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A Message from the Vice President

As the university’s central IT organization, the Division of Information Technology has been partnering with the university community to achieve milestones in offering abundant information technology that enables teaching, learning, research, entrepreneurship, and administration at Maryland.

This publication will inform you about the organization’s accomplishments during fiscal year 2013 — or July 1, 2012 through June 30, 2013 — in areas such as academic computing, enterprise systems, networking, security, software development, telecommunications, and client support. Throughout this publication, you will read about ways the division has improved the IT environment in close collaboration with university constituents — faculty, students, staff, and leadership. These are some of the highlights of our fiscal year 2013 accomplishments:

• Launched Promoting Innovation, the new community-driven information technology strategic plan (ITSP) to guide IT evolution at Maryland over the next decade, and made strides toward achieving some of the recommendations and action items it describes. (In fact, this publication contains labels on many items that directly relate to the ITSP so that you can cross-reference the progress with the action items.)

• Continued progress in the five-year Network Refresh Project, updating the network infrastructure and services in 35 university buildings. Upon completion of this project, the university will have one of the finest pervasive networking infrastructures in the nation to support its teaching, learning, and research mission.

• Saved the university community more than $7.5 million on Adobe and Microsoft software products through enhanced university software licensing agreements.

I want to thank Brian Voss for his time as Vice President and CIO and his contributions to the University of Maryland. This publication gives you an idea of some of the ways IT has enhanced the university during fiscal year 2013 when he led the organization.

Ann G. Wylie
Interim Vice President and Chief Information Officer
University of Maryland Moves to Instructure Canvas Course Management

As a result of years of work and discussion by dozens of university faculty, staff, and students, the university adopted Canvas as its new enterprise learning management system (ELMS), an online learning platform that facilitates teaching, learning, and collaboration among faculty and students. The division fully deployed Canvas in January 2013.

- **4,101** published courses in Canvas in Winter 2013, Spring 2013, and Summer I 2013
- **9,428** published sections in Canvas in Winter 2013, Spring 2013, and Summer I 2013
- **31,512** unique students enrolled in published courses in Spring 2013
- **2,211** unique instructors published courses in Spring 2013

UMD Debuts Coursera MOOC Offerings

In September 2012, UMD officials announced plans to offer four popular courses in Spring 2013 via Coursera — the international platform that hosts “MOOCs,” massive open online courses. At the time, the university joined 33 higher education institutions from around the world in providing these free online courses. The Division of IT was involved in establishing the partnership with Coursera in summer 2012 and provided instructional design and course development support during the preparation of the UMD courses. Coursera adds to the university’s endeavors to improve teaching and learning by using new technologies.

- **272,228** students registered in UMD Coursera courses by the end of fiscal year 2013

Computer Connections Program

To respond to a need described in UMD’s HR Working Group Report for 2011, the Division of IT and University Human Resources partnered to launch the Computer Connections Program, an educational empowerment initiative that provides non-exempt UMD employees with the basic computer skills needed to increase their connections to campus resources, job development opportunities, and the overall campus community. The division and UHR were awarded a Moving Maryland Forward Grant from the university’s Office of Diversity and Inclusion to develop the program. Computer Connections began in the Fall 2013 semester, and is a 9- to 12-week course available to about 60 non-exempt UMD employees. It covers critical computer skills, such as how to get and use university accounts; how to use email, electronic calendars, and productivity software like Microsoft Word; how to find employment information and apply for jobs online; and how to access other university Web resources.

Innovations in Teaching and Learning Conference

 Celebrating its twentieth year, the Innovations in Teaching and Learning Conference, offered in collaboration with the Center for Teaching Excellence, provided more than 200 attendees the opportunity to listen to and learn from some of the most creative and successful faculty and staff from across the university. This two-day event featured keynote addresses from national leaders in teaching and the next evolution of online learning. Daphne Kohler, professor of computer science at Stanford University and cofounder and co-CEO of Coursera, spoke about MOOCs and their impact on students around the world. Robin Wright, Associate Dean for Faculty and Academic Affairs in the College of Biological Sciences and professor of genetics, cell biology, and development at the University of Minnesota, discussed how applying the physiology of learning can profoundly increase teaching effectiveness. The conference featured a variety of focused breakout sessions, roundtable discussions, and a poster hall. www.it.umd.edu/ITL
Office of Information Technology: Providing Computing and Communications Resources to the University of Maryland

