

# Ubuntu and LTSP5

*An introduction  
to the latest Thin Client  
technology development*



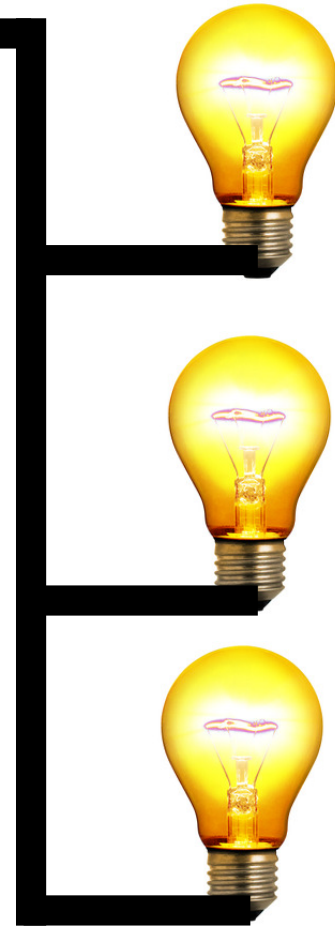
# What is LTSP ?

## Network



### Server

- Provides boot services
- Provides root File system
- Does user management
- Runs the actual desktop session after login



### Clients

- Displays
- I/O Devices
- Sound output
- Managing CD roms, USB keys and other block devices

# How does LTSP work ?



- A client retrieves a kernel from the server via some kind of boot protocol (PXE, Etherboot, bootp ...).
- The Kernel does a tftp connection to the server, retrieves the initramfs, unpacks and executes it.
- The initramfs mounts a readonly root filesystem from the server and merges this with a tmpfs created on the client for the writeable bits.
- A Thin Client setup initscript is executed to detect hardware and set up basic configuration (Xorg, network settings, sound, support for local block devices, etc.).
- An LTSP initscript that starts the LTSP display manager is executed.
- If a user logs in with the display manager an ssh connection to the server is established, a desktop session gets executed on the server.

## **Extremely low TCO through:**

- Centralized user management
- Centralized data management
- Centralized backup
- Actually only one single machine to maintain

# The “ancient” past (LTSP up to 4.2)



- Maintained like it's own distribution in a binary tarball
- To add software to the client you had to recompile the whole thing
- Lots of manual post install configuration work
- Passwords were exchanged in clear text over the network
- Lacking developers for maintaining the basic bits like kernel, Xorg. Security updates were hogging a lot of Manhours that were then missing from actual LTSP development.

- Client environment is built from distribution packages so the maintenance load is off the LTSP developer shoulders.
- Using the distributions hardware detection and Setup mechanisms.
- Securing the network traffic (Passwords, display forwarding over the network, etc)
- Developers can concentrate only on the LTSP bits
- Upstream development moved mainly into Ubuntu. Debian adopted it, RedHat, Gentoo and OpenSuse are about to follow up.
- A plugin system (its trivially easy to write your own kiosk plugin, MythTv Server/Client setup, Presentation System ...)
- Maintenance of the Client File System is done with standard distribution tools (apt-get etc).

# Maintaining Client Sessions



**Thin Client Manager**

Execute Disconnect Message Blank Un-Blank Share Screen

All users

**scbal**  
192.168.1.250

Process Viewer Screen Viewer

**scbal**  
System: 192.168.1.250

Command	CPU	MEM	Status
firefox-bin	3.2	0.7	0
sol	1.6	1.0	0
bash	0.1	0.0	0
	1.0	0.0	0
	0.0	0.0	0
	0.0	0.0	0

**Run command...**

Command:

OK Cancel

**Send message**

Message:

