INFORMATION TECHNOLOGY DIVISION
ANNUAL REPORT 2012-2013

INITIATIVES AND ACCOMPLISHMENTS

Expanding Eduroam Wireless to Tri-College
Meeting Needs for Data Management Resources and Support
Facilitating Interactive Learning With New Classroom Technologies
Securing the IACC Building With Card Access
Laying Groundwork for the Future of Information Technology
Project Activity

FINANCIALS

FY2013 - Sources of IT Salary and Operating Budgets
FY13 IT Expenditures: $16,848,586

SERVICES AND SYSTEMS

Technology for Teaching and Learning
Statistical Consulting
Enterprise Systems and Application Development
Network Engineering and Operations
Telecommunications and Emergency Support Technologies
Campus Communication Technologies

HELP, SUPPORT AND TRAINING

IT Help Desk
Desktop Support
Technology Training
Media Studio and Video Project Assistance

ADVANCED APPLICATIONS AND OUTREACH

Research and Education Network Activities
NDSU Joins InCommon
NDSU Explores Internet2 Net+ Services
K12 Outreach Activities

PARTNERSHIPS

IT Council
Technology Fee Advisory Committee
IT Communication Liaisons
IT Technical Professionals
Software Licensing Contacts
Telephone Administrators
Student Technology Services

ABOUT OUR ORGANIZATION

IT Awards Recognize Major Accomplishments
Other Staff Recognition and Achievements
Organization and Staff Changes
Employee List
Colleagues,

A lot has happened in the Information Technology Division during the past year, much of which has occurred behind the scenes and may have gone largely unnoticed by the general campus. Our initiatives centered around three critical facets of campus infrastructure—electrical, wireless and data storage. Our accomplishments in these areas have laid the groundwork for the future of information technology at NDSU.

NDSU’s primary data center was built in 1992 and was designed to house the big mainframe computers of its time. While the proliferation of consumer devices has drastically changed the way we interface with campus technology, the electrical infrastructure that feeds our primary data center has remained largely unchanged. During this past year, we completed much needed electrical infrastructure improvements, including replacing our 21-year-old uninterruptible power supplies with new, redundant ones. The NDSU community relies on our networks, communications systems and services as mission-critical systems. Improvements to our electrical system mark a major step forward in being able to deliver the level of service expected by our faculty, staff and students, including the next generation of wireless technology.

As demand for wireless access on campus grows exponentially, our division continues to pursue innovative solutions to meet faculty, staff and student connectivity needs. The campus wireless infrastructure has not been upgraded across-the-board since it was implemented in 2006, initially as a supplement to the wired network. While our division has been aware of the need to upgrade the outdated wireless infrastructure, we have not previously possessed the necessary resources to do so. During this fiscal year, the IT Division worked with the Technology Fee Advisory Committee and the Student Fee Advisory Board to secure a fee increase that will enable critical upgrades to this essential service during the next fiscal year.

A lot of work has been done behind the scenes to improve our data storage infrastructure. During my ongoing visits with departments across campus, it has become clear that storage and content sharing are key issues, and people use a wide variety of cloud services to meet their needs. In an effort to meet departmental needs with a service that is supported and with a license that has been vetted by General Counsel, we have initiated the process to make Google Apps for Education available at NDSU. Internally, we also have been improving and expanding our storage infrastructure with the plan to significantly increase quotas on S:, X:, and U: drives for all employees. Although there are now cloud services that are officially supported, storing content on NDSU owned and managed infrastructure continues to be the safest and best-supported place for data. This will continue to be the case for the foreseeable future.

Initiatives and accomplishments in FY 2013 laid strong footing for the future of IT services at NDSU. We look forward to seeing the benefits of this work in future years.

Sincerely,

Marc Wallman
Interim Vice President for Information Technology
North Dakota State University
INITIATIVES AND ACCOMPLISHMENTS
EXPANDING EDUROAM WIRELESS TO TRI-COLLEGE

NDSU faculty, staff and students now have immediate wireless Internet access when visiting other Tri-College University campuses. Concordia College and Minnesota State University Moorhead joined NDSU in enabling Eduroam (education roaming), a global wireless Internet access service developed for the research and education community.

NDSU was the first of the three Tri-College campuses to join the Eduroam network. Marc Wallman, interim vice president for information technology at NDSU, initiated the project in spring 2012 after learning about the network through discussions with leaders from other regional research universities.

“This is one of many examples of the initiatives our IT Division is enacting to improve the experiences of NDSU students, faculty and staff with campus technologies,” Wallman said.

Tri-College University Provost Tim Flakoll played an instrumental role in moving the Eduroam project forward at the Tri-College level. After Wallman expressed initial interest in joining the Eduroam network, Flakoll facilitated collaboration among the provosts and CIOs at all three campuses.

“With Eduroam, we’re melting away barriers and making it as seamless as possible for students and faculty to move from one college to the next,” Flakoll said.

Outside of the human resource costs associated with implementing the technology, becoming a participating Eduroam member is free for any institution.

Faculty, staff and students at each of the three institutions complete a one-time setup of their wireless devices and are then able to use secure wireless at all three campuses, in addition to many other participating institutions across the country and internationally.

Eduroam setup instructions for NDSU faculty, staff and students are provided at www.ndsu.edu/wireless. More information about Eduroam and a map of participating locations is available at www.eduroamUS.org.

MEETING NEEDS FOR DATA MANAGEMENT RESOURCES AND SUPPORT

The NDSU Research Data Working Group was initiated in fall 2010 to address campus needs for data management planning for grant-funded research. The collaborative working group is sponsored by the Office of the Provost and is currently represented by NDSU Libraries and the IT Division.

During FY 2013, the group’s efforts expanded beyond grant proposal assistance to provide general guidance to all faculty, staff and students on the best practices for managing academic, research and university business data.

In January 2013, the group invited faculty, staff and students to attend the presentation, “Got data? Now what? Best practices for managing your data.” The presentation highlighted the risks of improper data storage and offered practical strategies for actively managing data using secure tools available at NDSU.

To draw attention to the challenges of research data management across higher education, NDSU’s advanced applications and outreach coordinator, Kim Owen, co-wrote a paper with Michael Fary, enterprise data architect at the University of Chicago, on “Developing an Institutional Research Data Management Plan Service.”

Owen and Fary, both members of the Educause Advanced Core Technologies Initiative Data Management Working Group, co-wrote the paper to provide guidance on developing research data management planning services at higher education institutions. Their findings were based on a broad sampling of trends in these services at institutions across the United States and internationally.

The co-authors presented the paper at the 2012 Annual Educause Conference in Denver in November. In January, the paper was published in the Educause Library, an international repository for information concerning use and management of information technology in higher education. It also appeared in the February issue of the Educause Review Online.

To access an electronic copy of the paper, go to www.educause.edu/library. For more information about NDSU’s Research Data Working Group, go to www.ndsu.edu/research_data.

FACILITATING INTERACTIVE LEARNING WITH NEW CLASSROOM TECHNOLOGIES

New interactive whiteboards and display panels were installed in several classrooms across campus, including the recently renovated Gate City Bank Auditorium.

Smart Boards and Smart Panels enhance students’ learning by adding an interactive layer to course material. Instructors can create and deliver dynamic lessons, write in digital ink on presentations, or save and upload lectures to allow students to review material at their own pace outside of the classroom.

Smart software can be installed on Windows or Mac computers, allowing instructors to plan lessons without being connected to the interactive board or panel located in the classroom. The technology is designed to work with programs already used by instructors and students, including Microsoft Word, Excel and PowerPoint.

The project to implement these interactive classroom technologies was funded through the NDSU Development Foundation’s SU Impact Fund Grant Program. The SU Impact Fund is available to students, faculty and staff for programs that have a direct and positive impact on the lives of students.
SECURING THE IACC BUILDING WITH CARD ACCESS

As part of a campuswide initiative to secure building access and enhance safety for students, faculty and staff, NDSU’s main computer center — the Industrial Agriculture and Communications Center — was equipped with card access technology at main building entrances.

During regular operating hours, from 7 a.m. to 10 p.m., access to the IACC remains open. After 10 p.m., all external doors to the IACC lock automatically and card access is required at designated entrances.

The project to implement card access after hours in the IACC was initiated in 2011 to promote student safety while continuing to provide 24-hour access to the building. The IACC building, which houses highly trafficked computer clusters and study areas with wireless connectivity, has been accessible 24 hours per day since it opened in 1993.

“Access to campus technology 24 hours per day is a very important service for students. Feeling safe on campus is also critical for students’ college experience,” student body president Luke Brodeur said. “The key card access initiative is the bridge that makes both of these important aspects feasible.”

Facilities Management, Telecommunications and Emergency Support Technologies, and the University Police and Safety Office with support from NDSU students partnered to make secure building access in the IACC a reality. Facilities Management determined the layout of card access points for the building and installed hardware at those entrances, and Telecommunications implemented the technology behind the card access systems. The University Police and Safety Office maintains the 24/7 Police Communications Call Center on campus that monitors building activity and alarms.

