

# Legacy Christian School Technology Upgrade Plan June 2008

The purpose of this document is to outline, at a high level, the proposed upgrade plans for technology at Legacy Christian School. As each phase of the plan is developed and fine tuned, exact quantities and costs will be determined. There is a fair amount of technical language used so that readers that have a technical background will have a good idea of exactly what is being proposed.

## **Reason for Upgrade Proposal**

Legacy Christian School currently has very old technology in use and that old technology is increasingly causing difficulties at the instructional level. Instead of supporting teaching, lessons must be revised to fit what the computers can handle. In addition, the computers perform poorly and are somewhat unreliable. There is also an issue of compatibility as the student labs have Macintosh computers, and the teachers have PCs. There are additional specific limitations which will be identified in their respective areas in this document. The bottom line is that most of the technology is several years old or older and is severely limiting instructional opportunities.

## **Technology Committee**

The Technology Committee of Legacy has been meeting during the past year to develop a plan to bring the school up to date and make an environment where technology supports education rather than inhibits it. The committee has debated student laptop programs, new computer labs, classroom projectors, teacher laptops, Macintosh vs PC computers, and other issues. The committee is now prepared to move forward as quickly as possible to implement the following plans.

## **Phase 1 - Infrastructure Upgrade (Server, Switches, Wireless)**

This phase involves upgrading the core elements of the school network. This is the first phase because it is the most disruptive to implement and must be done during the summer. It is also critical to the subsequent phases.

- ***Server Upgrade***

### **Current Situation**

Legacy currently has one file server. It was purchased five years ago and runs Novell Netware. It is currently running OK, but needs a larger tape drive, and an operating system and email system upgrade.

### **Proposed Upgrade**

The committee proposes replacing the server with a new main server and changing to Microsoft Windows Server operating system. This will put a new, reliable server, with up to date software at the core of the network. The current server would then be re-installed with Windows Server and used at the elementary building. This would significantly improve performance for elementary staff.

- ***Switch Upgrade***

### **Current Situation**

Legacy currently has very old network switches. They are mostly 3COM and are estimated to be more than several years old. The middle school building has two wiring closets that are currently connected by a 100 Mbps fiber connection which could be a bottleneck with a new server.

### **Proposed Upgrade**

Replace the switches with new, managed switches with capabilities such as VLANs (which allows better network management) and better overall performance. Upgrade the link between the middle school wiring closets to gigabit fiber.

- ***Wireless Upgrade***

### **Current Situation**

The middle school building currently has four Apple wireless access points which cover part of the building. These access points are very old and do not support current wireless standards and do not have good coverage. The elementary has only one access point that covers only the 5<sup>th</sup> grade classrooms.

### **Proposed Upgrade**

Replace existing access points with new access points that support management and current wireless standards. Add additional access points to both buildings to provide complete wireless coverage.

## **Phase 2 – Lab Replacement**

This phase involves replacing the current middle school Macintosh lab with a PC lab. It also includes replacing all related software with current PC software.

### **Current Situation**

Both the middle school lab and elementary lab are Macintosh labs. The computers in the middle school lab are several years old – most were bought used from Calvin College a number of years ago. The elementary lab computers are even older.

These computers run an older version of Mac OS (version 9.2.2) and as a result they do not support current versions of Internet browsers. Many websites no longer function correctly (including Legacy's own site) on these computers making it difficult to access on-line resources. In addition, no new software can be purchased for these computers and the software that is on them is very dated. The computers are also getting increasingly unreliable and unpredictable.

### **Proposed Upgrade**

The committee proposes replacing the middle school lab with new Windows PCs and updated software. This will provide a reliable and up-to-date environment for teachers to use. It will also provide improved compatibility with what many students use at home.

The "best" Macintosh computers will be used to replace the older Macintosh computers in the elementary lab.

This upgrade would make the middle school building 100% Windows PCs which will simplify support and give the teachers a common platform to work with.

## **Phase 3 – Classroom Technology Upgrade**

This phase involves upgrading the technology used in the classrooms. As more and more resources are available on computer and on the internet, the need to quickly and easily view those resources in the classroom becomes more and more important.

### **Current Situation**

The middle school currently has one shared projector and laptop that the teachers can checkout for use in their classroom. The elementary also has a shared projector and laptop available. Because of limited availability, teachers only utilize these when they have a critical use rather than the many times they might have otherwise used them briefly to make a particular point while teaching.

### **Proposed Upgrade**

The committee proposes installing ceiling mounted projectors in each classroom, starting with the middle school building. In addition, replace each teacher's desktop computer with a laptop computer. By mounting the projectors permanently in each room, the technology will be readily available to be used quickly and easily throughout the day. By providing the teachers with laptops, it will be convenient for the teachers to utilize their projectors and also will allow them to take their computers home with them which will improve their familiarity with them and make it easier to develop coursework because transferring files to and from home won't be necessary.

## **Phase 4 – Secondary Middle School Computer Lab**

This phase involves setting up a second computer lab in the middle school. This would allow teachers to more easily take a class to a lab to work on projects.

### **Current Situation**

With one computer lab and 9 classrooms of students and regularly scheduled technology classes, lab availability is quite limited.

### **Proposed Solution**

The middle school has a room that used to be a computer lab and is already wired with the necessary network connections and outlets. The room is currently used for student council meetings. The committee proposes using that room for a secondary computer lab – primarily for computer project

work. Initially the room would be equipped with used computers running the same software as the main lab. By using used computers we would minimize costs while doubling computer availability. The primary costs would likely be related to furnishing the room and perhaps some memory upgrades for our older computers.

### **Phase 5 – Internet Upgrade**

This phase involves improving the Internet service to both buildings.

#### **Current Situation**

Currently Legacy shares dual T1 circuits with South Christian. The middle school is directly connected to South by a fiber line. The elementary is connected to the middle school by a T1 – which is also used for phone calls between the schools. As internet usage increases and multimedia resource increase, the bandwidth requirements are continually increasing.

Legacy currently utilizes internet filtering provided by South. This has occasionally been a problem as sites are blocked by South's software that Legacy would like to access.

#### **Proposed Upgrade**

The committee is still evaluating options, but presently the ideas focus around adding an Internet connection directly to the elementary so that Internet traffic doesn't need to be routed through the limited connection to the middle school. This would involve router upgrades and an additional firewall and web filtering capabilities.

The current shared connection with South remains under evaluation, but the committee is strongly leaning towards using our own web filtering or tracking system rather than relying on South for that component.

### **SUMMARY**

While this plan is laid out in phases, depending on funding and the time of year, certain portions may be done in a different order and phases may overlap. The cost of this plan will depend on equipment and software prices, donated equipment and labor, and unforeseen implementation challenges and expenses.

Technical support for this new technology is a challenge given the limited staffing. While having an additional person to assist in the implementation, use, and support of this technology would be ideal, it's the committee intention to put the appropriate technology systems in place to make the use and support of the systems as simple and cost effective as possible. This will involve more work up front, but will pay off in smoother day-to-day operations.

The technology committee feels strongly that this project is essential to provide the teachers and students at Legacy with the tools they need to access and utilize the resources available to them. It is essential that these plans are implemented as quickly as possible.