010 CONCEPT Kutyna_Software Mobility for Students

Technology Fee Full Proposal

Title: Software Mobility for Students

Proposer: Michael Kutyna, Academic Technology, grommit@ufl.edu, HUB 290, 392-2214, Fax: 392-3760

Sponsoring Organization: Academic Technology

Purpose and Specific Objectives:

This pilot project seeks to use application virtualization and delivery technology to provide both on and off campus student access to specialized software from computers, tablets, and smartphones. This technology will enable students to utilize mobile computing devices as a replacement for traditional desktop computers. These devices allow anytime-anywhere access to the local apps and the internet when a data connection is available. However, for many students, specialized software not available on these mobile devices is required to complete class assignments and projects. As the trend towards non-traditional computing devices continues, the University of Florida should provide a method for students to access the software they need at any time and from anywhere.

The user applications will be running in a centralized server environment where more resources are available to run complex software packages not normally available to many student computing devices. The initial rollout of this project will include access to the following applications as well as other freeware applications:

Software	Available Copies
Adobe Photoshop	30
Adobe Illustrator	15
Adobe InDesign	15
Adobe Acrobat X	15
SPSS	15
Minitab	20
Matlab & selected toolboxes	10
Microsoft Word 2010	100
Microsoft Excel 2010	100
Microsoft Powerpoint 2010	100
AutoCAD	40

The software that will provide the application mobility functionality for this project is XenApp and XenDesktop by Citrix. This software packages software applications and presents the user interface to all of the popular traditional and non-traditional computing devices. 100 licenses will be purchased for XenDesktop which include the XenApp licenses. This will limit usage of the system to no more than 100 concurrent users at a single time. Each application will be limited to the number of licenses that are purchased.

Ultimately, this project will serve as a framework that can be expanded to support all students on campus using the service regularly and providing access to both common and niche applications necessary for completion of class activities or research.

010 CONCEPT Kutyna_Software Mobility for Students

Impact/Benefit:

Application virtualization and delivery technology can allow students to use the specialized software on their own devices with five major benefits over providing installation media to the students.

1. Software can be utilized on devices on which the software is not typically able to be used and in locations such as internet cafes, at home and potentially abroad. This could enhance the capabilities of UF's distance learning programs.
2. Students will not have to worry about the specialized software causing incompatibilities on their personal devices.
3. Application virtualization technology has the potential benefit of adjusting the software interface so that it more closely matches the preferred method of software interaction on a device such as using touchscreens on tablet devices and smartphones.
4. Software licensing restrictions can be more tightly controlled since the software is never actually installed on the students' devices.
5. Reduced need for public or student accessible physical computers on campus.

Students will be able to use the software on devices that they are comfortable using in a location of their choosing while meeting the requirements for their classes or research. Many pieces of software necessary for classes are only available to students for use either in special classrooms or must be purchased and installed on their personal computers. By virtualizing the software, students may access it whether they are taking distance learning classes from home or participating in semesters abroad.

Since the applications will be running in a central server hosting environment and the students will only be presented with the user interface, application incompatibilities and conflicts with other applications will be reduced or eliminated. Upgrades to new versions of applications will also be streamlined and be made available to all students all at the same time instead of having to distribute software updates manually or piecemeal.

Many students personalize their computing devices either by preference or by necessity due to disabilities. This service will allow students to utilize their own personalizations along with applications configured for class activities or research. Two main benefits exist for students with disabilities. First, any required special software will already exist on their personal devices. Second, students with physical disabilities will be able to access the applications from wherever they are instead of having to go to a specialized computer lab.

While major pieces of software will gain wider availability, niche software necessary for advanced research could be made available. Typically this niche software is very expensive and beyond the means of students performing research early in their careers. By pooling the requirements of all students performing research on campus, some of these niche applications will be available instead of out of reach.

Sustainability:

In order to continue the project beyond the first year, additional funds would be necessary. This project will be evaluated towards the end of the pilot to determine if it has been proven to be a benefit to the students. Based upon the results of the evaluation, Academic Technology will fund the project after the first year.

010 CONCEPT Kutyna_Software Mobility for Students

Timeline:

Phase	Week Number
1. System Design	1-6
2. Infrastructure Acquisition	5-7
3. Virtualize Applications	5-10
4. Infrastructure Setup & Configuration	7-12
5. Internal Testing	10-14
6. Load Capacity Testing	12-13
7. Limited Public Testing	14-18
8. Public Availability	18-52
9. Obtain Student Feedback	18-52

