OFFICE OF

Information Technology

ANNUAL REPORT

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UNIVERSITY *of* ALASKA

OFFICE OF
Information Technology

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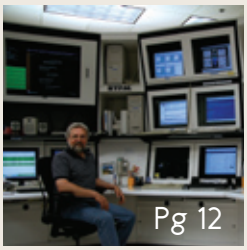
FEATURES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Spotlight: OIT Data Center

Did You KNOW?

Home Sweet Home! The Data Center moved from the Bunnell to Butrovich in September 1993.

24x7: Only 1 day of offline maintenance annually.

Feeling Hot! Hot! Hot! Heat output per computer rack has grown 6 times higher in the last decade.

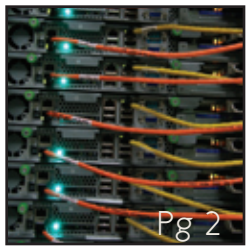
Chill Factor: Without cooling, some computer systems in the data center will overheat in less than 8 minutes.

We Have the Power! During an outage, 480 industrial batteries provide 30 minutes of power to systems in the data center.

Shocking! The average household could run for 2 years on the amount of power used by the data center in a single day.

Standing Room Only: Currently, 110 racks occupy the 12,000 SF of floor space in the data center.

Room to Grow? The data center is already using 85.3% of its 720 kW electrical capacity.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Wherever You Are, IT is There


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Events and Highlights


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Accountability

Wherever IT Is There

Steve Smith
Chief Information
Technology Officer

Information Technology (IT) continues to grow as an essential tool for students, faculty, researchers, and staff, everyday, wherever they may be. Mobility has expanded exponentially, from cell phones that have become handheld computers to remote sensing that collects huge amounts of data in every aspect of our daily existence.

IT is the nervous system of the 21st-century university, and the Office of Information Technology provides the framework for that nervous system. From urban campuses to research field stations, from residence halls to offices, IT is there. Whether providing support for the local computer users or connecting the university with Alaskans across the vastness of the state, IT is an integral part of our everyday lives. We expect it to be there when we need it, and we take for granted that it will be there.

To provide this support, OIT staff work closely with IT professionals throughout the system. In our second annual report, we've highlighted not only OIT's activities, but those of our peers from UAA and UAS. OIT also engages with partners outside the university to bring new opportunities for research and education to the state of Alaska. This type of collaboration resulted in a substantial bandwidth gift from GCI that will significantly expand UA's capacity for research and instruction.

The OIT Data Center, located in Fairbanks, is the hub of the university's data network and administrative systems. Functioning like the "man behind the curtain," the Data Center operates unseen, providing around-the-clock service every day of the year. In this report, we highlight the Data Center and Manager David Rohwer, OIT's own "great and powerful Oz," who works hard to keep the university's nervous system working without pause.

The UAS IT Services (ITS) team is dedicated to making UAS an exceptional place to learn, work, and live by providing infrastructure and services responsive to the needs of the university community. The ITS team seeks to achieve this goal by directly involving students, academic programs, and administrative departments in the ongoing development of a unique teaching and learning enterprise architecture. The ITS department has four objectives designed to support the UAS strategic plan and the Performance Based Budgeting (PBB) goals. IT services provided at UAS are secure and reliable, accessible, responsive, and educationally relevant. These objectives are used to prioritize the allocation of resources and guide the development of new IT services. The priorities for FY08 included the following:

SECURE AND EASY LOGIN

UAS has well-established systems that allow individuals to activate computer accounts and reset their own passwords. Over the past year, UAS IT collaborated with OIT to scale these solutions to the UA system. The result is the "UA Easy Login Maintenance Option (ELMO)." (http://elmo.alaska.edu)

COLLABORATIVE TOOLS FOR STUDENTS

UAS implemented two new tools to support student collaboration. BubbleNET provides a secure way to foster academic and social communities among students and employees. The tool allows participants to see at a glance the interests and backgrounds of others in the UAS community. This project was a joint effort between UAS Student Services, Public Information, and IT Services. (http://uas.alaska.edu/bubblenet)

UAS adopted the open-source solution that powers Wikipedia. Developed in response to interest from the UAS Teaching, Learning & Technology Roundtable, this customized wiki allows faculty to add secure wiki pages to their course sites. Like most UAS Web services, this service is open to all students and employees in the UA system. (http://wikiuas.alaska.edu)

IDENTITY PROTECTION

Keeping student and employee identify information secure is a priority for UAS. Working with the University of Alaska Anchorage (UAA), UAS is using a new system for student and employee identification cards. The new system is integrated with systems currently in place at UAA. UAS is phasing out old identification cards while retaining existing security infrastructure. A review conducted during the summer of 2008 will highlight additional opportunities to improve information security at UAS.

