator, to support all the sections at the same time. I can communicate with instructors and students of all sections. I upload course materials just once and instructors and students from different sections immediately have access.”

Hosun Kim, Ph.D.
Director, Language Resource Center
Coordinator, Introductory Spanish Courses
Department of Romance Studies

“Sakai has proven to be flexible, robust and easy to navigate for the class and me. In addition to the class support function, I have also used Sakai for project management support for program reaccreditation and it has done great in that area also.”

John E. Paul, Ph.D. MSPH
Clinical Professor and Associate Chair for Academics
Health Policy and Management
Sakai is an open-source learning-management system that gives ITS the flexibility to support teaching, learning, and research at Carolina and provides a collaborative environment for departments across the University.

### Feature Utilization

- **Organize students into groups**: 97%
- **Use the email communication tool**: 91%
- **Manage grades in Sakai**: 47%
- **Include an online assessment**: 36%

### Instructor Statistics

- **Instructors**: 2,276
- **Course Sites**: 3,081
- **Courses Taught**: 3,081
Lynda.com expands to students

In December 2014 ITS Teaching & Learning expanded access to Lynda.com to the entire campus community.

In collaboration with Student Government’s Web & Communications team, Teaching & Learning offered Lynda.com’s more than 3,800 video courses to Carolina students for free. The University rolled out Lynda.com to faculty and staff in 2013.

“Lynda.com allows the faculty member to avoid spending valuable class time covering basic technical concepts,” said Susan Kellogg, Associate Vice Chancellor for Information Technology and Deputy Chief Information Officer. “By referring students to Lynda.com, they can ensure all students are at the same level of competency before continuing with the needed course discussion or assignment. With so many topics to cover, this is a huge benefit to both faculty and student.”

Carolina student Jacob Massey said Lynda.com “has been a very helpful resource to get me started with some of the newer programming languages for which I wasn’t previously familiar. The content on Lynda is unmatched by any other Web content I’ve come across.”

As of April 2015, 346 UNC-Chapel Hill students had signed into the University’s Lynda.com account. Between June 2013, when Carolina began providing Lynda.com, and April 2015, the campus community had logged 9,149 hours of viewing 10,753 courses, 128,273 videos and 111,113 unique videos.
LYNDA.COM IN THE CLASSROOM: A LOOK AT JOMC 182

“Along with my class lecture recordings, Lynda.com really cuts down on cognitive load for the students. There’s a lot less for them to do in class as they follow along with my lectures and my demonstrations, simply because they know that there is some type of foundational resource that they’ll always have access to outside of class. I don’t have to spend a lot of class time introducing students to the software or going over rudimentary things, and I can really focus on applying the techniques to specific goals and deliverables.”

– Spencer Barnes, Assistant Professor, School of Media and Journalism

“Lynda.com videos helped me know what to expect before each class period. I could also quickly reference the videos outside of class to brush up on anything I didn’t understand or needed more practice with.”

– Kimberly Yates, Class of 2015

VIDEOS

Upgraded technology evolves classroom experience

Sakai supports courses and groups across campus
IT Response Center helps record number of customers

When students first arrive on Carolina’s campus, the Information Technology Response Center (ITRC) braces for what’s to come.

“For the first day of classes we definitely have long lines,” said Sharon Glover, director of the ITRC. “You can walk out and see students sitting on the carpet trying to solve their own problems. It is definitely an eight-hour day of student after student. But we work through it.”

Sometimes it’s simple — helping customers set up their computer. Other times, it’s trying to pinpoint the reason a computer is running slowly, restoring a hard drive, or navigating the control panel of a computer in a different language.

Offering a tried-and-true blend of technology troubleshooting, including walk-in services, the 919-962-HELP phone line, chat and Web support, the ITRC addresses computer and connectivity needs for all students, staff and faculty.

Ingrid Camacho — who heads up the frontline support services for the ITRC — is one of many who sums up the week in two words: “Organized chaos.”

The numbers don’t lie: During the first week of class in 2013, more than 3,000 customers visited the ITRC to get help with issues, and a thousand of those were on the first day of class alone. The same day, more than 1,600 phone calls came through 919-962-HELP. The volume of chat help requests continues to rise.

“We do an average of 2,000 phone calls within a typical month in the year,” said Camacho, who has been with the ITRC for 14 years. “During August we can see 11,000 phone calls.”

According to Camacho, it takes 45 to 50 people to run the operations during move-in weekend and the first week of class; additional help includes student employees.

Story adapted with permission from UNC News
This year, ITS celebrated the 15th anniversary of the Carolina Computing Initiative (CCI). The first program of its kind at any large public, research university, CCI provides students, faculty and staff with technology that will enhance their Carolina experience.

“When we first started, we were writing the book on how to do this,” said David Eckert, Manager of the CCI program. “Everything that came along was new and required a lot of input from a lot of different constituent groups.” In fact, the CCI start-up took a coordinated effort from University departments as diverse as ITS, Academic Advising, Student Stores and Athletics because of how dramatically it would change the way that students engage with and learn from their technology.

Ever since, schools from around the world have taken notes, modeling their own programs after CCI. “Throughout the years, we’ve had universities from all over the world come here to learn how we implemented our program, what the components were to make it successful and how to address each of those,” Eckert said.

As more and more institutions move toward a model like CCI, ITS reaps a unique return on investment. “It’s been a good promotion of Carolina throughout the world,” Eckert said, “to know that we have this type of program and that we offer the level of service that we offer because of it.”

