CURSOR

IN THIS EDITION

UNIFIED COMMUNICATIONS
VIRTUAL SERVERS AT COST-EFFECTIVE PRICING
TECHNOLOGY ENHANCED SPACE UPGRADES
DIGITAL AND ASSISTIVE LISTENING ACCESSIBILITY
VIDEOCONFERENCEING - BRIDGING THE GAP
COURSE CAPTURE EVALUATION
COLLABORATING TO MEET "IT" NEEDS

PLUS

• WIRELESS OUTDOORS
• TECH TAILGATE 2015
• GET STARTED VIDEOS
• WIRELESS EXPANSION IN RESIDENCE HALLS

Welcome!
Back to School 2015
Computing Services Vision
Computing Services will meet the changing needs of Carnegie Mellon by combining the best of industry-standard information technology services, innovative solutions and best practices.

Computing Services Mission
Computing Services enables and advances an information technology environment that supports the research and education missions and the associated administrative functions of Carnegie Mellon.

Carnegie Mellon University
Computing Services

Students - Join us for a Technology Tailgate

SEPT 1
3:30 - 6:00
CUC RANGOS

Computing Services staff, Student Senate, lynda.com and others will be available for discussion. There will be free food and a chance to win some great prizes, too!
New and returning students - check out cmu.edu/computing/new-to-cmu/ to ensure you’re getting the most out of Computing Services while you’re here. Watch our short videos and learn about what’s available from how to connect to the network to getting essential software training from lynda.com for FREE.

On your mobile phone? Don’t worry, there’s a compatible mobile version ready for you to view on the go.

New? Visit...

cmu.edu/computing/new-to-cmu/
Over the summer, Computing Services has been busy updating selected public computing clusters and classrooms. Updates include equipment refresh (such as new iMacs with larger screens, ceiling microphones, and upgrades from analog to digital HDMI), improved connectivity, and updated operating systems. Improvements have been made at the following locations:

- Gates Hillman 4301 (Classroom)
- Porter Hall 100 (Lecture Hall)
- Baker Hall A53 (Lecture Hall)
- Cyert Hall 100A (Cluster)
- Wean Hall 5201 (Cluster)
- Wean Hall 5202 (Cluster)

If you’re scheduled to teach a class in one of our technology enhanced classrooms or cluster spaces, contact us at mediatech@andrew.cmu.edu to schedule a consultation or demo of the technology available to assist you.

For more information on clusters or classrooms, visit cmu.edu/computing/clusters/ and cmu.edu/computing/class-event/
As part of Carnegie Mellon’s mission to provide physical and programmatic access to its events and information, a Digital Accessibility Committee was formed in 2012 as a partnership between the Office of Disability Resources, the Office of General Counsel, the Eberly Center for Teaching Excellence & Educational Innovation and Computing Services. The primary goals of the committee are to raise awareness about digital accessibility and to review and coordinate the various resources, processes, and support services available for addressing accessibility needs. With a holistic and proactive approach to providing accessibility of digital resources such as educational technologies and materials, university websites, multi-media, and other electronic forms of information, the Committee is working to enhance processes and embed practices that help to lower barriers for making digital resources accessible to all.

A recent project that Computing Services was successful in implementing with the help of the Digital Accessibility Committee is the Assistive Listening System (ALS) installed in the McConomy Auditorium in Cohon University Center (CUC). Through digital signal processing, the ALS helps solve common sound problems caused by distance, background noise, reverberation, or poor room acoustics. ALS devices separate the sounds you want to hear from the unnecessary noise that can interfere. ALS devices can be used with headphones and earbuds, or they can transmit sound directly through hearing aids and cochlear implants. Individuals with hearing impairments may borrow an ALS device free of charge by contacting the Office of Disability Resources (access@andrew.cmu.edu).

Digital accessibility is something we all (central services, administrators, faculty, and staff) need to have on our radar when considering, implementing, and/or using information and educational technologies, whether they be centrally provided or off-the-shelf tools and resources. The Digital Accessibility Committee is working to raise awareness at CMU about the needs, laws and guidelines, processes, and resources for effectively addressing digital accessibility needs and requirements.