For additional information about UAS IT, visit www.uas.alaska.edu/technology

Michael Ciri
UAS Chief Information Officer

Michael Ciri has led the Information Technology and Media Services team since 2000. He is UAS educated, receiving an AA in 1988, a B.A. in Liberal Arts in 1994, and just received his Master's in Public Administration. Ciri has nearly 25 years of professional experience applying technology in higher education. He also holds the record for most consecutive years of living in student housing and is in the UAS mascot hall of fame as the original "Spike" the whale.

Employees: 17
Students Supported: 3,566
Employees Supported: 611

Karl Kowalski
UAF Chief Information Officer

Karl Kowalski serves as the Chief Information Officer for UAF in his role as Executive Director of OIT User Services. He has 20 years experience in public education and technology integration in rural Alaska schools. Kowalski is a UAF graduate, holding bachelor's degrees in Education and Biology. He earned his master's degree in Educational Technology Leadership from George Washington University. Kowalski began his new position with UAF in July of 2007 and has brought a renewed focus on customer service, enabling OIT to extend services to departments and organizations with a new can-do attitude.

Employees: 43
Students Supported: 9687
Employees Supported: 3982

Information Technology is a priority for UAF's new Chancellor, Brian Rogers. An IT Transition Team established new IT goals for UAF including improved access, faculty training, and planning. OIT will work with UAF to develop an Instructional Technology Plan to set direction and guide expecations. For additional information, please see the IT Transition Team Final Report at http://www.uaf.edu/transition/reports/IT-Transition-Team-Final-Report.doc.

UAF OIT has extended services to departments and programs, improved operations, put new tools in place, and worked cooperatively with distributed technicians throughout the campus to provide more efficient service. Many of UAF's FY08 IT projects focused on collaboration and student services:

SHARED ACADEMIC SOFTWARE

UAF increased the amount of shared and concurrent-use software to reduce costs and increase efficiency. New software includes tools for statistical analysis and, with the support of the Office of the Vice Chancellor for Research, a citation program to streamline the faculty publication process.

PARTNERSHIPS & SPECIAL EVENTS

UAF OIT provides operational support to the Barrow Arctic Science Consortium through a grant from the National Science Foundation. OIT technicians travel to Barrow throughout the busy summer research season to provide network, desktop, and server support. Additionally, OIT supported the 9th International Permafrost Conference and the International Polar Gateways Conference, providing both web-streaming and video conferencing services to a global audience.

STUDENT COMPUTER SUPPORT CENTER

Recognizing that many students now use their own computers, UAF OIT offers troubleshooting and repair and maintenance services to students for their personally owned equipment. This service, known as the Student Computer Support Center (SCSC), is conveniently available to students through three drop-off locations on the Fairbanks campus.

UAF is inspired and committed to an action-oriented process of continuous improvement of services and technological resources for all its students, faculty, and staff.

For additional information about UAF OIT, visit www.alaska.edu/oit

Under the direction of UAA leadership, Information Technology Services (UAA IT) provides support to UAA students, employees, and UAA-affiliated programs and activities. In FY08, UAA IT successfully handled 114,283 customer service requests, completed 43 of 68 engineering projects, and operated campus networks, telecommunications systems, and major computing systems and facilities. UAA also migrated to Voice-over-IP (VoIP) technology, combining voice and data services. Throughout this major transition, UAA was able to contain the cost of this service improvement so UAA customers can enjoy this superior service at attractive monthly rates. UAA IT completed several major projects and initiatives in FY08:

UAA WIFI

The 3rd generation of UAA's wireless campus network service was introduced in Fall of 2007. Two new wireless networks are available: UAA WiFi-Free provides access to all who visit UAA; UAA WiFi-Full is available to students, employees, and patrons. Trends show nearly a 500% increase in peak use by UAA customers, demonstrating the rapid growth of laptop and mobile device use.

