

## University at Albany Information Technology Services Facilities and Services

Established in 1844 and designated a University Center of the State University of New York in 1962, the University at Albany's broad mission of excellence in undergraduate and graduate education, research and public service engages a diverse student body of more than 17,300 students in nine schools and colleges across three campuses.

Information Technology Services (ITS) at the University at Albany offers a sophisticated IT environment that advances enriched learning experiences, excellence in teaching, service, and distinguished research programs commensurate with its status as a nationally recognized public university.

As the centralized provider of campus technology services, ITS works collectively across divisions on all three university campuses. Reporting to the Vice President of Information Technology Services and Chief Information Officer (CIO), the organization offers a broad range of campus IT services. While several colleges, schools and research centers employ their own IT staff to manage various aspects of in-house technologies, every one of these groups relies on ITS to deliver some portion of their services. ITS employs ~

120 professional staff and is comprised of six different groups: Client Support Services, Enterprise Application Services, Enterprise Infrastructure Services, Information Security, the Office of the CIO, and Research IT.

**Client Support Services (CSS)** is the first point of contact for students, faculty and staff for a host of technology resources in support of the University mission. CSS has oversight for all centrally-scheduled technology classrooms and conference spaces, computing equipment in public areas, and a full suite of course management system and collaboration tools and support. The group also manages the accounts providing access to campus IT resources, software licensing, the ITS HelpDesk, desktop support and a PC Service Center. Consultation and training is also provided.

**Classroom Technology:** The University has more than 100 centrally-scheduled multimedia classrooms. Podiums are equipped with touch screen control of video and sound systems, computers for faculty Internet access, and a laptop connection. Several of the larger classrooms include document cameras and annotation solutions; videoconferencing is available in several locations. The University has a robust online program, including full programs of study and numerous standalone classes offered on Blackboard, the University's online learning platform.

**Information Commons:** Library and information technology resources come together in the Information Commons (IC), which provides a rich array of computers, research and technical assistance, and space for individual and group work in all 3 libraries. Student technology consultants and reference librarians are available in all locations. PCs and Macs are equipped with all University-licensed academic software; faculty are solicited at least twice per year about what software should be included. Discounted software for personal use is available to all members of the campus community. Wireless access is available throughout the libraries. Spaces are provided for individual and group work, and breakout rooms equipped with technology tools for practicing presentations and group study projects are available. For more information, see <http://library.albany.edu/infocommons/>.

ITS offers a wide range of collaboration tools, including Office 365, wikis, and much more. Desktop support is provided for all university-owned equipment. A PC Service Center with Apple and Dell certified technicians provides repairs for quotes for university-owned machines. Training is provided for a wide range of Microsoft, Adobe, and other software packages, and is free to all members of the campus community.

**Enterprise Application Services (EAS)** is responsible for the overall reliability of the software applications running the academic, research and business needs of the University. As dependencies on these services increase, so do expectations for their availability, integrity, maintainability and security. EAS works closely with all campus divisions to manage these services, ensuring not only that current needs are being met, but also to anticipate the evolving applications needs of all stakeholders.

EAS is committed to a model of continuous solution assessment and design, which is informed by the importance of functional and information integration across all applications. Building effective relationships with business units and their vendors helps ensure EAS staff understand how the applications meet the needs of the campus community from a holistic perspective. EAS regularly engages with governance teams and focus groups to address the regulatory risks associated with these services. Transparency and an on-going dialog with stakeholders fosters EAS's ability to create roadmaps to meet current and future demand. Sound project and portfolio management processes provide the discipline and flexibility to create effective, efficient solutions. A blended approach of outreach, education, and ownership for the design, build and operation of software applications enables EAS to meet its responsibilities in support of the University mission.

**Enterprise Infrastructure Services (EIS)** manages the University's Tier III-certified, N+1 concurrently maintainable, LEED Gold Data Center facility, which has network availability of 99.9%. The Data Center houses the equipment and systems that support enterprise-wide information, storage and telecommunications services in support of the teaching, research and administrative needs of the institution. It also provides co-location opportunities for departments and researchers. Physical and virtual environments are available for all campus partners. In some cases, ITS can arrange for machine availability at the alternate data center located at Hudson Valley Community College.

EIS installs, operates and maintains a robust fiber optic network which spans its three campuses, connecting over 130 fiber optic-attached Ethernet segments supporting more than 19,000 ports or connections. The campus network consists of a collapsed backbone router with a combination of 1000/10000 Megabit (Mbps) links to buildings. Distribution to the desktop is a combination of switched 10/100/1000-Mbps Ethernet. The network includes interconnections with several local, regional and national networks including NYSERNet, SUNYNet, Commodity Internet and Internet 2 via a NYSERNet connection to Abilene. The campus Internet (I1) is composed of two diverse paths; the primary at 1 Gbps and the secondary link at 500 Mbps. The Internet2 (I2) link is 10 Gbps. A regional fiber optic infrastructure connects the three UAlbany campuses to each other and to Internet2.

**Wireless Access:** There are currently 500+ Cisco wireless access points deployed throughout the podium, libraries and in the Campus Center uptown. The Downtown and East campuses are completely wireless. All new installations are 802.11x compliant which augment our previous 802.11a/b/g deployment. All academic departments are wireless.

**Residence Halls Network:** The University contracts with an outside provider for ResNet services. All residence halls have wired and wireless connectivity to the Internet at 1000 Mbps.

**Remote Access:** UAlbany provides remote access to off-campus users via a VPN appliance and SSL VPN client. The user must have an ISP connection. UAlbany does not support dial-up service for access.

