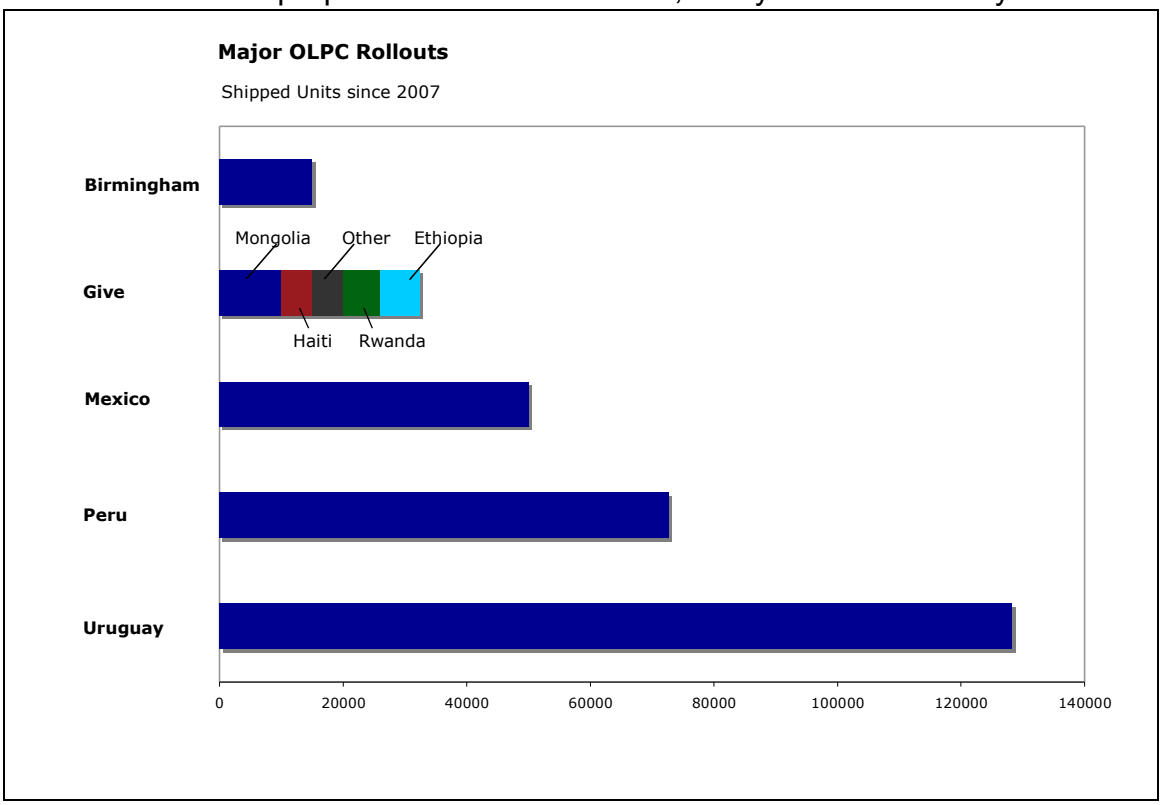
Community News

A weekly update of One Laptop per Child Vol. 4 No. 27 July 6, 2008

Deployment

Rollout Update: Since November 2007, OLPC has shipped nearly 400,000 laptops. Better than a quarter of those machines went to donors who participated in the G1G1 program. Simultaneously, OLPC has been working with countries to prepare for their donee XOs, many of which already have been



received. The two largest rollouts, Peru and Uruguay, account for nearly half of all units shipped to date, but have yet to receive the bulk of their orders.

Papua New Guinea: From June 16th through the 20th, OLPC Oceania made its second PNG deployment (Weekend, June 15) of 47 XOs at the Dreikikir Elementary School in East Sepik Province. Dreikikir is about a four-hour drive inland from Wewak, the provincial capital. The machines were all updated to build 703/G1G1 activity pack with Speak and Flash added before the deployment to the school's first graders.

