

Rutgers, The State University of New Jersey

Fiscal Year 2002

Accountability Report for

Rutgers University Computing Services

Michael V. McKay
Executive Director for Computing and Information Technology

August, 2002

THE STATE UNIVERSITY OF NEW JERSEY
RUTGERS

Table of Contents

About RUCS.....	3
Letter from the Executive Director	4
Mission, Vision, and Goals	6
Summary of Accomplishments.....	8
1. Computing and Information Technology	8
a. Provide University-wide leadership in the integration of information technology resources to support the University’s mission of Instruction, Research and Service.....	8
b. Facilitate the effective and efficient functioning of policy advisory committees for computing and information technology that will serve as catalysts for implementing policy and standards.	10
c. Identify opportunities to encourage collaboration and cooperation in adapting information technology resources to support instruction, research and service among and within the disparate disciplines offered at the University.....	11
d. Facilitate and encourage research capabilities, opportunities and support through involvement and participation in Internet2 and development of RUNet 2000 project enhancements of the Rutgers network.....	13
e. Provide advice, counsel and direction in the establishment and development of Rutgers Integrated Administrative System, which will increase efficiency and productivity.....	14
2. Community Service and Support.....	15
a. Extend Rutgers’ resources to K–12 school districts throughout the state through proactive application of information technology.....	15
b. Encourage the development of applications across all disciplines that will maximize the use of the high capacity network bandwidth made available through the RUNet 2000 project.....	16
3. Customer Service and Support.....	18
a. Become a role model within the higher education community for faculty, staff and student satisfaction and service excellence.	18
b. Recruit and retain highly qualified information technology professionals.	20
4. Connectivity	22
a. Design, build and support a world-class network infrastructure that will support the expanding administrative, instructional, research and service needs of the University.....	22
5. Communication	22
a. Develop and execute communications plans, which inform the Rutgers faculty, staff and students of University Computing Services’ mission, functioning and activities.	22
b. Work closely with the Department of University Relations to inform the Rutgers community and local media about Computing Services’ activities.	24
Fiscal Year 2003 Goals	25

About RUCS

Rutgers University Computing Services (RUCS) is the university's centralized computing and telecommunications support organization. RUCS consists of three campus-based divisions – one at each of the university's regional campuses in Camden, Newark, and New Brunswick – and three university-wide organizations supporting administrative computing, telecommunications, and information protection. RUCS staff members provide support for voice and data networking services, centralized batch and timesharing computing platforms, administrative applications software, and instructional computing resources, all of which support Rutgers' threefold mission of instruction, research, and public service.

Each campus-based computing services division maintains centralized data centers that provide general-purpose academic computing systems and software support on the Camden, Newark and New Brunswick campuses. These divisions also operate and maintain the student computer labs on their respective campuses. RUCS' Administrative Computing Services division provides Information Technology (IT) leadership for the administrative and academic community, develops and maintains systems that support the core business functions of the university and manages the administrative computing infrastructure and data center. The Telecommunications Division supports university-wide voice and data networking connections throughout Rutgers and is the primary facilitator for the RUNet (formerly RUNet 2000) construction project. The office of the University Director for Campus Computing Services coordinates regional computing support services and provides technical vision and focus for the development of the university's future computing environment. RUCS' Information Protection and Security (IPS) Division is responsible for the preservation of the continuity, integrity and confidentiality of academic and administrative information resources throughout the university.

Letter from the Executive Director

Fiscal Year 2002 was a challenging yet highly productive year for Rutgers University Computing Services (RUCS). With the state-mandated budget reductions, the elimination and completion of the initial phase of RUNet (formerly RUNet 2000), expanding needs for additional support for the Rutgers Integrated Administrative System (RIAS) project, and the requirement to relocate major segments of New Brunswick Computing Services and Telecommunications division, our resources were tested. But I am pleased to say that, because of the high level of teamwork, innovation, professionalism, integrity, and initiative demonstrated by our leadership and staff personnel, we accomplished our mission and the goals we set one year ago.

This report summarizes the most significant RUCS accomplishments during the fiscal year. We have selected representative activities that best illustrate our service and value to the university community. Key highlights of Fiscal Year 2002 activities follow:

- In Fiscal Year 1997, a survey was conducted to assess student, faculty, and staff satisfaction with RUCS services. A comparable survey was conducted this fiscal year. The current study indicated a significant improvement in the level of satisfaction with RUCS' services. The most dramatic results of this study are the changes in user satisfaction over the five year period between the two surveys. In Fiscal Year 1997, percentages of those who were "Very Satisfied" with RUCS' systems or services ranged from three percent to 23 percent. The current survey indicates that, across campuses, 44% of staff, 36% of faculty, and 26% of students are "Very Satisfied."
- RUCS strategic planning efforts moved forward during the year with the formalization of a strategic plan for RUCS. The process for creating this plan was both iterative and interactive, with input from the university community, and RUCS' directors and staff personnel. This process will result in a "living document" that will change with the needs of the university, will provide focus and direction to all RUCS' entities, and will help us use our resources effectively and efficiently.
- The initial phase of the RUNet project (formerly RUNet 2000) will be successfully completed in August of this year. The goals, to install wiring in the interiors of 260 campus buildings, to upgrade and expand the telecommunications network, to begin operation of a private, university-wide video network, and to increase the speed and capacity of intercampus links among the university's three regional campuses, will be met in less than three and one half years, more than six months earlier than anticipated and within the designated budget.
- Computing support for the Rutgers Integrated Administrative System (RIAS) was coordinated by RUCS staff personnel, who worked closely with the RIAS project team to ensure that the July 8 implementation date was met. Conversion of existing data for input into RIAS, infrastructure design, systems development and support, and implementation of security measures were all accomplished.
- Throughout this fiscal year, we have been restructuring and reorganizing RUCS in order to provide for the maintenance responsibilities resulting from the completion of RUNet Phase 1, implementation of RIAS, and to enable a university-directed relocation of New Brunswick Computing Services and Telecommunications division staff personnel. This was accomplished despite a reduction in five state lines and \$589,000 in operating budget, and despite RUCS' \$300,000 relocation expense, by

streamlining operations, taking advantage of cost savings resulting from technology advances, and prioritizing our workload.

- Virus scanning of incoming and outgoing email began this year through the Camden and Newark campus divisions, to lessen the impact of devastating computer viruses both within and external to the university. This has resulted in blocking of nearly 500,000 email messages containing viruses. New Brunswick anticipates launching virus scanning in August.
- The expansion of the Information Protection and Security Division, long a request of the university's Internal Audit Committee and our Board of Governors, facilitated increased security for RIAS, RUNet, and departmental computing throughout the university. Four of the five personnel positions in this division were provided from internal RUCS resources.
- The Web On-line Payment (WOLP) application was implemented to provide online payment for various university services. WOLP has been deployed to provide online payment for undergraduate admissions application and acknowledgement fees, graduate admissions application fees, tuition payments, and New Brunswick parking registration and violation fees. Benefits include enhanced service for students, reduction of back office processing, and more timely revenue recognition.
- A new release of the online rosters application, which allows faculty members to submit student grades and warnings over the web, was implemented. Benefits include processing efficiencies in academic departments and the registrar's office and cost reductions resulting from a decreased need for manual activities.
- Web-based email access was established on the campus email servers in Camden in September and New Brunswick in January to provide access to Rutgers email from anywhere using a standard web browser. More than 735,000 webmail logins have been logged since implementation. Implementation in Newark will occur in August.
- The PC Purchase Program, which provides bulk-purchase savings on computers for RUCS departments, faculty, staff, and students, saved the university about \$1 million this year. A large part of this savings enabled departments using Equipment Leasing Fund (ELF) II monies to purchase computers with higher capabilities than they otherwise would have been able to purchase.
- RUCS contributed to the university's fundraising campaign by encouraging corporations to invest in Rutgers' future. Contributions from these companies, attributed to the Capital Campaign and related to RUCS' efforts totaled \$621,000 – \$127,000 from a Sun Microsystems matching grant program, \$240, 000 from Cisco's memberships in and equipment donations to CAIP and WINLAB, \$250,000 from Oracle, and \$5,000 in computers from Dell.

