



2008

Information Technology Systems and Services

Doris Bornhoeft
University of North Dakota

Follow this and additional works at: <https://commons.und.edu/departmental-histories>



Part of the [Computer Engineering Commons](#)

Recommended Citation

Bornhoeft, Doris, "Information Technology Systems and Services" (2008). *UND Departmental Histories*. 79.
<https://commons.und.edu/departmental-histories/79>

This Book is brought to you for free and open access by the Elwyn B. Robinson Department of Special Collections at UND Scholarly Commons. It has been accepted for inclusion in UND Departmental Histories by an authorized administrator of UND Scholarly Commons. For more information, please contact zeinebyousif@library.und.edu.



UNIVERSITY OF NORTH DAKOTA
1883-2008
CELEBRATING 125 YEARS

INFORMATION TECHNOLOGY
SYSTEMS AND SERVICES

Compiled by Doris Bornhoeft



History of Information Technology Systems and Services

Imagine a time before computers. Imagine asking if anyone was interested in having “a” computer on campus. Now imagine that only one faculty member expressed interest. That’s what happened in 1958. That August, the Dean of the College of Business and Public Administration, interested in computers as an educational tool, polled faculty to determine on-campus interest in a computer at the University of North Dakota. This initial interest on the part of the Dean and a few other University officials resulted in the creation of the Computer Center (now known as Information Technology Systems and Services).

The following pages provide a brief overview of the history of the Center in chronological order. Information was culled from Annual Reports and input from staff and former staff. The format of Annual Reports changed over time; therefore pertinent information is no doubt missing. Milestones are presented but not the details of what went into making those tasks possible. Major accomplishments such as creating the first administrative system or customizing and implementing the current PeopleSoft system required countless hours of hard work and dedication to bring them to fruition.

Additional information is available in the following Appendices:

- Appendix A: Key Personnel
- Appendix B: Timeline of Key Computer Systems
- Appendix C: Personal Reflections by ITSS Staff
- Appendix D: Photos

And now, a brief history of the Department of ITSS

1960s

The first computer was installed in September of 1961 (see Appendix B for specific configuration information). The Center was located in the College of Business and Public Administration. The first full-time employee was a keypunch operator employed in November of 1962. The Center was managed, on a part-time basis, by a faculty member in the College of Business and Public Administration.

In early 1963 the Center had outgrown the facilities at the College of Business and moved to Twamley Hall. By 1965 it had become apparent that a much larger computer was needed to serve the University of North Dakota. A computer committee consisting of faculty and administrative officials was formed to study the need for computers in both the administrative and instructional areas. The result of this study was an immediate order for an additional computer for installation in December of 1966. At that time, the responsibility for the Computer Center was transferred from the College of Business and Public Administration to the Vice President for Academic Affairs.

In 1967, the first director of all computing on campus was appointed. This new position encompassed both administrative and academic computing, including software development activities. The director of the Computer Center continued to report to the Vice President for Academic Affairs.

By 1968, test scoring services were offered using the 1230 Optical Mark Scoring Reader. Many faculty and staff attended workshops over the next couple years on such topics as "Introduction to Computing" and "FORTRAN Programming."

Beginning the spring of 1968, the Computer Center sponsored a Small College Computing Symposium. This symposium provided an opportunity for college professors and administrators in the region to exchange ideas and hear formal presentations involving the use of computers in instruction. The Center continued to sponsor the Symposium for the next eight years before other participating schools began hosting.

1970s

By 1970, the computer had once again been upgraded. The Computer Center consisted of three departments: Academic Systems, Administrative System Data Processing, and Computer Operations.

The Academic Systems department was responsible for helping faculty and students write and execute programs as well as design and implement other programs for general educational and research purposes.

The Administrative System Data Processing department was responsible for administrative and business applications of the University. These applications included registration records, payroll maintenance and equipment inventory.

The Computer Operations department was responsible for the efficient operation of the Computer, peripheral equipment and execution of the programs that were received at the reception desk. The computer was kept active 24 hours a day, seven days a week.

A separate (new) position was added in the Computer Center to promote knowledge and use of computers by faculty and students in 1970. The Center hosted a National Science Foundation sponsored Summer Fellowship on Computer Supplemented Instruction for teachers.

Physically the departments were spread across several floors in Twamley. A reception room with four keypunch machines was located in Room 103. The Computer Operations department was located in Room 101. The Data Processing and Academic Programming departments were located in Rooms 411 and 415 respectively. A dumb waiter was utilized between the Operations area and the Registrar's Office for quick transfer of forms, printouts etc.

In 1971, the Computer Center hosted the second National Science Foundation sponsored Summer Fellowship on Computer Supplemented Instruction for teachers. Personal computing in the form of a PDP8 single user computer system was provided. The interface used was a teletype machine with paper tape.

The 1972-73 school year saw significant expansions in Computer Center responsibilities. Individual institutions within the North Dakota University System had struggled to provide computing resources on their campuses. With limited funding, it seemed that sharing resources on a state-wide level would benefit each campus. The director of the Computer Center, and his staff were convinced of this and with the approval of UND President Clifford, he proposed such a system to state government. As a result of the support of key individuals, the Higher

Education Computer Network (HECN) was formed. The HECN, funded by the 1973 State Legislature, used the UND Computer Center as its central facility and ultimately provided services to campuses located in Bismarck, Bottineau, Dickinson, Fargo, Mayville, Valley City, Wahpeton, Devil's Lake (Lake Region), Minot, Grand Forks, and Williston. It was implemented in September 1, 1973 with the installation of remote job entry terminals at Dickinson and Valley City State Colleges. Graduate programs were located at the two Air Force Bases located in North Dakota. UND's home grown payroll system was available for the other colleges in the state in November of that year.

In addition to serving the HECN and UND campus, the Institute for Computer Use in Education (ICUE), a computer loan service, was available to local high schools and colleges. The initial computers loaned were PDP8s. These were changed to much less expensive Radio Shack TRS80s later.

The Man-in-the Sea project simulates environmental, physiologic and psychological situations that man will encounter in the underwater world. An IBM 1802 digital computer aids a computer controlled deep sea simulator study ocean environmental effects on mammalian learning, memory, behavior, physiology and biochemistry.

During the 1973-74 school year, a significant commitment to improve administrative data processing resulted in approval for an on-line computer data entry and retrieval system. The Customer Information Control System (CICS) was installed to support this concept. UND staff would now be able to enter information at their desk.

The University of North Dakota added timesharing capability within the Computer Center in 1972. Time-sharing enabled more than one user to use the computer from different locations at the same time. In 1974, the Center began operation of the Grand Forks Schools timeshared computer system.