If you’re involved in the selection or upgrade of a product or service, please consider digital accessibility requirements as part of your plan and contact the Office of Disability Resources for assistance.

For more information on accessibility, please contact the Office of Disability Resources at access@andrew.cmu.edu or visit Human Resources’ Digital Accessibility web page at cmu.edu/hr/eos/disability/digital.html.
Computing Services makes equipment available for loan to members of the campus community through its Multimedia Lending service. This service, previously located in CFA, has been moved and consolidated with the lending service in University Libraries. This collaboration and consolidation of similar services offers multiple benefits to the campus community:

- Equipment lending is available through the Hunt Library circulation desk during open hours centralizing the service in a convenient location with extended availability.
- Lending makes equipment and multi-media technologies readily available making it easy to explore and collaborate using new technologies.
- Access to this equipment collection encourages its use to enhance artistic creation in teaching, learning and research.

Lending is open to students, faculty and staff at Hunt Library. Equipment available includes Canon Rebel Series Cameras, Sony Camcorders, GoPros, Optoma Pocket Projectors, Wacom Tablets, and more.

For more information, including a complete list of equipment, visit cmu.edu/computing/clusters/lending/.  

Whether you have a new device or you want to maintain your existing device for years to come, don’t forget to run updates! An out of date driver or operating system is frequently the cause for network connection and security issues. Keep up to date by turning on automatic updates or manually check for updates weekly. You should also keep a look out for important security announcements from Computing Services and the Information Security Office via email, the Computing News webpage (cmu.edu/computing/), or the Computing News RSS feed (cmu.edu/computing/news/news-rss.rss/).

DSP or Executive IT Customer? No Worries!
Operating system and driver updates are pushed to your computers as part of your service subscription; there is no need for you to run updates on your own.
Wireless Network Expansion in Residence Halls

In 2013, Computing Services and Housing Services created a partnership to improve and expand the aging wireless network in many of our residence halls. Student feedback and site surveys completed by Computing Services revealed that the amount of access points and cabling needed to be increased considerably (and also installed within many student living spaces) to provide proper performance.

Housing Services and Computing Services coordinated this work over the summer months to minimize disruption to students living in the residence halls. Wireless service has now been successfully upgraded in all affected residence halls.

If you’re experiencing any issues at your location, contact us at it-help@cmu.edu.

SAFEGUARD UNIVERSITY DATA

Take the necessary steps to safeguard institutional data. Most documents you use daily can be safely stored in Box. Before using Box for restricted data, review the appropriate guidelines at cmu.edu/iso/governance/guidelines/data-classification.html.

Need more space to store your reports, spreadsheets and class projects? CMU Box, a cloud storage option available to all campus affiliates, now offers 1TB of storage space!

Box is an easy-to-use storage option for students, faculty and staff. Upload and manage your files using a web browser or the Box app on your mobile device. Once your files are uploaded, you can modify access levels, assign tasks and even edit files without downloading them. Box Notes, allows multiple people to edit the Note at the same time and view each other’s contributions. You do not need a Box account for collaboration just an email address.

To learn more about Box and to create an account visit box.cmu.edu/.
In response to feedback from student government, Computing Services deployed outdoor wireless coverage to several outdoor areas on campus.

**Note:** Although a wireless signal may be received outdoors on other parts of campus, it is not designed for outdoor use and connectivity may be unreliable.
Computing Services frequently collaborates with departments to help them leverage centralized infrastructure and reduce service redundancies. With an understanding that the needs of academic and research-based organizations are often unique, Computing Services can be a valuable partner in both the planning and execution of an organization’s IT goals.

An example of this kind of successful collaboration is the work the Department of Electrical and Computer Engineering (ECE) is doing with Computing Services. ECE determined that leveraging Computing Services’ existing Exchange infrastructure made more long-term sense than building – and maintaining – their own. This arrangement would enable ECE to re-allocate valuable resources, but one of the more immediate benefits has been a closer working relationship between the two groups.

