Our emphasis on service affirms our department’s commitment to the campus theme “It’s About People.” We provide training, support and services that assist our clients in becoming lifelong learners and contributors to the common and greater good of society. Whether a familiar service like electronic mail or less familiar services like web development, podcasting, interactive video or desktop conferencing, we support the scholarship of discovery, teaching, integration and application as our clients address the needs of the world.
OUR MISSION AND ORGANIZATION

Information Technology Services provides leadership, planning, implementation and support for a wide range of exemplary IT services, programs and resources available to North Dakota State University, to the North Dakota University System, and to the state of North Dakota. Our 67 full-time staff members are distributed across three units — Client Services (29 staff members), Infrastructure Services (27 staff members) and Management and Policy Development (10 staff members). Our 70 to 80 student employees play critical roles in helping us fulfill our mission.

Services are provided to a diverse population of clients whose technical knowledge and skills span a broad spectrum. Whether responding to administrative, academic or research needs, our challenge is to respond efficiently in a time of growth, both in the number of clients and their diversity of needs. We are also experiencing geographic growth in the size of the extended campus.

The 2007 fiscal year budget totals approximately $7,104,337. Funds were derived from a number of sources (Table 1).

Table 1. Sources of ITS salary and operating budgets.

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Amount</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDUS-Appropriated</td>
<td>$3,065,081</td>
<td>43.1</td>
</tr>
<tr>
<td>NDSU-Appropriated</td>
<td>$2,080,654</td>
<td>29.3</td>
</tr>
<tr>
<td>Student Technology Fee</td>
<td>$1,285,828</td>
<td>18.1</td>
</tr>
<tr>
<td>Network Services and Site License recharge</td>
<td>$590,000</td>
<td>8.3</td>
</tr>
<tr>
<td>Higher Education Computer Network assessment</td>
<td>$82,774</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$7,104,337</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

OUR SERVICES

ITS staff provide services to all members of the NDSU community, whether they are located locally, or at a distance. We provide help desk and desktop support to county Agriculture Extension offices and recently (June 2007) provided technical video conferencing support to a collaborating professor from the Ansal Institute of Technology, Gurgaon, Haryana, India. Rosi Kloberdanz is director of Client Services.

CLIENT SERVICES

HELP DESK SUPPORT SERVICES

The Help Desk provides much of its support in response to telephone inquiries. Approximately 27,000 calls were answered from July 1, 2006, to June 30, 2007 (Table 2). Nearly two-thirds of the requests for help arrive via the local NDSU telephone number.

Table 2. Number of calls answered by the Help Desk.

<table>
<thead>
<tr>
<th>Number Called</th>
<th>Calls</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDSU 701-231-8685</td>
<td>18,953</td>
<td>70</td>
</tr>
<tr>
<td>NDSU 866-457-6387</td>
<td>7,967</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26,920</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
During the spring of 2007, a survey was distributed to randomly selected users contacting the Help Desk. Results indicated a high level of satisfaction with the services provided. (Figure 1)

Help Desk duties are shared with the University of North Dakota’s Information Technology Systems and Services department. NDSU’s staff has responsibility for 7:30 a.m. – 9:00 p.m. Monday through Friday. No Help Desk support is available between midnight and 7:30 a.m. We will continually assess the need to provide 24/7 help desk support as our client numbers and needs continue to grow.

NDUS Help Desk staff members are in the process of implementing an enterprise update to the REMEDY® Help Desk software for the North Dakota University System. The software is used to create and administer service tickets. The new version of the system includes incident and problem management utilities that will greatly facilitate the staff’s ability to track progress on tickets and to better manage deployment of staff resources. The upgrade also includes RightAnswers®, a robust self-service and support-service knowledge base. The self-service module will enable students, staff and faculty to access generic and locally defined solutions. When integrated with Remedy, customers will be able to create and monitor progress on their own incident tickets; moreover, this integrated system will provide resources that will allow customers to diagnose and solve problems on their own.

ITS Help Desk and Agriculture Communication Help Desk services were merged in 2005. The College of Agriculture, Food Systems and Natural Resources’ Agriculture Information Technology Advisory Group initiated a second customer satisfaction survey to evaluate the merged services. Survey results indicate “overall improvements” in client satisfaction. A Memorandum of Understanding between Agriculture and ITS, first entered into on Oct. 1, 2005, has been extended until June 30, 2008.

