# Table of Contents

**Introduction**  .......................................................... 2  
**Higher Education Computer Network Overview (HECN)**  .................................................. 3  
**Collaborations, Partnerships, and Outreach**  .......................................................... 5  
  SENDIT  .......................................................... 8  
  The Skills Technology and Training Center  .......................................................... 8  
**Technology Fee Summary Awards**  .................................................. 9  
  Fall 1998  .......................................................... 9  
  Spring 1999  .......................................................... 9  
**Committees and Task Forces**  .................................................. 11  
**Administrative Support Staff**  .................................................. 16  
  Overview  .......................................................... 16  
**Information Services**  .................................................. 17  
  Overview  .......................................................... 17  
  Administrative Applications Development Work Group  .................................................. 17  
  Client Services Work Group  .................................................. 18  
  ITS Facilities Work Group  .................................................. 19  
  Help Desk Work Group  .................................................. 21  
  Internet Strategic Applications Work Group  .................................................. 22  
  SENDIT Work Group  .................................................. 24  
  Training Work Group  .................................................. 24  
**Networking and Server Systems**  .................................................. 26  
  Overview  .................................................. 26  
  Networking and Server Work Groups  .................................................. 26  
  Accomplishments  .................................................. 26  
  Special Projects  .................................................. 27  
**Learning Technologies**  .................................................. 28  
  Overview  .................................................. 28  
  Center for Academic Information Technology (CAIT) Work Group  .................................................. 28  
  Digital Video and Audio Technologies Work Group  .................................................. 29  
  Multimedia Center Work Group  .................................................. 31  
  Statistical Consulting Work Group  .................................................. 33  
**Usage Statistics**  .................................................. 34  
**Professional Development & Training**  .................................................. 36  
**Challenges and Future Plans**  .................................................. 37  
  Individual Unit Goals  .................................................. 38  
**The ITS Organization & Staff**  .................................................. 44  
**Organizational Changes**  .................................................. 46  

**Appendix**

  IT S Year-end Organizational Chart  .................................................. 47  
  Professional Development  .................................................. 47  
  Cluster & Equipment Usage  .................................................. 47  
  Usage Statistics  .................................................. 47
Introduction

This past year, Information Technology Services staff worked diligently toward reviewing and updating the ITS mission statement. It is important to concisely state who we are, what we do, who we serve, and the values of the organization. Work Group leaders met monthly to identify functions performed by staff in all units and to discuss issues important for the successful operation of the organization. The outcome of this process was our new mission statement:

*Information Technology Services is dedicated to providing academic, research and business technology solutions to the North Dakota University System and its constituents. We support and live the land grant ideals in an environment of collaboration, teamwork, and individual initiative.*

Our mission statement offers ITS a sense of direction and understanding. Knowing who we serve and how our goals will be achieved, will help us to support and address future technology needs for both NDSU and the HECN. Preliminary work has begun at the campus level to move forward with the development of an information technology long-range plan for NDSU. University Senate approved the process of engaging focus groups to assist in identifying issues. A survey instrument will be designed and sent to campus constituents for their feedback. The feedback will be used to develop goals and recommended strategies for achieving these goals. The ND University System also will be moving forward with planning activities. The NDUS CIO, Grant Crawford, is interested in seeing the HECN Strategic Plan of 1996 updated.

The 1999 Legislature passed legislation, SB2043, requiring a continuation of the planning and budgeting activities of the previous legislature--HB1034. However, the new legislation implies a new approach to both activities which should streamline the process. SB2043 also requires the university system to be part of and compliant with the state’s new network backbone architecture by August 2000. We anticipate ITS will have a significant role in the design and implementation phases. All of this legislation implies change from how things were done in the past. Change is a constant in the technology field and improvements are generally the result.

As you read this report, you will see the enormous effort our dedicated staff have contributed to meeting the information technology needs of our constituents throughout the university system. It is a joy to work with them daily.

Bonnie Neas
Director
Higher Education Computer Network Overview (HECN)

As noted in the June 1999 CIO update to the HECN, South host site staff visited with faculty/staff from every campus in the HECN. The purpose of the visits was to get direct feedback from campus support staff and chief information officers on how well the HECN meets campus needs, where improvement is needed, and what new issues have arisen. Campus personnel asked for clearer definitions of the services HECN offers, and in particular how responsibilities are shared between the North Site and South Site. Grant Crawford, NDUS CIO, compiled the responses to a list of issues and concerns from these visits. The responses can be found at http://www.nodak.edu/HECN/.

What follows is a partial list HECN activities this past year (services are provided by HECN South host site unless stated otherwise). This is not an exhaustive list, but demonstrates that we are working for the HECN in numerous ways that may not always be clear. By reading through the rest of the report you will have an opportunity better understand how uniquely integrated our services are, and separating them is often difficult.

The many accomplishments, and future plans found throughout this document relate to the overall global picture of providing assistance and optimizing technology resources to enhance the education and research goals of students, faculty, and staff across the state.

- Spent ~$200,000 for software licenses.
- The two HECN host sites upgraded commodity Internet links to increase capacity by about 75% at an increased cost of about 40% (from $110,000/yr to $153,000/yr). Current monitoring indicates we frequently reach maximum capacity on the new links.
- The two HECN host sites continue providing the networking connections between each system site ~$225,000/yr.
- Hosted a Fred Pryor seminar (Time Management) at a total cost of $5,000.
- Training was provided at Dickinson State University.
- Provided travel scholarships for HECN staff to attend an EDUCAUSE sponsored event. Joe Tykwinski and Keith Stenjhem, Valley City State University, participated.
- The two HECN host sites joined two advanced Internet networks–Internet2’s Abilene and NSF’s vBNS–in support of the system’s research programs. Costs will be covered by grants through the first year and part of the second year of the next biennium. Request for increased budget to cover the second year has been submitted. The legislature will determine our request’s success. It is assumed that the new bandwidth will be subsumed by commodity Internet needs by the end of the grant period. Grant matching requirements will cause the two HECN host sites to spend about $250,000 in equipment and circuit upgrades.
- The links between Bismarck, Fargo and Grand Forks have been upgraded from a T1 (1.5mb) to a DS-3 (45mb) between each site. Plans are to pursue further upgrades between HECN sites this coming year.
- Bud McMullen continues to provide support for those sites who request Apple support.
- Remedy, Help Desk software, continues to be developed and will be deployed system-wide soon. Two HECN host sites, Valley City State University and Mayville State University are initial deployment sites.
• New and improved methods in support of e-mail systems continues to be a priority and new solutions are being investigated.
• Marty Hoag provided system wide leadership for the required HB1034 planning process.
• Marty Hoag provided system wide assistance to Grant Crawford for Y2K plans.
• A system-wide EDUCAUSE membership and system-wide EduTech subscriptions, were paid by the two HECN host sites.
Collaborations, Partnerships, and Outreach

Much of the success of ITS stems from our ability to work with constituents to form relationships with individuals, campuses, departments, and external organizations. The complexity of the networking and computing environment continues to increase. We continue to seek opportunities to leverage our resources to support the development of advanced technologies. Numerous collaborative working relationships have been formed through the efforts of ITS staff and these alliances play an integral part in helping to build a strong IT organization. We have and will, continue to actively pursue opportunities to partner and collaborate with others to meet the global technology challenges and needs of our many colleagues.

Interaction with entities such as ND SchoolNet, SENDIT, NDIN, other state agencies, GPN, Internet2, DakotaLink, the legislature and citizens accessing legislative information, are all examples of outreach support.

C The NSF award for the DakotaLink project initiated the design and implementation of a Beowulf cluster. This cluster of commodity workstations will be used in support of instruction and research. The first major user of this new innovative system is Dr. Mario Biondini, Animal and Range Science.

C Working with Dr. Tom Freeman, Plant Pathology's electron microscope was installed by ITS on the campus backbone initiating the first remote instrumentation project.

C Bonnie Neas continues to serve as Principal Investigator of the NSF DakotaLink grant. Participants of this two year networking award are South Dakota School of Mines and Technology, South Dakota State University, University of South Dakota, University of North Dakota and North Dakota State University.

C ITS provided coordination between NDSU and Senator Dorgan's office for the "Telecommunications Technology in North Dakota" conference held at NDSU on May 4-5. Over 500 attended the conference. The technical support team received special praise for assisting Ohio State University in its demonstration of remote surgery via Internet2. The conference overall, received special acknowledgment from Senator Dorgan, the NDUS Chancellor and NDSU's President for a tremendous effort.

C ITS trainers integrated a Training Track in April at the 1999 Small College Computing Symposium at the University of Wisconsin - Eau Claire. The entire track was provided through the efforts of ITS training staff and was major undertaking. The Training Track sessions proved to be some of the most attended offerings.

C ITS trainers wrote a chapter on technology at NDSU to be included in the textbook that will be used for the 1999 fall semester 'Skills for Academic Success' class. This class is required for all incoming Freshmen.

C The Master Internet Volunteer Program was a partnership between ITS and Ag
Communication to 'train the trainer' on using the WWW. Those trained can take what they have learned back to their communities in North Dakota and train others using the Web.

C Various training was offered to outside constituents. HTML training was offered to USDA Farm Service Staff. PowerPoint Training was offered to members of the North Dakota STEP program.

C Members of ITS participated in NDSU’s 'Expanding Your Horizons' program. This program is part of a career building opportunity in the field of math and sciences for 7th, 8th, and 9th grade girls.

C In May, NDSU became part of the Active Measurement Project made up mostly of NSF High Performance Computing network awardees and run by the National Laboratory for Applied Network Research, Measurement and Analysis team (see http://amp.nlanr.net/). As part of the project the Internet Strategic Applications Group installed a special system to monitor performance of the Internet2 and vBNS connections to other sites.

C Partnerships were formed between SENDIT, the NDSU School of Education and others on a Department of Education grant.

C The last year has seen an increasing amount of support requests from the NDSU campus. This need has been met by the development of Service Level Agreements which define the type of support and the quality of service expected between ITS and other constituents. Such agreements have ranged in extent from contracts for simple backup services to more extensive contracts for ongoing systems administration. The open network policy has documented the need for professional administration of departmental servers. This is expected to increase the need for support from the server group. Other work groups have also enlisted the use of Service Level Agreements to help clarify support responsibilities.

