North Dakota State University

Information Technology Services

Ending June 30, 2003

Annual Report
During the Spring of 2002, ITS collaborated with the Agriculture Communication department and the Computer and Information Technology Planning and Goals Committee (CITPG) to undertake an enormous task—we met with representatives of as many NDSU departments as possible in order to discuss campus technology needs and priorities. The discussions centered around three major areas: Planning, Priorities, and Partnerships. The intent was that these discussions would set the groundwork for the campus IT plan and a better focus for ITS.

Major feedback that appeared over and over again was the need for more extensive communication with the campus. As a result of this feedback, we initiated a series of open forums to discuss and build on the information we had gathered. In December 2002, we used this format to report our progress to the campus. Then we began to take the necessary steps to climb to the next level in IT services.

In this report, you will have the opportunity to judge for yourself how we’re doing. The report is organized by the core themes that emerged during the department visits. Monthly milestones are highlighted, and metrics that measure our work are used extensively. Even with limited resources, ITS staff have managed to be very successful at what we do. We’ve achieved many goals—on campus, in the HECN, regionally and nationally. Clearly, there is much more work to do, and we will continue to focus our efforts over the coming year.

I’ve enjoyed the opportunity to serve as Director during the interim period. My goal going into the position was that we not stand still. And we haven’t. We’ve continued our climb to the next level, building on our past successes, continually raising the bar. Beginning July 2003, Thomas F. Moberg will serve as director of ITS. Dr. Moberg brings with him years of experience in higher education, as well as a national reputation. We look forward to working with him.

All of our successes could not have happened without the combined work of everyone in the organization. I would like to formally thank all the staff of Information Technology Services for their support over the last 2 1/2 years. A special thank you to all the staff involved in creating, editing, and publishing this annual report. I hope you’ll agree that this report is creative, forward-looking, and fun—very much like a typical work day at Information Technology Services!

—Rosi Kloberdanz
ITS Director
November 2000—June 2003

Information Technology Services

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Computer Network
South Host Site
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ITS embarks on the journey to address campus needs

Addressing the core themes
- On-going communication
- IT training
- Reliable, secure, redundant network
- Standardized (baseline) hardware/software
- Enhanced web technology
- Enhanced IT support
- Support for research/advanced applications
- Support for administrative applications
- Support for instructional activities

Without a doubt, the past year's planning, priorities, and partnerships discussions and departmental visits have provided an insight into information technology visions and IT campus needs.

ITS has listened and responded to feedback. Core themes and priorities were identified. Using these themes, goals and objectives have been set to provide direction. We've made exceptional progress this past year.

This report provides the highlights of what has been accomplished so far. We will continue down a path of evaluating needs, setting expectation levels, meeting challenges, handling frustrations and—sharing our pride. We are most certainly proud of the direction we have headed this year and acknowledge the wonderful support received from the NDSU community. We look forward to having the campus continue its role in developing strong IT partnerships to support the President’s vision of advancing to the “next level.”

July - Aug 2002

Campus visits spur planning
Authentication in the computer clusters completed
NDUS Help Desk operational
Personal Response System units implemented
SPONGE program underway
Published help@ndsu, ITS@NDSU, DialUp@NDSU, ResNet@NDSU
IT Risk Management group announced

Strong partnerships between IT organizations and departments help us to share our strengths and become more efficient in providing and using IT services.

Technology is an integral part of the day-to-day operation of NDSU. Although there are many similarities in the technology that is used, there are many different ways that departments use technology.
Discussions began with regard to developing a Business Continuity Plan (BCP). Management gave the "go ahead" to develop an RFP for an outside vendor to assist with process. ITS provided the College of Pharmacy with consulting, implementation and troubleshooting support for a statewide telepharmacy project. This pilot project links a licensed pharmacist with rural pharmacies that do not have licensed staff available. The goal is to provide pharmacy services to people in small towns. It uses internet-based (IP) videoconferencing equipment running over high-speed lines. People across the United States and other countries have expressed considerable interest in this project.

During 02-03, ITS initiated a process to develop a Business Continuity Plan (BCP). With the assistance of Kaludis Consulting, ITS evaluated resources and services to determine the impact of potential disruption of services (outages), and to define procedures to ensure services continue with minimal interruption. The plan serves to enhance awareness and communication, and coordinates and integrates the current disaster recovery procedures and service resumption measures already in place.
Forging strong partnerships

Higher Education Research Network

For many years ITS network staff have played a significant role in providing statewide networking leadership. Staff have been actively involved in organizations such as EDUCASE, NET@edu, ECAR, the Great Plains Network, and Internet2, gaining knowledge and skills to help move North Dakota networking forward. This has helped to attract researchers, faculty and students to NDSU and made possible a number of grant awards.

ITS staff members also provide expertise in advanced networking to the state. As a result, state government and higher education agreed to implement a statewide research network. Research on new applications can now take place without affecting the statewide production network. Eventually, the entire state will benefit.

Partnerships with state government

ITS and state government collaborate in many ways. For example, a successful web-based Legislative Bill Tracking System, provided free to the University System, allows university personnel to track the progress of bills that are important to higher education. ITS staff manage and support the system when the legislature is in session.

EduTech provides North Dakota K-12 educators and students with opportunities that extend learning in the classroom and beyond, focusing on the use of technology to improve student achievement.

ITS administers EduTech through an interagency agreement with state government’s Information Technology Department (ITD). EduTech and ITS work in cooperation to share some services, resulting in cost savings for both organizations.

EduTech staff provide support for teachers and administrators in numerous ways. Details of each of the following areas of services can be found in the appendix (p. 21) of this document.

- EduTech’s Professional Development Services
- EduTech’s Information Technology Services
- EduTech’s Special Projects
- Anticipated Demands for the Future

Success stories:

Statewide virus protection for K-12 helps protect the network

The ND Education Technology Council and EduTech offer anti-virus software support at no cost to K-12 schools as a network tool to help ensure a secure network. Over 25,000 school computers are protected under this program. The statewide purchase provides a 60% savings off the regular educational discount.

