Year in Review

OFFICE OF INFORMATION TECHNOLOGY
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When we in OIT look back at 2013, all we can say is, “Whew!!” Saying this was a busy campus is the epitome of understatement for us all. While we achieved many noteworthy accomplishments in 2013, we want to highlight a few of them in our Annual Report.

Most satisfying for us were the efforts our partners asked us to join and the great work we did together to benefit our students, faculty, researchers, and staff. By working behind the scenes to align Banner, cyber security, identity management, web services, technology support, and infrastructure services, we were pleased to contribute to a number of rewarding partnerships.

Together, campus partners made Massive Open Online Courses (MOOCs) a new option for students world-wide, extending Tech’s academic excellence to nearly three quarters of a million people globally since 2012. In 2013, OIT collaborated with the College of Computing, Georgia Tech Professional Education, Graduate Admissions, and Enrollment Services, working as One GT on an industry-leading Masters of Science in Computer Science degree. In under 12 months, the program was underway with 380 students enrolled in classes. In another successful partnership, Enrollment Services leadership, Undergraduate Admissions, and OIT worked together to bring Common App to Georgia Tech resulting in over 25,000 applications in Fall of 2013 and allowing the Institute to reach a broader group of amazing high school students than ever before.

OIT partnered with the IT for Research Support (ITRS) committee on developing new research administration tools. As the Institute’s sponsored awards have increased, administrative systems have not kept pace, resulting in a growing need to capture, track, and report sponsored project data more efficiently. To help meet this need, our partnership secured the funding and the technology to develop a new Research Portal, which provides direct access to sponsored financial and administrative information, and GT Scholar, an online repository of faculty and researcher profiles.

While engaged in these initiatives, we also kept in mind the technology needs of campus projects supporting Georgia Tech’s Strategic Plan. By interviewing and listening to more than 200 faculty, staff, and students, we kicked off Tech’s first comprehensive IT Master Planning effort. We also refined our Project Management Office to align with Tech’s Strategic Business Operations Framework, and we opened our weekly project management meetings to campus partners, many of whom now participate either in person or via video-conference.

As we look to 2014, we have the opportunity to build even more productive partnerships. The Georgia Tech Research Institute (GTRI), the Georgia Tech Cyber Security Center, and OIT will work together to help protect the Institute’s intellectual property against ever more virulent cyber security threats. We’ll work with the colleges and schools to provide faculty and students more direct, focused, technology support. We’ll continue our work with ITRS to help relieve researchers of their administrative burden. Our infrastructure needs to be reviewed and refreshed. To address this need, we’ll work with campus technologists and leverage cloud-based services to deliver consumer quality service offerings such as business tools and mobility services to enrich student experiences at GT worldwide. We as a campus have much to do in 2014. OIT is here to help get it done.

And we have many people to thank. First, I want to thank our campus partners for inviting us to contribute to their many important initiatives; through partnerships and collaborations we are more effective. We also appreciate the help and advice we obtained from students working with us on issues related to student printing and future service needs. And a special note of thanks to our campus executives who have provided us with unprecedented support - a level of support many of our peers envy.

Finally, my personal appreciation to the OIT staff who have gone above and beyond to continue our evolution as a premier R1 university technology service provider. We have great staff dedicated to helping you, our colleagues, achieve great things.

James O’Connor
Vice President and Chief Information Officer
Office of Information Technology
Georgia Institute of Technology
Strategic Partnerships

OIT is fortunate to have strategic partnerships with a number of distinguished vendors. Here are some highlights of the work we accomplished with them in 2013.

**Voice Over IP (VoIP) and Video Teleconferencing**

AT&T and Aastra have partnered with Georgia Tech to deliver a new approach to telecommunications—the Hosted Voice Over IP (VoIP) Service. When fully implemented, this service will replace the aging on-campus telephone service and provide Tech with a set of state-of-the-art services by the end of 2014. And Cisco worked closely with OIT to provide tools for campus-wide video teleconferencing.

**Office 365**

Microsoft worked with the College of Engineering and OIT to offer premier access to their robust email, calendar, contact, and productivity toolkit in Office 365 Pro Plus. Pilot efforts in 2013 proved successful and OIT will be seeking support from faculty, students, and leadership to leverage this effort in 2014.

**National Policy and Global Reach**

Oracle invited Georgia Tech to join their Higher Education and Research International Strategy Council, giving us an opportunity to help influence the future of Oracle’s higher education offerings world-wide. The council also offers us the opportunity to engage with congressional leaders who influence national education policy through legislation such as the "Student Right to Know Before You Go Act of 2013." Another vendor, NetApp, engaged OIT as a member of its customer advisory board, and Dell, Apple, HP, and IBM offered guidance and expertise in helping Georgia Tech increase its global presence. IBM also provided over $80,000 in server hardware to Tech’s academic departments through the IBM Matching Grant Program administered by OIT.

