The Infrastructure Services group within ITS is responsible for the planning, installation, maintenance, and support of Loyola’s networks, servers, and desktop computers across multiple campuses. This Fact Sheet provides a snapshot of the technology, systems, and programs in place as of July 1.

**Data Centers.** Two primary data centers serve as the University’s information hubs. One is located in downtown Chicago, at our Water Tower Campus. The second is nine miles north, at our Lake Shore Campus in Rogers Park. Our design focus and future expansion plans center on business continuity requirements. We stress redundancy at all levels: equipment, network, electricity, and connectivity. Details about data center space, power, cabling, and security are in our Data Center Fact Sheet (see www.luc.edu/its/internal.shtml).

**Network.** The network is a tiered architecture with 65XX switches at the data center core of each campus, supporting nearly 25,000 switched ports (100/1000) throughout our three main campuses. Cisco is our primary vendor for network devices.

**Metropolitan Area Network.** Leased AT&T fiber joins the two lakeside campuses with a bonded 2GB connection and the Medical Center with 1GB Ethernet connectivity. A triangular format provides for redundancy. Our Retreat and Ecology Campus located 60 miles to the northwest, in Woodstock, is connected via a leased 20MB OPT-E-MAN circuit from AT&T to the Lake Shore Campus.

**Campus Wiring.** Loyola’s campus wiring consists of multimode fiber and copper trunk cabling to all contiguous buildings, and to 99% of the telecom closets within those buildings. Non-contiguous locations are served by either wireless links or leased circuits. Single-mode optical fiber is installed to 40% of our buildings and is the standard moving forward.

**Station Cabling.** Our standard configuration provides for administrative spaces to have one voice and two data cables. For residences, the new standard is two network connections and a coax for each living space. Our standard for deployment is Cat-6, which represents 80% of the total currently in place. The remaining cabling in some buildings is Cat-5 (15%) and Cat-3 (5%).

**Internet Access.** Loyola is an active member of the Internet2 (I2) consortium. We connect to I2 at 1GB through the gigapop at Northwestern University, and attempt to route all internet traffic through this channel. Internet sites not available via I2 are accessed via a 100MB link for Water Tower Campus, provided by AT&T Communications and a 250MB link at Lake Shore campus provided by Illinois Century Network. The AT&T link is burstable to 1GB and is utilized as a backup to the I2 circuit.

**Business Continuity and Disaster Recovery.** The main data center in Dumbach Hall houses a majority of Loyola’s production systems and technology. For many systems, data is replicated to a failover data center located in the Corboy Law Center building at the Water Tower Campus.

**Residential Cable Television.** Students are provided with basic cable television service in each of the residence hall rooms. There are approximately 2,400 active connections through our bulk agreement with Comcast. Premium services are available at the student’s expense. Another 50 business accounts are spread throughout the campus for public viewing in libraries, classrooms, and common areas. Additionally, Residence Life Cinema is available to students. This service features on-demand movies and instructional content via the network. Twelve new movies are provided each month.

**2,400 active cable television connections in residence halls**

**The new residence hall standard:**

**2 network connections for each living space.**

**2,100 new cloud storage accounts in 2013**

**Loyola receives over 600,000 e-mail messages per day**
Wireless Network. Wireless is deployed strategically based on value and need, with new construction including both wired and wireless capability. Security is handled through a registration and authentication system. We have approximately 2,100 Cisco APs. These locations, primarily in residence halls, classrooms, and common student areas, support 802.11 A/G/N/AC. Hot spots can be found at: www.luc.edu/its/wireless.shtml.

Servers. Loyola’s server environment consists of 179 physical server class machines and 374 virtual servers. Loyola’s virtual infrastructure is running on VMware vSphere 5.5 across 21 physical machines.

Storage and Backups. Loyola has five IBM storage area networks (SANs) between its Lake Shore and Water Tower campuses. These SANs house a total of 550TB of data, spread across fiber and SATA drives.

Students, faculty, and staff also have access to 53TB of cloud-based storage, hosted by Box. Currently, more than 5,100 individual accounts have been created in the cloud.

Two servers running Tivoli Storage Manager (TSM) safeguard data from corruption, disaster, and accidental deletion. Each TSM connects to an IBM 3584 robotic tape library. Each day, these libraries perform hundreds of automated operations.

Telephony. Our telephony environment consists of two AVAYA voice systems: A Definity G3r located in our Water Tower data center and an AVAYA Communication Manager 4.0 at Lake Shore. The Water Tower G3r consists of six expansion port networks servicing 2,184 active telephone ports. The Lake Shore CM 4.0 consists of 11 port networks (27 G650s and four traditional cabinets located throughout the campus) servicing 3,520 active telephone ports. The CM 4.0 utilizes IP telephony as its backbone and supports VoIP to the desktop.

Our voicemail system is via Microsoft Lync, a unified messaging system. Faculty and staff can receive messages through the telephone or via email.

Intracampus calls are carried on three AT&T ISDN/PRI T1s for tie lines between Lake Shore and Water Tower. There is also one AT&T ISDN/PRI between Lake Shore and the Medical Center and one AT&T ISDN/PRI between Water Tower and the Medical Center. On average, Loyolans place 68,000 outbound calls monthly: 44,000 at Lake Shore and 24,000 at Water Tower.

Cellular Infrastructure. Loyola’s lakefront location provides challenges to cellular connectivity. We continue to explore a distributed antennae system to improve reception on campus.

Email Systems. The current email system is Exchange 2013 for faculty and staff and Office 365 for students. Loyola receives over 600,000 email messages per day to our MailFoundry anti-spam and virus filter. Of these:

- 60% are blocked due to high spam score or block listing
- 38% are allowed through as clean (not spam, not virus)
- 2% are blocked because of viruses

Refresh Programs. Loyola has four refresh programs in place today:

- Workstations are refreshed on a four- to five-year cycle
- Servers are refreshed on a four-year cycle
- Network switches are refreshed on a five-year cycle
- E-classrooms are refreshed on an eight-year cycle

Desktop. Loyola maintains approximately 4,254 desktop workstations for faculty and staff (including 800 HSD machines) and 1,494 public-access workstations in labs, classrooms, and dorms, and on the HSD campus. About 73% of these workstations are Lenovo PCs, 18% are Dell PCs, and 9% are HP PCs. Most run Windows 7. We have a standard model Lenovo workstation and three standard laptop configurations, which stay consistent for 15 to 18 months. This approach simplifies support and management through a single image. The lab image is updated once per year; the faculty and staff image is updated on a regular basis.

Loyola also supports 460 Mac computers: 285 are public-access and 17 are faculty or staff machines running OSX.

Exchange Synching on Mobile Devices. As of July 2014, we have over 18,000 student devices syncing email, calendars, and contacts to mobile devices. There are over 4,000 faculty and staff devices syncing to mobile devices. Mobile devices are comprised of various smartphones and tablets.