



# **NCHC's DRBL/Clonezilla Project**

**Steven Shiau**

- Introduction to DRBL and Clonezilla
- Users in Taiwan and worldwide
- Related activities
- Success stories
- User's feedbacks
- The DRBL/Clonezilla team
- Demo



- Free software projects developed by NCHC Free Software Labs
- Our goal - FSSC (Free Software Smart Classroom)
  - DRBL, Clonezilla, DRBL-winroll, Tux2live, Partclone
  - Multicast VNC
  - Access Grid, E-learning
  - Cluster computing
  - Grid computing





## DRBL

(Diskless Remote Boot in Linux)

Provides a diskless or systemless environment for client machines



Clonezilla

## Clonezilla

A partitioning and disk cloning utility similar to Ghost, True image or Rembo



- PXE/Etherboot + NFS + NIS - standing on a giant's shoulder
- Orig: PC Cluster -> Free Software Classroom
- Multi environment in a computer classroom
  - GNU/Linux & MS Windows coexist



## ✓ Saves you money

- No harddrive in clients
- Software is free, freedom and no charge



## ✓ Saves you time

- All programs are on 1 server, and installed once
- One command to shutdown/reboot/power on all clients

## ✓ Makes your life easier

- ✓ No disk failure on client
- ✓ Client machines are plug-and-play
- ✓ Flexible environment in computer classroom
  - GNU/Linux & MS Windows can coexist





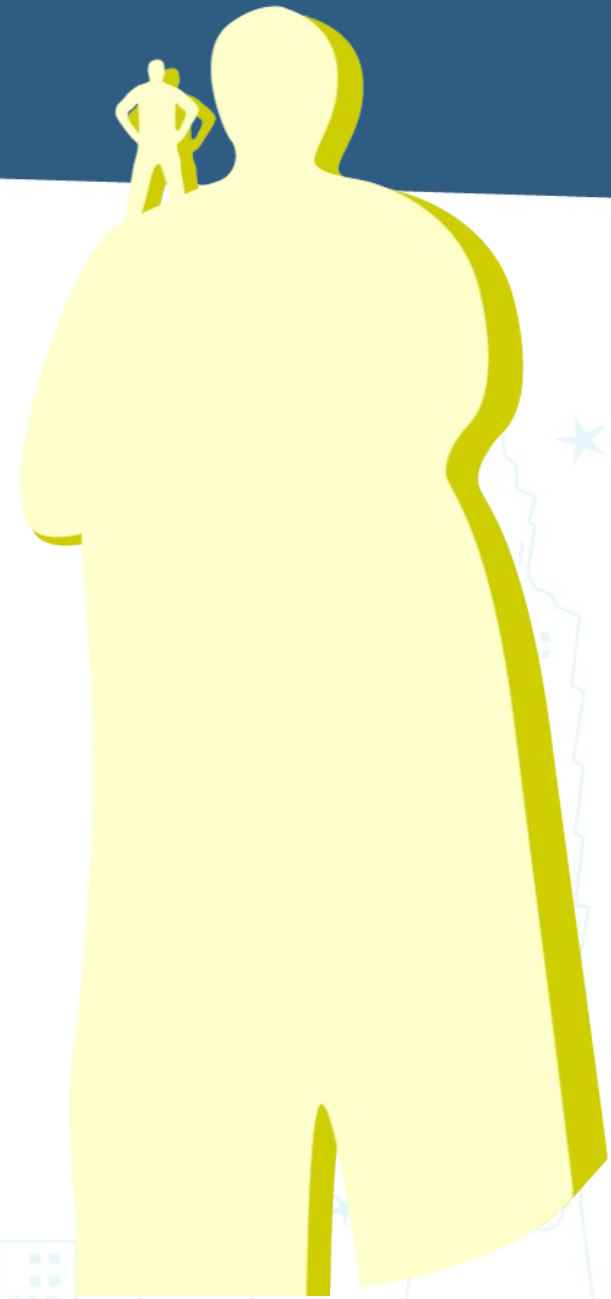
- **Since there is LTSP, why DRBL ?**
  - Centralized resource vs. distributed resource
  - Thin client vs. powerful client
  - **Some people want to play 3D game or video in client**
  - Special features of DRBL
    - Clonezilla server edition
    - Small Linux diskless solution
    - One command to switch client environment
      - DRBL, FreeDOS, OS in local HD, memtest...
    - Linux network installation
  - DRBL is not suitable for old machines/thin clients
  - Choose what you need
    - From version 5 (released in 2007), fat clients are supported in LTSP.



