COOPERATIVE EDUCATION

SUMMARY REPORT

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My Co-operative education placement was at my full time employer: Apple, Inc.

Apple is a computer hardware and software company. Apple has four sets of consumer products that produces:

1) Computer Hardware - Apple produces many computers:

   - Macbook Pro

   - Mac Mini

   - Mac Pro

   - Macbook Air

2) Computer Software - Apple produces software of many types, including Media, Operating Systems, and Productivity. Some major products are:

   - Mac OSX

   - iLife Suite (iPhoto, iMovie, iTunes)

   - iWork Suite (Pages, Numbers, Keynote)

   - iOS

3) Personal Computing and Media Devices - Including phones, tablet computers and media devices, such as:

   - iPhone

   - iPad

   - iPod

   - Apple TV

4) Media and Internet Services - Apple provides services to deliver media, and perform various cloud services to tie together it's devices, software and computers. These services are:

- iTunes Store

- Mac and iOS App Store

- iCloud

I work in the iCloud division, which is responsible for:

- Synchronization of PIM (Personal Information Management) data - including calendars, contacts, bookmarks, keychain items (such as passwords) and photos.

- Email

- OTA (Over the Air) backup and restore of iOS devices

- Back To My Mac (A routing scheme for accessing remote computers)

- Find My Friends, Find My Mac and Find My IPhone - Geolocation services

- iWork on iCloud (Web-based productivity software)

- FaceTime, Messages, Push Notifications

iCloud provides services that encourage interoperation between devices, and make the sharing of information as painless as possible. In April, it was revealed that there are 300 million active users of iCloud. I have been responsible for several specific features in iCloud - I was primarily responsible for writing the servers that perform synchronization of contacts and bookmarks. Over the last 12 weeks I have been performing two primary tasks: 1)maintaining the existing servers, working with our support organization, and working to transition them to a different team, and 2) Starting a new project as primary architect.

As part of my job, I've had to employ many of the skills that are related to my education at WVUP. I have had a primary role as a developer/programmer - In this role I am responsible for maintaining and fixing code and libraries. Currently I spend a percentage of my time examining and fixing code, based on bug reports and submissions from our support group. When a bug is discovered, I gather as much information as possible, including log files from our servers, logs from the client applications and occasionally protocol dumps (gathered with a proxy). I look through them and correlate them to the different parts of our code that were executed, and try to

reproduce them. Once a bug is reproduced, I write a new test for it (in either Java (for a unit test), or in Python (for regression or protocol tests)). Next, I fix the code, have it reviewed, submit it, and co-ordinate testing with our QA department. In addition, I am required to investigate issues that are discovered by our systems engineering team, such as performance regressions, database contention problems, or protocol regressions.

In this role, I also act as a liaison to Apple Developers at Apple's Worldwide Developer Conference. I act as a staff member at labs, and assist developers in understanding our public API's and code.

The other primary role that I serve in is as a software architect for new features. In the last few months, I've served in this role for a major new system. I have been responsible for:

- Reviewing current efforts in this area

- Evaluating current technology and reviewing code

- Work with management and Project Management to determine project scope

- Evaluate current estimates for metrics (ie: how many items we expect, how many items per person, how many reads/writes/deletes, etc) and determine target numbers for our new system.

- Working with a team to develop high and mid-level architecture, including technology evaluations and operations.

- Work with multiple teams to integrate with different systems, such as source control, automated build systems, unit test systems and automated regression tests.

In this role, I am constantly having to research and advance my skill set. I have had to work with new programming/scripting languages, different data storage systems, and evaluate multiple different java libraries.

Overall, I feel that my work experience has been very good. In the middle of the semester I moved workplaces to take part in a new project, so part of my experience was dealing with lesser-done parts of my job, like secure archiving of machines, physical relocation, and adjusting to a different team. My time constraints were very tight and I ended up working a lot of extra hours to cover multiple responsibilities, but I feel that I managed it very well.