The Center had outgrown its space in Twamley and moved to the new Engineering building in 1974. Staff were now located in the basement and third floor of Upson II. Full-time staff members had grown from 11 people in 1967 to 26 people in 1969 and 28 people in 1975. In the fall of 1967, approximately 458 students were enrolled in programming classes at UND. By the fall of 1975, over 800 students were enrolled in programming classes.

By 1975, there were a total of 200 computer accounts. Key punch and timesharing terminals were located in Wilkerson Hall. Mayville State was added to the HECN.

In 1976, the Center had expanded to five departments: Administrative Systems, Operations, Academic Systems, HECN, and the Institute for Computer Use in Education. The Medical Center Rehabilitation Hospital, which was running administrative data at UND, installed a remote intelligent terminal to allow input to be sent directly from the hospital.

1977 saw another change in responsibilities for the Center. UND was designated as the Administrative Processing Center for State Higher Education, and North Dakota State University (NDSU) was designated the Academic Computing Center for the HECN. This meant that the mainframe located at UND was utilized for predominantly administrative services. Researchers, faculty and students utilized the mainframe located at NDSU via the VSPC (Virtual Systems Personal Computing) time-sharing system. Computer Center staff, in conjunction with the NDSU Computer Center Academic Services staff, provided end-user support to remote users of VSPC.

User Services (end-user support) became a separate department in 1979 and provided training for various products such as VSPC, SAS (Statistical Analysis System), and JCL (Job Control Language).

1980s

By 1980 the Uniform Student Records system was installed and WYLBUR became the interactive editor and remote job entry system. Labs were available for faculty and students to run programs. These labs consisted of terminal clusters in the Memorial Union (6 terminals), Chester Fritz Library (9 terminals) and Upson II (16 terminals). The terminals replaced punch cards as the means of submitting programs.

1981 marked the beginning of a shift from dial-up access. 376 administrative system terminals connected via coaxial cable were located in UND offices. PACX lines replaced the telephone acoustic coupler (300 bits per second) used for dial-up access to connect to the Academic system. The Institute for Computer Use in Education (ICUE) shifted from loaning computers to high schools to workshops on microcomputers.

In 1982, the conversion to PACX continued. UND now had 26 1200 Baud dial-up lines. The System Status phone number (777-3300) was implemented. You could call anytime of the day to find out if the system was up. This number continued to be used 20 years later. A total of seven, that's right, seven, microcomputers were added to the terminal clusters in the Chester Fritz Library (5) and Upson II (2).

The UND President and each Vice President received a personal computer (PC) and attended a workshop to introduce them to spreadsheets and word processing using a PC.

Computing moved beyond state lines in 1983. The Computer Center joined BITNET (Because It's There Network). This network provided access to computers located at other educational and research institutions across North America, Europe and the Persian Gulf. A side use of BITNET was e-mail communication among faculty and researchers. BITNET was a pre-cursor to the Internet.

Sixteen microcomputers and printers were added to the clusters in 1984. Workshops offered included: CMS, VSPC, SAS, BASIC, PC-Write, Introduction to the IBM PC, WordPerfect, and Appleworks. Laser printers started to appear on campus. The Center had outgrown its space in Upson II and the programming staff relocated to Medical Science North.

By 1988 the Gandalf Starmaster provided 1300 connections to the network. E-mail was becoming more widespread and training was added to the classes offered. Researchers used computers located at Palo Alto Scientific Center, Cornell, and Boeing.

The lab clusters had the following equipment:

- Upson II - 24 PCs, 13 AT, 5 terminals, 1 IBM printer, 2 tectronic graphics terminals, 2 macintosh, 2 letter quality printers, and 16 dot matrix printers.
- Memorial Union - 11 Macintosh SEs, 2 HP Laser printers, 1 Apple Laserwriter, 8 terminals, 1 IBM 3268 printer, and 2 letter quality printers.
- Chester Fritz Library - 22 Mac SEs, 8 Apple Iles, 8 PCs, and 8 Letter quality printers.
- Gamble Hall - 24 Zenith Z19 terminals, 2 IBM mainframe printers.
- Center for Aerospace Sciences (CAS) - 7 IBM 3178 CRTs & 1 mainframe printer.

A computer for the automated library system (ODIN -- Online Dakota Information Network) was installed in 1989. Originally conceived as a UND on-line library system, it quickly became the central library software server for all University System campuses. It was used by UND faculty, staff and students; other HECN institutions, and public library patrons across the state. Users were able to access the on-line card catalog via dedicated library terminals, ASCII and 3270 terminals on campus, as-well-as dial-in.

1990s

The early 1990s saw a major change for students at UND and the other University System campuses. A Voice Response Unit (VRU) for touch tone registration was installed in 1990. An uninterruptible power supply (UPS) was installed, ensuring that the computer system would continue to function even when the power went out.

1991 marked two auspicious events for computing at UND. The Computer Center celebrated its 40th Anniversary and the campus was about to embark on a journey that would completely change computing. An NSF award to UND and NDSU began Internet access for North Dakota through NorthWestNet via a 56 kilobits per second (kbps) backbone to Seattle.

In 1992 the Upson Lab had 16 IBM Model 55s with DOS 5.0, Windows 3.0, MSWorks 2.0, MS Word 1.1, and Kermit for connecting to the mainframe.

By 1993, the Internet was having more of an impact on daily campus life. A test Gopher server was brought on-line; information included the University Letter, the Computer Center Notes newsletter, Computer Center User Notes (instructions), and training information. The Academic systems at NDSU consisted of an IBM mainframe running CMS (vm1.nodak.edu) and two UNIX hosts, Plains.nodak.edu (Solborne 5/802 with Sun O/S) and Badlands.nodak.edu (IBM RS/6000 with IBM AIX). Popular services provided by the academic systems were e-mail, statistical analysis software such as SAS, and programming languages. E-mail for non-administrative users was spread across three domains. Addresses for academic HECN users were either @badlands.nodak.edu, @plains.nodak.edu, or @prairie.nodak.edu.

In 1995, access to the Internet via SLIP dial-up connections was available over high-speed modems (14.4 baud). Computer users were able to access their e-mail and computer programs from home via these connections. March saw the unveiling of the UNDIInfo Campus Information System in both gopher and web formats. This was a joint project between the Office of University Relations which managed the content and the Computer Center which managed the technical side.

The Computer Center now had its own training room with the addition of the Multi-media Training Room in Upson II 361. Classes had been taught in the general purpose labs in the Memorial Union and the addition of this dedicated facility freed up the Union labs for student use.