911 EMERGENCY SYSTEM

UAA's new, state-of-the-art 911 system is capable of identifying the exact location of a caller reporting an emergency to local responders. This system, which utilizes VoIP, dramatically improves the safety and well-being of the UAA community.

ONLINE FACULTY & COURSE EVALUATIONS

Working with UAA's Faculty Senate and the Office of Academic Affairs, UAA IT implemented a new faculty and course evaluation system in FY08. Evaluations are now online within UAA's Blackboard course management system, allowing departments to receive timely feedback from students.

Other areas of focus for UAA IT include the following:

- UAA Technology Fellows – faculty teaching faculty how to use technology tools
- IT Service Management – improving IT service delivery
- Technology Equipment Refresh – updating existing systems
- Anchorage Data Center – server consolidation and capacity planning

For additional information about UAA IT, visit http://technology.uaa.alaska.edu/

Rich Whitney
UAA Chief Information Officer

Dr. Richard Whitney has held senior technology management positions in the telecommunications industry and education for 32 years. Serving as Chief Information Officer, Dr. Whitney has guided UAA's technology strategy since 1999. He holds a doctorate in Education from Utah State University and a baccalaureate degree in Psychology from the University of Utah. He is a frequent speaker and writer on topics ranging from "running IT as a business" to "strategic alignment of organizational mission with infrastructure and service delivery investments."

Employees: 40
Students Supported: 19,675
Employees Supported: 3,219

EVENTS AND HIGHLIGHTS

UAS Shares ELMO

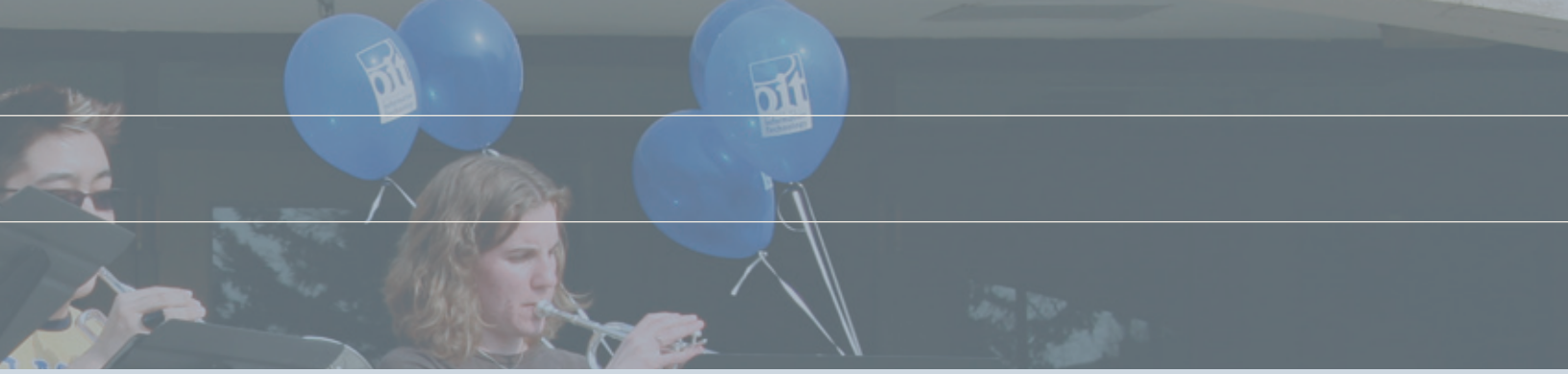
OIT rolled out an easy way to activate computer accounts and reset passwords (one of the most common "help" requests). This service, homegrown by the UAS IT department and utilized by UAS students, is dubbed "ELMO" for Easy Login Maintenance Option. ELMO is an example of how campus innovation can be expanded to benefit students, faculty, and staff across the UA system. By letting people reset their own passwords, this service provides a way to quickly resolve online access issues. In the future, other tools such as Blackboard and email will use this central authentication service. https://elmo.alaska.edu

Cyberinfrastructure (CI) Day

Like the physical infrastructure of roads, power grids, and telephone lines, cyberinfrastructure refers to the large-scale networking framework that empowers research, innovation, and outreach. Recognizing the importance of CI, OIT hosted Cyberinfrastructure Day, featuring presentations from NASA, the ResearchChannel, Arctic Region Supercomputing Center, Geophysical Institute, the International Arctic Research Center, and the Alaska Earthquake Information Center. Special guest speaker "NASA Mike" was on hand to demonstrate robotics used by NASA for space exploration. NASA Mike has been instrumental in getting kids interested in math and science across the globe.