Statewide Internet filtering meets federal law and local needs

In order for schools to be in compliance with the federal Children’s Internet Protection Act, Internet content must be filtered to limit access to Internet sites containing material of pornographic, violent and illegal activities. EduTech provides and manages this service to all K-12 schools on STAGEnet. An Internet filtering policy offers schools flexibility to bypass the filter for bona fide research or other lawful purposes. The statewide tool saves each district the cost of purchasing and maintaining their own filtering system.
On-going communication was one of the core themes identified during departmental visits. ITS has worked to improve the communication it provides to campus. Some of the methods used to communicate include:

* Open Forums
  - Future Technology Trends
  - Microsoft Exchange information sessions
  - Report to campus on results of departmental visits
  - Desktop Standards
  - Wireless
* Publications
  - NewsFlash: a newsletter that focuses on issues and changes that might impact IT users on campus. A special edition of NewsFlash focused on bandwidth issues.
  - Annual publications: help@ndsu, ITS@NDSU, DialUp@NDSU, ResNet@NDSU
* E-mail notification
  - Viruses, planned outages and training information
* Web and Technology Education Center
* ITS Web site
* User group sessions

Macintosh users need support
ITS started a Macintosh users group as a way to share knowledge of Macintosh systems and applications. Macintosh enthusiasts can share information related to specific Macintosh interests and discuss common problems and concerns.

Software savings
The NDSU campus generated 1,324 software orders this past year. The licensed price for software available through the HECN Software Licensing program is a fraction of what it would cost through other sources.

One example is Microsoft Office Professional, which lists at $579 retail, $388 through the ND State Government Microsoft Select Agreement, $190 at the Varsity Mart, and $53 through the HECN Select Agreement.

Sept - Oct 2002

Help Desk remodeled
ITS, Agriculture Communication, Computer Information Technology Planning and Goals committee discussed technology trends and symposium ideas

Sessions on Microsoft Exchange presented by Tom Moe, Microsoft, Oct 25


Desktop standards initiative began

E-mail SPAM filtering added

Wireless discussions began

Second Virtual Conference held Sept. 24-26

Upper Great Plains Technology Conference & Trade Show Oct 14-15

On-line Heart Surgery broadcast around the world

Business Continuity Planning process began

Help desk

* Answered over 26,000 phone calls placed to the ITS general support line 231-8685
  - 15,532 were made to Help Desk
  - 6,532 to Service Center, equipment reservations or software licensing
  - Average speed to answer a call was 26 seconds
  - Average length of a call was 3.17 minutes
* Made 11,491 outgoing calls to customers
* Received and answered over 12,000 e-mail messages
* Entered 5,314 problem tickets into tracking system
IT training

Businesses spend a great deal of money on providing training to enhance worker productivity. IT training, in particular, is essential in today’s computer-driven work environment. New systems, software, and peripherals spur the need for new knowledge and skills.

ITS is committed to providing high-quality IT training to the campus. A welcome addition to the ITS training group is the new dedicated training room. This enables more opportunities to offer one-on-one training and classroom instruction.

Technology LunchBox sessions

"Hot" topics— The one hour LunchBox sessions continue to be very popular. At these sessions, ITS staff demonstrate the use of new technologies, special features of application software, classroom technology software and address other IT subjects. The series for 02-03 included: ▶ What’s New (and Different) About Office XP? ▶ And Now...Windows XP! ▶ The Paperless Office Ideal—An Acrobat Overview ▶ Digital Scanning Basics ▶ Everything You’ve Always Wanted to Know About PRS (Personal Response System)—But Were Afraid to Ask! ▶ What is Contribute—And What Can It Do For Me?

Training stats

ITS scheduled 88 NDSU training sessions with 599 participants. These numbers do not include special training sessions conducted by request for specific departments or many of the departmental CorporateTime training sessions.

Additionally, ITS staff traveled across the state serving the training needs of other HECN campuses.

▸ 279 total participants
▸ 17 training days
▸ 27 sessions conducted

Technology Learning Center (TLC)

The purpose of the Technology Learning Center is to meet the academic and personal technology learning needs and goals of NDSU students while promoting autonomous learning. To fulfill this mission the TLC provides one-on-one and small group assistance, hands-on classes, opportunities for self-paced instruction, and assistance to faculty members who assign technology projects. Two notable projects that were implemented during 02-03 were:

SPONGE: In the Fall of 2002, IT staff responded to the challenge to improve services to instructors and their students by implementing a project called SPONGE which uses the metaphor “soak up the knowledge.” Along with the TLC, SPONGE serves as a communication “bridge” between instructors, students, and IT staff and services. Instructors are invited to meet with IT service providers to plan projects, identify needs, and coordinate support for students that includes in-class training and individual assistance with their projects from TLC staff.

A vital part of the SPONGE project is a Web site that provides students with necessary guidelines and instructions for completing assignments. The SPONGE interface allows students to choose from a list of project types (e.g. Create a Web Site, Create a Video) for a complete outline of guidelines and steps. They also have the option of getting quick help on a more specific task and searching the database for pertinent information.

TLC Web Site: The TLC web site (www.ndsu.edu/tlc), launched in early Summer 2003, provides an interface where students can choose a technology topic from a drop-down menu. A resource page is dynamically created for the topic that shows when trainers who are knowledgeable in the subject are on duty, a list of classes and resource books that are available through the TLC, links to external resources, and information from the SPONGE database. Other web pages provide information about the availability of trainers and their specific area of expertise.
Reliable, secure, redundant network

IT vision:
To develop and maintain IT and an IT support environment that is secure, stable and reliable within a dynamic environment.

This vision supports the President’s Goals It’s About People and Students Are Paramount:

- supports best pedagogical practices and opportunities;
- aids the rapid implementation of robust, cutting-edge technologies which strengthen the research environment;
- provides human resources that facilitate IT implementation; and
- attracts and retains quality students, faculty, and staff.