The programming staff was on the move again, this time from Medical Science North to the third floor of Leonard. They were now only a building away from the rest of the Computer Center staff.

1996 saw the addition of an Introductory Web Creation (HTML) class. Dial-up users now had access to over 180 modems (14.4 & 28.8 baud), and the Residence Halls were added to the campus network. The academic CMS host was retired on May 31 and faculty and students moved to the UNIX Operating System requiring new training courses to aid in the transition.

1997

1997 was definitely not an uneventful year. Following a difficult winter of multiple blizzards and an ice storm in early April the Red River left its banks and ultimately the majority of the city was evacuated. Friday, April 18th, UND closed and one computer operator remained on duty; the machine room was located in the basement so there was concern about flooding.

As the evacuation orders were given for the city, the decision was made to move the administrative computer to the North Dakota State University campus in Fargo. The computers in the machine room were powered down on April 19th and 20th. IBM technicians and volunteers moved the equipment to the third floor in preparation for the move to NDSU. Volunteers came in from the area to help carry equipment and even provide a truck since a majority of computer center staff had already been forced to evacuate the city.

The IBM mainframe and Unisys processors were trucked to their "new home" at NDSU on April 21. The seventy mile drive took over three hours over rough detours due to flood waters. Other servers, such as the e-mail and web servers, remain on the third floor of Upson II and are brought back into production.

Once it was decided to move the mainframe, the planning priority was the HECN April 30th payroll and ongoing registration at the ten other HECN campuses. Over 8,000 computer tapes had been relocated to various bank vaults in the area and needed to be brought to NDSU and reorganized as they were necessary to get the systems back up and running in their new location. The mainframe was reinstalled at NDSU on April 22nd. The estimated date to begin processing was Friday, April 25th.

On April 23 the IBM mainframe was IPL'd (restarted). Testing ran through the night and into the next day. UNInfo, the UND campus information system was back online from its temporary location on the third floor of Upson II. The flood information page was updated from temporary offices at NDSU from information sent via FAX, e-mail or phone calls from people still at the UND campus. The information addressed issues such as: grades, building status, will we get paid, etc.

Processing on the IBM system resumed for the HECN on April 24 in the late afternoon and payroll began. Other Computer Center servers were back online in temporary locations by April 25.

The tradition of having never missed a payroll continued. By Monday, April 28 - After a processor card had to be replaced, the last of the campus payrolls completed.

Many city residents were able to return to their homes by May 1, two weeks after the initial evacuations. The administrative mainframes and support staff remained in Fargo until May 16, continuing normal processing and dealing with occasional hardware failures.

Planning was in place to return the computers to UND on May 17th and preparations were made for the return trip. Lab computers were returned to the basement lab in Upson II and security cables which had been cut during the evacuation were also replaced. Smaller servers were moved from their temporary location on the third floor back to the machine room in the basement.

On Saturday, May 17, the IBM and Unisys computers were disconnected and loaded onto trucks and returned to UND. The systems were reinstalled; IBM technicians IPL'd and tested the systems and normal processing resumed by midnight. All-in-all much smoother than the trip to Fargo!

Of the fifty full-time Computer Center staff, thirty-seven were evacuated from their homes. By the end of August, nineteen were back in their homes having experienced substantial damage in the lowest level, six of the remaining eighteen were not able to return to their homes due to the damage.

1998 - 1999

After the excitement of 1997 it would seem that life at the Computer Center could return to normal. Instead a little thing called "Y2K" loomed on the horizon. Year 2000 testing, remediation, and contingency planning were the highest priorities, not only for the administrative system programmers, but also for the network services and desktop support staff.

Administrative systems and processes were tested and modified as necessary to ensure that all programs continued to run properly. Every computer system on campus was reviewed and either deemed as Y2K compatible or replaced.

A 1998 NSF award to UND and NDSU along with South Dakota State University, University of South Dakota and the South Dakota School of Mines and Technology provided funds to partner with Midwestern states to form the Great Plains Network for access to Internet2, the higher education research and education network.

The Computer Learning Lab (Memorial Union) and the Help Desk at Upson II moved into newly remodeled spaces. The Help Desk moved from a phone-in operation to a phone-in, drop-in center within the Center offices on third floor Upson II. Staffing increased from one full-time person to three. The Remedy Help Desk software was implemented to report and track customer requests and problems. The Remedy tracking software was implemented for the Help Desk as a joint project for the HECN.

U-mail, the UND general purpose e-mail system was added to provide e-mail for faculty, staff and all students. Prior to U-mail, e-mail was available either via GroupWise (for administrative offices) or the HECN e-mail servers located at NDSU (plains, badlands and prairie).

In February, 1999, ODIN celebrated its 10th Anniversary and hit its two millionth title. ODIN was now accessible via the web, with remote access to SearchBank using an ODIN barcode and password.

NewsBytes, the Computer Center newsletter, changed from paper copy to web-based. User Notes, one-page help documents also moved to web-based vs. paper.

A full-time trainer was hired in 1998 resulting in expanded course offerings. Training topics included: MS Office (Access, Excel, Word, PowerPoint), Eudora, Netscape, GroupWise, Windows95, and WordPerfect. Over 1100 attendees participated in fourteen different courses.

On the Administrative Information Services front, the Data Warehouse Project provided improved access to financial and student record information.

2000's

Staff breathed a sigh of relief after their hard work was rewarded and Y2K was uneventful! U- web the student web server was implemented in 2000. This server was funded by a UND Student Technology Fee grant to purchase the initial hardware and software.

2001

Departmental staff was now able to view mainframe reports using VPS PageCenter Web Access via their favorite web browser. The accounting services fund summary/fund transaction information plus student class lists were available via PageCenter. Rather than waiting for reports to be printed and distributed, staff could view the report on-line and print to a local printer or download for use in other software programs, such as Excel.

2002

On January 1, 2002, the UND Computer Center changed its name to Information Technology Systems and Services (ITSS). Telecommunications merged with ITSS on July 1. The ITSS staff now numbered 59 – 20 FTE of UND and 38 FTE of NDUS. Thirty-eight students staffed the general-purpose computer clusters and assisted technical and support staff. ITSS staff now spread across four different locations: telecommunications in Carnegie, programmers on 3rd floor of Leonard, operations & network services in the basement of Upson II; and office, support services and technical services on 3rd floor of Upson II.