OIT is currently working with research leaders throughout the university to develop a University of Alaska CI plan. This plan will be critical for UA entities to receive future grant funding. CI has and will continue to have a major impact on research and educational systems worldwide, advancing the world of education to a digital level.

Photos by Nile Mueller



The report from Statewide's external administrative review, Planning the Future: Streamlining Statewide Services in the University of Alaska System, identified opportunities for OIT to improve services. The recommendations provided in this report by Brian Rogers and Dr. Terrence MacTaggart range from operational efficiencies to specific changes for OIT services such as MyUA.

External Review

In response to this report, OIT is collaborating with UA leaders to improve the system-wide IT administrative structure. Through system-wide planning and prioritization, technology services will be improved across the UA system.

OIT has been exploring ways to improve email services. In FY08, OIT sent out a survey to the UAF and Statewide community to collect feedback about

Google

email preferences. The survey was a success–garnering over 1,300 responses. In addition to the survey, OIT leaders met with various groups to discuss email needs and options for future service. The option that has risen to the top of the list is out-sourcing email services to Google Apps for Education. This tool offers more functionality at less cost and frees up staff to work on other projects. In addition to email, users will have access to shared calendars, instant messaging, word processing, spreadsheets, and applications designed to create slide-show presentations. For additional information, please visit the online email FAQ at http://www.alaska.edu/oit/cas/projects/email-consolidation/faqs/.

EVENTS AND HIGHLIGHTS

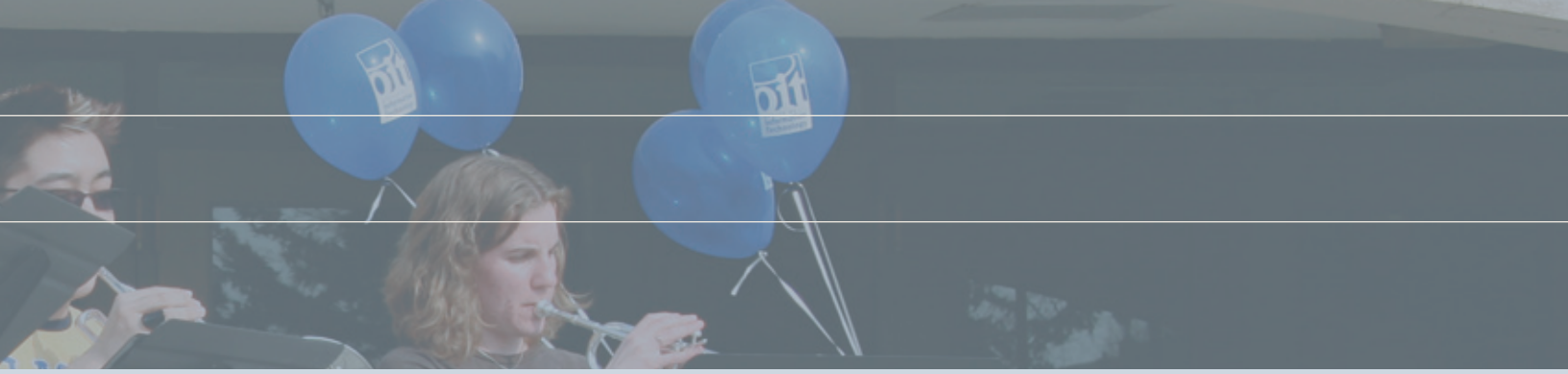
Wireless Network

In response to student requests, OIT upgraded Internet connectivity in the residence halls on the Fairbanks campus. Residence halls and the Cutler Apartments now have wireless Internet access in student lounge areas with faster connectivity speeds in the evening, when student-usage is highest.

UAF Classrooms Get Smart

In FY08, funds were awarded to upgrade and create smart classrooms. Classrooms are dubbed "smart" when they are outfitted with a computer, projector, and other tools that faculty use for instruction. For example, OIT partnered with UAF Facilities Services in the spring to upgrade the Schaible Auditorium. With large screens, presentation equipment, and an intercom system for immediate help and troubleshooting, this multi-use facility is available for classes and community events.

