A Case for Support: Improved Accessibility to Technological Based Classes

(Assignment 5)

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As technology becomes a ubiquitous part of modern life, it has developed into an issue of significant urgency when it comes to higher education. In almost every career, the understanding and application of technology is a higher percentage of the educational experience. From learning how to navigate information to everything that is STEAM (Science, Technology, Engineering, Arts, and Math). In this environment, one needs to have access to devices of varying levels of power and capability to participate in the educational process. This required accessibility too often flies in the face of equity and justice for our underserved student communities. Therefore, advancements in the level of access must be urgently prioritized. The now common concept of "virtualized" devices provides an avenue to such a solution.

Advanced technology classes such as graphics design, computer aided modeling and design, nursing, and MedTech simulators such as blood pressure, heart, temperature, and other systems require powerful computers. Others include mechanical, electronic, big data, and analytic modeling. Access to technology tools to engage in this advanced education process are typically on-campus-only classes as the hardware and software is expensive and complex to install and maintain. In fact, one of our CIS (Computer Information Systems) faculty stopped teaching a database design course because he was spending more time installing the expensive software on their personal computers, than he spent teaching the actual course material. Stopping this class reduced revenue potential and removed a class from the course catalog.

What if students could take such classes remotely; at home, at the library, or a coffee shop on inexpensive devices such as a Chromebook, tablet, or even a smart phone and never have to install or maintain the software. Virtualized computers allow these capabilities by using your local device only for display, keyboard, and a pointing device while all the heavy graphics

and compute intensive stuff is done in the cloud; or back in the campus data center. Therefore, the underprivileged student, the single parent at home, the working person who cannot get to campus, can have the same access as students on-campus, or who spend ~$2,500 on a computer or laptop. Access to this advanced computing power and a much broader range of educational experience is possible and currently available at Schoolcraft College. We can increase the number remote classes offered and improve the way they are delivered to make them completely accessible to most populations of students.

The Schoolcraft distance learning area is the fastest growing segment of business and the proposed capability will broaden and further accelerate that growth. The number of distance learning classes have increased forty-seven percent in the last four years. (Schoolcraft College Data Bites, 2019, September). Finally, given that this capability is new in all of higher education, few if any colleges are offering such a capability, therefore, this type of course delivery method would provide Schoolcraft with a significant competitive advantage.

What is being Proposed - Improved Accessibility to Technology Based Classes

The use of "virtual computers" where the CPU, Memory, and Storage of the physical computer no longer exists on your device but is back in a campus data center, or in the cloud exists on the Schoolcraft Campus today. A student no longer needs to own all the expensive hardware and can still access all the powerful capability from off campus anywhere internet is available. The new feature that is needed to deploy the proposed capability is a simple bit of programming. Namely the system that authorizes a student's access to the needed powerful virtual desktop, that the student will log into from their device, must know what classes each student is enrolled in to make sure the student has access to all this power for only the classes

they are currently enrolled. This part is the software that needs to be finished and has been prototyped by Schoolcraft IT, and it works! Moreover, to further validate, the idea was shared commercially, and deployed as a feature of a very expensive commercial system that is more that most students and colleges need, so this first attempt failed to catch hold. Alternatively, with a relatively small programming effort, the original simple prototype can be brought into production on the Schoolcraft Campus. This version will be owned by Schoolcraft to the advantage of all students that currently must come on campus for this type of technology intensive class, also avoiding the need to come to campus to do homework as well. There is no copyright or patent risk, and for a relatively small investment, this capability can be available to any faculty wanting to take advantage of offering their class to a much larger portion of the student population.

Improved Accessibility to Technology Based Classes Alignment with Strategic Plan

The Schoolcraft College Strategic Plan consists of four pillars containing a number of strategic objectives under each. The Strategic Pillars include: 1.) Students, Stakeholders and Community/Economic Development, 2.) Resource Optimization, 3.) Internal Processes and Systems, and 4.) Innovation, Value, Improvement, and Growth. The proposed project aligns with many of the objectives from all pillars, a few include: 1.) Increase student/customer relationships with best-in-class service. Enhance teaching and learning spaces to strengthen student engagement. 2.) Provide College stakeholders with the technological tools and applications necessary to address the College's mission. 3.) ... provides state-of-the art learning opportunities, 4.) Build a culture of continuous improvement (Schoolcraft College Strategic Plan, 2019). The proposed project clearly strongly aligns with the current strategic plans of Schoolcraft College.

