INFORMATION TECHNOLOGY DIVISION

ANNUAL REPORT 2014-2015

NORTH DAKOTA STATE UNIVERSITY
Colleagues,

North Dakota State University serves its citizens.

The Information Technology Division’s initiatives during the 2014-15 fiscal year reflect this ideology.

We partnered with North Dakota Education Technology Council, North Dakota EduTech and the North Dakota Information Technology Department to host the 2015 North Dakota Cyber Security Conference in March. Conference planners gathered a lineup of information security experts from North Dakota and beyond to share strategies, best practices and innovative solutions that address today’s challenges in cyber security. More than 180 people from education, government and industry attended, a testimony to the fact that cyber security is our shared responsibility.

In June, NDSU became among the first campuses in the North Dakota University System to shift its entire Web presence to HTTPS, the secure protocol for communication between a Web browser and website. This change improved security for all website visitors, including students, faculty, staff and the constituencies we serve. The change also boosted NDSU’s ranking in Web search results, making the university more visible to prospective students exploring all that NDSU has to offer.

Throughout the year, we invested much energy into improving our campus classrooms for the next generation of learners. In September, we hosted the second annual NDSU Technology Expo to showcase innovative technologies for teaching and learning. As part of that event, we invited a national speaker to share insight about challenges and potential solutions for actively engaging students in the learning process. We obtained grant funding to install digital media players in classrooms to allow faculty to wirelessly display mobile device content — providing opportunities for faculty to teach without being bound to a podium and students to easily share content with their peers, both of which create a more dynamic learning environment.

Now is an exciting time to be part of a higher education information technology team. As we look ahead to the coming year, we look forward to addressing the challenges of information security, research collaboration, data storage, business efficiencies and fostering a climate that cultivates student success.

Sincerely,

Marc Wallman
Vice President for Information Technology
North Dakota State University
To enhance the safety of students, faculty and staff, NDSU launched the Personal Safety and Security Assist service in spring 2015. The service provides a virtual safety assistance using a location-based smartphone application.

The smartphone app, Pathlight, allows users to initiate tracking of their travels between destinations. With the app, a person can initiate a safety assist by entering destination and estimated travel time information. University police are then able to see the person’s location and respond quickly if he or she does not arrive within the allotted time or in the event of an emergency. The app is integrated with other campus emergency technologies, making it possible for university police to know who the person is, where the person is and how the person is when a safety assist is initiated.

The project was initiated and sponsored by the university’s student government, top-level administration and the University Police and Safety Office. Once initiated, the project was given top-priority status, requiring a six-month implementation timeline and collaboration across multiple departments.

The success of this project rested on a long-standing partnership between NDSU’s University Police and Safety Office and the Telecommunications and Emergency Technologies Department. The two partners hold synergistic philosophies about the integral role of technology in maintaining a safe campus climate. Telecommunications and Emergency Technologies provided the technological foundation for delivering the service and facilitated the collaborative process of identifying, customizing and implementing a specific solution. Other units within the IT Division – including the IT Help Desk and Enterprise Computing and Infrastructure – aligned themselves to assist with customer support and central authentication service integration. Student government also played a key role in pilot testing and improving the service before it was launched campuswide.

Safety of students, faculty and staff is a top priority at all times. Introduction of the Personal Safety and Security Assist service provides more than 14,500 students and more than 6,000 employees with 24/7 access to virtual assistance they can use to enhance their safety.

To enhance the safety of students, faculty and staff, NDSU launched the Personal Safety and Security Assist service in spring 2015. The service provides a virtual safety assistance using a location-based smartphone application.

The smartphone app, Pathlight, allows users to initiate tracking of their travels between destinations. With the app, a person can initiate a safety assist by entering destination and estimated travel time information. University police are then able to see the person’s location and respond quickly if he or she does not arrive within the allotted time or in the event of an emergency. The app is integrated with other campus emergency technologies, making it possible for university police to know who the person is, where the person is and how the person is when a safety assist is initiated.

The project was initiated and sponsored by the university’s student government, top-level administration and the University Police and Safety Office. Once initiated, the project was given top-priority status, requiring a six-month implementation timeline and collaboration across multiple departments.

The success of this project rested on a long-standing partnership between NDSU’s University Police and Safety Office and the Telecommunications and Emergency Technologies Department. The two partners hold synergistic philosophies about the integral role of technology in maintaining a safe campus climate. Telecommunications and Emergency Technologies provided the technological foundation for delivering the service and facilitated the collaborative process of identifying, customizing and implementing a specific solution. Other units within the IT Division – including the IT Help Desk and Enterprise Computing and Infrastructure – aligned themselves to assist with customer support and central authentication service integration. Student government also played a key role in pilot testing and improving the service before it was launched campuswide.

Safety of students, faculty and staff is a top priority at all times. Introduction of the Personal Safety and Security Assist service provides more than 14,500 students and more than 6,000 employees with 24/7 access to virtual assistance they can use to enhance their safety.

NDSU’S INFORMATION TECHNOLOGY DIVISION CONDUCTED A MAJOR RENOVATION OF A FAVORITE STUDENT STUDY SPOT ON CAMPUS IN EARLY SUMMER 2015.

The renovated computer lab in Quentin Burdick Building 150 offers a modern, inviting workspace for students. The revamped space provides new seating options, including standing, seated and height-adjustable desks, along with broad, concave desks that allow more room for collaboration among peers.

The lab contains 34 Windows computers and 19 Mac computers, as well as GoPrint stations connected to color and black/white printers. The GoPrint stations and printers are at an accessible height for all students.

The NDSU IT Help Desk, which is located in the QBB 150 lab, also got a new look. The IT Help Desk is students’ first stop for technical support on campus.

On the second floor of the QBB, new “collaboration stations” are available for use. Each station includes a large table and computer. Students also have the option to connect a personal laptop to the monitor. With ample room for multiple people to gather to work on projects or homework, these stations provide a new space for student group work.

The Quentin Burdick Building is open to students 24 hours per day, seven days per week. Students must use their Bison Card to enter after hours.

NDSU STUDENT, EMPLOYEE EMAIL MERGED INTO ONE SYSTEM

In July 2014, NDSU student and employee email accounts were merged into one Microsoft Office 365 email and calendar system managed by NDSU. This change simplified account logins and passwords for students, faculty and staff. It also introduced new Office 365 services for students.

After the merge, students, faculty and staff were no longer required to remember a separate password for email. Instead, they can use the password associated with their NDSU electronic ID to log in to email, in addition to other NDSU-provided services.

In September 2014, students’ “@my.ndsu.edu” email logins were shortened to their official “@ndsu.edu” email address. Going forward, students no longer need to remember a separate address for logging in to their email account.

Students also gained access to other Microsoft Office 365 services, including one terabyte of free file storage in OneDrive and instant messaging and desktop sharing through Skype for Business. The addition of these services improves students’ ability to communicate and collaborate with each other and with faculty and staff who use these tools.
LAND GRANT

NDSU HOSTS NORTH DAKOTA CYBER SECURITY CONFERENCE

In March 2015, NDSU hosted the North Dakota Cyber Security Conference. The outreach event brought together professionals from education, government and industry to explore strategies, best practices and innovative solutions to address today’s challenges in cyber security.

The theme of the conference, "Cyber Security is Our Shared Responsibility," reflected the vast scope of modern cyber threats, calling for active participation from individuals and organizations across the state.

More than 180 people attended the conference. Attendees were able to choose concurrent sessions from four content tracks, 1) Technology, operations and procedures, 2) Governance, policy and compliance, 3) Education, awareness and training, and 4) Sponsor solutions. The morning keynote was delivered by Nancy Williams, chief information officer for the Boys and Girls Club of the Midlands. Williams spoke about strategic leadership in regard to talent recruitment and development in the fields of science, technology, engineering and mathematics.

The North Dakota Cyber Security Conference was hosted by NDSU in partnership with the North Dakota Education Technology Council, EduTech and the North Dakota Information Technology Department.

IT EXPO INVITES CAMPUS TO ‘MEET GENERATION NEXT’

The second-annual Information Technology Expo took place Sept. 23, 2014, in the Memorial Union. NDSU students, faculty and staff were invited to attend the event to explore technologies for teaching, learning and research.

The expo included interactive presentations, expert panel discussions and a technology fair. The technology fair provided a hands-on look at services and resources that can maximize faculty and staff members’ success and help students reach their potential.