The directors and staff personnel of RUCS are dedicated to our mission of providing university-wide leadership in information technology and quality services in support of the university's mission of instruction, research, and service. We look forward to improving upon our record of service excellence and becoming even more efficient and effective in all our activities.

Michael V. McKay
Executive Director for Computing and Information Technology

Mission, Vision, and Goals

In developing the university's strategic plan in 1995, the importance of information technology was highlighted by the statement:

Computer and information technology will be integrated into the curricula, pedagogy, and administration of the university in order to provide our students with the knowledge and skills they need in the Information Age and to furnish the university with the tools it will need to function in this new era.

Rutgers University Computing Services (RUCS) has built on the direction for Information Technology stated in the university's strategic plan in developing the organization's mission:

To provide university-wide leadership in Information Technology and quality Information Technology services in support of the university's mission,

its vision:

To be a role model within the higher education community for customer satisfaction and service excellence using innovative strategies and advanced technologies, through a unified multi-faceted approach,

and in its Fiscal Year 2002 goals:

1. Computing and Information Technology
 - a. Provide University-wide leadership in the integration of information technology resources to support the University's mission of Instruction, Research and Service.
 - b. Facilitate the effective and efficient functioning of policy advisory committees for computing and information technology that will serve as catalysts for implementing policy and standards.
 - c. Identify opportunities to encourage collaboration and cooperation in adapting information technology resources to support instruction, research and service among and within the disparate disciplines offered at the University.
 - d. Facilitate and encourage research capabilities, opportunities and support through involvement and participation in Internet2 and development of RUNet 2000 project enhancements of the Rutgers network.
 - e. Provide advice, counsel and direction in the establishment and development of Rutgers Integrated Administrative System, which will increase efficiency and productivity.
2. Community Service and Support
 - a. Extend Rutgers' resources to K-12 school districts throughout the state through proactive application of information technology.
 - b. Encourage the development of applications across all disciplines that will maximize the use of the high capacity network bandwidth made available through the RUNet 2000 project.
3. Customer Service and Support
 - a. Become a role model within the higher education community for faculty, staff and student satisfaction and service excellence.
 - b. Recruit and retain highly qualified information technology professionals.

4. Connectivity – Design, build and support a world-class network infrastructure that will support the expanding administrative, instructional, research and service needs of the University.

5. Communication

- a. Develop and execute communications plans, which inform the Rutgers faculty, staff and students of University Computing Services' mission, functioning and activities.
- b. Work closely with the Department of University Relations to inform the Rutgers community and local media about Computing Services' activities.

Summary of Accomplishments

1. Computing and Information Technology

a. Provide University-wide leadership in the integration of information technology resources to support the University's mission of Instruction, Research and Service.

To assist students, faculty, and staff in safely and effectively integrating technology into their university lives, RUCS made significant strides this year in the areas of support, training, new technology deployment, and security. During the year, nearly 1 million requests for assistance were addressed at the RUCS Help Desks and in the campus computing labs. Ninety-three (93) technical training courses were provided to 760 computer users on all three regional campuses. Software site license requests increased with 2,500 requests for licenses, saving more than \$3 million in software costs for the university. And increased security awareness and mechanisms resulted in minimal impact from viruses and worms.

Other examples of activities in this area follow:

- An analysis made by the Information Protection and Security Division (IPS) of incidents including viruses, worms, intrusions and probes indicates that the university's IT system support staff personnel have made great progress in eliminating serious vulnerabilities throughout the university. As indicated by recent scanning, exposures in systems are being repaired through notification and instructions from a designated RUCS webpage. These are a direct result of Computer Emergency Response Team (CERT) Coordination Center advisories thus making this a proactive step in overall information protection planning.
- Virus scanning of incoming and outgoing email began this year through the Camden and Newark campus divisions, to lessen the impact of devastating computer viruses both within and external to the university. This has resulted in blocking of nearly 500,000 email messages containing viruses. New Brunswick anticipates launching virus scanning in August. All campus divisions have made desktop anti-virus software available to students, faculty, and staff at the university at a cost of \$220,000 to RUCS.
- Web-based email access was established on the campus email servers in Camden in September and New Brunswick in January to provide access to Rutgers email from anywhere using a standard web browser. More than 735,000 webmail logins have been logged since implementation. Implementation in Newark will occur in August.
- With coordination from the Office of Institutional Research, RUCS conducted a survey of AAU institutions about the most prevalent worms and viruses (Code Red, Code Red II and SirCam). Compared to the eleven responding AAU institutions, Rutgers is taking a more proactive stance by providing a university site license for antivirus protection, scanning for vulnerabilities, blocking selected ports, placing the residence halls in private address space, creating a Virtual Private Network for more secure network access from off-campus, creating a website for technical updates, communicating advisories through internal listserves, and removing equipment serving as attack agents from the network. We were able to accomplish these activities this year because the Information Protection and Security (IPS) Division was expanded from two to five staff personnel through resource reallocation.

- New Brunswick Computing Services (NBCS) has completed the renovation of computing facilities associated with the Digital Media Laboratory. Located in the Allison Road Classroom building on Busch campus, the facility is the sole RUCS resource in New Brunswick for faculty, staff, and students to digitally edit their video and audio recordings. Funded through ELF, NBCS installed eighteen new Macintosh and Windows computer systems and associated peripherals that will provide video capture and editing functionality, film recorder capabilities for digitizing 35mm slides, audio editing applications, as well as video recording and DVD burning technology.
- In addition to some significant renovations, a Help Desk was established in the campus center lab in Camden to provide an improved environment for our students. The renovations included an improved HVAC system, the addition of laptop ports, and lighting that was properly adjusted for computer work.
- RUCS developed a process for designing and implementing a new university-wide email system. Focus groups and online surveys were conducted with about 1,800 students, faculty, and staff on all campuses to gather input about specifications. These data, combined with technical specifications designed by NBCS, were put together and an RFP was issued for a new system. This system will be tested throughout the next academic year and implemented in fall, 2003.
- All campus divisions began investigating the extension of existing wireless pilots and implementing new wireless services. Areas under consideration include campus centers, libraries, and atria where students congregate. Rollout of wireless installations in all campus centers is expected for fall semester, 2002.
- The Rutgers Computer Store's PC Purchase Program, which provides bulk-purchase savings on computers for Rutgers' departments, faculty, staff, and students, saved the university about \$1 million this year. A large part of this savings allowed departments using Equipment Leasing Fund (ELF) II monies to purchase computers with higher capabilities than they otherwise would have been able to purchase. Total sales from the Computer Store for this year amounted to about \$5.2 million.
- The RUCS' Computer Repair unit and Newark Computing Services CS-Net provided parts, labor, and warranty work totaling more than \$200,000 this year.
- The Web On-line Payment (WOLP) application was implemented to provide on-line payment for various services offered by the University over the web. WOLP was developed as a reusable, standardized module that is callable by any authorized Rutgers website for the purpose of accepting online credit/debit card payments. In addition to providing online payment verification, the WOLP process also provides back-end automation for payment transaction tracking and reconciliation. To date, WOLP has been deployed to provide online payment for undergraduate admissions application and acknowledgement fees, graduate admissions application fees, tuition payments and New Brunswick parking registration and violation fees. Benefits include enhanced service for students, reduction of "in person" services, back office processing efficiencies and more timely revenue recognition.
- ACS continues to provide ongoing support for day to day business needs and the "cyclical" business processes of the university. This includes software enhancements, maintenance and production control for recurring processes that support students, faculty and administration. This also includes on-demand information delivery

(reports, data queries, data files) to support internal decisionmaking and external requirements. Key cyclical activities include: student demand registration, student add/drop, student grade and transcript processing, student account creation (supported by People Database), course and room scheduling, undergraduate and graduate admissions cycle start-up, financial aid award packaging, student term bill processing, first year sectioning, financial accounting (GL, AP, Budget Preparation, fiscal year close/startup (2000/2001)), payroll processing (paychecks, W2's, 1099s, 1042s, benefit statements, contracts, fiscal year close/startup (2000/2001)), faculty survey, faculty staff directory, student health, college assessment research system, course analysis system, student unit record enrollment, longitudinal database. Much of this work involves Oracle software used by ACS and its customer departments at a cost for the site license of \$204,000 to RUCS.

