

## Vice President for Information Services and Technology

MIT's vice president for information services and technology, Dr. Jerrold M. Grochow, focuses on providing information technology (IT) services to the MIT community. This role includes leading the central Information Services and Technology Department (IS&T); representing IS/IT to the Academic Council; advising senior management on IS/IT issues; leading the Institute-wide IS/IT advisory structure; chairing the Information Technology Strategic Planning and Resources Coordinating Council (IT-SPARCC); fostering collaboration among the many groups on campus that provide computer facilities and support; developing capital spending plans for IS/IT; and innovating, experimenting, and advancing the use of computer and communication technology.

IS&T's success relies on its ability to support 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 building strong working partnerships with the Institute's faculty, students, and staff to maximize the value of information technology in their work.

### Highlights

Five key areas of focus stand out for FY2007:

- MIT data centers
- Student Information Systems upgrades
- Stabilization of MIT's new Payroll System
- Voice Over Internet Protocol (VoIP) pilot program
- Organizational changes

### Data Centers

There were several significant renovation efforts in the IS&T data centers. The building 24 and W92 data center renovations were completed. These network/data centers are now modern, highly available and redundant tier 2 facilities. The tier 2 rating means that MIT core services such as email, <http://web.mit.edu/>, and others will be available if one of the data centers shuts down. As 24-hour availability service becomes the expectation, IS&T is now better positioned to meet that expectation for the MIT community.

The W91 data center power upgrade was completed and the project moved closer toward the FY2008 Q2 completion of the cooling infrastructure upgrade for this facility. These upgrades enable accommodation of several new high-performance computing installations. Support for research computing clusters continues to grow with the facility. Consolidating these clusters in one facility is a much more efficient use of MIT's power and cooling utilities and supports MIT's environmental initiatives. In addition, the flexibility of the updated W91 data center allowed a rapid redeployment of OpenCourseWare (OCW) servers during the December fire incident at One Broadway.

## **Student Information Systems Upgrades**

### **Undergraduate Admissions Phase II**

Release I of the Undergraduate Admissions Phase II Project was completed by a collaborative effort of the Admissions Office and IS&T's Student and Administrative Information Systems Group. This project will improve key business processes within the Undergraduate Admissions Office and migrate all functionality off the IBM mainframe. Release I implemented a new application as the system-of-record for the Undergraduate Admissions Office, and significantly improved the data entry and processing of prospect information. In addition, new functionality was developed to improve the maintenance of educational counselor (EC) data and EC-to-prospect assignments for interviews. Existing high school, EC, and prospect data was successfully converted from the legacy system to the new system. As a result, test scores from outside services are processing more efficiently with less manual intervention. The system now has an integrated undergraduate recruitment and admissions system running on supported hardware and software. This will allow for easier system maintenance in the future. Also, all printing for Undergraduate Admissions has been converted to non-mainframe printers. There are two follow-up releases for this project that will provide additional improved functionality and all undergraduate admissions processing will be off the IBM mainframe.

### **MIT Student Information System**

Extensive work was completed in July 2007 to upgrade the MIT Student Information System (MITSIS) to a new technology platform that is stable and supportable. The implementation of the new MITSIS platform has made it possible to keep current with technology, and it has enabled a strategic evaluation of the long-term direction of MIT's student information system. This has been the first major upgrade to MITSIS since it was originally written in the early 1990s. The primary impact of the upgrade on MITSIS users is a change to the look and feel of the system. The upgrade does not change MITSIS functionality or any of the MITSIS business rules.

IS&T partnered with the dean for undergraduate education, dean for graduate students, and dean for student life to draft a project charter for a project whose aim is to envision the student system of the future. We defined the vision, mission, scope, and guiding principles. We will be assisted by the Bearing Point consulting firm in developing this vision over the coming year. The project completed a "thought paper" which presented ideas for how technology can be used to help implement the Educational Commons Task Force recommendations. In addition, we joined the Kualu Foundation as a "partner" to influence their effort to design a community source student system.

### **Stabilization of MIT's New Payroll System**

IS&T, in close collaboration with the Controller's Accounting Office (CAO) and the Human Resources (HR) Department, implemented the SAP-based employee and student payroll system in July 2006. This system serves approximately 14,000 exempt and non-exempt employees on both the MIT campus and Lincoln Laboratory, providing them with electronic tools for payroll functions formerly done via paper processes. The implementation and stabilization of this project required continuous community

input and collaboration with administrative and academic departmental liaisons. As the community used the system, a list of improvements and refinements was developed, and IS&T, CAO, and HR successfully worked through many of the high-priority items.