The project to secure entrances to the IACC is consistent with NDSU’s long-term objective to provide exterior envelope security for all campus buildings. Ray Boyer, director of the University Police and Safety Office, said that his office fully supports the project and would eventually like to see all NDSU facilities with the technology.

Boyer said card key technology in the IACC will assist campus police and other emergency services in identifying through access data the individuals who may be in a building in order to account for their safety in the case of an emergency.

Marc Wallman, interim vice president for the information technology, said card access in the IACC provides an opportunity to improve security and safety for students while continuing to ensure their access to the IT resources they need.

LAYING GROUNDWORK FOR THE FUTURE OF INFORMATION TECHNOLOGY

EMPLOYEE AND STUDENT EMAIL UPGRADED TO MICROSOFT OFFICE 365

Email is an official communication channel through which NDSU administration, faculty, staff and other representatives communicate with students regarding university business. During FY 2013, employee and student accounts were upgraded to a new email system. Upgrading these accounts was a first step toward bringing faculty, staff and students into the same email and calendar system.

The N.D. University System partners with Microsoft to provide email at several institutions across the University System, including NDSU.

In August 2012, the University System announced that employees would upgrade to the Microsoft Office 365 email and calendar system. Microsoft Office 365 provides secure access to email, calendaring, instant messaging and Web conferencing from a computer or mobile device. The statewide migration for employees took place in September 2012.

By the following spring, the University System announced that student email would be upgraded to a separate instance of the same Office 365 system. The student email upgrade was completed on June 29, 2013.

At this time, NDSU student email accounts remain in an instance of Office 365 that is separate from faculty and staff accounts. The NDSU IT Division is exploring options to ensure the two will be merged into one during the upcoming academic year. This change will facilitate better communication and collaboration among faculty, staff and students.

CENTRAL FILE SERVICES MOVED TO NEW SYSTEM

NDSU’s Central File Services, including department and cross-department shared files, were moved from Novell Netware to the Windows File Services system in March 2013. The benefits of this change include easier on-campus and off-campus connectivity for faculty and staff who use the system.

During the several months leading up to this campuswide move, the IT Division tested and refined the data migration process by conducting a pilot project internally and with several select departments on campus.

From September 2012 through February 2013, Information Technology Services’ Desktop Support team circulated through campus buildings to prepare more than 2,500 supported computers for the migration by joining them to the Active Directory domain.

The move to Windows File Services provides easier connectivity to shared folders and files, while enabling NDSU faculty and staff to continue to benefit from reliable and secure file storage, back-up and sharing. In addition, this behind-the-scenes change is part of a larger project planned for next fiscal year to significantly increase the amount of data storage available for researchers and faculty.
On June 1, 2013, the final phase of an electrical infrastructure upgrade in the Industrial Agriculture and Communications Center IACC was completed successfully. The upgrade adds significant backup power capabilities for core campus technologies and marks a major milestone in the NDSU IT Division’s plan to deploy next generation network equipment in fall 2013.

The final phase of the upgrade required a 12-hour electrical power outage in the IACC data centers and simultaneous campuswide IT outage to transfer centralized data, voice and video systems over to a new electrical architecture in the data center.

In preparation for the June 1 event, backup telecommunications systems were put in place in NDSU’s Research Park, which enabled University Police and Safety to continue its 24/7 emergency call center operations.

“The value of the work completed during the outage will go a long way to provide the university with backup capabilities, should our communications systems be affected in the future,” said Ray Boyer, director of University Police and Safety. “This will further enable the University Police and Safety Office to provide timely communications during emergency situations.”

The entire process – including shutting down all systems, transferring electrical power and restarting all systems – took place within the estimated 12-hour outage window.

The new infrastructure includes updated uninterruptible power supplies that provide standby battery backup in the case of power failure, two static transfer switches capable of transferring electrical loads from one power source to another in a fraction of a single electrical cycle and four power distribution units that provide power diversity and enhanced equipment protection.

The improvement significantly increases electrical redundancy supporting NDSU’s data center and telecommunications systems. According to Terry Wieland, director of network engineering and operations, the upgrade is a step in the direction of “future-proofing the network substructure to accommodate NDSU’s ever-expanding, mission-critical IT infrastructure.”
## FY2013 - SOURCES OF IT SALARY AND OPERATING BUDGETS

<table>
<thead>
<tr>
<th>BASE FUNDING SOURCE</th>
<th>AMOUNT</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Dakota University System - Service Level Agreement</td>
<td>$729,077</td>
<td>4.3%</td>
</tr>
<tr>
<td>NDSU-Base Appropriated</td>
<td>$9,812,515</td>
<td>58.2%</td>
</tr>
<tr>
<td>NDSU-Appropriated for Base Student Technology Fee</td>
<td>$920,700</td>
<td>5.5%</td>
</tr>
<tr>
<td>(one-time replacement base funding)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Technology Fee*</td>
<td>$1,598,900</td>
<td>9.5%</td>
</tr>
<tr>
<td>Local/Recharge</td>
<td>$3,458,609</td>
<td>20.5%</td>
</tr>
<tr>
<td>Capital</td>
<td>$328,785</td>
<td>2.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong>**</td>
<td><strong>$16,848,586</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

*Total Technology Fee Receipts for FY2013 $2,540,762

** This schedule does not include the additional $5,888,787 the IT Division received in one-time appropriated funding to upgrade the network, enhance storage and backup services, enhance emergency technologies, and reduce student technology fee salary and operating expenses.

## FY13 IT EXPENDITURES: $16,848,586

- **NDSU-APPROPRIATED 58%**
- **NDUS-SLA 4%**
- **NDSU APPROPRIATED FOR BASE STUDENT TECHNOLOGY FEE 5%**
- **LOCAL/RECHARGE 21%**
- **STUDENT TECHNOLOGY FEE 10%**
- **2%**
TEGRITY LECTURE CAPTURE

Tegrity lecture capture technology enables instructors to record everything that is said and viewed in the classroom to produce an integrated audio-video product. Tegrity uses plug-and-play equipment to record lectures and then creates a link to the video in the Blackboard learning management system. It allows students to play back lessons, bookmark sections of the lecture using a smartphone application and find specific information using a built-in search engine.

During FY 2013, NDSU expanded storage quotas for Tegrity recordings, operating under the N.D. University System license. Equipping all instrumented classrooms with recording equipment was cost-prohibitive, so Information Technology Services’ Instructional Services team invested in multiple plug-and-play microphones reservable that can be reserved by faculty for a semester. This equipment was funded by the Student Technology Fee. Instructional Services offered training and one-on-one support to help faculty get started with Tegrity, and Tegrity was integrated into Blackboard for ease of use by both faculty and students.

The following table imparts the sizeable increase in the use of Tegrity at NDSU during the past two years. Tegrity was used in 27 disciplines in FY 2013, up from 13 disciplines in FY 2012.

STUDENT RESPONSE “CLICKERS”

Use of student response “clickers” for classroom polling continued to grow during FY 2013. Approximately 20 percent of students use clickers, most often in large lecture courses. Instructors requested the adoption of technology needed to use handheld devices, including smartphones and tablets, for personal response to questions. Expanding the service in this way would provide students with the option to use such devices, if they already have them, or to purchase a clicker. The product available through NDSU’s clicker vendor was researched; however, we were not able to move ahead on this during FY 2013 because of the limitations of the campus wireless network.

<table>
<thead>
<tr>
<th>CLICKER USAGE</th>
<th>FALL 2011</th>
<th>SPRING 2012</th>
<th>FALL 2012</th>
<th>SPRING 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASSES</td>
<td>10</td>
<td>20</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>INSTRUCTORS</td>
<td>8</td>
<td>19</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>STUDENTS</td>
<td>N.A.</td>
<td>N.A.</td>
<td>2,982</td>
<td>3,175</td>
</tr>
</tbody>
</table>

TEGRITY LECTURE CAPTURE

<table>
<thead>
<tr>
<th></th>
<th>FY 2011</th>
<th>FY 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>instructors use</td>
<td>36</td>
<td>43</td>
</tr>
<tr>
<td>classes use</td>
<td>860</td>
<td>616</td>
</tr>
<tr>
<td>unique recordings created</td>
<td>198</td>
<td>196</td>
</tr>
<tr>
<td>hours of content recorded</td>
<td>2,644</td>
<td>2,032</td>
</tr>
<tr>
<td>hours of content viewed</td>
<td>16,538</td>
<td>21,399</td>
</tr>
<tr>
<td>content views</td>
<td>30,486</td>
<td>48,704</td>
</tr>
</tbody>
</table>

TEGRITY WAS USED IN VARIOUS DISCIPLINES

- Agribusiness and Applied Economics
- Apparel Design and Hospitality Management
- Architecture and Landscape Architecture
- Chemistry
- Communication
- Construction Management and Engineering
- Distance and Continuing Education
- Economics
- Education
- Genetics
- Health, Nutrition, and Exercise Sciences
- Human and Community Education
- Human Development and Family Science
- Management Information Systems
- Mathematics
- Natural Resources Management
- Nursing
- Philosophy
- Plant Sciences
- Political Science
- Psychology
- Range Science
- Soil Science
- Statistics
- Veterinary and Microbiological Sciences
- Zoology
Blackboard is an online course management system that allows professors to interact with students and post grades, information and assignments.