The migration of agriculture-related e-mail addresses from @ndsuext.nodak.edu to @ndsu.edu has been completed and the transition from Ag Extension’s Majordomo e-mail broadcast system to the HECN’s Listserv® system is well under way.

ITS currently maintains 2,797 HECN Listserv® e-mail distribution lists, a 12% increase from last year. Listserv volumes have also increased from the previous year. More than 825,000 Listserv e-mail messages were received (+36%), processed and distributed to more than 60,000,000 (+11%) recipients.

A Web-based self-service equipment reservation system, PHPScheduleIT, was inaugurated. The system allows students, staff and faculty to create multiple-day and multiple-equipment reservations online, saving time for both customers and Help Desk staff.

**Desktop Support**

ITS staff can remotely manage nearly 2,800 Windows-based computers using ZENworks®, a Novell product, and Windows operating system updates can be “pushed” to NDSU-supported machines. The updates help to prevent breaches in security and other vulnerabilities associated with the Microsoft Windows XP Operating System or Microsoft Office applications.
The number of desktop support staff needed to provide effective service to the clients is determined in part by the strictness of the desktop policies. If desktop computers are stringently standardized, that is if the programs installed on a computer are strictly prescribed, and if remote management of the desktop is possible, the ratio of supported computers to support staff could be 120:1.

NDSU faculty and staff demand greater autonomy on their ability to install software applications, and also demand support for multiple operating systems. This less prescriptive desktop model requires the ratio of supported computer to support staff to be closer to 45:1. As desktop video conferencing become more common (see below), even greater demands will be placed on the desktop support staff.

**MANAGED PRINTING**

In 2006/2007, nearly 4 million pages were printed on 53 printers located in 28 clusters across campus. The cost to TFAC was approximately $84,000 and does not include ITS contributions. Printing service levels continue to increase as we implement color printing, duplexing, touch-screen monitors and add more locations to the program. We are maintaining a print allowance of 500 black-and-white pages per student per active semester. This year, the cost per page for pages beyond the 500-page allocation changed from 5 cents to 3 cents per page for black-and-white printing. For the coming year, we estimate a similar page count of 4 million sheets at a cost of $110,000.

**CASCADE PROGRAM**

As ITS refreshes the cluster computers each year, we “cascade” the 3- and 4-year-old systems into departments in an attempt to replace much older computer hardware. This year is on track to be as successful as last year. We are still in the process of distributing the hardware across campus; however, we are confident that all computers will be relocated to benefit users across NDSU, employees at the North Dakota Forest Service, as well as on- and off-campus locations.

**SURPLUS**

ITS continues to act as the campus conduit for surplus computer hardware, monitors and peripherals. We scrap an inordinate volume of obsolete computer components. These parts are disposed of in an environmentally friendly way. We continue to pay for the disposal of older CRT monitors. The number of CRTs is estimated to drop in 2007/2008, due to the fact that flat panel monitors have now been standard for more than 4 years.

We also continue to sell computers that are between 5 and 6 years old at public auctions. These are held two to three times a year. The monies generated by these sales assist in the funding of monitor disposal. We also continue to relocate usable systems that have been surplused, back into departments at no cost.

**INSTRUCTIONAL SERVICES AND TRAINING**

A wide variety of training opportunities are provided by ITS. One of the most innovative is the Sponge Program ([www.ndsu.edu/sponge](http://www.ndsu.edu/sponge)). The ITS staff facilitates faculty members’ desires to include technology projects in their courses by providing focused, just-in-time, in-class training for students.

Faculty and students in 39 classes benefited from the Sponge Program. Nearly 1,100 service contact hours were provided to 664 student clients.

More traditional training opportunities are also provided (see Courses A-Z, [www.ndsu.edu/its/training/courses_az](http://www.ndsu.edu/its/training/courses_az)). Approximately 900 faculty and staff members participated in one or more of the 130 classes provided (Table 3).
Table 3. Training for faculty and staff.

<table>
<thead>
<tr>
<th>Training Opportunities</th>
<th>Participants</th>
<th>Classes</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard Suite</td>
<td>261</td>
<td>39</td>
<td>63</td>
</tr>
<tr>
<td>Web Development</td>
<td>217</td>
<td>26</td>
<td>60</td>
</tr>
<tr>
<td>MS Office Suite</td>
<td>192</td>
<td>32</td>
<td>143</td>
</tr>
<tr>
<td>Graphics Applications</td>
<td>94</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td>48</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>E-mail &amp; Calendaring</td>
<td>43</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Computer Basics</td>
<td>30</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Personal Response System</td>
<td>24</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>909</strong></td>
<td><strong>130</strong></td>
<td><strong>352</strong></td>
</tr>
</tbody>
</table>

While the largest number of participants sought training dealing with the Blackboard Academic Suite, the greatest number of classroom hours dealt with the Microsoft Office Suite of programs. Adoption of the recently released Microsoft’s Office 2007 is expected to increase the demand for training.