### **Voice Over Internet Protocol Pilot Program**

IS&T continued a pilot program for Voice Over Internet Protocol (VoIP) technology to provide telephone services via the MIT network. Over 1,000 participants at MIT evaluated the VoIP telephone services and provided feedback and guidance incorporated into a modified architecture and service offerings. Participants in the pilot program send and receive phone calls via MIT's data network instead of over traditional phone lines using VoIP desk sets, wireless VoIP phones, and VoIP conference phones. VoIP offers features similar to those of MIT's current telephone service, but with a number of additional capabilities. For example:

- The VoIP voice mail system provides the option for messages to be sent to email.
- User preferences can be updated via web-based self-service tools.
- VoIP can be integrated with other network applications for greater flexibility in delivering voice services.
- When a configured VoIP desk phone is plugged into a home network router, the phone continues to have an "MIT presence."
- International travelers who use the MIT VoIP service can make remote calls as MIT local calls.

IS&T worked closely with local IT contacts to activate, deploy, and support VoIP services and devices. A business case and project plan was developed to support an FY2008 delivery of services.

## **Organizational Changes**

### **Academic Computing**

Academic computing was reorganized to be a collaborative effort between IS&T, the Libraries and the dean for undergraduate education. Based on recommendations of a committee appointed by the provost and chaired by the vice president for IS&T, the Office of the Dean for Undergraduate Education (DUE) now leads and promotes educational technology innovation at MIT. The dean for undergraduate education has formed an Office of Educational Innovation and Technology (OEIT) which is staffed primarily by the educational consulting and software development groups formerly in the Academic Computing Group in IS&T. IS&T continues to maintain academic computing clusters, including Athena clusters. MIT's Stellar Course Management System Development Team has moved from Academic Media Production Services to IS&T's Infrastructure Software Development and Architecture Group.

DUE, the Libraries, and IS&T are committed to working together to ensure responsive and seamless academic computing services. Toward this end, the Academic Computing Coordinating Group (ACCORD) was established with representatives from OEIT, the Libraries, and IS&T. ACCORD's mission is to ensure that all academic computing service providers on campus work together in a cohesive and transparent manner to provide

faculty and students with seamless and responsive service in the academic computing domain. In addition, ACCORD sponsors a working group consisting of academic technology service and support providers from a large number of MIT organizations and departments, including OCW, Sloan, the Computer Science and Artificial Intelligence Laboratory (CSAIL), Biology, and many others.

### **Telephony**

Telephony functions were integrated into operations and support within IS&T. Operations and Infrastructure Services now has responsibility for the 5ESS telephone switch which provides telephone services to the community. Computing Support Services, under the leadership of Don Montabana, now has responsibility for the customer support aspects of telephony, including the help desk functions and switchboard.

### **Vice President's Office**

The finance area of IS&T was reorganized with the promotion of Angie Milonas to director of finance, and the creation of a manager of financial operations position, filled by Holly Bickle.

A Strategic Communications Team was formed, led by Christine Fitzgerald, with responsibility for planning and coordinating communications to ensure that information flows within IS&T and the MIT community.

Laxmi Rao was appointed to the new role of IT energy coordinator to lead, plan, and coordinate activities in the area of IT energy use across campus. He will also work closely with the Walk the Talk Task Force, the MIT community, and vendors to find solutions to reduce the IT energy footprint at MIT and to support innovative uses of energy for computing.

### **Summary of Financials for FY2007**

Below are a few highlights in summary of the FY2007 IS&T finances.

- IS&T gross expenses for FY2007 totaled \$65.8M. This is approximately 45% of the total IT expenditures at MIT, with the remainder being funded in departments, labs, and centers (DLCs) for a variety of purposes. Approximately 35% of IS&T activity is funded from services re-billed to departments using telephone and network services and other rate-recovered services such as desktop support, software distribution, and server management.
- Spending in FY2007 was distributed as follows:
  - 40% for ongoing operational support and service
  - 40% for maintenance and enhancements that retain current functionality
  - 20% for new products and services, as well as upgrades that introduce new functionality
- In FY2007 IS&T received a \$10M funding pool for software development projects. Approximately 70% of the funding was used to develop student systems including the MITSIS Migration Project, Undergraduate Phase II, and the Student Vision Study. The remaining funds were used to support administrative systems, including the SAP upgrade and HR payroll stabilization.

- Investment in capital assets and infrastructure upgrades for the Telephone and Network Service Center (TNSC) in FY2007 totaled \$8.8M. This includes funding for all network upgrades and renovation of Telephone and Data Communications Rooms (TDCRs).
- Capital investment in the Server Operations Service Center (SOSC) for FY2007 totaled \$1.3M and consisted of server equipment.
- At the close of FY2007, IS&T had 337 full-time employee positions, of which 298 were filled and 39 were open. In a study of IT spending across MIT, findings show another 300–400 IT positions being funded in other DLCs.