C Interest has also been expressed from other HECN member schools in the tools that have been developed for distributed service delivery by NDSU. This includes turnkey server solutions which implement facilities such as the enterprise e-mail solution. Work on assisting schools with deploying and using these tools will occur during the next year.

C Bud McMullen worked with the Group Decision Center to expand services to the area and regional community.

C Sandy Sprafka assembled, inspired, and managed the campus team responsible for NDSU's first live Internet Webcast, "The Fargo Poetry Slam" which resulted in new core services for the campus: live digital encoding, streamed live or stored-and-forwarded on demand.

C ITS Provided Help Desk support for the Legislative Bill Tracking system.

C The Help Desk negotiated and managed the Microsoft contract that provides software to HECN campuses and SENDIT member schools. This collaborative purchasing effort saves educational institutions in North Dakota a quarter of a million dollars annually.
C MeritCare representatives attended a demonstration of the Remedy help desk management tool that was presented by a Remedy vendor.

C Sandy Sprafka assisted Independent Study to successfully write a Character Education grant offered by the Department of Education.

C Joel Writer assisted the statewide IVN system to install their VTEL equipment around the state.

C Elizabeth Smith, Nancy Lilleberg and Sandy Sprafka assisted Continuing Ed and faculty in writing the LAAP grant.

C Joel Writer and Jarilyn Gess led the IVN Technical Coordinators in updating the IVN Technical Handbook.

C Joel Writer conducted a successful videoconference with the city of Abu Dhabi, United Arab Emirates. Obstacles included time zone differences, part-time contacts, and a different weekend.

C The web development team worked with NDSU’s Equal Opportunity Officer to create an online tutorial about working with others, sexual harassment, and employee guidelines. The intended audience is temporary summer workers in extension, but will be expanded for more audiences.

C The web team is partnering with EPSCoR to provide web page maintenance through our student employees. Then EPSCoR personnel can receive timely web assistance without having to hire, train and supervise their own student employee.

C Statistical consulting (with the assistance of the Help Desk) processed several thousand NCS scan sheets for the Explorers program run by the Boy Scouts District office in Fargo. These sheets are used to collect data identifying career interests of students (boys & girls) from many middle schools and high schools in the region. The Boy Scouts use the results to promote programs exposing students to careers in which they express interest and also share the results with school counselors. This was the third year in which we have been involved in this collaboration.

C Statistical consulting analyzed data collected from Fargo North High graduating seniors for the fifth consecutive year and have taken steps to work with South High this coming year.
SENDIT
C The SENDIT program, which is North Dakota’s Telecommunications network for K-12 teachers and students is housed under the ITS umbrella. This program, through a formalized agreement is a cooperative venture between the Department of Public Instruction and ITS. ITS supports SENDIT activities in bringing technology assistance and resources to North Dakota rural communities. SENDIT is part of the Information Services Group.

C The Server Group works closely with the SENDIT staff to help them meet the needs of their mission. In exchange for systems administration help, the SENDIT staff, who are integrated within the ITS organization, offer assistance with application development needs, help desk support, and training.

The Skills Technology and Training Center
C A major undertaking for many ITS staff this past year involved the “start-up” of The Skills and Technology Training Center (STTC). This is a joint venture between NDSU/NDSCS and the surrounding communities for which it will serve. The Center focuses on increasing the availability of skilled labor and reducing underemployment by offering workforce training and re-training programs for workers in all stages of their careers. ITS provides networking and computer support services for the STTC. The Networking and Server group provided support for the Skills and Technology Training Center in the initial deployment and ongoing support of networking required to support their mission. Information Services staff provided computer support services. ITS was also responsible for working with the STTC to become a Cisco Regional Academy.
Technology Fee Summary Awards

The Technology Fee fund has provided ITS with opportunities to enhance services used by students and faculty alike. Students come to the campus with higher levels of technical knowledge than ever before and expect NDSU will provide them with state-of-the-art classroom environments and equipment to complement their learning experiences. ITS has engaged the use of Technology Funding to help foster technology advances on behalf of the students at NDSU. Through allocated funding, ITS supports cluster printing, Residence Hall Clusters, high-tech multimedia equipment, specialty clusters, and student training needs as well as other services pertinent to supporting students’ needs. Many of our programs could not be offered without the favorable support of members on the Technology Fee Committee (students, faculty, staff).

The list below indicates approved funding during fiscal year 98-99. ITS also contributed matching dollars to various awards, totaling approximately $120,000.

Fall 1998

$6,995 Encouraging the Use of Media in the Classroom (Brian Abraham)
The amount funded the purchase of multimedia equipment; specifically an LCD data projector with document imaging camera.

$3,545 Enhancement of Multimedia & Data Base Support to NDSU Students and Classes (Nancy Lilleberg)
The grant supported the hiring of additional students to accommodate increased use and demand and in particular, to keep a high level of customer service to the general walk-in multimedia consulting.

Spring 1999

$120,123 Printing in Public Clusters (Brian Abraham)
This project received funds to provide free printing for students in the public clusters. The award funds four items: 1) the toner and paper, 2) student salaries to maintain the printers, 3) the assistant cluster manager position, and 4) four replacement printers and one high-speed printer.

$19,796 Public Cluster Software Support (Bud McMullen)
This award continues to support students who provide services to the workstations in the public cluster. Under the supervision of the ITS Client Services Work Group, students will install software, restore applications, inspect security applications, and verify software licenses in the public clusters.

$44,094 Enhanced Student Technology Training (Cj Johnson)
This project is a renewal request that will continue NDSU's efforts to support the student technology training program. Funding for this program will help to improve and enhance training activities for students. The program will support existing training modules and focus on developing new modules as needs dictate. Funds will
allow for scheduling classes, promoting course availability, and conducting assessments.

**$82,710 Videoconferencing, Collaboration, and Instructional Center (Brian Abraham)**
The Center will house computer/communication technology that will provide a flexible environment for videoconferencing, computer-based collaboration, and computer-assisted instruction in the Ehly Hall addition to College of Engineering and Architecture.

**$560 Residence Hall Cluster (Brian Abraham)**
The award (with carry-over monies of $15,000) will provide continued support for clusters in Weible, Churchill, and Stockbridge.

**$119,533 Multimedia in the Classroom & Support of Classroom Equipt (Brian Abraham)**
This project provides continued support for management and maintenance of classroom instructional equipment (staff and student salaries). Funding also supports the upgrading of LCD projectors, replacement of obsolete ones, and additional instrumented classrooms. (Carry over $19,700)

**$15,642 Fine Arts Computer Cluster (Brian Abraham)**
The award (with carry-over of $15,000) will fund continued support of the Fine Arts Cluster, and add video editing.

**$160,639 ITS Clusters and Classroom Service Center (Brian Abraham)**
The proposal merged two previous technology fee awards, "ACM Consultants" and "Encouraging and Facilitating Student Users of Multimedia," with the purpose of providing for more hours of classroom/cluster technology coverage and "one-stop shopping." Funds were provided for salaries, equipment for checkout (laptops, digital camera, external CD-recorder, Zip plus drives) and multimedia growth. (Plus carry over and combined proposal $54,094)

**$34,525 Team Building Classroom (Brian Abraham)**
The project, in cooperation with ITS, the College of Agriculture, the Vice President for Academic Affairs (and support from seven departments) provides for a reconfigured classroom in Morrill Hall. The classroom will incorporate technology that will teach students how to effectively collaborate as they problem-solve and reach decisions. The new classroom will consist of a series of "pods" that will accommodate three individuals per side and contain a computer for the team members to use. When the room is not being used for a regularly scheduled class, it will be open for all campus students to use.
Committees and Task Forces

External Participation

C Bonnie Neas serves as chair for the Great Plains Network Board. The Board consists of one voting member from each of the seven participating states—Arkansas, Oklahoma, Kansas, Nebraska, Missouri, South Dakota and North Dakota. The Board meets monthly and addresses management and operational issues of the GPN (www.greatplains.net).

C Bonnie also is a member of UCAID/Internet2 Networking Policy and Planning Advisory Council. This 11 member council advises the UCAID/Internet2 Board of Trustees on matters related to the planning, development, financing and management of advanced networks for research and education (www.UCAID.edu).

C Bonnie has served on two review panels this past year and will continue to review networking grant proposals for NSF.

C The 10 member EDUCAUSE 2000 Program Planning Committee had an organizational meeting in May to make plans for the October 2000 Conference to be held Opryland. Bonnie serves as the leader for the advanced networking and computing track planning group.

C Bonnie is also a participate in Senator Dorgan's advisory group for telecommunications, the SENDIT Board, the Center for Innovation in Instruction Board, and the IVN Strategic Advisory Committee.


C Rosi Kloberdanz serves on the Computer and Digital Technologies Committee, American Historical Society of Germans from Russia.

C Sandy Sprafka and Cj Johnson are members of the Small College Computing Symposium Steering Committee and are part of the planning committee for the SCCS2000.

C Wayne Wermager is a member of the Cisco Academy Training Center (CATC), a partnership with The ND Vocational Education that oversees the ND Cisco Academy initiative.

NDUS and HECN Participation

C Bonnie Neas is an ad hoc member of the NDUS Academic Affairs Council on behalf of Grant Crawford. AAC is chaired by the Vice Chancellor of Academic Affairs. Membership includes the chief academic officers of each institution.

C The NDUS Office assembled 100 representatives of the eleven campuses to draft vision and mission statements and set strategic direction for a North Dakota Virtual University. Bonnie Neas, Jim Ross and Sandy Sprafka attended this “Access Summit.”
Carol Tschakert is NDSU’s representative on the HECN Coordinators Committee. Bonnie Neas, Rosi Kloberdanz and Mary Twitchell also serve on this committee.

Dan Chihos serves on the Electronic Filing Task Force in Bismarck, ND.

Member of the Internet Strategic Applications group (Marty Hoag, Bruce Curtis, Dick Jacobson) were part of the Great Plains Network Technical group, Poetry Slam Committee, Desktop Videoconferencing over IP Committee, Security Task Force, NDIN Technical Committee, and Remote Access Working Group.

Mary Twitchell chaired the HECN software advisory committee that drafted a proposal for HECN Application Software Services and Funding. The HECN Coordinators approved the proposal at their June meeting.

Joel Writer, Bruce Curtis, David Dahl, Valerie Nordsletten, and Wayne Wermager are members of the NDIN Technical Group. Wayne also serves on the NDIN Executive committee.

Tammy Cummings is a member of the IVN Site Coordinators.