**The “G” Word—Governance**

The Institute’s Strategic Technology Investment Committee and Technical Experts Council undertook a number of thorny issues and guided Tech towards solutions that benefited the entire campus. These advisory groups recommended implementing a new email, calendar, and contacts solution, deploying WebEx video conferencing service, adopting Adobe’s Digital Publishing and Creative Cloud services, piloting the MyResearch Portal. They also approved the allocation of over $80,000 in IBM Matching Grant funding to academic departments and $1.9 million in improvements to wireless, wired, and storage services to campus units.
Office 365
OFFERING EMAIL, CALENDAR, AND CONTACTS IN THE CLOUD

After a successful pilot in 2013, OIT has rolled out a cost-effective way for students, faculty, and staff to collaborate with each other via instant messaging and file sharing through Microsoft Office 365 Pro Plus. This suite, which includes Word, Excel, PowerPoint, Lync Online, and SkyDrive Pro, is free to students and available to faculty and staff through Microsoft Office 2013 Professional. Two programs provide real time connections: Lync offers instant messaging and web conferencing using the campus directory, and SkyDrive Pro offers real time document review, providing up to 25 GB of storage for those needing to upload and edit shared files.

Software Support
LICENSED AND ADMINISTRATION

OIT maintains a repository of more than 100 software applications available to all faculty, staff, and students for instructional coursework, academic research, and productivity efforts under Software Licensing and Administration. These products are available for use 24 hours a day, 7 days a week. In 2013, the most commonly downloaded products were Microsoft, McAfee Anti-Virus, and Matlab software packages.

Lynda.gatech.edu
EXTENDING LEARNING THROUGH FREE ONLINE COURSES

Introduced in 2013 by OIT, Lynda.gatech.edu is an online training solution that features more than 1,000 courses and over 42,678 videos taught by industry experts, available for free to the campus. Faculty, staff, and students can complete courses at their own pace and move from one subject to another depending on their interest. Subjects include Business, CAD, Graphic Design, Software Development, Educational Technologies, Photography, Video Editing and Web Development. There were over 2,700 monthly log ins to Lynda.gatech.edu and an average user base per month of 1,026 users from September 2013 to May 2014.

The most popular courses taken were C/C++ Essential Training, Java Essential Training, Solidworks 2014 Essential Training, HTML Essential Training, and Android SDK Essential Training.

2,715
Average monthly log ins to Lynda.gatech.edu

1,026
Average users per month to Lynda.gatech.edu
Technical Support

SUPPORTING TECH WITH VIRTUAL AND WALK-IN SUPPORT

Students, faculty and staff can test-drive laptops and tablets in the Technology Service Center, located in the Clough building, before investing in a new device. Each year the area is refreshed with the latest technology from our preferred vendors including Apple, Dell, HP, and Lenovo.

The Technology Support Center (TSC) provides technical assistance to those using Georgia Tech’s computing resources. The TSC offers a variety of support platforms such as web, email, phone, and walk-in support for students, and it also houses an IT Demo Center where students, faculty, and staff can test-drive laptops and tablets before deciding to make a purchase. In FY13, the TSC staff handled 10,377 information requests received by email or web, 5,784 walk-in requests, and 4,879 phone requests.

Frequently Asked Questions (FAQs)

30,970 How do I install Cisco AnyConnect for Windows?
18,081 How do I manually activate Office 2010?
16,620 How do I launch Cisco AnyConnect for Linux?
12,579 How do I reformat my hard drive for Windows?
Virtual Private Networking

**Providing Access to Tech Resources from Anywhere in the World**

These days, having secure access to Georgia Tech resources from any location is a necessity. From checking class schedules to approving a purchase request, the Tech community can use the Virtual Private Network (VPN) to connect their computer, tablet, or smart phone to the campus network.

During the final week of spring semester 2013, over 8,000 people connected remotely to the GT network from 46 different countries, with just over half being from the US.

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**Gartner Research**

**Offering Research and Analysis for Information Technology**

Gartner is a leading information technology research and advisory company delivering insights and analysis to IT clients. Since June 2012, OIT has provided Georgia Tech students, faculty and staff enhanced and no-cost access to Gartner in almost all disciplines. Students can consult Gartner for use with their papers, presentations and research, and faculty can incorporate Gartner resources in their curricula. Campus leaders, managers, and staff can use Gartner as a reference for institutional strategy, positioning, and benchmarking, as well as a tool for assessing IT products and services.

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**BY THE NUMBERS**

1017  Documents and toolkits accessed
4 Analyst inquiries conducted
1 Online Analyst discussion

**TOP 5 AREAS OF INTEREST**

- ITIL & Process Improvement
- Information Security
- Data Center Models
- Cloud Computing
- Information Infrastructure
LAWN Network
OFFERING LOCAL AREA WALKUP/WIRELESS NETWORKING

Georgia Tech’s Local Area Walkup/Wireless Network (LAWN) is a strategic and continually evolving state-of-the-art infrastructure supporting the Institute’s effectiveness and competitiveness in teaching, learning, and research, as well as in administrative and business functions. As such, it supports very direct Goals 1, 2, and 5 of the Institute’s strategic plan.