## **The IS&T Organization, Strategic Themes, and Accomplishments**

The IS&T organization comprises six major groups:

- Client Support Services—Don Montabana, director
- Infrastructure Software Development and Architecture—Wilson D’Souza, director
- Operations and Infrastructure Services—Theresa M. Regan, director
- Student and Administrative Information Systems—Christine Meholic, director
- Human Resources and Administration—Allison F. Dolan, director
- Finance—Angie Milonas, director

These functional areas are supported by the IS&T vice president’s office, which includes communications, relationship management, project management, and space management.

IS&T’s work focuses through the lens of seven strategic themes:

- Service orientation—understanding the goals and missions of the people and organizations at MIT 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 generation 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, as well as colleagues on other campuses to ensure that IS&T is providing the highest and most cost-effective information services support and technology available.
- Communication—improving the flow of information throughout IS&T and the MIT community; engaging clients and colleagues in a dialog about IT needs and priorities; increasing the visibility and benefits of IT services; and creating the identity of IS&T as an effective service organization.

- A high degree of 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.

Below are some examples of our strategic themes, although many IS&T activities may reflect several of these themes.

### **Service Orientation**

- Explored new tools for the Computing Help Desk to provide additional avenues and support mechanisms to members of the MIT community, including remote troubleshooting and click-to-chat contact tools. The Help Desk implemented and made consistent use of an internally shared knowledge base to facilitate faster and more consistent help for clients, reduce training time for staff, and minimize duplication of effort. The Help Desk also developed an improved staffing model for the hardware repair and software service center to better meet increased demands for walk-in technical help and hardware repair. During FY2007, the Help Desk solved 56% of all consulting cases in the same day, 18% in three days, and 10% within a week; 90% of clients reported being satisfied or very satisfied with the Help Desk.
- Hired a mobile devices platform coordinator to provide more robust support for the rapidly growing use of mobile devices at MIT, and to keep the community informed of the evolving mobile devices market to better serve their needs. Initiated a mobile devices release project to provide full support for mobile devices including Palm OS and Windows mobile devices; also the iPhone Evaluation Project to study the feasibility of supporting the Apple iPhone.
- Increased to 45% the number of DLCs participating in the AdminIT Program, which offers free desktop IT services to administrative members of the MIT community. The number of computers that receive preventative maintenance increased by 27%, and the number of AdminIT preventative maintenance visits increased by 73%.
- Moved the Master Department Hierarchy, that links financial and human resources data, to the production environment, providing department administrators with a consolidated view of the financial and human resources hierarchies.
- Improved the IT back-to-school program by developing a short series of video podcasts to enhance the orientation experience of freshmen to the MIT network. These videos explain the choices for technology help on campus, the basics of IT security, and the use of the Athena academic computing environment.
- Continued the insideMIT portal pilot with 24 participants from departments across campus. This centralized, secure web site will eventually replace the current SAPweb and Employee Self Service sites, providing the community with a single point of entry to many Institute business applications and top MIT links.
- Enhanced the Stellar Course Management System to include a grade book feature that offers a secure and convenient way to manage grades online. Use of Stellar increased 25%, from approximately 500 to 620 course sites.

- Began a project to implement a content management system that includes moving the IS&T web site into the system's core repository. The content management system streamlines the process for producing and approving web content, centralizes content reuse across the web site to provide a single location to edit content that is used in multiple locations, and provides a robust content repository that will serve as the backbone for many web sites and applications across MIT.
- Completed significant work for the delivery of Thalia in early FY2008. Thalia is a web image management application similar to consumer products like iPhoto or Flickr and is designed to support departmental publishing as well as individual and academic use. Users will be able to upload their own images into libraries, individually or in bulk, as well as to search for images, then drag and drop them from the search results into groupings. Departments can request their own domains from the central Thalia service and customize their domain. Thalia also offers a shared public domain for individuals or groups who do not wish to configure their own domain.
- Upgraded NameConnector, the automated voice response system for MIT's telephone switchboard, to state-of-the-art voice recognition technology. The upgrade better supports a mobile population by allowing callers to interrupt the prompts, and to use words instead of the keypad to make corrections. There is also enhanced mitigation of background noise, and the technology better supports our diverse community by improved name recognition spoken with different accents.
- In response to a significant email outage in March—and in consultation with IT leaders across campus and IT-SPARCC—IS&T is taking steps to improve recovery time from unusual problems. By implementing the Barracuda Spam Firewall and filtering out spam with a rating of 25.0 or more, IS&T was able to reduce the amount of unwanted email reaching the MIT community, and also speed database recovery times. At the end of FY2007, faculty, staff, students, and MIT affiliates without Spamscreen folders decreased from 7,500 to 5,000.

