Vice President for Information Services and Technology

Information Services and Technology (IS&T), under the leadership of Jerrold M. Grochow, focuses on service in consultation with the community and collaboration with the many other groups on campus providing computer facilities and support.

IS&T supports MIT's core mission—to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century—by working in partnership with the Institute's faculty, students, and staff to maximize the value of information technology to their work. IS&T focuses its activities through the lens of several strategic themes:

- Service orientation—understanding the goals and missions of the people and organizations at MIT in order to foster a collaborative environment for solving problems and planning for future information technology needs.
- Technological innovation and leadership—generating the ideas and experiments that will lead to the next generations of IT services.
- Excellence in project execution and management—on-schedule, on-budget delivery of hardware and software systems that meet or exceed client expectations.
- Collaboration—working with other IT departments on campus, computer users throughout MIT, and colleagues on other campuses to ensure that IS&T is providing the highest and most cost-effective information services support and technology available.
- Fiscal responsibility—coupled with sound financial management.
- Personnel development—giving each member of the IS&T community the opportunity to contribute to the full extent of his or her capabilities.

Computer and information technology services are provided by many different groups at MIT, and IS&T's responsibilities as the centrally funded organization in this environment are many and varied. IS&T provides "commons" services such as the cross-campus data network and connectivity to the Internet; high-capacity data storage and backup; server hosting and operations; the primary MIT email and calendar systems; third-party software acquisition and support; the Athena computing environment, including software and hardware; cable television; and the MIT telephone system. IS&T is also responsible for the development and operation of major "enterprise systems" such as SAP financial and human resources systems, payroll, and underlying e-commerce capabilities. IS&T provides support as well to many individual faculty members and students in the use of information technology in teaching and learning.

Many of these products and services are provided with no "chargeback" to departments, laboratories, and centers. Others, such as telephone and network services, are provided on a cost-recovery basis based on government accounting rules. Several services, such as web development, training, and some third-party software delivery, are charged directly at prices designed to recover the accounting costs of those services.

For many members of the MIT community, the first contact with IS&T is through a request for support or service. In a typical week, IS&T receives over 2,000 requests for help and service changes. These requests range from upgrading telephone and network service to installing a new office computing environment, to assisting faculty in using computers in their teaching, to supporting major MIT strategic initiatives such as OpenCourseWare and the HR/Payroll Project. Faculty, students, and staff in DLCs interact with IS&T in many obvious ways each day: they call the Computing Help Desk with Macintosh, PC, Linux, and UNIX hardware or software questions, or with questions about business applications. Members of the community also rely on IS&T in more intrinsic ways. When anyone at MIT turns on a computer—in an office, in an Athena cluster, in a lab, or in a dormitory room—and sees the network; when anyone enters a transaction into the Institute's financial system; when anyone picks up a telephone receiver and hears a dial tone, or backs up the documents and data on a computer to storage systems in Buildings W91 and W92, or otherwise uses the servers in these data centers, they are interacting with IS&T.

In addition to Dr. Grochow, IS&T leadership is provided by five directors with direct responsibility for key activities:

- Academic Computing—M. S. Vijay Kumar
- Administrative Computing—Mark Damian (acting director)
- Client Support Services—Greg Anderson
- Operations and Infrastructure Services—Theresa M. Regan
- Telephony Services and IS&T Shared Services—Allison F. Dolan

The first two groups provide expertise and applications for two major activities on campus: academic applications and consulting, and enterprise-scale administrative applications. Although IS&T does not directly provide research-oriented applications, the Operations and Infrastructure Services group runs MIT's common computing and network infrastructure, which is critical for academic, administrative, and research activities. That group also operates central application systems such as Payroll, SAP, and the Stellar Learning Management System. The Client Support Services group helps members of the MIT community resolve day-to-day issues with information technology via the Help desk, publications, and training. The Telephony Services group operates MIT's telephone system and will be providing additional telephony services such as integrated cell phone services and "voice over IP" service. All the IS&T groups work with their counterparts in departments, laboratories, and centers to ensure an integrated approach to providing information services and technology across the campus.