Over the past several years, Tech has experienced tremendous growth in the number of simultaneous devices in use on campus, and specifically in classrooms. Staying ahead of these unprecedented trends has required significant investments from OIT and campus partners.

In Phase 1 of classroom improvements in FY13, Tech’s Technology Fees Committee awarded over $250,000, and OIT pitched in another $200,000 for classroom wireless enhancements. OIT worked with Auxiliary Services to upgrade all campus residence halls to 802.11n, and OIT upgraded nearly all legacy indoor access points to 802.11n over the past two years.

Today LAWN is available in nearly every building on the Atlanta campus, as well as the GT Lorraine and Savannah campuses, and legacy coverage is available for our most heavily trafficked outdoor areas. While overage and capacity require vigilance, supporting the growing number of consumer devices and usage scenarios - as well as guest and visitor needs (including the GT hotel) - requires constant attention and innovation to meet customer expectations in scalable and supportable ways.

CrashPlan
PROTECTING CAMPUS DATA

Stolen laptops, hard drive failures, and deleted databases are all too common catastrophes. In 2013, OIT continued to expand a customer-based backup service with CrashPlan PROe, a scalable and cost effective backup software and service suite. The solution provides continuous encrypted backup to a Georgia Tech-owned cloud. Introduced by the College of Engineering in 2009, CrashPlan is now hosted by OIT and available enterprise-wide for Institute-owned data and equipment under a subsidized cost-sharing funding model.

In this model, colleges and departments choosing to use the CrashPlan solution provide their own hardware and technical support. OIT provides master server hosting, no-cost storage for employee desktops and laptops, and hardware hosting in our data center for departments who request it. We also coordinate licensing, manage vendor relations, and provide second tier technical support to campus IT groups.
I T C A M P U S S E R V I C E S

Backup and Storage
PROVIDING CAMPUS WITH BACKUP AND STORAGE SERVICES

OIT offers a variety of Enterprise-level backup and storage services through formally defined cost-sharing contracts and partnerships by way of Service Level Agreements (SLAs). The economies of scale formed by such partnerships provide participating campus partners unprecedented value in operating departmental technology support centers. In FY13, OIT partnered with 149 individual campus units for enterprise-level backup and storage services. Over the past three years, OIT has seen a 25% annual increase in new campus partners. Types of enterprise services available through OIT include Storage and Backup, Windows Server Hosting, Virtual Server Hosting, and Infrastructure Services.

Data Center and Servers
GROWING NETWORK OPERATIONS CENTER AND SERVICES

OIT monitors, manages, and operates Georgia Tech’s 24x7 data centers and networking, incident responses and escalation, data center facility co-location, and disaster recovery planning and management. The Network Operations Center (NOC) also provides financial support for GT’s payroll and other financial services. In FY13, OIT hosted 1,894 physical servers in 16,200 square-feet distributed among four data centers throughout campus.

By The Numbers

| 54,930 | Full backups of Wikipedia that could be maintained by OIT’s enterprise backup system. (Wikipedia content estimated at 42 GB as of April 2013) |
| 841 | Hosted virtual servers performing a variety of academic, support, and administrative tasks (59% of all OIT-managed servers) |
| 615 | MWh (Megawatt-hours) per month of electricity consumption to operate all of OIT’s networking infrastructure, physical servers, and appliances in its four Data Centers – the equivalent electricity necessary to power 55 average homes during a hot summer month |
| 105 | Years of continuous 24x7 High-Definition video that could be stored in OIT’s Enterprise Storage arrays* |
| 79 | Physical servers making up OIT’s virtualization environment with combined 944 CPU cores and 7.26 TB of available RAM in 12 virtualization clusters spread over 2 data centers |
| 44 | Campus units, including 5 academic colleges, whose backups are administered by OIT |
| 22 | Campus units using enterprise storage administered by OIT |

* Total storage capacity of 1917 TB. High-Definition video at 1280x720, 24 fps data rate estimated at 5,120 kbit/sec.
**Network Self-Service**

**HELPING CAMPUS IT ADMINISTRATORS**

Since OIT implemented network self-service in 2009, more and more campus IT administrators are taking advantage of self-service training and are now handling many of their department's network firewall and port changes independently. During the spring semester in 2013, for example, nearly 300 administrators used self-service to implement 2800 changes, avoiding the need to create service tickets with OIT; providing immediate implementation for their units. At a conservative estimate of 10 minutes per ticket, this represents a savings of about 500 work-hours/semester, or almost three-quarters of a full time employee.