- Numerous changes in the Payroll system were implemented throughout the year, many in support of Federal, State, and University mandated modifications. These included: HMO name changes and rates for health and dental, modifications from union contracts, implementation and modifications to the Pre-Mass Transit deduction and maximum, changes to the W2 and 1042S forms, rate increases for the COLA retirees and thrift saving plan, new salary tables for Law Instructors and IT staff, modifications in processing for the highly compensated maximum limits and new Federal/State/EIC tax changes, Fraternal Order of Police (FOP) changes, and updates to salary tables in support of the Pay for Performance cycle.

b. Facilitate the effective and efficient functioning of policy advisory committees for computing and information technology that will serve as catalysts for implementing policy and standards.

During Fiscal Year 2002, the President's Cabinet established the Information Technology Coordinating Committee (ITCC), a university-wide body charged with providing advice and counsel to the President's Cabinet on matters related to the efficient exploitation of IT and Rutgers' network infrastructure to enhance academic and administrative productivity and quality of life, and to control costs. The Committee serves as a forum through which the university's business, academic and technology planners come together to identify mutual goals, university-wide IT issues, and opportunities for resource efficiencies.

RUCS is an active participant on the ITCC committee, supporting, providing leadership, and sharing information on a variety of IT topics. Presentations on dial-up support, integration of IT into university-wide decision-making, the RUNet project, and the transition to the RUNet backbone were delivered by RUCS. The ITCC will use this and other information in future decisions and in the development of future proposals to the President's Cabinet on such subjects as RUNet expansion, prioritization of administrative applications development, efficiency through development of university-wide IT applications, prioritization of new and emerging technologies, development of uniform practices and procedures, identification of IT roles and responsibilities for RUCS and departmental computing personnel, and development of a university-wide IT plan to address long term strategic plans and issues.

RUCS works closely with other IT advisory groups at the university, to inform, educate, and listen. During the year, RUCS' representatives actively participated in the following:

- Camden FAS-IT Committee, which meets regularly throughout the academic year to discuss the IT needs of the Camden Faculty of Arts and Sciences, such as wireless

computing, instructional computing (smart classrooms, laptops, web development), some research computing, library services and audiovisual services.

- Information Science and Technology Council (ISATC), which was appointed by the University Vice President for Academic Affairs to sustain the momentum generated by the Strategic Planning process in the Information Sciences area; and to foster major new research initiatives in Information Science and Technology at Rutgers through collaboration of faculty across various University units. The committee is also responsible for Strategic Resources and Opportunity Analysis (SROA) planning and funding allocations.
- Instructional Technology Faculty Support Committee (ITFSC), which oversees the delivery of support services to assist faculty in the design and development of new instructional technologies.
- New Brunswick Academic Coordinating Council (NBACC), which is a forum for exchange of information on and coordinating of changes in course and academic programs offered by New Brunswick academic units that impact on the instructional operation of the campus.
- New Brunswick Advisory Committee for Instructional Computing, (ACIC), which provides recommendations for the use of the annual revenues from the student computing fee.
- Newark Information Technology Advisory Committee (NITAC), which provides advice on strategic directions as well as tactical priorities for academic and administrative computing and information technology issues facing the campus and which evaluates the effectiveness of information technology resources and support services on an ongoing basis and makes recommendations for improvements and enhancements.
- New Brunswick Computing Advisory Committee (NBCAC), which provides advice to the University Vice President for Academic Affairs and the Vice President for Institutional Research and Planning on the priorities and the development of academic and administrative computing services that support the mission of the New Brunswick Campus. The NBCAC recommends potential uses for improving current services and contributes support to the educational objectives of the RUNet project.
- Newark/NB Rutgers Business School Computing Policy Committee, which assesses the state and needs of computing for the Rutgers' Business School, Newark and New Brunswick Campuses and provides recommendations to the Dean of Business School for the efficient and effective use of computing resources.

c. Identify opportunities to encourage collaboration and cooperation in adapting information technology resources to support instruction, research and service among and within the disparate disciplines offered at the University.

One of RUCS' major activities is to encourage faculty and staff throughout the university to develop innovative ways in which to use information technologies to improve their efficiency and effectiveness. Utilization of such technologies increased significantly during the fiscal year with a 55% growth in web hit activity. For example: hits on the Graduate Admissions application and status website increased 63% over the previous year ; web registration hits grew 50% and are up to 1.9 million hits a year; the Online Schedule of

Classes, one of the most heavily used websites continues to grow in activity and is receiving over 4.6 million hits a year. ACS has developed and maintains these sites, as well as numerous others for the various business areas such as the Registrars Office, University Scheduling and Space Management, Undergraduate and Graduate Admissions Offices, Financial Aid Office, and Campus Information Services.

A key strategy for RUCS–ACS development is to work in partnership with the central business units as well as the academic, student and end user areas. For example academic departments/faculty representatives together with the Registrar’s Office participated collaboratively in the design of the online grade submission application and pilot.

In addition to the central business units of the university, RUCS also worked contractually with more than 65 academic and administrative departments, centers, and institutes to assist in a wide variety of computer system, desktop, and networking areas. These activities, part of the auxiliary function of RUCS, permitted more effective use of IT resources throughout the university than if each of these departments hired their own professional IT staff personnel.

Some other examples of activities in this area follow:

- The three campus computing divisions of RUCS solicited the University Office of Community Affairs to change the institutional policy regarding computer accounts for senior citizens auditing courses at Rutgers. The senior citizen audit program was created in 1974 and the email policy, which has not changed in many years, was added at a later date. This policy states that senior citizens, although permitted to audit any course, may not have an email account. Because faculty are increasingly putting course materials and class functions in online environments, this policy precludes senior citizens from gaining the full benefits of class participation. The Office of Community Affairs recently revised this policy as recommended by RUCS.
- The Computer Store processed new Equipment Leasing Fund (ELF) II orders from all areas of the university. The bulk of orders were filled within the existing framework of our successful bulk-bid buying program using the special configurations previously negotiated for quantity sales. RUCS negotiated several large orders with Dell Computer, including 314 public workstations for the Library Technical and Automated Services organization. Originally, this department expected to have funding for only 241 workstations, however, because of the leveraging gained through our PC Purchase Program, we were able to garner deep discounts resulting in the ability to purchase the additional equipment.
- RUCS prepared telecommunications design requirements for the New Jersey Department of Transportation’s Route 18 extension project, which will provide fiber tie-in for traffic cameras and emergency telephones for the Rutgers University Police Department (RUPD). This project, valued at about \$75,000, will help RUPD provide a greater degree of monitoring and communication for the university community. In addition, a security survey was conducted to determine how to provide enhanced services through use of the network backbone. This survey, valued at \$150,000, was provided as a courtesy due to the RUNet project’s relationship with Verizon.
- In response to new Federal regulations regarding management of international students, the Telecommunications Division assisted in connecting The Center for International Faculty and Student Services located at 180 College Avenue to the

network. The department will now be able to collect, manage, and transmit information needed by the Federal government.