The expo keynote presentation, “Meet Generation NeXt: Understanding, Teaching and Serving Today’s Students,” was delivered by national speaker Mark Taylor. Taylor used NDSU’s student response system, or “clickers,” to make the keynote interactive and engage the audience in learning. He spoke about the characteristics and expectations held by today’s students, which present unique challenges to those who are charged with teaching, serving and supervising them through their university experience. He provided faculty, staff and students with a better understanding of the social, personal and academic traits and preferences students bring to college, how these characteristics impact learning persistence and success, and how the university community can work together to help students reach their educational and personal goals in the changing educational landscape.

The Information Technology Division partnered with the Provost’s Office to provide faculty the opportunity to attend a follow-up workshop with Taylor. The workshop was offered as part of the Provost’s Pedagogical Luncheon series.
RESEARCH UNIVERSITY

NDSU EXTENDS NETWORK RESOURCES TO USDA RESEARCH CENTER

In summer 2015, NDSU and the Red River Valley Agricultural Research Center completed an initiative that extended NDSU’s existing cyberinfrastructure to the research center.

The Red River Valley Agricultural Research Center is located on NDSU’s main campus in Fargo. It is part of the U.S. Department of Agriculture’s Agricultural Research Service, the USDA’s chief scientific research agency. The center partners with NDSU faculty and student researchers to explore a wide range of agricultural issues, including foreign chemicals and food safety, use of bees in crop pollination, weed management and improved production of durum, wheat, barley, oats, sugar beets, potatoes, sunflowers, and other crops.

NDSU’s Information Technology Division reached an agreement with the center to extend existing network infrastructure to the center’s Biosciences Research Laboratory. NDSU network engineers used existing underground fiber optic cable to connect the center’s network to the campus’s 10-gigabit network backbone.

The IT Division was able to initiate this project using existing NDSU network resources, because it allowed the division to better serve students, faculty and staff who work at the lab.

Work was completed in early summer 2015. The center continues to manage its own network resources; however, with the connection to NDSU’s network resources in place, researchers at the center can now connect to the Internet at speeds more than 200 times faster than previously possible.

Because NDSU is a member of the Northern Tier Network Consortium and Internet2 communities, the center’s researchers also have high-capacity and high-speed connectivity to more than 500 national and international academic, industry and government research sites. These connections have set the stage for future collaborative research.

William Kemp, agricultural administrator at the Red River Valley Agricultural Research Center, said the network expansion is key to the center’s continued success. “Extension of the NDSU network into USDA facilities will expand opportunities for collaborative research, and will likewise enhance the ability of NDSU and USDA collaborators to attract jointly-submitted competitive grants,” Kemp said.

NDSU BOOSTS WEBSITE SECURITY

In June 2015, all www.ndsu.edu websites were secured with HTTPS.

HTTPS is the secure version of HTTP, the protocol for communication between a Web browser and website. HTTPS is used by many banking and commerce websites to protect online transactions involving confidential and sensitive data such as account information, credit card numbers and social security numbers. It has been increasingly used to reassure website visitors of the legitimacy and authenticity of a site.

The IT Division moved all NDSU sites to HTTPS in June to provide a seamlessly secure experience for all site visitors. This change improved security for all users of NDSU websites, including those who submit sensitive information through online forms. It also boosted NDSU’s ranking in Web search results and positioned NDSU websites for future improvements.

NDSU was the second campus in the North Dakota University System to make a sitewide shift to HTTPS. The North Dakota State College of Science was the first.
## FY15 - SOURCES OF IT SALARY AND OPERATING BUDGETS

<table>
<thead>
<tr>
<th>FUNDING SOURCE</th>
<th>AMOUNT</th>
<th>% OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Dakota University System - Service Level Agreement</td>
<td>$461,218</td>
<td>3.4%</td>
</tr>
<tr>
<td>NDSU-Base Appropriated</td>
<td>$4,910,575</td>
<td>36.2%</td>
</tr>
<tr>
<td>NDSU-Appropriated One-Time</td>
<td>$3,564,384</td>
<td>26.2%</td>
</tr>
<tr>
<td>NDSU-Appropriated for Tech Fee Reimbursement</td>
<td>$0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Student Technology Fee</td>
<td>$1,495,870</td>
<td>11%</td>
</tr>
<tr>
<td>Local/Recharge</td>
<td>$3,131,090</td>
<td>23%</td>
</tr>
<tr>
<td>Grants/Northern Tier</td>
<td>$0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Capital</td>
<td>$0</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$13,563,137</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

## FY15 IT EXPENDITURES: $13,563,137

- **NDUS-SLA**: 4%
- **LOCAL/RECHARGE**: 23%
- **STUDENT TECHNOLOGY FEE**: 11%
- **NDSU-BASE APPROPRIATED**: 36%
- **NDSU-APPROPRIATED ONE-TIME**: 25%
TECHNOLOGY FOR TEACHING AND LEARNING
TEGRITY LECTURE CAPTURE

Use of Tegrity Lecture Capture software continued to grow rapidly during the 2014-15 fiscal year. Tegrity 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, enabling students to play back lessons, bookmark sections of the lecture using a smartphone application and find specific information using a built-in search engine. The following table imparts the sizeable increase in the use of Tegrity at NDSU during the past four years.

<table>
<thead>
<tr>
<th>STATISTIC</th>
<th>FY 2012</th>
<th>FY 2013</th>
<th>FY 2014</th>
<th>FY 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty, staff and students creating Tegrity recordings</td>
<td>36</td>
<td>198</td>
<td>372</td>
<td>527</td>
</tr>
<tr>
<td>Classes using Tegrity</td>
<td>43</td>
<td>196</td>
<td>344</td>
<td>449</td>
</tr>
<tr>
<td>Unique recordings created</td>
<td>860</td>
<td>2644</td>
<td>4,580</td>
<td>6,791</td>
</tr>
<tr>
<td>Hours of content recorded</td>
<td>616</td>
<td>2032</td>
<td>3,344</td>
<td>4,792</td>
</tr>
<tr>
<td>Hours of content viewed</td>
<td>16,638</td>
<td>21,399</td>
<td>30,763</td>
<td>54,820</td>
</tr>
<tr>
<td>Content views</td>
<td>30,486</td>
<td>48,704</td>
<td>81,778</td>
<td>160,112</td>
</tr>
</tbody>
</table>

During the 2014-15 fiscal year, funds were secured to install microphones in all classrooms with 50 seats or more. The additional equipment helps instructors use Tegrity with minimal setup before class.

STUDENT RESPONSE CLICKERS

An increasing number of faculty use Turning Technologies “clickers” to engage students in course material and increase student participation. Strong integration of the clicker hardware and the ResponseWare application allows use of both among students in the same class.

USE OF CLICKERS AND RESPONSEWARE

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Classes</td>
<td>9</td>
<td>15</td>
<td>29</td>
<td>35</td>
<td>39</td>
<td>41</td>
</tr>
<tr>
<td>Students using clicker hardware</td>
<td>2,982</td>
<td>3,175</td>
<td>4,348</td>
<td>4,407</td>
<td>5,702</td>
<td>5,807</td>
</tr>
<tr>
<td>Students using ResponseWare</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>883</td>
<td>240</td>
<td>235</td>
</tr>
<tr>
<td>Total students</td>
<td>2,982</td>
<td>3,175</td>
<td>4,348</td>
<td>5,290</td>
<td>5,942</td>
<td>6,042</td>
</tr>
</tbody>
</table>

BLACKBOARD LEARNING MANAGEMENT

Blackboard Learn is an online course management system that allows faculty to interact with students and post grades, information and assignments. It is a mission-critical system used by more than 80 percent of NDSU faculty, which affects every student on a daily basis. Blackboard allows faculty to share course resources and information with students without having to create a separate Web presence, and it gives students a centralized place to go for almost all of their courses.

There were 1,984 Blackboard courses in fall 2014 and 1,843 courses in spring 2015. Many of these courses included multiple sections of the same class.

During the 2014-15 fiscal year, the university's student government decided to move the Congress of Student Organizations from a commercial intranet tool to Blackboard to save money and eliminate additional accounts. This change required extensive coding by the IT Division’s Application Development team, administrative changes to the Blackboard system, and support and training for all students who use the system. The final result was a success with more than 300 organizations now using Blackboard to communicate and collaborate.