Accomplishments for the year included:

- Help Center handled 23,247 calls & entered 4,283 customer support requests (Remedy tickets)
- Training – 109 workshops with 522 participants
- LAN server group hosted 22 systems for other departments
- Nearly 148,000 customer visits for Union and Chester Fritz Library labs
- 7,971 U-mail and 1,100 GroupWise accounts
- DSL was added for university apartments
- WebALFI implemented – students were now able to register and access financial aid via the web
- AIS legacy system development & maintenance were scaled back as efforts were focused on ConnectND. ConnectND, a joint project between the North Dakota University System (NDUS) and North Dakota state government, implemented the PeopleSoft's Enterprise Resource Planning software system to replace the home-grown NDUS academic and administrative computer functions (commonly known as CICS) and state government computer functions. Those systems included student administration on campuses, and financial and human resource applications throughout the university system and state government. AIS staff were supporting the home-grown legacy system, implementing the functionality of the new system, and providing training.

2002-2003

ConnectND was the highest priority and required long staff hours, new skill development and transferring of staff with Microsoft OS background to the project in order to meet aggressive timelines. ConnectND was made available to the pilot campuses – Mayville State and Valley City State.

The Help Desk expanded to provide state-wide support 20 hours/day, seven days a week (20X7). This effort was coordinated with the North Dakota State University Information Technology Services department to allow problem reporting and resolution for all NDUS campuses even when their local help desk was not staffed.

ITSS now had 72 staff – 30 FTE (UND) and 40.65 (NDUS). The general purpose computer labs were staffed by 41 students.

2004-2005

Due to the nature of distributed computing, security became even more of an issue. Fall 2003, a computer virus infected hundreds of computers on the Residence Hall network and impacted network performance campus-wide. As a result, Perfigo, a network admission control service, was implemented in the residence halls to authenticate users and check for up-to-date anti-virus software and operating system patches prior to allowing network access.

In response to growing security issues, a campus IT Security Officer (ITSO) position was created and housed within ITSS. The ITSO worked with the campus community to help protect the confidentiality, integrity and availability of information and computer resources.

The main portion of the ConnectND implementation was completed on five non-pilot campuses (Bismarck State College, Dickinson State University, Lake Region State College, North Dakota State College of Science and Williston State College) in late June and July 2004

2005

HRMS and Financial systems were implemented in January 2005 at Minot State University, Minot State University-Bottineau, North Dakota State University and the University of North Dakota. The Student administration system was implemented by July.

The UND Help Desk received 20,315 calls placed to 777-2222 (separate from NDUS 800 service). The UND Help Desk also entered 18,496 customer support requests (includes HECN calls).

The ITSS server group administered 103 UND servers (for central and individual department services) and hosted (and funded administration of) 47 servers in the Research Cluster. This number increased as service needs increased and administrators required a secure environment with redundant electric power, and redundant network connections.

The ITSS Server group funded by NDUS also administered 114 servers for ConnectND, HECN and ODIN systems. ITSS provided 14,530 campus e-mail accounts for students, faculty and staff; 13,000 U-Mail accounts and 1,530 GroupWise Accounts.

Gigabit connected hosts increased from less than 100 to nearly 300. The number of 100 Mbps ports available in campus offices and classrooms increased from ~10,500 to ~12,000.

ODIN saw the retirement of the legacy PALS system with the implementation of the Aleph Library system for NDUS, K-12, public libraries, and the state library.

2006

The Center for Instructional and Learning Technologies (CILT) merged with ITSS. CILT provided equipment, hardware, software, resources, training and support to faculty.

ITSS staff processed 1,560 tests and evaluations for the campus in the 2006 fiscal year. 598 scheduled programs are maintained every month by ITSS Staff, while another 915 programs are submitted manually each month.

The 3,361 site license and volume license software licenses distributed through ITSS saved campus departments over \$500,000. These software licenses were for products from Microsoft, Adobe, Macromedia, SPSS, SAS, ESRI, Mathematica, and AutoCAD. ITSS initiated a new program that allowed students, staff, and faculty to purchase select Microsoft products at a savings of 50% off retail.

The UND Help Desk received 17,776 calls placed to 777-2222 and 14,078 to the NDUS 800 service. The UND Help Desk also entered 22,203 customer support requests (including HECN calls). ITSS managed Student Technology Assistant (STA) Program provided student computer lab assistants in 6 academic departments with funding from the CIO Office.

Bandwidth allocation from UND to the Internet increased from 95 to 155 Mbps. Northern Tier Network Consortium planning was started to provide cost and paths for multi-gigabit network crossing ND east/west and north/south.

Cisco Clean Access (formerly known as Perfigo) was expanded to wireless coverage areas supported by ITSS and at open network outlets in the Chester Fritz Library, the Memorial Union, and for DSL users in campus apartments.

2007

The programming staff is once again on the move. This time the move was on the organization chart rather than physical. Reorganization moved the ConnectND programming and security staff from ITSS to report directly to the ConnectND Executive Director. The Student Admin Data Center staff lay the ground work for the upgrade from Student Admin 8.0 to Campus Solutions 9.0. Planning was ongoing for this upgrade as well as the upgrade of PeopleTools and the change of database from SQL Server to Oracle.

Lynn Kubeck, the first full-time CIO for UND started in August. Previously, the CIO position was a part-time position and had been filled by the Dean of Continuing Education and then by the ITSS Director for two years on an interim basis.

Summary

This brief history of the Information Technology Systems and Services department at UND only begins to tell the story. Behind each accomplishment are untold hours of planning and implementation by ITSS staff and end-users. Additional information is found in the Appendices.

Appendix A: Key Personnel

UND has been fortunate in that ITSS has a long history of dedicated and talented staff. Many of the early implementers of the original computer system stayed at UND until their retirement. To list all the past and current employees would be a daunting task as some of that information is not available. Key administrative personnel will be listed and apologies to anyone left out.

1962

Caryl Pederson – first full-time employee and continues as a current employee.

