UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Creation of virtualized MCOBA MSAccess computer lab

Title

B.I. Moody III College of Business Administration

Angel Littlejohn, MS
Information Systems and Multimedia Labs Manager
Name of Submitter

Moody College of Business Administration (MCOBA)
Information Systems & Multimedia Laboratories (ISM)

Organization

Title: **Creation of virtualized MCOBA MSAccess computer lab** Date: July 16, 2020

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Department/College/Org: Moody College of Business Administration (MCOBA)
Information Systems & Multimedia Laboratories (ISM)

ABSTRACT (250 words or less):

This grant proposal is requesting support to create a virtual lab existing solely in the cloud to ensure that students have access to software applications used in classes without forcing them to come to campus.

Moody College of Business' Management 303 class teaches relational database concepts. Students create a data model and then apply what they have created in Microsoft Access, which is included in the Office suite with their academic student license. Before the emergence of COVID-19, they were able to come to campus and use computer labs. Many students use MacBooks or Chromebooks as opposed to Windows-based PCs and laptops. Students using MacBooks are not able to download Access because Microsoft has not made it available to run natively on iOS, the operating system of Apple products. There are ways to run Access on MacBooks and iMacs, but they involve setting up a dual-boot system or a virtual machine, neither of which most students in business know how to do. Students using Chromebooks have difficulty with installing any software. Chromebooks are meant to access the Internet only, and do not have sufficient space to install much, if anything, and certainly not Microsoft Access.

Virtualizing a lab to which all MGMT 303 students can have access would make the Microsoft Access hardware-agnostic. The same desktop would be available to all students (since it functions within a browser window), no matter what hardware they were using, as long as they have a supported browser and an Internet connection.

Purpose of Grant and Impact to Student Body as a Whole

The need for virtualization has never been so important as right now. With the shift in the learning paradigm, the playing field has become uneven and skewed, particularly where technology is concerned. Students may not have access to PCs or may have to share devices with siblings in the same household. There is a myriad of scenarios in which students become technologically unequal. Virtualizing these labs will level the playing field by providing the exact same experience with minimal hardware requirements. Students would not be required to come to campus to accomplish the learning objectives of the course.

Students will have access to the lab twenty-four hours a day, seven days a week and can learn anytime from anywhere. The classes would not be limited by students' access to specific computers on campus or in the classroom. We could use the positive experience gained in this application of AWS AppStream 2.0 to serve as a template university-wide for implementation of more labs thereby reducing IT and hardware costs overall, and providing a better student experience without the frustration of being bound by very specific hardware requirements. As the learning landscape changes from face-to-face to remote, then back to face-to-face, and possibly remote again, the fluidity of these cloud-resident labs remains the most significant factor.

Ease of administration is also tantamount. We no longer have to touch every single physical computer to update the operating system or the software required for the class. Only the image needs to be changed. In one place and at one time, we can effectively update the virtual desktops of hundreds of machines, saving on manpower and time. AWS AppStream 2.0 security can be accomplished by integration with Active Directory. Students can use their identities from the university in an SSO environment and not have to remember yet another password. The pool of students allowed to use the lab can easily change semester to semester by wiping out the security group membership and adding the list of students enrolled for that class the next semester.

Costs are also greatly reduced with academic pricing and the type of academic license that the university has with Microsoft. The A3 academic license for faculty and students allows a transfer of that license to virtual machines. This would allow those students who use MacBooks and Chromebooks to actually use the full Microsoft Office Suite that is included with their license.

Funding Objectives

- Establish new technology to support current and future teaching methods.
- Improve instructional quality and enrich student-learning experiences.
- Improve technology equality among students

The MCOBA ISM manager has 15 years of experience with virtualization, 10 of those being with Amazon Web Services directly, thus the department is very familiar with the design and implementation of entire virtual systems. The MCOBA ISM Office is prepared to manage upkeep and maintenance of the virtual machines that this grant would provide and will immediately troubleshoot any problems that may occur.

Responsibilities

The person responsible for implementation and oversight of this project is Angel Littlejohn. Responsibilities include:

a. Implementation
   - Angel Littlejohn/MCOBA

b. Installation
   - Angel Littlejohn/MCOBA

c. Maintenance
   - Angel Littlejohn/MCOBA

d. Operation
   - n/a

e. Training (with qualifications)
   - MCOBA ISM will establish tutorials for students in the virtual lab use.

Budget Proposal

1.	**Equipment**	**$0**
2.	**Software**	**$0**
3.	**Supplies**	**$0**
4.	**Maintenance**	**$0**
5.	**Personnel**	**$0**
6.	**Other**	**$1,603.00 for cost of 140 virtual computer lab machines per year**
7.	**Other**	**$1 for cost of running Image Builder for ten hours at $.10 per hour**
TOTAL:		**$1,604.00**

Budget Details:
Amazon Web Services pricing calculator
140 MGMT 303 students total
720 hours usage per month
Total cost includes running the Image Builder for ten hours at $.10 per hour for a total of $1.

Amazon AppStream 2.0 Pricing Tool

Version: MAY-11-2020

You can download the latest version of the pricing tool: Amazon AppStream 2.0 releases a simple pricing tool

Workload Input		
Total unique users in your organization:	140	
AWS Region:	US East (N. Virginia)	
Instance type and size:	standard.medium	Instance details
License model for user fee:	Academic license included	
Buffer capacity as % of concurrency:	20%	

Switch to the Usage Pattern worksheet, then enter in your expected concurrency per hour for weekdays and weekend days. The outputs will then be automatically calculated based on the inputs above and entered Usage Pattern.

	Outputs	
RDS SAL fee per user per month	$0.44	
Price per streaming hour	$0.20	
Price per stopped instance hour	$0.025	

	Used Hours	Buffer Hours
Monthly hours	720	-
Fleet Type	**Always-On Fleet Total Cost**	**On-Demand Fleet Cost Total Cost**
Monthly streaming cost	$ 72	$72
Monthly user fee costs	$62	$62
Total monthly cost estimate	$134	$134
Annualized cost estimate	$1,603	$1,603
Effective monthly cost/user Estimate	**$ 0.95**	**$0.95**

Timeline/Implementation Schedule

- August 2020 – Establish image for virtual machines
- August 2020 – Installation and implementation
- August/September 2020 – Testing and User acceptance

Previously Funded STEP Projects

- *Expansion of Digital Signage*. Fall 2015. Nadine Bayard.
- *FGM 207 Interactive Classroom Enhancement.* Fall 2016. Nadine Prendergast.
- *Financial Services & Business Research Lab.* Fall 2016. Nadine Prendergast.
- *FGM 102 & 214 Interactive Classroom Enhancement.* Fall 2017. Nadine Prendergast, Mohammed Zubair.
- *FGM 215 Interactive Classroom Enhancement.* Spring 2018. Nadine Prendergast, Sara Casiday.
- *FGM 208 Active Learning Classroom Enhancement*. Spring 2019. Phuc Tran, Daniel Hulin, Dr. Lise Anne Slatten and Heather DeValcourt.
- *FGM 204 Interactive Classroom Enhancement*. Fall 2019. Dr. Lise Anne Slatten and Heather DeValcourt