(from NDSU INFORMATION TECHNOLOGY VISIONS, Approved by NDSU President’s Cabinet on December 3, 2001)

Infrastructure improvements support the campus IT vision

Replaced network core equipment
ITS has been a leader in networking for many years. In order to participate in many new initiatives, including the use of Internetz advanced applications, we have been supporting a protocol called multicasting. Unfortunately, our core campus equipment did not have the capacity to support the use of this technology. As a result, we began to experience intermittent network outages. To remedy this situation, Network Services replaced the campus core equipment. We are now running dual Cisco 6513 switches, which provide more robust functionality, scalability and management of the network.

Continued "switch-to-the-jack" project
Network services staff continued work on the project that provides high-speed (10/100 Mbps) access to each data jack. This past year seven additional buildings were completed and now have that functionality.

GDC wireless project
ITS staff assisted the Group Decision Center in setting up a wireless system. The wireless configuration has helped to reduce the time it takes to assemble the equipment.

Completed telecommunications designs
Network services assisted with designing telecommunications infrastructure for several new and proposed campus buildings, numerous remodeling projects and special campus projects. This will ensure networking capabilities that will help move the campus to the next level.

IT Risk Management Group
This newly-formed group is responsible for IT security issues and the IT Business Continuity Plan. Over the course of the upcoming year, the group will be developing a more comprehensive program to address security vulnerability, disaster recovery, and assure business continuity.

Updated the RESNET core switch
The core switch that provides connectivity for all the residence halls (RESNET) was replaced with a newer version that allows direct fiber attachment and provides additional functionality to serve that area.

Completed road map for wireless networking (WLAN)
Considerable time was spent developing a plan to deploy a secure wireless data network for the campus. The blueprint was completed in April and approved by the ITS management team. The plan lays out a campus-wide strategy that will allow a phased-in approach. Funds were allocated for the purchase of core equipment necessary to begin implementation of the network.

Processed 200 Data work orders
Processed 500 voice/security work orders
Installed over 20,000 feet of category 5e cable
Installed 1500 feet of underground fiber optic cable
Installed 12,000 feet of various other types of applications specific cable
Spam mail and virus attacks are major headache for system administrators

ITS implemented e-mail spam filtering to help eliminate some of the "unwanted" e-mail being generated. Virus software detection was also installed on the servers to "catch" infected mail before it is delivered.

The NDUS campuses using the spam and virus detection filtering applications are Dickinson State University, Bismarck State College, Lake Region State College, North Dakota State College of Science, Williston State College, and North Dakota State University. Nearly two million pieces of mail are delivered each month to these campuses. On average, over five thousand viruses are caught per month.

Copyright issues heat up

The North Dakota University System receives approximately 40 notices weekly of Federal Copyright Law violations. Until recently, NDSU has handled copyright infringement issues internally and somewhat informally. When a complaint is received, we have an obligation to follow up in effort to investigate and stop such activity. As the Recording Industry Association of America starts to bring lawsuits directly against individuals for sharing copyrighted music, movies, software, and other files, the university may no longer be notified of violations. ITS has worked to inform campus of the consequences of sharing copyrighted material.

Bandwidth

The North Dakota University System (NDUS) funds connectivity for NDSU and the other campuses. A fixed budget is available to support this service, and each campus has been allocated a specific amount of Internet bandwidth. NDSU has a limit of 28 Mbps. The University System pays $23,273 per month for NDSU's bandwidth.

During Fall Semester, NDSU saw Internet bandwidth usage grow as applications that use large amounts of bandwidth gained in popularity on campus. This became a problem as usage began to exceed the NDSU limit and NDSU was facing the probability of having to pay for the increased use in bandwidth. If bandwidth usage had continued to increase at the same rate, NDSU could have seen additional annual charges of $37,000 or more (based on a rate of $310/megabit/month) by the end of spring semester 2003. ITS worked to educate users on campus and the result was a significant decrease in bandwidth usage.

IT policies

A great deal of time and effort was spent revising the NDUS Computing Facilities Policy and Computer and Network Usage Procedure 1901.2. Dick Jacobson led this effort on behalf of the University System. The new procedures require each institution to designate an Information Technology Security Officer to cooperatively work together with the NDUS IT security officer to implement, monitor and enforce information technology security policies.

Nov - Dec 2002

Recruitment for IT Security officer began
Open forum presentation regarding IT issues, Dec 11
Summary issued of campus visits
NDSU featured on Internet2 site as Sponsored Education Group Participant (SEGP) of the month
Desktop standards committee held more discussions
Help Desk:

Help Desk renovation
A walk-up counter was added to the Help Desk area which now provides more space for staff to support customers and allows for better traffic flow.

WebEX
The Help Desk is using a new tool called WebEX. This enables the staff to view a problem taking place on an end-user’s screen. Because the Help Desk can see what is actually happening, problems are resolved faster. Staff no longer have to "guess" what is happening as they walk users through the steps to resolve the problem.

Site Scope
Network monitoring software has been added so the Help Desk can monitor the status of the servers and network connectivity. Staff are able to identify if a server is up or down, what the network traffic is like, and anticipate potential problems. This software is available for other NDUS campuses to use.

NDUS Help Desk
The NDUS Help Desk has extended its support to include distance education and after hours support for local campus help desks. Remedy, a help desk software application, tracks problems and offers a solutions database. In addition, the role of the NDUS Help Desk in providing ConnectND support is being defined.

Desktop standards joint effort— ITS collaborates with CITPG
ITS partnered with the Computer Information Technology Planning and Goals (CITPG) subcommittee to develop a Desktop Standards recommendation. Two open forums were held last year to gather feedback for the proposed desktop standards recommendation.

The purpose of the software and hardware baseline is to provide guidance in the purchase of new software and hardware, and to provide enhanced support in the maintenance of existing software and hardware.

Adoption of a standard desktop configuration and the use of imaging software may reduce the setup time for a new computer from four or more hours to less than an hour. The long-range vision is that new machines will come pre-configured for the NDSU environment with all the baseline software pre-installed at the factory. In that case, new computers should be ready to use “out-of-the-box” and NDSU should see financial benefits from volume purchasing.