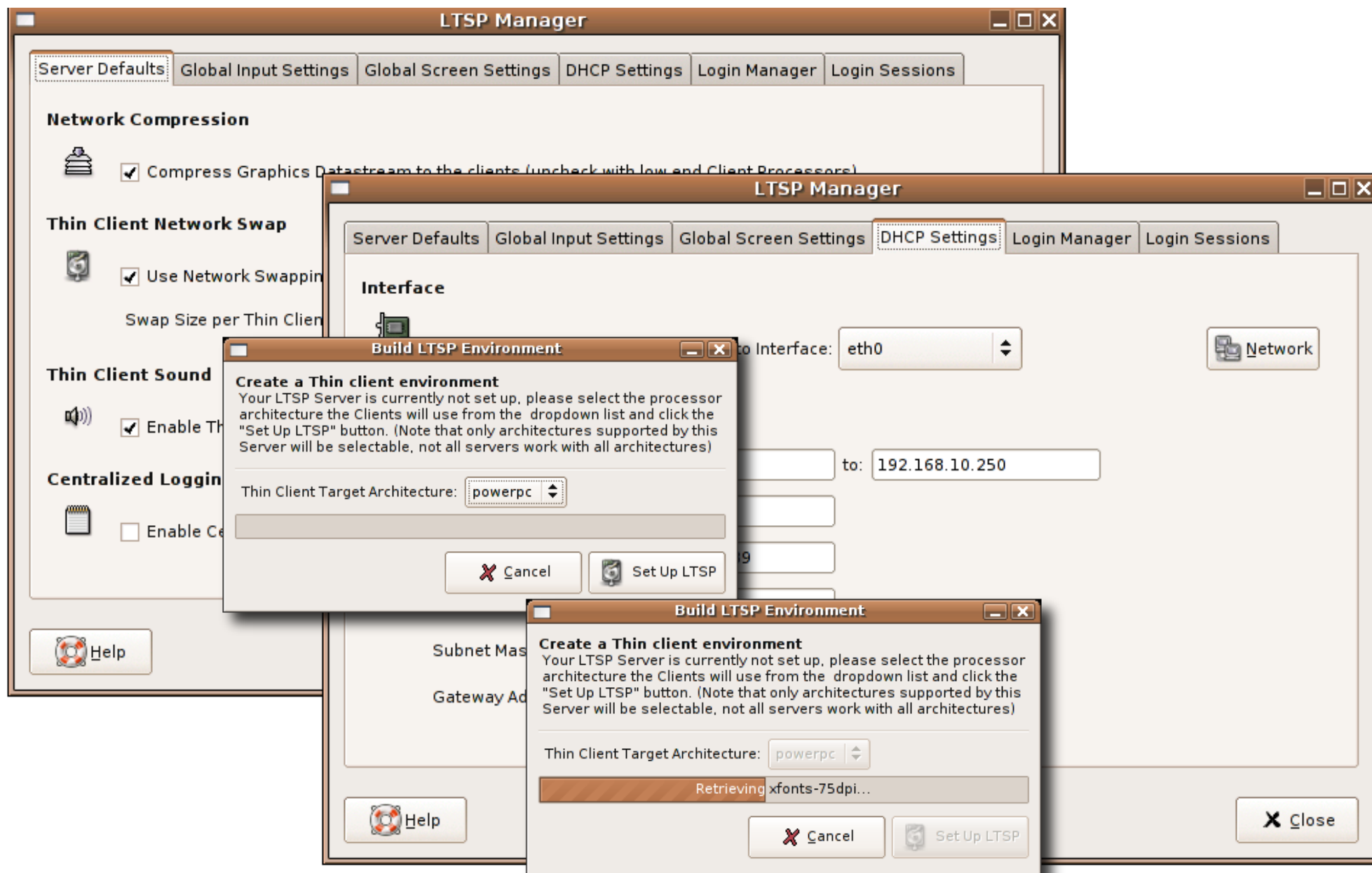
OK Cancel

**Warning Dialog:**

**This will end the selected process any may cause data loss.**  
Are you sure you want to do this ?

Cancel OK

# Future tools (next LTS)



The image displays the LTSP Manager application interface, which is used for configuring a Linux Terminal Server Project (LTSP) environment. The main window is titled "LTSP Manager" and features several tabs: "Server Defaults", "Global Input Settings", "Global Screen Settings", "DHCP Settings", "Login Manager", and "Login Sessions".

The "Server Defaults" tab is active, showing various configuration options:

- Network Compression:** A checked checkbox labeled "Compress Graphics Datastream to the clients (uncheck with low end Client Processors)".
- Thin Client Network Swap:** A checked checkbox labeled "Use Network Swapping". Below it, there is a field for "Swap Size per Thin Client".
- Thin Client Sound:** A checked checkbox labeled "Enable Thin Client Sound".
- Centralized Logging:** An unchecked checkbox labeled "Enable Centralized Logging".

A "Help" button is located at the bottom left of the main window.

Overlaid on the main window are two "Build LTSP Environment" dialog boxes:

- The top dialog box is titled "Build LTSP Environment" and contains the text: "Create a Thin client environment. Your LTSP Server is currently not set up, please select the processor architecture the Clients will use from the dropdown list and click the 'Set Up LTSP' button. (Note that only architectures supported by this Server will be selectable, not all servers work with all architectures)". Below this text is a dropdown menu for "Thin Client Target Architecture" with "powerpc" selected. At the bottom are "Cancel" and "Set Up LTSP" buttons.
- The bottom dialog box is also titled "Build LTSP Environment" and contains the same text. Below the text is a progress bar showing "Retrieving xfonts-75dpi...". At the bottom are "Cancel" and "Set Up LTSP" buttons, and a "Close" button is visible on the right side.

In the background, the "DHCP Settings" tab is visible, showing an "Interface" dropdown set to "eth0" and a "Network" button. Below this, there are fields for IP address ranges, with "to: 192.168.10.250" visible.



## Fat Clients, the Future of the corporate Desktop!

- Out of the box support planned for next LTS
- One “Golden Workstation” to maintain the whole Company Network
- Trivially small Server footprint possible

## Load Balancing Support over several application servers

- Centralized User Management Server out of the box
- Automatic choice of the least loaded application server through the Login Manager
- Dedicated application Servers (i.e. one server per department).

## Integrated Ubuntu LTSP CD

- Bringing the Edubuntu reference implementation that automatically sets up LTSP during install to Ubuntu Server.

## General Info and Documentation

<https://help.ubuntu.com/community/UbuntuLTSP>

<http://wiki.ltsp.org>

<https://lists.sourceforge.net/lists/listinfo/ltsp-developer>

## People

Jim McQuillian, [jam@ltsp.org](mailto:jam@ltsp.org)

Oliver Grawert, [ogra@ubuntu.com](mailto:ogra@ubuntu.com)

Scott Balneaves, [sbalneav@ltsp.org](mailto:sbalneav@ltsp.org)

Vagrant Cascadian, [vagrant@freegeek.org](mailto:vagrant@freegeek.org) (Debian port)

## Places

IRC:

**#ltsp** on freenode

**#edubuntu** on freenode

Lauchpad:

**<https://launchpad.net/~ltsp-drivers>**

**Thank You !**