Joel Writer chairs the IVN Technical Site Coordinators committee.

Learning Technologies’ Audio and Video Conferencing Group is coordinating the NDUS Desktop Video Project. Sandy Sprafka and Joel Writer are co-chairs. Currently the task force consists of 22 members from ITS and other state entities (Marty Hoag, Clark Coffman, Bruce Curtis, Jim Ross, Shawn Froelich, and Jim Sellner, and members from IVN, ISD, Dickinson State U, Mayville State, Valley City State, UND, Wahpeton, and NDSU Extension.) The goal is to research desktop videoconferencing technologies and recommend quality point-to-point and multipoint IP-based videoconferencing services to the NDUS and external customers. Six schools and ISD are working together on this project.

Jim Ross, Marty Hoag, Cj Johnson, Mary Twitchell, Bud McMullen, and Elizabeth Smith serve in various capacities on both NDUS and NDSU Y2K committees to help fulfill our obligations of being as Y2K compliant and ready as possible. Information Technology Services plays a vital link to ensuring Y2K contingencies, crisis management, and business continuity plans are operational before, on, and immediately following Jan 1, 1999. The first priority of ITS is to resolve issues that are deemed as mission critical, have high impact, and affect environmental or life and safety issues relating to NDSU and HECN services. Individual HECN campuses were offered opportunities to include ITS in the development of their contingency plans, crisis management, or business contienency plans should assistance be desired.
**NDSU Participation**

C Bonnie Neas is Chair of NDSU's Federal Relations Team. The team works with the institution's administration in identifying and acquiring federal resources for NDSU's programs.

C Bonnie serves on President Chapman's President's Council. Membership includes Vice Presidents, Deans and Directors. The Council has its first meeting in September 1999.

C Bonnie is a member of Academic Council. Membership includes Deans and Directors reporting to Vice President for Academic Affairs.

C Bonnie, Jim Ross, and Rosi Kloberdanz are members of the Computing Planning and Goals Committee. This University Senate sub committee, includes a faculty representative from each of the colleges as well as representatives from the Library, and Ag Communication. CPG is advisory to ITS on issues related to instruction and research for the campus.

C Jim Ross is Co-Chair, with Mark Dahl, Associate Director of the NDSU Physical Plant, of the NDSU Y2K Steering Committee.

C Jim Ross chaired the Information Technology Roundtables' "Distance Education Working Group." A strategic plan was formulated and submitted to NDSU's President in August 1998. Sandy Sprafka, Elizabeth Smith and Tammy Cummings, also served on the working group.

C Jim also served on the NDSU Web Advisory Board, whose policy recommendations were submitted to the President.

C Rosi Kloberdanz serves on the HECN Administrative Systems (HAS) Steering Committee.

C Rosi is Co-Chair (with Jean Ostrom-Blonigen) of the Administrative Printing Task Force which includes campus-wide representation by departments directly affected by this initiative, as well as ITS support staff. The purpose of this task force is two-fold: (1) to determine the direction of administrative printing at NDSU; and (2) to recommend/implement alternative methods for printing and displaying administrative output, as appropriate, including printing to local office printers, printing to the Docutech in Document Publishing, or even the possible electronic distribution of reports. Dan Chihos, Shawn Froelich, Jim Hughes, and Carol Tschakert are all members of this group.

C John Grosen serves on the NDIN Executive and Technical Committees. NDIN is the partnership between the HECN and state government which manages wide area network planning within the state.

C John, and Jeff Schoenack are members of the Technology Fee Advisory Committee. This committee advises the Vice President for Academic Affairs on how student technology fee monies are spent, solicits and evaluates proposals from the campus, and monitors funded project progress. Cathy Hanson serves as support staff to this organization.
C Dan Chihos is a member of Staff Senate and served this past year as President-elect.

C John Underwood currently serves as secretary of Staff Senate.

C Bud McMullen served on the Group Decision Center Development Board, participated in the Messaging System Task Force.

C Tammy Cummings is a member of the Distance Education Library group.

C Sandy Sprafka was chair of the Poetry Slam project. The team consisted of Clark Coffman, Joel Writer, Bruce Curtis, Don Simon, Nancy Lilleberg, Eric Parsons (a student), Robb Thibault from the Union and two of Robb's student assistants: Russ Staiger and Josh Stompro. The goal was to conduct a live realtime web-cast of a campus sponsored program and save an archived recording of the event for later access from a web site.

C Nancy Lilleberg represented ITS on the Library committee of the University Senate. Nancy is also a participant in the Loftsgard Teaching Sircle (TELS).

C Network Services staff were asked to represent Telecommunications and ITS on the building committee for the Health and Wellness Center.

**ITS Participation**

C Jim Sellner lead an effort to develop a Confidential Information Agreement Form for ITS.

C Brian Abraham chairs the ITS Facilities Space Committee. Members are: Clark Coffman, Curt Doetkott, Cathy Hanson, Marie Lindstrom, Harry Wadnizak.

C ITS Public Relations committee is chaired by Cathy Hanson. Brian Abraham, Jody French, Cj Johnson, Nancy Lilleberg, Bud McMullen, Marrie Puckett, Jim Ross, Jim Sellner, Carol Tschakert, and Mary Twitchell served on this committee. The committee spent much of the year reviewing the ITS Web pages for design, structure, and organization. The committee was often referred to as the Web Group. Once the general redesign of the ITS pages had been agreed upon, the Multimedia and CAIT groups took responsibility to move forward with the implementation of format and structure for ITS to use. This collaborated effort has helped to improve the ITS web presence. ITS continues to refine and update its pages to better meet the users needs.

C John Underwood coordinated the student orientation for ITS employees. Other members of this group include Cj Johnson, Bud McMullen, and Joel Writer.

C Don Simon served on the ITS Audio/Video Streaming Ad Hoc Committee.

C Bud McMullen has been involved in numerous committees within NDSU and ITS. He serves on the Public Relations committee, the Student Employee Orientation Committee, Calendar
Software Evaluation Group with College of Engineering, and Remote Access Working Group. He is also the ITS Unit representative for Y2K.

C Members of the CAIT staff served on the Distance Education Working Group subcommittee of the ITR, Y2K Steering Committee and Web Advisory Board.

C Kris Ottem serves as liaison between Y2K Steering Committee and ITS server group.

C Server Group members were assigned to chair the task force for developing the new distributed e-mail solution. The result of this committee work was the pilot implementation of the new e-mail delivery solution which was placed into operation for NDSU student, faculty and staff for the fall 1998 semester.

C The Server Group has also participated in the calendaring committee, STTC committee work, the research computing committee and a group studying the modem access issues.

K-12 Participation
C Both Jody French and Wayne Wermager served on the K-12/ND School Net Cooperative Board.

C Jody French participated on the Teaching with Technology Grant Management Team. This was $7.3 million US Department of Education Challenge grant received for a five year period.

C Jody French was an active participant in ND State Technology Planning Committee composed of K-12 representatives focused on updating state technology.

C Jody French was part of the Teaching and Technology (TNT) K-12 Planning Committee

C SENDIT staff members Jody French, Don Simon, and Wayne Wermager participated in ND Technology Coordinator’s meetings to discuss current K-12 issues.
Administrative Support Staff

Overview
The administrative support staff include individuals who are diversely skilled at coordinating, organizing, and supporting the various administrative and budget functions within ITS. The entities of this group include the aspects of accounting, general administrative and clerical support for ITS and HECN, and human resources. Although the members of this team have different areas of responsibilities, they work together to support one another on a daily basis. The support staff play a fundamental and critical role in helping to keep communication and paperwork flowing within the organization. They serve as the core of information processing and budget coordination, which is essential to any organization. The staff are knowledgeable and handle high-level administrative work and are relied upon to solve “everyday” tasks in a friendly, and courteous manner. The skills and talents of this group are what makes an organization run smoothly on a day-to-day basis.

The accomplishments of this group can be related to the over-all success of the organization. Day-in and day-out this group is relied upon to help ITS staff meet deadlines, solve problems, and obtain and communicate essential information. They also serve as the “front-door” to the organization, helping to ensure a friendly, fun, working environment to both staff and customers alike.

Work Group Members
Sharon Fangsrud, Cathy Hanson, Kim Lammers, Janet Stringer, Pat Suchan, and two part-time staff - Betty Opheim and Char Maas.
Information Services  
*Rosi Kloberdanz, Associate Director*

**Overview**
The staff of Information Services provide computer and Internet support services for offices, classrooms, and student clusters; application development; consulting, documentation and information, software site-licensing, Help Desk services, training and education.

Information Services is made up of seven Work Groups. Functional groups comprising the Information Services Work Unit include the Administrative Applications Development Group, Client Services, the ITS Facilities Group, the Help Desk, Internet Strategic Applications Group, SENDIT, and the Training Group.

**Mission**
Information Services staff work together as teams in assisting our clients with using appropriate technologies to accomplish their goals. We are committed to excellence in promoting and delivering information technology services and resources, advancing the ITS mission through collaborative partnerships with our clients.

**Administrative Applications Development Work Group**

**Work Group Members**
Carol Tschakert (Leader)

**Mission**
The Administrative Applications Development work group assists the NDSU campus by developing applications and assisting users in developing applications to efficiently perform their data processing needs not met by the HECN administrative systems.

**Function**
- Assist the NDSU Administrative staff in using the SAS extract data files.
- Develop applications for NDSU Administrative staff for needs not met by the HECN systems.
- Develop applications for ITS, as well as other NDSU departments, to provide efficient processing of information.

**Accomplishments (NDSU)**
- Developed an application to import data from the NDSU motorpool database (Fleet Controller) into the North Dakota Department of Transportation motorpool database (FleetAnywhere).
- Developed an application for the NDSU Office of the Registrar to assist staff in evaluating transferred courses into NDSU equivalent courses.
- Wrote a program for the NDSU Fine Arts department to extract transcript information from the HECN Student Records database for an application being developed to assist their faculty when advising students on changing programs of study.
C Moved the two databases for the Pesticide Office from FoxPro to an Oracle database. Developed a web interface to the databases.
C Developed a database for the NDSU Human Resources department used to help monitor the classified staff responsibility review process. The database also includes NDSU staff years of service information.
C Developed a database for NDSU Equal Employment office to process prospective student athletic questionnaires.
C Developed an application for ITS office to generate invoices for the HECN Site License program.
C Developed an application for ITS office to process staff payroll information. Payroll forms are generated from the database.
C Developed a Y2K Compliance Inventory database to assist the NDSU campus to monitor its Y2K readiness. The project included unit rep reports on the web.
C Extracted HECN Student Records data to assist NDSU staff in the Food and Nutrition department and College of University Studies with their research projects.
C Consulted with NDSU administrative staff regarding Y2K issues in their SAS programs.
C Consulted with NDSU staff on the usage of Microsoft Access.