### **Technological Innovation and Leadership**

- Continued a multi-year effort to upgrade the campus network with the creation of 11 additional state-of-the-art TDCRs. These upgrades are a combination of retiring old TDCRs and building new ones. DLCs provided nearly 3,000 square feet of space to ensure that they can have modern network capabilities. The resulting network improvements provide intrinsic value to clients and the communities they serve internally and externally, and position MIT's network well into the future.
- Acquired leases on dark fiber between Boston, New York City, Albany and Baltimore, providing MIT network connectivity to the key internet exchange point for research networking in the Northeast. This regional fiber network provides the foundation for the creation of MIT's regional optical network, which will open a variety of new opportunities in research and collaboration that were previously unavailable.

- Facilitated the transition from POP to IMAP email protocol for community members, and continued the process of converting to modern email client software. Fewer than 400 users remained on Eudora at the end of FY2007.
- Upgraded the SAP production system to the most current release, which aligns MIT with peer institutions, avoids the risk of losing mainstream support, and provides future ability to benefit from new functionality.
- Upgraded the Data Warehouse to current standards of infrastructure servers and database platforms, ensuring that the data is stored in a reliable, consistent, and secure manner. Other key benefits include increased flexibility, reliability, and processing speed.
- Expanded the IT Architecture Group (ITAG) to include new technology directors from the Broad Institute and Lincoln Laboratories. Additionally, ITAG completed a policy initiative clarifying the risks and mitigations for departmental databases holding sensitive data, and established a clearinghouse for other IT policies created in the DLCs. ITAG also published technology roadmaps on identity management, communications services, and inside-MIT web technology. Finally, ITAG's Technology Review Board held reviews and made recommendations on a dozen IS&T software architecture design proposals.

### **Excellence in Project Execution and Management**

- Enhanced internal project reporting with the introduction of a standard project snapshot report and associated portfolio summary.
- Established the IS&T Cross-Directorate Project Planning Team as the standard vehicle for strategic coordination on projects that cross IS&T departmental boundaries.
- Provided IS&T Project Management 101 workshops for project managers and team members to give a practical overview of the key areas of project management.

### **Collaboration**

- Formed the MIT Kerberos Consortium to provide a mechanism for organizations that have adopted Kerberos to participate in the continuation of what was previously funded as an internal MIT project. Kerberos, originally developed for MIT's Project Athena, has grown to become the most widely deployed system for authentication and authorization in modern computer networks. Opening participation in the ongoing Kerberos effort makes it possible to expand the scope of the work currently performed to encompass numerous important improvements in the Kerberos system, and to engage in much-needed promotion among potential adopters.
- Partnered with the City of Cambridge, Harvard University, and others, on a long-term initiative to provide free wireless network access to many low-income residents and public venues, along with a wireless repeater network based on mesh technology, allowing individual residents in the city to extend coverage using their own access points.

- Joined forces with the MIT Sloan School of Management on a collaborative, practical IT management course. Students from 15.568 Management of Information Systems worked with IS&T staff and wrote a report on mobile web portal recommendations for MIT; they evaluated Stellar, MIT's course management system, and produced several recommendations, including the formation of a student board of volunteers to gather feedback on Stellar, and an online forum where faculty can post questions and solutions about using Stellar.
- Provided project management support for the IT cabling infrastructure in major MIT construction projects, including the Building 6 infill construction project, new Sloan building, NW35 Graduate Residence Hall, Media Lab extension, and the Cancer Research Center.
- Worked with IT colleagues across campus to outline a phased release process and support strategy for Microsoft's Windows Vista operating system and Microsoft Office 2007.
- Initiated a collaborative effort with CSAIL to provide cell phone service through Cingular, Sprint, Nextel, Verizon Wireless, and T-Mobile in the Stata Center and Broad Institute.
- Participated in a joint effort with the Institute for Electronic Governance of Andhra Pradesh and the California State University system to consolidate growing support across communities of practice for the interoperability specifications developed by the MIT Open Knowledge Initiative.
- Piloted a new outreach and technology sharing program between the Computing Help Desk and the MIT Sloan technical support organization to further develop relationships and complementary services with IT partners across MIT.
- Partnered with and supported students and faculty of 1.102 Introduction to Civil and Environmental Engineering Design II, on the pedal-powered Athena laptop project—the first campus IT energy project.