Tony Aimo, PNG's acting minister of education, attended the official launch ceremonies, and repeated the government's support for the XO program. Aimo

announced the government's commitment to a full saturation deployment of XOs at the school, which has about 500 students.

Acting Minister Aimo arrives for the launch ceremony

David Leeming and his team spent a day in teacher training. He reports that videos from the deployments in Peru and the Solomon Islands were very helpful. Each teacher who took part in training also received a signed certificate.

Teacher training

Then two more days were devoted to working with the teachers to acquaint the children with the laptops. Leeming says an early version of the standard training plan (see OLPC Oceania page) was followed for the student orientation. Some early observations:

- The second session was conducted outside in small groups, which helped to promote sharing and dynamics.

- As with the teacher training, the time allocated was less than desirable, although sufficient.
- It was noticed that many students were quicker at learning than were the teachers, and were seen to help the slower ones.
- Older students joined in with the freer group session. This was seen to be beneficial and also raises awareness in the wider community.

Reliable evaluation of the deployment will be critical. Leeming notes: “The following approaches were decided by teachers, and agreed upon by the education officials present:

- Teachers will keep a log book/diary and update it with any feedback on how the laptops are being used, new ideas on classroom integration as they develop, and feedback on students’ uses. Also feedback of problems and issues.
- Every morning, the first lesson is an “oral session” where teachers can discuss the laptops with the children. This session will be used to get daily feedback.
- Parents and staff meetings will also be used to get feedback and share ideas.
- The district school standards officer and education advisor have been trained and fully participated in the deployment. This is very important, as they are available “on the ground” to make evaluations and carry reports from the school to the province and department.
- A volunteer will be based at Dreikikir for two weeks to provide additional evaluations on behalf of OLPC Oceania. Guidance on this from Secretariat of the Pacific Community (SPC) will be crucial.”

Although Dreikikir has a local power grid, it is only used in the evenings and the school has no connection. More than half of students do not have electricity at home. The EU-funded Improvement of Rural Primary Education Facilities project (IRPEF), which is hosting the deployment, may help the school establish a power connection. An unsatisfactory temporary solution is the use of PNG-procured 3-pin adapters and multiple powerboards. Students now have to charge their XOs at home or at a nearby teacher’s house. A school server, access point and

school-based charging solution would require installation of a solar power supply at the school.The insolation conditions are suitable for solar power.

There is no Internet access as of now. Regional cellphone access is provided by B-Mobile. Digicel is building towers along the road from Wewak and will have a presence in the near future.

Technology

Hardware

1. Touchpad Changes: The combination resistive/capacitive touchpad currently used on the XO was designed and built specifically for OLPC by a single supplier. Unfortunately, this supplier is unhappy with our manufacturing volumes and is forcing us to move to a more conventional (capacitive-only) touchpad. We are beginning the selection process for such an off-the-shelf replacement. This will require changing the tooling of the keyboard "bezel", and will take several months to move into production.

2. Touchpad Debugging: Richard continued his EC code rework to speed up touchpad processing. It turns out that the largest part of the EC delay in dealing with touchpad data was not waiting for the EC to roll around to processing the data, but actually in the data processing routines. The design of the touch pad data handling is such that even minor changes break things. The problem is complicated by many, many years of legacy desktop BIOS support that Richard does not yet fully understand.

Just as he was about to announce that this would be a protracted process (meaning he'd probably miss the 8.2 release), an opportunity for a totally different solution presented itself. By switching touchpad operation modes we are able to cut the amount of data that needs to be transmitted by half. (six-byte to three-byte packets). This puts the update rate back into the 12ms window and also has some additional properties that make it much easier to detect when the touchpad is out of whack. The drawback of this new mode (called "mouse mode") is that the resistive feature of the touchpad is disabled. This still leaves the miscalibration issues. However, in mouse mode detecting miscalibrates is easier.