Since then, ECE has expanded the collaboration and transitioned some remaining faculty, staff, and students to Computing Services’ Google Apps infrastructure.

Another instance was in partnering with the School of Computer Science, IKM architects and the Eberly Center, Computing Services was heavily involved in the pre-planning stages of the Citadel Collaborative Commons (GHC 5th Floor). In order to gather core needs to define project requirements, structured interviews were conducted with faculty, teaching assistants and undergraduate students who use the spaces. Computing Services additionally provided expertise in the design and construction phases to help achieve results that include leading edge technology within a space designed to cultivate educational interaction.

Thanks to everyone...

at Computing Services for collaborating with us every day, from workstations to printers to robots to servers to A/V. One thing is for sure -- the impact of Computing Services cannot be missed. I am very thankful that you so generously shared your tremendous human wealth with us, both on these recent projects -- and every day.

In my eyes, the partnership we have is the best outcome of this project.

We have a better understanding of Computing Services’ pain points and they understand ours.

Dan Fassinger,
Manager of Support for ECE IT Services

Greg Kesden
Faculty member in SCS and project lead

These successful collaborations are not limited to the Pittsburgh campus. The Computing Services Network and Communication Services team has built strategic partnerships with several remote-campus locations to ensure that travelling faculty and staff experience the same level of connectivity that they have come to expect on the Pittsburgh campus. The team has worked with diverse organizations like NREC, SEI Arlington, Tepper NYC and the Silicon Valley campus on everything from wired networking to telecommunications to encrypted and authenticated wireless networking. In particular, the team is known for implementing wireless networks in some of the most technically challenging and complex Radio Frequency (RF) environments imaginable. “Increasingly, wireless is the network,” says Scott Ambrose, Director of Network and Communication Services for Computing Services. “In order to understand the network, you have to understand RF.” The challenge, explains Ambrose, is to create a wireless network that takes into account how various building materials and environmental factors affect RF signals and coverage while remaining open enough to allow collaboration and secure enough to protect valuable and sensitive research. The expectation is that...
computers, phones, tablets, proprietary devices and even robots are able to communicate seamlessly and reliably not just with each other, but also the larger world beyond the university's network borders.

These are just a few cases where Computing Services collaborated with university organizations to help improve their IT efficiencies. If a partnership with Computing Services might benefit your organization’s IT plans, please send email to it-help@cmu.edu to schedule a conversation.

collaborating to meet your IT needs cont’d.

What will you learn today?

LOG INTO cmu.edu/lynda/

Lynda.com is an online training library with more than two thousand instructional videos. Log on and learn the latest software skills.
The word “virtual” stirs up images of data bits in the clouds. Computing Services doesn’t have any servers actually floating on a “cloud,” but we do offer cost-effective virtual hosting of your server.

Leveraging existing VMware infrastructure, our Virtual Co-Location service offers:

- Competitive pricing
- Hardware and software locally managed by Computing Services
- Quick provisioning (within 3-4 days)
- Secure network
- Reliable backup services
- 24/7 support of the VMware infrastructure
- Ability for departmental IT staff to install/uninstall software as needed

For more information or to request a consultation, visit cmu.edu/computing/repair/colocation/virtual-colocation/.

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**SCS was looking for a solution to deliver, via the web, artifacts from student projects for two masters programs. The solution had to be timely, flexible, supportable, and cost effective. Virtual Co-Location was the only option that met our needs. The service was implemented quickly with excellent support.**

Dale Shanefelt
Principal Software Engineer
School of Computer Science

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### Base VM Size

<table>
<thead>
<tr>
<th>Base VM Size</th>
<th>#VCPUs</th>
<th>Memory</th>
<th>Disk (Solid State)</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALL</td>
<td>1</td>
<td>2 GB</td>
<td>40 GB</td>
<td>$155</td>
</tr>
<tr>
<td>MEDIUM</td>
<td>2</td>
<td>4 GB</td>
<td>40 GB</td>
<td>$210</td>
</tr>
<tr>
<td>LARGE</td>
<td>4</td>
<td>8 GB</td>
<td>40 GB</td>
<td>$320</td>
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### Add-on Option