BLACKBOARD

The Blackboard Academic Suite has continued to mature. Faculty adoption and student use of the Blackboard Learning System continues to increase. A snapshot of number of unique Blackboard logins (Figure 2) illustrates the high utilization of the resource.

Administration of Blackboard has become more streamlined with the addition of the “Course Create Utility.” Automatic nightly enrollment processes assist the responsible staff in handling the increased usage. Other departments have discovered the benefits of putting announcements on the Blackboard screens, such as financial aid deadlines or policy changes.

Campus groups have created 280 Blackboard-based Web sites to assist in fulfilling their missions and to facilitate cooperative interactions.

The Blackboard Community System interface makes it possible for faculty, staff, students and parents of students to manage their Bison Bucks accounts via simple secure, online utility (Figure 3).

The Blackboard E-commerce Suite now makes it possible for campus organizations to perform credit card transactions for the sale of merchandise. The Agriculture Extension Service (https://ndsuperesticide.cws.ndsu.nodak.edu/PreReg/Request for Study Materials.htm) and the Upper Great Plains Transportation Institute (www.ugpti.org/tia2007) are two
organizations offering materials for purchase and/or processing meeting registrations online. All transactions comply with Payment Card Industry standards, and no credit card information is stored or maintained on NDSU computers.

The addition of the Blackboard Content System now makes it possible for users to access new file storage functionality as a substitute for carrying USB drives. We advertised this capability via posters and the Spectrum at the end of spring semester to the students. Currently the content system has 1,625 users. We are using 28 Gigabytes (GB) for the Content System and 146 GB for the Learning System.

The e-portfolio function of the Content System has not been used as much as had been expected. However, the next Content System upgrade increases the e-portfolio functionality, allowing greater expression and flexibility. We expect to see increased use of both the e-portfolios and online storage this year.

WEB SUPPORT
TYPO3 has been adopted as the university-supported content management system (CMS). A major advantage of the system is that design of Web pages is separated from the management of information presented on the pages. The system ensures that Web pages meet Web-accessibility guidelines, avoids broken page links, supports compatibility across Web browsers and keeps Web page version histories.

The implementation of the CMS has been a collaborative effort. ITS and University Relations staff work closely together and have been able to maintain an ongoing dialogue as the CMS is rolled out to a greater number of campus units. Clients continue and will continue to request traditional web support. Instructional Services will continue to provide user support for Dreamweaver, Contribute and Web server requests as we move towards institution-wide adoption of TYPO3.

INSTRUCTIONAL SUPPORT
Our instructional designer plays an important role when a traditional course becomes an online course. She shares best practices for Blackboard use, helps create course supplements that combine audio comment to PowerPoint or screen shots, and supports the day-to-day needs of instructors and students. After moving our documentation to TYPO3 on the Web, much time was spent updating and adding to these offerings.

UPGRADE PERSONAL RESPONSE SYSTEM
The Personal Response System, introduced in the Fall 2001 through a Student Technology Fee award, has been upgraded. The new system communicates by radio waves (PRSrf) resulting in much faster response time. The new transmitter also provides the user immediate feedback when his or her answer has been registered, provides the instructor a wider variety of question types, including those requiring a numeric answer, and does not require receivers to be hard-wired in the classroom.

A small pilot group of instructors used the two technologies together in the classrooms during spring semester. Their help smoothed the transition to PRSrf. All the infrared receivers were removed from classrooms over the summer, and the NDSU Bookstore only sold PRSrf transmitters to students last spring.

In response to a campuswide announcement, NDSU students donated close to 500 of the retired infrared PRS transmitters to be used by area K-12 schools. Within three hours after the availability of this equipment was announced to K-12 technology staff, ITS had received twice as many requests as the number of systems available. ITS will ask students returning for fall semester 2007 if they wish to donate their PRS transmitters.
PODCASTING & BLACKBOARD
The 2006 Horizon Report, a collaborative product of the New Media Consortium and the EDUCAUSE Learning Initiative (www.nmc.org/pdf/2006_Horizon_Report.pdf), identified “personal broadcasting,” the production of personal audio and or audio/video content, as having a “time-to-adoption horizon” of one year or less. Fortunately, NDSU was ahead of the curve.

