

Graphic Communications

Feasibility of Building 3D Development Lab

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Graphic Communications | Technology Department

Moorhead, MN 56563 Phone: 218.477.2104 www.mnstate.edu/gcom

Feasibility of Building 3D Development Lab

Prepared for:

Dr. Michael L. Ruth, GCOM Coordinator

Prepared by:

Hutomo Wicaksono, GCOM Lab Assistant

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Executive Summary

For the past couple months, I have studied the feasibility of building 3D development lab separate from the multimedia lab. Until today, 3D Graphics program is using Multimedia program's lab to teach their courses in Hagen 201. Hagen 201 is a multimedia lab and while it has good computer system for teaching multimedia class, is not a good lab for teaching 3D development. Its system does not support 3D programs very well. Because of this sharing situation, many of the 3D graphics students often experience issues when they are working in the lab. These issues commonly related with computers such as limited number of computers to work with, slow computer performance and incompatible software. These issues as we may or may not notice are usually increases project towards the end of the semester because more and more students will come and use Hagen 201 lab to do there. This situation often creates problems especially when the computer system is not working very well. Crowded lab situation like this also creates more problems for 3D Graphics students because most of the times they will need to use 2 or more computers for a long period of time. Therefore, by building a new lab dedicated only for 3D development, all of these problems will be solved and 3D Graphics students can work on their projects without having to worry about the sharing situation and most importantly they can have their computer systems customized to meet 3D programs specifications.

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MEMORANDUM

FROM: Hutomo Wicaksono

TO: Dr. Michael L. Ruth

DATE: November 18, 2009

SUBJECT: Feasibility of Building 3D Development Lab

Introduction

3D Graphics program is the only program in Graphic Communications major that doesn't have their own lab. Since it was open, 3D Graphics program has been using the Multimedia lab, Hagen 201, to do teach their courses. This situation often creates problems for 3D Graphics students because the Hagen 201 lab wasn't originally made for 3D development. Hagen 201, while it has a very good computers system for multimedia programs, does not support 3D development very good. The computer system that they have in the lab does not meet most of the recommended specification for 3D programs. This situation often creates problems such as slow computer performance, long rendering time and system crashes. Moreover, this sharing situation also creates other problem like lack amount of computers. 3D Graphics students often use more than 2 computers to do their projects and they will use them for long period of time. As consequences, other students sometimes have to wait long time just to be able to use the computers.

Furthermore, by building a new lab dedicated only for 3D development, all of these problems will be solved and most importantly they can have their computer systems customized to meet 3D programs specifications. 3D development lab will also bring many positive values to the program and major. Students can work on their project more efficient and will increase the creativity and many other positive things.

To find out whether this 3D development lab is needed or not, I have studied the situation myself by doing a massive 3D project in Hagen 201, I did this to find out Hagen 201 computer system performance and how it can handle my 3D project. In addition, I have also researched some good computer systems that will fit into the 3D development lab.

Criteria

While I'm researching this, I kept my mind into two categories. First is the computer system and second is how this new lab would bring positive values to the program. The first issue is computer system, as I mentioned above, Hagen 201 is a multimedia lab and it's intended for doing multimedia courses. Therefore by this lab is not good for teaching 3D development because the computer system won't support it. Second is how this new lab would bring positive values to the program. With this new lab, students will be able to work more creatively on their program knowing that the computer will handle their project. Work progress would also be done more efficient.

Method

First method that I did was doing a super high detailed and complex modeling in Hagen 201 and afterwards I was also doing a high quality rendering test using the same system. I did this to find out about Hagen 201 computer performance and how far can it goes on handling a 3D project. Second method that I did was doing the same exact test but this time I'm using Hagen 201A, an HP workstation computer. I used this computer because I thought this computer would be a good system to have in 3D development lab and its specification is a perfect match for the 3D programs.

Overview of Alternatives

The idea of building 3D development lab comes from the fact that the computer systems that 3D program are using right now is very poor and slow in performance. As I mentioned above, Hagen 201 computer systems were not made to run 3D programs therefore students often experiencing problem while working on those computers. With this 3D development lab, many issues that we experience will be solved. 3D development lab will run their computer system dedicated only for 3D development. This system will be customized to meet the desire of 3D programs. With this customized system that meet the recommended specification from the 3D software, 3D development process will run faster and more efficient. 3D development lab will also bring positive values to the student. Student can work more creatively and don't have to worry about computer issues. It might also increase the student enrollment for them program because it's now equipped with an excellent computer lab. These are just a few positive values that we can expect from the 3D development lab.

Cost

Mainly, the cost of building 3D development lab would go to computer systems. The cost for these systems could get pretty expensive if we are not being careful when choosing them. Below, I've researched and evaluated 2 computer systems that would fit to the 3D development lab. These systems are based on my review on the Hagen 201A workstation computer that I tested before.

1. HP Workstation Z800

Intel Xeon X5550(2.66GHz)
 3GB DDR3 1333 ECC Unbuffered RAM
 500GB 7200rpm SATA NCQ
 16X SATA SuperMulti Light Scribe DVD+/-RW
 NVIDIA Quadro FX1800 (768 MB)

Price: \$ 3,200.00

2. Alienware Area 51 ALX

Intel® Core™ i7 960 (3.2GHz, 8MB Cache)
 Dual 1GB GDDR5 ATI Radeon™ HD 5870 CrossfireX™
 6GB DDR3 1600MHz (3x 2GB)
 1.2TB RAID 0 (2x 640GB SATA-II, 7,200 RPM)
 24X CD/DVD burner (DVD+/-RW)

Price: \$ 3,999.00

The cost for building a fully equipped computer lab (would be:

HP Workstation	@ \$3,200.00	x 20	= \$64,000.00
Alienware ALX	@ \$3,999.00	X20	= \$79,980.00

These costs are based on 20 computers and are excluding from miscellaneous stuff like projector, video player, audio system etc. The total cost may seem expensive but it is worth it.

Both of the systems I reviewed above are the best system available for 3D development. These systems will also good for at least 3 years and when they can be upgraded anytime they needed because they are a pc.

Evaluation

The 3D development lab that I proposed would serve the demand of 3D Graphics very well. It will become the best solution of the problems we are having right now. 3D development lab would serve all 3D graphics related needs and would become the foundation of the 3D Graphics program. 3D development lab would also bring many positive values to the student, they can work on their projects without having to worry about the sharing situation and most importantly they can work far more efficiently than working in Hagen 201 lab.

Conclusions

As I stated before, I believe that the needs of building 3D development lab is necessary. 3D program should have their own lab that meets their requirements. Sharing a lab like we are doing now is not a very wise decision because it would create more problems. This new lab will give the 3D students all the options that they would like. Rendering time will be more efficient and it will also drive up motivation of students to create such complex and detailed models because they know that the computer will keep up with their work and they will be able to render it.

Recommendations

I recommend that Graphic Communications builds a new lab, dedicated only for 3D development. This lab will solved all the problems we have with Hagen 201 computers and it will make them works more efficient. This new lab will also be a great support for 3D graphics students because with it they can create more awesome projects knowing that the computer will support them.