### **Communication**

- Featured in several articles in external print and online publications, including *NetworkWorld*, *Information Week*, *Computerworld*, *Cambridge Chronicle*, and the *Boston Globe*, and in several radio interviews with National Public Radio.
- Held regular issue-based community forums focusing on IS&T strategic plans, email migration, strategies for dealing with spam, Microsoft Windows Vista and Office 2007, hardware recommendations, and the AdminIT Program.
- Developed key messages for IS&T, and provided guidelines and examples for IS&T staff usage.
- Initiated IS&T web site redesign and identity for printed communication materials.
- Implemented "IS&T in the News" and "THIS & THAT" bulletin boards in all of the IS&T buildings.
- Participated in MIT's vendor and travel vendor fairs.

- Produced the “Keep in Touch: IS&T Offers Connection Options for MIT Travelers” and “Server Hosting and Management” brochures.
- Developed a weekly Security-FYI email newsletter for the MIT community.

### **Fiscal Responsibility and Financial Management**

- Worked closely with the Office of Budget Operations, the Office of Cost Analysis and members of the community to complete the development of a new pricing methodology for the TNSC that was approved by MIT senior management for implementation in FY2008. Under the new rate structure, most voice and data services (e.g., monthly recurring IP address and telephone) will be bundled and billed using a proxy allocation based on modified FTE. The new charging methodology was necessary because the current approach was no longer supported by the continuing changes in technology.
- Implemented the new SOSC to provide a multi-layered approach for server support services, ranging from basic co-location to complete 24/7 server management services. Also, revamped the SOSC funding model to be able to offer a new systems-administration service in FY2008 in response to the MIT community’s needs.
- Developed five-year capital plans for software development and for hardware and infrastructure that are included in MIT’s capital planning.
- Launched an educational campaign focused on finance and financial management for IS&T staff to broaden individual knowledge and skills in this area as well as to improve overall processes and fiscal controls. Efforts include “Finance 101” workshops and mandatory procurement training classes offered in collaboration with the CAO.
- Began a project to develop a standardized metrics-based budgeting process for IS&T that focuses on expense driving metrics and “critical success factors,” as well as measurements for productivity improvements and demand.

### **Personnel Development**

- Supported the selection of one IS&T staff member to participate in MIT’s Leader to Leader Program.
- Sent one staff member to participate in an IT leadership program with colleagues from the Broad Institute and the Sloan School, as well as other universities.
- Acknowledged three IS&T staff members—Jody Housman, senior system administrator and team leader; Elena Zhitnikov, data administrator; and Ronald E. Parker, senior SAP basis administrator and team leader—for making significant contributions to improving the services, systems, and experiences of IS&T and MIT community members with an Infinite Mile Award.
- Distributed over 100 “spotlight awards” to IS&T staff.
- Initiated a new performance appraisal process that uses standard processes and tools across IS&T, including piloting an online tool.

IS&T received several awards and accolades, notably:

- MIT was recognized as one of *PC Magazine's* Top 10 Wired Colleges for 2007, placing second, and the only Massachusetts school to make the list. The magazine cited MIT's extensive wireless network, creative student projects, and OpenCourseWare in naming MIT to its top ten list.
- IS&T was named as one of the 100 Best Places to Work in IT in *Computerworld Magazine's* 2007 survey.
- George Petrowsy, systems administrator, received an Unsung Hero award at the MIT Excellence Awards.
- Dr. Jerrold M. Grochow, vice president for IS&T, was named one of IT's Best and Brightest: Premier 100 IT Leaders 2007 by *Computerworld Magazine*. This annual awards program honors people driving strategy and innovation in the country's leading IT departments.

IS&T has always presented itself as a technological leader in the higher education community. IS&T staff participate in, contribute to, and often play key formal and informal leadership roles in various professional and industry organizations such as Internet2, Educause, the Common Solutions Group, the Northeast Regional Computing Program, College and University Information Security Professionals, the Boston Consortium, the Ivy+ groups, the Internet Engineering Task Force security and calendaring standards groups, Syllabus, the Special Interest Group on University and College Computing Services, ACM's Special Interest Group on Design of Communication, the New England Information and Technology Managers Group, IT Financial Management Association, 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. Staff also collaborate with a wide range of other vendors and outside groups.

Lists of external publications and organizational leadership by IS&T staff are at <https://wikis.mit.edu/confluence/pages/viewpage.action?pageId=34619> and <https://wikis.mit.edu/confluence/pages/viewpage.action?pageId=34628>.

IS&T is proud of its achievements over the past year in improving and expanding our services to the MIT community. We are 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 can be found at <http://web.mit.edu/ist/>.