Podcasting is one means of creating and sharing audio content. The podcasts may be listened to without being online. Users may choose a computer or a hand-held device (MP3 player) as their preferred listening device. Prashanth Balakrishnan, an ITS application developer, created tools to integrate the production and syndication of podcasts with our Blackboard learning management system (www.ndsu.edu/its/podcasting).

Twenty faculty members from 15 academic departments have included podcasts in their courses. Five ITS and one Distance and Continuing Education staff members have provided assistance to faculty and student “podcasters.”

Faculty members are using podcasts for a number of purposes. Some faculty capture lectures as podcasts, some involve guest lecturers, while other provide the completed courses as podcasts. A number of instructors engage their students by having the students complete podcasting assignments.

VIDEO CONFERENCING
The expansion of North Dakota Statewide Technology Access for Government and Education network (STAGEnet) has made it possible for NDSU to expand the class offerings to many K-12 locations across North Dakota utilizing the Interactive Video Network (IVN).

NDSU courses delivered over IVN in the 2006-2007 academic year increased by 20% from the previous year. There were 61 graduate courses totaling 157 credits and eight undergraduate courses totaling 21 credits offered. The interactive video courses have provided the option of utilizing on-line streaming for anytime course review.

NDSU has used the video system for more than just credit classes and training; it has also used the video system for NDSU meetings, employee interviews and dissertation defense. Videoconferencing has played a role in how we deliver face-to-face courses to our students and will continue to evolve as the technologies continue to merge and become more seamless for everyone to use.

The clamor for desktop video conferencing capabilities is growing. Macintosh and Windows computers with built-in cameras, the availability of inexpensive “webcams” and free application software have made desktop conferencing available to any user. Our challenge is to provide clients with recommended hardware and software so as to be able to focus our support efforts. It is not a question of if support of desktop video conferencing will be expected to be available as a supported service; it is a question of how soon such service will be expected.

STUDENT TECHNOLOGY SERVICES
Student Technology Services (STS) staff members engaged in conference activities and other events to promote STS and ITS. In June 2006, NDSU STS members co-sponsored a Student Technology Services conference at the University of Wisconsin-Milwaukee with their counterparts from that institution. At the UWM conference, NDSU staff members presented conference sessions on the challenges of implementing an STS program, student empowerment, professional development, and hiring policies and procedures. In November 2006, Jared Hall and Sheree Kornkven presented a paper on Student Technology Services at the
SIGUCCS (Special Interest Group on University and College Computing Services) in Edmonton, Canada. STS coordinator and student managers presented on STS at an ITS staff meeting in spring 2007. Student managers participated in summer freshman orientation activities, including presenting ITS information to groups of incoming freshmen.

STS staff members revised the student employee handbook and completed a student supervisor handbook. An STS Manager in Training position was created, and two new STS managers were hired.

Efforts to recruit new student employees included updating posters for various campus events and advertising at Memorial Union. A high quality short video was developed for recruitment and information purposes.

New ways of communicating with students were implemented. Student managers set up an STS organization site in Blackboard for internal communication and information. STS student managers created a podcast as a possible method of communicating with ITS student employees. A fall retreat was held in August for all new and returning ITS student employees.

Statistical Consulting
The Statistical Consulting unit within ITS/Statistics provided consulting services to the NDUS over the past year through the efforts of one full-time staff member from ITS and four Ph.D. students from the Statistics Department. Consulting records for the full-time staff person indicate more than 250 unique clients, accounting for more than 1,200 contacts (in-person, phone and e-mail) with individuals from a wide variety of academic departments who were assisted. Roughly half of these contacts were directly related to statistical questions. The remainder includes calls for appointments and questions related to software usage (SAS, SPSS) and the OMR test scoring system.

One additional measure of the success of statistical consulting efforts is the number of refereed publications including members of statistical consulting among the authors. The total number of publications increased in 2006-2007 to 10 after averaging 1 to 3 publications per year from 2000 to 2005.

Internet2
NDSU and UND are members of the Internet2, a community of research and educational institutions promoting the development and use of advanced Internet applications and network technologies to foster collaboration in education, research and cultural exchange.