This introduction provides just a few examples of the work done by IS&T staff during the past year to deliver high-value information technology services to the MIT community. Additional information about this work, as well as highlights of other accomplishments, follows. It is organized around five operational themes—client orientation, collaboration, sustainability, accountability, and professionalism—originally suggested by the executive vice president.

Client Orientation

Client orientation is defined as listening to and understanding the service needs of the community and working with colleagues in the DLCs to resolve problems and streamline processes in support of the Institute's primary academic and research missions. Much of IS&T's work is aligned with this theme as we strive to create clear lines of communication between IS&T service providers and our clients. Major accomplishments in this area include:

- Consolidating administrative support activities—in response to client feedback, this consolidation brought the Administrative Desktop Deployment and Renewal Program and the Admin-IT support program under the wing of the Departmental IT Resource (DITR) group, and these programs made significant progress in integrating their activities with business computing help staff, the central authorizer, and IS&T staff providing training and documentation.
- Consolidating walk-in services in Building N42—in Q4, almost 2,000 members of the MIT community came to IS&T for in-person services such as pre-sales consulting, software, hardware repair, and accounts.
- Increasing client support to 80 DLCs—through service level agreements, web consulting projects, Admin-IT programs, and the like, including agreements for on-site support with 33 departments.
- Delivering high-quality web consulting, design, and development services— Web Communications Services worked with clients to launch over 70 sites this year, including high-profile sites for Admissions, Alumni Giving/Resource Development, Sloan Management Review, MIT World, Information Center (Visiting MIT), and Civil and Environmental Engineering.
- Implementing new services to support personal digital assistants (PDAs)— IS&T now supports Palm OS devices and handheld applications for mail and calendaring used by an estimated 15 percent of the MIT community.
- Testing and releasing software—the Software Release Team managed the release of 27 new versions of third-party software products.
- Expanding fall term startup activities—more than 1,300 members of the community participated in IS&T open houses and other events, and IS&T became part of MIT's new faculty orientation, providing specialized information to 90 new faculty members and teaching assistants.
- Improving support for daily computing—based on weekly satisfaction-survey samples, clients rated their Help Desk experience at 4.56 on a scale of 1 to 5. In FY2005, over 100 new cases were created each day, and 65 percent were resolved within 24 hours.
- Providing well-equipped collaborative student workspaces—to support team-based academic projects, IS&T's Academic Computing transformed the computing clusters in W20, Building 56, and Building E51 with comfortable, flexible seating, large LCD displays into which laptops can be attached, a whiteboard that captures images and saves them to the web, and wireless access.
- Supporting the growing use of Stellar—in the spring term, Stellar course management sites were deployed for nearly 400 MIT subjects.
- Supporting Institute-wide use of spatial (GIS) data—in collaboration with the MIT Libraries, IS&T develops spatial data tools and repositories, provides

training and Help Desk support, and promotes the use of spatial data in courses across the Institute.

- Supporting a High Performance Computing (HPC) initiative—with two HPC clusters developed for use by faculty and students, MIT has become a leader in exploring how this technology can be used in the classroom.
- Adding self-service links to facilitate software distribution—through these links, members of the MIT community can now obtain licensed software such as Microsoft Windows XP, Adobe Acrobat Professional, and Matlab.
- Expanding the scope of win.mit.edu—MIT's central Windows domain now supports more than 1,500 workstations used by nearly 50 DLCs.
- Chartering the Departmental Database Application Development Project Team— to provide database application support in response to strong community feedback.
- Upgrading MIT's electronic mail system—in response to client requests, IS&T enhanced design of its email system to deliver higher performance and less spam.
- Implementing Voice Over IP—VoIP pilot projects for the Woods Hole tie line and Plasma Fusion were initiated in conjunction with the broader Integrated Communications Study initiated by IS&T this past year.
- Installing an automated switchboard for calls to MIT—this is now the default switchboard for calls to MIT, with operators still available for callers who wish to speak to one.