**Web Hosting**

**WEB HOSTING SERVICES FOR FACULTY, STAFF, AND STUDENTS**

Web hosting is available to faculty, staff, and students through the OIT Support Center. In 2013, OIT helped host websites using HTML, PHP, and MySQL at no charge and continues to see growth in the number of websites it supports each year.

### By the Numbers

| 52 | Percentage of websites hosted by OIT in 2013 |
| 1,806 | Research and department websites hosted by OIT in 2013 - a 97 percent increase from August 2011 |
| 1.8 | Terabytes of bandwidth per month taken up by traffic to all websites |
| 930,000 | Web connections from known malicious sources blocked by OIT to hosted web content each month |

**Student Printing**

**OFFERING FREE PRINTING SOLUTIONS TO STUDENTS**

Among our peer universities, Georgia Tech has one of the most generous free printing quotas for students. In FY13, there were over 16 million student printing pages and 1.6 million transactions processed through the Pharos Uniprint software, which was installed on campus in 2008 to manage student printing. To make printing services even more convenient for our students, the Printing and Copying Center (PCS) has increased the availability of equipment on campus from 11 printers in 3 locations in 2008 to over 70 printers in 30 locations spanning 11 campus departments in 2013.
Cyber Security and Training

Successful phishing, which collects the usernames and passwords of unsuspecting users, is the greatest risk to Georgia Tech’s intellectual property, personal information, and business services. Cyber attacks cost the Institute time, resources, and lost productivity. To beef up our lines of defense, OIT completed a major refresh of Tech’s anti-spam/antivirus infrastructure with a modern, effective solution that has prevented cyber threats with decisive results. The new solution better addresses spam, phishing, and viruses. In 2013, campus firewalls prevented 24 billion potentially malicious attempts.

Campus Education and Awareness

In 2013, almost two dozen Georgia Tech employees completed the Information Security certificate program hosted by OIT Cyber Security team. The OIT training team is also available for faculty, staff, and student meetings to discuss topics such as Computer Network Usage and Security Policy (CNUSP), email security, mobile device security, and anti-phishing techniques. In another 2013 highlight, the Institute hosted the Georgia Tech Cyber Security Symposium with the National Academy of Engineering and the Federal Bureau of Investigation. OIT partnered with Georgia Tech Information Security Center (GTISC) and Georgia Tech Research Institute (GTRI) to coordinate the event. The keynote address was delivered by former Director of the National Security Agency, General Keith B. Alexander.

Handling Threats - By the Numbers

<table>
<thead>
<tr>
<th>43 messages/sec</th>
<th>handled by campus email system</th>
</tr>
</thead>
<tbody>
<tr>
<td>91%</td>
<td>incoming messages suspected to be malicious</td>
</tr>
<tr>
<td>413,000,000</td>
<td>incoming messages blocked to GT accounts</td>
</tr>
<tr>
<td>142,043,802</td>
<td>outgoing messages blocked from compromised GT accounts</td>
</tr>
</tbody>
</table>

24 billion potentially malicious attempts thwarted by campus firewalls
Massive Open Online Formatted Courses

In 2013, OIT was pleased to support the College of Computing and Georgia Tech Professional Education (GTPE) as they led the way in online education. Georgia Tech rolled out the world’s first fully MOOC-formatted Master of Science in Computer Science degree in partnership with AT&T and Udacity. The program launched in January 2014 with 380 students enrolled. More than two dozen OIT employees worked on the rollout, providing expertise in infrastructure, project management, identity management, and student information system integration. OIT efforts ensure that course registration is consistent with Tech's enterprise system and that student information is protected.

More MOOCs

But that wasn't Tech's first foray into the world of MOOCs-formatted education, nor OIT's first time working on MOOCs. Since 2012, OIT, along with GTPE and Tech’s Center for the 21st Century Universities (C21U), has helped Georgia Tech deliver MOOCs to over 738,000 students on the Coursera platform. OIT staff provided project management, platform expertise, infrastructure management, and faculty training for 15 unique classes.

University System of Georgia (USG) Consulting

In 2013, when the University System of Georgia (USG) needed a multi-campus online Precalculus course, they called on Georgia Tech for technical expertise. OIT teamed with C21U to consult on the project. The new online course launched in January 2014 on the Coursera platform at five USG institutions: Georgia Perimeter, Georgia State, Middle Georgia State, University of Georgia, and Valdosta State.
Common Application

**INCREASING THE APPLICANT POOL**

Georgia Tech received nearly 18,000 applications from high school students for Fall 2013. That number rose to nearly 26,000 applications for Fall 2014 in large part due to Georgia Tech’s membership in Common Application, a hosted online service for receiving applications and supporting documents. Georgia Tech is one of over 500 Common App member institutions in the U.S. and Europe.

OIT worked collaboratively with Undergraduate Admissions to set up and configure Common App. We implemented a new data load product, AXIOM, and integrated Common App with Xtender, our Banner imaging product. The project team matched pace with the ever-growing number of student applications and helped to ensure that applicant information was processed successfully.

