

## **FY-16 ACADEMIC COMPUTING AND ELECTRONIC COMMUNICATIONS (ACEC)**

Chair: Perry Alexander, Electrical Engineering and Computer Science

Faculty Senate Rep: Megan Patterson, Education, (2016)

Faculty: David Guth, Journalism, (2018)

Faculty: Hongguo Xu, Mathematics (2018)

Faculty: Sarah Goodwin Thiel, Libraries, (2018)

Faculty: Eric Deeds, Bioinformatics (2016)

Staff: Christopher Young, Facilities Services, (2018)

Staff: Jennifer Talbott, Spencer Museum of Art (2017)

Staff: Brad McClung, IT, (2017)

Student & Vice Chair: Baxter Vaz

Graduate Student: Brent Lee, brentlee@ku.edu

Ex-officio: Easan Selvan, IT Services

Jeff Chasen, Director of Institutional Compliance

Standing charges:

1. Monitor current and proposed policy concerning security of information, intellectual property rights and responsibilities, and other matters relating to information technology. Identify issues for which policy should be developed or revised. Report issues and any recommendations for action to SenEx. (ongoing)

ACEC met twice during the academic year to discuss computing and communication infrastructure. We summarize our discussions related to specific charges below.

Specific charges:

1. Working together with RGS, create a recommendation on how Information Technology could better accommodate research. The following should be among the issues addressed:
  - a. Support
  - b. Archival file storage
  - c. Grant accommodation and development

Members agreed that KUIT continues to improve campus-wide support for computing infrastructure and continues to provide new services to the community. Rollout of MyCommunity, Microsoft Office 365, Skype for Business, and OneDrive are significant advances for collaboration across the University. It is wonderful to report that HawkDrive is being decommissioned. ACEC needs to be charged with continued monitoring collaboration tool rollout and determining the utility of such systems for KU faculty, staff and students.

Archival file storage remains an unfulfilled KU need with little change in status over the past 24 months. Given requirements regarding archival data from funding agencies this should be considered a critical need. It will require additional funding, but not before significant technical leadership from KUIT and research computing emerges. This must receive priority treatment. In contrast, CFC is being upgraded to a new server and provides a solid basis for campus computing. The question becomes why CRC is fielded and upgraded before a usable archival storage system is implemented? Both are critical needs.

Grant accommodation remains largely a research computing and resource sharing issue. The rollout of MyCommunity and shared storage is a huge improvement over HawkDrive and other ad hoc collaboration mechanisms provided by KU. Note that Dropbox and Google Docs will remain widely used among researchers. KUIT should embrace if not encourage third-party software use where its use represents a safe alternative. Such solutions are not appropriate for research data archiving. KU must continue to provide services that are easy to use and ubiquitous.

2. Monitor the continued progress in installation of the ubiquitous wireless initiative.

We discussed the ubiquitous wireless initiative and received updates from Eric Freeze. The committee continues to believe the ubiquitous wireless rollout to be an unqualified success. Specifically, we all feel JAYHAWK wireless coverage is excellent and improving across campus. Members commented again on the usefulness of eduroam for accessing campus networks while away from KU.

KUIT representatives expressed increasing concern regarding ongoing funding for the initiative. Much of the original infrastructure is aging and will require replacement in the near term. This issue should be monitored by ACEC.

3. Continue monitoring the progress of the “one campus” initiatives for IT such as “One Network” and “Single Identity.”

We discussed the single identity and single network issue at both our semester meetings focusing on implementation and timeframe. Although the initiative is moving forward, little has changed since our last formal report. KUL and KUMED identities are being merged, however we were not made aware of attempts to standardize on a single identity management system. Little progress will be made until this critical decision has been made.

4. Consider how to address the issue of members of the KU community using alternative tools (e.g., Dropbox) to those provided by KU (e.g., HawkDrive).

Third party tools are used by faculty and state because KU does still not provide sufficient capabilities. People will move where they need to be to do their work. KU is not a corporation where administration can mandate specific software and systems. KUIT and Bob Lim report discussions with Dropbox – the most commonly used file sharing system – to determine if there is a way to integrate their services. This is exactly the right approach and KUIT is to be commended on pursuing it. Skype for Business is another excellent example of successful technology rollout. The service is good and is widely praised by those who currently use it. Central File Storage is being replaced and seems to be moving forward nicely providing an excellent alternative to third party solutions.

The Committee unanimously agrees that KU should have a needs focus when selecting and rolling out new technologies. Specifically, technology decisions should be driven by what the general user community across the University needs and not simply what KUIT or any other organizations think is best. To be clear, KUIT is not intentionally leaving out the University community in its decisions. We simply need to keep communication lines open and ask ACEC to continue monitoring decisions and decision making processes.

5. Monitor the development of the Technology Governance System to ensure that it includes equal and proper representation of staff, faculty, and students.

ACEC members are unaware of the Technology Governance System. What is Technology Governance and what role will it play? The committee is united in its opposition to a regulatory body that governs technology use. Perhaps “governance” is the wrong word. Regardless of purpose, we need a formal liaison between ACEC and Technology Governance and some definition of its charge. If the role of Technology Governance is to gather needs from the KU community as described above, ACEC is in favor of its creation.

6. Develop a line of communication between ACEC and IT for inclusion in the Technology Governance System.

This task was not completed during the past year and should be a high priority for next academic year. Roles need to be defined and interactions established.

#### 7. Fiber cut

ACEC engaged KUIT in discussion about the fiber cut that took down all KU communication and computation capabilities. We wanted an understanding of why this happened and how it will be prevented in the future. Eric Freeze discussed the event with us and was forthcoming in his assessment. Here are some details of the event:

- A contractor told the fiber was unused and thus cut through it intentionally
- There were 3000 strands of fiber and 2000 copper pairs cut that required patching
- Some communication was moved to spare fibers and restored quickly
- By 10pm the day of the cut, KUIT restored most campus communication, however significant buildings including the Learned complex and Snow Hall were offline significantly longer
- Apogee and other campus companies were also impacted by the cut making connectivity unavailable to student housing
- KUIT estimated a 1.5 to 2 week remediation time for the cut
- KUIT estimated a 7 digit cost just to restore fiber
- Remediation to avoid future mistakes:
  - Site sign-off before digging near fiber
  - Tie into city fiber for redundancy
  - Diverse and redundant links to campus
  - Install a second KANREN node

This simply cannot happen again. Specifically, a single communications cut cannot bring down the entire Lawrence Campus and parts of Edwards Campus. A similar incident occurs approximately 3 years ago with similar results. We are perplexed that issues discovered in the first fiber cut persisted and were worsened in the second cut.

- Funding must be secured to allow KUIT to complete its plan for redundant connections to all KU facilities. This is a basic best-practice telecommunications principle.
- Centralized resources must be redundant. KU Edwards should not lose its identity management because KU Lawrence goes down. Student logins, VLANs, license servers and other services must be made redundant so a single failure can be tolerated
- KU and KUIT should engage network and resiliency expertise on campus to assist in evaluating new designs and the causes and impacts of the current incident.
- Before continuing centralization, KU must ensure that centralized resources are never made unavailable campus-wide due to a single system failure.

Regardless of the specifics of this cut, ACEC commends KUIT for its response to the cut. Numerous people worked long, stressful days to restore services. We owe them a huge debt of gratitude. However, we also owe it to them and their families to take steps that ensure this will not happen again.