One Laptop Per Child (OLPC)

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K Linux User Group (K-LUG), Rochester, Minnesota, USA
8 April, 2008

One Laptop Per Child (OLPC)

- OLPC was founded 2005 by Nicholas Negroponte with a core of veterans from MIT Media Lab
- Expanded to include a wide range of people from academia, industry, the arts, business, and the open-source community
- Board of directors includes corporate partners AMD, eBay, Google, Nortel, News Corp., Red Hat
- Grown out of earlier projects providing computers to schoolchildren in developing nations (laptops in Cambodia, 2002; Apple IIs in Senegal, 1982)

Long-term Goal

- "It's an education project, not a laptop project." — Nicholas Negroponte
- "To provide children around the world with new opportunities to explore, experiment and express themselves."

Where The OLPC Contributes

- Most of the nearly two billion children in the developing world are inadequately educated, or receive no education at all
- Many resources allocated to basic infrastructure: building schools, hiring teachers, buying books and equipment
- Lacks the tools to compete in a rapidly evolving, global information economy
- OLPC proposes to bring computers into the scope of infrastructure

OLPC Requirements

- Low-cost
  - Affordable final cost for educators in developing nations
  - Facilitate large-scale production and inexpensive maintenance of the devices
- Design for the World
  - To be handled by children, often with limited language skills
  - Remote environments with limited connectivity options
  - Low-power environments

OLPC Features

- Specifications:
  - AMD Geode LX-700 CPU, 433 MHz
  - 256 MB RAM, 1 GB flash for mass storage
- Extremely low power architecture
  - 7.5 in. LCD display, two viewing modes:
    - grayscale for outdoor use (1200x900, 200 DPI resolution, 0.1-0.2 W consumption)
    - color backlight for indoor use (800x600, 0.2-1.0 W)
  - No rotating media
- Networking
  - Integrated wireless 802.11b/g; 802.11s (peer-to-peer Mesh)

Most Frequently Asked Question

"Where's the Crank?"

- Part of early prototypes
- Found that it was easy to break off
- Alternative powering schemes are being explored, including solar power

OLPC Features

- Built-in USB, SD card ports, microphone and headphone jacks
- Rotating swivel screen so that the unit can be used as an e-book reader
- Few moving parts and low number of low-cost components to make replacement and repair easier
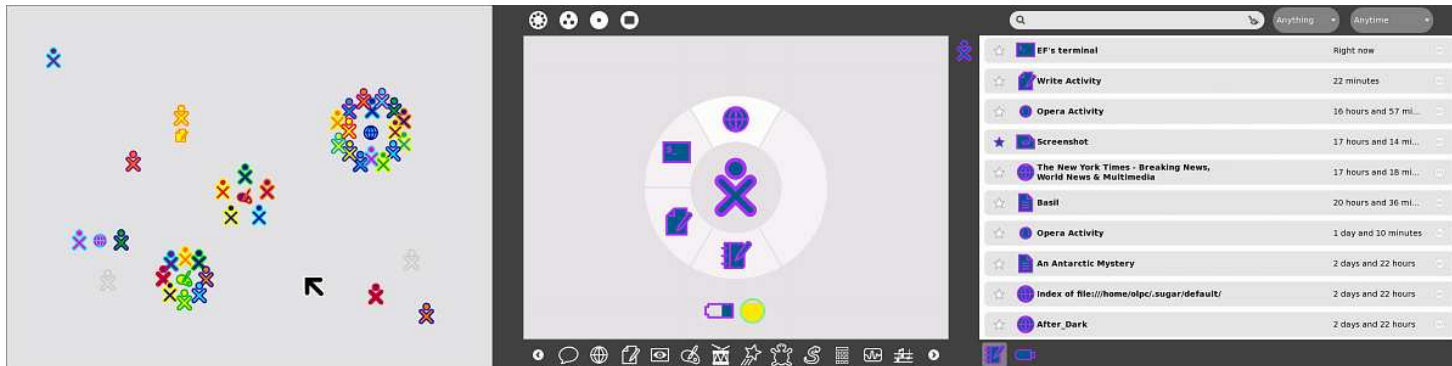
OLPC Features

- Low power consumption makes the unit the current "Greenest PC in the world"
- Rugged plastic case designed to be handled by children
- Keyboard designed for the smaller hands of a child
  - Overlay replaceable for different languages
- "Toy" design intended to discourage theft

OLPC Features (Software)

- Built upon open-source software
- Linux 2.6.22 Kernel
- Sugar User environment (the GUI re-conceived)
  - written in Python, on top of X and Matchbox WM
  - "Zooming" interface to network connectivity "spheres" (local, collaborators, neighborhood)
  - Journal interface to storage of events, activities, objects (files)

OLPC Applications

- Mozilla Gecko-based web browser (Javascript, Java VM, Flash (via Gnash))
- Supports application programming in multiple languages (Python, Squeak Smalltalk)
  - Applications are called "Activities"
- Multimedia playback including MPEG, MP3, OGG

OLPC Applications

- Simple word-processor, RSS reader, peer-to-peer chat, Frequency Analyzer (Measure, thru the mic port), simple Python IDE (Pippy)
- Content Creation Activities:
  - TamTam music composition, Record (video/audio), Etoys (Smalltalk based applications/presentations)
- The OS is Linux
  - Traditional Linux apps can run on the OLPC:
    - Apache, Drupal, MySQL

Next Steps of Action

- Ways To Give:
  http://www.laptopfoundation.org/en/participate/
  - Contributing cash directly (501c3 charity)
  - Giving a laptop to a child in the developing world
  - Volunteering in the project
  (http://wiki.laptop.org/go/Participate)
- Find Out More:
    - http://www.laptop.org/
    - http://wiki.laptop.org/
    - http://www.olpcnews.com/