1. In order to build a system capable of scaling up to full scale production service, design and testing phases will be necessary. Small sample groups from the student population will be polled to determine needs and expectations when accessing the service. In addition, an outside consulting agency specializing in virtualization will be contracted to assist in the design phase. Initial public availability is expected 14 weeks after funding is available and full public availability is expected four weeks after that.
2. Based upon the system design, specific hardware components will be purchased and installed. Initial testing of each component will be performed at this time to verify that they are in working order and can provide enough computational power based on their specifications.
3. The process of virtualizing the applications includes assessing any special system needs, installing the application, bundling it into a virtual package capable of being delivered on an as needed basis, and initial testing of the virtual package for conflicts or errors. This step can be performed in a testing environment at the same time as other steps.
4. Infrastructure setup and configuration involves installing the server hardware and software, configuring network and software settings, documenting the system and importing the virtual application packages from the testing environment.
5. The internal testing phase will serve to test out specific functionality necessary to make the project successful. This can include accessing the virtualized applications from several different types of devices with varying capabilities as well as from locations both on and off campus with a range of internet access speeds.
6. Once the core functionality has been tested, load testing will be performed to determine how many users the system can support if the 100 user license restriction was not present.
7. Limited public testing will be available to select users representing a broad range of student needs and will be spread via word-of-mouth as well. This testing phase will serve to evaluate the user experience and determine if their expectations are being met. Throughout all of the testing phases, changes to the system will be made to address any problems that may arise.
8. After any issues identified during the testing phases have been addressed, the system will be officially announced and accessible to all UF students.
9. Student feedback and usage statistics will be used to evaluate the system and determine future needs.

010 CONCEPT Kutyna_Software Mobility for Students

010 CONCEPT Kutyna_Software Mobility for Students

Technology Fee Full Proposal Budget

Title: Software Mobility for Students

Proposer's Name: Michael Kutyna

BUDGET

Budget Item	Quantity	Unit Cost*	Startup Cost	Recurring Cost
Support Software Licenses				
XenDesktop Platinum Licenses	100	$390.02	$39,002.25	$8,625.00
Microsoft Remote Desktop CAL	100	$31.05	$3,105.00	$0.00
Support Infrastructure				
Citrix Netscaler MPX 7500 Std	1	$16,848.65	$16,848.65	$3,922.65
Upgrade AT Server CPUs	4	$1,495.00	$5,980.00	$0.00
Upgrade AT Server RAM	8	$603.75	$4,830.00	$0.00
Hosted SQL Database	1	$690.00	$690.00	$690.00
Hosted File Storage	8	$448.50	$3,588.00	$3,588.00
Hosted Server Storage	12	$862.50	$10,350.00	$10,350.00
Hosted VMs	4	$3,312.00	$13,248.00	$13,248.00
Hosted Physical Servers	2	$6,900.00	$13,800.00	$0.00
Software Application Licenses	1	$37,228.09	$37,228.09	$12,436.16
System Design Consultation	1	$4,600.00	$4,600.00	$0.00
Total			$153,269.99	$52,859.81

** Unit price includes a 15% contingency*

This budget proposal includes both startup costs and recurring costs in the budget analysis. However, the budget request to the Student Tech Fee Committee is for the startup costs only. This cost is $153,269.99 Recurring costs will be funded through UF's central IT funds.

Cost of the project can be broken down into three main categories: support software licenses, support infrastructure, and software application licenses. An additional line item for design consultation from an external support contractor is included in order to assist with the design of the system.

The support software licenses cover the Citrix XenDesktop software which provides the core functionality for the project. There are additional licenses that need to be purchased in order to maintain UF's licensing status with Microsoft's Campus Agreement.

Server infrastructure costs include server resources including server hardware that will speed up and increase the reliability of the overall system. Since the applications will run on the central servers and not on each individual user's device, infrastructure is necessary to accommodate the number of concurrent users. Based on peer institution experience, it is estimated that this project will adequately support 100 concurrent users. Actual

numbers of users that the system can adequately support will not be known until the system enters the load testing phase and usage profiles for each application become available.

Application licenses will be purchased through UF's Software Licensing Service. This will allow for reduced costs per license. The individual license costs are itemized below.

Software	Quantity	Unit Cost*	Total Cost
Adobe Photoshop	30	$443.90	$13,317.00
Adobe Illustrator	15	$309.52	$4,642.84
Adobe InDesign	15	$309.52	$4,642.84
Adobe AcrobatX	15	$175.78	$2,636.66
SPSS	15	$86.25	$1,293.75
Minitab	20	$51.75	$1,035.00
Matlab	10	$253.00	$2,530.00
Matlab - Simulink	5	$172.50	$862.50
Matlab - Toolboxes	10	$120.75	$1,207.50
AutoCAD	40	$126.50	$5,060.00
Total			$37,228.09

** Unit price includes a 15% contingency*

010 CONCEPT Kutyna_Software Mobility for Students

Technology Fee Full Proposal Template Sponsor Signature Form

Title: Software Mobility for Students
Proposer's Name: Michael Kutyna

Note: By signing this form the sponsor is making a commitment to support the project. This may include providing startup, recurring or equipment replacement resources as presented in the attached budget.

Signature of sponsor: College Dean, or Unit Director, or VP for Student Affairs.

_____ _____

Name and Title **Date**

Note: By signing this form the UF IT unit is making a commitment to manage the project if selected for submission of a full proposal. This may include providing startup, recurring or equipment replacement resources as presented in the attached budget.

Signature of a UFIT unit manager (direct report to CIO):

_____ _____

Name and Title **Date**