- NBCS developed an online tracking system to monitor requests for access to Rutgers information for the newly created Office of the Custodian of University Records. The system enables the Custodian to input requests and monitor progress and due dates.
- RUCS worked with the Teaching Excellence Center (TEC) in Newark and with the TEC and Library Media Services in New Brunswick to develop a plan for coordinated support of the smart classrooms in Newark and New Brunswick, respectively. On the Camden campus, RUCS was involved with the implementation of the first online "Chat with the Provost" forum in which members of the community were able to interact with the Provost online.
- A new release of the online rosters application which now enables authorized faculty members to submit student grades and warnings over the web was implemented. Grade submission was initially rolled out as a pilot for the New Brunswick Math Department in the fall of 2001. The pilot was expanded to various departments in New Brunswick, Camden and Newark for spring, 2002. Full scale deployment is scheduled for fall, 2002. Benefits include processing efficiencies in the academic departments and the registrar's office and cost reductions resulting from a decreased need for manual activities and paper generation.
- Development of the new Undergraduate Admission and Equal Opportunity Fund (EOF) online applications for spring/fall 2003 admissions was completed. More detailed information to be collected from applicants include questions concerning citizenship, residency, and family income. More specific information concerning self reported high school rankings and self reported SAT, ACT and TOEFL test scores will also be requested. The ability to pay for the application submission fee using the Web On-Line Payment (WOLP) after submission of the application is now available.
- A new web page for Undergraduate Admissions that enables admitted applicants to acknowledge their intention to attend an undergraduate college at Rutgers was developed. An admitted applicant is able to commit to any college to which they have been admitted and select an affiliation to a college if admitted into a professional school. They then have the option to either pay the acknowledgement fee through WOLP or print a payment voucher for payment through the University Lockbox process. Applicants will also have the ability to update permanent home address information, mailing address, telephone number, and e-mail address. The Acknowledgement web page allows a more automated and timely acknowledgement and payment, lessens the need for manual processing of decisions and fees, and provides easy accessibility for prospective students.

d. Facilitate and encourage research capabilities, opportunities and support through involvement and participation in Internet2 and development of RUNet project enhancements of the Rutgers network.

Rutgers continued its membership in Internet2, an effort led by over 190 U.S. universities working in partnership with industry and government, to develop and deploy advanced network applications and technologies, accelerating the creation of tomorrow's Internet. Some examples of other activities, aimed at enhancements of the Rutgers network, follow:

- The Telecommunications Division developed a University Bandwidth Monitoring System to reduce congestion on the Internet handoffs. The software monitors Internet usage of each machine within the university, and can automatically inform users of excessive consumption. The system can also track which users have violated the residential usage guidelines, and modify router configurations automatically. This has resulted in RUCS being able to provide cost-effective utilization of our bandwidth to the university community.
- The Telecommunication Division completed a project to expand the RUNet core to the Newark campus. This network build-out provides RUNet connectivity between New Brunswick and Newark campuses, and will allow RUNet compliant buildings to complete their transition to RUNet.
- Other network improvements coordinated through the Telecommunications Division include an upgrade to the distribution infrastructure on the legacy network to Cisco 3500XL series switches, which offer more throughput capacity and more advanced quality of service features that are intended to facilitate the deconstruction and migration of legacy network devices and customers to the new RUNet backbone. The legacy network was modularized using contemporary state-of-the-industry architecture. This allowed it to be deconstructed, giving its customers a 100-fold increase in bandwidth to RUNet. Improvements in the Rutgers' Facilities Department's remote energy management system were also made.
- The university successfully transitioned from a multi-protocol environment (Internet Protocol – IP, Internet package exchange – IPX, and AppleTalk) to an IP-only environment consistent with industry best practices. While the presence of alternate routed protocols has served Rutgers well historically, they have been expensive to support over time. The data networking industry standardized on the IP protocol sometime ago. In addition to abiding by state of the industry practices, the deprecation of both IPX and AppleTalk as supported protocols on the routed infrastructure greatly enhances the prospect of improving total network throughput as the legacy network and RUNet begin to converge. Support for non-IP protocols was the most significant hurdle preventing the union of these separate infrastructures. Resource re-deployment is now possible toward development of future network capacity improvements.
- The Telecommunications Division launched a Virtual Private Network (VPN) service that enables remote users to access RUNet resources from across the Internet. VPN provides secure, authenticated access to RUNet resources, which require users to maintain valid accounts on a RUCS' computer system. VPN enables users of high speed Internet and personal ISP accounts access to Rutgers' network resources such as printing, file sharing and locally restricted websites such as Library databases.

e. Provide advice, counsel and direction in the establishment and development of Rutgers Integrated Administrative System, which will increase efficiency and productivity.

RUCS has been involved closely with the development of the Oracle-based Rutgers Integrated Administrative System (RIAS), from both systems and security perspectives primarily through the ACS and IPS directorates. ACS partnered with the RIAS team in the successful implementation of the Procure-to-Pay application. ACS provided leadership in three areas: legacy application modifications (changes, conversions and interfaces) to

support the new business process; knowledge transfer (application, customization and interfaces) to prepare staff for ongoing system maintenance, and infrastructure architecture and implementation. In addition, the IPS director led a security committee which coordinated security support from all RUCS' divisions, the Office of Internal Audit, and outside vendors.

With the rollout of RIAS in July 2002, RUCS will continue to develop and maintain the infrastructure consisting of a new high performance server with the capacity to run multiple domain structures, web servers to serve as the front end of the databases, a fiber switch for a storage area network for fast bandwidth, a state of the art disk array storage system, and a firewall for network and internal security.

Some examples of activities in this area follow:

- ACS implemented changes to the legacy financial and human resource systems necessary to support the Procure-to Pay application. Online Financial Information System (OFIS) screens used to view financial information were enhanced to display purchase orders processed through RIAS. Bi-directional interfaces between the RIAS application and legacy systems were implemented to ensure the proper flow of data. Examples of these interfaces include vendor names and numbers, commitments, actuals, check numbers, employee change information and student refunds. To support the initial setup of the RIAS environment, conversion files such as vendors, purchase orders, and employee information were provided from the legacy systems.
- ACS staff worked with RIAS and Oracle Financials subject matter experts in order to transition critical expertise and knowledge in order to ensure stable operation and ongoing maintenance after "go-live."
- ACS planned for and architected the RIAS infrastructure including development, test and production platforms. Additionally ACS planned for and implemented all necessary operational, security and performance testing for the RIAS application. In building the infrastructure, consideration needed to be made for a failover strategy which identified the critical components of the infrastructure and implemented/configured duplicate components. These components include load balancer, firewall, network connections and highly redundant servers.
- The RIAS Security Committee, chaired by RUCS' IPS director, developed and executed a security review process during the project life-cycle to recommend and provide oversight to the implementation of security technologies, processes, and procedures. The security effort for RIAS required support from all RUCS divisions, the Office of Internal Audit, and outside vendors.
- The RUCS Help Desks provided support in account creation, password resetting, and other account and network related issues in preparation for the RIAS rollout.

2. Community Service and Support

a. Extend Rutgers' resources to K-12 school districts throughout the state through proactive application of information technology.

With the \$3.1 million received from the U.S. Department of Education's Technology Innovation Challenge Grant program for FY 2002, RUCS was able to further develop the Rutgers network and complete connections between the university and three additional K-

12 facilities. This initiative provides students and faculty in these facilities with access to Rutgers resources that can be used to enhance teaching and learning activities. In the three years that Rutgers has received funding through this program, a total of \$7,912,500 has been used to upgrade the university's network backbone, which further enables Rutgers faculty and staff to expand outreach relationships. External educational entities connected to RUNet to date include the following: In Camden, The LEAP Academy and the LEAP University High Charter School. In Newark, the University Heights Science Park offices, Science High School, the Newark Museum and Library, and New Jersey Performing Arts Center. In New Brunswick, Lincoln and Livingston K–8 schools and the New Brunswick High School.