Accomplishment Highlights — Fiscal Year 2013

The Division of IT Strengthens the University’s Technology Environment

Network Refresh

During fiscal year 2013, the Division of IT continued with the five-year Network Refresh Project, upgrading the networking equipment in dozens more academic, administrative, and residential buildings. The refreshed buildings are now connected to the campus network via dual Gigabit Ethernet connections, and the new infrastructure is providing Gigabit Ethernet connectivity to the desktop. In addition, the new data switch gear in the buildings supports advanced networking features and possesses enhanced security capabilities, which are essential for the delivery of services such as VoIP and video streaming. The refreshed infrastructure is also providing functionality to support enhanced emergency (E911) services.

www.it.umd.edu/networkrefresh

Another Successful Disaster Recovery and Business Continuity Test

The Division of IT conducted a disaster recovery test on December 28, 2012. The test simulated a loss of the Primary Data Center (PDC) and tested failover processes to systems housed in the Secondary Data Center (SDC) to continue university operations. While PDC to SDC failover tests had been conducted on individual systems and platforms in the past, this was the first large-scale failover test from the PDC to the SDC. The test concluded that many of the systems necessary to continue university operations in the event of a PDC disaster are in place and operational in the SDC.

New Security Operations Center

The Division of IT established the Security Operations Center by adding more IT security staff. In general, the division’s Security and Policy group is responsible for the coordination of a variety of IT security related activities, including incident management and response, compliance coordination, data administration, awareness and acceptable use policy enforcement, security policy development, and more.

Exchange Email and Calendar Account Upgrades

The Division of IT upgraded the university’s Exchange email and calendar system to a new and improved version, Exchange 2010. The upgrade provided the following benefits: larger account quota and quota increases, improved performance and reliability, better performance on mobile devices, and more fully-featured Web access on a variety of Web browsers.

www.it.umd.edu/exchange

By the Numbers

- Roughly 2,000,000 feet of CAT5e/6A copper cable installed
- 35 buildings refreshed, bringing the total to 130
- 13,706 data jacks refreshed, bringing the total to 60,395
- 2,343 VoIP phones installed, bringing the total to 8,774
- 405 wireless access points installed, bringing the total to 4,723
- Almost 31,000 wireless devices connected to the university network at the beginning of the Fall 2012 semester (compared to roughly 18,000 wireless devices during the start of Fall 2011)
- 10 gigabits per second — peak total wired and wireless Internet traffic during the 2012-2013 academic year (average was 3 gigabits per second)
- Roughly 1.1 billion “junk” email messages blocked by email security appliances during the 2012-2013 academic year
- 131.3 million “clean” email messages passed security tests and were delivered to faculty, staff, and student email accounts
The Division of IT Supports Research at Maryland and Beyond

Preparing for UMD’s Cyberinfrastructure Center

Significant progress towards a new UMD high-performance computing center for research was made in fiscal year 2013. A lease was negotiated, and division staff completed design plans for what would become the Cyberinfrastructure Center in the university’s M Square research park. The center will vastly improve the university’s research computing capacity by providing state-of-the-art space for colocation of departmental research computing resources and for Deepthought2, a new shared high-performance computing cluster which is expected to be one of the top university HPCCs in the United States.

www.it.umd.edu/CC

MAX Launched “Double HELIX” in Maryland’s Biotechnology Corridor

In June 2013, Mid-Atlantic Crossroads (MAX) launched Double HELIX (Health, Education, Life Sciences, and Internet eXchange), a new high-performance point of presence (PoP) located at the Institute for Bioscience and Biotechnology Research in Rockville, Maryland. Double HELIX offers high-speed big data transfer services through a 100-Gbps-capable networking infrastructure to the Shady Grove Life Sciences Center and the surrounding research community. MAX is led by the Division of IT.