![Bar chart showing applications for Fall Semester 2013 and 2014](chart.png)

**Registration**

**SUPPORTING REGISTRATION INCREASES**

The load on Georgia Tech’s registration servers has grown dramatically over the past five years. Since 2009, student registration transactions have increased by over 30 percent. And over 75 percent of students accessed Tech’s portal, BuzzPort, on the first day of Fall classes in 2013, compared to 30 percent in 2009. That’s a 168 percent increase from five years ago.

To support the increased traffic, OIT added eight new web servers in 2013 bringing the total number of registration servers to 16 — that’s up from only 4 servers in 2009 and 8 in 2012. The current expansion gives students access to BuzzPort at any time and it helps with future registration transactions which are expected to increase even more with the debut of the online Master of Science in Computer Science degree and the rollout of Common Application. For 2014, OIT will continue to monitor the load on servers and take action to ensure that students have a successful online registration experience in the future.
Flexible Vetting

MAKING PASSWORD RESETS EASIER

Thirty-eight percent of adults sometimes think it would be easier to solve world peace than to attempt to remember all their passwords, according to a 2013 survey by the identity management company Janrain. And some of those people probably live or work on Tech's campus.

Until recently, users who forgot a Georgia Tech password only had two options for resolving password issues: they could visit the Technology Support Center (TSC) for help or contact their department's IT manager. But after OIT rolled out Flexible Vetting in April 2013, resetting a password became much easier. Now, users simply log into Tech’s Passport system and follow the password reset instructions. A unique PIN is delivered to the user by email, text, or voice mail. After entering the PIN and answering a few personal questions correctly, users can reset passwords online.

Under the new process, the Technology Support Center reported an 820 percent increase in the number of customers who used the self-service vetting application to set their passwords between July 2013 and January 2014.

T-Square

ACCESSING COURSEWORK

T-Square is a open source software suite created by the Sakai Foundation and enriched by community members. Georgia Tech is a partner in the community of universities that uses Sakai’s T-Square product to provide a collaborative online learning environment for our faculty and students.

As part of the T-Square team, OIT provides operating system, database, and integration support for over 209,218 worksites in T-Square; a total of over 7,650,249 resources (files) in the T-Square System.
OIT’s classroom team supports audiovisual technology for 295 classrooms, 187 Conference Rooms, 24 Labs and 29 other rooms such as offices, study lounges, and breakout rooms on campus. In addition, OIT’s classroom support team completed 210 training requests in FY13 and provided support for 54 special events.

<table>
<thead>
<tr>
<th>By the Numbers</th>
<th>Details</th>
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<tbody>
<tr>
<td>145,534</td>
<td>Different users who accessed the T-Square system in 2013 <em>(more than the population of Savannah, Georgia in the 2012 U.S. Census)</em></td>
</tr>
<tr>
<td>126,000</td>
<td>Cost in dollars to replace every lamp in the 360 classroom projectors on <em>campus</em> <em>(average cost of a house in metro-Atlanta in 2013)</em></td>
</tr>
<tr>
<td>535</td>
<td>Instructional spaces on campus supported by the classroom team <em>(more than the number of bedrooms in the Georgia Tech Hotel)</em></td>
</tr>
<tr>
<td>680</td>
<td>Miles traveled on campus by the classroom support team in FY13 to address audiovisual service requests <em>(the distance from Atlanta to Miami if the team were on a road trip)</em></td>
</tr>
</tbody>
</table>
OIT Printing and Copying Services (PCS) is the only print production facility on the Georgia Tech campus. The department processes approximately 2,500 requests for services totaling about $1.4 million in revenue annually. In FY13, PCS produced 10.4 million black and white copies, 834,000 color copies, 946,000 business cards, 459,000 sheets of letterheads, 311,000 envelopes, and a multitude of books, brochures, flyers, forms, announcements, invitations, memo pads, posters, and tickets for over 150 different entities across the campus. In addition, PCS mailed 488,202 pieces via presorting for the US Postal Service, saving the Institute over $55,000 in mailing costs.
Georgia Tech leverages Footprints, an integrated help desk (service management) application to facilitate capture, workflow, and resolution management to our campus users. OIT continued to make investments in this tool by acquiring additional licensing in 2013 to ensure higher availability and performance of this growing service. By utilizing the best tools for customer support, the GT Service Desk tracked and resolved over 38,000 individual user requests and over 70,000 campus unit requests in FY13.

