

OLPC Networking Overview

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OLPC Project

- “One Laptop per Child”
- Education project
- Every aspect is innovative

Hardware

- \$100 laptop
- 128MB RAM
- 500MHz AMD Geode
- 500MB Flash (no hard disk)
- Video camera
- Wireless
- Rugged

Software

- LinuxBios
- Linux OS (Fedora)
- Minimal system
- Sugar GUI
- Web, chat, Wikipedia, music performance
- Localizations (Americas, Africa, Asia etc.)

Networking Requirements

- Adapt to various scenarios:
 - A few users in a village, possibly with no infrastructure of any kind.
 - School environment, up to several thousand laptops, some infrastructure
- Full auto-configuration

Networking Technologies

- Ad-hoc wireless mesh
 - 802.11s at L2, in firmware
 - AODV (mandatory)
 - OLSR (optional)
- IPv6
 - Auto-configuration
 - End to end
 - Flexible, large address space
- IPSec ?

Topology

- Schools will have “mesh portals”
 - ARM-based Debian servers w/ disk & 256MB RAM
 - Linked to other schools & Internet
 - “Active antennas” - USB wireless w/ long cables
- Country may have 100k mesh portals
- Each mesh portal may have 3000 clients
- Bridging, tc very important
- Governments may assist with infrastructure

Questions?