HPC Boot Camps

The Division of IT hosted two high-performance computing (HPC) boot camps, one in late May 2013 and the other in early June 2013. These week-long sessions, taught by computer science professor Alan Sussman, introduced 60 UMD faculty, staff, and graduate researchers to the concepts involved in modifying traditional programs and programming techniques to take advantage of the parallel computing capabilities inherent in HPC cluster environments. Dr. Sussman lectured each morning, and in the afternoons, workshop attendees put concepts into practice by performing guided exercises on the university’s Deepthought cluster, a 35-teraflop resource composed of nearly 400 nodes (and more than 3,000 cores).

By the Numbers

• $915,900 grant awarded to the Division of IT and the George Washington University by the National Science Foundation to develop a high-performance network solution that will help universities transport large amounts of scientific research data more effectively

• 10 GigaPoPs (gigabit points of presence) comprise MAX’s regional network, spanning Maryland, Virginia, and the District of Columbia
The Division of IT Advances University Initiatives

Promoting Innovation: University of Maryland IT Strategic Plan

In January 2013, the Division of IT published a university strategic plan for IT, which was the culmination of months of work and discussion by more than 100 university students, faculty, and staff. Serving as the voice of campus IT needs, Promoting Innovation is our roadmap for IT initiatives for the next five to seven years as we look to navigate from providing a fundamental baseline of technology to escalating to cutting edge innovation and renown among our peer institutions. www.it.umd.edu/ITstrategy

New IT Governance Structure Formed

In spring 2013, the University Senate charged the Division of IT with revamping IT governance — changing from the former IT Council to one that is more functional and advisory in nature. Ultimately, the IT Council was restructured to consist of a steering committee and four working groups so that the university community can be more thoroughly engaged in the long-term implementation of IT at UMD. The new IT governance structure was approved by the University Senate in September 2013, and more information can be found by visiting the University Senate website (see Senate Bill 12-13-45). ITSP Action Item 7.1 Funding IT Strategically

General Funding Model for Communication Services

During fiscal year 2013, the division and university leaders agreed on a new funding model for university communications services. Instead of a metered and billed-use model, the university will phase in a general-funding approach over fiscal years 2014 and 2015, where the Division of IT is provided sufficient base funds to continue to support, maintain, refresh, and evolve the campus communication infrastructure and services, and institutional customers will receive a basic service bundle that includes local calls, U.S. long distance calls, phone and network connections, unified communications services, voice mail, call forwarding, and mobile device connections/wireless services. ITSP Action Item 6.4 IT and the Enterprise

Testudo Curriculum Management 2.0 Upgrade

Following being the first university to implement Kuali Student Curriculum Management (Testudo CM) as the system of record for approved course information at UMD during fiscal year 2012, this fiscal year, UMD was also the first to upgrade to CM 2.0, contributing code enhancements and bug fixes. The Division of IT implemented and configured the software and continues to host and maintain it. This upgrade aligns Maryland's CM software with the coming Kuali Student Enrollment module. ITSP Action Item 6.4 IT and the Enterprise

Selection as Kuali Student Enrollment Implementing Institution

UMD was selected to be the implementing institution for the upcoming Kuali Student Enrollment module. This means that the Division of IT and the Office of the Registrar are partnering to review and evaluate the Kuali Student software as it is being developed, providing real-time feedback to the international development teams. This critical role helps ensure the viability of the Kuali Student software while giving Maryland a unique role in guiding the software and preparing for implementation. ITSP Action Item 9.1 IT Governance

By the Numbers

- **705** news articles about university IT initiatives appeared in a variety of media outlets this fiscal year
- **99%** of all Division of IT-related news coverage was positive or neutral in fiscal year 2013, helping to elevate “Maryland’s visibility and reputation” and “raise public awareness of the university’s accomplishments,” goals listed in Transforming Maryland: Higher Expectations, the university’s strategic plan