### CCI at-a-Glance

80-85% of the incoming class chooses a CCI computer

2000 The year Carolina introduced its laptop requirement for students

100% of students who receive need-based financial aid have also received a CCI laptop grant, earning them a free device.

2 Desktop models 7 Laptop models

In the past three years, the 13-inch MacBook Pro has been the most popular model chosen by students, followed by the ThinkPad T series.
Digital-cable TV comes to campus

In December 2014, ResNET and Communication Technologies introduced an upgraded cable television service that features 131 digital channels, including many premium channels.

“The upgrade to digital was an exciting project for us and our residents,” said Chris Williams, former Manager, ResNET services and current IT Director, Student Affairs. “We’re providing higher quality clarity, more channels and saving money.”

The upgrade required collaboration between two ITS service groups, ResNET and Communication Technologies, in addition to the HelpDesk, which responded to inquiries from residents with questions about the change.

“This project is a good example of people within ITS bringing their expertise to the table to provide a markedly improved service for the customer,” Williams said.

“The digital-TV upgrade made it much easier for our community governments to organize viewing parties for major sporting events and TV shows in their residence halls. The increased quality and array of options have helped us to better plan programs that appeal to everyone in the community.”

Taylor Bates
Residence Hall Association President
IT Response Center helps record number of customers
ITS now offers a service that delivers voicemail via email to faculty and staff members who receive their telephone service from the University. Formally known as unified messaging, this enables faculty and staff to easily and quickly retrieve all messages — written emails and non-transcribed, audio voicemails — at the same time instead of having to check two systems. Because they can review their written and audio messages in their work inbox from their computer or mobile device instead of having also to dial their phone for voicemail, faculty and staff members who are away from their office can respond to calls faster and more efficiently.

ITS rolled out the service after transitioning most of the campus to Voice-over-Internet Protocol, which has been a major telephony upgrade for the University. To receive unified messaging, phone customers submit an online-service requisition and provide billing information. In most cases, service can be activated the same day.

CUSTOMER CASE STUDY:
Sherry Wallace, Director of MBA Admissions, Kenan-Flagler Business School

Sherry Wallace was one of the early adopters of the voicemail-via-email service on campus. With her audio voicemails coming to her work email account, Wallace said, “I find I am able to respond and get to those calls so much easier.” She travels frequently for her job and is often out of her office. Checking voicemail used to be cumbersome. Now it’s convenient, easy and fast to check voicemails along with written messages whenever she reviews her work inbox. “Now my response time to a voicemail message rivals my response time to an email message,” she said. “I feel it has helped my efficiency so much.”
Multi-year and collaborative projects move forward

Pervasive Wi-Fi Project

In 2014, ITS launched a 42-month project to provide full wireless coverage in all academic, administrative and research buildings on campus. This follows a project completed the previous year that provided full coverage in residence halls.

By the end of December 2014, ITS had upgraded more than 1,500 legacy access points in academic, administrative and research buildings. Since then, the department has established Wi-Fi in more than 50 campus locations. ITS intends to also upgrade the network switches while deploying wireless. The pervasive Wi-Fi project is scheduled to be completed by mid-2017.

Main Campus Wireless Traffic • May 2014-May 2015
(excludes School of Medicine and ResNet)

Peak: 1.2 G / April 2015

Distributed Antenna System (DAS)

As part of a project to provide reliable outdoor and indoor cellular coverage and capacity across the UNC-Chapel Hill campus, ITS is progressing on a second phase to improve cellular 4G performance and better in-building coverage.

Kenan Stadium received new equipment prior to the August 30, 2014, home opener. The project team monitored and optimized system performance over the football season to ensure the best coverage, capacity and fan experience and will do so again for the 2015 season.

In late 2014, the project team finished surveys across campus that identified in-building areas that need additional coverage. Planning and design activities for Phase II will continue throughout 2015.

In April 2015, an upgrade to the Greenlaw rooftop antenna system was approved that will increase the outdoor capacity and in-building coverage around Greenlaw by threefold. As a result, cell-phone users in the Pit area and surrounding buildings should experience notably improved performance beginning in the fall 2015 semester.
Multi-year and collaborative projects move forward

**SecNAS**

Since ITS began offering Secure Network Attached Storage, also known as Secure NAS or SecNAS, in May 2014, departments have signed up for 39 departmental containers totaling 15 terabytes of storage.

Most departments have started with small implementations of this new storage solution for securely storing sensitive, University-related information. Many are using SecNAS to store data discovered during Project SIR. ITS allots departments one gigabyte of storage per full-time-equivalent employee at no cost. Additional storage can be purchased for $3 per gigabyte billed annually.

**Voice-over-Internet Protocol (VoIP)**

In the University’s ongoing project to deploy Verizon’s Voice-over-Internet Protocol across campus, ITS converted about 4,000 phone lines during the 2014-2015 fiscal year. The VoIP project was 85 percent complete as of July 2015 with more than 17,000 phone lines converted so far from AT&T Centrex lines.

By the end of August 2015, a total of 18,000 phone lines should have been converted. ITS will round out the remaining 2,000 phone lines over the next calendar year. The new VoIP system replaces 30-year-old technology and saves more than $2 million a year. It also paves the way for other advanced services including voice messages delivered via email, virtual fax service and a VoIP phone application on your computer.

**Eduroam Wireless Network**

ITS is phasing out UNC-Chapel Hill’s UNC-Secure wireless network and moving the more than 50,000 devices that use that wireless connection over to “eduroam,” a secure and encrypted wireless network shared by universities around the world.