Blackboard was successfully upgraded at NDSU on June 28-29, 2013. The upgrade brought several new features and enhancements, including a tool that allows instructors to view a course as a student, inline assignment grading and a retention center for monitoring at-risk students and taking immediate action to improve student performance.

Use of Blackboard Mobile during FY 2013 increased significantly. There were 17,164 unique visitors, with steady growth during the academic year and a big surge at the end of spring 2013.
### INSTRUMENTED CLASSROOMS

The remodeling and complete technology overhaul of Stevens Auditorium, renamed Gate City Bank Auditorium, was completed by the start of fall 2012 semester.

Information Technology Services implemented a fee for departmental computer lab support and for department-requested software installation in computer labs after the designated software request deadline.

Purchase and installation of 13 interactive panels and four interactive whiteboards, funded by the NDSU Development Foundation, was completed. The interactive technology was installed in the following locations denoted in the table to the left.

Through the annual refresh of technology in the classrooms, the control systems continue to be upgraded to Crestron control systems and converted from analog to high definition.

The planning and purchasing of equipment to fully instrument all NDSU general-purpose classrooms and teaching computer clusters was conducted. The installation is scheduled to be complete by fall 2013.

### VIDEOCONFERENCING

The Technical Support Services team provided videoconferencing equipment and support for the following academic events:

**WATEREDISCOVER CONFERENCE ON MAY 15, 2013**
Connected to Bangladesh, India, Saudi Arabia, Uganda, Wisconsin

Read more at: www.ndsu.edu/news/view/detail/9209

**CHORAL SUMMIT OF CHORAL MUSIC OF THE AMERICAS SYMPOSIUM ON MAY 5, 2013**
Connected to Argentina, Brazil, British Columbia, Costa Rica, Newfoundland

Read more at: www.ndsu.edu/finearts/cmota/2013/schedule.html

**NORTH DAKOTA TRIBAL COLLEGE CONFERENCE ON APRIL 19, 2013**
Connected to NDSU, North Dakota Tribal Colleges, University of North Dakota

**ENGL 455/655 CONFERENCE ON DEC. 13, 2012**
Connected to Belgium, Finland, France, Italy, Spain

---

<table>
<thead>
<tr>
<th>INTERACTIVE WHITEBOARDS</th>
<th>INDUSTRIAL AGRICULTURE AND COMMUNICATIONS CENTER 102</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INDUSTRIAL AGRICULTURE AND COMMUNICATIONS CENTER 106</td>
</tr>
<tr>
<td></td>
<td>LADD HALL 114</td>
</tr>
<tr>
<td></td>
<td>MUSIC EDUCATION BUILDING 13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERACTIVE DISPLAY PANELS</th>
<th>AGRICULTURAL AND BIOSYSTEMS ENGINEERING 201</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BENTSON BUNKER FIELD HOUSE 29</td>
</tr>
<tr>
<td></td>
<td>CIVIL AND INDUSTRIAL ENGINEERING 101</td>
</tr>
<tr>
<td></td>
<td>DUNBAR LABORATORIES 152</td>
</tr>
<tr>
<td></td>
<td>FAMILY LIFE CENTER 122</td>
</tr>
<tr>
<td></td>
<td>FAMILY LIFE CENTER 415A</td>
</tr>
<tr>
<td></td>
<td>LOFTSGARD HALL 114</td>
</tr>
<tr>
<td></td>
<td>MINARD HALL 135</td>
</tr>
<tr>
<td></td>
<td>MINARD HALL 212</td>
</tr>
<tr>
<td></td>
<td>MERRIL HALL 105</td>
</tr>
<tr>
<td></td>
<td>MERRIL HALL 107</td>
</tr>
<tr>
<td></td>
<td>RENAISSANCE HALL 114</td>
</tr>
<tr>
<td></td>
<td>SOUTH ENGINEERING 314</td>
</tr>
</tbody>
</table>
## Classroom and Cluster Technology Summary

<table>
<thead>
<tr>
<th></th>
<th>Fall 2012</th>
<th>Spring 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported Computers on Campus</td>
<td>918</td>
<td>36</td>
</tr>
<tr>
<td>Public Computer Clusters on Campus, located in 20 Buildings</td>
<td>36</td>
<td>513</td>
</tr>
<tr>
<td>Windows Computers in the Clusters</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>Mac Computers in the Clusters</td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Pieces of Software Installed in the Clusters per Instructor Request</td>
<td></td>
<td>20,278</td>
</tr>
<tr>
<td>Cluster Computer Logins per Week in Fall 2012</td>
<td>16,474</td>
<td>18,918</td>
</tr>
<tr>
<td>Cluster Computer Logins per Week in Spring 2013</td>
<td></td>
<td>15,379</td>
</tr>
<tr>
<td>User Hours per Week Spent Logged into Cluster Computers in Fall 2012</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>User Hours per Week Spent Logged into Computers in Spring 2013</td>
<td></td>
<td>383</td>
</tr>
<tr>
<td>Interactive Video Network Classes Sent or Received During Fall 2012</td>
<td></td>
<td>516</td>
</tr>
<tr>
<td>Interactive Video Network Classes Sent or Received During Spring 2013</td>
<td></td>
<td>10,254,297</td>
</tr>
<tr>
<td>Students Who Participated in Interactive Video Network Classes During Fall 2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students Who Participated in Interactive Video Network Classes During Spring 2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheets of Paper Printed at the Go-Print Stations</td>
<td>383</td>
<td></td>
</tr>
</tbody>
</table>
STATISTICAL CONSULTING

Information Technology Services and the Statistics Department jointly support Statistical Consulting Services at NDSU. These services are available to all faculty, staff and students at N.D. University System institutions, typically at no charge.

The Statistical Consulting unit provided consulting services during the past year through the efforts of one full-time staff member and two statistics graduate students who contributed 10-20 hours per week.

Consulting records specific to the full-time staff person indicate more than 260 unique clients from various academic departments, accounting for approximately 1,200 recorded contacts (in person, via phone and via email), with roughly 33 percent of the contacts directly related to statistical questions. Remaining contacts were primarily questions related to software usage (e.g., SAS, SPSS) and the use of the Optical Mark Reader for test scoring and student ratings of instruction processing. The bar chart below places FY 2013 into a historical context and offers a breakdown of these data by question type as either “statistical” or “other.”

The full-time consultant statistician also served as an adjunct faculty member, teaching Statistical SAS Programming and leading the Statistics Consulting/Presentation Practicum.
Network Engineering and Operations designs, installs and maintains all network and telecommunications infrastructure required to provide a reliable, stable and flexible state-of-the-art communications architecture.

This report identifies some of the key activities within NEO during FY 2013 with the objective of articulating the team’s vision as it continues to move the campus forward, creating opportunities and new services to achieve shared goals.

As more faculty, staff and students rely on the enterprise network infrastructure to effectively conduct their academic and business activities 24 hours per day, seven days per week, NEO has taken a monolithic approach to sustainable growth and development. NDSU’s network infrastructure was aging and the architecture had to be reassessed and restructured to provide reliable 21st century networking solutions and resources going forward.

Strategically, there were five specific areas that were identified as in need of immediate attention, were pinned as an emerging concern or were part of an overall strategy:

- Environmental and Electrical
- Network Core
- Wireless Networking
- Network Edge
- Extending the core network infrastructure to the Data Center

Early in 2012, NEO, Telecommunications and Emergency Support Technologies and Facilities Management began planning the first phase of the environmental upgrade to overhaul the electrical infrastructure based conceptually on TIA-942 standards for data centers. The overall strategy was to elevate the electrical sustainability and redundancy to three specific areas within the Industrial Agriculture and Communications Center: network operations, data center and server operations, and Telecommunications and Emergency Support Technologies. After six months of designing, planning and construction, installation was completed June 1, 2013. All services and hardware energized by this upgrade now have a three-fold increase of hold time in the event of a power outage in the IACC. Plans will soon be underway to further advance this infrastructure by increasing our own ability to generate electrical service to the IACC.

In spring 2013, with the support of NDSU’s administration, the IT Division initiated discussions related to critical network improvements.
Using key strategies outlined earlier, six vital objectives were defined initially and substructure for each was added during development:

- Increase network port capacity to 10 gigabytes per second
- Develop a model and appropriate technology to begin 40 and 100 gigabytes per second deployments
- Overlay storage area network with Ethernet to achieve convergence
- Add network redundancy
- Enhance network management
- Upgrade the existing wireless infrastructure to increase both capacity and coverage, as well as prepare for next generation Wi-Fi protocols (802.11ac)

In preparation for this network improvement, a team comprised of engineers from NDSU and Cisco and its channel partner, Corporate Technologies, was assembled. The team dedicated two months to developing a design that would meet the criteria detailed above. Once a bill of materials was created for the final design, the orders were quickly placed to meet the business deadlines of the university. Plans are currently underway to begin deployment of the more than 1,400+ network components. This process will continue throughout FY 2014.