A Blackboard upgrade in December 2014 added the following functionalities to the system:

- Master/Child class management for multiple course sections using one Blackboard course
- New Blackboard Collaborate Launcher that makes it easier to check system requirements prior to class
- Improvements to the Grade Center, including online editing and commenting on student writing assignments
MULTIMEDIA CLASSROOMS AND COMPUTER LABS

The Technical Support Services team received an NDSU Development Foundation Impact Grant to fund the installation of Apple TVs in all multimedia classrooms. The devices allow instructors, students and presenters the ability to walk into a classroom and wirelessly share content from their iOS mobile device or laptop on the classroom display. The team purchased the equipment during the 2014-15 fiscal year and will continue to install it in classrooms during the next fiscal year.

As part of the annual technology refresh in classrooms, the team continued to upgrade display control systems to Crestron control systems and convert analog systems to high definition. As of the 2014-15 fiscal year, control systems have been upgraded in approximately 75 percent of multimedia classrooms.

Technical Support Services initiated a project to identify a remote desktop management solution for Mac computers. The project team identified Casper Suite as the best solution to manage Mac computers in ITS-supported computer labs and in departments managed by ITS Desktop Support. Casper Suite consolidates the three management functions of imaging, application delivery and remote management. These functions were previously completed using two solutions. The project team purchased and configured Casper Suite to best meet the needs of the campus.

• Additional ongoing projects include preparing for the new Math Emporium Learning Center scheduled to open fall 2015, in collaboration with the Department of Mathematics. The project includes installation of 82 computers with state-of-the-art mathematics software designed to assist students taking college algebra, trigonometry and pre-calculus courses.

• Planning and purchasing for the new STEM Building classrooms and computer lab, scheduled to open spring 2016. The building includes 30 classrooms, a 48-seat teaching computer lab, a 10-seat open access computer lab and six student huddle rooms in which students can collaborate on projects. Two SCALE-UP, or Student-Centered Active Learning Environment with Upside-down Pedagogies, rooms are also included. These rooms require complex technologies that allow for collaboration among small- and medium-sized student groups, as well as displaying group work to allow review and feedback among the entire class.

VIDEOCONFERENCING

During the past year, the Technical Support Services team supported videoconference connections to the following countries: Belgium, Finland, France, Italy, Spain and Sweden. These connections were established to support collaborative agreements with other universities, establish research connections and support classroom instruction.

The team also installed videoconference equipment in Barry Hall room 360, which has a capacity of 60 people.

CLASSROOM AND COMPUTER LAB SUMMARY

- Supported computers on campus: 921
- Public computer labs on campus, located in 20 buildings: 36
- Windows computers in the computer labs: 527
- Mac computers in the computer labs: 67
- Pieces of ITS provided software installed on the computer lab windows computers: 38
- Pieces of ITS provided software installed on the computer lab Mac computers: 23
- Pieces of software installed in the computer labs per instructor request: 87
- Computer logins per week in fall 2014: 20,051
- Computer logins per week in spring 2015: 17,337
- Hours spent logged into computers per week in fall 2014: 12,891
- Hours spent logged into computers per week in spring 2015: 11,640
- Interactive Video Network (IVN) classes sent or received during fall 2014: 34
- Interactive Video Network (IVN) classes sent or received during spring 2015: 32
- Interactive Video Network (IVN) classes sent or received during summer 2015: 19
- Students who participated in IVN classes during fall 2014: 393
- Students who participated in IVN classes during spring 2015: 379
- Students who participated in IVN classes during spring 2015: 204
- Sheets of paper used through the Go-Print printers compared to last year: 4,645,800
STATISTICAL CONSULTING

Jointly supported by the Information Technology Division and the Statistics Department, the Statistical Consulting Service at NDSU exists primarily to support research activities of faculty, staff and students in all disciplines in the North Dakota University System. Statistical Consulting provides services at no charge, including the following:

- Consult on various aspects of data acquisition, data analysis and the presentation of results (including graphics).

- Support statistical software applications. Consultants specialize in SAS, but also provide support for SPSS, JMP and a few other applications.

- Assist with writing papers for publication in research journals. This often involves drafting the statistical methods and portions of the results sections of manuscripts, and evaluating and addressing reviewer comments regarding the data analysis performed.

- Collaborate on research proposals as requested.

MOST COMMON STATISTICAL TOPICS:

Statistical topics most frequently discussed based on client contact records from recent years:

- ANOVA
- Frequencies/Association (Chi-Square Tests)
- Regression
- Logistic Regression
- Descriptives (Mean, Variance, Standard Deviation)
- Manuscript
- Cluster Analysis
- Simulation
- Multivariate (Repeated Measures Models)
- Nonlinear Regression
- Discriminant Analysis
- Sample Size Calculations
- PCA
- Factor Analysis
ENTERPRISE SYSTEMS AND APPLICATION DEVELOPMENT

Enterprise Systems operates centralized IT systems for NDSU. Services include Blackboard, file and Web services, print management, document imaging, server hosting, application hosting, authentication and identity management.

Enterprise Application Development provides software engineering and development services to NDSU departments. The engineers work on institutional priorities set by the IT Division leadership team and collaborate with campus business and subject matter experts to constantly improve existing software and to devise solutions to address the university’s needs. The groups imperatives are: self-service applications that put the controls in the hands of those best suited to use them; automation with fail-safes and safe-guards to handle service interruptions without loss of data; cross-system integration, including third-party vendors hosted on- or off-site; iterative redesign and constant improvement based on active, end-user experiences, with the goal of serving customers efficiently and resolving issues quickly with minimum confusion.

Enterprise Application Development engineers maintain and upgrade NDSU’s Content Management System, NDSU’s Web and mobile Web presence, NDSU’s search engine, NDSU’s user account provisioning and purging, NDSU’s Identify Access Management system for self-service application authorization, NDSU and NDSCS Central Authentication Service for Web authentication that is also integrated via Federated Identity Management offered by Internet2.

The engineers build, maintain and upgrade high demand, high profile and student-focused Web applications, including:

- First come, first served “Football Tickets” distribution system for student tickets to home games.
- Staff and student government election software.
- “PhotoUpload” for processing photos for use on campus ID Cards by the Card Center.
- Account activation for participation in the Great Rides Bike Share initiative.
- Automated enrollment and reporting about student organizations.
- Career fair search by which students can identify prospective employers.
- Part-time job search.
- Web directory of campus buildings and offices.
- Event registration system integrated into NDSU email and calendaring systems.
- “Track Training” for review of training requirements and compliance history.

The total number of mandatory and optional training titles tracked in our campus-wide repository has expanded according to the following table.

<table>
<thead>
<tr>
<th>Total Tracked Titles</th>
<th>FY2014</th>
<th>FY2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
<td>66</td>
</tr>
</tbody>
</table>

NETWORK ENGINEERING AND OPERATIONS

The mission of Network Engineering and Operations is to provide effective integration of data networking technologies in support of the university’s academic, research and business activities.

In fiscal year 2015, Network Engineering primarily focused on fine-tuning the network core, enhancing the switching platform to campus buildings, improving wireless and advancing campus infrastructure.

The IT Division’s strategic plan to provide a high speed campus networking infrastructure with extensive wireless capability has materialized, and it continues to mature and evolve as new advanced and emerging technologies are introduced.

Network Engineering has been engaged in design and project management associated with a growing NDSU campus. This has required design input from both network engineers and infrastructure specialists to advance the network core, network edge, wireless and infrastructure.

NETWORK CORE

- Migrated from the previous 6500 platform to the new Nexus 7K platform. Campus buildings, telecommunications data and the residence life core all moved to the Nexus 7K core.
- Moved Research 1 core facilities to the Barry Hall data center.
- Designed and built network infrastructure to bridge into the campus core for Internet2 access.
- Applied filters to devices that could be used for network time protocol reflection attacks.
- Upgraded the core infrastructure to improve reliability, security and overall performance.
- Continued Domain Name Service migration of some zones to the North Dakota University System.
- Collaborated with the storage team to provision fiber channel over Ethernet in NDSU’s data center.
- Worked with the principal engineer for storage and the Enterprise Systems team to begin the process of moving servers off the decommissioned 6500 platform to the Nexus 7K via Fabric Extenders.
1,737,085,097 files backed up by our backup system

6,492,954 files recovered and restored

72,993,805 email messages processed by mail servers

245 live websites in NDSU’s content management system

150 live NDSU websites outside CMS in Pubweb

50,773,427 page views for www.ndsu.edu. Average per day: 139,105

163 servers managed (125 physical, 38 virtual)

100% faculty user drive (U:) quota increase (from 50GB to 100GB)

100% staff user drive (U:) quota increase (from 5GB to 10GB)

100% department shared drive (S:) quota increase (from 50GB to 100GB)

56,522 GB amount of disk space available for departmental shared and user home directories
NETWORK EDGE

• Continued the migration to a more sophisticated switching platform with several university building upgrades.