Thousands of devices connect to Carolina’s year-old eduroam network but 70 percent of all campus wireless connections are still using UNC-Secure. The eduroam network offers a big benefit that UNC-Secure lacks—the ability for UNC-Chapel Hill Wi-Fi users to automatically connect and be authenticated while at other eduroam-participating universities and for visitors from other universities to do the same at Carolina. In addition, by reducing the number of networks that take up radio space to advertise themselves as available networks, more space is available for actual radio traffic.

As a first step in this transition, ITS stopped enrolling new UNC-Secure users in May 2015. During the 2015 fall break, eduroam will replace UNC-Secure.
Working closely with the Information Technology Executive Council (ITEC), ITS helped to develop a storage offerings overview page that enables staff and researchers from across campus to better understand the storage options available to them.

Available on the ITS website, users can sort storage options by six categories – Office/Productivity, Academic/Teaching, Research, Publications, Collaboration and Sensitive Information — and identify which option is best for their situation.

“Our goal was to create a simplified view of storage options on campus so that users could best identify their options before reaching out to ITS,” said Brent Caison, Director of ITS Open Systems. “ITEC was crucial in helping us understand the need for this from the customer and user perspective, and we hope it meets and exceeds their needs.”
The Envisioning the Digital University conference in November 2014 enabled Carolina administrators and faculty members to brainstorm, collaborate and gain big-picture context from experts. ITS and the Faculty Information Technology Advisory Committee (FITAC) organized the engaging half-day event, held at the Carolina Club.

Participants demonstrated tremendous energy and sustained passion as they envisioned strategies to address this interesting and challenging era of new ways of learning, fast information and vast amounts of material.

Breakout groups decided that ideas worth exploring included:

- Funding and creating an immersive learning environment
- Revamping learning spaces to support active and virtual learning environments
- Collaborating on a large scale with commercial global leaders in technology
- Preserving digital assets
- Supporting and rewarding evidence-based creative teaching

The day featured keynotes from Dean Gary Marchionini from the School of Information and Library Science and Daniel Russell, a researcher, futurist and expert Google search analyst.
CTC Retreat draws record number of presenters and attendees

The Carolina Technology Consultants’ 2014 full-day conference, retreat and awards ceremony at the Carolina Club drew 250 attendees from 80 departments, boosting attendance from the previous year by 25 percent. The annual event, at which the University’s information technology professionals share the latest technologies and IT efforts across campus, also featured a record 28 speakers.

Topics for the 24 breakout sessions included:

- Carolina CloudApps
- New campus IT security initiatives
- ITS WordPress sites
- The University’s transition to Voice-over-Internet Protocol telecommunication services
- SAS programming: Creating codebooks with SAS
- The Benefits of Network Printer Standardization
- Mobile Device Use and Productivity

The CTC Retreat is valuable to Carolina’s tech community, said Jonathan Pletzke, 2014 CTC President and ITS Senior Technical Architect. “It is one of the best times to see new technologies and efforts from across campus” and it provides “a great opportunity to meet new people and to start new conversations.”
Students bring energy and innovation to ITS projects

**STUDENTS @ ENTERPRISE APPLICATIONS**

ITS collaborated extensively with and tapped into the expertise of students to develop apps for widespread use by the campus, paving the way for University-supported and student-led future app projects. ITS Web Services, which is now called Digital Services, worked with students on the University’s CarolinaGO official mobile app, which launched in October 2014, while ITS Enterprise Applications collaborated with students on two related apps, UNC Class Checker and UNC Class Finder. [video link]

**STUDENTS @ DIGITAL SERVICES**

The Digital Services group at ITS, which manages the large WordPress multisite platform, also engages with many talented students over the course of the academic year. Students are able to jump right into the Web development and support process — they field support requests from users across campus, sit in on project meetings, test plugins and do extensive work getting sites ready to launch. [video link]
Solar-power charging stations: ITS works with Renewable Energy Special Projects Committee

ITS helped to bring 12 solar-powered patio umbrellas to Carolina. Located at tables around the Pit and at other campus spots, the 12 umbrellas enable users to charge small electronic devices. Solar panels affixed to the top of the umbrellas power a charging station with three USB ports.

“This project was a great opportunity to blend technology and sustainability,” said CIO Chris Kielt. “And we were happy to be a part of it.”

The project involved many campus partners in addition to ITS and student government’s Renewable Energy Special Projects Committee, including Carolina Dining Services, the Residence Hall Association and the Student Union.
Student entrepreneur Brent Comstock brings unique expertise to ITS leadership

Brent Comstock recently finished his sophomore year at UNC-Chapel Hill – his second year as a vital part of Carolina’s technology community. In that time, he has served as the sole student representative on the Faculty Information Technology Advisory Committee (FITAC), a technology adviser to the Student Body President and the head of student government’s technology and Web committee. Now he’s stepping into new roles as the project manager for CarolinaGo, the University’s student-developed, ITS-run mobile app, and as the first Student Entrepreneur in Residence for Launch Chapel Hill, a start-up accelerator located downtown.

Comstock also owns his own technology and digital marketing company, known as BCom Solutions. Based in his hometown of Auburn, Neb., BCom Solutions has more than 10 employees — or team members, as Comstock calls them — and a client portfolio that includes local hospitals, churches and small businesses.