Several other initiatives focused on support and further development of wide area networks that link the university to the rest of the world:

- In summer 2012, network engineers collaborated with the North Dakota Information Technology Department to upgrade the state network to a 10 gigabytes per second backbone
- NDSU upgraded its connection to the state network to 10 gigabytes per second
- In fall 2012, network engineers assisted in connecting all but one of the state’s Tribal Colleges to the state network

Wi-Fi continues to be the most popular network commodity on campus. As the NDSU community continues to migrate away from wired technologies toward wireless and mobile solutions, the number of unique devices connecting to the campus wireless network has increased, while the number of wired connections has slightly decreased.

Network Access (2012-13 academic year averages):
- 12,809 unique devices on the campus wireless network per week
- 11,135 unique devices on the campus wired network per week

As more mobile devices are enabled on our campus and are now required in some classrooms, these trends for wireless and wired connectivity will continue. This is not to imply that the wired network is becoming irrelevant and the need for bandwidth is diminishing. Rather, bandwidth-intensive applications and storage systems will continue to demand the high-performance connectivity largely provided by the wired network.

The challenge for Network Engineering and Operations will be to continue to ensure the demand for more wireless coverage and greater capacities are met, while also guaranteeing that high-performance networking continues to be available to the research and teaching community.

Other FY 2013 accomplishments and activities included:
- Served as IT project lead to build a Commodities Trading Lab in Barry Hall
- Collaborated with Facilities Management to upgrade network access for building control systems across campus
- Provided secure network connectivity for the Microsoft summer conference
- Designed and architected network infrastructure for the Dickinson Research Extension Center to support Voice over Internet Protocol and research applications
- Completed more than 500 work orders for provisioning voice, data and video applications
- Assisted in provisioning the Northern Tier Network – North Dakota and South Dakota connection
- Installed Northern Wave equipment at the Fargo AT&T Point of Presence
- Continued to promote IPv6 across all levels of the intranet and internet, gaining some traction as 20 percent to 50 percent of NDSU’s incoming traffic is on IPv6
- Designed and provided project management of the fiber optic extensions to the new Shelly Ellig Track and Field Facility on NDSU’s main campus
- Continued to work toward final design for the Bison Sports Arena remodeling project
- Achieved 95 percent completion in the three-year Minard Hall rebuilding project
Telecommunications and Emergency Support Technologies serves NDSU students, faculty, staff and a variety of NDSU partners by providing leadership and expertise in enterprise voice, emergency support technologies and the university’s underground communications infrastructure. Vital to the department’s overall operations is its role in supporting NDSU’s Police and Safety 24-hour Communications Call Center, with the infrastructure and technologies necessary for emergency preparedness.

With an FY 2013 budget of $4.6 million, as well as strong collaborative partnerships with Network Engineering and Operations and with Facilities Management, the department provides oversight, strategic planning, coordination and management of the university’s transport facilities infrastructure, voice networks, call management, VoIP telephony, cellular communications, Bison Lines long distance service, cable television, centralized and integrated security card access and video surveillance. Unique as a communications utility relating to business aspects, the department operates on a cost-recovery basis, serving more than 6,300 students, faculty and staff on the main campus and 10 remote sites, including the North Dakota State College of Science and the Dickinson Research Extension Center.

With the foundation laid of next generation infrastructure, Internet Protocol technologies and services including single-mode fiber, Unified Communications and advanced collaborative mobility functionality, the year was spent addressing strategic key points for advanced-feature functionality and infrastructure reinforcement and expansion in support of heightened service provision and remote learning. The pursuit of Unified Communications, the fostering of enterprisewide partnerships and the continuance of leveraging the institution’s investment in technologies and infrastructure provide the basis for accessing next-generation IT services. Statewide collaborative efforts, together with state government and respective University System institutions, is now realizing the efficiency and convenience benefits of enhanced and transparent Unified Communications. Leveraging the state’s network, these initiatives include providing centralized enterprise voice services and five-digit dialing between campuses.

Recognition of Emergency Support Technologies as a critical service component in providing ongoing vigilance and timely response when life safety, property preservation and security are threatened, the department continues to experience tremendous expansion and growth, continuing to work toward developing an emergency support standard of securing the exterior envelope of all campus facilities, and to implement new advanced technologies designed to enhance the security and safety of the campus. Emergency Support Technologies now encompasses 52 percent of our business. We provide tools and technical expertise for the life safety needs of NDSU, serving the philosophical and pragmatic needs of University Police and Safety, Facilities Management and Student Life. In cultivating these relationships, we are committed to working at the highest level of trust and collaboration with our partners.

The department’s advanced technologies are recognized as leaders within their respective industries, are centralized and enterprise in caliber, and include as many disaster recovery and business continuity capabilities as possible.

MAJOR INITIATIVES

- Telecommunications and Emergency Support Technologies, building on NDSU’s existing enterprise VoIP platform, has initiated statewide collaborative efforts to manage connectivity for various entities, laying the framework for next generation Unified Communication technologies and furthering NDSU’s commitment to providing enhanced telecommunications services to students, faculty and staff in a global environment. This statewide collaborative effort, together with state government and respective University System institutions, is now realizing the efficiency and convenience benefits of enhanced and transparent unified communications. Leveraging the North Dakota state network (STAGEnet), these initiatives include providing centralized enterprise VoIP services and five-digit dialing.

  - Implemented connectivity to the N.D. University System offices and state government offices in Bismarck (328 prefix) and Dakota College Bottineau.

- The University Police Communication Call Center operations, to include multiple line telephone functionality for relocated mission-critical university staff and university emergency responses, will function at the Research 1 building in the event of an emergency. Redundant telecommunications voice carrier facilities with diverse path and a geographically remote Enterprise Survivable Server are located at the Research Park to protect campus from failure, facilitating emergency telephone services in the event communications services in IACC and Dolve Hall become inoperable. This redundancy, now in place, allows NDSU to immediately manage mission-critical operations in Research 1 building, pre-planned and strategically designed as plug-and-play to immediately accommodate any potential emergency.

  - The first phase ($730,000) of a recent engineering study conducted in the IACC, overviewing a $4 million tier 3.5 design, has been completed, providing increased electrical capacity and duplicated UPS for redundancy to NDSU voice and data centers. Reliable emergency backup power is needed to minimize interruptions to critical life safety systems, telecommunications operations and data networks.

  - Phase II of the project has begun, with MBN Engineering named to identify up to $1.5 million in an undetermined scope of providing redundant generators in support of the data center.

- Through a major initiative, NDSU has fully secured the exterior envelopes of the three main downtown campus buildings. Expansion of the university’s centralized and integrated video surveillance system, in keeping with the philosophical change to facility envelope security pursued since fall 2007, continues to support full-feature interoperability with the centralized card access and voice recording systems, alarming back to the 24/7 Police Communications Call Center. A major upgrade of the centralized system was completed, allowing full redundancy of IP and digital recording, and high definition and pan/tilt/zoom cameras to provide the highest level of resolution, capturing a broader safety and security surveillance picture of a core of the main campus. This centralized system of surveillance is a continuing evolution of the university philosophy of one-system adherence to providing 24/7 recording capabilities with real-time ability to use surveillance cameras as part of the safety, security and emergency response operations of NDSU.
The main campus pan/tilt/zoom camera pilot project, now in place, captures a broader safety and security surveillance picture of the core of the main campus, with cameras placed in strategic locations to increase the overall safety and security of the campus. This effort will maximize surveillance efforts, particularly at night, of the movement of people on the core campus.

The downtown campus camera pilot project includes the use of multiple stationary cameras on integrated electronically-locked doors on the building envelope exterior, prompting a door-in alarm to be remotely viewed from the University Police Communications Call Center, providing the needed safety and security additions for those facilities.

As planned, additional phases will bring existing independent campus video surveillance locations onto the system, with policy development and a costing structure to include a scalable model to allow expansion as funds are made available. Our partnership with Network Engineering and Operations continues for video surveillance installation and maintenance.

- Implemented fully centralized and integrated voice enhancements of 24/7 Police Communications Call Center telephone and radio communications, leveraging existing voice system technologies and providing a common application platform with existing video surveillance technologies.

- Leveraging the state network, expanded centralized VoIP services to the western part of North Dakota to serve staff at the NDSU Dickinson Research Extension Center.

- Completion of Phase V single-mode fiber completes the overall five-phase endeavor of $675,000. This major infrastructure upgrade supplements existing aged infrastructure and provides greater bandwidth and higher connection speeds to campus buildings in support of future academic and research requirements, extending the university’s infrastructure to the north and east parts of campus.