NDSU and UND, as full members of Internet2, sponsor community memberships for the nine additional NDUS institutions, EduTech, North Dakota’s K-12 schools and the Flatlands Disability Network. Internet2’s networking capabilities have made possible a wide variety of collaborative activities between NDSU and researchers around the world, between NDSU and K-12 classrooms in North Dakota, and between North Dakota K-12 classrooms and those around the globe. Illustrative examples of Internet2 activities are reported in Table 4. Sandy Sprafka, ITS Classroom and Media Technology manager, and Kim Owen, EduTech coordinator of Instructional Services, played critical roles in a number of Internet2 activities.
Table 4. Illustrative examples of Internet2 activities.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Collaborative Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>NDSU researcher co-chair of the Internet2 Archaeology Special Interest Group (SIG) whose mission is to increase awareness of and engagement in the uses of advanced networking technologies in support of archaeology teaching and research throughout the Internet2 member community. NDSU Geosciences faculty and students complete two-month research field expedition in Antarctica. Staff from NDSU and EduTech worked to support telecommunication between Ben Franklin Middle School eighth grade students and the Antarctica researchers. Included in the communications were pre- and post-field study videoconferences, weekly satellite phone conversations and Yahoo Instant Messenger sessions (with video) to connect to researchers.</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>The NDSU Center for Nanoscale Science &amp; Engineering (CNSE) participates in multi-sector collaborations focused on research and development of materials build on an atomic-molecular scale. Red River Basin Decision Information Network (RRBDIN) exploits the Internet2’s networking capabilities to share and disseminate water quality data and to provide flood-forecasting information.</td>
</tr>
<tr>
<td>Cultural Exchange</td>
<td>Two high school classes in North Dakota and one in Pennsylvania shared experiences and exchanged questions with two high schools in Pakistan. NDSU and EduTech participated in the Fourth Annual Megaconference Jr., engaging students from 170 sites across more than 16 countries in a truly global multipoint videoconference event. Hettinger (N.D.) High School premiered a “VJ” (video-jockey) team who guided the planning and preparation for the Megaconference.</td>
</tr>
</tbody>
</table>

**INFRASTRUCTURE SERVICES**

E-Mail Service

ITS provides e-mail services to six of 11 campuses in the North Dakota University System. Spam, unsolicited bulk e-mail, volume is rising across the Internet. In October 2006, known spam accounted for nearly 70% of the e-mail received. Processing of e-mail was impacted resulting in noticeable delays in

![E-mail Message Volume by Week](image)

*Figure 4. Weekly E-mail volume and effects of spam abatement.*
 deliveries of e-mail. ITS staff investigated a number of potential solutions. Identified spammers were denied connection to our e-mail system beginning Dec. 18, 2006. The amount of spam immediately dropped significantly (Figure 4) and e-mail delivery exhibited no delays. Fortunately, few customers experienced interruptions of legitimate e-mail.

**E-mail Storage Quota**

E-mail has been adopted as the official means of communicating with students (Policy Section 609, [www.ndsu.edu/policy/609.htm](http://www.ndsu.edu/policy/609.htm)). E-mail storage quotas have been doubled in response to the policy change and to requests from clients (Table 5).

<table>
<thead>
<tr>
<th>GroupWise</th>
<th>IMAP Faculty &amp; Staff</th>
<th>IMAP Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Quota</td>
<td>300 Mbytes</td>
<td>250 Mbytes</td>
</tr>
<tr>
<td>New Quota</td>
<td>600 Mbytes</td>
<td>500 Mbytes</td>
</tr>
</tbody>
</table>

*IMAP = Internet Message Access Protocol*

**Northern Tier Network Consortium (NTNC)**

The Northern Tier Network Consortium is a regional collaborative whose mission is to “develop and sustain advanced networking capabilities in order to support the educational, research, and economic vitality of the Northern Tier region.” Northern Tier states include Wisconsin, Iowa, Minnesota, North Dakota, South Dakota, Montana, Idaho and Washington. To date, this region has not been included in national research networking efforts. This is illustrated by the map of the Internet2 network backbone shown in Figure 5.