From these unique experiences, Comstock understands how various groups of users engage with technology on campus and what they need to enable that engagement. He brings this expertise to several ITS projects and finds ways to bridge the gaps between students, faculty and staff.
What has running BCom Solutions taught you about people’s technology needs?
Running a technology company that provides services to businesses of all sizes and people of all skill levels has taught me a lot of things. First off, everyone ultimately wants the same thing: to have technology that is user-friendly and helps increase productivity. Whether it is connecting with people through a social network or building an entire company’s network infrastructure, user-friendliness is at the core of all of the problems.

Describe your experience with the ITS leadership.
I first interacted with the ITS leadership team at the end of my first year at Carolina. Since then, I have grown close with several ITS leaders. It has been a rewarding opportunity to work with them both on UNC-Chapel Hill based projects, but also to have many of them serve as mentors to me. The ITS leadership team is truly top notch and it is amazing to see the number of people who work tirelessly to ensure the systems and networks of the University are working cohesively.

What have you learned by working with the Faculty Information Technology Advisory Committee?
FITAC has been a unique experience as it brings together faculty from nearly every corner of campus. As the sole student representative, I’m always thinking of ways to bring the student voice to the committee. The biggest takeaway from my first year on FITAC has been the fact that all faculty and staff are very student-centered. Every meeting includes something that will benefit students in one way or another.

What is the most memorable project you’ve worked on over the past year?
I’ve enjoyed working with ITS on several projects this year. Perhaps my most memorable project was the most recent (ongoing and upcoming) project: CarolinaGO. As the new project manager for the University’s mobile app, CarolinaGO, it has been exciting to see how ITS has allowed students to implement this project from start to finish. In the end, this has always been my goal on campus: to bring unique opportunities to students in the world of technology.

You recently joined Launch Chapel Hill as the first student entrepreneur in residence. What has that experience been like so far?
The experience is unparalleled. I love getting to interact with the ventures that are a part of the Launch program. Even more so, I love working with students and University leadership to find ways to bring similar programs to campus. This year I got to meet so many great entrepreneurs. In the upcoming year, I’m excited to grow the program and hopefully open the application to bring on a few more student entrepreneurs in residence.

You’re halfway done with undergrad. What are your goals moving forward, both on campus and off?
On campus, I’m looking forward to expanding the CarolinaGO team. The app has been a success so far, but I want every UNC-Chapel Hill student and faculty member to have the app downloaded. While my course load will likely get harder, I’m also looking forward to growing my relationship with the ITS leadership. Off campus, I’d love to expand our company’s services to North Carolina. I had every intention of expanding in this area when I originally moved down here two years ago. Now that I’m settled, and we’ve locked in our team in Nebraska, I’m excited to make a dent in the digital/ttech world of North Carolina!
Q&A with Susan Kellogg on the impact of ITEC

Technology leaders across campus come together in the Information Technology Executive Council (ITEC) to find collaborative solutions for some of the University’s most pressing technology needs. ITS works with ITEC to brainstorm these solutions and implement them using industry best practices. Susan Kellogg, Deputy CIO and Associate Vice Chancellor for Information Technology, has been involved with ITEC for nearly eight years – first as a representative from Kenan-Flagler School of Business and, in the past year, in her role as Deputy CIO. Her unique perspective helps inform participants both inside and outside of ITS on how to best approach opportunities and challenges.
ITS and ITEC each play a significant role in providing technology-related support and infrastructure for the campus. How are the two organizations able to fulfill their individual missions while also finding opportunities to collaborate?

The missions of the schools and departments are aligned with the mission of ITS so actually finding opportunities to collaborate is not difficult. The key is that with so many varying needs of the different organizations, it can be difficult to find a central solution that works for all. Professional schools compete with similar schools at other institutions so their “industry,” if you will, may be very different than a neighboring Carolina professional school.

For instance, the School of Government (SOG) is a large resource to North Carolina public officials, provides many seminars and certifications to assist elected officials and staff and has in-house production of resource books and materials. This is in contrast to School of Media and Journalism (SMJ), which has a much larger undergraduate presence than SOG. SMJ curriculum covers everything from advertising and public relations to visual communication and broadcast journalism. SMJ leverages technologies from companies like Apple, Adobe and Autodesk for student-produced digital magazine publications, live television and radio programming, motion graphics, 3D animation projects and multimedia documentaries.

In what ways do ITS and ITEC work together?

We have some great examples of these collaborations; I’ll mention a project from earlier in the year: There has been a storage initiative that has been driven by two co-chairs, Kathy Anderson from the School of Public Health and Brent Caison from ITS. This committee’s work resulted in delivery of a storage selection matrix that helps both customers and technicians navigate the complex world of storage options at UNC.

The matrix is a first step toward identifying gaps and agreeing a shared roadmap for future storage offerings. More recently the two groups got together to go through extensive lists of projects to discuss where there might be synergies for future collaborations. This work was extremely helpful as it highlighted priorities in a way that allowed us the ability to organize those future collaborations.

Many Universities strive for the kind of partnership that ITEC and ITS share but few are able to achieve it at the level UNC has. What makes UNC’s situation different?

It is always hard to say what the formula for a success is, but I believe one factor is that UNC-Chapel Hill ITS has honored the fact that the ITEC member organizations are different and has worked to understand those differences so ITS can better serve them. Likewise, ITEC has spent a great deal of time and effort to help inform ITS so that better decisions can be made. For any collaboration to be successful, all groups must invest time and energy to foster the relationship. I think we’re united in our shared commitment to make Carolina as good as it possibly can be. None of us has the resource to meet every single campus need, but we know that we can achieve more by working together. By rolling up their proverbial sleeves, both ITS and ITEC have jointly made the partnership successful.
Collaboration in Action: Microbiome Core Facility @ the School of Medicine

Since July 2011, Research Computing has processed samples prepared and sequenced by the UNC-Chapel Hill Microbiome Core Facility within the School of Medicine. In the early stages of the project, the facility produced about 30 to 40 gigabytes a month. Now, because of changes in sequencing technology, Research Computing is processing 100 to 120 gigabytes a month.