Collaboration

Collaboration is teamwork across organizational boundaries within the Institute, as well as across institutional boundaries. IS&T's role as a partner and collaborator could be seen in the following activities:

- Established a Student Advisory Board composed of representatives from the undergraduate and graduate communities. In its first year, this group sponsored a number of open forums for students and provided a direct student voice to help guide IS&T services.
- Participated in Sakai, a collaborative effort by MIT, Stanford University, University of Michigan, UC Berkeley, Indiana University, and numerous partner schools to create a common framework for educational technology tools. Through the implementation of interoperability standards, each participant can leverage work being done by other schools and industry partners.
- Participated in the Training Alignment Team, an interdepartmental effort to coordinate training across MIT.
- Helped to schedule over 30 user groups as a partner of IT Partners and User Groups.
- Collaborated with leading technology vendors such as Microsoft, Sun, and Apple to improve the Kerberos standard and introduce new features in the MIT Kerberos implementation.
- Collaborated with Alumni Services to develop new functionality for the alumni Email for Life Service.
- Collaborated with the Computer Science and Artificial Intelligence Laboratory to establish internet connectivity between the Stata Center and Internet 2..

- Worked with members of the MIT community to develop models for their data and to make it available through the MIT Data Warehouse. In FY2005, 1,214 employees from 131 DLCs used this facility.
- Worked with the Committee on Renovations and Space Planning and the Facilities Department to examine High Performance Computing and the impacts it will have on the MIT campus.
- Participated in the development of new applications such as the Virtual Understanding Environment (VUE) of Tufts University.
- Worked with CSAIL and Whitehead to interconnect the two halves of their IBM computing cluster.
- Worked with the Computational and Systems Biology Initiative to establish a fiber network connecting its locations in Buildings W91, NE47, and 68.
- Worked with the Information Technology Architecture Group and SAPIENT consultants to document MIT's IT architecture. Presented this work at the Common Solutions Group conference (September 2004), and now it is being emulated at several other colleges and universities.
- Developed a plan to pilot a new network configuration and technology within the new Brain and Cognitive Sciences facility in collaboration with its several occupants.
- Collaborated with a User Pricing Committee, consisting of key users from across the campus, to review the network and telephone rate-setting process including what it costs to deliver services, how various services are packaged, and who is charged for those services. Commercial competitive services and other university pricing strategies were also considered.
- Collaborated with Stanford to determine the total cost of IT at each campus and the purpose for which IT spending occurs. The project team is documenting the methodology used so that it can be shared with other schools.

Sustainability

IS&T is committed to maintaining an information technology infrastructure that supports the teaching, learning, research, and business needs of the Institute. IS&T's goal is to ensure that the MIT infrastructure is reliable, sustainable, and secure, and that it does indeed "stay the course"—a key descriptor of the operational theme of sustainability. Day to day, much of IS&T's ongoing work centers on keeping the Institute's IT services running, as well as renewing and improving those services. Key accomplishments include:

- Completing the full-building wireless installations for 95 administrative and academic buildings and 14 campus residences.
- Completing the telecommunications cabling installation for the Brain and Cognitive Sciences facility with over 284 miles of cable and 3,600 network and telephone outlets at 10/100/1000 MB.
- Migrating the Enterprise Storage Area Network (SAN) to EMC DMX series.
- Upgrading the SAP R/3 environment from Compaq Digital Unix to Sun Solaris.
- Upgrading the MITnet backbone links to 10Gb/s, the fastest commercially available speed.