1967

Con Dietz -- Computer Center Director

Dale Vetter – Assistant Director

1970

Con Dietz – Director

Dale Vetter – Assistant Director and Data Processing Manager

Al Lindem – Academic Programming Manager

Ken Bushaw – Computer Operations Supervisor

Caryl Pederson – Key punch Services Supervisor

Special Consultants:

Gene Kemper – Senior Consultant

John D. Williams – Statistical Consultant

Bob Olson – Man-In-the-Sea

1989

Dale Vetter – Director

Dorette Dusterhoft – User Services Manager

Jim Rask – Administrative Services Manager

Nadine Kotowicz – Computer Operations Manager

Marv Hanson – Technical Services Manager

Pete Sterle – Accountant

1997 January

Dave Vetter – Director

Nadine Katowicz – Manger Computer Operations

Marv Hanson – Manager Database Administration/Technical Services

Greg Herndon – Manager Network Services

Ben Morgan – Manager Administrative Systems

Dorette Kerian – Manager User Services

1997 September

Dale Vetter – Director

Marv Hanson, Associate Director Technical Services

Greg Herndon, Associate Director Network Services

Orrin Johnson, Interim Associate Director Administrative Systems

Dorette Kerian, Associate Director User Services

1998

Dale Vetter – Director

Dorette Kerian, Associate Director User Services

Marv Hanson, Associate Director Technical Services
Greg Chalmers, Associate Director Administrative Information Systems

1999

Dorette Kerian, Interim Director

2002 April

Dorette Kerian, Director

Marv Hanson, Associate Director Technical Services

Craig Cerkowski, Associate Director User Services

Jeff Kadlec, Associate Director Administrative Services

2002 August

Dorette Kerian, Director

Marv Hanson, Associate Director Technical Services

Craig Cerkowski, Associate Director User Services

Nancy Haskins, Associate Director Administrative Services

2006

Dorette Kerian, ITSS Director and Interim CIO

Marv Hanson, Associate Director Technical Services

Craig Cerkowski, Associate Director User Services

Appendix B: History of Computer Systems at UND

| Year | Summary of System |
|-------|--|
| 1961 | An IBM 407 accounting machine with collator and sorter was the first computer installed. A month later a 1620 computing system was installed. |
| 1966 | An IBM 360, Model 30 computing system with 32,000 bytes of memory, 21 million bytes of disk storage, a 600 line per minute printer, and a 1442 card read punch installed at UND. This system replaced the IBM 1620 and unit record equipment including two 407's. |
| 1967 | An IBM 2415 dual tape drive and control was installed at UND. |
| 1968 | IBM System 360 Model 30 with 65KB of core storage, 3 type 2311 disk units, a tape drive, card punch and reader, and a high speed printer (600 lines/minute, 120 characters/line). An IBM 2501 card reader and 1442 card punch unit replaced the IBM 1442 card read punch. |
| 1969 | A multiprogramming and spooling system called POWER was implemented on the 360/30 and memory was increased to 64,000 bytes. |
| 1970 | The IBM System 360 Model 30 now has 128KB of memory, 4 disk drives with the total capacity of 28MB and two 9 track 800 PBI tape drives. An 1100 line per minute printer replaced a 600 line per minute printer. |
| 1971 | An IBM 360/40 computing system with 128,000 bytes of memory replaced the 360/30. A three-drive 2319 disk system tripled the on-line disk storage capability of the computing facility and provided a total of 84 million bytes. of on-line disk storage. |
| 1972 | A second 2319 providing a total of 168 million bytes of on-line disk storage was installed. In November an IBM 370/135 computing system replaced the 360/40. The 370/135 had 240,000 bytes of memory. Timesharing available via a PDP/I. |
| 1973 | An IBM 370/135 virtual computing system using the OS/VS1 operating system that provided considerably enhanced and expanded computer capability was installed at UND. Disk storage totaled 400MB and RAM was increased to 384KB with an additional 16MB of virtual memory. Disk storage totaled 400 MB and RAM is increased to 384KB with an additional 16MB virtual storage. Timesharing computing introduced using a multi-user PDP8. |
| 1974 | The system now has 800MB of disk storage. A PDP/8E replaced the PDP/I timesharing system. |
| 1977 | A whopping 1MB of memory was added. |
| 1980 | IBM 370/158 had 5MB of RAM and 1.4 gigabytes of disk was added for a total of 6 gigabytes. The Operating System was converted to MVS/SP. |
| 1982 | The Administrative system ran on 2- IBM 4341 computers, one with 12MB RAM the other with 8MB. |
| 1984 | Administrative system IBM3081D with 32MB RAM and 27.72 GB of storage. 2- 3203-5 printers (1200 lines/min). |
| 1988 | IBM 3090/200E, 128 MB RAM and 30GB storage. Researchers had access to a DEC 8530 with 48MB RAM. The Gandalf Starmaster had 1300 ports. |
| 1989 | ODIN system runs on a Unisys 2200-202 with 8MB RAM. |
| 1990s | During the early 1990s, the administrative system consisted of an IBM ES9000 (9121/480) with 256MB RAM, 422GB of disk storage, a laser printer (58 pages/min) and 2 impact printers. The VRU (Voice Response Unit) for touch tone registration was installed in 1990 and had 20 phone lines. |
| 2000s | Once the Administrative system moved from a centralized mainframe, the number of servers became too numerous to provide specific system configuration information. |

Appendix C: Personal Reflections

Caryl (Holmberg) Pederson -- First full-time employee hired in 1962 and continues to work at the Center in 2007.

I started at the University November 1962, my office was located in the basement of the Law School. My duties were to do keypunch and verify data for the center. The first 6 weeks of my working career were spent answering the phone and typing for the graduate student that came in once in a while to run something on the computer.

At the beginning of 1964 the Computer Center was moved to Twamley Hall. One of my first bosses was Percy Perius for the administrative side and Bob Fryberghouse for the academic side. Staff was added at this time and now a keypunch section was established. Ben Morgan, who I met when he was still in the Air Force, went to college here, graduated and started working for the center.

Many changes and many people were added over time, John Duryee was the manager before Dale Vetter and Conrad Deitz started. If I remember correctly, Reinhold Fischer was in charge of the academic section at this time also. A good share of the people that worked here in the early days of the center had been in the Air Force.

Dale Vetter – Retired Director

UND has yet to miss a payroll, although circumstances have caused it to come close. One such circumstance was the 1997 flood. Another near miss happened in the early 1970s during the Center's transition to the HECN administrative system. The existing UND IBM mainframe had been removed and the new system wasn't in place yet. The payroll system had been written in FORTRAN and was being run on the computer at NDSU in the interim. The job ran on cards, so Center staff drove the card deck to Fargo and submitted the job. On one such occasion, the job had been submitted and the staff member had returned to Grand Forks when it was realized that it was a new year and a percentage had changed. The card in question was changed; the person drove back to Fargo and resubmitted the job with a few minutes to spare.

Doris Bornhoeft – Senior Client Support Specialist

As a UND employee for just over 25 years and as a former student I have seen a lot of changes.