Some other examples of fiscal year activities in this area follow:

- Newark Computing Services assisted both Prudential and the Greater Newark Conservancy with their summer programs for Newark area students. Prudential sponsors a summer computer camp for middle school students closing with a congratulatory luncheon for the participants. The Greater Newark Conservancy is a non-profit organization that teaches advanced math, English and computer skills to Newark students.
- The director of Telecommunications spoke to participants of the Governor's School about the state of the telecommunications industry and the application of engineering to information technology.
- NBCS continued its support and operation of the New Jersey Professional Education Port website (<http://njpep.rutgers.edu>). This site, containing a comprehensive collection of resources for K–12 teachers throughout the state for use in curriculum development, is maintained by the New Jersey Department of Education.
- Newark Computing Services participated in the campus Academic Challenge program by providing demonstrations of Internet features and leading discussions about computer functions and information.

b. Encourage the development of applications across all disciplines that will maximize the use of the high capacity network bandwidth made available through the RUNet project.

The RUNet project produced a significant change in the ways in which members of the university community conduct their daily university activities. Ninety seven percent (97%) of students living in residence halls have direct access to the data network, where they are preparing online course assignments, participating in online class discussions, and interacting with the faculty. They are paying their term bills online, registering for courses, looking at their class schedules, and checking the status of their financial aid. They are using the more than 96,000 electronic books and 6,000 electronic journals available online through the Rutgers Libraries. Nearly 90% percent of students now have access to RU–TV in their rooms, where they receive news and information, view seminars and assigned audiovisual materials, and are educated by some of the top scholars around the world. And in New Brunswick, RUCS has seen a 230% increase in utilization of specialized software (e.g., Adobe Photoshop, SPSS, and Clarisworks) available for residential students.

About 93% of full time faculty have direct network connections in their buildings; the remaining 7% connect to the network through leased lines, dialup modems, or wireless networks. This is making it easier for them to put all or part of their courses online. More than 660 classes with over 16,000 students use WebCT, Blackboard, and eCollege, three

online course systems. Network capabilities are also making smart classrooms the choice of many faculty. These nearly 100 networked classrooms (an increase of about 67% over last year) are in constant use and, in fact, requests for smart classrooms by faculty far outpace availability. Faculty are also using streaming audio and video to supplement their teaching. In disciplines as diverse as sociology and music, faculty are making use of this technology in many innovative ways. Collaborative research is one of the primary ways in which the network is helping the university achieve its mission. Both intra- and inter-university research are making use of the available technologies and our connection to the high-performance Internet2 network. About 540 terabytes of information entered and left the university last year through Rutgers' connection to the Internet and Internet2, equivalent to the information contained in more than 1 million sets of encyclopedias.

Some other examples of activities in this area follow:

- In a combined effort of RUCS' campus computing divisions, a unified point of reference for reaching web interfaces for email systems (i.e. web mail) on the three campuses has been constructed (<http://webmail.rutgers.edu>). Any Rutgers student, faculty, or staff member may access their Rutgers email from any location. This has enabled users to access their Rutgers' email accounts through their Internet Service Provider thus saving long distance modem connection and other costs.
- A new version of WebCT, the popular web-based courseware system in use throughout Rutgers, was installed and the associated system significantly upgraded. Students and faculty will experience new functionality and better performance from the latest release. As part of a new instructional computing initiative by NBCS, the new version of WebCT provides significant levels of integration with administrative data permitting greater ease of creating online courses for faculty. Nearly 500 course sections have been defined within WebCT at Rutgers in the past. The new version of WebCT will serve to encourage greater participation from the university community. RUCS spends about \$34,000 annually for the WebCT site license, saving the university about \$400,000 if licensed individually by user departments.
- A new version of Blackboard was also implemented, providing improved resources including: tip sheets and tutorials; lost password notification; book navigation buttons in the content area; specific learning pathways within a learning unit; grade weighting, sorting and ordering capabilities; additional calendar views; course content embedded within the calendar and tasks list; flexible course entry points. These enhanced features provide instructors with requested tools and features.
- To respond to a web virus, the Telecommunications Division temporarily deployed a web cache system between the university network and the Internet with the goal of improving web browsing performance, addressing virus issues, and lowering bandwidth consumption on Rutgers' Internet link. The system, comprised of a cluster of Cisco cache engines, stores recently viewed web content and provides copies of it to other users who request the same web pages around the same time period. It is still in place for residential facilities.
- The second phase of the Articulation System (ARTSYS) project was implemented. Phase 1 established course articulation between New Jersey community colleges and Rutgers, providing prospective students with a web-based, user-friendly method to plan their academic career at a community college in preparation for transferring to Rutgers. Phase 2, implemented this year, provides automated articulation of electronic transcripts received from NJ community colleges. This process enables

electronic transmission and receipt of transcripts from community colleges to Rutgers, performs course articulations, and automatically posts transcript data to the Rutgers Undergraduate Admissions System and Student Records Database. Benefits include enhanced service to prospective students and community college advisors and more automated, streamlined and timely processing of transfer student data.

- ACS has made functional and graphic enhancements to the Calendar of Events application. The Calendar now has a new look, more features and better organization. The user interface is designed to fit on the screen better and to make it easier to distinguish information about events.
- The Telecommunications Division has deployed a pilot Voice Over Internet Protocol (VoIP) system to evaluate the technology and feasibility of utilizing network based telephone systems to supplant the traditional Centrex service provided at Rutgers. Currently, about 40 staff personnel are using IP phones from Cisco with dial tone delivered digitally over a 'trunk' from Verizon's switching station. These phones provide staff personnel with both normal telephone features, such as 3-way calling and caller-ID, as well as the more advanced features like group pickup and call parking that Centrex normally provides. A successful pilot of this technology could lead to millions of dollars in long distance telephone savings annually.
- In Camden and Newark, account tools were completed for all central computing systems. Users can now use the web to change passwords, change Unix finger information, check account quotas, forward email to another address, and set vacation messages. Implementation in New Brunswick is scheduled for September.

3. Customer Service and Support

a. Become a role model within the higher education community for faculty, staff and student satisfaction and service excellence.

In Fiscal Year 1997, a survey was conducted to assess student, faculty, and staff satisfaction with RUCS services, to aid in our focus on becoming a role model within the higher education community for customer satisfaction, service excellence, and efficiency. A comparable survey was conducted this fiscal year. The current study indicated a dramatic improvement in the level of satisfaction with RUCS' services. Specifically, preliminary analyses of the data indicated the following:

- While most faculty and staff continue to characterize themselves as "intermediate computer users" – one-third of students now see themselves as "experts" compared to only one-in-five who did so in Fiscal Year 1997.
- The most dramatic results of this study are the changes in user satisfaction over the five year period between the two surveys. In Fiscal Year 1997, percentages of those who were "Very Satisfied" with RUCS systems or services ranged from three percent among faculty at Douglass/Cook campuses to a high of 23% among faculty at Camden. The current survey indicates that, across campuses, 44% of staff, 36% of faculty, and 26% of students are "Very Satisfied." There are no instances where dissatisfaction is greater than satisfaction for any group on any campus.
- Among students, faculty, and staff who indicate that RUCS services are "Very Important" to their work, the percent indicating that they are "Very Satisfied" with these services is markedly higher (36% for students, 43% for staff, and 50% for faculty).

