

Introducing thin-client solutions for businesses with Linux

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Outline

- 1 Motivation
 - Why thin clients?
- 2 Market Overview
 - Commercial solutions
 - Open Source solutions
- 3 Hardware
 - Server hardware
 - Client gallery

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Using thin clients...

Why does an organization want to use thin-clients?

- low maintenance
- low power consumption (about 5W per client)
- silent
- less cluttered workplace 😊
- cost-savings

...Or not?

Why does an organization *not* want to use thin-clients?

- users need dedicated processor power
- 3D graphics, CAD
- full-screen video streaming
- server might be the single point of failure

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Vendors

- Microsoft Terminal Server - per-user-licensing
- Citrix XenApp (old name: MetaFrame) - server needs to be very powerful (virtualization)
- NoMachine NX

Overview

- Boot Linux from network server
- Any PC can become a client

LTSP



LTSP (Linux Terminal Server Project) is a mature “full-stack” thin-client server solution.

- Packages in most major Linux distributions
- Simple client maintenance
- Simple configuration for individual clients

X2Go

X2Go is a relatively new thin-client- and remote-desktop solution.

- Users can take their running programs with them to another workstation.
- Compression makes remote-access possible
- Server clustering

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Hardware specs

Since a server must support many clients, the hardware must be powerful.

- Multicore processors are useful
- Fast storage (multiple hard disks, RAID)
- Much memory

Example

LTSP has these advises for server size:

- RAM: 50-70MB per client + 256MB basis
- CPU: A single-core 3GHz CPU can support 30 users

60 users: Dual-core 3GHz, 4-6GB RAM

Power savings

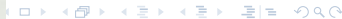
Comparison for 60 clients

	Thin-clients	Traditional
Power per client	6W	130W
Power for server	400W	-
Total	760W	7800W

Thin Can



ALIX 3D3



Summary

- Thin-clients can help reduce IT cost.
- OpenSource can help keep cost down.

Thank you for listening!
Questions?

References



<http://www.ltsp.org/>



<http://www.x2go.org/>