A common desktop standard will allow for improved end user support and enhance desktop and network security. The ability to “re-image” the desktop with standard software and configurations or swap out drives should significantly reduce downtime when a computer crashes.
Web Accessibility

Accessibility to NDSU’s web pages is a priority for the ITS web support team. We continue to investigate best practices and have recently taken the issue to a statewide group of HECN web developers. We hope that by collaborating with our counterparts in the rest of the state, we will find new and better ways to address the issue.

Contribute

ITS staff identified a new product, Macromedia Contribute, designed to simplify the process of maintaining web pages. Most web authoring software requires a fair amount of technical expertise and has a steep learning curve. Contribute uses an interface that is similar to a Web browser and a word processor, and most users can begin to maintain content with little training. Contribute works with templates created in Dreamweaver, so a common look and feel can be established for departmental pages.

WTEC:

New program developed in response to IT Open Forum

ITS will be implementing a Web and Technology Education Center (WTEC) in IACC 250 Fall Semester 2003. The mission of the Web and Technology Education Center is to educate and support campus personnel in their use of technology. WTEC staff recognize the need to reduce technology obstacles when possible and to provide an environment for the exploration of new technologies. The WTEC will focus on the following areas:

Technology Education

• Provide opportunities for faculty and staff to increase their technology skills and knowledge:
  - Expand options for delivering technology education (e.g. on-line, video, etc.)
  - Organize technology education into a cohesive curriculum
  - Identify and recommend internal and external programs for technology certification
  - Implement technology certification program when feasible
  - Continue to provide training to the Higher Education Computer Network (HECN) and NDSU
• Provide education to campus on acceptable use policies and accessibility (Section 508 guidelines)
• Educate and communicate with the campus on special technology issues and projects

Departmental and Instructional Web Support

• Assist campus with customizing and implementing NDSU Web templates
• Support users in web authoring and maintenance through the use of Contribute software and NDSU templates
• Assist clients in obtaining Web accounts, folders, aliases
• Assist NDSU clients in evaluating their Web sites for accessibility
• Recommend alternative solutions

Technology Resource Lab

• Provide new opportunities for faculty and staff to explore different technologies (e.g., Camtasia, Lectora)
• Provide an environment where faculty and staff can use new technologies in their projects

Instructional Technology Support

• Continue to provide support for Blackboard, Personal Response System (PRS), and SPONGE
• Continue to provide instructional design support
Administrative development projects

The legacy administrative system for HECN is being converted to PeopleSoft through an enterprise resource planning project (ERP) known as ConnectND. The project scope includes all state government agencies and will affect the way in which workers and students process daily business transactions and obtain needed information.

ConnectND is unique in that it links a multi-campus university system and all offices of state government in an integrated project. The current financial and student records systems will be replaced with web-based applications. In addition, it adds a human resource management component. ConnectND is being configured and converted by teams of personnel from state government and the University System, assisted by consultants from Maximus. It is one of the largest and most complex projects ever undertaken in North Dakota.

HECN Administrative Information Systems programmers, analysts, managers, administrators and other professionals from the Higher Education Computer Network are key resources and essential to converting the current legacy systems to ConnectND’s PeopleSoft applications.

Jim Ross, ITS associate director, was assigned half time to the ConnectND portal design and development project. The portal provides access to the self-service features of the Web-based PeopleSoft system.

Campus projects

Graduate School | Office of Registrar and Records | Budget Office
Staff Senate | Legislature | USA Wrestling | Administrative users

* Functionality was added to the Grad School Access application to generate acceptance and denied letters to graduate school applicants. This mail merge feature generates a batch of letters, rather than generating each letter, one at a time, thus increasing the efficiency of the office staff.

* NDSU began participating in the Degree Verify Service of the National Student Clearinghouse in Fall, 2002. This service provides a point of contact for the collection and distribution of records concerning student degrees, certificates and other educational achievements. The program that is run each semester to create files of new alumni information for the NDSU alumni office was modified to create an additional file for the Clearinghouse. Files containing degree information dating back to Fall term, 1982, were sent to the Clearinghouse in November, 2002. A file of new degrees awarded will be sent to the Clearinghouse at the end of each term. The Degree Verify Service reduces the work load and constant interruptions that the verification process causes in the Office of Registration and Records.

* Major modifications to the Salary Budget Access application were made. These provided improved user accessibility, more report availability to users and easier maintenance of the application.

* The web-based Staff Senate Election application was improved to make it more user-friendly and encourage more staff to vote on-line.

* Modifications were made to the Legislative Bill Tracking System (LBTS) to improve usability for the 2003 Legislative session. All user documentation was reviewed and updated.

* Administrative user functionality was added to the USA Wrestling Web site.

* Assisted administrative offices in converting SAS programs in order to print mailing labels to laser printers.
By the beginning of Fall semester, 2003, 50 of NDSU’s classrooms will support the use of Personal Response Systems (PRS). The PRS is a tool for active learning in the classroom through 100% student participation in question-and-answer sessions. Each student purchases a pocket-size transmitter. Students respond privately to each question or prompt from the teacher and responses are collected by a receiver, which in turn is connected to a PC.

The PC runs special software which tabulates the responses and gives the teacher and students immediate feedback in the form of graphs displayed on the screen. A popular example of this would be when the contestants on “Who Wants to be a Millionaire” use the “ask the audience” lifeline. This immediate type of feedback prompts classroom discussion. Some instructors use the system to administer tests and quizzes in order to take advantage of the grading module and a paperless testing environment.

In August 2002, ITS was asked to partner with Dr. Sudhir Mehta, Associate VP for Academic Affairs, to encourage and support the use of PRS in the classroom. Dr. Mehta, Dr. Jeff Gerst and others conducted a trial of the transmitter units in a few classes and two lecture halls. When Dr. Gerst surveyed his students after the trial period, he found that the students strongly supported the use of Personal Response Units in the classroom because it encouraged them to attend class more regularly, prepare for class better, think more during class, discuss course work with classmates, and try harder to understand the content. When students asked whether they prefer the more traditional lecture approach over the newer PRS approach, 91 percent favored using PRS.