- Email is a service widely used by Rutgers students, staff, and faculty. Current satisfaction with this service is highest among staff (60% are “Very Satisfied”) followed by 53% of faculty and 40% of students expressing this high level of satisfaction.
- Students universally access the schedule of classes on the web and two-thirds are “Very Satisfied” with this service.
- The Rutgers Online Directory (Find People) is another popular service among faculty, staff, and students. More than 80% of the respondents have used this service and report 60–70% levels of extreme satisfaction.
- Satisfaction with telecommunications and networking has markedly increased. This was an area of dissatisfaction found in the prior study. Access to the WWW has maintained a constant high level of use over the period between the two studies with three-fourths or more using the WWW. Satisfaction with access to the WWW has doubled since 1997, with more than half of the current respondents expressing the highest level of satisfaction.
- While the use of dial-up modem services has declined over time as other options have become available, more users are satisfied with this service than are not (which was not the case in the previous study).
- The proportion of those expressing the highest level of satisfaction has more than doubled over this five year time period with approximately half of faculty, staff, and students indicating they are “Very Satisfied” with their direct connection from their lab or office. This high degree of satisfaction is found for most groups on most campuses for a wide variety of other user services, administrative service, and instructional services as well.

RUCS worked diligently to improve customer satisfaction with the organization’s services this year. Resources were increased in user-support areas and a dedicated effort on the part of RUCS’ management to focus staff personnel efforts on service quality resulted in these improvements. For example, the number of inquiries to the RUCS help desks increased dramatically, with many individuals becoming “repeat customers” due to the helpful guidance they were provided. And, despite an increase in the number of students with direct network connections in their residences, the number of students who visited the computer labs for the services offered in these facilities increased by 1%, indicating the value students place on the resources available in these facilities. Students visited the labs about 2.7 million times this year, spending about 2 million hours on the computers.

Some other examples of fiscal year activities in this area follow:

- To provide consistency and continuous reinforcement of procedures, a standard operating procedures handbook was recently created for the RUCS Help Desk. The handbook documents Help Desk process procedures for common problems, questions and inquiries from the campus community.
- The Information Protection and Security division began scanning university-computing systems for computing vulnerabilities with positive departmental responses. The need for a process to determine system weaknesses is necessary for university information assurance. In Camden and Newark, additional computing system scanning of local systems was performed and the results shared with departmental computing staff to assist in determining adequate means to improve departmental computing security.

- At the request of the Newark Law School, a pilot cyber café was created in the Center for Law and Justice. The café provides computer workstations and a conference area where students may have beverages while working on projects. Although currently referred to as the cyber café, the area will be given a unique name at a future time.
- RUCS completed installation of Secure Shell (SSH) services on the central computing systems on all campuses. SSH permits end-users with SSH client software to connect to RUCS systems with an encrypted circuit, so that communications channels and the data that travel between endpoints are secure from being interpreted by eavesdroppers who may capture network traffic. The installation of SSH on central systems is part of a larger initiative to provide the university community with more flexible and secure access to services and facilities.
- Last summer, the RUCS–New Brunswick Help Desk implemented a “request tracking” system, to assist in gathering data on user requests for assistance. The system was successful in providing statistics, identifying problem trends, quantifying the volume of support calls received, and it is being used to enhance customer service for next fiscal year.
- The pilot of myRutgers portal (<http://my.rutgers.edu>) represents a joint effort between Rutgers College and RUCS. myRutgers brings together Rutgers web content and services (such as: email and chat; external news, sports, and weather; grades, transcripts, registration and bill payment) into an easy to use interface that students can personalize according to her or his needs and interests. The pilot group initially started out with 200 students and has recently been expanded to include 3000 incoming first year and transfer students from Rutgers College. The myRutgers portal is based on the uPortal framework which is also being leveraged to solicit feedback from students and provides a platform for Rutgers developers to adapt the portal paradigm as an information delivery mechanism.

b. Recruit and retain highly qualified information technology professionals.

Recruitment and retention activities remain an important part of RUCS’ development as an organization. At the conclusion of fiscal year 2002, RUCS had 243 full-time state lines, one part-time line and 61 full-time auxiliary lines.

Although RUCS was allocated eight new state lines during this year (two in ACS and six in TD), 13 state lines were lost. This represents an overall reduction of five state lines from the previous fiscal year. Two half time lines were lost during the Spring 2002 budget reduction and 12 state lines were transferred from RUCS to other departments for dedicated computer support. Staff lines in RUCS were distributed as follows:

Division	State	Non-State
ACS	99	7
Administration	10	0
Camden	10	4
Newark	13	4
NBCS	52.5	30
TD	59	16
TOTAL	243.5*	61

* includes part-time lines

In addition to staff personnel listed above, RUCS employed 180 Type 4 (temporary) employees and 652 Type 5 (Rutgers student) employees to provide user support at our help desks and in our computer labs, and to support many other initiatives.

During the year, 29 full-time staff personnel were hired into job families as shown below:

Job Family	ACS	Admin	Camden	Newark	NBCS	TD	TOTAL
Applications Development/Maintenance	4	-	-	-	1	-	5
Management	2	1	-	-	-	-	3
Network Engineering	-	-	-	1	-	4	5
Network Technician	-	-	-	1	-	1	2
Operations/Production	-	-	-	-	-	-	-
Systems Programming/Administration	2	-	-	2	4	-	8
User Services and Support	-	-	-	1	2	-	3
Administration and Clerical	1	-	-	-	1	1	3
TOTAL	9	1	-	5	8	6	29

Although limited by the university's budgetary situation, recruitment tended to occur through: Rutgers internal UHR job postings; Computing Services Human Resources Job Opportunity Website; posting on job websites; professional, higher education, outplacement; posting on technical organization listserves; newspaper advertising; attendance at technical job fairs; student training/mentoring program; referrals; search firms.

The Performance Development Program progressed smoothly this year. Supervisors conducted appraisals for all applicable APS staff members, 16% of whom exceeded standards, 83% of whom met standards, and 1% of whom did not meet standards. A total of 23% of the eligible APS staff received one-time performance bonuses to recognize and reward a particularly significant contribution that advanced university objectives.

An internal RUCS committee consisting of the University and Campus Directors, Executive Director and the Assistant Director for Human Resources, reviews all recommendations for hires, reclassifications and promotions. Directors recommending any of these personnel actions provide clarification and justification for each action. The committee provides feedback to the Executive Director, who in turn makes a final decision before forwarding the recommendations to University Human Resources. This process helps to insure equity and consistency in personnel classifications across RUCS' divisions.

RUCS conducts an Introduction to RUCS Program for new staff hired during the year. The program is designed to instill a sense of community to new employees, to encourage interpersonal networking between new employees and RUCS management, and to give these employees the scope of their position within the University and RUCS. This program consists of a welcome by RUCS Executive Director and an overview presentation by the five divisional directors and the RUCS Assistant Director of Human Resources.

The Executive Director's Award for Excellence award was established this year to recognize truly outstanding ability and achievement among Computing Services staff. Two Systems Programmer/Administrators, William Yodlowsky, Newark Computing Services, and Timothy Hayes, Telecommunications Division were the first recipients of the award. They were unanimously selected by RUCS' directors for clearly demonstrating our organizational values of teamwork, innovation, professionalism, integrity, and initiative.

RUCS' leadership strongly encourages and supports the professional development of our personnel. We recognize that an important factor in retaining and motivating our top technical leaders is to demonstrate our concern for their development by continually providing quality, practical learning opportunities. During the last year, Rutgers' Center for Management Development (CMD) facilitated a training program for 32 of our mid-level leaders entitled "Internal Consulting Skills for Technical Professionals." The goals of the program were to strengthen individual skills and effectiveness, and to provide an opportunity for these leaders to develop personal and professional relationships that would benefit cross-organizational communication. This eight-day program, designed specifically for IT leaders by CMD faculty, focused on assessing consulting (or customer service) models, diagnosing and measuring services and support, client relations, change management, facilitation and conflict management, problem solving and decision making, working effectively in teams, and project planning.

4. Connectivity

a. Design, build and support a world-class network infrastructure that will support the expanding administrative, instructional, research and service needs of the University.