### By the Numbers

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>422,029</td>
<td>Number of reports generated for faculty, staff, and researchers in FY13 through reports.gatech.edu</td>
</tr>
<tr>
<td>70,000</td>
<td>Campus unit requests tracked and resolved by GT Service Desk</td>
</tr>
<tr>
<td>61,427</td>
<td>Unique user IDs accessing BuzzPort</td>
</tr>
<tr>
<td>30,072</td>
<td>Travel and expense reports processed using TechWorks</td>
</tr>
<tr>
<td>55,000</td>
<td>Dollars saved in mailing costs for the Institute by using Printing and Copying Services presorting service</td>
</tr>
<tr>
<td>28.8</td>
<td>Miles of four lane highway that could be paved with printing by Printing and Copying Services</td>
</tr>
<tr>
<td>16.5</td>
<td>Pi miles of business cards laid out end to end that were printed by Printing and Copying Services</td>
</tr>
<tr>
<td>6.2</td>
<td>Times Grant field could be covered goal-line to goal-line with letterhead sheets printed by Printing and Copying Services in FY13</td>
</tr>
</tbody>
</table>
**Student Information Systems**

**PROVIDING SELF-SERVICE FOR FACULTY AND STUDENTS**

OIT’s Student Information Systems support team (SIS) manages Ellucian Banner, the system Georgia Tech uses to enter, maintain, and process student information. Included in Banner is biographic, demographic, enrollment, course, and transcript data. Faculty and advisors use the system, also known as Oscar, for administrative tasks, and students use Oscar for self-service. The SIS team ensures high availability of the system and implements upgrades, patches, and updates throughout the year.

In 2013, the team worked on a number of enhancements to make life a little easier for Tech students including a meal plan enhancement to allow online meal plan applications, more real-time integration with Banner, and a successful collaboration with the Bursar’s office and a third-party payment processing service to facilitate payment plan options for tuition and fees.

**Purchase Order & Invoice Inquiry**

**PROVIDING REAL-TIME DATA FOR ADMINISTRATION AND FINANCE**

The Purchase Order and Invoice Inquiry application allows Institute personnel and external vendors to search for purchase order information in a real time environment. The application uses the GTReports environment to provide information to users. In FY13, the application received over 36,000 website hits.

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**By The Numbers**

| 36,000 | Unique website visits to the Purchase Order and Invoice Inquiry application |
| 20,000 | Travel authorizations processed using TechWorks |
| 67     | Percent of employees using TechWorks in FY13 during Open Enrollment |
Banner Image Management Solution

Capturing and Processing Documents Effectively

Georgia Tech utilizes the Ellucian Banner Document Management system to facilitate critical student life-cycle documents such as student applications, transcripts, and other associated files included in the student account. This service is an essential part of OIT’s success at Tech, and it is crucial that users have access to the critical information they need to make very time-sensitive decisions, while eliminating the need to print and store volumes of paper documentation. In fact, during the 2012-2013 semesters alone, more than 80,847 documents were captured and retained using this system.

Ethical Standards Compliance

Meeting State and Federal Requirements

In collaboration with campus partners in the Information Technology Group (ITG), OIT and ITG were able to quickly design, develop, and deliver a critical web user interface in FY13 to guide and track employees’ annual confirmation of the Ethical Standards of the University System of Georgia and Georgia Tech. This enabled administrators to monitor the number of employee completions throughout the process and to ensure that all employees were in compliance with the Ethical Standards policies.

TechWorks

Supporting Administrative Systems and Services

OIT operates and maintains TechWorks, Georgia Tech’s self-service gateway to the Institute’s administrative systems and services. Through TechWorks, employees can access human resources, procurement, travel, salary planning and distribution (SPD), budgets, grant and contract administration, and more. In FY13, the OIT PeopleSoft team invested significant efforts to implement several major enhancements including the management of eight major tax upgrades to the application for regulatory compliance, the deployment of new capabilities that allowed employees to use credit card and webcheck payments for charitable campaign contributions, significant changes to the annual open enrollment of benefits, adding Conflict of Interest to the annual Ethics Attestation compliance campaign and the initial review of upgrading the PeopleSoft application to HCM version 9.2, plus an upgrade to PeopleTools version 8.53. In FY13, over sixty-seven percent of employees used TechWorks during Open Enrollment, over 13,000 employees completed the Ethics/Conflict of Interest compliance campaign and almost 20,000 travel authorizations were processed.
Big Data

**SUPPORTING THE GROWTH OF ANALYTICS**

Because of current leading industry such as Google and Amazon, the world has seen the value and need for analytics derived from very large data sets to create value for consumers and industry alike. To meet these needs, OIT is presently working with researchers in several colleges, corporations, and Advanced Technology Development Center (ATDC) companies to develop a Big Data and Analytics architecture and resource for campus use.

In the last year the Big Data project has worked with more than five corporate suppliers to evaluate storage and analytics offerings that include the latest in high speed and object storage and specialized files systems like Hadoop. On campus, OIT is now assisting more than 12 faculty and researchers in four colleges in support of their work using the Hadoop map-reduce systems.

OIT has also begun an ambitious project with Tech’s Research Network Operations Center (RNOC) to support the storage and analysis of medical information. The challenges of this project include the technology to store and search this sensitive information while also providing the necessary security.