![Internet2 High Speed Network Backbone](image)

Other national research networks, such as National Lambda Rail ([www.nlr.net](http://www.nlr.net)), also bypass Northern Tier states. North Dakota and its partner states have made great strides this past year in extending the national research network through the Northern Tier. In September 2006, NDSU secured $3,200,000 from Senator Byron Dorgan via the Department of Defense. Additionally, in April 2007, the State of North Dakota allocated a $2,773,800 appropriation in support of this effort. At the present time, North Dakota State, the University of North Dakota and the State of North Dakota’s Information Technology Department (ITD) are working cooperatively with our primary partners, the University of Minnesota and the University of Washington, to “light” a fiber-optic-based network across the Northern Tier states. It is our goal to have all work completed before the 2009 legislative session.
VERSION 6 INTERNET PROTOCOL (IPv6)
The number of available Internet addresses is declining. The U.S. Office of Management and Budget (OMB) has committed all federal agencies to transition their network backbone from Internet Protocol Version 4 (IPv4 provides 4,294,967,296 or $2^{32}$ possible unique addresses) to Internet Protocol Version 6 (IPv6 provides approximately $3.403 \times 10^{38}$, or $2^{128}$ possible unique addresses) by June 30, 2008. Electronic communications with U.S. government agencies and, in fact, much of the rest of the world, will require that our networks and computer appliances be IPv6 capable.

Many countries in Asia have made substantial progress in this transition, with researchers at some universities only having connectivity to the Internet via IPv6. ITS staff, in collaboration with other campus technical professions across campus are planning, testing and implementing IPv6 on a wide of array of networks, applications and computer appliances. With the exception of a handful of legacy network devices (e.g., the router that connects the residence halls), NDSU’s network backbone has IPv6 support enabled. NDSU is well prepared to meet the OMB deadline.

SPONSORED AFFILIATE AGREEMENT
Two long-awaited capabilities were realized this past year. A new Sponsored Affiliate agreement ([http://enroll.nodak.edu/affiliate/](http://enroll.nodak.edu/affiliate/)) was created. It makes it possible for clients not having a user ID (EMPLID) in the PeopleSoft administrative systems to be provided services. The new process greatly facilitates the establishment of collaborative academic and research associations.

Implementation of the Sponsored Affiliate agreement also provided the opportunity to make needed changes in the Enroll process. Students had been able to exit the processes without completing the activation of their services. The redesigned process limits the user’s navigation options, necessitates the creation of a question to assist in the resetting of forgotten passwords, and requires correct termination of the process.

Provisioning services to special groups of students has also been streamlined. The processes for provisioning Governor’s School participants and students taking the online Math Placement Test were discussed with responsible departments and staff, standardized, and promulgated.

IDENTITY MANAGEMENT AND USER AUTHENTICATION
A new, NDUS wide name space (common identity repository) is being developed. Marc Wallman, director of IT Infrastructure Services, is leading a group of technically savvy leaders from across the university system. The common identity repository will strengthen system wide network security, facilitate collaborations across the NDUS, simplify and enhance the users’ experiences. The expected outcome is a common centralized name space that permits clients’ identities to be recognized across NDUS campuses and NDUS enterprise resource planning (ERP) applications such as ConnectND (PeopleSoft) and Online Dakota Information Network (ODIN).

WIRELESS ACCESS
Now in production for three years, NDSU’s wireless network has achieved its initial goal of 100% coverage in academic areas. Additionally, campus wide coverage at NDSU is nearing 85%. Demand for wireless has been steadily growing. Usage is most intense and locations like the Minard Hall Coffee Shop. During the next year, ITS hopes to address capacity issues at these high use locations in order to maintain the quality of this service.
MANAGEMENT AND POLICY DEVELOPMENT

IT SECURITY

The third annual K-20 IT security conference, IT Security: A Call to Action for the Education Community, was hosted by ITS and EduTech on Nov. 1 and 2, 2006, at the Fargo Ramada Inn. Some 175 educators, information technology professionals, and others were able to hear nationally recognized speakers and participate in “hands on” sessions. More information is available at www.ndsu.edu/itsecurity/past_conferences/2006. Audio from sessions was recorded and podcast for the first time. A fourth conference is planned for Nov. 7 and 8, 2007.

A large increase in complaints of illegal sharing of copyrighted material occupied a great deal of staff time. The Recording Industry Association of America also went beyond the normal Digital Millennium Copyright Act “take down” notices to include pre-litigation notices, data preservation requests and “John Doe” subpoenas for information. New procedures to handle these requests were developed in conjunction with student affairs officials and the North Dakota University System.