Student computer photo by Todd Paris, UAF Marketing & Communications



UAF Gets Online Facelift

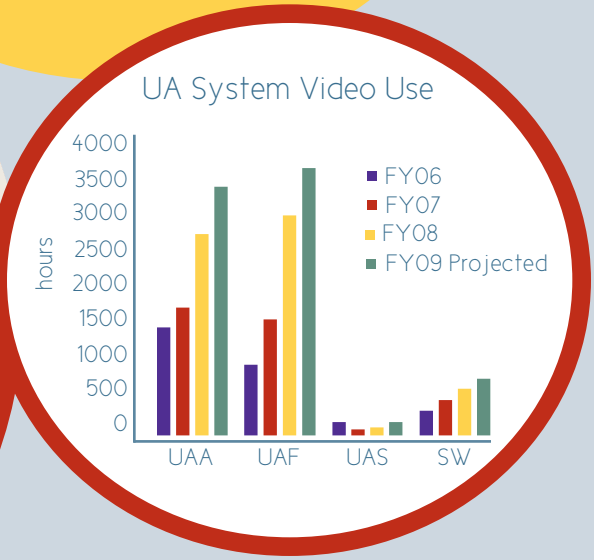
OIT worked with UAF Marketing and Publications to roll out a new set of web page templates to enable UAF departments to create and maintain online information. These templates make it easy for departments to use UAF logos, colors, and trademarks and for web visitors to know they are in Nanook territory!

Enterprise Architecture

The university engaged in automation efforts to improve service, contain costs and better utilize resources. OIT brought in Ernie Nielsen (Brigham Young University), Leo de Sousa (British Columbia Institute of Technology), and Scott Bernard (Editor in Chief, EA Journal) to conduct workshops on Enterprise Architecture (EA) and IT process improvement. These three IT experts shared their varied EA experiences with leaders from across the UA system.

Enhancements to UA Video Conferencing System

The videoconferencing experts in OIT continue to work with departments and programs to provide instruction via interactive video. Over the past year, OIT staff coordinated the upgrade of aging videoconferencing equipment as well as the installation of new facilities in Fairbanks and Juneau for UAF's School of Fishes and Ocean Sciences. OIT connects the university with institutions across the globe. For example, in 2008, an OIT videoconference workshop originating in Barrow, Alaska connected participants in the United States, Asia, Europe, and Antarctica. OIT commissioned an external review of the university's videoconferencing system in 2007, which helped identify upgrade paths, and continues to look for ways to deliver quality videoconferencing services.



EVENTS AND HIGHLIGHTS

OIT Revs It Up for Fairbanks Students

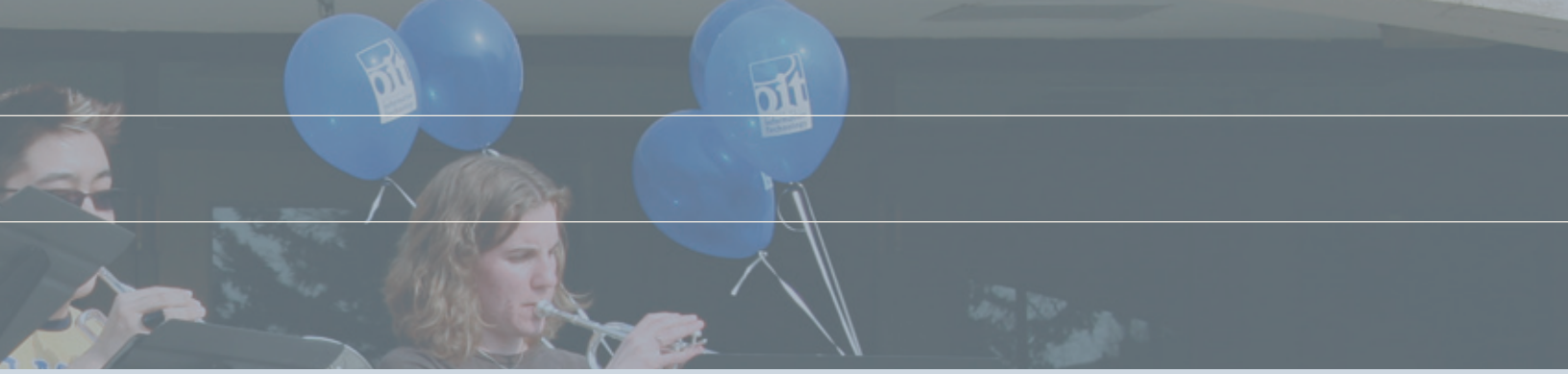
Each fall, OIT participates in Rev It Up, one of the freshman orientation events at UAF. In FY08, OIT staff helped over three hundred students set up their online accounts, network connections, and get answers to their IT questions. Not only does this event help students get oriented to IT services at the Fairbanks campus, it also reduces the number of help requests at the beginning of the semester.