Client Services Work Group

Work Group Members
Bud McMullen (Leader), Jon Bronken, Dan Chihos, Shawn Froelich, Jeff Schoenack, Gary Whaley. Brian Todd and Mark Helmowski left during the year for other employment opportunities. This group also employs multiple students.

Mission
The Client Services Group (CSG) is a service organization comprised of dedicated and skilled people. Diversity of talents and strengths defines CSG.

Function
C The CSG staff strive to assist ITS in being the technology center of support for NDUS, HECN and NDSU. Members of this group provide comprehensive technical expertise to the clients they serve, helping to ensure networks, computers, and peripherals will perform at optimum levels. The CSG serves all these entities in countless ways by answering questions, sharing knowledge, and researching ways to improve desktop support. Within the NDSU campus community, CGS folks are committed to making the client become as productive as possible in their work environment by installing, configuring, and trouble-shooting LAN networks and desktop equipment. In addition, they often offer hands-on consulting and support to the user.

For the HECN
- Provide Internet dial up kit configuration.
- Assist with Internet software web pages.
- Provide Desktop computer consultation.
**For NDSU**
- Handle new computer setups which include all aspects from consulting on the purchase, configuring systems, installing software and setting up LAN connection, to troubleshooting and resolving problems.
- Recommend and consult with clients on technology usage
- Provide for LAN Server administration
- Maintain support for Residence Hall network
- Handle problems/resolutions with Computer cluster restore software
- Provide computer support for Skills and Technology Training Center (STTC)
- Provide computer support for the Group Decision Center (GDC)

**Accomplishments**
- Researched and installed wireless Ethernet for the ITS portable cluster.
- Installed and configured Event Management Software (EMS) server and web server for Memorial Union scheduling department.
- Installed four major upgrades to the 1st Place software for Career Services.
- Assisted Unit Reps with Y2K hardware testing.
- Initiated backup/restore project for the RCDC lab in the Department of Architecture and Landscape Architecture.
- Installed and configured computers, and created and maintain restore program, for the both the STTC and GDC.
- Created restore programs for Facilities, Help Desk, and Training work groups within ITS and continue to provide support.
- Served on task force for selecting new color printer for Cluster use.
- Provided computer support for the Dorgan ND Technology Conference, April 99, NDSU.

**ITS Facilities Work Group**

**Work Group Members**
Brian Abraham (Leader), Jim Sellner, and Melissa Stotz. Approximately 60 students help support the activities of this group.

**Mission**
This work group serves the campus needs by providing and supporting computing resources for students and faculty to draw upon to enhance their educational experiences at NDSU.

**Function**
The role of this group has expanded to support cluster facilities and instrumented classrooms throughout the campus. Because this group holds broad scope of responsibility within the campus, the name was changed from Clusters Work Group to Facilities Work Group. ITS maintains 22 cluster/labs in 11 buildings on the NDSU campus. These computers are furnished with the latest upgrades in software and many have specialty software applications. All computers are networked and have access to the Internet. ITS also maintains a computer room with assistive technology hardware and software for people with special needs.
Accomplishments
C Created new computer cluster facilities in Stockbridge and Churchill Residence Halls, EML, and Fine Arts Building.
C Fine Arts Cluster contains state-of-the-art multimedia resources. Unique equipment in this cluster includes music keyboards, graphics, tablets, scanners, CDR burner, color printer and plotter.
C Implemented two portable document cameras for checkout through the Help Desk, funded through the student Technology Fee.
C Added a new multimedia cart, LCD projector, and VCR for Library, funded through the student Technology Fee.
C Replaced 15 older classroom overhead projectors with new ones.
C Outfitted seven auditoriums/classroom with permanently located multimedia equipment.

Cluster changes completed during FY 98-99
C IACC 150C - 20 new PII-266 PCs
C IACC 150B - 20 new PII-266 PCs
C IACC 150D - 20 new PowerMac G3-266 PCs
C IACC 116 - 24 new PowerMac G3-266 PCs
C Arch 102 - 18 new PII-266 PCs (expanded from 15)
C Weible 163 - 6 Pentium 166mhz from Arch 102
C Library 200 - 16 PowerMac 7200/90 from IACC 116
C IACC 150
- Replaced two scanners
- Replaced several computers
- Changed ratio (mix) of PCs & Macs

Special Projects
C A new initiative involved outfitting seven auditoriums/classrooms with permanently located multimedia equipment. The outcome of this first venture was excellent.
Classrooms that were instrumented include:
- FLC 124 - Morrill 103
- Ladd 107 - Morrill 111
- Loftsgard 102 - Sudro 20
- Loftsgard 114

Note: See appendix section for details on building resources and equipment check-out.

Help Desk Work Group
Work Group Members
Mary Twitchell (Leader), Carl Clark, Sue Fuss, Jim Hughes, Marrie Puckett, James Silvernagel, Gary Sholts, John Underwood, and several students.

Mission
The ITS Help Desk is a bridge between faculty, staff, and students of the NDUS and the technology solutions provided by ITS.

**Function**

This past year, the ITS Help Desk provided a variety of services to users, including technical support, color printing and plotting, administrative print services, OMR scanning, software licensing, equipment and cluster reservations, equipment checkout, and documentation.

**Accomplishments**

Help Desk staff answered over 20,000 phone calls, helped over 18,000 customers who visited the Help Desk, and responded to over two thousand email questions.

Help Desk staff, along with other developers from the HECN, have developed and implemented Remedy, a help desk management tool. The ITS Help Desk, along with five other help desks, are involved in the HECN Remedy pilot program. This project involves a team from across several HECN campuses and SENDIT and is an example of a cooperative effort that has worked well. The help desk tool has been tested and revised and is being rolled out to other campuses within the HECN. The advantage of using a shared tool is the ability to share expertise and build a pool of shared knowledge that better leverages the people resources of the entire university system.

Currently there are 5,186 tickets entered into Remedy. Of those tickets entered, 2,648 are from the ITS Help Desk with the remaining from the SENDIT Help Desk. Only those calls which require follow-up or a visit by an ITS staff member are entered into the system. Plans are being made to use Remedy to track all customer contacts (calls, walk-in, or email) to the Help Desk.

The Software Licensing Program processed 782 electronic orders for software. These reflect a savings to the HECN of over $250,000 over the retail value of the software. Although NDSU departments may order directly through the software licensing program, other HECN campuses and SENDIT schools consolidate their orders. Downloads counts for this past year are: 711 from NDSU; 47 from the other HECN campuses; 24 from SENDIT member schools.

The ITS Help Desk web page includes software for download:
- 14,467 copies of dial-in connection kits and related software (10,415 of Windows 95/98/NT; 3,442 of Macintosh; 1,039 of Windows 3.1)
- 3,013 copies of Dr. Solomon's or Virex virus protection software
- 3,072 copies of Mulberry email software

The Help Desk was responsible for OMR scanning, color printing and plotting, and administrative printing. During the past year, Help Desk staff processed 2420 OMR scans, over 33,500 pages of color printing, and over 112,500,000 lines of administrative printing (approximately 2.5 million pages).
Y2K software pages were developed and will be continually updated during the coming year. These pages provide in-depth information for HECN campuses on the compliance status of many of the common software packages used within the university system.

Help Desk staff collaborated with the Library, the Varsity Mart, and other ITS work groups to publish help@ndsu, a document that provides information about technology for students, faculty, and staff. During the first week of Fall Semester, this document was delivered to students in all of the residence halls and to all faculty and staff and made available in the computer clusters and the Library.

Help Desk staff developed new documentation for Mulberry, the new email program that was being implemented on campus. This documentation was included in help@ndsu and was used for training new students in the use of Mulberry.

ITS Help Desk staff published two ITS Help Desk newsletters designed to help faculty and staff stay informed about technology issues and changes that are or will be taking place.

Help Desk staff processed over 1,200 reservations for equipment and clusters. Many of these requests were for complex reservations involving multiple items and days. To facilitate this process, an on-line reservation request system was designed and implemented which allowed Help Desk staff better manage and track clusters and equipment reservation requests.

Internet Strategic Applications Work Group

Work Group Members
Marty Hoag (Leader), Bruce Curtis, Dick Jacobson, and Wayne Wermager. Brian Peasland, a graduate student, was also assigned to this group to help support the many needs of the LBTS (Legislative Bill Tracking System).

Mission
The Internet Strategic Applications Group (ISAG) is responsible for many different "Internet" applications and facilities. ISAG is not only responsible for our connection TO the Internet but also for applications running on the portion of the Internet in the North Dakota University System.
**Function**
C Provide support for Network Engineering and Internet Connectivity for NDSU, HECN, NDIN.
C Serves as a team member for GPN, I2, DakotaLink, and ND SchoolNet.
C Responsible for administering related systems such as routers, terminal servers, filters, and proxy cache servers.
C Support DNS and IP Address Administration
C Provide User Administration / Ethical Use / Copyright Agent
C Administer LISTSERV E-mail mailing lists
C Work with NDUS, HECN and NDSU on special projects and services

**Accomplishments**
C Coordinated new user quiz, enrollment system changes, class of service, and related user database.
C Changed NDSU terminal servers to support PAP as well as user scripts.
C Helped ND SchoolNet install 2nd T1 to Sprint.
C Tested Internet filters from three vendors for ND SchoolNet and installed final selections in Fargo and Bismarck.
C Helped coordinate installation of new secondary nameserver in Grand Forks (new NS2).
C Participated in installation of new ATM switches and routers for DS3 connection to GPN, Internet2, and the commodity Internet and new links from Fargo to Grand Forks and Bismarck. Administered related routing changes.
C Added new pages to show current link status for various NDSU, HECN, NDIN, and GPN network connections using data from MRTG traffic recorders (see: http://www.ndsu.nodak.edu/isag/inet/).
C Configured new proxy cache server system in June, 1999. During the year we had over 500 users of the cache.
C Coordinated a very successful set of online legislative information services for the 1999 session. The HECN South help desk provided user support for users outside state government for all online legislative systems.
C Enhanced the web-based LBTS (Legislative Bill Tracking System).
C Provided Y2K Advisor for NDUS CIO. Helped conduct NDUS Y2K workshop and collate reports (monthly and special).
C Assisted with the coordination of the IT Plans (HB1034/2043) for the NDUS. Budget version was submitted in the Fall of 1998 and the Appropriated Version in June 1999.
C In May, NDSU became part of the Active Measurement Project made up mostly of NSF High Performance Computing network awardees and run by the National Laboratory for Applied Network Research, Measurement and Analysis team (see http://amp.nlanr.net/). As part of the project the Internet Strategic Applications Group installed a special system to monitor performance of the Internet2 and vBNS connections to other sites.
SENDIT Work Group
Work Group Members
Jody French (Project Coordinator), Kris Ottem, Marrie Puckett, Don Simon, Wayne Wermager

Mission
SENDIT serves as an Internet support center for K-12 schools and libraries.