• Used weekly maintenance windows to ensure all switching infrastructure has the most recent software.

• Continued to add electrical redundancy to many facilities by adding a secondary power supply to all building switch gear, installing a second 20-amp circuit in each wire closet on a separate phase from the primary circuit, and installing a second 2200va uninterruptible power supply in each wire closet.

• Worked in partnership with Dining Service to provision dining and menu boards.

AVERAGE UNIQUE WIRED DEVICES PER WEEK (2014-2015)

WIRELESS

• Completed several upgrades to core wireless controllers to enhance security and address performance issues.

• Continued to monitor wireless usage and deployed additional infrastructure to improve capacity and coverage throughout campus.

• Collaborated with the Department of Residence Life to upgrade wireless in Reed Hall. This increased the coverage density with a more modular platform and a better return on investment.

AVERAGE UNIQUE WIRELESS DEVICES PER WEEK (2014-2015)

INFRASTRUCTURE

• NDSU demolished two campus facilities, Thordarson Hall and C.I. Nelson, in early summer 2015. Network Engineering worked closely with project engineers to ensure that communications infrastructure was properly rerouted and transitioned to ensure future access.

• Provided supplemental project management for the electrical upgrade in the Quentin Burdick Building data center.

• Reconfigured all communications infrastructure (copper and fiber optics) along the 12th Avenue corridor to accommodate replacing structure with a parking lot and relocation of services.

• Provided input design for the Aquatic Center, Architecture and Ehy Hall.

• Engineered fiber optic expansion to Niskanen Complex (previously “F” Court) and path diversity to the Auxiliary Enterprises (Campus Call Center).

STAFF ACTIVITIES

• Worked closely with Residence Life in preparation of hosting the National Association of College and University Residence Halls (NACURH) conference on campus.

• Provided design and project management to the Department of Mathematics for the Math Emporium.

• Provided project management and oversight for communications systems for the STEM Building and Sanford Health Athletic Complex.

• Continued upgrading infrastructure in several classrooms.

• Collaborated with Telecommunications and Memorial Union staff to extend video surveillance in areas of the Memorial Union.

• Collaborated with IT Division colleagues and campus staff to prepare grant proposals.

• Participated in committees and conferences including the Internet2 Tech Exchange, Boreas, Interop, Internet2 IPv6 Working Group, Northern Tier Network Consortium, BICSI – Telecommunications Infrastructure, Cisco Live, and STAGEnet Technical Meetings.
290 Telephony requisitions completed
224 Data services completed
173 Voice trouble resolved
53 Data trouble resolved
77,000 feet of cable installed
1,028 Wireless access points installed
20 Campus building switch upgrades
2,472 Access ports upgraded
TELECOMMUNICATIONS AND EMERGENCY TECHNOLOGIES

The Telecommunications and Emergency Technologies department experienced tremendous expansion and growth in fiscal year 2015. This has come as a result of several campuswide directives and initiatives that have afforded new opportunities to stretch our strategic vision. The department implemented new advanced technologies designed to enhance the safety and security of the campus, engaged in enterprise-wide partnerships, embraced Unified Communications and advanced collaborative mobility functionality and have continued to leverage the institution’s investment to provide technology/infrastructure that supports the growth and expansion of the campus. The department’s advanced technologies continue to be recognized as leaders within their respective industries, are centralized and enterprise in caliber and embrace the ongoing development of as many disaster recovery and business continuity capabilities as possible.

Telecommunications and Emergency Technologies serves NDSU students, faculty, staff and a variety of NDSU constituents by providing leadership and expertise in enterprise voice, emergency support technologies and the university’s underground communications infrastructure. A staff of 10 and a fiscal 2015 budget of $4.3 million, and strong collaborative partnerships with Network Engineering and Operations and Facilities Management, the department provided oversight, strategic planning, coordination and management of the University’s transport facilities infrastructure, voice networks, call management, Voice over Internet Protocol (VoIP) Telephony, cellular communications, Bison Lines long distance service, cable television (CATV), centralized and integrated security card access and video surveillance. The department operates on a cost recovery basis, serving nearly 6,900 students, faculty and staff on the main campus and 12 remote sites, including the North Dakota State College of Science, Dickinson Research Extension Center and the NDSU School of Nursing at Sanford in Bismarck.

With the foundation laid for next generation infrastructure, internet protocol technologies and services including single mode fiber, Unified Communications and advanced collaborative mobility functionality, the past year has been spent addressing key points for advanced feature functionality, infrastructure reinforcement and expansion in support of NDSU’s vast network of departmental telephone administrators, heightening service provision and remote learning. The pursuit of all-encompassing Unified Communications, the fostering of enterprise-wide partnerships, including Network Engineering and Operations, and continued leveraging of the institution’s investment in technologies, infrastructure and converged networks, provide the basis for accessing next generation IT services. Leveraging the North Dakota state network and NDSU’s robust Unified Communications environment, these initiatives realize the efficiency and convenience benefits of providing centralized enterprise voice services and five-digit VoIP dialing between NDSU remote sites and other University System campuses.

In recognition of emergency 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 work toward developing an emergency support standard of securing the exterior envelope of all campus facilities. This includes the latest generation of advanced security card access, video surveillance, alarming, monitoring and recording technologies. These devices are designed to enhance the security and safety of the campus, alarming back to the 24/7 Police Communications Call Center. The department provides the 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.

TELECOMMUNICATIONS AND EMERGENCY TECHNOLOGIES MAJOR INITIATIVES

• "NDSU Safety and Security Assist" – Pathlight

- In partnership with the Department of University Police and Safety, Telecommunications and Emergency Support completed implementation of a new location-based personal safety and security mobile application for students, faculty and staff. The fully integrated application for Android and iPhone devices uses location-based services, allowing users to initiate tracking of their travels between destinations. Safety is enhanced because police can see their location, quickly respond and a dispatcher can be alerted.

- Integrates with current NDSU technologies:
  • 1D card system (one-card philosophy)
  • Centralized electronic locks and card access
  • Centralized surveillance camera system
  • Real-time alarming, monitoring and reporting to 24/7 University Police Communications Call Center

- Telecommunications and Emergency Technologies, building on NDSU’s existing enterprise Voice over Internet Protocol (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 the North Dakota State Government and respective University System institutions, is now realizing the efficiency and convenience benefits of enhanced and transparent unified communications.

- Continuing to enhance voice technologies with improved redundant and survivable functionality
  • Upgraded existing campus analog and digital telephones to the latest generation of device technology

- Continued partnership with the State of ND Information Technology department to provide voice services and communications infrastructure to multiple campus locations, including the newly added Attorney General’s office.
• A statewide, unified communications effort, initiated by NDSU, continues collaboration with respective University System institutions, to provide five-digit VoIP dialing between campuses and state government. Leveraging the North Dakota State Network this effort realizes efficiencies and convenience benefits of enhanced and transparent unified communications. Connected locations include Dakota College Bottineau, Lake Region State College, Mayville State University, North Dakota State College of Science, North Dakota State Government in Bismarck, North Dakota State University, NDSU Dickinson Research Extension Center, North Dakota University System Office in Bismarck, University of North Dakota, and Valley City State University. Newly added is the NDSU School of Nursing at Sanford in Bismarck.

• Completed construction of the Quentin Burdick Building upgrades to electrical infrastructure, including increased generator capacity. This Phase II project at an estimated cost of $1 million was funded from 2013-15 appropriated operations. Future phases include mechanical/HVAC upgrades to both the voice and data centers.

To proactively improve security, the university’s centralized and integrated video surveillance system continues to be expanded. The system supports full feature interoperability with the centralized card access and voice recording systems, alarming back to the 24/7 Police Communications Call Center. 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 utilize surveillance cameras as part of the safety, security and emergency response operations of NDSU.

This ongoing project and philosophy provide a mechanism to comply with the intent of state and federal acts and regulations, including the Clergy Act and Higher Education Opportunity Act. It also provides a means to comply with other audit and federal compliance requirements and to responsibly mitigate potential liabilities. Coordinating priorities with the University Police and Safety Office, it is essential that this ongoing system initiative is scalable, sustainable and expandable.

• Completion of substantial centralized upgrades to increased storage capacity of the core system was added in preparation for upcoming video surveillance projects, including the STEM Building, Memorial Union and Residence Life. The expansion accommodates additional camera capacity, video analytics, storage, recording and adequate licensing and maintenance, for flexibility of potential projects encompassing building envelope and new construction.