Project Management

The OIT project management office provides staffing and oversight to ensure that OIT projects are successfully completed. Susan Sharpton, OIT's Senior Project Manager, has been working with OIT managers to catalog and prioritize OIT projects. Additionally, OIT has worked closely with the newly formed system-wide Program Management Office to enable university leaders to make more-informed decisions and to empower managers to manage their own projects.

Improving Communication

Many UAF departments and community campuses have their own employees who support technology based on their specific needs. OIT staff work closely with these distributed technicians to provide seamless service to students, faculty, and staff. In the fall of 2007, OIT hosted a Distributed Technician Summit, which brought together IT staff from various departments to discuss standards, share ideas, and identify ways to improve services.



Improved Access to Online Resources

OIT continues to improve the way an individual's online credentials (username/password) are managed. Over the past year, OIT has taken steps to streamline the authentication process for multiple applications. Allowing applications to use the same credentials makes the login process easier for the individual user. Additionally, OIT is working with the IT staff at UAS to provide a self-service password reset option for applications such as the system-wide web portal, MyUA, and Roxen, the UAF web content management system.

Security Reviews

The security of electronic information is a top priority. OIT is working with university departments to develop secure processes and increase security awareness.

In FY08, an in-depth review of IT security took place at UAF and Statewide. These reviews identified specific opportunities to strengthen security through improved processes. Similar reviews took place in early FY09 for UAA and UAS. Test your security knowledge by taking the quiz below.

True or False: Security Quiz

1. A strong password contains only lower case characters.
2. A safe password contains at least 8 characters.
3. Passwords should be written down in case you forget them.
4. It's okay to share your password with IT staff.
5. You should lock your workstation any time it is left unattended.
6. The university's email system will catch all viruses before they reach your inbox.

Key: F, T, F, F, T, F

Photos this page by Todd Paris, UAF Marketing & Communications

SPOTLIGHT: OIT Data Center

David Rohwer, Manager
Data Center Operations

David Rohwer started with the University of Alaska Computer Network as a computer operator in 1976, when the data center was located in the Bunnell Building. He has managed installations and upgrades of computer systems since the mid 1980s. In the early 1990s, research at UAF expanded to include supercomputing. David played a key role in designing the Butrovich Computer Facility, home of the university's computer systems, network, and UAF's supercomputers. A forward-thinker, David is leading the way for capacity planning and energy efficiency. *Photo by Isabel Martinez.*

Top of the World, Top of the Line

In some cases, it is not a matter of *if* something fails, but *when*. **Reliability** means that we have online spare components or systems for each area of the data center that is likely to fail. For example, if two pumps are required to move chilled water through the data center, three are installed so that if one pump fails, it does not impact service to the university. This standard is known as N+1 (what you need, plus one more). Today, the OIT data center is fully reliable for all failure-prone components.

In the IT world, **redundancy** is a good concept. It is like reliability, but takes it a step further by ensuring backups for all components, including those that are not likely to fail. Redundancy enables the data center to perform scheduled maintenance on equipment without interrupting service to the university.

As the demand for technology resources increases, the data center needs additional power, cooling, and space to provide the computer infrastructure needed to support the university. The computer operators track electrical and cooling metrics that are analyzed for future **capacity planning**. When the data centers services increase, capacity planning ensures well-considered growth.

The data center provides service to a multitude of university programs and external agencies including Arctic Region Supercomputing Center, Barrow Arctic Research Consortium, Center for Distance Education, Institute of Arctic Biology, Institute of Northern Engineering, and Alaska Public Broadcasting, Inc.