<table>
<thead>
<tr>
<th>Disk Type</th>
<th>Annual Cost Per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPINNING</td>
<td>$15/unit (10 GB per unit)</td>
</tr>
<tr>
<td>SOLID STATE</td>
<td>$25/unit (10 GB per unit)</td>
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</table>

<table>
<thead>
<tr>
<th>vCPUS Type</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCPUS</td>
<td>$100/unit</td>
</tr>
<tr>
<td></td>
<td>4 vCPUs per unit</td>
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<tr>
<td></td>
<td>Maximum 12 vCPU total</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MEMORY Type</th>
<th>Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEMORY</td>
<td>$60/unit</td>
</tr>
<tr>
<td></td>
<td>4 GB per unit</td>
</tr>
<tr>
<td></td>
<td>Maximum 32 GB total</td>
</tr>
</tbody>
</table>

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**DEPARTMENTAL IT ADMINISTRATORS**

Join us at the next Departmental Computing Forum (DCF)

Monday, October 5, 10 AM - Noon @ CUC Rangos

Virtual Co-Location will be part of the conversation!
Carnegie Mellon is lauded for its collaborative thinking and problem solving that extends across numerous countries on multiple continents. As a global university, the capability of bringing people together to share ideas is imperative, and having the tools to facilitate this is a necessity. Computing Services recognizes the importance of establishing bridges between different geographic locations, and is considering expansion of the audiovisual communication tools offered at the university.

Currently, Computing Services provides fully equipped videoconference rooms to the campus community. There are caveats to using these rooms; individuals who wish to participate must be physically located at one of the designated videoconference rooms in their region (if available), and the rooms may need to be reserved ahead of time. While these videoconference rooms have proven to be a useful and important tool for the university, they’re not always available to both parties.

For situations that commonly arise, such as a guest lecturer who needs to “remote in,” many resort to using readily available communication tools such as Skype, FaceTime, and Google Hangouts. While convenient, these tools may not provide an optimal room-scale experience and are not centrally supported on campus.

To bridge this technology gap, Computing Services is evaluating several videoconferencing platforms including Blue Jeans Network and WebEx in hopes of finding a solution that will meet the broader needs of the university. We are looking at platforms that can interoperate with the current videoconference room systems, as well as for individual use-cases in rooms with videoconferencing equipment.

The goal of the evaluation is to gain an understanding of how a new platform offering would address specific use-cases, to what degree the needs are satisfied, what gaps still remain, and what the current trend is in this space. The evaluation period is expected to be completed by the end of the year. For more information, please contact it-help@cmu.edu.
Computing Services has been transitioning existing telecommunications infrastructure to a Unified Communications platform. Unified Communications (UC) is an all-encompassing collaboration system offering standard voice and enhanced services such as Exchange email integrated voicemail, video calling capabilities, and an integrated instant messaging platform. Unified Communications has been deployed in eight departments across campus including Computing Services, the School of Engineering, University Advancement, Libraries, and the Software Engineering Institute. All remaining departments should be converted over the next two years.

The Unified Communications team has been working to convert approximately 8,400 legacy Centrex phone lines to the centralized UC infrastructure. Great strides have been made in converting 2,800 of these lines, with two major conversions planned yearly (about a thousand lines per conversion).

The multi-month process to convert lines and deploy phones involves assessing the physical connectivity of a location, confirming the current needs of the customer, and configuring accordingly. The Unified Communications team coordinates the conversion with the help of a departmental team lead that is designated to help your department through the conversion.

Because the university owns the network and Computing Services operates the end-to-end service, we are not dependent on a third-party provider for many related features, such as domestic long distance. This allows Computing Services to provide a cost-effective solution that includes licensing and most toll usage fees.

