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?