Breaking Ground for Shaking Ground

Alaska is part of the seismically active Pacific Rim; interior Alaska experienced a 7.9 earthquake in 2002. This event demonstrated the vulnerability inherent to data centers, where the typical computer rack is both tall and heavy. A new product, ISO-Base™, is now available to mitigate the risk faced by data centers in earthquake prone regions. OIT began installing ISO-Base™ platforms under new computer racks in 2006, which is now the standard for all new builds. Retrofitting this system to existing installations is difficult and being evaluated for cost-effectiveness.

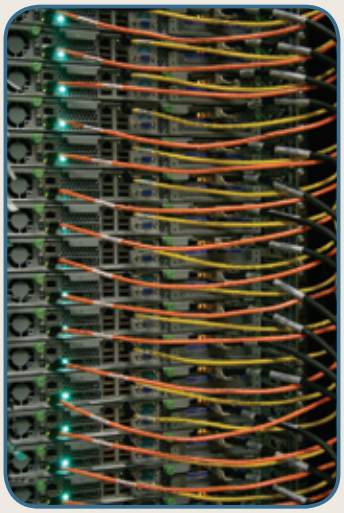
OIT staff carefully install ISO-Base™ platforms for new computer racks. *Photo by Monique Musick.*

Heavy-duty ball bearings keep computer racks from tipping when the ground is shaking (likes weebles, they wobble, but they won't fall down). *Photo by Monique Musick.*

Rack *photos (above) by Nile Mueller.* Background image: Lateral spreading from the 2002 Alaska earthquake demonstrates earthquakes are a reality. *Photo by Robert Kayen.*

SPOTLIGHT: OIT Data Center

David Rohwer, Manager of Data Center Operations is keeping an eye on the university computer systems and equipment. *Photo by Nile Mueller.*



Doing it right makes computer racks look good from front or back and allows for easy maintenance. *Photos by Nile Mueller.*

Active Monitoring

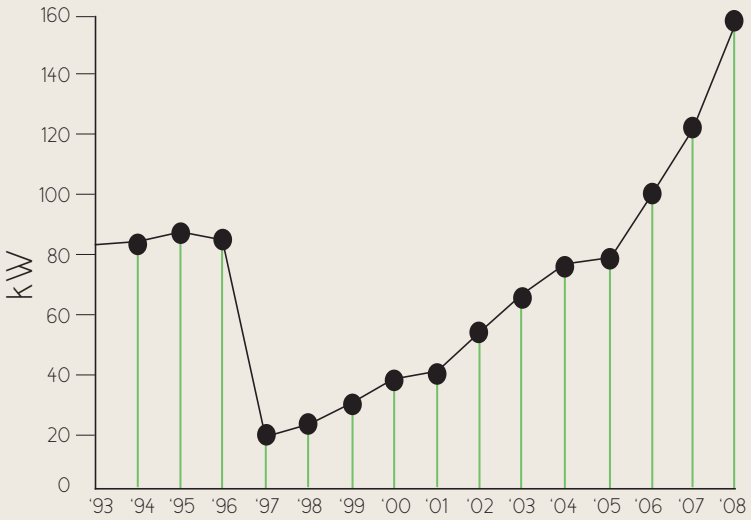
In addition to monitoring computer equipment, the data center is keeping a close eye on the computer environment. Including power distribution and quality as well as room temperature and humidity. The uninterrupted power supplies (UPS) and chillers are also monitored to ensure that adequate power and cooling is provided to the computers within the facility. Audible and visual alerts are responded to by the data center's 24x7x365 staff. When there is a problem, data center staff triage the situation and alert the appropriate on-call staff as needed.

Standard Rack

The university community relies on a predictable computer network. Equipment standards in the OIT data center are critical to ensuring that services are available when needed. A standard computer rack includes the following: a single provider and model for racks, which collects its cool air directly from the sub floor, and evenly distributes air to all servers, and ducts the hot exhaust upward in the rear. All unused slots in the rack are blocked to prevent reverse air flow, and cabling is tightly held to the sides to prevent disturbing the air flow.

Each computer rack is cooled by a closed-loop chilling system. *Photo by Nile Mueller.*

More Services = More Power



Since changing hardware systems in 1997, the data center's power consumption has steadily increased as OIT responds to the university's needs. This is one area addressed in OIT's capacity planning.