The Microbiome Core Facility, led by M. Andrea Azcarate-Peril, has a vast network of researchers from around the world — including many in Europe — supplying samples for sequencing. Research Computing has processed cystic fibrosis samples from a lab on campus, chicken samples from the U.S. Department of Agriculture and fecal samples from Vanderbilt University.

The Core, with Research Computing as a partner, successfully completed 120 projects between January 2013 and January 2015. Some of those projects had between a dozen and 18 samples, while one of her own projects had more than 700 samples, Azcarate-Peril said.

The UNC Microbiome Core Facility was established to provide technical and research support to study the community structure and function of host-associated microbial populations.

“This is a good opportunity for us because we’re getting in at an early stage,” said Jeff Roach, Senior Scientific Research Associate at Research Computing. Research Computing usually isn’t enlisted for projects that are still in the early stages of big scientific research trends. This, Roach said, is “something that could become very big.”

“The activities and research program of the Microbiome Core Facility,” the core’s website explains, “impact our understanding of the human-associated microbiota and its role in diseases profoundly affecting our society today, including Crohn’s disease, colorectal cancer, cystic fibrosis and diabetes, and will be directly translated into better patient care and prevention programs.”
Collaboration in Action: Solar Fuels Research

Sunbin Liu, a Senior Computational Scientist with Research Computing, has enthusiastically contributed for the past five years to the first phase of University-led research into advancing solar-energy technologies for producing solar fuels.

The research center that UNC-Chapel Hill leads was one of 46 original Energy Frontier Research Centers nationwide that the U.S. Department of Energy funded and created in 2009. The original effort spanned 36 states and 110 institutions. The Department of Energy awarded the UNC-Chapel Hill center $17.5 million in 2009 for a first phase and $10.8 million in June 2014 for a second phase that began this past August.

The center has been examining solar fuels and the next generation of photovoltaics. It has focused on researching the dye-sensitized photoelectrosynthesis cell and applying that knowledge to try to convert carbon dioxide into useful carbon fuels. Leading the center is Tom Meyer, UNC-Chapel Hill’s Arey Professor of Chemistry.

Liu, ITS’ only representative on the solar energy research project, has been running computational models of various molecular structures toward the goal of designing organic solar cells that can convert carbon dioxide to fuel. Running computer models before experimenting in the lab saves significant time and money.

As part of his research on this project, Liu found that replacing one atom could dramatically increase the efficiency of solar cells — to 7 percent from 1 percent. His scientific paper has been cited 500 times — one of the highest numbers of citations of his research in his career.

The first phase of the project finished in August 2014. Liu’s theory unit within the UNC-Chapel Hill center wasn’t funded for the second phase. In the spirit of engagement and collaboration, however, ITS will continue to assist the University-led center at no cost. “I’m still doing work for them, but I’m not officially part of it,” said Liu, who holds a Ph.D. from Carolina.

“I’m happy I can contribute,” Liu said. “It’s been fun. I enjoy doing this.”
Collaboration in Action: Lineberger Comprehensive Cancer Center

From early June 2011 until January of this year, Research Computing has provided production bioinformatics expertise and computational infrastructure, enabling the fundamental translational research mission of UNC-Chapel Hill’s Lineberger Comprehensive Cancer Center.

Investment into The Cancer Genome Atlas (TCGA) has totaled $275 million and brought $20 million to the University. UNC-Chapel Hill completed its part in the project in January after processing more than 70,000 samples extracted from 10,000 tumors, said Jeff Roach, Senior Scientific Research Associate at Research Computing.

The Lineberger Comprehensive Cancer Center and the Lineberger Bioinformatics Group led the effort. Research Computing, which got involved a year into the project, was one of several campus units involved.

ITS research cluster Kure processed a little more than 80 percent of all that information, while Lineberger’s own computing environment handled the remaining 20 percent. Some 40 to 50 percent of the data was kept on Research Computing’s Isilon storage space. The results of these pipelines were finally passed back to the Lineberger Bioinformatics Group for analysis, deposition in national repositories and ultimately publication.

“The goal is to eventually affect patient treatment in the long run,” Roach said. Research Computing’s role seems very technical, but clinicians are eager to obtain and use this information. In fact, both research results and production pipeline developments are beginning to be applied in pilot clinical sequencing efforts here at Carolina.

For Research Computing, the effort represented the largest amount of storage ever needed for a single project. Over the four years, Lineberger purchased about 775 terabytes of disk space on Kure. This represents about one quarter of Kure’s capacity. At the high-water point, 1.2 petabytes of this cancer-sequencing research was stored here. For context, all other projects combined total less than 2 petabytes.

“This is by far the biggest amount of data we’ve ever dealt with,” Roach said. “Before the high-throughput sequencing, we never had anything this large.”
The ITS Research Computing group was recognized by authors Michael J. Willis, Bradley G. Herried, Michael G. Bevis and Robin E. Bell in the journal Nature for their efforts in supporting the computational work resulting in analyses used for the article, “Recharge of a subglacial lake by surface meltwater in northeast Greenland.”