I was an undergraduate student within the state from 1972 to 1976. To register for a class, you would have to get the appropriate "card" for your class. The card was a computer card that you received by waiting in line for each department and the person would pull the card from a box if there was any space left in the class, once the cards were gone, the class was full. If the class was full, you hoped that your alternatives were available; otherwise it was back to the drawing board and perhaps another visit with your advisor. If you needed any special approvals, you had to walk around campus to the various departments to get the instructor's signature. Once you had cards for all of your classes you would go to a central location, and wait in line and finally turn your cards over to the person working the desk. What happened to those cards to finally "register" was never anything I gave any thought. If you could gather your cards and turn them in within an hour you were a happy camper.

As a graduate student from 1979 to 1982 things had definitely changed. Computers were now being used by non-computer science types. I used the HECN computer system (VSPC) to run the statistics for my thesis research using SAS. I used a paper terminal to type and submit my

programs. Everything that would now display on a monitor was printed on wide green bar paper as you typed. I also used SCRIPT to type my thesis. This involved typing the formatting codes as well as the text, running the program and finally printing the results on an impact printer. The only other option would have been to type the paper on a typewriter and retyping it with every revision.

To register for classes, you filled out your registration form and had your advisor approve it. You then went to the central location for registering at the designated day and time. The first thing you did was check the listings of closed courses and made any schedule changes necessary on your form. You then waited in the appropriate line based on your last name. Once you reached the head of the line, the person at the table would enter your schedule information using a dumb terminal. Once your registration was submitted you moved to another line and waited for your class schedule to print-out.

Jump ahead to 1999, I am once again a student taking graduate courses at UND. Registration is now done over the telephone from the comfort of my living room by dialing into the registration system and entering the necessary information on the handset. Within a few years, registration was an on-line process first using a home-written program called WebALFI and in 2005 using ConnectND, the PeopleSoft implementation for the NDUS.

Rod Angen – Database Administrator, started in 1980 as a programmer
The Financial Aid system programmers were housed in the Armory in the late 1970s/early 1980s. There were four of us in one big room. There were two terminals, so only two people could enter their programming codes at a time. Otherwise, we used coding forms to write our programs and entered them when a terminal was available. In 1981, we all got terminals at our desks!

Appendix D: Photos



UND COMPUTER CENTER

UNIVERSITY OF NORTH DAKOTA

Grand Forks, North Dakota 58201

THE UNIVERSITY

The University of North Dakota is a publicly-supported, coeducational institution situated on a beautiful campus in Grand Forks. Founded in 1883, the University is the oldest, largest, and most diversified institution of higher education in North Dakota. With an enrollment of more than 8,000 students at the Grand Forks campus, the University offers instruction in more than 50 different fields through the academic structure of 12 schools and colleges.

UND as a whole is fully accredited by the North Central Association, and the degrees offered in any of its colleges are the equal of those given by any other college or university in the nation.

THE COMPUTER CENTER

The purpose of the University of North Dakota Computer Center is to aid and improve the quality of education and research provided by the University. The UND Computer Center provides programming, consulting, and other computer services to all elements of the University community including instruction, research, administration, and some non-University users. There has been an increasing effort to bring computer oriented or supplemented classes to the students.

The UND Computer Center is located in Upson II. A reception room (room 10) with keypunch machines and terminals is provided for student and faculty use.



The computer operation itself is located in Room 11D. The Computer Center organization includes three departments: (1) The Administrative Systems Department (room 366) which is responsible for administrative and business applications on the computer; (2) The Computer Operations Department (basement level) which is responsible for the efficient operation of the computer, peripheral equipment, and the execution of programs as they are received at the reception desk; and (3) The Academic Systems Department (room 366) which is responsible for helping faculty and students write and execute programs as well as design and implement other programs for educational and research purposes.

EQUIPMENT

The UND Computer Center has grown from one IBM 407 accounting machine with a collator and sorter and an IBM 1620 computer in late 1961 to an IBM System 370 Model 135 installed in November, 1972. In addition to the 370/135 central processor which has available 384,000 bytes (characters) of memory, the computer system includes an 1,100 line per minute printer, a 600 card per minute card reader, a 160 column per second card punch, 3300 storage devices with four disk drives and a total capacity of 800 million bytes of auxiliary storage and two magnetic tape units (9 track, 600 BPI) for additional inexpensive auxiliary storage. Also available are 3277 Information Display Systems.

Off-line equipment includes a sorter, interpreter, burster, and decollator and a total of nine keypunch machines available for student use. The Computer Center also has available an IBM 1627 Drum plotter and an off-line 1230 Optical Mark Scoring Reader which can score tests of up to 150 questions in length at a maximum rate of 1,200 sheets per hour. A statistical analysis of the test can also be provided.

The Computer Center also provides a PDP-8/E, with 20,000 words of core storage, used for a small timesharing computer system. Using the BASIC conversational language, professors and students inexperienced with computers can begin to write programs in an hour or less.

SERVICES

The UND Computer Center provides a library of computer programs for which documentation is available without charge. In addition, large program packages such as CSMP (Continuous System Modeling Program), Statistical Packages, and PCS (Project Control System) are maintained and runs are available on an overnight basis. Languages available are COBOL, FORTRAN, ASSEMBLY, and PL/1. A Keypunch Section is available to key-



punch administrative, faculty, and student applications.

High school students are invited to send programs to the UND Computer Center to be run free of charge. Simulation management games have become quite popular with many high school, junior college, and UND instructors. A mail-in service with 24 hour turnaround is provided by the Computer Center with a nominal charge for computer time.



The standard operating system used on the 370/135 is OS-VSI which takes advantage of the virtual storage capability of the 370/135.

MAN-IN-THE-SEA PROJECT

An IBM 1802 digital computer has been installed to support the Man-In-The-Sea research staff. The Man-In-The-Sea staff is an interdisciplinary research team and is simulating environmental, physiologic and psychologic situations that man will encounter in the underwater world. The 1802 aids a computer controlled (DDC) deep sea simulator to study ocean environmental effects on mammalian learning, memory, behavior, physiology, and biochemistry. The life support functions in the hyperbaric chamber are also controlled by the special purpose process control computer.

OTHER SERVICES

The UND Computer Center has extended the availability of computer services to high schools and colleges in the state of North Dakota who have not had the opportunity to use computers or show their students a computer capability. Through the Higher Education Computer Network established by the North Dakota Legislature, computing services at UND have been extended to two state colleges through remote job entry terminals. Remote job entry terminals are also

located at the UND Minuteman Schools at Minot and Grand Forks Air Force Bases. Computer services were also provided to junior colleges and high schools throughout the state through the Computer Loan Service (CLS) and Terminal Loan Service (TLS). The CLS provides a remote school with a small mini-computer for a very nominal fee for one month. The TLS makes available a timesharing port on the UND Timesharing System to high schools and junior colleges who have easy access to a telephone line connected to the University of North Dakota. This is either a leased line purchased from Northwestern Bell Telephone or a leased Telpak line purchased from the state of North Dakota and the federal government.