The trial period was an overwhelming success and ITS staff began to offer hands-on training seminars and were called often to troubleshoot problems. A plan was soon initiated to install PRS software and receivers into all the instrumented classrooms. Students and faculty are able to download PRS software, obtain step-by-step instructions on PRS use and register the unique PRS unit number needed for classroom participation on the PRS Web site (www.ndsu.edu/prs).

During Spring 2003, 410 students and 152 faculty were informally surveyed on Blackboard use. There were some interesting results.

**Student response**
- 66% of the students reported they use Bb at least once a day
- 91% of the students said they would like to see more instructors use Bb
- 73% said that the use of Bb helped them work more efficiently
- 73% also said they would prefer to take a course that uses Blackboard over one that does not

**Faculty response**
- 96% of the faculty said they were either satisfied or very satisfied with ITS’ support of Bb
- 97% reported they would use Bb again
- 66% said they would not have put course materials on the web without Bb

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**Students strongly support using the Personal Response System (PRS) in the classroom**

**PRS adoption signifies success of program**

<table>
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<th>Fall 2002</th>
<th>Spring 2003</th>
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<td>Classrooms</td>
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**Students and faculty give Blackboard (Bb) “thumbs up”**

**300 new courses were added to the Blackboard system for Fall Semester 2002**

**250 new course sites were created for Spring Semester 2003**
More equipment, more resources, aid students & faculty

In the clusters

❋ Established an authentication process for cluster computer use
❋ Upgraded cluster operating systems to Windows XP & Macintosh OS X
❋ Upgraded/replaced 142 cluster computers
❋ Replaced 12 older printers with new ones
❋ Added one full-time staff member to support cluster/classroom needs

In the classroom

❋ Equipped 5 more classrooms with multimedia cabinets and equipment
❋ Installed PRS systems in instrumented classrooms; total of 26
❋ Upgraded multimedia equipment in Stevens Auditorium
❋ Replaced 8 LCD projectors and 15 overhead projectors
❋ Used older cluster computers to improve all multimedia carts

In the Service Center

❋ Acquired a slide scanner / adapter that allows for rapid scanning of slides
❋ Added a video-editing computer and DVD player
❋ Purchased three camcorders for checkout

Did you know?

❋ That students ran 92,481 of high-speed black and white laser prints (equates to over 184 reams of paper)
❋ That 59,725 laser color prints were made
❋ That the Service Center handled 41,101 square feet of paper generated from the plotter (over 8 miles of paper rolled out)

ITS supports 25 clusters within 13 campus building. 367 computers in the clusters are Dell and 115 Macintosh.

In addition, there are 33 instrumented classrooms and 22 available multimedia carts.

Responding to instructor needs

In the fall of 2002, a program called SPONGE was created. Instructors were invited to meet with Technology Learning Center (TLC) staff to plan projects, identify needs, and coordinate and deliver support services for students.

❋ The SPONGE program provided support for 28 instructors who assigned 32 projects. Assignments included Web sites, newsletters, electronic portfolios, PowerPoint presentations, music videos, infomercial videos, Photoshop artwork, and projects that required the use of Excel and Access. SPONGE and TLC staff provided 65 classes for students, and tracked more than 1,300 student contact hours. In addition to the classes, students could receive individual assistance in the TLC lab and could access on-line resources via the SPONGE and TLC Web sites for completing assignments. (http://www.ndsu.edu/sponge)

TLC statistical information appears in the appendix

ITS relies heavily upon the financial support of Student Technology Fee Funds for many of the services offered:

❋ ITS Classroom Technology $196,139.00
Upgraded/replaced a number of multimedia cards, overhead projectors, and document cameras, plus maintenance and supply items. Added four additional multimedia carts. Supports two full-time positions and student employees

❋ ITS Public Cluster Support $229,852.70
Renewed the availability of free black and white printing in the clusters. Provided Van Es 103B with five Dell PC’s and a printer (integrates this cluster into NDSU’s public computer cluster). Provides for a full-time staff member and student support.

❋ ITS Cluster & Classroom Service Center, $180,878.55
Renews support for the ITS Cluster & Classroom Service Center. Funds new color printers, digital imaging equipment, and upgrades to hardware/software in the Center. Funds a full-time position and a large number of student employees.

❋ ITS Enhanced Student Technology Training, 893,484.00
Continues funding for a comprehensive IT learning environment for students. Facilitates the use of small group, individual, or self-paced training. Serves students with core to advanced technology training needs. Provides for assistance for instructors and in-class training for projects requiring use of technology. Funds a full-time position and student trainers.
Support for research & advanced applications

The mission of the NDSU ITS Research Support Group (RSG) is to implement plans and strategies for the development and deployment of core IT technologies to support research activities. The primary focus has been to align ITS activities with the goal of the university to create a Center for High Performance Computing (CHPC).

The RSG has continued to support and develop its other commitments to research infrastructure in addition to developing the formative relationship with the CHPC. Most significant was continued development of and services to the Computational Chemistry and Biology Network (CCBN) component of the EPSCoR funded Biomedical Research Infrastructure Network (BRIN).

Plans are for the RSG to continue the development of core infrastructure services plan in support of research activities. A major goal will be the rapid preparation and deployment of the hardware needed to support the professional services responsibility of the CHPC.

Improved storage
Developed and expanded the storage services plan for researchers at NDSU.

Provided storage to support projects such as psychology research and on-line storage of electron microscopy images. RSG’s role was defined in SLAs.

Center for High Performance Computing (CHPC)
Using input from the CHPC steering committee, the Research Support Group strives to meet research needs by developing and deploying core IT technologies.