**Telephony:** Voice services are provided through 18 NEC distributed IP-PBX's with over 15,000 active ports for faculty and staff. Voicemail is provided by NEC UM8500. The university supports over 14,000 DID unique numbers. Local and long distance is provided under the NYS OGS contract by Paetec. E911 service to resident students, faculty and staff is provided to our University Police Department. VoIP is provided in University Hall and all new locations.

**Centralized Hardware Systems:** The University at Albany deploys and manages over 300 servers located in the University Data Center, with backup facilities at nearby Hudson Valley Community College. These servers run a variety of operating systems (IBM AIX, Sun Solaris, Microsoft Windows Server and Linux) and house all University-wide development and production applications used by students, faculty and staff. The majority of these servers run in a virtualized VMWare server environment and all servers make use of a centralized NetApp disk storage system.

**Information Security:** The University maintains an active information security program which is authorized by the President and is outlined in the University's [Information Security Policy](#). The program is under the direction of a dedicated Chief Information Security Officer who reports to the Vice President/CIO. The current CISO holds CISSP professional certification, has oversight of a team of security analysts and identity and access management specialists, and actively participates in numerous initiatives pertaining to information security in higher education.

The program consists of governance and operations activities. On the governance side, the campus Information Security Council meets quarterly to review information security issues from an institutional perspective. Members are drawn from major data owners and stakeholders, such as the Office of Human Resources, the Registrar, Accounts, Office of University Counsel, as well as others. The Council is active in policy development and issues reports and recommendations concerning the University's information security posture.

Likewise, an Identity and Access Management (IAM) steering committee brings together institutional stakeholders into regular discussions with IAM staff on how best to define and manage the life cycle of the many different forms of affiliation with the University, and access to its electronic and physical resources.

On the operational site, risk management consists of a wide range of technical, administrative, and physical controls designed to prevent and detect loss, damage or exposure of campus information assets while preserving the confidentiality, availability and integrity of these critical resources.

**Office of the Vice President and Chief Information Officer:** The executive leader of the Division, the Vice President and Chief Information Officer has oversight for all information technology services, policies and planning for the campus community. As a member of the President's Executive Committee, the VP and CIO works closely with campus leadership to ensure the projects, services and new initiatives are consistent with the mission and goals of the institution. Guided by the philosophy of servant leadership, ITS strives to put the needs of its customers first by helping other divisions define their IT needs, and working closely with them to help them achieve their goals.

Additionally, the Office of the VP and CIO oversees the communications, financial, HR and policy needs on behalf of the organization. Strategic planning and advisory initiatives are also guided by this office.

**Research IT Group:** The mission of Research IT is to develop core services in support of research, including high-performance computing, for grant seeking and funded researchers. The Research group works closely with each of the other ITS units, and with school and departmental-based research IT staff, to fulfill its mission.

The group is charged with supporting the entire research IT life-cycle: Early in the process, pre-grant, the group serves as a resource during grant discovery by providing IT consulting, assisting in IT impact assessment, overseeing integration into the existing infrastructure and serving as an external IT interface coordination resource. Upon award, the group assists in facilities setup and configuration by managing the coordination of IT resources, assisting in software acquisition, licensing, porting, and integration as well as providing setup, integration and testing services. During the production phase of the grant lifecycle full service systems management and ongoing software consulting and porting is provided. At the end of the grant cycle decommissioning services are available to assist in sun-setting systems, software and other IT infrastructure and recycling of central research IT resources into discovery or other grants.

Currently the following resources are directly involved in support of investigative activities:

*General Purpose Computational Linux Cluster:* Dell x86\_64 Linux cluster that consists of 23 computational nodes and over 600 cores. This computational resource is available to all members of the University at Albany research community.

The RIT group also manages several individual research group servers that are used for specialized computation or web delivered applications. This includes:

- **CEASHPC Cluster:** This cluster is dedicated to researchers from the College of Engineering and Applied Sciences. The cluster is comprised of 12 nodes with over 672 cores and 60,000 cores.
- **Snow Cluster:** This cluster is dedicated to researchers from the Department of Atmospheric and Earth Science. The cluster is comprised of 33 nodes and over 2112 cores.
- **Minerva Cluster:** This cluster is utilized the lab group of Dr. Alan Chen, an RNA Institute biophysicist. The cluster is comprised of 37 nodes and 1184 cores.
- **Matrix and Boreas** are Linux clusters that belong to researchers in the Department of Computer Science. They consist of 8 nodes each with 64 cores.
- Clusters for the Albany Visualization and Informatics Lab (AVAIL), Advance Scientific Research Center (ASRC) and the NYS Mesonet projects are also supported by the RIT group.

The RIT group currently supports 45 Virtual Servers (VMs) for research projects across the campus.

Our primary platform is RHEL 6 and higher. The equipment is housed in the University's new Information Technology Building, a Tier III-certified data center. The data center is redundantly networked to all buildings on campus and dual commodity internet connectivity as well as an upgraded 10g I2 link serves the data center.

Research storage capacity of approximately 400TB is derived from 500TB of Isilon scale out storage with snapshots. RIT also maintains 220TB of high speed scratch storage, 1.5 TB of local storage, and cloud based backup for disaster recovery. The RIT Group performs system administration of the cluster and all routine maintenance. Files are protected with 21 days of user-accessible snapshots as well as a full disaster recovery. The network is supported by the universities ITS' Enterprise Infrastructure group.

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