- Continued expansion of the campus cable television infrastructure to provide the Emergency Alert System. This system now provides an emergency TV broadcast to 1,994 residence hall and apartment units and 163 administrative and academic locations in 49 campus buildings. Routine testing of all systems continues on the first Wednesday of each month.

- Continued partnership with NDSCS in the growth of advanced voice and mobile functionality, the expansion of IP telephones across campus and the ongoing development of Telecommunications business operations.

- Continued efforts to expand IT Division business processes utilizing BITEK, the department’s existing accounting and billing management system, to customize and consolidate the division’s billing, accounts receivable and reporting processes.

- Security card access continues to incur growth and expansion campuswide, both in new construction and in existing facilities. Major construction projects were completed at the Plant Science Greenhouse Phase III, the Shelly Ellig Track and Field Facility and NDSCS’s Skills Technology and Training Center, with design and engineering provided for the Ag Extension Services Greenhouse Phase III, Minard Hall and the Research 1 addition.

- To leverage existing expertise within Facilities Management, Telecommunications and Emergency Support Technologies continues the partnership of a newly formed “card access shop” to improve installations, trouble resolution and preventive maintenance. All installations of security card access, including major construction, continue to be done in-house. This “card access shop” philosophy has led to improved focus on quality, consistency and enhanced alarm accuracy to the 24/7 Police Communications Call Center.
CAMPUS COMMUNICATION TECHNOLOGIES

INFRASTRUCTURE

Inside cable  
1,830,000 feet [346 miles]

Outside copper network  
28,000,000 conductor feet [5.303 miles]

Outside fiber-optic network  
112,200 strand feet [21.3 miles]

Outside cable TV network  
18,000 feet [3.4 miles]

Inside cable TV network  
299,100 feet [56.7 miles]

Leased fiber-optic  
48,100 feet [9.1 miles]

Underground conduit  
91,000 feet [17.2 miles]

Fiber-optic cables  
2,250 strands

CELLULAR PHONES

500 total users

320 smartphones

1,006,000 cellular minutes annually

CABLE TV

Cable TV distribution to 49 main and remote campus buildings

163 administrative and academic locations

1,994 residence hall and apartment unit locations

CARD ACCESS

450 doors equipped for card access

18,000 users with access privileges

300 - 1,500 access and door schedule changes per week

25,000 door access swipes on a typical day

VOICE AND EMERGENCY COMMUNICATIONS

6,319 dial tone lines [includes ten remote locations]

600,000 long distance minutes annually

400+ custom phone features/buttons

108 users of phone-to-cellular bridge

27 blue light emergency phones
HELP, SUPPORT AND TRAINING

IT HELP DESK

The IT Help Desk is the first point of contact for all campus IT services and support. The Help Desk provides support for all NDSU students, faculty and staff through online support documentation, a Web-based ticketing system, email, telephone and chat. Other services include large-format printing for posters or presentation materials, Optical Mark Reader scoring for exams and checkout of equipment including digital still and video cameras, laptops and podcast recording units.

SUPPORT AND SERVICES 2010-11 2011-12 2012-13

<table>
<thead>
<tr>
<th></th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALLS</td>
<td>30,116</td>
<td>25,221</td>
<td>22,461</td>
</tr>
<tr>
<td>WALK-UP</td>
<td>9,506</td>
<td>6,810</td>
<td>9,982</td>
</tr>
<tr>
<td>EMAIL</td>
<td>9,104</td>
<td>6,326</td>
<td>4,147</td>
</tr>
<tr>
<td>CHAT</td>
<td>600</td>
<td>1,800</td>
<td>1,500</td>
</tr>
<tr>
<td>WEB FORM SUBMISSION</td>
<td>1,304</td>
<td>946</td>
<td>1,892</td>
</tr>
<tr>
<td>EQUIPMENT CHECKOUT</td>
<td>4,321</td>
<td>2,691</td>
<td>2,112</td>
</tr>
<tr>
<td>OPTICAL MARK READER</td>
<td>2,346</td>
<td>2,416</td>
<td>2,290</td>
</tr>
<tr>
<td>PLOTTING</td>
<td>1,373</td>
<td>1,086</td>
<td>989</td>
</tr>
<tr>
<td>TOTALS</td>
<td>58,670</td>
<td>47,296</td>
<td>45,373</td>
</tr>
</tbody>
</table>

DESKTOP SUPPORT

Desktop Support continues to offer computer management for departments across campus and throughout the state’s Extension offices and research centers, assisting staff and faculty and staff with technical issues. While some departments choose to provide their own technical support, an estimated 60 percent of NDSU faculty and staff computers are managed by the Desktop Support team.

The team assisted with the completion of the migration from Novell File Services to Windows File Services. This has enabled easier access to departmental shared drives from both on and off campus. Computers managed by Desktop Support are now in the Active Directory system, which enables better management and eliminates some of the password synchronization issues previously experienced by customers.

Windows XP and Office 2007 were retired, and management options through Desktop Support are no longer available. However, Windows XP and Office 2007 will continue to work on campus, and support for these programs is available through the IT Help Desk.

During FY 2013, Desktop Support also continued to:

• Work with the NDSU Bookstore to negotiate lower prices for standard desktop and laptop computers, resulting in cost savings to departments, fast set-up times and better processes.

• Manage the Cascade Program, repurposing 150 used Windows and 25 used Mac computers from clusters.

• Work with the purchasing department to manage the computer surplus projects on campus.

During the next fiscal year, Desktop Support will assist with the move from Novell ZENworks to Microsoft’s management solution. This project is expected to span into August 2014 and will give greater flexibility in certain areas of support.

IT SECURITY

Universitywide information security strategy – including policies, procedures, risk management, assessment and awareness – are top priorities of the IT Security office. Major security initiatives completed in FY 2013 include:

• Audited and assessed network departmental shared folders to ensure proper access was maintained. With the service owner’s permission, the IT Security Office removed and added access as needed.

• Developed and created an online request process for shared email accounts and server assessment and approval.

• Promoted and marketed:
  – Cyber Security Month in October by posting information on the IT Security Facebook site and IT Security website. We also offered a presentation in coordination with NDSU’s Research Data Working Group.
  – Data Privacy Month in November by sharing through social media channels information related to protecting one’s identity and sensitive or confidential data.

• Participated in and collaborated with the RDWG’s “Got Data?” campaign by promoting security measures that can be used to protect and secure research data and intellectual property.

• Partnered with Enterprise Computing and Infrastructure to determine rightful access to the NDSU network and computer services. This involved removing service tags no longer in use or no longer needed after the implementation of Active Directory.

• Served as part of a work group appointed by Provost Bruce Rafert to develop guidelines for the use of instructional computing and social media tools.

• Partnered with NDSU’s Office of the General Counsel to create and develop guidelines for use of software and Web-based services used by faculty and staff. The guidelines can be accessed at www.ndsu.edu/its/intellectual_property_copyright/softwareandweb_basedservicesguidelines.

• Implemented Nessus, a software tool used for vulnerability scanning of systems on campus.
PRESENTATIONS AND OUTREACH
JEFF GIMBEL, SENIOR IT SECURITY ANALYST, PRESENTED THE FOLLOWING:

• “Securing Your Social.” Presented to several groups and classes on NDSU’s campus.

• “Why Am I Getting DoSsed From 134.129.71.XXX?” Presented at the April 2013 meeting of the IT Technical Professionals.

THERESA SEMMENS, CHIEF IT SECURITY OFFICER, PRESENTED THE FOLLOWING:


• “BYOD: Security, Mandates, Applications (Do You Have It Covered?)?” Presented at the Security Professionals Conference in April 2013.


FOLLOW NDSU IT SECURITY:

• www.facebook.com/NDSUITSEC
• www.ndsu.edu/its/security

SOFTWARE ASSET MANAGEMENT
The Software Asset Management office partnered with the IT Security office in February 2013. This will allow for more efficient review of contracts and terms of use and will provide backup for the software office. Highlights from FY 2013 included the following:

• A two-year site license was purchased for MATLAB, a computational software used by science, math and research departments.

• The software website was updated for easier customer use. The software order form was streamlined and connected to the customer support ticketing system.

• Software Asset Management has teamed with Desktop Engineering to further simplify requests from faculty and staff for software to be installed in instrumented classrooms and computer clusters.

TECHNOLOGY TRAINING
Instructional Services and the Technology Learning and Media Center provide support, technology training and media services for NDSU students, faculty and staff. More information about technology training and resources is available at: www.ndsu.edu/its/training

TRAINING FOR FACULTY AND STAFF
Instructional Services supports effective and innovative uses of technology in face-to-face and online learning environments.

Instructional Services training and support are available for a number of technologies, including Blackboard, Microsoft Office software, interactive Smart Boards and Smart Display Panels, multimedia tools, video and Web conferencing, student response systems and social computing.