Hardware
Developed a hardware specification to support the research needs articulated by the steering committee. The hardware solution includes a large multi-processor Non-Uniform Memory Access (NUMA) server in addition to a 64-node/128-processor distributed memory Beowulf style cluster using high-speed/low-latency interconnect technology. RSG negotiations with the vendor resulted in substantial fiscal year discounts for the NUMA server.

Software
Notable accomplishment: Negotiated an unlimited connection site license for the Enterprise version of Oracle. In addition to supporting the database needs for researchers, the Oracle license will reduce barriers and provide enhanced access to enterprise class database services for the university at large.

Computational Chemistry & Biology Network (CCBN)
Services
Developed Service Level Agreements (SLA) that defined services provided by ITS to the CCBN, services provided by ITS to UND on behalf of the CCBN, and finally, an agreement for systems administration and server support provided by the RSG to the CCBN.

Hardware
Supervised the installation and deployment of two Origin 300 servers, one located in the Research 1 datacenter at NDSU and one located in the UND datacenter.

Supervised the installation/deployment of two clusters of six SGI Fuel workstations to support the visualization and collaboration needs of CCBN participants. One cluster was deployed in the NDSU Pharmacy building, the other implemented in Abbott Hall on the UND campus.

Software
Installed and configured the SGI VizServer software. This product allowed for the first distributed teaching sessions to be conducted between the UND and NDSU sites.

Installed and configured the Tripos and Accelrys software packages on the CCBN systems. These packages are large sophisticated molecular and electronic structure modeling systems which represent the industry standard in the pharmaceutical and chemical industries.
According to the Internet2 Web site (www.internet2.edu), Internet2 is a consortium led by 202 universities working in partnership with industry and government to develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow’s Internet. The primary goals of Internet2 are:

- to create a leading edge network capability for the national research community
- to enable revolutionary Internet applications
- to ensure the rapid transfer of new network services and applications to the broader Internet community

NDSU and UND are committed to providing this resource for HECN campuses through the Sponsored Education Group Participant (SEGP) initiative. Consequently, all NDUS campuses now have access to Internet2. This allows researchers better access to other researchers and resources, provides high quality reliable bandwidth to other Internet2 endpoints, and extends the framework for the exploration and use of new technologies and applications.

### Internet2

**The Second Virtual Conference** on Genomics and Bioinformatics was held Sept. 24-26 in the North Dakota State University Memorial Union Century Theater. The conference drew participants from around the world using Internet2 and Internet1. ITS provided technical support, project management, camera and microphone support for the event which was hosted via the Access Grid.

**The National Symphony Orchestra** used videoconferencing technology for Master Clarinet classes. The principal clarinetist of the National Symphony Orchestra taught a student in Bismarck using videoconferencing over the Internet.

**Researchers and faculty** continued to take advantage of the Access Grid capabilities provided by ITS. This enabled the campus research support group (RSG) to bring more sophisticated and extensive training and assistance to the NDSU user community.

**The Access Grid** provided an educational forum for the RSG team, which helped to improve skillsets in the Message Passing Interface API (an essential component of high performance computing services). The use of the Access Grid also enabled the skills of NDSU staff to be featured across the high performance computing community. Interaction with the instructors and other class members in the MPI course provided a venue to highlight the expertise present at NDSU.

**In the coming year the Research Support Group** hopes to continue leveraging the Access Grid as an important information resource and tool. A primary goal is to author and deliver a session that highlights theoretical work being carried out by this group.

**At the Fourth Annual Megaconference** in October 2002, over 200 worldwide sites met for a virtual technology conference using digital video. ITS staff member Sandy Sprafka was a key moderator during the two day event. Discussion during the conference emphasized content rather than the technology itself, a significant change from the previous three Megaconferences. Sessions focused on how technology could be used to enhance research interaction and educational experiences.
People

Make the difference in a successful organizational

Years of service

<table>
<thead>
<tr>
<th>Years of Service</th>
<th>Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>Tammy Cummings, Kris Ottem, Greg Wettstein</td>
</tr>
<tr>
<td>10 years</td>
<td>Jeff Schoenack, Bob Jansen, Harry Wadnizak</td>
</tr>
<tr>
<td>15 years</td>
<td>John Lindstrom, Marie Lindstrom</td>
</tr>
<tr>
<td>25 years</td>
<td>Carol Tschakert</td>
</tr>
<tr>
<td>30 years</td>
<td></td>
</tr>
</tbody>
</table>

Recognitions

Harry Vanderschoot and Deb Hegdahl were both presented with a Certificate of Appreciation "Kudos" award from NDSU Staff Senate, in recognition of excellent customer service.

Tammy Cummings, Jim Senechal and John Underwood were nominated for the Gunkelman Award.

John Lindstrom and Marie Lindstrom were recognized for 25 years of service at NDSU, becoming Quarter Century Club members.

Jon Bronken passed the Certified Novell Administrator (CNA designation) exam.

Sue Fuss passed the exam to become a Certified Software Manager.

Jeff Gimbel was awarded the Certified Help Desk Professional designation from Help Desk 2000.

Sheree Kornkven and Nancy Lilleberg presented a paper on SPONGE at the 2002 SIGUCCS (Special Interest Group on University and College Computing Services) Fall Conference at Providence, Rhode Island. The paper, which was published in the conference proceedings, was entitled “Enhancing Support and Learning Services for Instructors and Students Who Engage in Course-Related Multimedia and Web Projects.”

Two staff members deployed to Iraq

George Norton, hired in August 2002 as a member of the LAN group, was called to active duty January 23, 2003, by the North Dakota National Guard. George is part of the 142nd unit and is still overseas.

Shawn Stelter, a member of the EduTech team, left in February to prepare for his assignment in Iraq. Shawn serves in the 957th unit and is still on active duty.

Although the absence of these staff members has been felt by the organization, we recognize the many sacrifices they’ve made on behalf of our country and wish for their safe return.

NDSU’s Re-accreditation

NDSU seeks re-accreditation from the North Central Association’s Higher Learning Commission during the 2005-2006 academic year. Six focus groups have been formed (diversity, governance, general education, technology and learning, financial strategies, and mission and the common good). Sandy Sprafka is participating in the self-study steering committee on the Technology and Learning Focus Group. Beginning in January, the focus group collected information and data, wrote the document, and submitted it back to the self-study steering committee.