Function
C SENDIT provides communication services including e-mail, World Wide Web page hosting and Usenet news. Support services include a help desk, WWW development support, and wide area networking consulting. SENDIT furnishes users with access to a variety of resources which include a web page, user directory, classroom projects, training programs, newsletter, CD and Apple and Microsoft software licensing services.

Accomplishments
C Transitioned to a web-based delivery of e-mail and all other resources.
C Removed the SENDIT modem pool.
C Produced a building facilitator page allowing over 200 school facilitators to more easily manage user accounts.
C Developed Internet projects which allow classrooms to more readily participate in on-line class projects.
C Implemented Remedy software within the SENDIT Help Desk.
C Developed technical components of a video/audio streaming service.
C Assisted ND School Net member schools to expand cooperative to 102 schools and K-12 related agencies.
C SENDIT hosts 40,000 user accounts and supports 1.5 million e-mail messages each month. Staff delivered 50 full day training sessions and 25 shorter, informational sessions. Ninety percent of ND schools and many K-12 organizations and public libraries are SENDIT members.
C The SENDIT Help Desk receive and respond to an average of 300 telephone calls per month and 500 e-mail messages. The SENDIT World Wide Web page received at least 30,000 hits per month delivering educational resources to all SENDIT users. SENDIT hosts 50 World Wide Web pages and 40 email discussion lists for K-12 schools and organization.

Training Work Group
Work Group Members
Cj (Craig) Johnson (Leader), Lorna Olsen, Sheree Kornkven and several student employees

Mission
The ITS Training group provides end-user training opportunities on a variety of software applications in a timely manner for NDSU, HECN, and NDUS students, faculty, and staff.

Function
ITS provides training for students, staff, and faculty on a variety of software applications using various delivery methods. The partnership with Corporate Technologies of Fargo continues to make additional training opportunities possible. This partnership allows ITS the ability to use qualified instructors to train faculty and staff using the most current versions of software applications. Faculty, staff, and students have made very positive comments regarding the high quality of training this partnership has provided.

The Student Training Specialist position was approved for continued funding through the support of the student Technology Fee. This program offers all types of technology training for NDSU students and continues to grow. More and more instructors are requesting in-class training sessions and extra credit training sessions for their students. The student trainers are also involved in delivering Skills 199 training.

Accomplishments

Training staff coordinated the Skills for Academic Success last fall. Many ITS staff were involved in training over 1,600 incoming Freshmen. The sessions helped students to learn about computing resources at NDSU, and to use email and Netscape.

A new series "Technology Lunchbox" was offered during fall semester 98 and spring semester 99. This series was held every other week at lunchtime to offer faculty, staff, and students opportunities to gain “tips and tidbits” on the use of various technology components to help enhance productivity. New upcoming technologies were introduced to users as well. These 'brown bag' sessions proved to be very well received and will be continued again this fall.

The ITS-Training electronic list has grown in the last year from 296 subscribers to over 500 subscribers. This list is distributed to subscribers at NDSU on a weekly basis and includes upcoming training opportunities, along with a weekly tip.

The ITS Training group initiated a pilot training program taken by a number of staff to advance technical knowledge on various software programs. This was offered as a self-paced online program by Ziff-Davis called Learn-Itonline.

Instruction, Assessment and Student Success

Over 1,400 faculty and staff were trained in end user software.

The training staff also conducted Y2K unit representative training sessions.

The Technology Learning Center staff recorded over 1,900 student 'contacts' and offered over 158 classes on end user software for students. (supported by the student Technology Fee).
Networking and Server Systems

John Grosen, Associate Director

Overview
The infrastructure of any IT organization serves as the foundation by which delivery of information through technological means can reach the user. The ITS Networking and Server work groups help build and maintain the components by which such flow of information can indeed reach the users in faster, more efficient, and more reliable ways.

Mission
The networking and server groups maintain the infrastructure which underlies virtually all of the services ITS provides to the HECN and the NDSU campus. Our goal is to make this infrastructure as reliable and robust as possible.

Networking and Server Work Groups

Networking Work Group Members
Terry Wieland (Leader), Diane Clark, David Dahl, Chad Foster, Val Nordsletten, Steve Sachs, Cheryl Swanson and Harry Wadnizak

Server Work Group Members
Greg Wettstein (Leader), Clark Coffman, Tim Mooney, Kris Ottem, Mark Standring, Dale Summers and Francis Larson. Dennis Amundson resigned to move to Minneapolis. Several key students also played a vital role within this group.

The ITS Networking group provides local and wide-area data networking and installs and maintains the voice communications wiring for the NDSU campus.

The ITS Server group provides multi-user host access and related services for the HECN and SENDIT. In addition, the server group also supports file and print services for the NDSU campus. Although these two work groups have separate areas of responsibility, they are quite often dependent on each other as part of the bigger picture: enabling ITS to reach its many goals.

Both groups provide consulting services for HECN sites in networking and server administration.

Accomplishments
This past year both the networking and server areas completed many projects. The Great Plains Network went into operation in September. Internet bandwidth for the eastern HECN sites was increased from 6 Mb to 10.5 Mb and our ISP was changed from Cable and Wireless to Sprint. The Great Plains Network was the first regional network to be connected to the Abilene (Internet 2). Thanks to a peering agreement between Internet 2 and the National Science Foundation, Abilene now provides access to the vBNS which is a requirement for
meeting our obligations under the NSF HPC award for DakotaLink, a consortium of North and South Dakota research institutions who received the HPC award collectively.

C The NDSU campus backbone network was upgraded with new network switches. These switches provide access to the HECN and NDSU servers. The new switches support up to gigabit speeds and we expect to support at least some of the servers at this speed in the future.

C In the server area, a year long process to select a primary Unix vendor was completed in April resulting in the purchase of two new Sun servers. Several existing servers are being taken out of service and their applications and services migrated to the new servers. The end result will be a more homogenous server environment based on Sun and Linux running on Intel hardware.

C First steps were taken in implementing a fibre-channel Storage Area Network (SAN). The new Sun servers, as well as two of our Linux-based servers, are now accessing file space via fibre-channel from a single storage cabinet. As time goes by, we plan on moving all of our storage services to the SAN.

C Finally, the new IMAP-based email system was put into service last fall for the NDSU campus. We ended the school year with over 3200 users on the new system. A new user management system (USMS) was also put into service. This system uses KerDAP, a single sign-on solution employing Kerberos for authentication and an LDAP directory for authentication.

C Both groups were very busy with Year 2000 testing and remediation. We are confident that the NDSU campus and HECN systems are ready for the new millennium.

**Special Projects**

C The network and server groups were involved in bringing new computing and storage capabilities to the HECN and NDSU. Two Beowulf clusters were brought into operation. Beowulf is a technique for clustering inexpensive PC’s running the Linux operating system to provide supercomputing storage and computational power. One of the clusters (MIDAS) provides 1 Terabyte of file storage. The other (The Herd) provides up to 5 GFLOPS of parallel computing power.

C The results from these clusters are impressive. Both clusters are used to support experiments and calculate performance differences of various types of networking (ATM, Fast Ethernet, and Gigabit Ethernet). In addition, a new parallel algorithm has been developed resulting in an average turnaround time being cut from 21 days on a uni-processor system to 9 hours on the Beowulf cluster. These clusters can be built for a fraction of the cost of traditional supercomputers making their power accessible to researchers throughout the HECN.
Overview
Work Groups which comprise the Learning Technologies Unit include: Distance Education (focus on IVN & Digital Video and Audio Technologies), The NDSU Center for Academic Information Technology (CAIT), Multimedia Center, and Statistical Consulting. These groups work within ITS to encourage ITS colleagues to bring new learning as well as established expertise into the service of self-directed project teams. The staff work with other ITS groups, partners and clients in helping to support programs, projects and daily tasks. LT staff have attracted new resources to ITS from internal funding sources in support of ITS initiatives. Many have take on additional responsibilities to meet the many demands of ITS. Staff members have recognized faculty and staff needs, and work to identify the campus and ITS groups which can support expanded roles for the LT. Through collaborative efforts LT staff often spearhead grant writing efforts of others on campus to help meet their goals for bridging learning and technology.

There have been many success stories within LT. One of the special projects LT helped to drive and role out this past year, was the new, automatic, multimedia-enhanced, email enrollment system. This system was designed to familiarize incoming students and new faculty with responsible computer use before receiving an account. The enrollment system, operational since Fall of 1998, was delivered on time and performed beyond expectations. This venture was a very successful collaborative effort between Learning Technologies and other ITS work groups.

In summary, Learning Technologies' strongest point is the ability of the staff to put together teams to address issues or projects and see the teams' work through to completion. The LT staff has cultivated leadership at every level of each work-group. The model of self-directed work teams has come to dominate the operation of all Learning Technology work groups in ITS over the course of the past academic year. The outcome has proven successful in helping ITS continue to achieve its many goals.

Mission
Learning technologies is the bridge between learning and technology.

Center for Academic Information Technology (CAIT) Work Group

Work Group Members
Elizabeth Smith (Leader), Felix Guererro and several students are members of this group.

Mission
The NDSU Center for Academic Information Technology (CAIT) bridges learning and technology by developing learning applications and providing distributed learning services for faculty and staff.

Function
The CAIT is responsible for designing, developing, and implementing multimedia technologies for NDSU faculty and staff. The CAIT is also responsible for planning and implementing NDSU’s Technology Partnerships program (ATP), a collaborative program for NDSU faculty.

