Backup Service for CALS Students

Proposal to the Technology Advancement Committee
College of Agriculture

Prepared by:
Departments of Entomology, NREM, Plant Pathology

Missy Rynerson
President
Entomology Graduate Student Organization
294-7400
gre@iastate.edu

John VanDyk*
Systems Analyst, ENT/PL P
294-7401
jvandyk@iastate.edu

Christian Charbonneau
System Support Specialist, NREM
294-9575
charby@iastate.edu

*Project leader

Signature of reviewing administrative unit:

Dr. Les Lewis, Entomology DEO
294-7400
leslewis@iastate.edu
Purpose
The purpose of this project is to offer data backup services to students in the College of Agriculture. This project should be considered a pilot project and will focus on a subset of 300 students: those in Entomology, NREM, and Plant Pathology. We will include both undergraduate and graduate students in the pilot.

General Student Benefit
In the last few years there has been a movement away from desktop computers to laptops as the primary type of computer for students. Unfortunately, laptops are more likely than desktops to be involved in situations where data are lost. This includes the laptop being dropped or stolen, or even having a drink poured on it accidentally.

Lost data are often irreplaceable. It may represent months of work on a final project. In the case of graduate students, it might be years of research. In Entomology we had a case where a student had to add a year to his program because a hard drive failed and the backup he had made was corrupted.

Students should follow best practices for backup, such as keeping three copies of important data in multiple locations. However, in practice few do this. We propose to offer students automated backup that keeps multiple revisions of their data. Students will be able to restore accidentally deleted files on their own.

Next Big Idea
Iowa State University is behind the times when it comes to offering services to students. Currently each student receives 1GB of space on the centralized Andrew File System. However, this system dates back to the Project Vincent days when Iowa State used centralized Digital Unix and DECStations or dumb terminals. Students nowadays do not use centralized unix; instead they use Windows and Macintosh laptops. The backup service is designed to meet students where they are and to be as transparent as possible. It does not require them to log on to anything or to remember to do anything.

New Technologies
The proposed software uses current technology, such as data-deduplication. For example, if a single paragraph is changed in a Word document, the backup software will only send the changed paragraph, rather than the whole document, to the backup server. This markedly reduces bandwidth and makes a project like this realistic.
Facilities

A storage server will reside in the Entomology department’s data center (407 Science II). A second redundant storage server will be located in Plant Pathology’s data center in a separate building (Science I).

Integration and Sustainability

This is a pilot program. If the program is successful, we plan to scale it up to include all students in the College of Agriculture and Life Sciences by submitting a second TAC grant (or possibly CAC grant) next year.

Support and Maintenance

The software (Crashplan Pro) is purchased with a perpetual license and maintenance agreement. The maintenance fee is $9 per student per year. If ISU stops paying maintenance, we still own the licenses and can continue to run that version of the software. We envision that maintenance could be funded out of departmental student fee allocations for participating departments, as allocations are proportional to number of students.

Cost Efficiency

The normal price for CrashPlan Pro licenses is over $50 per seat, or a total of $15,162 for 300 seats. The company agreed to lower their price for the purposes of this pilot to $39 per seat. This price includes software maintenance for the first year; maintenance is $9 per year thereafter. The storage server includes 4TB of storage and is expandable to 16TB. The sizing is based on a 10G (compressed) quota per user. If the pilot project is successful we will be able to expand capacity by simply purchasing more hard drives. We will evaluate the success of this pilot through an online survey of all users after the first year of the project.

Support and Maintenance

Instructions for installing the backup client software will be available on the web. Students will also be able to come to their regular computer support contact (John VanDyk for Entomology/Plant Pathology and Christian Charbonneaux for NREM) for help with installation.
## Budget

**Table 1. Full itemized budget (two redundant storage servers*).**

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Unit cost</th>
<th>TAC</th>
<th>ENT</th>
<th>NREM</th>
<th>PL</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CrashPlan PRO Clients</td>
<td>300</td>
<td>39</td>
<td>11700</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CrashPlan PRO Server</td>
<td>1</td>
<td>Free with clients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*$Project could be done with a single storage server, but risk of data loss would be higher.