Research Computing hosted a two-day workshop on programming with Graphics Processing Units (GPUs). GPUs were originally designed to display computer graphics, but they have developed into extremely powerful chips capable of handling demanding, general-purpose calculations. GPUs are able to accelerate the time-to-solution for many scientific codes, particularly those that can take advantage of lots of parallelism and memory bandwidth, but to do so requires some programming modifications and some knowledge of the chip architecture. The workshop was held on November 4 and 5, 2014, and there were 70 registrants for the first day and 56 for the second day, consisting of faculty, graduate students and staff.

Throughout the year, Research Computing hosts a variety of classes designed to educate the research community to better use the technology resources available to researchers on campus. Classes topics include Python, Matlab, Linux, High Throughput Computing and introductions to our Kure and KillDevil research computing clusters.
In mid-May 2015, Research Computing hosted its second annual Research Computing Symposium. The purpose of the event is to share knowledge on computational practices, provide a forum to gather feedback from the Carolina community and raise awareness of Research Computing’s services within the UNC-Chapel Hill community.

Fabian Heitsch, Assistant Professor of Physics and Astronomy, gave the featured faculty talk while Executive Vice Chancellor and Provost James W. Dean Jr. and Vice Chancellor for Research Barbara Entwisle also spoke to attendees about the value and importance of their work to the University community.

At the event, Assistant Vice Chancellor for Research Computing & Learning Technologies Mike Barker said, “After the overwhelming success of the first Research Computing Symposium, it is wonderful to see yet further breadth and depth in the content, presentations and engagement from the UNC-Chapel Hill research community. We are all too often disjointed from one another, whether in our information technology, projects or approaches to collaboration. Today is a day to build relationships, enjoy, and respect the community of which you are all members.”
ConnectCarolina goes live

Many years and thousands of hours of work came to fruition on October 1, 2014 when UNC-Chapel Hill’s Finance, Human Resources and Payroll functions joined the Student Administration system in ConnectCarolina. The powerful system consolidates financial information, student administrative programs and personnel applications into one system, which will enable the University to improve coordination and efficiency across campus.

The new system allows users to enter and access information without having to navigate between multiple systems as they did before. It also provides administrators with advanced reporting and business intelligence capabilities that will help inform future decisions.

1968
UNC-Chapel Hill’s old Payroll system launches.
Apollo 8 orbits the moon using computers with less processing power than a modern digital watch.

1988
Financial Records System (FRS) goes live, and compact discs truly arrive: CDs outsell vinyl records for the first time.

2000s
HRIS is implemented in 2000 and EPAWeb follows in 2006.

2014
A unified system, ConnectCarolina launches for finance, human resources and payroll.

1997
InDEPTh is introduced.
Windows 95 is the world’s most popular operating system.
Campus leaders discuss
ConnectCarolina & InfoPorte challenges and opportunities

Brian Smith
Assistant Vice Chancellor for Finance and Accounting
for the Division of Finance and Administration

As an institution, we have implemented a new financial system, a new chart of accounts, and new reporting platforms. Although we have made much progress in learning how to do business with these new tools, we still face challenges with internal reporting, correcting data and transactions, and preparing for our first fiscal year end. We are very fortunate during this challenging time of great change to have a very talented and dedicated team that is working very hard to address these needs.

In this new world of an integrated system, I have seen people coming together in working groups to build and enhance existing relationships. This project has given many of us the opportunity to get to know and work with folks we would not typically work with on a day-to-day basis. That is a hallmark of true integration.

At this time next year, we will have worked in the ConnectCarolina Finance and HR/Payroll system for more than a year. I think that folks will be more proficient and confident in the systems and in their use of them. We will be able to make better, evidence-based business decisions as a University and implement improved business processes as a result.

Vanessa Peoples
Deputy Director of Office of Sponsored Research

For the research community, the new system gives us accounting and internal control systems that provide for appropriate monitoring of sponsored awards and tracking of expenditures to ensure compliance with sponsor regulations. It also provides the opportunity for greater visibility into key performance indicators such as sponsor invoicing and accounts receivables management.

Since October, we have continued to refine some business processes and address system issues so that ConnectCarolina best serves the University research community’s needs. We’re working in partnership with ITS and have already put in some short-term fixes while we work on long-term solutions. Over time, we will realize the full potential of ConnectCarolina for grants management and research administration.
Many parts of the applications are quite stable now including procurement and accounting. Our users continue to face challenges with accounting for labor expenses, managing grant funds, and getting the reports they need to manage their schools and divisions effectively.

One great success story is that this summer we’ve been holding a series of “The Most” lunches for the people who have entered the most of a variety of transaction types such as requisitions, vouchers, new hires, and lump sum payments. The individuals who have been celebrated at these lunches have almost uniformly indicated that the system seems to be working pretty well, you just have to keep working at it until you get some experience and then it’s pretty easy.

Another story is accounting services which struggled with the new system when it went live. It took 39 days to close the month of October; over the succeeding months, it has taken fewer and fewer days to close each monthly period. In May it took 5 days, in July it took 4 days. This is a good example of how experience has allowed a unit to become more effective over time using the new system.

The implementation of ConnectCarolina and InfoPorte in October 2014 established the foundation on which UNC-Chapel Hill can begin to build to streamline its financial, student administration, human resources and payroll processes to enable the University to utilize its resources more effectively and focus on its missions of teaching, research and public service.