**Accomplishments**

CAIT, along with student employees, assisted four NDSU faculty to design, develop, and implement instructional multimedia projects as part of the Academic Technology Partnerships program.

CAIT staff assisted three NDSU faculty in designing, developing, and implementing distributed courses.

CAIT staff collaborated with other ITS and NDSU staff to create a distributed learning pilot program for faculty. The program entitled the Technology Enhanced Learning Sircle (TELS) assisted twelve NDSU faculty in various aspects of distributed course design. A paper detailing the pilot project will be presented at the International Symposium on Intelligent Multimedia and Distance Education.

A major success for the CAIT group focused on efforts to publish a paper regarding their model online instruction. The paper, entitled The Technology-Enhanced Learning Circle: A Faculty Development Model for Online Instruction will be published in the Proceedings of the 11th International Conference on Systems Research, Informatics, and Cybernetics (ISIMADE), August 2-7, 1999, Baden-Baden, Germany.

Members of this group have been key to the development of the ITS web structure. They are also instrumental in providing NDSU web site management and worked with various departments to implement their web presence.

**Digital Video and Audio Technologies Work Group**

**Work Group Members**

Sandy Sprafka (Leader), Tammy Cummings, Joel Writer and several students

**Mission**

The mission of the Digital Video and Audio Technologies group is two-fold: to support and schedule NDSU's videoconferencing systems (IVN, V-Tel), and to explore other videoconferencing and streaming audio and video technologies and evaluate them for possible use at NDSU. The goal of this group is to assist faculty to make effective use of these technologies.

**Function**
C Work group members focus on supporting the needs of NDSU's IVN distance education students. This involves assisting with all aspects of their experience with taking courses through this program (admissions, registration, course information, textbook information).

C Staff of this group work with Faculty to set up courses on IVN and offer training and assistance to faculty which supports their teaching efforts for quality course delivery at a distance.

C A major responsibility of this group is to manage the videoconferencing facilities.

C Members of the group research videoconferencing technologies which could be used at the University system level. Experimental time is spent testing new equipment and methods by to help improve delivery of education at a distance.

Accomplishments
C Several members of this group met with the IVN Technical Coordinators and updated the IVN Handbook. The resulting document contains current information which can be used daily by the IVN Technical Coordinators and Technicians.

C A tremendous effort was conducted with the Desktop Videoconferencing Project. The goal has been to research desktop videoconferencing technologies and recommend quality point-to-point and multipoint IP-based videoconferencing services to the NDUS and external customers. Members of this group have been instrumental in pulling together six schools and ISD to work on numerous committees to further research Videoconferencing technologies.

C Sandy Sprafka assembled and led the NDSU Poetry Slam event. This project contained key people from across ITS and the Union. The goal was to conduct a live realtime web-cast of a campus sponsored program and save an archived recording of the event for later access from a web site. In approximately one month, this self-directed, motivated group “pulled off” the Poetry Slam Project and had fun working together. It was a wonderful example of the effectiveness of cross-team collaboration.

C Staff of this work group assisted the ITS Training work group to establish a new Training Track for the Small College Computing Symposium (SCCS) which was hosted this year by the University of first time an institution outside of the host site was responsible for symposium content.

C Sandy Sprafka chaired the technical support team for the Telecommunications Technology in North Dakota: Opportunities and Challenges in Rural America conference. The event was coordinated by ITS, Continuing Education, and sponsored by Senator Byron Dorgan’s office.

C Team members have been working with the NDSU Libraries to provide seamless library access for NDSU's distance education students. Problems and barriers have been identified and work is progress on solutions which are hoped to be in place by fall. This same process will be used to helped solve other distance education access problems.
Upgrades to NDSU's IVN rooms to VTEL equipment were accomplished by the technical members of this group. An ISDN access to one of the rooms was also installed. Technical staff also installed IVN equipment to several NDUS campuses for the IVN system.

The IVN Site Coordinator arranged for the delivery of 14 IVN courses (1 Continuing Ed undergrad, 2 cross listed undergrad, 3 cross listed grad, and 6 grad), from 7 departments, using 11 instructors, and enrolling 232 students.

For the Spring Semester, 12 IVN courses were coordinated (2 Continuing Ed undergrad, 2 cross listed undergrad, 1 cross listed grad, and 7 grad), from 7 departments, using 11 instructors, and enrolling 268 students.

During the summer another 10 IVN courses were delivered (1 Continuing Ed undergrad, 5 cross listed undergrad, 1 cross listed grad, 2 undergrad, and 1 grad), from 7 departments, using 10 instructors, and enrolling students.

**Multimedia Center Work Group**

**Work Group Members**
Nancy Lilleberg (Leader) plus several students

**Mission**
The University Multimedia Center maintains support services for instructional technology as a presentation tool or as development tool for creating interactive materials.

**Function**
This has been a year of transitions for multimedia activity at NDSU. The classroom technology initiative grew so quickly that it was no longer maintainable as an offshoot of the Multimedia Coordinator. A classroom technician was hired through a Technology Fee award to assist in maintaining multimedia support in the classroom. Efforts were focused on collaborating with the ITS Facilities work group to support the transition of this essential function need to continue the expansion and usage of multimedia in the classroom.

During the year the Multimedia Center supported two locations – a facility in IACC 250 and a student focused Center in IACC 150E. Each of these Centers functioned to support the growing need of multimedia development. The 150E Multimedia Center became a mainstay in the cluster offerings.

With the growth of web-page presence, the Multimedia Center took on a dynamic role in providing various tools, software, and instruction to assist faculty and students in designing web pages. Web Development teams were established to aid in all sorts of web-related projects. The Multimedia Center functions to support and enhance voice, video and data, as it comes together in the form of multimedia delivery.
Accomplishments

C Until October of 1998, the Multimedia Center purchased the funded equipment, arranged for the installation of six permanently equipped classrooms, upgraded the portable classroom carts, and arranged for students to deliver the equipment as scheduled during fall semester. The addition of a Classroom Technician alleviated these duties so the Center could truly focus on meeting many “hands-on” multimedia requests for support.

C Three student employees assisted Nancy Lilleberg on web and multimedia projects. These projects included web pages for Tri-College and ITS, online training for the Equal Opportunity Officer designed for temporary summer help in the state, a promotional multimedia CD for the NDSU Bison football team, and the web site for broadbanding in North Dakota.

C The web development team gradually migrated towards a “web toolbox” of software titles that worked the best for web development. The standard “toolbox” contains Macromedia DreamWeaver version 2.0 as a site manager and editor, and basic knowledge of HTML. The deluxe “toolbox” used by the employees and some users also includes Adobe Acrobat version 4 for documents and forms, Photoshop version 5 for graphics, and Macromedia Fireworks for optimization of graphical files on the web. By zeroing in on a standard “toolbox,” we allowed ourselves to partner with users in a closer, more effective way.

C Funding from the Vice President of Academic Affairs enabled the Multimedia Center to hire 100 hours/week of student employee starting Spring Semester. These hours allowed work to be done on NDSU web sites. To view some of the finished projects visit: http://www.ndsu.nodak.edu/its/depts/wwwdev/index.shtml

C Nancy Lilleberg created the web site for the Teaching Learning Sircle (TELS).

Instruction, Assessment, and Student Success

C MM adopted a standard and deluxe web “toolbox,” software program and offered two half-day seminars on DreamWeaver2 to faculty and staff.

C Multiple instructors requested ITS staff to provide hands-on seminars on Powerpoint, HTML and HTML editors during the school year.

C Prior to Fall Semester ‘98, ITS offered a 2-day training session for Agricultural Faculty Development with three tracks – intermediate, beginner and multimedia. The session was offered a second time during faculty orientation week, due to its popularity.

C The enthusiasm and talent that our student employees bring us is truly amazing. When given the needed tools and a solid goal or need, the students accomplish impressive feats, learning new skills as they go. Equally important are the communication and team-building skills that they learn by working side-by-side to staff, faculty and each other.
Statistical Consulting Work Group

Work Group Members
Curt Doetkott leads and support the efforts of several graduate students.

Mission
The Statistical Consulting Service assists faculty, staff and graduate students in planning, managing, processing, and presenting data associated with research projects.

Accomplishments
C Negotiated new NDUS license for the Compustat (financial) database and Research Insight front end with Standard & Poors. Financial commitments of roughly 20-25% of the total cost each from the College of Business at NDSU and the College of Business and Public Administration at UND was obtained. A Service Level Agreement was drafted to emphasize the commitments of all three parties involved in the license; ITS, the College of Business at NDSU, and the College of Business and Public Administration at UND.

C Coordinated efforts with ITS staff in Client Services, the Server Group, and Clusters, to install Compustat and Research Insight software on several servers at NDSU.

C Made significant improvements to the processing of the Student Rating of Instruction evaluations. Worked collaboratively with each of the colleges on campus to dramatically improve the quality of the data scanned. Obtaining a higher quality data generated much-improved summary reports for each class. In addition, changes to the way the data was collected, enabled summary reports for all courses within each department for each semester to be generated. Complete departmental summary reports for the entire year can also be run. These annual summaries can be submitted to the Office of Assessment for departmental annual reports and preclude manually compiling the summaries as had been previously done.

C Consulting log records show contacts with 225-250 different clients over the past year for Curt Doetkott. Approximately half of these clients were associated with multiple contacts for fiscal year 1998-99.
Usage Statistics

NOTE: The following information refers to Appendix Charts and Graphs. This data is also available any time through the web "URLs" listed. Usage Statistics help ITS to evaluate and plan for future expansion of services or networks and to provide on-going solutions.

Dial-In Users
http://www.ndsu.nodak.edu/isag/ts/tsusers.gif

The chart shows the approximate number of dial-in users (usually the "top" line) and the ratio of users per modem for the past few years. This data was collected by hand until the last few months of the 97-98 fiscal year. It is now updated daily and included on the Dial-In modem usage page at:
http://www.ndsu.nodak.edu/isag/ts/tsweb.html

Note that a change in servers during June 1999 meant that some of the data was not collected for the end of the fiscal year.