The Office of Information Technology is also assisting the materials science group in the School of Mechanical Engineering with the creation of a Materials Science Hub. This hub is the focus of materials science research across several colleges and disciplines. OIT is working with the faculty and researchers to reach for a White House-sponsored program in materials science.

Further, OIT participates in an ongoing relationship with 40 participants from 17 member companies at the Georgia Tech Advanced Technology Development Center (ATDC) to share information about the systems and configuration necessary to create meaningful systems architecture for Big Data. Georgia Tech’s current Big Data systems include a growing Hadoop cluster, a 48 node HPC cluster, and over 100 TB of storage in addition to the campus Partnership for Advanced Computing Environment (PACE) HPC services. OIT is ready to support and encourage the Big Data and Analytic projects across campus as the demand increases.

GENI

**CONTRIBUTING TO GLOBAL ENVIRONMENT FOR NETWORK INNOVATION**

Georgia Tech’s Office of Information Technology is making an impact in the development of the future Internet. Georgia Tech is a key contributor to the Global Environment for Network Innovation (GENI) project, funded by the National Science Foundation. GENI is a nationwide suite of infrastructure for “at scale” experiments in networking, distributed systems, security, and novel applications.

GENI opens up huge new opportunities for leading-edge research in next-generation internets and rapid innovation in novel, large-scale applications. The GT-RNOC team has been leading the deployment and support of the GENI research infrastructure at Georgia Tech including new uses of Software Defined Networking (SDN) based technologies. In addition, the team has been working on applications that leverage GENI including immersive, gesture based interactive video experiences. This work was demonstrated by Dr. Russell Clark at the plenary session of the GENI Engineering Conference in Salt Lake City, Utah. The demonstration showed off the “Magic Window” portal back to the Georgia Tech campus and displayed the current research projects of GT’s Aware Home research laboratory.
K-12 (Direct to Discovery)

**USING TECHNOLOGY TO COLLABORATE WITH STUDENTS AND TEACHERS**

Outreach has always been part of the Georgia Tech mission. And just as research conducted at Georgia Tech has a national and international impact, so outreach too does not end at the Atlanta city limits. Secure high-speed networking and advanced applications are at the core of both modern research and education. OIT directly supports faculty outreach with the Direct-to-Discovery (D2D) program, and indirectly by assisting the K-12 community to improve the performance and security of their networks with the Georgia Measurement and Monitoring (GAMMON) and the Secure K-12 projects respectively.

The Direct to Discovery (D2D) project supports Georgia Tech faculty with K-12 outreach via HD video-conferencing. Elementary, middle, and high school students in their classrooms interact with researchers in their labs. Last year D2D held around 70 events (approximately 2 per week throughout the school year) involving 16 Georgia Tech Faculty, interacting with 23 teachers and their students across 12 school districts in Georgia.

The Secure K-12 project provides information and assistance about cyber security for K-12 districts in Georgia. The project recently held a workshop on campus involving 19 participants from 10 school districts around the state. The workshop also had representation from a regional network serving seven school districts and a Regional Education Service Agency (RESA) serving 16 school districts. The Georgia Measurement and Monitoring (GAMMON) project tracks network performance at school districts across Georgia. Currently 20 districts are involved in the project with 16 active measurement servers. Online resources have become a critical component to education and the K-12 project provides information for the districts to make informed planning decisions and troubleshoot problems.
The Georgia Tech Research Network Operations Center (GT-RNOC) is designed to enable communities of collaboration through innovation in networking, computing, mobility, and convergence technology. The Center works with network administrators and service providers, researchers, and industry leaders in wireless, telecom, cable, equipment, content, and applications. Some of the highlights of RNOC are listed below.

Protected Health Data Infrastructure (PHDI), OIT/RNOC, and GTRI have assisted Georgia Tech’s Institute for People and Technology (IPaT) in the creation of a set of resources which meet the HIPAA and IRB requirements for research to be conducted on medical data. The infrastructure allows for partitioning of project data, computer, and desktop resources, and has multiple levels of physical and online security including dedicated work rooms where external devices are not permitted. Information from this project will inform the design and best practices of future High Performance Computing (HPC), storage, data center, networking, security, and access control investments made by the campus.

RNOC and IPaT hosted the 7th annual Convergence Innovation Competition (CIC) in April 2013 with over 150 finalists on 40 teams. Georgia Tech students competed in the following categories: Connected Home, Connected Transportation, Connected Life, and Future Networks. The CIC is entirely supported by industry partnerships from AT&T, Cisco, GM, Panasonic, and Hitachi.

Another joint production of RNOC and IPaT provided an opportunity for all members of the Georgia Tech community to collaborate on applications and solutions that benefit the campus. Georgia Tech benefits from the diverse expertise and interests of its students, faculty, staff, and alumni. GT Journey is a virtual focal point for students, faculty, and staff to develop ideas and solutions, find technical support and resources, advertise and access campus data, and share applications and experiences. GT Journey leverages a number of existing development platforms including GTmob (including mobile and kiosk versions) and The Argon augmented reality browser, including the Campus Tour application and authoring tool which allows anyone to create tours of campus without any coding.