The Division of IT Saves the University Money

Enterprise Microsoft and Adobe Software License Agreements

Division staff members were successful in finalizing enterprise license agreements that enhanced the university offerings of Microsoft and Adobe software products for UMD faculty, staff, and students. The Microsoft agreement was completed in July 2012, and the Adobe agreement was completed in March 2013. Additionally, the division is partnering with Adobe to assist in architecting its upcoming Creative Cloud for Enterprises offering. ITSP Action Item 7.1 Funding IT Strategically

- **33,592** Microsoft software licenses claimed by the university community by the end of fiscal year 2013
- **13,432** Adobe software licenses claimed by the university community by the end of fiscal year 2013
- **More than $7.5 million** saved by using the university licenses compared to purchasing the software at standard educational pricing

TERPware Software Distribution System

Coinciding with the announcement of Adobe software availability, the division launched the new TERPware software distribution website for the UMD community in April 2013. TERPware uses a system developed by and hosted at Indiana University (IUware) that allows varied permission levels for both posting and downloading software programs and licenses. UMD is the first external customer to implement IUware, and division staff worked closely with IU staff to tailor the system and successfully launch TERPware at Maryland. www.terpware.umd.edu

- **25,257** downloads from TERPware in its first three months

By the Numbers

- **$186,125** saved on Apple and Dell purchases through the Terrapin Technology Store over manufacturers’ suggested retail prices

By the Numbers

- **25,257** downloads from TERPware in its first three months

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**The Division of IT Provides Support When Needed**

**Project NEThics**

Project NEThics, the Division of IT team that promotes responsible use of information technology through user education and policy enforcement, handles reports of sensitive incidents such as cyberbullying, stalking, account intrusion, and harassment in addition to its primary role combating copyright violations. During fiscal year 2013, Project NEThics helped scores of university community members, managing nearly 200 inquiries of a sensitive nature. [www.nethics.umd.edu](http://www.nethics.umd.edu)

- **851** copyright violation cases managed by Project NEThics

**By the Numbers**

- **114,920** phone inquiries handled by the consolidated IT Help Desk staff
- **24,027** email-based inquiries handled by the consolidated IT Help Desk staff
- **45,679** requests for assistance handled through the IT Service Center Web tool
- **1,339** Live Chat sessions provided near-immediate assistance to clients during the expanded availability of **25** hours per week
- **778** Knowledge Base articles, **138** new this fiscal year
- **268** UMD technology classrooms supported
- **932** computer lab workstations supported
- **130,681,423** mainframe Customer Information Control System transactions in support of admissions, registration, financial aid, orientation, and more
- Approximately **8,000** telephone- and network-related moves, installations, service changes, and disconnects completed

**The Division of IT Goes Green**

**By the Numbers**

- **$10,000** per year in energy cost savings as a result of energy efficiency improvements implemented in the Primary Data Center with help from UMD’s Center for Advanced Life Cycle Engineering and Facilities Management
- **73,593** pounds of copper cable recycled during the Network Refresh Project, earning the university **$80,395.80**
- **1,285,855** fewer pages printed in mainframe print jobs than in fiscal year 2010 as a result of the print reduction program, a change of almost **48%**
Division of IT Staff Members Share Expertise to Benefit UMD and Broader Communities

Consortium of College and University Media Centers President

Sue Clabaugh was elected President of the Consortium of College and University Media Centers (CCUMC) by the consortium’s membership. CCUMC provides leadership and information exchange for professionals who support media and technology for quality teaching and learning in higher education settings, and its members come from institutions of all sizes as well as corporations that supply products and services to the higher education community. She will serve a one-year term as President-Elect followed by a year as President and a final year as Immediate Past President. Sue has been a CCUMC member since 1993, regularly presenting at annual conferences and serving on committees. She has previously served two terms on the board of directors.