3. Keyboard Testing: OLPC received a small number of keyboards made with additives and thicker rubber, to test as a fix for the "tearing keys" problem. These are being evaluated, and we hope to select the new thickness next week.
4. Battery Problems: BYD has submitted a change request for increasing the over voltage protection cutoff level of the BYD LiFePO4 batteries. They claim that this will allow the 7.5V charging voltage to re-balance the unbalanced cells rather than just shut off as it does now. OLPC has rejected this request because we feel that it will just mask the problem. Plus we don't know what that will do to the charging time when the cells drift out of balance. OLPC has requested more

information from BYD on the root cause of the cell imbalance. BYD has offered to replace batteries that fail in this manner.

5. Multi-Battery Charger: RCAL has committed to ship 50 multi-battery charger units by Aug 15th, pending availability of the power supplies from Flextronics. Some of these units will be shipped to OLPC for final testing and firmware changes. Then they will be ready to send to customers who want to try them. Richard thinks we should be able to have units ready for customers by early September.

Networking

6. Michail Bletsas visited Google in Mountain View to discuss with their XMPP team the possible ways to utilize their XMPP servers in OLPC deployments. Pass-Through XMPP federation, libjingle and the Google NAT/firewall relay servers were identified as items for follow-up investigation.

7. Michail, Javier and Deepak then visited Marvell in Santa Clara. The main theme of the day was planning for the transition to the new WiFi chip, the 8682, which will occur when the existing stock of 8388 (the current chip) is exhausted. There are many benefits that make this transition extremely desirable:

- Fifty percent (at least) power reduction due to the 90nm process and the fact that the 8682 is a single chip (vs 2 for the current 8388 + 8015)
- Support for dual band operation (2.4Ghz + 5Ghz)
- Ability to control transmit power on a per frame basis
- More on-chip RAM
- Firmware SDK

The ramifications of the last item are extremely important. It will allow the source code of our mesh stack to be publicly available (and modifiable by everybody with ARM toolchain experience).

8. Michail next visited Belkin in Los Angeles to meet with Hanoz Ghandi and Nandan Kalle, who is responsible for Belkin's WiFi products. The main item on the agenda was WiFi access points for school deployments consistent with OLPC's recommendation for schools to avoid deploying multiple WiFi APs based on Broadcom radios, because of the side effects of multicast traffic on those radios. Belkin will be sending us their non-Broadcom gear for testing. The goal is for them to ship OLPC-qualified units, pre-configured for school deployment so that the demands on the deployment personel are minimized.
Josh Seal joined the discussion over the phone from England and presented the latest XOcto plug design.

Software Development

9. Greg Smith and Michael Stone continued improvements and gathered feedback on the development process: http://wiki.laptop.org/go/Release_Process_Home. Greg organized a release 8.2.0 meeting, and created a list of main new features in that release: http://wiki.laptop.org/go/8.2.0 and http://lists.laptop.org/pipermail/devel/2008-July/016000.html .

10. Daniel Drake addressed issues associated with the Fedora 9 rebase. He published some code which brings the Record activity back into a somewhat usable state.

11. Paul Fox succeeded in running the SDCC-built EC image in an 8051 emulator, which led to some new ideas about why it hasn't yet run successfully on the laptop. He also finished packaging RoadMap (a Linux map-rendering and navigation program that Paul maintains) as an XO activity, just in time to give a copy to Adam Holt to take on his road trip to visit family and support-gang members.

More Software Development:

12. Food Force Project: Deepank Gupta is working with a team on the FoodForce II Project. They have received images for all but one or two objects, such as people or farms. The game has a display panel and buttons for interaction, but the main screen is yet to be filled with the artwork.
Manu, Silke Buhr from the World Food Program, Deepank Gupta and Mohit Taneja held a conference call to discuss the development and design issues faced by the Food Force team. A number of issues were solved. Deepank and Silke also developed a timeline for the first release of this project. http://wiki.laptop.org/go/Talk:Food_Force/Design_Document#Timeline).