Keeping the Data Center On Ice

Cooling the data center is both energy intensive and energy expensive. Forty percent of the data center's energy costs are for chillers. Computer equipment is continually getting smaller and hotter. This trend, combined with the increasing cost of electricity, means that the data center's energy costs will grow. The existing chiller equipment will be ready for replacement in the next few years. To prepare, OIT is exploring other cooling technologies to contain future energy costs.

Who turned off the lights?

OIT customers expect to have their services available 24 hours a day, 7 days a week, without interruption. OIT has identified two ways to meet this need. A backup generator would provide electricity to the data center during an unplanned power outage. OIT is currently pursuing funding for this option. Additionally, redundant power supplies plugged into separate power distribution units enable OIT to perform facility maintenance with minimal interruption to service.

ACCOUNTABILITY

OIT MEASURES UP

OIT is working hard to streamline its business processes and improve services, and our hard work is paying off–in 2008 OIT showed an improvement in services across the board.

In FY08, OIT closed over 4,300 desktop computer trouble tickets in an average of 5.25 days. This is approximately 3 days **faster** than FY07.

The OIT Support Center is a central point of contact for UAF, Statewide, and the UA System. They responded to 35,500 help requests in FY08, an increase of 7,600 from the previous year.

What a difference a year makes!

OIT doubled the amount of classroom time, offering over 1,800 hours of IT training in FY08, serving over 600 employees across the Fairbanks and rural campus locations.

In FY08 nearly 77**%** of help requests were resolved on the spot by the OIT Support Center, up from 73**%** in FY07. Other issues were forwarded to the appropriate technical staff for resolution.

Student Network Fee – What's in it for you?

All students need access to technology regardless of location. In FY08, the Student Network Fee produced approximately $1.8 million in revenues to improve student services across the UA system.

- Telephone Services
- Academic Software
- Pod Casting
- Instant Messaging
- Streaming Video
- Wireless Access in Residence Halls
- Computer Labs
- Internet Access
- Technical Support

How OIT invests the UAF Technology Fee.

Each year, the UAF Technology Advisory Board (TAB) allocates student fee revenues to fund innovative technology projects. TAB awarded a portion of these funds to OIT to address student needs.

- Schaible Auditorium Renovation
- New Smart Classrooms
- Computer Lab Refresh
- Upgraded Smart Classrooms
- Night & Weekend Access to Computer Labs

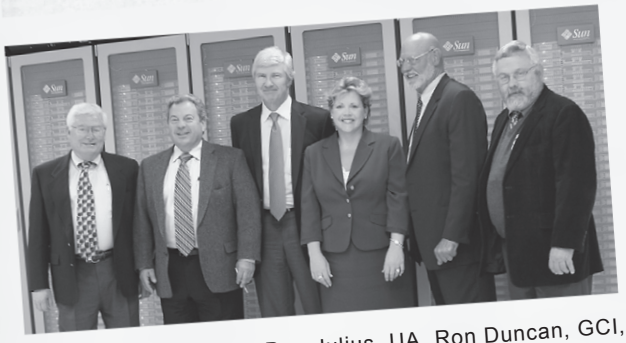
EXTRA EXTRA
UA Technology Times

For the latest: www.alaska.edu/oit

★★ Tuesday, October 28, 2008 | 50¢

$30 MILLION GIFT

GCI donates $30 million broadband gift toward education.



Richard Dowling, GCI, Dan Julius, UA, Ron Duncan, GCI, Mary Rutherford, UA, Mark Hamilton, UA President, Steve Smith, UA. Photo by Monique Musick.

In August 2008, the University of Alaska announced a gift of broadband capacity from GCI worth an estimated $30 million. The gift will free up bandwidth throughout the University of Alaska, benefiting all campuses across the system as well as K-12 schools throughout the state. Bandwidth in cyber-infrastructure is comparable to the number of lanes on a highway; the more it has, the more vehicles it can accommodate. Adding or freeing up more "lanes" on the cyber-highway allows UA to transmit and receive vastly more data and information. UA President Mark Hamilton stated, "In this digital age, the university must have a competitive level of network capacity – it's central to what we do."

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Cover photo by Nile Mueller.