- Continued incorporation of pan/tilt/zoom (PTZ) cameras and video surveillance equipment to capture a broader safety and security surveillance picture of the campus were placed in strategic locations to increase the overall safety and security of the campus. This has maximized surveillance efforts, particularly at night, for the movement of faculty, staff and students throughout the core campus.

- Planning and engineering has begun for immediate implementation of North Dakota University System pool Safety and Security dollars. These dollars will further enhance anticipated critical priorities for significant NDSU buildings and core areas of the campus. The first priority of this phased approach is to begin with 10 student-focused 24/7 occupied buildings.

- As additional dollars are made available, additional phases will continue to monitor and secure the exterior building entrances and core campus areas. Secondly, interior safety and security in select building locations will be considered. As well, migration of existing independent campus video surveillance locations onto the “system” with policy development and a costing structure to include a scalable model to enable expansion as dollars are made available. Our partnership with Network Engineering and Operations continues for video surveillance installation and maintenance.

- In addition, planning and engineering has begun for immediate implementation of video surveillance equipment to encompass the exterior building envelope of campus residence halls and university apartments.

• Continued expansion, upgrades and necessary repairs of the campus underground transport infrastructure supplements existing aged infrastructure, provides greater bandwidth and higher connection speeds to campus buildings in support of future academic and research requirements.

- Design began to extend the university’s transparent infrastructure services to the remaining residence halls, university apartments and potential future growth to the north and east of campus.

- NDSU Telecommunications Path Diversity Phase I to Auxiliary Enterprises began the design phase and procurement to supplement existing telecommunications infrastructure in a diverse path for campus emergency resiliency/failover services in the campus Emergency Operations Center (EOC).

- Will begin to prepare for provision of voice, data, CATV, card access and video surveillance infrastructure to the new Veterinary Diagnostic Laboratory west of Interstate 29.

• Continued expansion of the campus CATV infrastructure to provide the Emergency Alert System. This system now provides an emergency TV broadcast to 1995 residence hall and apartment units and 168 administrative and academic locations in 57 campus buildings. Routine testing of all systems continues on the first Wednesday of each month.

- Upgrade campus Emergency Alert System (EAS) system to the latest generation technology

- Upgrade of 21 CATV amplifier modules

- Hiring of consultant in preparation for Entertainment Video Request for Proposal in late 2015

- Project planning will continue to increase the 27 existing blue light emergency phones. Providing proactive and highly visible improved security creates campus awareness and responsiveness of emergency communication, which is vital for establishing safe environments for students, residents, employees and visitors both daytime and nighttime. The blue light towers/phones will also have new brighter, more visible energy efficient LED blue lights installed.

- Continued partnership with North Dakota State College of Science, now in its seventh year, with fully integrated enterprise voice services with advanced features and mobile solutions, as well as the provisioning of administrative and
technical support. This collaborative effort leverages the North Dakota State Network (STAGEnet) and NDSU’s existing technology investment and expertise, allows both campuses to provide more competitive and cost effective services and expands the shared interest and collaborative spirit between the two campuses.

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

- Preparation and design has begun to implement BITEK’s work management module to improve and automate service request business processes, to include electronic forms

- Security card access is a vital component in the ongoing vigilance and timely response to life safety, and property preservation threats at NDSU. Its philosophical priority includes securing the exterior facility entrances for the campus by providing electronically controlled access to the “envelope” of each building for life safety operations. This direction provides a mechanism to comply with the intent of state and federal acts and regulations, including the Clery Act and Higher Education Opportunity Act. It also provides a means to comply with other auditing requirements and to reasonably mitigate potential liabilities.

- Security card access continues to grow and expand campus wide, both in new construction and in existing facilities. Major construction projects were completed at AES Greenhouse Phase III, Library, Old Main, Barry Hall, West building, Auxiliary building, Research 1, Sudro Hall, Ehly Hall, Stevens Hall, Living Learning Center West, Morrill Hall, Walster Hall, Memorial Union, Hultz Hall and Music Education building.

- In addition, planning and engineering has begun for immediate completion of the final phase of security card access encompassing the exterior building envelope of campus residence halls and university apartments.

- Continued NDSU partnership with North Dakota State College of Science’s Fargo location to provide security card access and centralized alarming and monitoring.

- Continued collaborative partnership with Facilities Management in the expansion of installations, trouble resolution and preventive maintenance of security card access, including major construction, which continues 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.

*Enhanced centralized and integrated enterprise systems alaraming and recording to the 24/7 Police Communications Call Center.
TELECOMMUNICATIONS TECHNOLOGIES

INFRASTRUCTURE

Inside cable
**1,900,000 feet (359.8 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
**19,200 feet (3.6 miles)**
Inside cable TV network
**299,100 feet (56.7 miles)**
Leased fiber-optic
**80,100 feet (16.2 miles)**
Underground conduit
**91,000 feet (17.2 miles)**
Fiber-optic cables
**2,250 strands**

VOICE AND EMERGENCY COMMUNICATIONS

**6,893** dial tone lines (includes 12 remote locations)
**652,577** long distance minutes annually
**400+** custom phone features/buttons
**212** users of phone-to-cellular bridge
**29** blue light emergency phones

CELLULAR PHONES

**538** total users
**349** smartphones
**2,072,096** cellular minutes annually

CABLE TV

Cable TV distribution to **57** main and remote campus buildings
**168** administrative and academic locations
**1,995** residence hall and apartment unit locations

CARD ACCESS

**487** doors equipped for card access
**18,160** users with access privileges
**300–2,400** access and door schedule changes per week
**25,000** door access card reads on a typical day
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.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls</td>
<td>25,221</td>
<td>22,461</td>
<td>21,989</td>
<td>18,967</td>
</tr>
<tr>
<td>Walk-up</td>
<td>6,010</td>
<td>9,982</td>
<td>10,618</td>
<td>12,315</td>
</tr>
<tr>
<td>Email</td>
<td>6,326</td>
<td>4,147</td>
<td>4,481</td>
<td>5,471</td>
</tr>
<tr>
<td>Chat</td>
<td>1,800</td>
<td>1,500</td>
<td>760</td>
<td>776</td>
</tr>
<tr>
<td>Web form submission</td>
<td>946</td>
<td>1,892</td>
<td>1,734</td>
<td>1,775</td>
</tr>
<tr>
<td>Equipment checkout</td>
<td>2,691</td>
<td>2,112</td>
<td>2,450</td>
<td>2,620</td>
</tr>
<tr>
<td>Optical mark reader</td>
<td>2,416</td>
<td>2,290</td>
<td>2,179</td>
<td>2,165</td>
</tr>
<tr>
<td>Plotting</td>
<td>1,086</td>
<td>989</td>
<td>986</td>
<td>578</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>47,296</strong></td>
<td><strong>45,373</strong></td>
<td><strong>45,197</strong></td>
<td><strong>44,667</strong></td>
</tr>
</tbody>
</table>

DESKTOP SUPPORT

Desktop Support continues to offer next-level support to departments across campus, assisting staff and faculty with technical issues. Services are offered on NDSU’s main campus and downtown facilities in Fargo and at the Sanford School of Nursing in Bismarck, North Dakota.

The five-member team manages more than 1,900 computers. The team’s use of Active Directory, Microsoft’s System Center Configuration Manager and Casper Suite for Mac allows for continued efficiencies and quicker response times.

Desktop Support’s top goals for the upcoming fiscal year include the following:

- Test Windows 10, Mac OS X El Capitan and Microsoft Office 2016 and deploy these resources to managed computers within the next 12 months.
- Update ITS-managed department printers, including firmware and Jet Direct updates, security settings, device settings and printer names.
- Continue to promote the idea that people take charge of their data and store it in a manner that provides easy recovery and accessibility. Using products such as OneDrive and Google Drive can automate this process.
INFORMATION TECHNOLOGY SECURITY

The Information Technology Security unit is responsible for developing and managing a universitywide information security strategy and vision, which includes security policies, procedures, risk management and assessment, and the coordination of efforts across the university. During the 2014-15 fiscal year, the IT Security unit:

- Continued regular assessment of systems connected to NDSU’s network for vulnerabilities and threats. When vulnerabilities were discovered, the unit worked with individuals and departments to mitigate the threat and bring those systems into compliance with policy.
- Modified and updated the procedure for Policy 710: Computer and Electronic Communications Facilities.

