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One Laptop per Child

School Server

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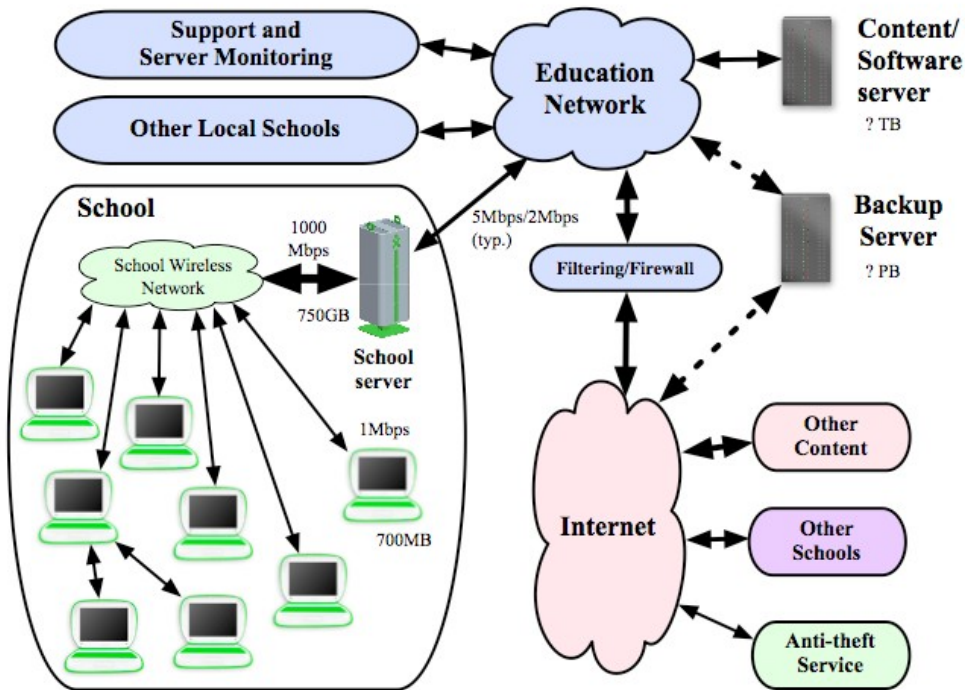
School Server

- 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



School Server

Networking
Services
Hardware



ONE LAPTOP PER CHILD



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
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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

School Server

Networking Services Hardware

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