13. Education Toolkit: Manu continues to make progress with Deepank Gupta, Ross Light and Ankuj Gupta. Ross has created classes for the results and answers list, which helps to keep track of a student's name. He also added get_Sugar_name() that helps identify the student who would have sent the questions/answers file in classroom environment http://dev.laptop.org/git/activities/Educational_toolkit). Ankuj released the .xo package for the education toolkit. It will be tested during this weekend to be made available to the community by the coming week. Special thanks to Stefania YW, Maryam Funicelli, Federico and Davide, the artists from Yellowhale who are designing the art-work for this project. The localization group at the Unicenp (Positivo Centre) University in Brazil has expressed interest in localizing the game in Portuguese.

14. Spreadsheet Activity: K.S. Preeti started work on meeting the Sugar-based UI guidelines. Luke Closs released SocialCalc 0.7.6 bundled as an activity:

SocialCalcActivity-1.xo http://www.socialtext.net/socialcalcxo/index.cgi?sweet_socialcalc

Activities

15. Brian Jordan fleshed out the Physics activity user interface and worked with his brother, Eric, on the common Physics activity XML file format. This activity is based on Box2D: http://jbox2d.org . He is also working on ideas for using the valuable resource of the world's K-12 classrooms already equipped with computers to improve our resource offerings.

16. Ankur Verma has been working on modem connectivity. He has added information about providing connectivity to server here: XS_Connectivity. He has also been working on an application which is accessible over the network and can be used for text messaging.

17. Bobby Powers attended the "Systems Thinking and Dynamic Modeling for K-12 Education" conference in Wellesley, where he talked to educators about his activity, Model, and OLPC, with very good responses. He also converted his C++ classes to derive from Glib:Object to take advantage of messaging, and dealt with the mess of using them in Python via SWIG. Finally, Bobby got his activity loading and saving to and from the Journal.

Sugar Development

18. Marco Pesenti Gritti participated to the first Sugar Labs meeting in Milan. Notes are available here, http://wiki.sugarlabs.org/go/Sugar_Labs/Meeting_Minutes-30-06-2008 . He reviewed several patches and made a few fixes to the Sugar release scripts. Finally he worked around the problem which was causing the DCON to freeze at startup, a proper fix will come in a bit.

Support / Sysadmin

19. Dennis Gilmore and Henry Hardy are setting up a new server intended for internal builds: weka.laptop.org.

20. Sean Hooley and Frances Hopkins began to collect statistics on voice mails, donor services questions, refunds, replacements and reshipments.

And in other news…

1. Earlier this spring, Professor Jordi Garcia (pictured next page) from the University of Catalonia in Barcelona, struck out with a colleague from Yaoundé, the capital of Cameroon, on a 3000-kilometer expedition to the Central African

country's hinterlands, where Garcia visited a pygmy village and familiarized its inhabitatants with the XO laptop's advantages.

It was an arduous trek, undertaken in part via dugout canoe across some extremely remote waterways, but absolutely worth the while, according to Garcia Unfamiliar as the tribe is with the outside world and modern technology, he reports that OLPC's machines fascinated them. After some very basic instructions, villagers soon were adept at picture taking and draw applications.

Garcia is a joint holder of the UNESCO chair at the University of Catalonia, and is a member of a group of European professors (March 30 Weekend) who are organizing OLPC projects in Cameroon, Burkina Faso, the Dominican Republic and Guatemala. Working with the Cameroonian government, Garcia hopes to distribute 5,000 XOs to settlements far-flung as this one by the end of the year.

2. NPR's Larry Abramson filed an interesting two-part series on XOs being deployed in a pilot study among the children of migrant workers, as well as local schoolkids, in Immokalee, Florida. The laptops are finding fans wherever they go. http://www.npr.org/templates/story/story.php?storyId=91891812