- Free (GPL) Software
- **Filesystem supported: ext2/3, reiserfs, xfs, jfs, FAT and NTFS**
- **LVM2** (Linux Logical Volume Manager 2, stackable block device) is supported
- **Multicast** is supported in Clonezilla server edition
- Save and restore not only partitions, but also whole disks
- If file system is supported, only used blocks in harddisk are saved and restored. For unsupported file system, sector-to-sector copy is done by dd
- drbl-winroll: the hostname, group, and SID of cloned M\$ windows machine can be automatically changed.

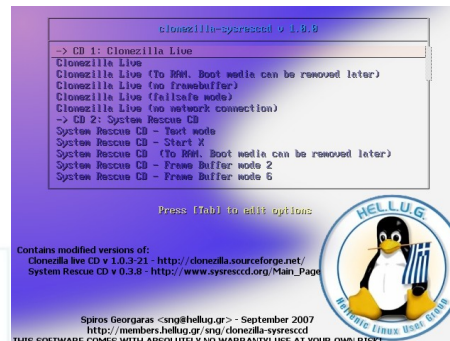


- Based on existing software
  - partimage
  - ntfscclone
  - dd
  - updcast
  - DRBL (For massive clone)
  - and more...

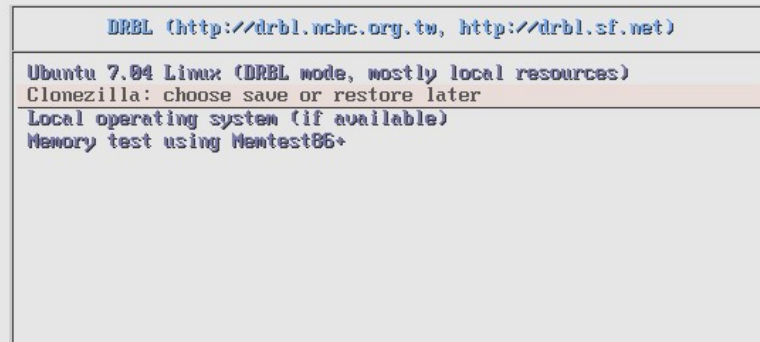
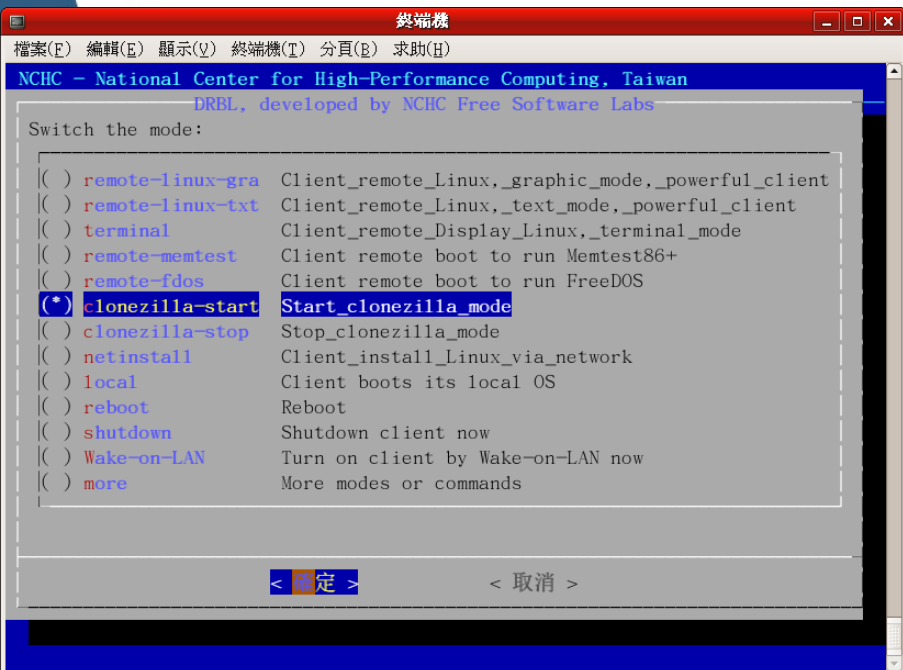