At the request of the Office of the Provost, NDSU hosted the 2015 North Dakota Cyber Security Conference, which was held on campus on March 17. The chief information security officer served as one of four advisors for the conference, providing oversight for development of the conference speaker lineup and program. The IT Security unit also oversees software and asset management. The unit implemented the Wasp asset tracking system for software inventory and management. Several other departments have since then adopted the system. The chief information officer also reviewed more than 300 software and online service products licenses and contracts for compliance with state law, North Dakota University System policy and NDSU policy.

RECORDS MANAGEMENT

The focus of NDSU Records Management is to support and improve business processes; ensure records are retained for the correct period of time; manage records in a manner that assures their accuracy and evidential value; and standardize to provide cohesive best practices for records management and oversight. The Records Management program is directed and coordinated by staff in the Office of the Vice President for Information Technology. It includes a task force, co-chaired by the chief information security officer and associate director of the Libraries, and unit records coordinators that facilitate and coordinate records management within their departments and units.

During 2014-15 fiscal year, NDSU Records Management:

- Rewrote NDSU Policy and Procedure 713: Records Management
- Updated the NDSU records retention schedule by deleting the 128 record series and adding two new series to the schedule. This was done to conform to the North Dakota University System records retention schedule.
- Updated the unit records coordinators list and worked with the coordinators to bring NDSU into compliance with records-related policies and procedures.
- Developed and provided required face-to-face and online training and education for the unit records coordinators.
- Facilitated the records disposal process, during which 119 departments participated voluntarily and 22,560 inches of paper records were disposed.

TECHNOLOGY TRAINING

Instructional Services and the Technology Learning and Media Center provide support, technology training and media services for NDSU students, faculty and staff. Beginning May 2015, training registration is managed through a new application developed by the IT Division’s Enterprise Computing and Infrastructure department. More information about technology training and resources is available at www.ndsu.edu/its/training.

DIVE IN FACULTY TRAINING WORKSHOP

The eighth annual “Dive In” faculty workshop was offered May 20-21, 2015. After three Instructional Services staff became Certified Faculty Developers through a spring semester online certification program, Instructional Services applied the team’s newfound knowledge during the “Dive In” workshop. Session topics included:

- Multimedia Design and its Effects on Learning
- Frequent Self-Assessment
- Visuals for Effective Teaching and Learning
- Effective use of Clickers and Blackboard
- Group Projects

MICROSOFT OFFICE SPECIALIST CERTIFICATION

Instructional Services staff collaborated with the Division of Finance and Administration to help NDSU staff and faculty members prepare to successfully pass Microsoft Office Specialist certification exams.

The initial training effort focused on the Excel certification. Finance and Administration staff identified this specific need in effort to replace multiple existing “shadow systems” used across campus to manipulate big data from PeopleSoft and other sources.

Instructional Services developed five new face-to-face Excel 2013 training sessions. The sessions were designed to emulate the tasks and projects candidates must complete to pass the Excel 2013 certification exam.

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, coursework assistance and technology workshops. Multimedia services include video and audio recording studios, special software and equipment and consulting services.

In addition to daily walk-in services, the center provided 150 workshops for the general student population and for specific classes or groups as requested by instructors, departments or organizations.

The demand for media studio reservations continues to rise. During the 2014-15 fiscal year, 541 reservations were made, and users spent nearly 1,000 hours working in the studios. With a focus on student academic success, media services have been extended to academic and administrative
departments across campus. One major undertaking this fiscal year included working closely with the Graduate School to introduce the new dissertation video requirement for all doctoral candidates. In the first year of the dissertation video requirement, staff recorded more than 100 dissertation videos as well as the first 3-Minute Thesis competition, which was introduced at NDSU in spring 2015.

During summer 2015, as part of a redesign of Quentin Burdick Building 150, the Technology Learning and Media Center’s furniture was refreshed. In addition to providing continuity throughout these public spaces, updates helped create a bright, open and flexible work environment that is conducive to creativity and productivity.

In effort to provide NDSU students a range of the best and most up-to-date tools for design and multimedia work, software provided and supported in the center’s lab was re-focused to include the complete Adobe Creative Cloud suite. This changed expanded offerings to include such popular tools as Light Room, After Effects, Premiere Pro and Audition, in addition to the most current releases of favorites such as Photoshop, InDesign and Illustrator.

**TECHNOLOGY LEARNING AND MEDIA CENTER TRAINING SUMMARY**

- 2,126 attendees at technology workshops
- 150 total technology workshops offered
- 85 technology workshops offered to classes by instructor request
- 65 technology workshops offered to students

**MEDIA STUDIO AND VIDEO PROJECTS SUMMARY**

- 541 media studio reservations
- 949 hours reserved in the media studios
The Advanced Applications and Outreach unit provides support and promotes use of resources available through global research and education networks.

**ADVANCED NETWORKS ENABLE RESEARCHERS TO CONNECT**

Engagement with U.S.-based research and education networks and others around the world enables NDSU, the University of North Dakota, and their sponsored state members to leverage the logistics and funding required to support faster, higher capacity transfer of data critical to today's work in research and academics.

**INTERNET2**

www.internet2.edu

NDSU is a founding member of Internet2, a member-owned consortium of leaders in higher education focusing on research, academia, industry, and government collaborating to develop and deploy innovative advanced networking technologies.

**NORTHERN TIER NETWORK**

www.ntnc.org

The Northern Tier Network Consortium is a regional network initiative that provides a robust research network connection for educational institutions in the upper-northern states by creating a national backbone route across the northern United States. A founding member of this effort, NDSU serves as the lead administrative and fiscal agent for the North Dakota segment of the consortium, the Northern Tier Network – North Dakota.

**NORTHERN WAVE**

www.pnwgp.net/services/northern-wave/

Built by NDSU and the Pacific Northwest Gigapop using NSF stimulus grant funds, the Northern Wave further enhances the capacity of the NTN through the addition of an optical data connection between Seattle and Chicago. This connection provides for a shared IO gigabit per second network for research and education institutions along its path across Wisconsin, Minnesota, North Dakota, Montana, Idaho, and Washington.

**EDUROAM**

www.eduroam.org

Eduroam is the secure, worldwide wireless access service developed for the international research and education community. Eduroam grants faculty, staff, and students secure, authenticated wireless access at participating institutions around the world. For the traveler, eduroam provides secure wireless network access for visitors from participating institutions without the need to gain guest credentials on arrival to an eduroam-enabled location. Study abroad students can join thousands of eduroam hotspots seamlessly while avoiding data roaming charges. For a detailed map of Eduroam institutions across the U.S. and around the world, visit www.eduroam.us.

**INCOMMON**

InCommon, operated by Internet2, provides a secure and privacy-preserving trust fabric for research and higher education, and their partners, in the United States. InCommon operates an identity management federation, which results in fewer usernames and passwords to remember as demonstrated by it’s use for our institution’s Educause membership. NDSU faculty and staff can access their Educause member account using their NDSU electronic ID and password.

**SERVING NDSU’S LAND GRANT MISSION THROUGH STATE AND REGIONAL PARTNERSHIPS**

NDSU convened the annual meeting of the Northern Tier Network – North Dakota, which is a joint network effort between the state Information Technology Department, North Dakota State University and the University of North Dakota to connect North Dakota to the nation’s research and education network. Key partners from across the state, including the North Dakota University System, University System campuses, technical colleges, Tribal Colleges and EduTech, also participate in this effort.

The annual stakeholder meeting provided an opportunity to share recently completed activities and discuss how those improvements positively impact research and academics across the state. Agenda items for the 2015 meeting included a highlighted use case of the Earth Resources Observation and Science and U.S. Geological Survey Center in Sioux Falls, SD; a report on activities from North Dakota’s research and education partners, STAGEnet, Northern Tier Network Consortium, and Internet2; and the Northern Tier Network – North Dakota annual report review and updates from all stakeholder and partner organizations.

The NDSU IT Division participated in the ND EPSCoR strategic planning meeting in October 2014. Participants focused on developing an implementation model for the state’s new National Science Foundation Track 1 EPSCoR grant award. Partners implementing the new program include the state’s public universities, Tribal Colleges and K12 schools.

The NDSU IT Division facilitated the third annual campus cyberinfrastructure conference for Tribal Colleges participating in a National Science Foundation Campus Cyberinfrastructure grant. The virtual conference provided updates on grant progress and information about access to resources for academics and research accessible via the global research and education network community.

