

# Changing For Excellence

## Business Case Goal Completion Report

### Information Technology – Server Centralization

#### Report Date

August 2016

#### Context

- Servers frequently run with idling CPUs and at 20% of their full capacity, meaning campus departments/colleges may have overpaid for computing power.
- Estimated annual cost of decentralized servers amounts to \$11,800 compared to the estimated cost of a virtualized server of \$1,000, which offers a significant savings opportunity for the University.
- Many server locations do not meet required building specifications outlined by the University.
- There have been many instances across campus where loss of information could have been avoided if servers were hosted in a centralized or virtualized environment and automatically backed up by IT personnel.

#### Goals

*For each goal answer the following: What percent is this goal complete? If the goal has been met, please describe how it was met. If the goal has not been met, how will you be completing this goal or why will it not be complete?*

- Create a Global Server Asset Registry to support audit, compliance, finance, planning, and operations.
  - The annual server registration process was implemented to identify and track non-centralized servers across departments. KU IT's internal database, MARS, is used to track server movement for servers NOT hosted at the Data Center. The savings component is managed by KUIT fiscal staff who are notified of the server movement by the server centralization team.
- Actively manage 80% of centralized and virtualized servers to achieve maximum cost savings.
  - The process of tracking savings for servers has evolved and iterated over the course of the project. The main challenge has been keeping track of the server's evolution. For example, a physical device may have been moved to the Data Center, virtualized and then have a physical box decommissioned or have its data moved to shared service. It's even possible the server may have been re-purposed.
  - There are 256 registered servers that have not been centralized for a variety of reasons. Some of them have been evaluated and their purpose is best served from their current location. Others are in a process of transition. Still others have transition process written which is dependent on an in-progress or future project.
  - The following non-centralized departments have servers left in the department
    - Center for Remote Sensing of Ice Sheets (CRISIS)
    - Chemistry
    - Center for Environmentally Beneficial Catalysis (CEBC)
    - Center for Research on Learning (CRL)
    - Geology
    - Information & Telecommunication Technology Center (ITTC)
    - ITTC Research Facility
    - KANU Radio
    - Kansas Unions

- Kansas Biological Survey
    - Kansas Law Enforcement Training Center (KLTEC)
    - Life Span Institute (LSI)
    - Mathematics
    - Molecular Biosciences
    - Paleontological Institute
    - Parsons LSI
    - School of Architecture, Design & Planning (SADP)
    - School of Pharmacy
    - Undergraduate Biology Program
    - University Daily Kansan
  - The following centralized departments have servers left in the department. For these servers, either a transition plan is in place or they have been deemed locally necessary.
    - Alumni Association
    - Edwards Campus
    - Electrical Engineering & Computer Science (EECS)
    - Mechanical Engineering
    - Natural History Museum
    - Public Safety Office
    - School of Engineering
    - School of Law
  - There are 764 servers registered. Of those, 508 servers have either been physically hosted, virtualized, decommissioned, or categorized as a device that does not need to be centralized. 66% of servers have been registered.
- Create shared services for high volume, common applications when possible.
    - KU Information Technology has established and continues to establish shared services to remediate duplication, including storage, DNS (domain name servers), Active Directory (AD) services, workstation imaging and updating, virtual server infrastructure, to name a few.
  - Virtualize 50% of identified servers on KUL campus and co-locate remaining servers to Central IT.
    - We are well on our way to achieving this goal. Some servers may not be able to be co-located to Central IT. A good example is the Active Directory servers for KLETC in Hutchinson. Moving these domain servers to the Lawrence data center would dramatically impact performance. Until a plan to remediate this risk can be established, these servers will need to remain in Hutchinson.

*Overall, how did goals change during Changing For Excellence and what goals were added or removed:*

Centralized virtual servers were recorded in the CFE summary as producing savings. The original business case was based only on physical devices. Therefore, moving forward, we have decided to only calculate savings when a physical device has been completely decommissioned which is passed on to Fiscal Services. This gives us the opportunity to capitalize on centralization of entire duplicate virtual infrastructures. In doing so, we capture hardware renewal costs on previously decentralized virtual environments, and can evaluate the impact of discontinuing software licensure for virtual environments.

### **Challenges**

Risks surrounding server centralization and virtualization IT staff are fairly low in respect to institutional, change management, project, finance, and IT risks.

- There is some concern surrounding the number of people that will be impacted by the change, including current decentralized server administrators, faculty, and department chairs and deans.
- Some current decentralized server owners will be reluctant to “give up” their servers (Note: We have encountered this throughout the life of this project).
- Other CFE IT initiatives will have a significant impact on the success of server centralization.

*Describe if these challenges were encountered during Changing for Excellence and what unanticipated challenges occurred during the process:*

All of the expected challenges were encountered, giving rise to opportunities to synergize Server Centralization with other CFE projects. In doing so, we are able to provide more effective IT service comprehensively and raise service levels in all areas simultaneously. This fuels positive perception of centralization efforts, and increases satisfaction levels.

### **Opportunities**

Over the first five years, average annual net benefits of \$5.7M can be achieved through:

- Reduced maintenance costs and server downtime through fewer physical servers.
- Repurposed space formerly dedicated to house servers and now aligned with KU’s mission.
- Significantly reduced power and cooling costs using the virtualized environment.
- Repositioned FTEs to meet higher order IT project needs from those FTEs formerly dedicated to server management.
- Reduced hardware costs using the virtualized platforms versus physical boxes.

*Describe if these opportunities occurred during Changing for Excellence and what unanticipated opportunities were realized during the process:*

KU IT took advantage of all the described opportunities above. Additional opportunities include bringing new staff and skillsets on to the server support team, evaluating departmental solutions to enterprise problems, and building trust and rapport with departments as their equipment centralized.

### **Changing For Excellence Summary**

*Summarize the process to date and lessons learned. Provide specific future direction, next steps, and strategy for this business case. Indicate what metrics will be used to measure success:*

The objective was, and has been, to create and execute a plan which would centralize and virtualize selected servers maintained remotely across campus with the goals of reducing institutional IT costs while providing improved service and data integrity. The approach was to focus on processes, risks, costs and benefits of centralizing all departmental, research and enterprise servers into an existing Data Center with an emphasis on virtualizing servers whenever possible.

IT continues to partner with departments as the Reorganize and Redefine process progresses and as new infrastructure comes online to support servers for which centralization previously was non-optimal. As we continue to build relationships and infrastructure, we will continue to register, centralize, and virtualize servers. This will save the university time and money with which to focus on our core mission.

**Post-Changing For Excellence Updates (Completed Projects Only)**

*The CFE business cases, while complete for routine reporting purposes, are never considered done as they are constantly being monitored and grown. With this in mind, please provide your detailed strategies on the continued growth and development of these business cases. Information about how units continue to improve and innovate from these business cases should be addressed. Details could include information about refining processes, new projects, measuring success, metrics being reviewed, and other methods for understanding improvements.*

By the end of the project, 93% of the identified servers had been addressed. Not all of the servers have been decommissioned or centralized; however they have been reviewed and discussed. Many of these servers have been left in place for various reasons, including noncompliance with CFE initiatives. The decommissioning of remaining servers will be handled in day-to-day operations.

Workflow has been developed and added into ServiceNow for end users to “Build a new server for me” and “Host an existing server for me.” These request forms collect the required information needed to perform the requested function. Processes have been developed for each of these scenarios which use the request forms online.

KU IT Client Consultants are available to discuss individual needs with end users and departments on server hosting and management, or to initiate a request.