Tripti Sinha, Chair, MDREN Board, since 2011

• Member, President’s Task Force on Visual Arts and Design

Chris Higgins, Development Manager, Kuali Student Core Leadership Team and

• Appointed Member, Board of Directors, Public Relations Society of America (PRSA) National Capital Chapter (NCC), January-December 2012 and Judge, PRSA NCC Thoth Awards, 2012

Robert Goebeler, University of Maryland Representative, Kuali Rice Application Roadmap Committee, since 2010

• Elected Exempt Staff Representative, University Senate, three-year term, since 2011

Amy Ginther, Member, UMD’s Rainbow Terrapin Network, since 2010

• University of Maryland Representative, Kuali Rice Application Roadmap Committee, since 2010

Jay Elvove, Elected Exempt Staff Representative, University Senate, three-year term, since 2011

Shaun Fleming, Sr., University of Maryland Technical Representative, Kuali Rice Board, since 2008

• Member, UMD’s Rainbow Terrapin Network, since 2010

Robert Georgele, University of Maryland Representative, Kuali Rice Application Roadmap Committee, since 2010

• Member, Provost’s Commission on Blended and Online Education, since 2012

Fran LoPresti, Chair, Maryland Research and Education Network (MDREN) Membership Committee, since fiscal year 2011

• Development Manager, Kuali Student Core Leadership Team and

Sean Phillips, Development Manager, Kuali Student Core Leadership Team and

• Member, Provost’s Commission on Blended and Online Education, since 2012

Alison Robinson, Member, President’s Task Force on Visual Arts and Design and

• Chair, IT subcommittee, since 2013 and Member, Provost’s Commission on Blended and Online Education, since 2012

Tripti Sinha, Chair, MDREN Board, since 2011

UMPD Awards

Two Division of IT employees received awards at the 2013 University of Maryland Police Department Award and Promotion Ceremony. Robert Maxwell, Manager of Security Operations, received a certificate of appreciation for his assistance with digital forensics. Gerry Sneedinger, IT Security Officer and Director of Security and Privacy, was recognized along with others for his help with the investigation into the threat of a mass shooting on campus in 2012.

Division of IT Employee in T erPVision Episode

The division’s Robert Maxwell, Manager of Security Operations, appeared in the piece “Competing for Cybersecurity” in an episode of T erPVision. In his role as advisor to UMD’s Cybersecurity Club and coach of the university’s cybersecurity competition teams, Rob commented on the importance of teaching data security skills to college students and why UMD is uniquely suited to do so.

www.youtube.com/watch?v=EIvXeSejfw6

Maryland Day IT Activities

The Division of IT hosted several activities at Maryland Day 2013:

• Click Here

Guests participated in a game show by answering questions using the same clicker technology used in classrooms across campus.

• Internet Safety Made Fun for Families

Visitors learned about Internet safety from Faux Paw the Techno Cat (the Internet Keep Safe Coalition’s costumed character) and a team of IT security specialists from the Maryland Cybersecurity Center and the Division of IT. They experienced interactive activities and literature on a variety of topics, including keeping kids safe online, protecting personal information, and developing good IT security habits.

• Powerful Passwords

A strong password heightens safety in your online transactions. A new-for-2013, hands-on, kid-friendly activity helped guests apply the elements of length, complexity, variation, and variety in designing a powerful password. They were reminded of password dos and don’ts and took away a plan for their next password change.

• Technology Town

The Division of IT showcased a variety of new technologies in partnership with Adobe, Cisco, Dell, Graybar, and VMware. Visitors played Adobe’s twist on the popular arcade claw game, and kids challenged themselves on the exciting inflatable obstacle course.

Students Learn About IT Infrastructure by Visiting Division Facilities

In April 2013, a group of students from American Studies 418B: Digital Divinity were provided an opportunity to look behind the scenes and see how some of the Division of IT operations work, including the Research Data Center (RDC) and the Network Operations Center (NOC). At the RDC, the students heard about the purpose, function, and technical configuration of the RDC in particular and data centers in general. Following that, the students visited the NOC, where they saw tools used to monitor and communicate with the university’s networks, heard descriptions of outage responses, and discovered something of what is required to keep the campus networks running.

The course’s instructor believes that showing students the physical technologies behind the computing technologies they use “transforms the way they think about digital media and piques their intellectual curiosity about how the things we take for granted actually work.” One student had these comments about what he learned during the visit: “I enjoyed getting to find out the inner workings of the Internet at this school. As someone who is in front of the computer, on the Internet, nearly the whole time I am awake, I found the amount of data we use to be staggering... We forget that we are not the only ones using the Internet and there is only a limited amount of infrastructure to support it... Seeing a spy movie in a building I had walked next to many times was eye-opening.”