The University’s HR/Payroll users have benefitted from the integrated aspect of ConnectCarolina. In the legacy environment, we had two separate HR systems and a stand-alone payroll system that was more than 40 years old. With ConnectCarolina, everything is in one location, which helps users and provides a better reporting foundation. We also streamlined our user community. While there have been some challenges, we now work more directly with users whose primary focus is entering HR transactions. As we continue to refine our processes, we expect to benefit from additional opportunities to offer HR users specialized training and resources.
It was a difficult year for financial reporting but with the implementation of InfoPorte version 6.3.1 in March we were able to alleviate a number of the issues users were experiencing. There are still several areas where the community is having difficulty including: 1) Lack of fully accurate personnel encumbrances/projections; 2) Difficulty with using some of the reports like the SAS Financial reports; and 3) Speed/performance of the Infoporte system.

Given the number of financial reporting challenges the success stories have been somewhat overshadowed. We were able to change the Student reporting to be integrated with Infoporte and we created a number of HR reports. We also developed a very robust data warehouse and reporting infrastructure which will position us very well for the future. (Note: We really have not heard a lot from the users – this is really in my words).

We believe we are now very well positioned to move the campus significantly along in their adoption of the new reporting environment. Next year at this time we will have a stable technical environment along with a robust set of operational reports. We will also be well along our path towards implementing Business Intelligence across the campus.
Tracking our Progress

327,819 PAYCHECKS
304,684 CAMPUS VOUCHERS

68,783 PURCHASE ORDERS
75,927 HR TRANSACTIONS

34,757 DEPARTMENTAL DEPOSITS

Help Was There

Our Help Desk and Business Support groups answered more than 3,400 CALLS and closed 9,471 HELP REQUESTS
Project SIR builds on success: Over 100 million remediated matches

The Sensitive Information Remediation Project, ITS’ high-priority, campus-wide effort better known as Project SIR, has remediated more than 101 million matches of sensitive information since launching in 2014.

This program enables data owners to discover and remediate sensitive information that they may have or provides options to secure such information. Knowing that what is stored on the file system is safe and compliant brings an added sense of security to campus users. “It helps us all sleep better at night,” said Mark Ingram, University Development IT Infrastructure & Technology Manager.

Because campus personnel interact with much sensitive information, such information can easily accumulate and/or become forgotten on one’s computer. Perhaps a long-time manager is assigned a new laptop and instead of going through all the files from years before, she moves everything over to the new laptop. Project SIR’s scanning tool makes remediating such files easy by searching each file for Social Security and credit card numbers of which the computer user wasn’t aware.

What is remediation?

Remediation is the process of reviewing the scan results and securely and permanently removing, storing or securing Personally Identifiable Information (PII).
VIDEOS

Dean Richman, School of Social Work

Project SIR builds on success: Over 100 million remediated matches

The Dean's perspective

University Development

David Kass
Associate Vice Chancellor, Advancement Operations

Project SIR builds on success: Over 100 million remediated matches

The IT Department perspective
Firewalls get upgraded across campus

Throughout 2015, UNC-Chapel Hill Information Security will migrate all new and existing firewall clients to new Palo Alto Networks firewalls. Michael Williams, Network Firewall Lead, shares five things to know about Carolina’s new firewall service.

1. The new firewalls are fast.
Our previous generation of firewalls had a maximum throughput of 10 Gbps. The new firewalls double that speed, and the firewalls for our biggest bandwidth consumers can be expanded up to 70 Gbps over time. This gives us lots of room to grow.

2. The new firewalls are more than “just” firewalls.
Traditional firewalls look at only a few characteristics of a network connection to determine if it’s safe. Imagine looking at the outside of a parcel package: you can see the recipient and return addresses and how big the parcel is, but not what’s inside. The new firewalls have the ability to look inside for additional security checks.

3. The new firewalls learn from each other—and from other schools and businesses.
The new Palo Alto Networks firewalls can check downloads for viruses and other malware—even new ones no one has seen. When it finds a new exploit, it notifies Palo Alto Networks—and Palo Alto Networks pushes that awareness out to other firewalls so they’re prepared. Bottom line, if someone at another university with the same firewalls downloads something malicious, we’ll know about it a few minutes later.

4. The new firewalls are easier to manage.
Our previous generations of firewalls have been a mix of vendors and platforms and administrative tools, each managed separately. The new firewalls are from Palo Alto Networks and are administered using one unified management platform.

5. The new firewalls are already in production.
New firewall clients have been on the new firewalls for a year. Some clients on the previous firewalls have already been migrated to the new ones; the rest will be migrated by the end of the year. If you’re interested in firewall service, or if you’re a current firewall client and want to discuss being migrated, contact Information Security.

Michael Williams
Network Firewall Lead
Outreach and action: National Cyber Security Awareness Month

Dovetailing with national efforts in October 2014, ITS produced a multi-level, interactive campaign for National Cyber Security Awareness Month that included instructional website content throughout the month, videos, social media posts, a cyber security town hall and a separate fun-filled educational day of games, prizes, snacks, selfies and tweets.

Posts on the ITS News blog shared ways to securely use mobile phones on public wireless, the realities of passwords, insights on security in the cloud and security maintenance tips for personal computers and other devices. ITS also created a playful “Tech on the Street” video in which the campus community tried to guess the words behind the NCSAM acronym.

In addition, Virginia Tech’s Randy Marchany addressed nearly 100 attendees about cyber security preparedness at a town hall in what was ITS’ largest-ever event. ITS also attracted a record 80-plus people — primarily students — to test their safe-computing knowledge, in the Pit.
ITS launches CloudApps for developers across campus

When the ITS Middleware Services team rolled out Carolina CloudApps in October 2014, campus users embraced the managed platform for developing Web applications.