During FY 2013, training was offered through 80 regular training sessions, three Technology LunchBytes sessions and one a faculty training workshop.

The sixth annual faculty training workshop, “Dive In,” provided 20 attendees with hands-on experience incorporating technology with instruction. This year’s workshop focused on creating an exemplary course in Blackboard.

Instructional Services also offered breakout training sessions at the fall and spring NDSU Extension Conferences.

NEW IT TRAINING ROOM
Instructional Services created a new training room in IACC 150D. The facility is a big improvement over the previous space in IACC 246.

• It seats more than 20 participants and three laptop users, a significant increase from the 12 participants seated in the former training facility.

• It has more than twice the space of the previous room to allow easier flow and additional seating.

• It has an instructor podium that mirrors the instructor stations in classrooms so faculty can practice using the equipment in a private, available space.

• It has both a Smart Board and a Smart Display Panel to allow more training on these interactive technologies and the opportunity for instructors to practice away from students in a reservable space.

• It features 20 participant workstations with built-in Web cameras and all the software needed for video and audio creation.

The training room can be scheduled for technology training offered by other NDSU departments as the schedule permits. To reserve the space, email ndsu.blackboard.support@ndsu.edu
INSTRUCTIONAL SERVICES TRAINING SUMMARY

427 NDSU faculty and staff members participated in 80 regular training sessions

20 NDSU faculty members attended the 2-day, 12-hour “Dive In” Workshop

3 sessions of the 50-minute Technology LunchBytes trainings were offered, including a kick-off meeting of the Tablet Users Group

TECHNOLOGY LEARNING AND MEDIA CENTER

The Technology Learning and Media Center provides a variety of technology learning and media services for the campus community, including multimedia services, classroom project support, plotting services, course work assistance and technology workshops.

During FY 2013, walk-in customer contacts numbered more than 6,000 students, staff and faculty members. Additionally, many students used the TLMC lab and media studio to work on group and individual multimedia projects, and the TLMC provided drop-off services for media conversion projects. Technology workshops continue to be popular with students. During FY 2013, 65 workshops were provided by TLMC staff members for the general student population, and 95 workshops were delivered to specific classes, in response to instructor requests.

MEDIA STUDIO AND VIDEO PROJECT ASSISTANCE

Multimedia services offered through the TLMC include video and audio recording studios, special software, and equipment and consulting services. TLMC's full-time media technologies consultant and student media assistants provide limited video production services. During FY 2013, they spent approximately 487 hours working on media projects for NDSU departments. Video project assistance includes consulting services, video recording and editing. Reservations for the media studio continue to increase.

With its focus on multimedia services and student project support and workshops, the TLMC continues to be a valuable component of the training and support services offered by the IT Division.

TRAINING SUMMARY

7,940 total student contacts

1,940 attendees at technology workshops

6,000 walk-in support requests

5,538 total hours of support provided to contacts

160 total technology workshops offered

95 technology workshops offered to classes by instructor request

65 technology workshops offered to students

212 total hours of training offered

FALL 2012 VIDEO PROJECTS

• Marketing Class Interviews
• Innovation Challenge – Call For Entries
• Graduate School and University Relations
• Student Technology Services for Bison Information Network
• Tim Sharp, Guest of the School of Music
• IT Division Staff Awards Promotional Video

SPRING AND SUMMER 2013 VIDEO PROJECTS

• Music of the Americas International Choral Summit
• Innovation Week Student Presentations and Keynote Address
• Center for Child Development – Multilingual Stories
• Computer Science Department Presentations
• Health, Nutrition and Exercise Student Safety Demos
• Counselor Education Video
• IT Security for University 189 Video
• TLMC Student Promotional Video
• Student Technology Services Promotional Video
ADVANCED APPLICATIONS AND OUTREACH

The responsibilities of the Advanced Applications and Outreach team focus on providing support in statistical consulting and using resources available through global research and education networks.

RESEARCH AND EDUCATION NETWORK ACTIVITIES

Activities during FY 2013 included managing the state’s Internet2 and Sponsored Education Group Participant related member services. Advanced Applications and Outreach represents NDSU and the IT Division in state and regional research and education network initiatives. These activities include grant management and reporting for regional network grant projects; coordinating efforts for collecting, analyzing and reporting evidence of impact from grant activities; and facilitating agreements with external partners requesting access to the Northern Tier Network.

North Dakota’s Internet2 and Northern Tier Network Consortium membership also is represented by NDSU through ongoing service to several regional and national network organization committees.

TRIBAL COLLEGES COMPLETE CAMPUS NETWORK UPGRADES AND JOIN ND’S INTERNET2 SEGP COMMUNITY

As of June 2013, campus network upgrades at four of the five Tribal College campuses in North Dakota were completed as part of a National Science Foundation EPSCoR Cyber Connectivity (NSF RII-C2) grant, allowing access to Internet2 traffic for the Tribal Colleges. Advanced Applications collaborated with ND EPSCoR to plan and facilitate the first ND EPSCoR Cyberconnectivity 2 Conference for Tribal College faculty, staff and students. The conference was developed to highlight the opportunities to access research and education network resources and to collaborate with partners across the state and beyond through improved campus cyberinfrastructure.

NORTHERN TIER NETWORK

The network moves toward completion on two major federal stimulus grants, paving the way for new partnerships, including recent collaboration with the National Oceanic and Atmospheric Administration.

Two major projects funded by American Recovery and Reinvestment Act grants will soon reach completion of major enhancements to the existing network.

NORTHERN TIER NETWORK: NORTH DAKOTA AND SOUTH DAKOTA ACCESS IMPROVEMENT

The project improves the structure of the network by linking North Dakota and South Dakota’s segments (NTN-ND and NTN-SD). The Northern Tier is a regional optical research and education network connecting institutions in 13 states across the Northwest. Connecting the South Dakota and North Dakota networks involves acquiring a 20-year Indefeasible Right of Use to dark fiber between NTN-ND and NTN-SD, acquiring the necessary equipment to light the new fiber between NTN-ND and NTN-SD, and upgrading NTN-SD’s equipment in Aberdeen, S.D., where the connection to the South Dakota network is made.

THE NORTHERN WAVE: ENABLING INCLUSIVE WESTERN STATES NSF RESEARCH VIA NEXT GENERATION NETWORKING

This initiative expands upon the Northern Tier optical network built in partnership with the Pacific Northwest Gigapop, which already brings gigabit connectivity to these institutions through their respective layer-3 connections to Points of Presence in Spokane, Wash., and Minneapolis. When completed, the Northern Wave will add new layer-2 capabilities to support eScience efforts at current member institutions and, ideally, at institutions – baccalaureate, Tribal Colleges, community colleges – that are not currently connected but that might do so going forward through proposed “on-ramps” across the span of the network.

NOAA'S SCIENCE NETWORK EXPANDS THROUGH THE NORTHERN TIER NETWORK

Further proof of the high value of our regional research and education network is evidenced by the integral role it served in the recent expansion of the National Oceanic and Atmospheric Association’s science network, N-Wave.

NOAA’s recent partnership with the Northern Tier Network Consortium and Pacific Northwest Gigapop established the newest segment of N-Wave’s backbone, including a fifth and most recent core node located in Seattle. Culminating nearly two years of work, this new circuit went live the week of April 15, 2013. According to Robert Sears, network engineer for NOAA, the partnership with NTNC extends the “overall stability of N-Wave and sets the foundation for future scientific collaboration.”

THE NORTHERN TIER NETWORK’S NORTHERN WAVE

More information about the Northern Tier Network Consortium is available at www.ntnc.org.
NDSU JOINS INCOMMON

InCommon, operated by Internet2, provides a secure and privacy-preserving trust fabric for research and higher education and their partners in the U.S. InCommon operates an identity management federation, a related assurance program, and offers certificate and multifactor authentication services.

NDSU EXPLORES INTERNET2 NET+ SERVICES

Serving as a member of the Net+ service validation team for two potential Net+ services allows NDSU to examine the potential value of a specific service for the NDSU community. It also places NDSU in a position to partner with other campuses across the country in creating services that are cost-effective, easy to access, simple to administer and tailored to the unique needs of our higher education community. InCommon participation is required for most Net+ services.

K12 OUTREACH ACTIVITIES

Collaborative efforts between NDSU and North Dakota’s Education Technology Support Services organization, EduTech, result in a variety of technology-supported curriculum initiatives each year.

Dakota’s K12 STEM Project develops collaboration between K12, higher education, research centers and private businesses in both North Dakota and South Dakota to expand outreach to educators and students on access and use of science, technology, engineering and mathematics curriculum and research resources for K20.

Internet2 K2O Initiative’s “Global Democracy: Presidents and Policy,” the Presidential Primary Sources Project is a collaborative program sponsored by the U.S. Presidential Libraries and Museums, National Parks, the Library of Congress, the Internet2 K2O Initiative and other primary source stakeholders. The goal is to engage classrooms throughout the national and international education community with an overarching theme, utilizing primary source documents for student research and presentation.