Manuscripts in refereed journals


Chronological Organizational Changes
FY 02-03 Organizational Chart Overview
Technology Learning Center Activity Report 2002-2003
IT Training Across the State
EduTech
Professional Development /Staff Training
At a glance — year ending June 2003

Links of interest

ITS home page ................................................................. www.ndsu.nodak.edu/its
Higher Education Computer Network (HECN) .......... www.ndus.edu/NDUS_Tech_Info
ITS Technology Learning Center .................................. www.ndsu.nodak.edu/tlc
General Access Grid information .................................... www.accessgrid.org
NDSU Access Grid events .............................................. www.ndsu.nodak.edu/accessgrid
North Dakota Interactive Video Network ....................... www.ndivn.nodak.edu
EduTech ........................................................................... www.sendit.nodak.edu
Educause ........................................................................... www.educause.edu
ECAR .................................................................................. www.educause.edu/ecar
Internet2 ............................................................................. www.internet2.edu
Chronological Organizational Changes

(July 1, 2002 – June 30, 2003)

- Jody French 7/1/02 Named Director, SENDIT Technology Services (now EduTech)
- Marty Hoag 7/1/02 Named Work Group leader for IT Risk Management
- Janet Stringer 7/1/02 Named ITS Business Manager
- Bryan Kriewald 7/1/02 Joined EduTech as an Information Technology Specialist
- John Gieser 7/1/02 Named manager of the EduTech Help Desk
- Ying Ding 7/19/02 Left the organization to pursue other opportunities
- Jeff Gimbel 7/22/02 Hired as NDUS Help Desk consultant
- Gerry Berg 8/1/02 Assumed role of EduTech Call Center Customer Relations
- George Norton 8/19/02 Hired as LAN Administrator
- Harry Wadnizak 9/30/02 Retired after serving NDSU for 15 years
- Jim Ross 1/1/03 Assigned 50% to the ConnectND portal project
- Shawn Froelich 3/12/03 Left the organization to pursue other opportunities
- Jeff Schoenack 4/18/03 Hired as EduTech Help Desk Consultant
- Marcy Schmidt 4/30/03 Hired as Information Technology Specialist for EduTech
- Shelby Williams 5/30/03 Left the organization to pursue other opportunities
- Jason Smith 6/9/03 Hired as LAN Administrator
- James Silvernagel 6/26/03 Left the organization to pursue other opportunities

George Norton (ITS) and Shawn Stelter (EduTech) were deployed to Iraq in the spring of 2003.
### Totals for Year

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
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<tr>
<td># Classes</td>
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<tr>
<td># Class Hours</td>
<td>363</td>
<td></td>
<td></td>
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<tr>
<td># Student Contacts</td>
<td>3,992</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Contact Hours</td>
<td>5,348</td>
<td></td>
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</tr>
</tbody>
</table>

**Student Contacts**: number of times students received individual assistance or attended a class.

**Contact Hours**: number of hours staff provided services for students. For example, if two trainers taught a class of 20 students, the number of contact hours would be 40.

### Walk-in Assistance

<table>
<thead>
<tr>
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<th>Summer 2002</th>
<th>Fall 2002</th>
<th>Spring 2003</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Student Contacts</td>
<td>169</td>
<td>781</td>
<td>1,026</td>
<td>1,976</td>
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<tr>
<td># Contact Hours</td>
<td>98</td>
<td>494</td>
<td>873</td>
<td>1,465</td>
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</table>

### Classes for General Student Population

<table>
<thead>
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<th>Summer 2002</th>
<th>Fall 2002</th>
<th>Spring 2003</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Classes</td>
<td>28</td>
<td>72</td>
<td>77</td>
<td>177</td>
</tr>
<tr>
<td># Class Hours</td>
<td>47</td>
<td>118</td>
<td>111</td>
<td>276</td>
</tr>
<tr>
<td># Student Contacts</td>
<td>148</td>
<td>195</td>
<td>329</td>
<td>672</td>
</tr>
<tr>
<td># Contact Hours</td>
<td>281</td>
<td>456</td>
<td>557</td>
<td>1,294</td>
</tr>
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</table>

### Classes Requested by Instructors* (SPONGE)

<table>
<thead>
<tr>
<th></th>
<th>Summer 2002</th>
<th>Fall 2002</th>
<th>Spring 2003</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Classes</td>
<td>0</td>
<td>26</td>
<td>39</td>
<td>65</td>
</tr>
<tr>
<td># Class Hours</td>
<td>0</td>
<td>36</td>
<td>51</td>
<td>87</td>
</tr>
<tr>
<td># Student Contacts</td>
<td>0</td>
<td>593</td>
<td>751</td>
<td>1,344</td>
</tr>
<tr>
<td># Contact Hours</td>
<td>0</td>
<td>1,301</td>
<td>1,288</td>
<td>2,589</td>
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</table>

* data reflects the results of working with 28 instructors on 32 projects during Fall and Spring Semesters
## IT Training Across the State

<table>
<thead>
<tr>
<th>Bismarck State College</th>
<th>Minot State University</th>
<th>Minot State University - Bottineau</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 total participants</td>
<td>45 total participants</td>
<td>34 total participants</td>
</tr>
<tr>
<td>CorporateTime</td>
<td>CorporateTime</td>
<td>Windows File Mgmt</td>
</tr>
<tr>
<td></td>
<td>Windows File Mgmt</td>
<td>PowerPoint 2000</td>
</tr>
<tr>
<td></td>
<td>PowerPoint 2000</td>
<td>Word 2000 Part 2</td>
</tr>
<tr>
<td></td>
<td>Excel 2000 Basics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excel 2000 - Part 2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>North Dakota State School of Science</th>
<th>Williston State College</th>
<th>Skills and Technology Training Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>154 total participants</td>
<td>20 total participants</td>
<td>12 total participants</td>
</tr>
<tr>
<td>CorporateTime</td>
<td>Access 2000 Part 2</td>
<td>CorporateTime</td>
</tr>
<tr>
<td>Macromedia Contribute</td>
<td>Photoshop 6 Part 2</td>
<td></td>
</tr>
<tr>
<td>Photoshop 6 Part 2</td>
<td>Word 2000</td>
<td></td>
</tr>
<tr>
<td>Dreamweaver MX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eudora/E-mail</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
EduTech’s Professional Development Services
• Provide teachers and administrators with skills, knowledge and experience to increase the use of technology in their schools. Sessions are delivered via face to face, video and/or web delivery
• Fundamental technologies, student products, curriculum integration, and mini-conferences
• Video consortium training for teachers, site coordinators and consortium directors
• PowerSchool training for teachers and administrative users