- Maintaining 250 centrally managed servers in three on-campus data centers to support academic and administrative computing.
- Expanding server co-location for research computing to include four new clusters for the Computational and Systems Biology Initiative totaling 176 nodes and one new cluster for Civil and Environmental Engineering totaling 40 nodes.
- Completing the migration of the MIT search engine from Inktomi to Google.
- Supporting over 100 databases for administrative and academic customers.
- Completing an agreement with Verizon for upgrading all off-campus point-to-point links serving fraternities, sororities, and independent living groups from 1.2Mb/s to either 10Mb/s or 100Mb/s.
- Establishing a remote disaster recovery location to provide for recovery of critical MITnet services and applications in the event of an on-campus disaster.
- Expanding the TSM backup service with the introduction of an additional 100 enterprise-wide servers capable of storing approximately 2 TB of data. (The Sun StorageTek L5500 can hold 5,500 cartridges, and tape capacity is approximately 200 GB/tape.)
- Working with Enterasys networks to develop a custom 10/100/1000 Mb/s Ethernet switch that can accommodate the requirements of MIT's telecommunications environment.
- Developing an SAP Web Application Server and Java 2 Enterprise architecture plan for all of Administrative Computing.
- Continuing to deliver high-quality, reliable telephone services to over 22,000 customers in the MIT community.

Accountability

Accountability is that which is necessary to hold everything together. Accountability only exists when deviation from standards, obligations, and commitments is measured, and when it is both organizational and personal. Significant work in this area includes:

- Conducting the fourth Client Satisfaction Survey in April. Results of this campus-wide survey were reviewed in collaboration with Stanford's IT group, which conducted a similar survey on their campus. Survey results will guide a number of IS&T activities in FY2006.
- Reviewing all job titles in IS&T for consistency and relevance—almost 100 staff titles changed. The process yielded explicit career paths for managers as well as individual contributors in IT, and MIT is considering implementing this process across the Institute.
- Expanding the use of performance measures. In addition to producing weekly Help "dashboards," IS&T is now producing similar dashboards for IT Security and Volume Software Distribution.
- Transitioning from use of long-term consultants in Administrative Computing to reliance on employees, resulting in a net annual savings of over $300K.
- Operating within budget and extending the level of periodic and ad hoc reporting both on a fiscal year and on a project basis.
- Initiating efforts to improve project management methods, discipline, and training across IS&T.

- Launching a project to develop and institute a new "service center" for server operations. In addition to identifying all of the services currently offered in this area along with actual costs, the project will develop a new pricing strategy based on determinations of how various services are packaged and what is charged for those services.

Professionalism

By professionalism, we mean striving for leadership across the professions, which define us beyond our roles at MIT. IS&T has always presented itself as a technological leader in the higher education community, and IS&T staff members serve as professional leaders in many organizations.

- IS&T staff participate in, contribute to, and play key formal and informal leadership roles in various professional and industry organizations, such as Internet2, EDUCAUSE, the Common Solutions Group, NERCOMP, College and University Information Security Professionals, the Boston Consortium, the Internet Engineering Task Force security and calendaring standards groups, Syllabus, SIGUCCS, ACM/SIGDOC, the New England Information and Technology Managers Group, the 5E Private Owners Association, SAP International Higher Education and Research Conference, Human Resources College and University Personnel Administration Conference, and the Association for Telecommunications Professionals in Higher Education, among others. In addition, IS&T staff provide advice on a regular basis to corporations such as Microsoft, Apple, Dell, Sun, Lucent, and Oracle via membership on corporate advisory boards or through ongoing consulting relationships, and collaborate with a wide range of other vendors and outside groups.
- IS&T's Academic Computing led initiatives in organizations such as the IMS Global Learning Consortium and the Open Knowledge Inititative to advance the wider adoption of educational technologies developed in the iCampus and d'Arbeloff programs and in department-funded faculty projects.
- IS&T's web pages won a second-place award, presented by the 2004 ACM SIGUCCS Communication Team, for best computing services website.
- IS&T's Client Support performance dashboards, produced by Rob Smyser, will be cited in a forthcoming McGraw-Hill book, What Is Six Sigma Process Management. A publisher's blurb says, "The dashboards are really the most comprehensive and visually impactful that we've seen anywhere and we've been looking for some time!"
- IS&T cohosted the international SAP Higher Education and Research Users Group in FY2005.

IS&T is proud of its achievements over the past year and is committed to moving forward and continuing to improve in each of these areas in the coming year.

Jerrold M. Grochow
Vice President for Information Services and Technology

More information about Information Services and Technology may be found online at http://web.mit.edu/ist/.