The Carolina CloudApps platform enables campus faculty, staff and students to request development containers via a self-service portal, at no cost. It also provides an environment for developing and deploying Web applications using the Red Hat OpenShift Enterprise Platform as a Service (PaaS) solution to provide secure, multi-tenant containers for application development.
WebDotUNC hits 10,000 sites

In Spring 2015, ITS Digital Services announced that Carolina’s WordPress multisite had broken the 10,000 sites mark. The Web infrastructure is used by individual faculty, students and staff, as well as departments and school across campus for their content management needs. The self-service nature of WebDotUNC means that anyone with an active Onyen can create a WordPress site in just a few moments.

In addition, in Fall 2014, the Digital Services group rolled out Heelium, a custom-designed WordPress theme that enables users to quickly apply Carolina-specific branding and user-friendly functionality to their site. Heelium is mobile-friendly and makes creating beautiful websites easy even for the novice user.

In the spring and summer of 2015, ITS Digital Services completed two major collaborative web projects, Carolina Conversations and the School of Pharmacy web site. The team worked with the marketing group within Student Affairs to create Carolina Conversations, a hub for diversity discussions and events at Carolina. The website utilizes the Heelium theme and extensive CSS provides a custom look and brand. Similarly, the team worked with the School of Pharmacy to completely redesign, re-architect and develop their new website using Heelium.
Microsoft Office 365 rollout begins for faculty and staff

In 2015, ITS began migrating faculty, staff and student email accounts to Microsoft’s Office 365 cloud-based suite of integrated, access-anywhere collaboration tools.

For the bulk of its current email needs, the campus relies upon an on-premises Exchange environment, which the University maintains on its own hardware. By upgrading to Office 365, the University will be able to provide the shareable storage, larger mailbox allocations and new tools requested by the campus community while also reducing costs and resources.

In April 2015, ITS began preparing the campus for the move from campus-hosted version of SharePoint 2010 to the cloud-based SharePoint 2013. Before their final migration expected in Fall 2015, SharePoint users have been migrating to a test space, where they’ve been able to examine how their site looks and functions in SharePoint 2013. ITS also is providing training so users can make the most out of the new functionality and features of SharePoint 2013.

In 2015, ITS will begin small pilot rollouts of Office 365 to select areas of the University. Also during the summer, ITS will offer OneDrive to students.

The overall project is expected to last two years.

“Office 365 will bring UNC-Chapel Hill a wealth of cloud-based collaboration tools, one terabyte of email storage and secure, sharable file storage for every member of the Carolina community. While large-scale technology transitions are always challenging, this move will be a game changer for collaboration at the University,” said Tim McGuire, Director of ITS Campus Infrastructure Services.

SharePoint migration
OneDrive for students
Exchange alpha pilots
Exchange beta pilots

OneDrive for faculty/staff

Exchange production migration
In November 2014, ITS welcomed Kevin Lanning into his now-permanent role as Chief Information Security Officer (CISO). While this is a new title for Lanning, it’s a logical step forward in a longstanding connection to the UNC-Chapel Hill community.

Lanning has been a valued and respected member of the information technology community on campus since 1999. He previously worked both in ITS and as an IT staff member within University Libraries, where he gained important insight into the diverse technology needs across campus. Within ITS, Lanning has spent eight years in the Information Security Office, with roles such as IT Manager, Incident Response Manager, Information Security Specialist and, most recently, Interim CISO.

Although he has worked in the private sector, Lanning never strayed far from UNC-Chapel Hill. He has a Master of Science in Information Science from Carolina’s School of Information and Library Science. He is also a Certified Information Systems Security Professional (CISSP) and holds the Certified CISO (C|CISO) credential.

The Information Security Office protects UNC-Chapel Hill’s network, devices and information across all departments. It’s no small task, but Kevin Lanning’s vast experience with the University keeps him right at home at ITS.
Priscilla Alden retired in January after 9 1/2 years as Assistant Vice Chancellor for User Support & Engagement at ITS and after 15 years overall with UNC-Chapel Hill.

Alden said her proudest accomplishment at ITS was decoupling the Microsoft site license from the cost of the CCI computers and making the license available to all students — a tricky solution that she figured out with David Eckert, Manager of CCI, Computer Repair Center and Dispatch Service. “We accomplished something that people had been trying to accomplish for a really long time. We thought outside the box and we got it done,” she said.

One reason Alden said she felt comfortable retiring was her confidence in ITS’ leaders and the direction that ITS is heading. “The biggest asset any organization has is its people,” she said.
Suzanne Cadwell leads Teaching & Learning team

Whether she’s helping to make classrooms more tablet-friendly or collecting faculty ideas for collaboration, Interim Director Suzanne Cadwell keeps ITS Teaching & Learning thinking about the future.

“I like to look forward, so I’m excited to now be in a position where I can have a much broader view of teaching and learning on campus,” said Cadwell, who previously worked as a ITS liaison with the Center for Faculty Excellence.

“While ensuring a secure computing environment and providing reliable, effective tools is our mandate,” she said, “we also want to help Carolina faculty members be as nimble and creative as possible in their teaching, both in and out of the classroom.”

Cadwell, who has served ITS for nearly 15 years, is fascinated by the possibilities that consumer technology affords the campus. “With the right tools, faculty and students can transform the classroom experience,” she said.
Thank you for reading the 2014-2015 ITS Annual Report