Residence Hall LAN Use
http://www.ndsu.nodak.edu/isag/res/resbar.gif

The chart shows the number of computers connected to the NDSU ResNet (residence hall network) during the past year. The actual hardware addresses are monitored several times a month to built a list of the number of different computers in use during that month. These statistics are available through the year at:
http://www.ndsu.nodak.edu/isag/res/resweb.html

Web Proxy Cache Use (No chart)

The "SQUID" web proxy cache helps optimize utilization of Internet links but "caching" (keeping a local copy) of popular public pages from the Internet. The cache was added during the 97-98 fiscal year and has been added to the browser configurations in all the ITS computer clusters. We typically have over 500 different clients using the system during the school year. More information on the project and links to these statistics are available at:
http://www.ndsu.nodak.edu/proxy/

The following are some of the statistics beginning in January 1998 which are available:
http://remus.ndsu.nodak.edu/webcache.ndsu.nodak.edu/requests-year.gif

This chart shows the one-day averages of the number of requests per minute made on the server. The average value for HTTP (web pages) was 43 requests per minute.

Due to a change in servers the location of the online information has changed and the 98-99 information is not available online. The new location is:
Fargo Internet Link Usage (No chart)

The HECN had a total of five T1 (1.544 megabit/second) Internet links during FY 1997-1998. During FY 1998-1999 we switched the Eastern part of the HECN to use our Great Plains Network DS3 (45 Mbps) connection to supply commodity Internet access from Sprint (25 Mbps) and Qwest (secondary, up to 45 Mbps) out of Kansas City. We also were one of the first networks connected to Abilene for Internet2 access. The Western HECN schools still receive their access through ITD in Bismarck which was recently upgraded to a single high speed connection with Sprint.

The volatile nature of the Internet ISP market and changes in configurations make tracking usage online a challenge. We are also sharing many of the physical links for several uses through ATM so sorting out specific traffic is also difficult. We provide a summary page which has links to graphs for most of these links at:

http://www.ndsu.nodak.edu/isag/inet/intsum.html

and a similar set of links for HECN sites at:

http://www.ndsu.nodak.edu/isag/inet/hecnlinks.html

Additional information and links to charts for the Great Plains Network is available at:

http://www.greatplains.net/
Professional Development & Training

Note: See Appendix tables for details of staff professional development and training.

Professional development is not an optional benefit—it is a requirement to keep talented technology workers in a highly competitive field. ITS has built a team of highly accomplished and skilled staff whose innovations and ideas are often unleashed as a result of the continuous professional development opportunities offered.

For staff to stay current on technology tools, support concepts, and future trends, they must continue to obtain training. The management team encourages all staff to continually seek new skills to help them do their jobs better and to develop leadership abilities. By adequately providing for staff training, NDSU and ITS will continue to propel ahead into the next millennium.

ITS not only emphasizes the need for technological expertise but also reaches out to develop leadership and communication skills. All staff attended a seminar in November 1998 by Fred Pryor entitled “How to Manage Multiple Projects and Meet Deadlines.” This all day seminar was also attended by HECN constituents from North Dakota State School of Science, University of North Dakota, and MiSU-Bottineau.

Monthly, ITS staff gather as a group to address various current work issues, view technology demonstrations, hear about other campus activities, and have fun. Such a gathering is called ITS Time and the following is a listing of last year’s topics.

Monthly ITS TIME

- August  Confidential Information Agreement Issues  Rick Johnson
- September  New Email Messaging System  Greg Wettstein
- October  Internet2/Great Plains Network  Bruce Curtis
- November  No meeting
- December  Annual Christmas Gathering
- January  Remedy Update  Gary Sholts
- February  Annual NDSU Safety Training  Craig Johnson
- March  File Transfer Protocol/Shared Message Block  Craig Johnson
- Lorna Olson
- Bud McMullen
- April  Stress in the Work Place  Patty Corwin
- May  “When Hope & Fear Collide”  Prakash Matthew
- June  Computer Science Dept - Enrollments  Dr. Ken Nygaard
Challenges and Future Plans

Our challenge is tremendous as we strive to meet current and changing needs of our clients. Our Clients have become more sophisticated in using technology and look toward IT professionals to support and often solve more complex problems. Our clients expect us to be informed, trained to adapt new technologies and tools, and innovative in providing methods to coordinate new projects and establish mechanisms for rolling out systems and initiatives. Users expect robust, reliable networks and rely upon infrastructure to be transparent, much like telephone or power resources and services. IT solutions need to be easy to use, user friendly, affordable, provide consistency and quality, and use innovative and advanced technologies.

So how can an IT service and support unit meet all these demands? We must be pro-active, stay informed, have expert knowledge, be helpful and courteous, and use top of the line tools in our daily routine. We must hire creative, innovative staff who are collaborators in producing quality service in a timely manner. Ultimately, we must provide the education and tools that will allow our clients to become self-sufficient.

We are indeed challenged, but not without a vision and plan to address and meet the many demands of our clients. We continually strive to provide enhancements to the campus and system networks. We will continue to collaborate and work with our constituents to provide the technology infrastructure and needed tools to those we serve. We will continue to restructure, reorganize, and re-examine the way we do business — and we will continue to seek innovative ways to develop and share technology knowledge. We want our clients to reach their goals in the most efficient and effective manner possible.

ITS will be reviewing its organizational structure this next year. This includes examining issues related to individual potential and contributions, team environments, work space requirements, and customer service needs. We will continue to support and encourage collaborative teams and organizational innovation. To maximize staffing resources ITS will need to work together to share knowledge and leverage resources across work groups. Customer service will continue to improve as we seek to identify and resolve single points of failure. Discussion continues as well on continuing flexible work weeks and finding other methods of making the work environment more satisfying for staff.

Efforts will also continue to update the long range IT plan for ITS. It is hoped that this will be finished by January 1, 2000 to provide input into the next IT Plan required by SB2043 and into the next budget process.

ITS work groups were asked to formulate future plans and initiatives for the next year. The list seems endless. The future plans and initiatives for fiscal year 1999 are reflective of the strategic mission we have in providing academic, research, and business technology solutions to the NDUS and its constituents through collaboration, teamwork, and individual initiative.

Individual Unit Goals
**Learning Technologies**

C Perfect the WWW Development Center's model of delivering WWW support services. These new efforts come in response to expressed needs of Deans and Directors, as communicated to the VPAA and the ITS Director. This will be a demanding assignment, involving hiring of a new staff member as well as managing 10-15 students.

C Encourage use of Blackboard's "Courseinfo" as an electronic gathering place and discussion environment for ITS WWW Development Team staff and for student employees, staff and faculty responsible for WWW development or WWW maintenance. You can take Blackboard for a trial spin by visiting [http://www.blackboard.com/](http://www.blackboard.com/).

C Establish end-to-end videoconferencing infrastructure, service, and support. Establish strategic campus, NDUS, and Internet2 partnerships in audio and videoconferencing services. Refine live encoding and store-and-forward audio and video services.

C Consider automating processes associated with the collection, analysis and reporting of Student Rating of Instruction (SROI). Seek support from the ITS management team and the Academic Deans and Directors for new position of Executive Information System and the necessity of employing an Intranet Database Applications Developer. Link this proposal to support for faculty Internet2 initiatives (e.g., data mining) and expanded Statistical Consulting Services.

C "Broker" new collaborations with other NDSU or HECN entities or with the private sector which leverage the strengths of the CAIT and ITS in application development and hosting services.

C Work on the SCCS program and assist in producing the SCCS 2000 program on CD-Rom and distributing copies to conferees.

C Continue in an active role in Internet2. Establish an Internet2 Advisory Committee at NDSU and host a campus Internet2 Day to familiarize faculty and staff with the I2 organization and NDSU's role in "Next Generation Internet"

C Expand campus capacity to send and receive distance education. Coordinate campus strategic plan for education at a distance.

C Work with other groups in ITS to establish a new Architecture for an Independent Development Environment.

C Support the ITS WWW Site.

C Complete the videoconferencing project and integrate the results into Learning Technologies services.
C Continue to investigate streaming audio and video and integrate it into the core services.

C Automate the IVN Technician time card process.

C Investigate partnerships with Prairie Public TV.

C Provide ID cards for all IVN distance education students by fall that also contain a barcode.

C Continue to assist the Technology Enhanced Learning Sircle (TELS) group.

C The summer Academic Technology Partnership (ATP) program is a highly intensive program in which faculty collaborate with CAIT staff to develop custom instructional multimedia courseware. Over the past two years, the ATP projects have become increasingly more sophisticated in nature, and as a result, typically take an average of 4-6 months to design, develop, test, and implement. In an effort to reach a greater number of faculty (and consequently students), the CAIT's future services will focus on developing distributed learning tools, cross-discipline or departmental multimedia courseware, and distributed learning course design. The CAIT projects will focus on Internet-based, multiuser environments with database connectivity, in addition to developing reusable objects that can be used by other schools or other developers.

C CAIT is also investigating potential partnerships with NDSU University Relations and SENDIT to design and develop multimedia systems. CAIT will work more closely with other ITS groups; in particular, with the ITS Server Systems group to create systems that are 100% percent compatible with the systems supported by ITS Server Systems group.

C Update/convert OMR scanning software from NCS Scanworks for the Macintosh to NCS ScanTools for Windows95. Migrate test scoring code from IBM RS6000 (vision.nodak.edu) to the new Sun server.

C A number of enhancements to the OMR test scoring service are under consideration with the intent of implementing at least some of these over the coming year. These include enhancing the output, making some additional portions accessible via web browsers, and adding some new features such as the ability to score multiple versions of an exam in one run.

C Continue to improve the Student Rating of Instruction system. Possible enhancements include making some of the reports available via web browser and the development of an historical data warehouse which could be used for long term monitoring of student satisfaction of various programs.

**Information Services**

C One of the major goals of the Information Services unit is to continue to collaborate with other groups in ITS to provide “total IT solutions” for our constituents. In doing this there are many projects we will work on as teams. There are also unmet needs that we must
address, such as the incorporation of automated tools to help improve processes now done manually. Most importantly, we must communicate on a regular basis with the NDSU campus and the HECN.

**Major plans for this coming year include:**

- Offer a “Training-Track” type of opportunity for trainers and training providers in higher education. This may once again be offered through the Small College computing Symposium or we may explore other venues.

- Redesign ITS training web pages for the end user. An effort is being made to make the pages more user friendly and less cumbersome for those attempting to find out more about training offerings and wishing to sign up for training.

- Continue to expand and offer training on more topics.

- Provide and coordinate training for the NDUS.

- Work with other groups in ITS to investigate streaming video for ITS/campus training opportunities.