COMPUTER SCIENCE

The Computer Science Department offers students the opportunity to major or minor in Computer Science. It also offers several service courses for students who elect other majors. In addition to the systems mentioned above PDP 8/1 Computer System is available in the Computer Laboratory for Student projects.

FURTHER INFORMATION

For further information contact: Con Dietz, Director, Computer Center, Room 366, Upson II, University of North Dakota.

Published by the UND Computer Center, printed by University Press

Networks

BITNET

- ▼ Provides electronic mail, access to news groups, and file transfers.
- ▼ Allows communication with individuals from other higher education institutions within the state and worldwide.

INTERNET

- ▼ Connection is provided through the NorthWestNet Regional Network.
- ▼ Provides access to databases, archives of software, worldwide documents, and the National Science Foundation supercomputers.

Local Area Networks (LAN)

- ▼ Provide electronic mail and resource sharing with departments and across campus.



Additional Information

More information about the UND Computer Center and its services is available by stopping in at the Center's offices in Upson II, Room 366, or by calling (701) 777-3171. Office hours are 8 a.m. to 4:30 p.m. Monday through Friday.

The Computer Center Help Desk (phone 777-2222) offers a single contact point for users who need help with any computing problem or question. The Help Desk answers calls 24 hours a day, seven days a week.

EDUCOM Copyright Policy

"Respect for intellectual labor and creativity is vital to academic discourse and enterprise. This principle applies to works of all authors and publishers in all media. It encompasses respect for the right to acknowledgement, right to privacy, and right to determine the form, manner, and terms of publication and distribution."

"Because electronic information is volatile and easily reproduced, respect for the work and personal expression of others is especially critical in computer environments. Violations of authorial integrity, including plagiarism, invasion of privacy, unauthorized access, and trade secret and copyright violations, may be grounds for sanction against members of the academic community."

The University of North Dakota is an equal opportunity institution.
1M 12-92

UNIVERSITY OF **UND** NORTH DAKOTA

Brochure from 1992



Computer Center



The University of North Dakota participates in the North Dakota Higher Education Computer Network (HECN), which provides computer services to the eight colleges and universities and three branch campuses that make up the North Dakota University System (NDUS). The HECN provides administrative and academic (on-line and batch) services to all institutions. UND also offers an Online Dakota Information Network (ODIN) which allows user access to the holdings of 119 major libraries throughout North Dakota, South Dakota and Minnesota.

Computer Systems

Through the HECN network, faculty, staff and students using hard wired terminals/workstations or microcomputers with modems have access to:

IBM ES/9000

- ▼ Administrative host running MVS/ESA.

DEC VAX 8530

- ▼ Research minicomputer running VMS.

Solbourne 5/802

- ▼ Academic minicomputer running UNIX.

UNISYS 2200-401

- ▼ ODIN library system computer running PALS.

IBM ES/9000

- ▼ Academic host running MVS/XA and VM/CMS.

The Computer Center

The Computer Center provides UND faculty, staff, researchers, students, and members of the HECN with computing and communication expertise and support to meet their academic and administrative requirements. The Computer Center is organized into four major departments:

User Services

- ▼ Offers consulting within the areas of microcomputers, mainframes, local area networks (LAN), and microcomputer purchasing;
- ▼ Supplies documentation, training materials, and training sessions to faculty, staff, and students.

Technical Services

- ▼ Provides installation and maintenance of mainframe system software;
- ▼ Has responsibility for the security and integrity of the HECN Administrative Databases.

Administrative System Services

- ▼ Administers the design, analysis, programming and implementation for the (HECN) administrative support systems;
- ▼ Maintains the administrative systems.

Computer Operations

- ▼ Provides the services of production control, data communication, and information or help desk;
- ▼ Has responsibility for systems operation, network management, job scheduling and submittal, distribution of output, test scanning and tape management.



Upson II cluster



Microcomputer Facilities

The UND Computer Center provides one major computer lab and two computer clusters. These facilities include screen reading and speech capabilities for the visually impaired. Several departmental computer clusters are also available on campus.

Computer Learning Lab (CLL)

- ▼ IBM PS/2s connected to LINK, a network which allows shared screen display for software demonstrations and instruction.
- ▼ Macintosh SE/30s on an Appletalk network.
- ▼ Terminal/Microcomputer room.
- ▼ Software and laser printed output.

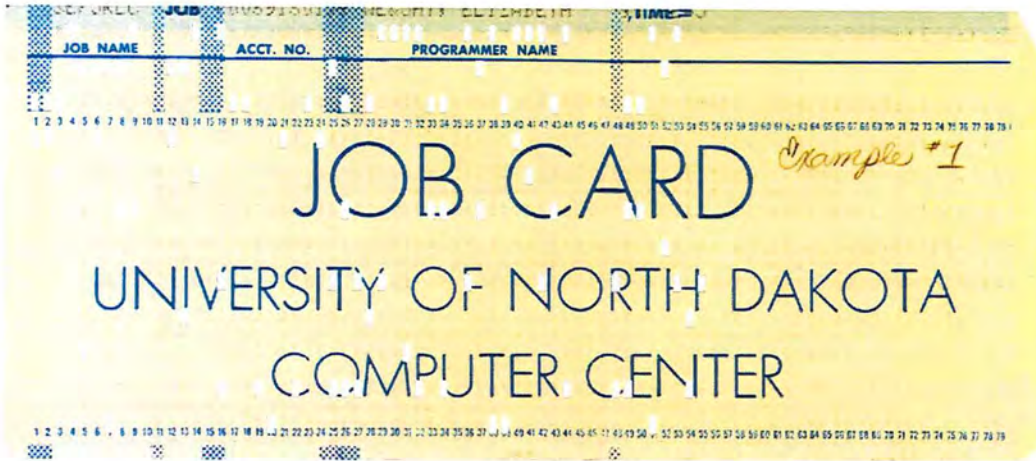
Chester Fritz Library Cluster

- ▼ IBM, Macintosh, and Apple computers.
- ▼ Software and laser printers available through an Appletalk network.

Upson II Cluster

- ▼ Token Ring network consisting of IBM 386SX computers.
- ▼ Macintosh and Zenith computers.
- ▼ Access to mainframe computers.

Macintosh cluster in Computer Learning Lab



Sample "Job Card" – the computer card that was located at the front of a stack of cards, included account number, job name and other information needed for billing and identification purposes.