The initial phase of the RUNet project will be successfully completed in August of this year. The goals: to upgrade and expand the telecommunications network; to install wiring in the interiors of 260 campus buildings; to begin operation of a private, university-wide video network; to increase the speed and capacity of intercampus links among the university's three regional campuses; will be met in less than three and one half years, more than six months earlier than anticipated at the start of the project and within the allotted budget.

In Fiscal Year 2002, the project wired the interiors of an additional 33 residential buildings and 21 academic/administrative buildings. RU-TV was activated for an additional 6,700 students. Twenty (20) academic/administrative buildings also received RU-TV service during the fiscal year. In addition to wiring buildings through the RUNet project, RUCS provided fee-for-service network installation services in nearly 120 buildings, bringing about \$430,000 into the organization.

Network management became even more important this year as the number of members of the Rutgers' community with network access increased. Although RUCS doubled network bandwidth this year, at a total cost of about \$1.6 million, and in an effort to be good stewards of university resources, we also needed to enact policies to limit overutilization of the bandwidth by residential students. This "good network neighbor" policy was well-received and ensured that all students who used the network received high quality service. This policy was highlighted in a *New York Times* article.

5. Communication

a. Develop and execute communications plans which inform Rutgers' faculty, staff and students of University Computing Services' mission, functioning and activities.

RUCS put significant effort into communicating about its services to the university community. The "Students' Guide to Computing Services at Rutgers" was distributed to more than 40,000 students. The "Faculty and Staff Guide to Computing Resources at Rutgers" was distributed to all faculty and staff. "Your Guide to Computer Networking at

Rutgers” and “Your Guide to Computer and Video Networking at Rutgers” were distributed as appropriate to residential students on all three campuses. RUCS also produced several other documents about new and existing services for distribution to current students, faculty, and staff, and for use by the Admissions Office for recruiting activities at both on- and off-campus events.

In addition to documentation, RUCS staff personnel spoke about services and answered questions at new and transfer student programs, orientations, and Open Houses on all campuses. Specialized orientations for resident advisors and preceptors were also held.

The Information Protection and Security division created a departmental security guide and process to be used by department managers and computing specialists to assist them in conducting departmental assessments of their IT security postures.

The Information Protection and Security Division hosted security training in coordination with the System Administration, Networking, and Security (SANS) Institute. Under the initiative, 32 university employees received training and a practical exam toward Global Information Assurance Certification (GIAC). More than half the cost for each participant was borne by RUCS, totaling nearly \$20,000. The SANS Institute is a well known cooperative research and education organization through which more than 156,000 security professionals, auditors, system administrators, and network administrators collaborate.

RUCS’ leadership provided informational presentations to the following: the New Brunswick Computing Advisory Committee, RU Libraries Privacy Symposium, Newark Information Technology Expo, Administrative Council, University Senate, and Governor’s School.

Some other examples of activities in this area follow:

- RUCS coordinated a response to a request from the NJ Task Force for Domestic Security Preparedness that became part of the university’s response to a special state subcommittee. The NJ higher education community is required to prepare the security assessment and “best practices” list for physical and technical security.
- A new Information Protection and Security website was launched early in the fiscal year. The new website, <http://infoprotect.rutgers.edu>, provides insight into the creation of the security division as well as its mission, goals and challenges. The site includes links to information about abuse reporting (<http://cirt.rutgers.edu>), virus updates, and software downloads.
- New Brunswick Computing Services launched an advertising campaign in the *Daily Targum* to promote services, facilities, and related computing issues.
- Following a juried selection, the Web Online Payment project was selected for presentation at CUMREC, a national organization devoted to administrative information technology in higher education. The presentation focused on the technical framework designed to support Rutgers credit card processing, as well as the complexities encountered and lessons learned during the project. It was meant to give other institutions technical staff insight into implementing a similar solution.
- The Web Futures Committee, chaired by an ACS staff member, recommends web policies, standards and guidelines for university web sites and communicating them to those responsible for developing and maintaining web sites at the University. The committee includes staff from ACS, NBCS, University Relations and Campus

Information Services. This year the committee completed the university's web policy and recommended guidelines that were approved by the President's Cabinet and have been included in the university's Operations Standards Manual. The Web Futures Committee also coordinated several Web Developers meetings throughout the year targeted at administrative decision makers as well as the technical staff.

- ACS is leading the effort in organizing and hosting the JA-SIG (Java special interest group) uPortal Mid-Atlantic Regional meetings, attended by computing managers and web developers from Columbia, Villanova, Princeton, University of Delaware, and Rutgers. To keep the momentum moving and encourage more collaboration, Rutgers and Princeton jointly sponsored the first regional JASIG uPortal meeting in January, 2002 at Princeton. Rutgers sponsored the second JA-SIG uPortal Mid-Atlantic Regional meeting in April, 2002.
- Newark Computing Services provided technical presentations and individual technical support for the Greater Newark Business Development Consortium workshops. These workshops are sponsored annually for local small businesses wishing to become more adept at using technology in the pursuit of their business support activities.
- Camden Computing Services produced fall and spring newsletters highlighting both local and university-wide RUCS initiatives. Staff also extended their services to the student newspaper, *Gleaner*, and wrote four articles covering topics of interest (labs, security, email) to the student body.
- Newark Computing Services inaugurated the Newark Information Technology Forum to promote local distribution of information obtained at the university-wide meetings and to share technology updates between campus departments.
- The RUCS Computer Store hosted a multi-vendor technology show in the Busch Campus Center to highlight new technology and offer the university community the opportunity to interface directly with our business partners.
- Presentations made at this year's EDUCAUSE conference included: IT Leveraging to Promote Technical Cultural Change in a Large, Diverse Institution, and The Rutgers IT Complex.

b. Work closely with the Department of University Relations to inform the Rutgers community and local media about Computing Services' activities.

During the Fiscal Year, Rutgers was honored by being the focus of a major article in the *New York Times* on networking in higher education. The article discussed Rutgers' reasonable policies about bandwidth utilization at the university. Other articles about Computing services and the RUNet project appeared in *Rutgers Focus*, *The Daily Targum*, and *Green Print*.

Working with the RU-TV network, RUCS produced a short video introducing new students to computing at Rutgers. The video was highlighted on the RUCS website at the start of the school year.

Information about computing and about Computing Services at Rutgers was provided to the Office of Media Relations to assist in development of a variety of press releases, speeches, and other materials.

RUCS worked closely with the Office of Creative Services to produce several new informative booklets about Computing Services at Rutgers for students, faculty, and staff.

Fiscal Year 2003 Goals

RUCS' strategic planning efforts have resulted in a sharpening of our strategic goals, with an increased focus on services that facilitate teaching and learning, research and discovery, community engagement, and improving the quality of university life for students, faculty and staff. The strategic goals, reported in our recently released strategic plan, follow as do the implementation activities anticipated for Fiscal Year 2003. Our ability to accomplish these goals is contingent upon the availability of the funds allocated in this year's budget to support our activities and personnel.

1. Facilitate achievement of Rutgers teaching and learning mission

a) Provide technology support for the learning process

We will support the development of IT-based teaching and learning through implementation of standardized resources and applications. We will develop support models and articulate our relationships with students, faculty, staff, departments, centers, colleges and schools.

Specifically, we will:

- Collaborate with Teaching Excellence Centers and faculty to define a standard tool for web-based instruction. Develop support mechanisms for the selected tool
- Clearly articulate what students, faculty, staff, departments, centers, colleges, and schools can expect from RUCS and what services we will provide
- Outreach to faculty and students to better understand what we can do to assist them in accomplishing their teaching and learning goals
- Work with ITCC to develop a university-wide planning structure for instructional support

b) Design, develop, and maintain IT infrastructures to enhance the transfer of knowledge

We will create, maintain, and encourage the use of IT infrastructures to facilitate electronic communication and collaboration among and between students and faculty. We will provide seamless access to distributed services and information repositories.

