School Server

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School Server

• A set of software which provides:
  – A Network Gateway
  – Centralized school services
  – Content services

• (future) A reference design for a low power, low cost server hardware platform
A Network Gateway

• Provides the connection between the school network and the “Internet”
• Allows the school server to provide:
  – Network filtering
  – Content caching
• Not required for larger school w. dedicated network infrastructure
Networking Services

- Full function IPv4 network gateway
- Address assignment (DHCP)
- Name resolution (DNS)
- HTTP Caching
  - Maximizes use of Internet connection
School Server

Networking

Services

Hardware
Services (now)

- Time
- Registration
  - Associates a laptop with a school
- Presence & Collaboration
  - Centralized service needed when more than 30 laptops together
- HTTP caching
  - Efficient use of Internet connection
Registration

- One-time process linking a laptop and a school
- Essential for a student to collaborate in school
- Currently in menu ->
- Automatic in future laptop releases
School Collaboration

- In a school, a centralized presence service aids presence and collaboration
- Without service, collaboration limited to small number (< 15-30) of laptops
- Currently XMPP (jabber) based
- Laptops may collaborate remotely, if:
  - They are registered to the same school, and
  - They can both connect to presence service
Services (3Q 2008)

• Laptop backup to XS
• Moodle
  – User/Group management
  – Partially Sugar-ized UI
  – Web-based collaborative activities
• MediaWiki
  – Editable copy of Wikipedia slice
  – Content updates
• Tools for bundling HTML content
Services (2009)

- Smarter HTTP proxy behavior
- HTTP Filtering
- Cross-school content sharing
- Some support for disconnected operations
- Bitfrost-integrated white/blacklisting
School Server Administration

(Future releases)
• Tools for a Network Operations Center
• Remote school server management and monitoring
• Software and content updates
• Backup of school server
• Scalable --- small network operations team can handle a large server base
• Bitfrost blacklist/whitelist maintenance
Server Hardware

- No single solution provided by OLPC
- Currently recommending off-the-shelf hardware:
  - 1+ GHz x86 processor
  - 1 Gbyte of RAM
  - Two network interfaces
  - Four USB 2.0 ports
  - 400+ GB of Hard Drive
Rural School Server

- Difficult to find low cost hardware for environmental extremes
- Water drip resistant
- 50C operation
- No critical fans
- Little economies of scale