# Two types of Clonezilla

- Clonezilla server edition
  - Massive clone
  - Network boot (PXE)
  - DRBL server is required
- Clonezilla live
  - Single machine backup
  - Based on Debian Live
  - CD/USB flash drive is required
  - Also available in
    - **GParted-Clonezilla** live CD, created by **Larry@GParted**
    - **Clonezilla-SysRescCD**, created by Spiros Georgaras



# DRBL (includes Clonezilla Server Edition)



國家高速網路與計算中心

NCHC, Taiwan

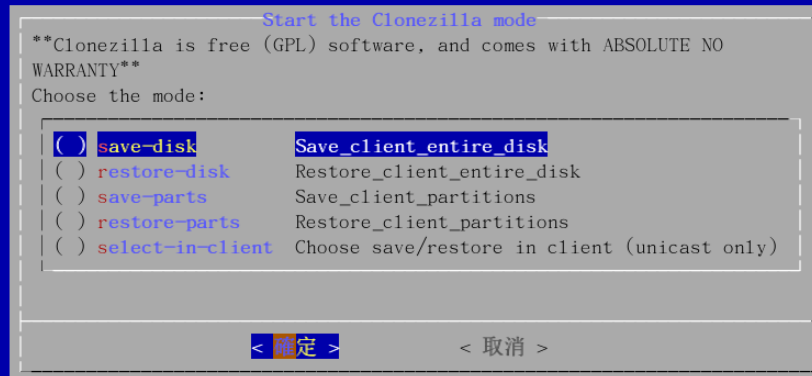
自由軟體實驗室 Free Software Labs

http://free.nchc.org.tw

DRBL



2007/11/13



## Clonezilla Live

NCHC Free Software Labs, Taiwan

<http://clonezilla.sf.net>, <http://clonezilla.nchc.org.tw>

Clonezilla live

Clonezilla live (To RAM. Boot media can be removed later)  
Clonezilla live (no framebuffer)  
Clonezilla live (failsafe mode)  
Local operating system in harddrive (if available)  
FreeDOS  
Memory test using Memtest86+  
Network boot via etherboot

Press [Tab] to edit options

國家高速網路與計算中心

NCHC, Taiwan

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<http://free.nchc.org.tw>

# Clonezilla

NCHC Free Software Labs, Taiwan

Mount clonezilla image directory

Mount device or remote resources as /home/partimag, where clonezilla image is saved to or read from

Choose the mode:

- ☒ local\_dev Mount local device
- ☐ ssh\_server Mount SSH server
- ☐ samba\_server Mount SAMBA server
- ☐ enter\_shell Enter command line prompt, Do it manually
- ☐ skip Skip, use existing /home/partimag (memory disk, the data will vanish after sh

<Ok>

<Cancel>

Clonezilla: Choose the mode

\*\*Clonezilla is free (GPL) software, and comes with ABSOLUTE NO WARRANTY\*\*

Choose the mode:

- ☒ savedisk Save client entire disk
- ☐ restoredisk Restore client entire disk
- ☐ saveparts Save client partitions
- ☐ restoreparts Restore client partitions
- ☐ exit Exit. Enter command line prompt