EduTech’s Information Technology Services
• Centralized services save schools significant dollars on hardware, software and staff time
• E-mail with spam filtering
• E-mail Lists (LISTSERV®)
• Internet filtering in compliance with CIPA
• Anti-virus protection
• Web hosting
• Blackboard
• Hardware/software discount programs from major vendors

EduTech’s Special Projects
• Offer specialized training and services for K-12 Leaders and Educators
• Technology Academy for School Leaders supported by the Bill & Melinda Gates Foundation
• Technology Assessments
• Lewis & Clark Resource Collection
• Teaching and Technology Conference and Southeast School Administrator’s Technology Conference
• Specialized video programming for curricula areas

Anticipated Demands for Future
• Continued increases in demand for regional support and help desk support for new and existing services
• Continued need for core IT services that allow users security and privacy.
• Additional enterprise applications that require implementation, training and support services.
• Expansion of distance learning using video and Blackboard that require training and support services
• Training on managing hardware and security in local buildings
Workers in the IT field need continuous professional development opportunities in order to keep pace with the ever-changing technology environment. Improved productivity, reduced costs, and retaining a high-caliber of IT knowledge workers are all outcomes of providing resources and funding for professional development.

Professional development is essential and is delivered through various methods. ITS staff have participated in conferences, seminars and workshops ranging from the national to the local level. On the following two pages is a listing of major professional development conferences, training and workshops that staff have attended this past fiscal year.

ITS will continue to offer such opportunities to cultivate leadership, build knowledge, enhance skills and create abilities to meet the current and future IT challenges.
Clusters:
ITS supports 25 public computer clusters in 13 campus buildings
They contain 115 Macintosh and 367 PC’s
In addition some departments have specialized clusters

Instrumented Classrooms:
There are a total of 33 instrumented classrooms
There are a total of 6 instrumented clusters (clusters that have an instrumented teaching cabinet)
An instrumented classroom and instrumented cluster have: a ceiling mounted LCD projector, controller, document camera, VCR, computer, laptop connection, network connection, and PRS capability
Around 400 faculty have a key checked out for accessing this equipment.

Multimedia Carts:
There are a total of 22 multimedia carts located in 21 buildings
A multimedia cart has: an LCD projector, VCR, computer, laptop connection, network connection, and PRS software and connections (the receivers are checked out for the semester from the Service Center)
Around 130 faculty have a key checked out for accessing the multimedia carts

Personal Response System (PRS):
There are 11 classrooms that have the PRS receivers installed, without any other equipment (the instructor would either use a multimedia cart or checkout a laptop with the receivers).
Spring 2002 there were 26 classrooms, 24 courses, and 3,200 students who used this technology
91% of the students prefer using the PRS

Help Desk: July 1, 2002–June 30, 2003
Answered over 26,000 phone calls (average speed before answering 26 seconds with average call length of 3.17 minutes)
Made 11,491 phone calls; received and answered over 12,000 e-mail messages; entered 5,314 problem tickets into tracking system

Software Licenses:
An example of the cost savings is Microsoft Office Professional, which costs $579 retail, but only $53 through the HECN Select Agreement

Training:
July 1, 2002 – June 30, 2003 there were 88 training sessions with 599 participants. This does not include special training offered in departments. At the other HECN schools, there were 27 sessions with 279 participants.

The Technology Learning Center (TLC) taught 242 classes, totaling 363 hours, and provided 3,992 contact hours to students
Networking:
All classrooms at NDSU have Internet access. Network Services processed 200 data work orders, 500 voice/security work orders, installed over 20,000 feet of category 5e cable, installed 1500 feet of underground fiber optic cable, installed 12,000 feet of other cable

Bandwidth:
Internet1: 28Mbps allocated; monthly cost if allocation is exceeded is $320/Mbps
In-state: 12Mbps allocated; monthly cost if allocation is exceeded $11/Mbps
Internet2: Share 45 Mbps link, burstable to 66 Mbps, with UND and Sponsored Education Group Participant (SEGP) Universities

Blackboard (Bb)
620 instructors use Bb - includes faculty, adjuncts, & graduate teaching assistants
On average, 6,000 users (faculty, staff, students, including EduTech and Agriculture Extension) log into Blackboard on a daily basis
26,000 accounts have been set up on Blackboard, which includes accounts for EduTech and Extension
In Sept. 2002 there were 3 million hits to Blackboard

Videoconferencing statistics:
23 Fall 2002 Classes: (1 undergraduate, cross listed (2 undergraduate, 4 graduate), 15 graduate, 1 interstate undergraduate with Montana, Washington & Ohio)
39 graduate credits, 16 undergraduate credits
  7 departments
  16 instructors
  372 Students:
    On campus: 88 undergraduates, 167 graduates
    Off campus: 13 undergraduates, 104 graduates

19 Spring 2003 Classes: (1 undergraduate, cross listed (3 undergraduate, 2 graduate), 11 graduate, 1 Sunday Academy, 1 interstate undergraduate with Montana, Washington & Ohio)
34 graduate credits, 18 undergraduate credits
  8 departments
  13 instructors
  250 Students:
    On campus: 79 undergraduates, 84 graduates
    Off campus: 87 graduates