NDSU IT Security Officer Theresa Semmens has conducted many awareness and training session across campus. She has also been consulted on security practices. She is a member of REN-ISAC, the Research and Education Networking - Information Sharing and Analysis Center, and the EDUCAUSE Computer and Network Security Task Force. Theresa is co-chair of the President’s Safeguarding Data Taskforce and of the Provost’s Copyright and Fair Use Education and Training Taskforce.

Theresa and Jeff Gimbel, a Help Desk consultant, have specialized training in cyberforensics. They provide service to NDSU and other NDUS campuses. There were approximately 212 cyberforensic investigations conducted this year. The majority of the cases, nearly 200, involved alleged copyright violations.

SOFTWARE LICENSING

Software licensing functions were moved from Client Services to the ITS Management and Policy Development group at the end of the fiscal year. Pamela Nielsen is now the Asset Management Coordinator for ITS and is responsible for software licensing for NDSU and the NDUS as well as ITS physical inventory. Marty Hoag is responsible for software licensing contract negotiations.

An effort will be made to assess the willingness of Administrative and Academic units for NDSU to enter a subscription software licensing program with Microsoft. The Microsoft Campus Agreement (www.microsoft.com/Education/CampusAgreement.mspx) would eliminate tracking individual software licenses; all PCs and users would be covered. Further, all users will have the most current version of Windows software. The Campus Agreement includes the Microsoft Server Client Access License (CAL).

Entering into a Campus Agreement changes the way one views the purchase and maintenance of software. Software is acquired by “subscription” rather and by “purchase.” Entering into a three-year agreement ensures that the per-unit cost of software will not change. The per-unit cost is calculated using a formula based on the number of total faculty/staff full-time equivalent (FTE) employees. NDSU could become a party to an NDUS Consortia Campus Agreement and receive even more favorable pricing (Microsoft “level B” pricing, FTE ≥ 3000). NDSU’s FTE is 2,534 based on the 2006-2007 Institute for Partner Education & Development numbers.

STAFF DEVELOPMENT

ITS has undergone a number of significant organizational staff changes this past year beginning with a transfer of IT leadership from Thomas Moberg to Jeffery Gerst in August 2006.
Seven ITS administrative services positions were amalgamated with Connect North Dakota (ConnectND). The staff holding these positions support ConnectND’s complex administrative system and focus on improving the delivery of ConnectND services to users.

John Grosen resigned as director of Infrastructure Services in May 2006 and Marc Wallman assumed that role the following month. Two distinct groups, Database and System Services, and Application Development were organized under Marc’s direction. A search immediately began for managerial staff and ITS successfully hired two competent managers to lead these groups. However, after a short tenure, both returned to their previous employment. They cited their greater enjoyment of technical rather than for managerial responsibilities as key reasons for resigning. As of early August 2007, both positions remain vacant as we continue the challenge of recruiting qualified talent.

One of our staff, George Norton, is on military leave in Iraq. His responsibilities have been shifted among other staff members during this time.

Rosi Kloberdanz, director of Client Services, continues to address the ever-increasing demands for user support. Her group also underwent a number of realignments. John Underwood, ITS Help Desk manager, was assigned as the project manager for the NDUS Help Center (Remedy) upgrade project in February 2006. His project management responsibilities are expected to continue until at least October 2007. Approximately 75% of his time will be dedicated to the implementation of the project. ITS has temporarily redistributed a number of John’s daily Help Desk managerial and ConnectND responsibilities to two Help Desk staff.

Desktop Support and Classroom & Media Technologies have vacancies that have taken an enormous effort and time to fill, leaving those work groups short-staffed for a good portion of the year. This difficulty is exacerbated by the increased number of faculty actively incorporating more multimedia technologies into their classrooms. Furthermore, support activities related to podcasting, video and Web-conferencing, and online learning continue to require greater involvement of Classroom & Media Technologies staff.

The ITS Management and Policy Development unit hired Cloy Tobola as the new ITS communications coordinator. Cloy is helping to develop, manage, and implement an overall communications program for ITS as well as serving a leadership role in implementation of the new TYPO3 content management system.

As ITS examined its business practices of hardware and software asset management, the software licensing contract and negotiation responsibility transitioned from the Desktop Support group to a business function and now resides with Marty Hoag, director of ITS Management and Policy Development. A new position, ITS Asset Management Coordinator, was created by blending the daily tasks needed to support inventory control and software license ordering. This position was filled internally by realigning office staff duties. Subsequently, a new administrative secretary was hired.