Keypunch area circa 1978.



Public workstations in basement of Upson II. Note the telephones used for connecting the terminals to the mainframe.

Labs progress from



CRTs



to early PCs with dual floppy disk drives



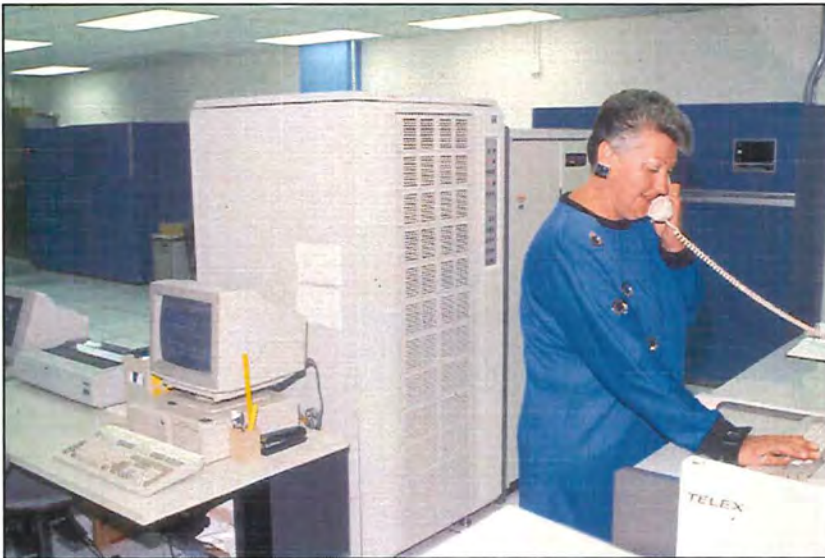
to workstations with flat panel monitors and no floppy drives. Data was stored on CDs, DVDs, flash drives or other memory media.



2007 – Computer lab, basement Memorial Union



Machine Room circa 1981.



Nadine Kotowicz working on ODIN UNISYS library system, early 1990s

1997 – Flood Evacuation

While photographs of the evacuation at UND are not available, here are few photos taken after the evacuation and during the setup at NDSU.



UND machine room after evacuation to NDSU campus in Fargo.



The mainframe and peripherals in their temporary home, the NDSU machine room.



Sorting the multitude of computer tapes needed to restart the mainframe.



IBM technicians work on the relocated mainframe



Moving the mainframe into the truck for the return trip to UND.



Back home in the UND machine room.



Tape Drives – circa 1980s



2007 – Tape Robot



2004 – high performance computing cluster



2007 – Help Desk Area

Staff Photos:



1991 Administrative Staff: Bonnie Snyder, Dale Vetter, Pete Sterle and Shelly Stewart.



1991 Production Control: Kathy Mattson, Lynn Wolf, Vicky Dawes, Caryl Pederson, Donna Bonderud, Terry Stratton.



1991 Programming Staff:
Front: Jim Rask, Orrin Johnson, Tim Holweger, Jo Kolle, Connie Walker, Pat Doll,
Alice Husby, Jamie Heider.
Back: Ron LaMoine, Ben Morgan, Neil Marken, Gary Klein, Roy Lillifors.



1991 Technical Services Staff:
Front: Gail Sullivan, Sharon Jacobsen, Cathy Hilley.
Back: Jeff Meland, Mark Diers, Dennis Cutshall, Marv Hanson.



1991 User Services Staff:
Elmer Morlock, Al Lindem, Doris Bornhoeft, Rose Keeley, Kevin Moxness,
and Dorette Kerian.



2007 Staff participated in the "Q" (UND's 125th Anniversary) is Coming Photo
Row 1: Ron Lauinger, Rose Keeley, Gail Sullivan
Row 2: Caryl Pederson, Donna Bonderud, Shelly Stewart, Heidi Strande, Carol Hjelmstad, student
employee Kristen McFadden, Rod Angen
Row 3: Phil Moore, Grant Erickson, Doris Bornhoeft

2008 Staff Photos:



Administrative Staff

Front: Carol Hjelmstad and Dorette Kerian

Back: Aaron Bergstrom, Marv Hanson, Craig Cerkowniak, Pete Sterle



CILT (Center for Instructional and Learning Technologies)

Front: Janna Kruckenberg, Diane Lundeen, Cherie Dufault

Back: Dave Bell, Lori Swinney, Chad Bushy, Elizabeth Becker



Client Services

Heidi Strande, Chris Kiefel, Terry Cultice, Keith Mercer, Todd Barrett,
Doris Bornhoeft, Renetta Johnson

Not Pictured: Gary Johnson



Database Administration

Front: Donna Bonderud, Gail Sullivan, Mike Osland

Back: Phil Moore, Rod Angen, Jan Gierman, Dennis Cutshall, Grant Erickson



Help Desk

Front: Shelly Stewart, Ron Lauinger

Back: David Levenseller, Joshua Kadrmas, Joe Glenn



Network Services

Front: Bryan Ford, Terry Meland, Bonnie Jundt

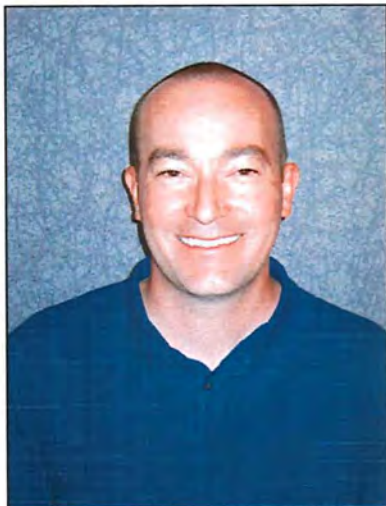
Back: Darren Studney, Darrin Werre, Kevin Danielson



Operators
Andy Holcomb, Terry Sheedy, Jerry Miller, Curtis Fuchs



Production Control
Caryl Pederson, Jana Marjamaa



IT Security Officer: Brad Miller



Server Administrators

Front: Doug Osowski, Erik Johnson, Rich Roberts, Keith Wildermuth, Steve Ristau
Back: Clay Willoughby, Robert Peterson, Bjorn Gott, Eric Kjeldergaard, Kevin Spivey
Not Pictured: Diamond Pipiles, Allison Welling



Telecommunications

Front: Patti Campoverde, Kris Meisel, Laurie Mager
Back: Sue McWilliams, Jan Laventure, Jan Flatin, Larry Fisk



Telecommunications
Bob Meuwissen, Laura Hillebrand, Marv Asp, Clay Finger