For more details visit cmu.edu/computing/phone-tv/uc/.
Video is widely used for teaching and learning outside of the face-to-face classroom setting. Eberly Center for Teaching Excellence & Educational Innovation and Computing Services have been collaborating to investigate the need on campus, identify use cases, and explore supporting technology options.

In their early investigation of the technologies and pedagogical uses of video, the team identified two models that align to instructional uses and service scalability:

- The active model, where instructors create their own instructional videos through a suite of laptop tools.
- The passive model, where existing video conferencing equipment is leveraged for a rough capture of a classroom lecture.

During the spring semester, two different technologies, Camtasia Studio and Panopto, were piloted in order to study teaching needs, examine value for learning, explore the affordances of the technology and determine scalability.

**CAMTASIA STUDIO**

Approximately 20 faculty members installed Camtasia Studio on their laptops to create instructor-made videos to provide their students with:

- Pre-class learning of basic concepts
- Exposure to expert practice and disciplinary habits of mind
- Supplemental resources to address difficult topics
- Feedback on student work

**PANOPTO**

Two classrooms were configured with portable and lightweight Panopto installations. Panopto classroom recordings captured both the instructor/lecturer via video camera and the instructor’s Powerpoint slides.

Additional pilot activities continue in the fall 2015 semester: continuing the work with individuals currently using the Camtasia Studio option; and more robust implementation of the Panopto option in two or more classrooms.

If you are interested in the Panopto option, contact it-help@cmu.edu to see if it can be installed in your classroom. If you are interested in using instructional video in your course and want to investigate tools and approaches, contact eberly-ctr@andrew.cmu.edu.
PROBLEMS WITH INVOICES: The Email that Caused a Security Incident

On June 10, 2015, an information security incident threatened disclosure of sensitive university financial data. An email with the subject line, “Problems with invoices” with an attachment “New.zip” was received by a number of Andrew accounts. The email was actually a phishing attack that unfortunately, or perhaps intentionally, coincided with the close of the 2015 fiscal year, a time when people are likely to be process last minute invoices. Several recipients attempted to open the attachment. Once the attachment was opened:

- Malware designed to steal usernames and passwords was installed.
- Email copies were sent to the recipient’s contact list. To those in the contact list, the email with the attachment came from a trusted source.

Thanks to those recipients who reported the suspicious email, the Information Security Office (ISO) became aware of this threat and took the necessary steps to block further delivery of the malicious email. Infected computers were suspended from the network and Andrew accounts sending the email were blocked. Communications including required steps to protect the university and the recipients’ sensitive information were sent to departmental IT staff and the campus community.

A valid email should be addressed to the recipient and include the sender’s name and contact information along with a short explanation or reference about the attachment. An email, with an attachment titled “New.zip” and a one-line message, “Check the invoice” should raise a red flag to a possible attempt.

Reporting is important. If you suspect you have received a phishing or suspicious email, report it immediately to iso-ir@
andrew.cmu.edu and to your departmental IT staff. If you’ve fallen victim to a phishing attempt - supplying credentials or opening an attachment that did not behave as expected – you should immediately follow the steps outlined in the ISO’s Procedure for Responding to a Compromised Computer (cmu.edu/iso/governance/procedures/compromised-computer.html).

• Avoid shutting down your computer, logging off or running anti-virus/Identity Finder software. This will preserve the logs and assist ISO in its electronic analysis.
• Disconnect the computer from the network to prevent malware from spreading or leaking sensitive data.

Understand Data Classification Levels

In the Problem with Invoices Security Incident, it was especially important for technical staff with access to systems that host restricted or sensitive data to be aware of the data classification types. Review the Guidelines for Data Classification (cmu.edu/iso/governance/guidelines/data-classification.html) and adjust your work processes, as necessary, to reduce the risk of inappropriate access.

Attention to Communications

It is important to read and follow all instructions sent by ISO. In a few cases, contrary to email instructions and the Procedure for Responding to a Compromised Computer, actions were taken on infected computers, such as running diagnostics and cleaning programs, which impeded the resolution of the incident and lost/ altered forensic data. Accurate forensic data is necessary to diagnose and fulfill legal requirements related to data breach.