EduTech has also seen some change in staffing as two new regional support staff were hired. An open network administrator position was re-evaluated and re-designed to further help administrators and teachers learn the benefits of incorporating PowerSchool into the classroom. Support for this application continues to grow as more and more schools integrate this student information application tool in the classroom. EduTech also has been short-staffed as Kuauhtemoc Rodriguez is also on military leave.

**Recruitment and Retention Challenges:**

At the beginning of July 2006, ITS had eight vacant positions. Over the course of the year, eight existing staff left the organization as well. We managed to hire nine new staff, realign four internal staff, and at the
end of FY 2006-2007 still have five positions vacant. We have struggled with our recruitment efforts, often having positions open for months at a time.

Talent management is one of the most important issues facing organizations and one that requires new approaches and new strategies. Strategies for recruiting and retaining quality talent must continue to be a priority. Low salary offerings have hindered our ability to recruit top talent in all areas of our organization. Turnover has also been related to salary deficiencies. Upon exit interviews with staff, salaries are being offered in the range of $3,000 to $8,000 more and almost double, and up to six figures for high-end technical staff without any managerial responsibilities. Money may bring employees through the front door, but the work culture and environment, coupled with benefits, and job flexibility are leading indicators of job satisfaction — hence, retention will continue to play a significant role related to talent management.

Cathy Hanson, ITS staff development coordinator, leads the effort to identify and recruit new staff members. She concludes that the days of placing a recruitment ad in the newspaper and receiving hundreds of qualified candidates are over. ITS must, in today’s tight labor market, gain interest, provide correct motivators, spark response and attract the passive job candidate in a specific target audience.

Discovering creative ways to recruit and advertise, which include examining alternative methods, such as using resources like Dice.com, an online recruiting source, targeting regionally and global audiences, working with staff on “spreading the word” and formulating advertising messages aimed at attracting candidates to Fargo, and not just to the job, are all viable ways techniques we’ve tried this past year. Despite the challenges, findings indicate referrals (25.6%) are the number-one external source. Employee referrals make up 95% of all hires attributed to this category, which means we should continue to encourage our own staff to help us seek potential candidates who will add value and knowledge to our organization.

Our costs for employment advertising this past year were more than $17,000 compared to $8,600 the pervious fiscal year. Breaking this down, the cost per hire average is $1,572 (11 positions). Obviously, this figure lumps together the costs of hiring both lower-level employees with that of management or senior-level employees and therefore may skew the true costs for a specific position. If we look at only this figure in our analysis of getting a picture of true recruitment challenges, it only represents a specific known metric. Positions open for long periods of time have a huge impact on the organization. Employees may need to work overtime, workload generally gets redistributed, often new projects can’t be assumed, staff must spend time interviewing candidates, and stress levels and low morale may increase. Additionally, efforts focused on “hiring and training” new staff consume supervisor and management time and opportunities to grow and develop existing staff come in second. The challenge of attracting, developing and retaining the best people is set to become even more difficult in the years ahead. The challenge is compounded by the local presence of ConnectND, North Dakota’s Information Technology Department, and Microsoft Corporation’s advertising for similar positions.

**INFORMATION TECHNOLOGY GOVERNANCE SYSTEM**

**UNIVERSITY SENATE ITS IMPLEMENTATION COMMITTEES**

The University Senate (March 20, 2006, Minutes, Attachment 3, [www.ndsu.edu/ndsu/deott/univ_senate/sm200506/sm200603.pdf](http://www.ndsu.edu/ndsu/deott/univ_senate/sm200506/sm200603.pdf)) recommended Information Technology Services governance committees system has been inaugurated. The existence of the committees and their purposes is publicized online from the Campus-Wide IT Resources link on the ITS home page ([www.ndsu.edu/itcouncil](http://www.ndsu.edu/itcouncil)). IT Council minutes are also available online.

The Teaching and Learning Information Technology Advisory Group (ITAG) and the Research ITAG have
been very active over the academic year. The Teaching and Learning ITAG completed a faculty survey on use of instructional technologies and has organized a “technology fair” for new faculty members. Recommendations of the Research ITAG have resulted in a doubling of e-mail quotas and a project to increase the availability of secure data storage.

The Standards and Infrastructure ITAG and the Information Systems ITAG have been less active. This coming year, both groups will be asked to discuss and to recommend means to better safeguard private and confidential data. Their deliberations will include a discussion of the use of data encryption and on restricting the availability of private and confidential data to particular workstations and designated staff.