Content programs and classroom collaborations involving resources available through global research and education networks are facilitated during each academic year by EduTech and NDSU.

K-12 Legislative Showcase is coordinated by EduTech and NDSU as a one-day awareness activity during each state legislative session. Where a select group of North Dakota K12 schools are invited to demonstrate exemplary use of technology in their classes.

North Dakota Studies Teacher Workshop, sponsored by the North Dakota Teacher Resource Coalition, is an annual K12 teacher’s professional development summer workshop initiated in 2000. EduTech and NDSU’s advanced applications and outreach coordinator guide educators in accessing technology resources that enhance and extend teaching and learning.
PARTNERSHIPS

IT COUNCIL
The IT Council serves as the primary advisory body for IT strategic planning, policy development and service review for the university. The council serves in a consultative capacity to the vice president for IT and as a governing body for all formal IT Advisory Groups to help facilitate campuswide communication related to IT.

TECHNOLOGY FEE ADVISORY COMMITTEE
The Technology Fee Advisory Committee makes recommendations to the vice president for IT on the uses for which student technology fee dollars are to be expended and evaluates the effectiveness of funded projects. More information is available at www.ndsu.edu/tfac.

IT COMMUNICATION LIAISONS
This program designates representatives from departments across campus to serve as conduits for information and feedback regarding information technology. The program has been remarkably successful in communicating and coordinating technology issues and efforts, and in gathering feedback from participating technology users. Departments with active representation in the liaisons group reported feeling better prepared to adapt to changes in technology services and successfully use available technology resources at NDSU.

IT TECHNICAL PROFESSIONALS
The IT Technical Professionals is a special-interest group sponsored by the IT Division’s Enterprise Computing and Infrastructure department that provides the opportunity for technical discussions and exchange of information between distributed technical staff, ECI and the IT Division. Through regular exchange of information and social activities, a more cohesive technical infrastructure is achieved for NDSU. Collaboration between technical staff across campus means better and more seamless IT services, a benefit not only for IT Technical Professionals but also for those we serve.

SOFTWARE LICENSING CONTACTS
Software licensing contacts serve as liaisons between student employees, departmental faculty, staff and software licensing personnel regarding software licensing questions, ordering and installing, and miscellaneous information pertaining to software licenses. The software contact for a given department is responsible for the ordering, tracking and compliance of software licensing issues for all department-owned computers.

TELEPHONE ADMINISTRATORS
Telephone administrators provide direct services to NDSU departments for all telecommunications needs. They are the first point of contact for any new requests, changes and issues related to telecommunications services.

STUDENT TECHNOLOGY SERVICES
Student Technology Services is a long-standing, work-based learning program that provides opportunities for NDSU students to obtain jobs in the IT field. An internal advisory board provides oversight for the program. Two student managers oversee the student hiring process, maintain records, assist full-time staff with summer orientation and encourage other IT students to be part of this activity. The IT Division relies on student employees to help communicate and provide an overview of IT services to incoming students during campus visits. We value the work of students do and appreciate their willingness to share knowledge and expertise as part of our organization’s outreach activities.
ABOUT OUR ORGANIZATION

IT AWARDS RECOGNIZE MAJOR ACCOMPLISHMENTS

Publicly acknowledging colleagues who have demonstrated their professionalism, knowledge, performance and collaborative spirit to enhance the IT organization and further the mission of the university is extremely important.

On March 21, 2013, the IT Division hosted its fifth annual IT awards recognition event, with three teams and 10 individuals recognized as nominees for these awards. In total, 44 individuals from the campus community submitted nominations. Many of the nominees received multiple nominations.

INNOVATION, COLLABORATION AND EXCELLENCE AWARD

Enrique Garcia, help desk consultant, received the 2013 individual award for Innovation, Collaboration and Excellence.

Enrique Garcia was nominated by 11 individuals who highlighted his willingness to help others, positive attitude, fantastic initiative, delivery of excellent IT service and high level of professionalism.

Other I.C.E. Award nominees were:
- Vince Anderson, desktop support specialist
- Steve Beckermann, media technologies consultant
- Daniel Erichsen, interactive media specialist
- Jon Fry, desktop support specialist
- Nate Gonser, help desk consultant
- Micah McGowen, classroom technologies specialist
- Luke Prather, instructional services consultant
- Amber Rasche, IT communications coordinator
- Jim Sellner, desktop support specialist

IT TEAM AWARD

The IT Team Award was given to the Commodity Trading Room project members for their collaborative efforts to create the state-of-the-art facility in Richard H. Barry Hall.

Members of the Commodity Trading Room team included David Dahl, Brian Kennedy, Micah McGowen, Jim Senechal, Melissa Stotz, Bob Viou, Terry Wieland, Michael Wolf and former IT staff member Galen Mayfield. This team was nominated by Distinguished Professor William Wilson, Ag Extension Services Agribusiness and Applied Economics department, who described the team as "an efficient organization cast of characters who knew exactly what to do, how to do it... made it happen!" This team worked extensively to meet a very dynamic and tight timeline to create a highly specialized facility in the downtown building. There were frequent changes along the way and many hours of work. The team collaborated with Facilities Management, various vendors and external university and industry partners, as well as Wilson, who was the driving force for the facility.

Other IT Team Award nominees were:
- Blackboard Team (Tammy Cummings, Cj Johnson, Nancy Lilleberg, Bryan Mesich, Lorna Olsen, Luke Prather)
- Primary IT support for NDSU Agricultural Affairs (Jon Fry, Blair Johnson, Jerry Ranum)

OTHER STAFF RECOGNITION AND ACHIEVEMENTS

Cindy Kozojed, telecommunications analyst, was inducted into NDSU’s Quarter Century Club.

Amber Rasche, IT communications coordinator, was nominated for the 25th annual Mary McCannel Gunkelman award.

Cathy Hanson, IT staff development coordinator, was recertified as a Professional in Human Resources.

Luke Prather, instructional services consultant, earned a bachelor’s degree in operations and technical management from Minnesota State University Moorhead.

Tammy Cummings, instructional services consultant, earned a master’s degree in education leadership from NDSU.

Jean Ostrom-Blonigen, interim assistant vice president for information technology services, earned a doctorate in communication from NDSU.

ORGANIZATION AND STAFF CHANGES

The IT Division implemented several organizational changes to improve business functions and IT services.

SOFTWARE LICENSING MOVED TO IT SECURITY

For numerous years, NDSU partnered with the N.D. University System via a service level agreement to provide systemwide software licensing support to leverage economies of scale for all campuses.

On July 1, 2012, the University System moved its own component of software licensing in-house to create more efficiency in handling large-scale contract purchases, agreements and compliance issues. This prompted NDSU to reevaluate its own software licensing needs and examine and reengineer the process. Eight components were identified as necessary to having a proactive software-licensing program: finance and business, installation assistance, asset management, technical, IT reporting, IT audit and legal.

The software licensing program moved under the IT Security office, which already had the skill sets necessary to meet the requirements of the last five components. IT asset management coordinator Janet Stringer assumed full responsibilities for the software-licensing program. Stringer reports to Theresa Semmens, chief IT security officer, effective Feb. 16, 2013.

BUSINESS UNIT RESTRUCTURED

Following Marty Hoag’s retirement in May 2012, Joan Chapek and Jean Ostrom-Blonigen assumed co-management of the Business Operations, Policy and Strategic Services unit.
The IT leadership team examined business processes, workflow and staff skill sets. In February 2013, several administrative staff members were assigned different roles and responsibilities in an effort to maximize the efficiency of the business operations unit. Additionally, Sharon Brinker moved to a senior account technician role, and Cindy Lura, account technician, retired. The IT Business Unit became an entity under Information Technology Services. Jean Ostrom-Blonigen assumed sole responsibility for the direction and future goals of the division’s business operations.

ADVANCED APPLICATIONS AND OUTREACH UNIT MOVES TO THE VICE PRESIDENT’S OFFICE

Effective March 1, 2013, Advanced Applications and Outreach moved from Information Technology Services into the vice president’s office to better capture the many synergies between the Internet2-related activities of the vice president and the advanced applications and outreach coordinator, Kim Owen. Owen serves as the secretary and treasurer of the Northern Tier Network executive committee and is a member of the advisory council of the Pacific Northwest Gigapop. She also serves as the Internet2 member of the program committee and on the executive and advisory committees of Internet2 K2O initiatives. All of these efforts benefit from ongoing communication and collaboration with the vice president for information technology at NDSU.

The change also recognizes the significant role of Curt Doetkott, statistician consultant, in providing long-standing, high-quality statistical consulting services to students, faculty and staff. Owen and Doetkott hold leadership roles and facilitate advanced research, learning and outreach for NDSU and its partners at the local, regional and national levels.