Awareness and Training

The ISO’s training courses will help you recognize phishing attempts and legitimate web sites. In addition, faculty and staff should complete ISO’s Security 101 online training. This comprehensive course is beneficial to understanding security policies, guidelines and institutional data responsibilities. For more information on available training and awareness programs visit cmu.edu/iso/aware.

The best strategy for protecting university data is to take responsibility for your own security. Pay attention to security warnings and announcements and be aware of suspicious emails. Continue to be vigilant about patching, scanning your system for viruses, and managing your passwords. If you have additional questions, contact the Information Security Office at iso@andrew.cmu.edu.
**PASSWORD SECURITY**

A new school year is beginning... we remind you to change your Andrew password; select a strong password and set your password reset questions.

Regardless of the amount of information shared with the university community about password security, the Information Security Office (ISO) continues to see security risks associated with the use of a weak password, the use of an Andrew password for various online applications, and the rotation of previously used passwords. Some individuals willingly share their passwords with other colleagues and family members or are lured into providing their username and password in response to a phishing email.

**Password Management**

To help Carnegie Mellon affiliates with password management, ISO established the Guidelines for Password Management ([cmu.edu/iso/governance/guidelines/password-management.html](http://cmu.edu/iso/governance/guidelines/password-management.html)). These guidelines recommend a strong password with at least one numerical character and one special character. For example H@v3Sav3D.

The guidelines also recommend changing your password periodically and employing different passwords for various accounts. Avoid using your Andrew password for other accounts. If your other account systems are compromised, you may risk disclosing the information you access with your Andrew password.

**Carnegie Mellon Accounts vs. Personal Accounts**

Keep in mind that applications supported by the University, such as Google Apps and Box, are accessed using your Andrew credentials through the University Web Login service. This is different than direct access to a personal Gmail or Box account. The University requires a set of security controls and encryption for supported third-party applications, which may not be offered for free personal accounts.

Make sure the passwords for your personal accounts differ from your Andrew account, even if you forward your Andrew email messages to a personal email (which isn't recommended).

**We Will Never Ask You For Your Password**

ISO recommends that you avoid sharing your password with anyone. When contacting the Computing Services Help Center, please do not send personal information.

Many community members have been tricked...
into providing their username and password in response to an email sent from what appears to be a legitimate university department (phishing email). We will never ask for this information in an email message.

**What if your password is compromised?**

If you have shared your password with a colleague, friend or family member or have an account with services that were breached, you should change your password immediately. If you shared your Andrew password in response to an email or a phone call, change your password now and email iso@andrew.cmu.edu.

In the event that ISO detects an Andrew account password compromise, your account may be locked to protect your personal data. If this happens, you will need to contact the Computing Services Help Center to reset the password. This process is much easier if you’ve already set your three password security questions. See cmu.edu/computing/accounts/passwords/change.html for more information.

ISO will also notify you through the Computing Services Network Incident System Console (NISC) if you were among those who received a phishing email, even if you didn’t fall for the deception. ISO also welcomes any reports of phishing email you receive.

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**DMCA Process for Students**

When requested, Carnegie Mellon is legally required to stop unauthorized downloading and/or distribution of copyrighted materials. If we receive a Digital Millennium Copyright Act (DMCA) notice and identify your computer as the offender, you will have 72-hours to resolve the issue with the Student Life Office. If it is not resolved, you will lose your network access and will not be able to register new devices or computers. For more information, see cmu.edu/iso/aware/dmca/.

**Compromised Computer Procedure**

If you suspect your computer has been compromised, stop using your computer and report the problem immediately. Students should contact the Computing Services Help Center (412-268-4357 or it-help@cmu.edu). Faculty and Staff should contact the ISO (412-268-2044 or iso@andrew.cmu.edu). For more information visit cmu.edu/iso/governance/procedures/compromised-computer.html.