Schoolcraft is uniquely qualified to carry out this vision

Patrick Turner, Schoolcraft's Vice President and Chief Information Officer, originally conceived and presented this concept to the Schoolcraft College Board of Trustees in 2014 who approved the implementation of a Virtual Computing hardware infrastructure that has been in place and started running the campus since late 2015. The next step of the proposed project is to provide remote access to virtual desktops. This capability was proto-typed in 2016 and proved to work. At that time, since Schoolcraft did not have the needed programing resources, Mr. Turner worked with Ellucian, Inc., Schoolcraft's ERP vendor, and VMware®, Schoolcraft's virtualization vendor, to perfect the concept into a commercially available product. However, it is apparent that, VMware will soon be taking the very expensive product off the market. The reason for this failure is these companies unnecessarily used the idea to leverage and sell other much larger portions of their product portfolios, making the resultant system very complex and expensive to implement. Given this concept originated with Schoolcraft and our IT department was the primary development partner of the commercialized product, which Schoolcraft has utilized in a POC (Proof of Concept) manner for over a year, Schoolcraft is absolutely uniquely positioned to make this capability a reality with high confidence to the advantage of Schoolcraft and its students.

Who, what, where, how, and when?

Mr. Turner and his staff have started work with one of their long standing and most trusted partners to develop a Statement of Work, including a budget. The IT Administrative Systems Group and Desktop Virtualization Group heavily participated in the development of the failed commercial product and are still managing the POC with the Computer Information Systems department and have deployed several course sections with the currently available

system. The IT department data center already has development and test environments set up that can be used for completion and deployment of this project. They have started plans to move forward with this the new system discussed here-in and can start in Q2 or Q3 of 2020.

Funding and Measurable Results of Related Programs

Regarding funding, the initial implementation of the virtual computing infrastructure was completely funded by the college via its student equipment fee accounts. This account is used to provide a technology infrastructure to provide the support and leaning environments needed to offer a quality educational experience to students. This initial project, funded totally by student tuition and fees cost on the order of four to five million dollars. The proposed phase in this Case for Support will cost on the order of two-hundred to three-hundred thousand dollars. This will include the needed programming professional services, launch, marketing, communication services, and faculty training and support for the initial launch of approximately ten courses. The hope is to be able to fund this next phase completely from donor giving to leave the equipment fee account to fund a long planned IT infrastructure project planned to start in early 2020.

The initial implementation of the virtual computing hardware infrastructure increased IT systems capabilities in several measurable ways. First, class registration was historically closed during Thanksgiving and Christmas Holiday breaks due to the manual care and feeding the system required. After the virtual system implementation, IT system stability was so improved, there was no need to close registration during these holiday breaks. Likewise, Schoolcraft, like many other colleges, had restricted registration to limit the number of students attempting to register at the same time. With the virtual system improvements, the restricted registration was also no longer necessary, allowing all students to register from the first opening of registration. These improvements generally increased IT system accessibility and reliability for all campus

populations. The proposed project in this Case for Support continues this trend by making technically complex classes accessible to a broader population of students, especially less mobile and underserved students.

Conclusion

The proposed project has the potential to accelerate the fastest growing segment of Schoolcraft Colleges business. The project will also greatly improve accessibility of some of our most technologically advanced classes to some of the most underserved students without forcing them to purchase historically very expensive necessary computer hardware. VMware's® central moto is Any Application, Anywhere, on Any Device. We will be able to provide that to Schoolcraft Students with a minimal investment and without having to make an investment in a mostly unneeded half-a-million-dollar software system that is likely to cease to be offered in the very near term. This system will improve Schoolcraft Colleges competitive positioning, increase revenue opportunities, provide improved access to underserved student populations, and even increase convenience to traditional students by allowing them to do homework at home or in other remote locations as they will no longer have to come to campus to access complex and expensive computer software and hardware systems. This strategically aligned project serves the underserved and is a most worthy philanthropic opportunity.

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