Broader Impact

Division staff members served on boards, governing bodies, and in other organizations on campus and beyond in fiscal year 2013:

• Daniel “Chip” Denman, Founding Member, Campus Assessment Working Group (CAWG), since 2006

• Phyllis Dickerson Johnson, Appointed Member, Board of Directors, Public Relations Society of America (PRSA) National Capital Chapter (NCC), January-December 2012 and Judge, PRSA NCC Thoth Awards, 2012

• Joseph Drasin, Co-Chair, Kuali Student Implementation Users Group, since 2012 and Representative, Kuali Student Project Advisory Group, since 2011

• Jay Elvove, Elected Exempt Staff Representative, University Senate, three-year term, since 2011

• Shaun Fleming, Sr., University of Maryland Technical Representative, Kuali Rice Board, since 2008

• Amy Ginther, Member, UMD’s Rainbow Terrapin Network, since 2010

• Robert Georgele, University of Maryland Representative, Kuali Rice Application Roadmap Committee, since 2010

• Chris Higgins, Member, Provost’s Commission on Blended and Online Education, since 2012

• Fran LoPresti, Chair, Maryland Research and Education Network (MDREN) Membership Committee, since fiscal year 2011

• Sean Phillips, Development Manager, Kuali Student Core Leadership Team and

• Alison Robinson, Member, President’s Task Force on Visual Arts and Design and Chair, IT subcommittee, since 2013 and Member, Provost’s Commission on Blended and Online Education, since 2012

• Tripti Sinha, Chair, MDREN Board, since 2011
Division of IT Staff Members Share Expertise to Benefit UMD and Broader Communities

Division Staff in UMD Classrooms
Division of IT staff members shared their expertise with students in the classroom in the following courses:
- AMST 418B: Digital Diversity
- ARHU 299/AGNR 279: Undergraduate Technology Apprentice Program
- BMGT 405: Business Telecommunications
- COMM 231: News Writing and Reporting for Public Relations
- CPSP 119D: Science and Pseudoscience

Professional Presentations
During fiscal year 2013, division representatives shared their knowledge via presentations and technical submissions at national education, IT, and University of Maryland conferences and events. These were some of the topics covered:
- Acceptable Use of IT Resources
- Advanced Networking
- Blended Learning
- Class Capture
- Computer Lab Transformation
- Coursera and MOOCs
- Kuali Student Implementation

The Division of IT Forges Ahead

The Division of IT’s fiscal year 2013 contributions to the university would not have been possible without the university community’s participation and collaboration. Many of these successes are only steps along the path to achieving larger IT enhancements at the university in the future. Some of the division’s plans for fiscal year 2014 include the following:

- Launch the new Cyberinfrastructure Center, which will house co-location space for departmental research equipment as well as Deepthought2, a new research supercomputer that will increase the computation power available to UMD researchers by an order of magnitude and which is expected to make UMD a leader in higher education high-performance computing resources.
- Participate in the formation of UMD’s new Teaching and Learning Transformation Center. Resources from the Division of IT will join with those in Academic Affairs and be enhanced further to support the use of new technology in teaching, transforming the way faculty teach and students learn. The center will position Maryland among the leaders in the resources and support made available to our faculty in helping them address with success the disruption currently underway in higher education.
- Expand university agreements to offer top-quality products and services that add value to UMD teaching and learning, such as updated Microsoft and Adobe software, cloud collaboration and storage services, and online training for software and more.
- Continue to guide and support university administrators, faculty, and students as UMD explores further incorporating technology into the educational environment, including its experiments with blended learning, flipped learning, and massive open online courses (MOOCs) like those available through Coursera.
- Continue to lead the university’s involvement in the Kuali initiative, a collaborative effort with other higher education institutions to develop and adopt new computing systems to manage the university’s student, financial, and business information.

We look forward to continuing our efforts to further empower the University of Maryland through these planned activities and others that will improve IT Abundance at the university.