During the 2014-15 fiscal year, the IT Division advanced research activities by engaging in and supporting several ongoing initiatives:

- Research Data Working Group
- Institutional Review Board Data Privacy Committee
- Annual Researcher’s Coffee, which was sponsored by the IT Division, Libraries and Research and Creative Activity to bring researchers together to discuss current and future research needs on campus.
PARTNERSHIPS

CMS USERS GROUP
The CMS Users Group is a community of Web authors using NDSU’s content management system. Group members exchange information and meet to discuss major upgrades.

www.ndsu.edu/cms/t3ug

FACULTY SENATE TECHNOLOGY AND INSTRUCTIONAL SERVICES
Technology and Instructional Services is a standing committee on NDSU’s Faculty Senate, serving as a liaison between the Faculty Senate and administration in the Information Technology Division.

www.ndsu.edu/facultysenate/committees/#c139411

IT COMMUNICATION LIAISONS
IT Communication Liaisons members are appointed by their home departments to serve as conduits for information and feedback regarding campus information technology. The group meets monthly to learn about and discuss a variety of technology plans, projects and issues.

www.ndsu.edu/its/campuswide/liaisons

IT COUNCIL
The IT Council serves in a consultative capacity to the vice president for IT regarding IT strategic planning, policy development and service review for the university.

www.ndsu.edu/vpit/itc

IT TECHNICAL PROFESSIONALS
The IT Technical Professionals is a special-interest group that provides the opportunity for technical discussions and exchange of information between distributed technical staff and the IT Division.

www.ndsu.edu/eci/ittechs

INSTRUCTIONAL DESIGNERS
Instructional Designers play a key role in supporting pedagogical use of technology on campus. The Instructional Designers group meets periodically with staff in the Information Technology Division to discuss plans, changes and issues related to classroom technology and instructional services.

LEARNING SPACES EXECUTIVE COMMITTEE
The Learning Spaces Executive Committee provides advice to the provost concerning the scheduling, use, renovation and creation of learning spaces on campus. Learning spaces include classrooms, laboratories, study areas, computer labs and other rooms where students learn and study. The committee is chaired by the Vice Provost for Academic Affairs and members include representatives from the Office of the Registrar, Facilities Management, Information Technology, the Office of Teaching and Learning and the Libraries.

www.ndsu.edu/sg/tech

RECORDS MANAGEMENT TASK FORCE
The Records Management Task Force serves as the overarching governance of NDSU’s Records Management program, providing oversight, guidance and direction.

www.ndsu.edu/recordsmanagement/contacts/task_force_members

RESEARCH DATA WORKING GROUP
The Research Data Working Group includes representatives from NDSU Libraries and the Information Technology Division who provide assistance with grant proposal development in the areas of IT needs and data management planning.

www.ndsu.edu/research_data/about_us

SOFTWARE CONTACTS
Software Contacts are appointed to serve as a liaison between their respective department and the IT Software Licensing Coordinator regarding software licensing questions, software orders and other software assets and licensing issues.

www.ndsu.edu/its/software/software/licensing_program/ndsu_department_software_contacts

STAFF SENATE INFORMATION TECHNOLOGY COMMITTEE
The Staff Senate Information Technology Committee disseminates information and updates regarding information technology to Staff Senate and carries concerns from Staff Senate to the Information Technology Division.

www.ndsu.edu/staff_senate/committees

STEM BUILDING LOGISTICS COMMITTEE
The STEM Building Logistics Committee focused on the logistical details for preparing the STEM Building to open by spring 2016. The committee included an IT component related to installation, support and training for classroom and lab technologies in the building.

www.ndsu.edu/facilities/construction-renovation-and-project/stem_building

STUDENT GOVERNMENT OFFICE OF TECHNOLOGY
The Student Government Office of Technology represents the technology needs of NDSU students and works with the Information Technology Division to ensure proper usage of the student technology fee.

www.ndsu.edu/sg/tech
STUDENT TECHNOLOGY SERVICES

Student Technology Services (STS) is a long-standing, work-based learning program that provides opportunities for NDSU students to obtain jobs in the IT field. A student manager oversees the student hiring process, maintains records, assists full-time staff with summer orientation and encourages 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 students do and appreciate their willingness to share knowledge and expertise as part of our organization's outreach activities.

Typically, the IT Division hires 40-plus students each year to work in the organization providing IT support. A student manager coordinates all aspects of the student hiring functions for IT workgroups, including recruitment, onboarding, training and handling of student-related HR concerns. Supervisors create and support work environments designed to help students engage in the sharing of their knowledge and expertise. Likewise, as mentors, they work to improve technical competencies and educate students about responsibilities associated with real-life work experiences. Oversight for the program resides in the Office of the Vice President.

TECHNOLOGY FEE ADVISORY COMMITTEE

The Technology Fee Advisory Committee meets periodically during the academic year to discuss and formulate recommendations to the Vice President for Information Technology about supporting projects that improve the information technology capabilities on campus through the appropriate use of the technology fee.

More information is available at www.ndsu.edu/tfac.

TECHNOLOGY IN EDUCATION AND RESEARCH COMMITTEE

The Human Development and Education Department’s Technology in Education and Research (TIER) Committee conducts an annual review of HDE technology support services, shares experiences with pedagogical application of technologies and formulates recommendations on the unmet technology needs of the HDE faculty. The committee also facilitates and enhances HDE research efforts through the use of technology.

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.

UNIT RECORDS COORDINATORS

Unit Records Coordinators serve as liaisons between their respective units and the Records Management Coordinator, contributing to NDSU’s Records Management Program.

More information is available at www.ndsu.edu/recordsmanagement/contacts/records_coordinators.
ABOUT OUR ORGANIZATION

“Delivering Core Solutions and Propelling Innovation.”

The NDSU Information Technology Division is committed to fostering strong relationships and partnerships that help strengthen communication and understanding. We strive to align technology solutions that serve the many needs of NDSU through collaboration. Whether it is enhancing infrastructure, assisting with technology support or creating new teaching tools to support learning, IT staff members work diligently to support successful teaching and learning experiences.

The Division’s mission of “Delivering Core Solutions and Propelling Innovation” helps us to focus efforts toward activities of delivering state-of-the-art technologies to support campus innovation while sustaining reliable systems and services at the core level. We are committed to providing the highest quality of technology-based services to meet NDSU’s goals as student focused, world-class land-grant research institution.

ANNUAL IT AWARDS

The IT organization continues to embrace a strong recognition culture. This past year marked the seventh annual IT Innovation, Collaboration and Excellence award (I.C.E.) which recognizes staff in the division who resolve challenges through innovation, relationship-building and performance excellence.

INNOVATION, COLLABORATION AND EXCELLENCE AWARD

This year, 11 individuals were recognized as nominees for the I.C.E Award. The Information Technology Division recognized all nominees during an awards event held March 26, 2015. Many of the nominees received multiple nominations.

Nate Robideau, telecommunications analyst, received three nominations from NDSU faculty and staff for going above and beyond to deliver effective telecommunications solutions. The nominators praised Robideau for his positive attitude, knowledge and patience, and they commended his outstanding collaborative efforts and strong customer service in support of the campus community. Robideau demonstrates a high level of technical expertise and consistently provides quality service.

OTHER I.C.E. AWARD NOMINEES:

Vince Anderson, Desktop Support Specialist
Zach Anderson, Classroom Technologies Specialist
Steve Beckermann, Media Technologies Consultant
Daniel Erichsen, Interactive Media Specialist
Brian Kennedy, System Administrator
Micah McGowen, Classroom Technology Manager
Lorna Olsen, Instructional Services Consultant
Luke Prather, Instructional Services Consultant
Jim Sellner, Desktop Support Specialist
Gary Whaley, System Administrator

IT PARTNER AWARD

A new IT Partner Award was launched this year to publically recognize campus partners who collaborate with NDSU IT Division staff to provide innovative technology solutions for teaching, learning and research. Nominees and the award recipient were recognized at the inaugural Partners of Information Technology Recognition Reception on May 8, 2015. The reception was open to the campus community and provided a forum for recognizing the contributions and impact of all our partners, including those who participate in various advisory and support groups.

Matt Chaussee was named the 2015 IT Partner of the Year. He was nominated for his leadership role in the collaborative project to launch on-campus Microsoft Office Specialist training and certification for NDSU faculty and staff. He partnered with staff in the IT Division’s Instructional Services unit to offer Microsoft Office training tailored to fit the certification program. He also secured financial support from NDSU’s Provost, the Office of the Vice President for Finance and Administration and the Office of the Vice President for Student Affairs to offer certification at no cost to departments or individuals.