Through its industry partnerships, RNOC makes mobile devices and air time, mobile device management, and mobile developer program access available to all students at Georgia Tech. In total, RNOC has an inventory of over 450 new and legacy mobile devices, smart peripherals, media production devices, and hardware hacking kits available for check out to all students, researchers, and IT personnel on campus. This year, OIT furthered their partnership with the GVU, IPaT, and IMTC centers to create AppLab, a space for application developers to work with computing resources and specialized software licenses.

The Internet2 Innovative Applications Awards selected eight proposals from research universities nationally, awarding a ten thousand dollar grant to work on building applications using Software Defined Networking (SDN) that solve the challenges faced by research, education, and business networks. Two proposals from Georgia Tech students made the list. Muhammad Shahbaz and Arpit Gupta are working with Nick Feamster, Russ Clark, Ron Hutchins and others to build a working, commercial Internet exchange in Atlanta based on SDN technology that will address some of the shortcomings of Border Gateway Protocol (BGP). Rasha El-Jaroudi (3rd year undergraduate) and Aditi Ghag are working with Russ Clark and Matt Sanders to develop SDN-based video streaming tools that enable video production professionals to control network distribution without the need to be networking experts. This is a good example of how OIT’s leadership in networking research and deployment, especially with regional and national networks, is enabling students to do great things.
PACE and High Performance Computing

The Public Access Cluster Environment (PACE) exists to provide the necessary bridge between fast computers and brilliant humans which enables a powerful combination of the two. OIT supports this by providing information technologies that free innovators from the operational burdens of High Performance Computing (HPC) resources, allowing them, and their students, to focus on the bigger scientific discoveries and better engineering capabilities at the heart of human progress.

In the last year, with a team of 8.5 full time employees (FTEs), PACE has successfully delivered more than 75 million CPU hours to over 500 users in 150 research groups across campus. Users ran 1.5 million jobs ranging in size from 1 to 1024 CPU cores each. Twenty different research groups purchased new equipment, bringing the total computing power to more than 27,000 CPU cores in over 1,100 individual servers, with more than 2 Petabytes of active storage.

PACE has initiated a training curriculum, covering various HPC-related topics such as Python for Scientific Computing, Python for Data Analysis and Visualization, Linux 101, Data Analysis and Visualization with Matlab, and Handling Large Data Sets in Matlab. These courses supplement the bi-weekly orientation course for new users. PACE has been actively building relationships with vendors and making several of their products available to campus researchers for evaluation. An off-shoot of this effort has resulted in the acquisition of a DDN SFA-12Ke storage system at significant discount. This storage will provide for significantly higher performance in the HPC and Big Data environments.

In FY14, OIT will introduce a pricing model to allow PACE faculty to purchase storage on this system. Since a reinvigoration of OIT’s HPC service in 2009, GT faculty have entrusted approximately $5.7 million of their research dollars to OIT oversight. Within the same time frame, the Institute has invested approximately $4 million in supporting infrastructure and $2 million in data center renovations. And at the end of FY13, PACE was awarded a research contract in the amount of $500,000 to provide equipment and HPC services for Emory University for the three years.
Pediatric AIDS Holiday Drive

Supporting children and their families

Each year Greg Phillips, Assoc. Director OIT/EIS, coordinates Georgia Tech’s participation in the Pediatric AIDS Holiday Drive. In FY13, Georgia Tech collected over 400 gifts and plush characters as well as $1,000 in cash and gift cards during the drive. Donations were delivered to the AID Atlanta Women and Children’s Program whose volunteers distributed our gifts to over 500 children at the annual Pediatric Holiday Party, a celebration for families affected by HIV/AIDS.

Corporate Walk/Run

Kaiser Permanente Challenge

In 2013, twenty-three OIT staff members joined in the fun with approximately 20,000 other walkers, joggers and competitive runners as they hit the streets of Atlanta for Kaiser Permanente’s Corporate Challenge. For the second year running, OIT won the GT Departmental Challenge for most employees from one department participating in the KP event, with GTRI and OHR hot on our heels.
OIT's commitment to community service is just as strong as their commitment to customer service. In FY13, OIT donations helped support medical research, fed and clothed those less fortunate, and supported a host of other worthy causes, proving that IT folks have more than big brains. They have big hearts too. Here are a few of the organizations that OIT supported in 2013.

AID Atlanta Women’s & Children’s Program
Atlanta Community Food Bank
Habitat for Humanity
Kaiser Permanente Corporate Challenge
Mentor Tech/Mentor Jackets

No One Hungry
Pediatric Aids Holiday Program
President’s Committee on Disabilities & Access
St. Baldrick’s Childhood Cancer Program
Toys for Tots
**Office of Information Technology Leadership**

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<thead>
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**Main Service and Support**

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