Specifically, we will:

- Develop a university-wide authentication mechanism and educate the university community about its benefits
- Develop and pilot next-generation email and calendaring service
- Continue to make improvements in the operation of the public computing labs
- Maintain and upgrade RUNet and begin development of Rutgers Regional Network
- Facilitate collaborations among Rutgers faculty and students through further development of RUNet and the Rutgers Regional Network
- Lead transition from legacy to RUNet infrastructure in partnership with departmental computing personnel

c) Present new opportunities for the use of technology in teaching and learning

We will support standard IT environments for the integration of online resources into teaching and learning. We will provide training toward the application of technology in learning.

Specifically, we will:

- Pilot the use of wireless technology on all campuses
- Create and support standard central services, such as web courseware and streaming video, in support of teaching and learning
- Expand technology training in areas of need identified by faculty and students

d) **Provide administrative and other computing support for teaching and learning**

We will provide and support a set of well-defined IT services to facilitate teaching and learning. We will maximize opportunities for use of web and other state-of-the-industry technologies for activities that support teaching and learning.

Specifically, we will:

- Expand availability of web-based payment systems
- Provide administrative data for integration with course management tools
- Maintain and improve access to online applications such as course rosters, grades, transcripts, schedule of classes, and course registration

2. Facilitate achievement of Rutgers research and discovery mission

a) **Provide IT support to enhance the investigative process**

We will design services and systems to provide capabilities for collaboration in research and information management. We will develop support models and articulate our relationships with students, faculty, staff, departments, centers, colleges and schools.

Specifically, we will:

- Expand technology training in areas of need identified by faculty and students
- Clearly articulate what students, faculty, staff, departments, centers, colleges, and schools can expect from RUCS and what services we will provide
- Outreach to faculty and students to better understand what we can be doing to assist them in accomplishing their research and discovery goals
- Provide improved data storage capabilities

b) **Design, develop, and maintain IT infrastructures to enable researchers to communicate and collaborate with their colleagues**

We will construct facilities using contemporary communications technologies and services to enhance the collaborative experience between members of the research community.

Specifically, we will:

- Maintain and support Rutgers connections to the Internet, Internet2, and NJEdge.Net
- Facilitate collaborations among Rutgers researchers through further development of RUNet and the Rutgers Regional Network
- Investigate the development of advanced communication technologies and make available for research applications
- Lead transition from legacy to RUNet infrastructure in partnership with departmental computing personnel
- Develop and pilot next-generation email and calendaring service

- c) **Present new opportunities for the use of technology in research and discovery**
We will provide the research community with resources to facilitate their investigations through central computing facilities and services. We will investigate new opportunities for use of IT by the research community.

Specifically, we will:

- Continue to maintain and support Rutgers connections to the Internet and Internet2
- Work with faculty groups to determine technologies needed to support research, such as encryption technologies and new operating systems
- Investigate collaboration with other university entities to sponsor a research computing symposium for Rutgers faculty and students

- d) **Provide administrative and other computing support for research and discovery**
We will provide and support a set of well-defined IT services to support research and discovery.

Specifically, we will:

- Develop relationships with academic offices for administrative support of research computing systems
- Develop operational support models for hosting research computing assets in RUCS facilities
- Construct technical standards for the research community to follow in communications technologies and administrative practices in system management
- Encourage researchers to use web-based resources

3. Facilitate achievement of Rutgers community engagement mission

- a) **Promote opportunities for communication and collaboration within and between the institution, its alumni, and the community**

We will construct services to facilitate the timely communication of institutional events, educational opportunities, and research and establish common channels to institutional information from sources throughout the University.

Specifically, we will:

- Expand use of electronic lists to decrease paper use for communicating institutional information and events
- Work with Campus Information Services to improve information available on RU Events calendar
- Work with Campus Information Services to update the university's central maps

- b) **Partner in the creation of New Jersey's educational infrastructure through development of common technological resources**

Through appropriate partnerships, we will foster interactions with K-12, higher education institutions, and state government organizations.

Specifically, we will:

- Work with offices of State and Federal government liaison to examine availability of funding mechanisms for collaborative IT-dependent programs
- Work with appropriate corporate partners and NJEdge.Net to investigate expanding Rutgers Regional Network to other educational and government entities

- Continue leadership role in NJEdge.Net
- Continue support for New Jersey Professional Education Port for the NJ Department of Education, the State of New Jersey, and the US Department of Education

c) **Establish effective relationships beyond the immediate community for promoting the purpose and interests of Rutgers University**

We will work with corporate and government partners to complement institutional goals. We will actively participate in regional and national educational forums, presenting the direction and development of technology at Rutgers.

Specifically, we will:

- Continue active participation in Internet2, EDUCAUSE, and CUMREC. Investigate hosting a one-day learning technology symposium for faculty from throughout the state
- Work with offices of State and Federal government liaison to examine availability of funding mechanisms for collaborative IT-dependent programs

d) **Provide administrative and other computing support for community engagement**

We will develop services aimed at facilitating community involvement and support those departments and offices providing direct outreach to the greater University community.

Specifically, we will:

- Maintain and improve access to online applications such as Admissions applications, financial aid applications, ARTSYS
- Work with Office of Continuous Education and Outreach to enable expansion of distance learning course offerings

4. Facilitate improvement of the quality of university life for members of the Rutgers community

a) **Provide effective two-way communication about RUCS, its services, guidelines, and policies**

We will implement a comprehensive communications plan to include methods for the University community to provide feedback to RUCS regarding its operations.

Specifically, we will:

- Develop and implement a communication plan to include standardization of information and design on all RUCS websites and for all RUCS publications
- Develop and implement a formal information dissemination program about RUCS services
- Develop and implement formal feedback mechanisms about RUCS services

b) **Provide tools and approaches for a secure IT environment**

We will develop and implement comprehensive information protection, security, and user identification measures throughout the university. We will advise departments and individuals about and provide tools for securing equipment and protecting information.

Specifically, we will:

- Develop a security awareness training program

- Work with identified unit computing specialists and other departmental computing personnel to improve security of departmental computing systems
- Develop standards for use of firewalls at the university
- Expand use of NetIDs and other mechanisms for authentication
- Improve security of central services

c) **Establish and communicate quality of service standards for RUCS' core and fee-based services**

In consultation with the university community, we will prioritize a set of core services that RUCS will provide, and set quality of service standards for the services. We will establish consistent policies and guidelines for fee-based services and products.

Specifically, we will:

- Define RUCS core services and set quality of service expectations for them
- Identify outmoded technologies and processes
- Define, set standards and set standardized fee structures for fee-for-service activities
- Produce appropriate communication vehicles to inform the university community about RUCS services, quality of service expectations, and fee-for-service operations

d) **Provide administrative and other computing support to improve the quality of university life for members of the Rutgers community**

We will provide and support a set of well-defined IT services to facilitate the business processes and everyday activities of members of the university community. We will set university-wide standards for state-of-the-industry IT products and services.

Specifically, we will:

- Maintain and enhance web applications such as pay for performance, faculty survey, people database, email, and listserves
- Work with ITCC to set priorities for major system development and administrative initiatives
- Work with business areas to eliminate use of out-of-date technologies and move toward newer technologies
- Provide data for use by such organizations as the Rutgers Foundation, RU Connection, Office of Public Information
- Improve support for computing access from off-campus locations

Ongoing operational strategies will include:

- Building better relationships with stakeholders, strategic partners, and customers
- Educating the university community about Information Technology and how it can be used to assist members of the community in achieving their goals
- Improving the efficient use of human and financial resources and identifying new opportunities for resources
- Promoting employee development and training
- Reviewing progress made in achievement of goals