As a result of these collaborative efforts, and Chaussee’s leadership, NDSU is on track to reach 500 Microsoft Office Specialist certifications among employees before March 2016. More than 200 faculty and staff members have started on the path to certification.

OTHER IT PARTNER AWARD NOMINEES:

Melissa Vosen Callens, assistant professor of practice, College of Arts, Humanities and Social Sciences
Brent DeKrey, associate director of maintenance and repairs, Facilities Management
Viet Doan, director, Student Affairs Administrative Systems
Paul Fisk, research analyst, Institutional Research and Analysis
Anita Hanson, disability specialist, Disability Services
Rian Nostrum, director, Residence Life
MARC WALLMAN NAMED VICE PRESIDENT FOR INFORMATION TECHNOLOGY

Marc Wallman was appointed Vice President for Information Technology Oct. 13, 2014. Wallman held this role on an interim basis since February 2012, and was chosen through a competitive search process. Previously, he served as an assistant vice president for the enterprise computing and infrastructure, director of infrastructure services and senior system administrator, all at NDSU. Before joining NDSU, Wallman worked in the central information technology department at the University of California at Berkeley. During his tenure at NDSU, he has been active in several regional and national professional organizations that focus on IT-related higher education policy and operational administration. Wallman continues to lead the NDSU Information Technology Division in efforts to provide reliable systems and services and to encourage the adoption of innovative technologies that benefit research, teaching, learning and outreach.

LEADERSHIP CHANGE IN INFORMATION TECHNOLOGY SERVICES

Jean Ostrom-Blonigen, Interim Assistant Vice President for Information Technology Services, accepted a new position as Project Administrator for ND EPSCoR - NDSU office, effective Oct. 13, 2014. Ostrom-Blonigen joined the IT Division in December 2007 as Director of Special Projects and continued to expand her role in the organization by being named Chief IT Planning Officer in February 2009. In 2012, she assumed the role of Interim Assistant Vice President of ITS to provide leadership and vision to that department. In addition, she also held responsibilities for the IT business unit. Ostrom-Blonigen started her career at NDSU in 1991, holding numerous positions requiring financial expertise and project management skills.

BUSINESS UNIT REPORTING STRUCTURE CHANGES

Strong ties have long existed between the NDSU Budget Office and the IT Division’s business unit. To strengthen the division’s ability to maintain and comply with NDSU’s fiscal management and regulatory processes, Sharon Brinker, senior account technician; Kim Lammers, business manager; and Rhonda Nilles, budget and cost accounting manager, began reporting directly to NDSU’s budget director in the Department of Business and Finance beginning February 2015. While maintaining a collaborative relationship with IT staff, these individuals continue to coordinate, plan and maximize IT budgeting efficiencies using processes, systems and activities that align with the NDSU Budget Office.

DESKTOP SUPPORT STAFF CHANGES

On July 1, the long standing Service Level Agreement with the Agriculture Communication department related to a collaborative staffing arrangement was dissolved. Desktop support specialists Jon Fry, Blair Johnson and Jerry Ranum relocated to offices located in Morrill Hall to solely focus on the diverse need of the agriculture faculty and staff, including desktop support, training and support for mobile tables and smartphones. Agriculture units will continue to channel support questions through the IT Help Desk with more complex issues being forward to Ag Communication IT staff for resolution.

As a result of this transition, Daniel Koiner and Cody Greff, desktop support technicians, were assigned more complex tasks. Their positions were upgraded to reflect a progression and change in job responsibilities that go beyond the core entry-level support.

TECHNICAL SUPPORT SERVICES STAFF CHANGES

Trevor McNeil was promoted to a classroom technologies specialist position, effective Dec. 1. McNeil worked with the classroom technologies team for more than nine months as an entry-level audiovisual technician. He has been responsible for preparing, configuring, installing and troubleshooting computers, hardware devices, peripherals and software in classrooms and computer labs across campus. In his new role, McNeil has engaged in higher-level responsibilities as part of a campus wide expansion to create and deliver dynamic classroom connectivity in support of innovative instruction.

ENTERPRISE COMPUTING AND INFRASTRUCTURE STAFF CHANGES

Steve Sobiech continued to serve in a dual leadership role as Acting Director of Enterprise Computing and Infrastructure and Help Desk manager. Mark Peterson, was hired as a system administrator in August 2014 and Jason Eide was promoted as the manager for the system administrator group in December. In addition, system administrators Bryan Mesich and Mark Peterson both left the organization late spring 2015. Search activity began immediately to replace several critical vacant positions.

NEW STAFF HIRES

Mark Peterson, System Administrator Aug. 28, 2014

STAFF RESIGNATIONS/RETIREMENTS:

Gail Bjornstad, Telecommunications Analyst Aug. 1, 2015 (retired)
Stan Kwiencien, Help Desk Consultant Sept. 30, 2014
Jean Ostrom-Blonigen, Interim Assistant VP for ITS Oct. 13, 2014
Bryan Mesich, System Administrator May 15, 2015
Mark Peterson, System Administrator June 1, 2015
EMPLOYEE LIST

Following is a list of employees in each IT Division department as of June 30, 2015 –

OFFICE OF THE VICE PRESIDENT FOR INFORMATION TECHNOLOGY
Marc Wallman Vice President for Information Technology
Kimberly Carlson Office Coordinator
Curt Doetkott Consultant Statistician
Jeff Gimbel Senior IT Security Analyst
Cathy Hanson IT Staff Development Coordinator
Kim Owen Advanced Applications 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

BUSINESS OPERATIONS, POLICY AND STRATEGIC SERVICES (ALL INDIRECT REPORTS)
Sharon Brinker Senior Account Technician
Kim Lammers IT Business Manager
Rhonda Nilles IT Budget and Cost Accounting Manager

ENTERPRISE COMPUTING AND INFRASTRUCTURE
Steve Sobiech Acting Executive Director ECI and Help Desk Manager
Jon Bronken 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 Manager, System Administrator
Chad Foster Network Infrastructure Technician
Richard Frovarp Senior Software Engineer
Brian Kennedy System Administrator
Val Nordsletten Network Engineer
Jill Peterson Application Developer
Matt Reimer Network Infrastructure Technician
Jim Ross Lead Application Development Specialist
Dale Summers Database Administrator
Kelly Summers Network Infrastructure Technician
Bob Viou 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
Michael Aho Help Desk Consultant
Vince Anderson Desktop Support Specialist
Zach Anderson Classroom Technologies Specialist
Lincoln Bathie Desktop Support Manager
Steve Beckerman Media Technologies Consultant
Neil Brock Help Desk Consultant
Chad Coleman Desktop Engineer
Tammy Cummings Instructional Services Consultant
Daniel Erichsen Interactive Media Specialist
Enrique Garcia Computer Systems Analyst, Co-Assistant Help Desk Manager
Nathan Gonsoe Co-Assistant Help Desk Manager
Cody Greff Desktop Support Technician
David Hamiga IT/AV Systems Specialist
Cj Johnson Instructional Services Consultant
Daniel Koiner Desktop Support Technician
Sheree Kornkev Technology Learning and Media Center Manager
Nancy Lilleberg Instructional Services Manager
Micah McGowen Classroom Technologies Manager
Trevor McNeil Audio Visual Technician
Lorna Olsen Instructional Services Consultant
Luke Prather Instructional Services Consultant
Jim Sellner Desktop Support Specialist
Jim Senechal Computer Systems Specialist
Melissa Stutz Technical Support Services Manager
Josh Teegarden Help Desk Consultant
Michael Wolf Desktop Engineer

TELECOMMUNICATIONS AND EMERGENCY TECHNOLOGIES
Joan Chapek Assistant Vice President for Telecommunications and Emergency Technologies
Lisa Benz Telecommunications Analyst
Jason Blosser Technology Systems Coordinator
Vance Gerchak Director for Telecommunications and Emergency Technologies
Susan Jenstead Telecommunications Analyst
Cindy Kozojev Telecommunications Analyst
Linda Krogen-Brandt Telecommunications Analyst
Brian Miller Card Access Analyst Technician
Jayme Pfeifer Telecommunications Analyst
Nathan Robideau Telecommunications Analyst

IT STAFF IN NUMBERS

68
IT staff members

50+
student staff members
NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to: Vice Provost, Title IX/ADA Coordinator, Old Main 201, 701-231-7708, ndsu.eoaa@ndsu.edu.