- Work with other groups in ITS to bring high-end multimedia solutions into the "mainstream."

- Expand the services of the Technology Learning Center in order to better accommodate the varied needs of learners. Multiple delivery methods such as web-based and cd-rom based training, self-paced materials and tutorials, and individual and small group assistance could be utilized. A resource library would further enhance these delivery methods. The identification of appropriate space for the Technology Learning Center is paramount.

- Continue maintenance of the Y2K compliance inventory database.

- Focus efforts on database-enabling web applications.

- Develop a plan for handling customer Y2K compliancy issues.

- Work as a team in ITS and with the campus community to move production jobs from impact printing to laser printing, identifying multiple solutions for delivering administrative print services, as identified by the administrative printing task force.

- Work with the HECN to expand the cooperative Help Desk concept. This will include collaboration with the HECN Remedy implementation team to employ the Remedy web and java clients and to roll out the Remedy help desk application to other HECN campuses. We will continue to use the tool to manage help desk contacts and to provide information to build pro-active solutions. As part of the Remedy project, we will work with other ITS work groups and technical support groups within the HECN to build a solutions database.
• Work with the UND Help Desk to build a web tool for outage notifications that will standardize the information, automate some of the process, and track the notifications in a database.

• Coordinate documentation development with other campuses, working with web developers to provide documentation in a user-friendly environment that is available for both NDSU and HECN users.

• Implement the HECN application software services and funding proposal, and refine the process for tracking requests and the contract negotiation process.

C Implement a system to keep track of all equipment on ITS' replacement cycle.

C Implement a web site for project information/status in ITS which will give information to ITS staff and the campus community.

C Begin working on an online information guide for students in the residence halls and off campus.

C A major goal this next year is to redefine the enterprise desktop support model, using tools to automate software distribution.

C Begin planning for the implementation of a "Class of Service" model for the clusters during FY 2000-2001, investigating individual logins for cluster use.

C Begin investigating methods for determining printing quotas/numbers in the clusters.

C Support the development of instrumented classrooms.

C Migrate computer clusters to a Windows NT or Windows 2000 platform.

• Implement an Acceptable Use “saturation campaign” which educates the HECN community on issues of responsible use.

C Implement a new policy as required of online service providers by the federal Digital Millennium Copyright Act (DMCA). Dick Jacobson is the "Designated Agent" under terms of the act.

C Participate in a Great Plains Network (GPN) project to implement native multicasting throughout the Internet2. This will require changes in both our GPN routers and local networks and routers.
C Evaluate the best strategy for "commodity Internet" connectivity at the same time changes are planned in the GPN structure to connect through the University of Minnesota. Options are being weighed based on cost, robustness, reliability, and future growth.

C Move LISTSERV to a new server after doing some special Y2K testing. The new server will have a faster processor, more disk capacity, and enhanced data access.

- We will continue to work in an active role in I2 and GPN initiatives

C We will continue to provide leadership for Mbone and Internet monitoring initiatives.

- We will continue working with K-12 organizations, focusing on new opportunities and initiatives, as they become available. Other initiatives include identifying new services to deliver to the K-12 community, expand SENDIT WAN consulting and support opportunities, and enhance the SENDIT help desk. Local area network consulting services will be implemented this year.

C Incorporate existing ND SchoolNet network into the State network for expansion purposes and to comply with SB2043.

- Provide Cisco Networking Academies training and support.
- Implement audio/video streaming training and support for the K-12 community.

C Continue working with the NDEA, TNT, and other K-12 organizations.

C Participate in the Milken Virtual Workspace Initiative.

**Networking and Server Systems**

C The Server Group will continue to emphasize the concept of a highly distributed service architecture. This will require the ongoing development and implementation of technologies that will permit the centralized management and control of services. Ongoing work will continue to develop Kerdap libraries which fuse Kerberos and LDAP directory into an enterprise management tool. Additional resources will be invested into developing application programming tools which will allow WEB developers the ability to authenticate users and authorize access to applications.

C Following this theme, a major focus will be to support the development of applications which are specific to the needs of faculty and researchers. The new WEB server hardware which was deployed last year will need to be coupled with application development tools to allow the rapid development and deployment of distributed applications. The next year will see the deployment of Java based development resources and the increasing use of object based programming aids such as CORBA.
The overall goal will be to use the fruits of the server consolidation project to increase the emphasis that can be applied to meeting the needs of the user community. The hope is that last year's investment in increasing the manageability of the server architecture, coupled with the increased use of commodity components, will allow more resources of the Server Group to be focused on meeting the needs of application development.

The management and deployment of storage will also be a significant issue in the upcoming year. Indications from test projects suggest that the increasing use of the WEB as an instructional aide and an increasing role in distance education will require significant amounts of multimedia resources such as video and sound. This in turn will significantly increase the amount of disk storage and network bandwidth that will be needed to store and deliver the multimedia content. The last year's investment in Storage Area Networking and enhanced networking will need to be extended in order to meet this need.
The ITS Organization & Staff

Communication and Work Environment Focus

C Nothing in technology is stagnate---changes are continuous and often rapid. To let clients know of new or changing services articles appear in *It’s Happening at State* on a regular basis. The publication, help@ndsu, an informational guide for users, continues to be a helpful publication. A newsletter for faculty and staff, was initiated by Help Desk staff to provide for ongoing communication about new services, new initiatives, and offers a variety of computing tips. The need to enhance internal communication resulted in the creation of a monthly internal publication called the *ITS Changing Times*. This publication serves to provide “snippets” of information about the numerous projects being investigated or worked on by staff members. ITS will continue to seek ways to better communication both internally and externally with its customers.

C ITS has always focused on providing a work environment which offers staff optimum opportunities to learn, to collaborate and to enjoy a fun-filled work place. To assist in meeting organization and individual needs, work groups have been innovative in finding creative ways to offer staff flexible working schedules. This has proven to be a very popular benefit to many staff.

Student Opportunities

ITS is aided by 80-100 students who have opportunities to work side-by side with permanent staff. Students are able to use many of the text-book principles through “hands-on” field experiences. ITS staff serve as mentors, guiding students in acquiring technical knowledge, supervisory responsibility, and leadership skills. Graduate students as well, have played significant roles in helping the Statistical Consulting work group. In addition, many of the enhancements to the Legislative Bill Tracking System were conducted by Brian Peasland, graduate student.

In September 1998, ITS staff worked together to coordinate the first ever, ITS student employee orientation. This orientation was comprised of a full day of activities to orient student employees to ITS staff, services, and expectations. The required annual safety training was also incorporated into this event. The event was so successful that it will become an annual function.

Service Awards

*The following were inducted into the NDSU Century Club for 25 years of dedicated service:*

- Cheryl Swanson
- Diane Clark
- Terrance Wieland

*The following were honored for years of service:*

- James Hughes 20 yrs
- Nancy Lilleberg 20 yrs
- Sheree Kornkven 10 yrs
- Jody French 5 yrs
Papers and Presentations:
C Bonnie presented at the annual Internet2 meeting in April. Her presentation was titled “Beyond the Backbone: Making Internet2 a Reality.”

C Elizabeth Smith presented a paper entitled “Coordinated Multimedia Production Teams” at the Collaboration Virtual Conference: Teaching & Learning in Using the web to teach qualitative research, October 1998.

C Elizabeth also made presentations at the meetings of the National Council on Family Relations in Milwaukee, WI in November.

C Elizabeth Smith presented "Technology in Higher Education" to the Fargo Moorhead Chamber of Commerce Leadership Program.


C Nancy Lilleberg, Craig Johnson, Lorna Olsen, and Sheree Kornkven all presented various training workshops at the Small College Computing Symposium in LaCrosse, WI.

Other Recognitions/Training:
C This past year Brian Abraham received the Classified Staff Recognition Award in the professional category for his contributions to NDSU. This award demonstrates the dedication and value that Brian brings to the campus in his efforts to provide students, faculty and staff with excellent service.

C Elizabeth Smith received M.S. (Master's Degree), NDSU, December 1998.

C Marrie Puckett earned her Bachelors of Science Degree from the University of Mary, Fargo, ND, May 1999.

C Mark Standring received the designation of Certified Novell Engineer (CNE) for both Novell 4 and 5. He also became a Microsoft Certified Professional for NT workstation.

C Since 1990, Marty Hoag has provided support for the global KIDLINK project for children 10-15 by hosting a number of e-mail lists for the group. On June 9, 1999, KIDLINK won the Global Bangemann Challenge presented by the King of Sweden in the "IT in all forms of education" category. (See http://www.challenge.stockholm.se/ and http://www.kidlink.org/)

C Lorna Olsen participated in Frontline Leadership Training, Fall 1998.
Chronological Organizational Changes

- Brian Todd  7/8/98: Resigned to join local business firm
- Mark Helmowski  7/24/98: Took teaching position in Granite Falls, MN
- James Silvernagel  8/10/98: Became a fulltime Help Desk consultant
- Shawn Froelich  9/8/98: Hired as part of Client Services group
- Melissa Stotz  10/1/98: Joined Cluster Facilities group to help support Classroom Technology
- Dennis Amundson  12/31/98: Moved to Minneapolis
- Francis Larson  2/1/99: Temporary 6 months funded position in support of enhancing research
- Jeff Schoenack  2/1/99: Moved from NDSU’s Varsity Mart to Client Services group
- Ludvik Herrera  2/8/99: Moved to NDSU’s President’s Office
- Osman Keric  2/19/99: Resigned to work with local business
- Sharon Fangsrud  3/1/99: Hired as Administrative Secretary

The following staff were reclassified FY98-99: Marrie Puckett, Carol Tschakert, Joel Writer
APPENDIX

The following equipment is available for check out by faculty and staff at the helpdesk:

- 3 data projectors
- 5 Dell Pentium notebooks
- 1 Macintosh notebook
- 2 portable document cameras
- 1 Zip drive
- 1 VCR

The following buildings have multimedia carts located in them, they include a data projector, a VCR, and some carts have a document camera. They are available for check out by faculty and staff at the helpdesk:

- Ag Engineering
- Art Quonset
- Askanase
- Bentson/Bunker
- Bison Sports Arena
- CME Engineering/Arch (2)
- EML/FLC
- IACC
- Library
- Loftsgard/Walster
- Minard
- Memorial Union
- Morrill
- Music Building
- Robinson
- South Engineering
- Stevens
- Sudro
- Van Es