ENTERPRISE COMPUTING AND INFRASTRUCTURE LEADERSHIP CHANGES

With the resignation of Galen Mayfield, acting interim assistant vice president for ECI, Steve Sobiech was appointed to lead ECI on an interim basis effective March 6, 2013. Given the high degree of overlap between IT Help Desk and ECI projects, Sobiech serves in a dual leadership role as acting director of Enterprise Computing and Infrastructure and manager of the Help Desk. To support and maintain the daily operational Help Desk functions, Help Desk consultants Nate Gonser and Enrique Garcia were named assistant co-managers of the Help Desk.

For more than a year, Nate Olson served as acting manager of Enterprise Systems during a time of leadership transitioning within the ECI department. After an internal search process, Olson was named manager of the team effective April 8, 2013. Additionally, through a service level agreement with the N.D. University System’s Information Technology Services department, ECI acquired funding to support two system administrator positions. These additional staff fulfill the service and support obligations we have to the University System and NDSU.

CLASSROOM TECHNOLOGIES CHANGES NAME TO REFLECT BROADENED SCOPE

The Classroom Technologies team underwent several organizational changes in spring 2013. To reflect the broad scope of work performed by all members of the group, the unit changed its name to Technical Support Services.

To improve overall efficiencies in how ITS develops, implements and deploys a suite of computer images and applications, a desktop engineering team was created. Two existing employees, Chad Coleman and Michael Wolf, were moved into desktop engineer positions, assuming a higher level of responsibility over engineering the images for campuswide ITS-supported computers, including workstations, instrumented classroom and cluster computers.

The current classroom technology specialist, Micah McGowen was promoted to the classroom technology manager position. Three new staff members were hired. An audiovisual systems specialist position was added to take on the day-to-day imaging responsibilities for the cluster and instrumented classroom computers. Funds available for student employees were repurposed to hire two full-time audiovisual technicians; one works during the day, and the other works into the evening hours for better access to classrooms for ongoing maintenance.

HELP DESK ADDS TWO NEW STAFF

ITS obtained approval to hire two new Help Desk consultants to serve the campus’ growing need for IT support. The Help Desk continues to focus on developing a stronger partnership with Telecommunications and Emergency Support Technologies. Plans are underway for the IT Help Desk to become an integral partner in support of unified communications. This encompasses support for users accessing voice, email and other mixed media from a single mailbox using multiple and different types of electronic devices. Responsibilities to handle in person, onsite technology support for events held at various campus locations that are sponsored by NDSU, the N.D. University System and affiliated partners also have increased.

TELECOMMUNICATIONS STAFF CHANGES

In May 2012, telecommunications analyst Kathie Silkey changed to part-time status. To transition, a replacement analyst was hired to help keep pace for planned future projects and the transitioning of work responsibilities. This replacement position supports a fast-paced transition to unified communications and collaboration technology at the campus and N.D. University System level, focuses on expanding life-safety emergency support technologies and helps broaden the usage of the BITEK billing system by leveraging functionality across the IT Division.

NEW HIRES

- Nate Robideau, telecommunications analyst – July 30, 2012
- Amber Rasche, IT communications coordinator – Aug. 29, 2012
- Jason Eide, system administrator – March 4, 2013
- Nem Schlecht, system administrator – April 1, 2013
- Josh Teegarden, help desk consultant – May 29, 2013

RESIGNATIONS AND RETIREMENTS

- Pam Nielsen, software licensing coordinator, transferred to the N.D. University System on July 1, 2012
- Gaylen Mayfield, acting assistant vice president for ECI, resigned on March 1, 2013
- Cindy Lura, account technician, retired on March 1, 2013
EMPLOYEE LIST
Following is a list of employees in each IT Division department as of June 30, 2013.

OFFICE OF THE VICE PRESIDENT FOR INFORMATION TECHNOLOGY

Marc Wallman INTERIM VICE PRESIDENT FOR INFORMATION TECHNOLOGY AND CIO
Kimberly Carlson OFFICE COORDINATOR
Curt Doetkott CONSULTANT STATISTICIAN
Jeff Gimbel SENIOR IT SECURITY ANALYST
Cathy Hanson IT STAFF DEVELOPMENT COORDINATOR
Kim Owen ADVANCED APPLICATIONS AND OUTREACH COORDINATOR
Amber Rasche IT COMMUNICATIONS COORDINATOR
CeCe Rohwedder ASSISTANT TO THE VICE PRESIDENT FOR IT
Theresa Semmens CHIEF IT SECURITY OFFICER
Janet Stringer IT ASSET MANAGEMENT COORDINATOR

IT BUSINESS UNIT

Sharon Brinker SENIOR ACCOUNT TECHNICIAN
Kim Lammers IT BUSINESS MANAGER
Rhonda Nilles COST ACCOUNTING AND CONTROL ANALYST

ENTERPRISE COMPUTING AND INFRASTRUCTURE

Steve Sobiech ACTING EXECUTIVE DIRECTOR FOR ECI AND IT HELP DESK MANAGER
Jon Bronk Assistant Manager and System Engineer
Eric Christeson Application Developer
Diane Clark Network Infrastructure Technician
Bruce Curtis Senior Network Engineer
David Dahl Senior Network Infrastructure Specialist
Jason Eide System Administrator
Chad Foster Network Infrastructure Technician
Richard Frovarp Senior Software Engineer
Brian Kennedy System Administrator
Bryan Mesich System Administrator
Tim Mooney System Administrator
Val Nordsletten Network Engineer
Nathan Olson Manager for Enterprise Systems
Jill Peterson Application Developer
Matt Reimt Network Infrastructure Technician
Jim Ross Team Lead for Enterprise Application Development
Nem Schlecht System Administrator
Dale Summers Database Administrator
Kelly Summers Network Infrastructure Technician
Bob Viog Network Engineer
Carla Wells Network Infrastructure Technician
Greg Wettstein IT Principal Engineer
Gary Whaley System Administrator
Terry Wieland DIRECTOR OF NETWORK ENGINEERING AND OPERATIONS

INFORMATION TECHNOLOGY SERVICES

Jean Ostrom-Blonigen INTERIM ASSISTANT VICE PRESIDENT FOR INFORMATION TECHNOLOGY SERVICES
Michael Aho HELP DESK CONSULTANT
Vince Anderson DESKTOP SUPPORT SPECIALIST
Lincoln Bathie DESKTOP SUPPORT MANAGER
Steve Beckermann MEDIA TECHNOLOGIES CONSULTANT
Neil Brock HELP DESK CONSULTANT
Chad Coleman DESKTOP ENGINEER
Tammy Cummings INSTRUCTIONAL SERVICES CONSULTANT
Daniel Erichsen INTERACTIVE MEDIA SPECIALIST
Jon Fry DESKTOP SUPPORT SPECIALIST (AG EXTENSION SERVICES)
Enrique Garcia COMPUTER SYSTEMS ANALYST, CO-ASSISTANT HELP DESK MANAGER
Nathan Gonser CO-ASSISTANT HELP DESK MANAGER
David Hamiga AUDIOVISUAL SYSTEMS SPECIALIST
Blair Johnson DESKTOP SUPPORT SPECIALIST (AG EXTENSION SERVICES)
Cj Johnson INSTRUCTIONAL SERVICES CONSULTANT
Sheree Kornkven TECHNOLOGY LEARNING AND MEDIA CENTER MANAGER
Nancy Lilleberg INSTRUCTIONAL SERVICES MANAGER
Micah McGowen CLASSROOM TECHNOLOGIES MANAGER
Lorna Lilleberg INSTRUCTIONAL SERVICES CONSULTANT
Luke Prather INSTRUCTIONAL SERVICES CONSULTANT
Jerry Ranum DESKTOP SUPPORT SPECIALIST (AG EXTENSION SERVICES)
Jim Sellner DESKTOP SUPPORT SPECIALIST
Jim Senechal COMPUTER SYSTEMS SPECIALIST
Melissa Stotz TECHNICAL SUPPORT SERVICES MANAGER
Josh Teegarden HELP DESK CONSULTANT
Michael Wolf DESKTOP ENGINEER

TELECOMMUNICATIONS AND EMERGENCY SUPPORT TECHNOLOGIES

Joan Chapek ASSISTANT VICE PRESIDENT FOR TELECOMMUNICATIONS AND EMERGENCY SUPPORT TECHNOLOGIES
Jason Blosser TECHNOLOGY SYSTEMS COORDINATOR
Gail Bjornstad TELECOMMUNICATIONS ANALYST
Vance Gerchak DIRECTOR FOR TELECOMMUNICATIONS AND EMERGENCY SUPPORT TECHNOLOGIES
Susan Jenstead TELECOMMUNICATIONS ANALYST
Cindy Kozoje Telecommunications Analyst
Linda Krogen-Brandt TELECOMMUNICATIONS ANALYST
Brian Miller Telecommunications Analyst
Jayme Pfiefer Telecommunications Analyst
Nathan Robideau TELECOMMUNICATIONS ANALYST
Kathy Silkey TELECOMMUNICATIONS ANALYST

IT STAFF SUMMARY

75 IT staff members
60+ student staff members