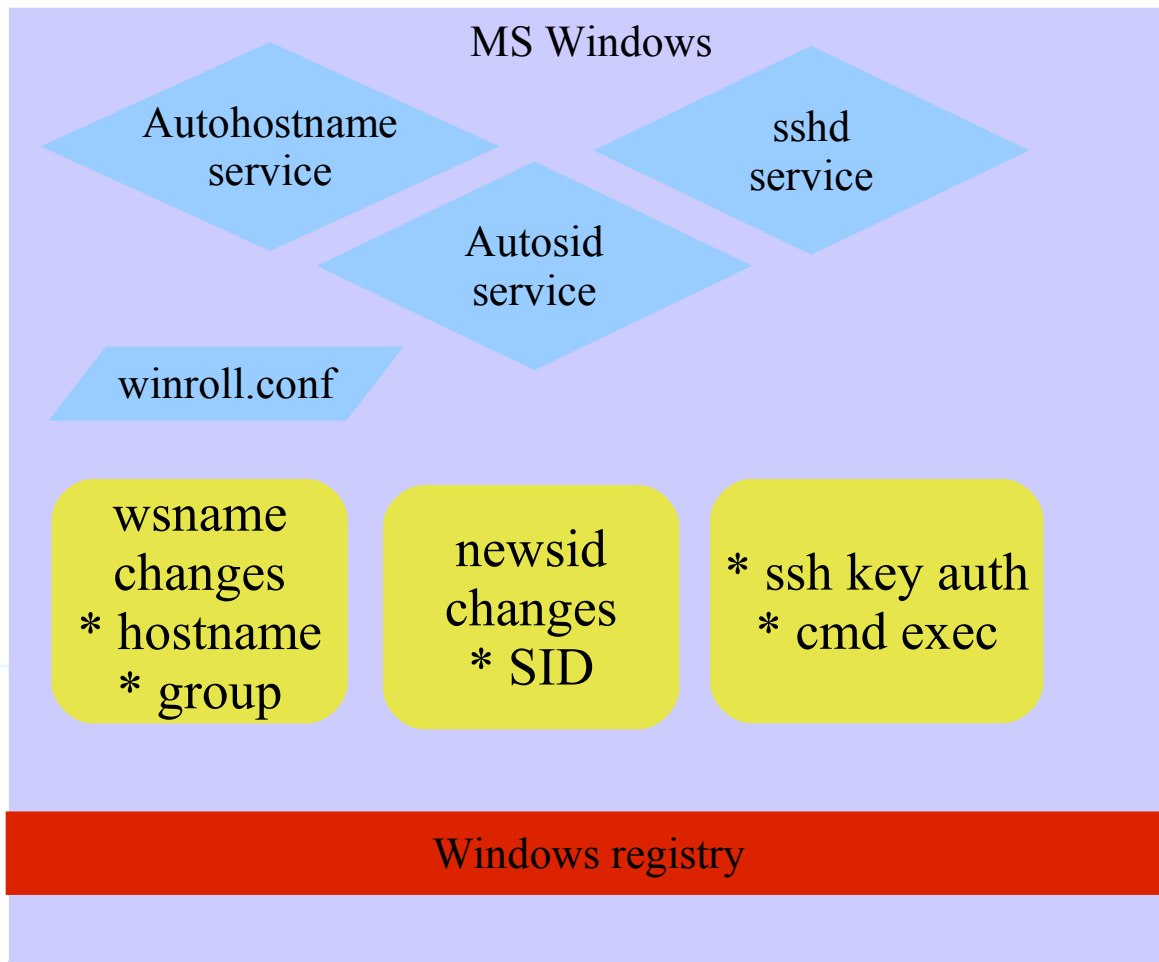
<Ok>

<Cancel>



The tool in M\$ windows

- (1) Change hostname, group and SID firstboot after clone
- (2) Accept command from DRBL server



- Follow <http://drbl.sf.net> to install
  - GNU/Linux distributions, i386/X86-64
    - Debian, Ubuntu, B2D, RedHat, Fedora, Mandriva, CentOS, OpenSuSE, SuSE
  - 4 steps to install
    - (1) Install GNU/Linux (2) Install DRBL package (3) Configure server (4) Configure client
- A Live version of DRBL-'**DRBL live**' is available
  - Ready to run without installation
  - Still in beta, will be stable soon





server

DHCP

TFTP

NFS

NIS



switch

IP

kernel

file system

account



client nodes

pxe/etherboot

192.168.0.1

boot

/, /usr, /home ...

user login



pxe/etherboot

192.168.0.40

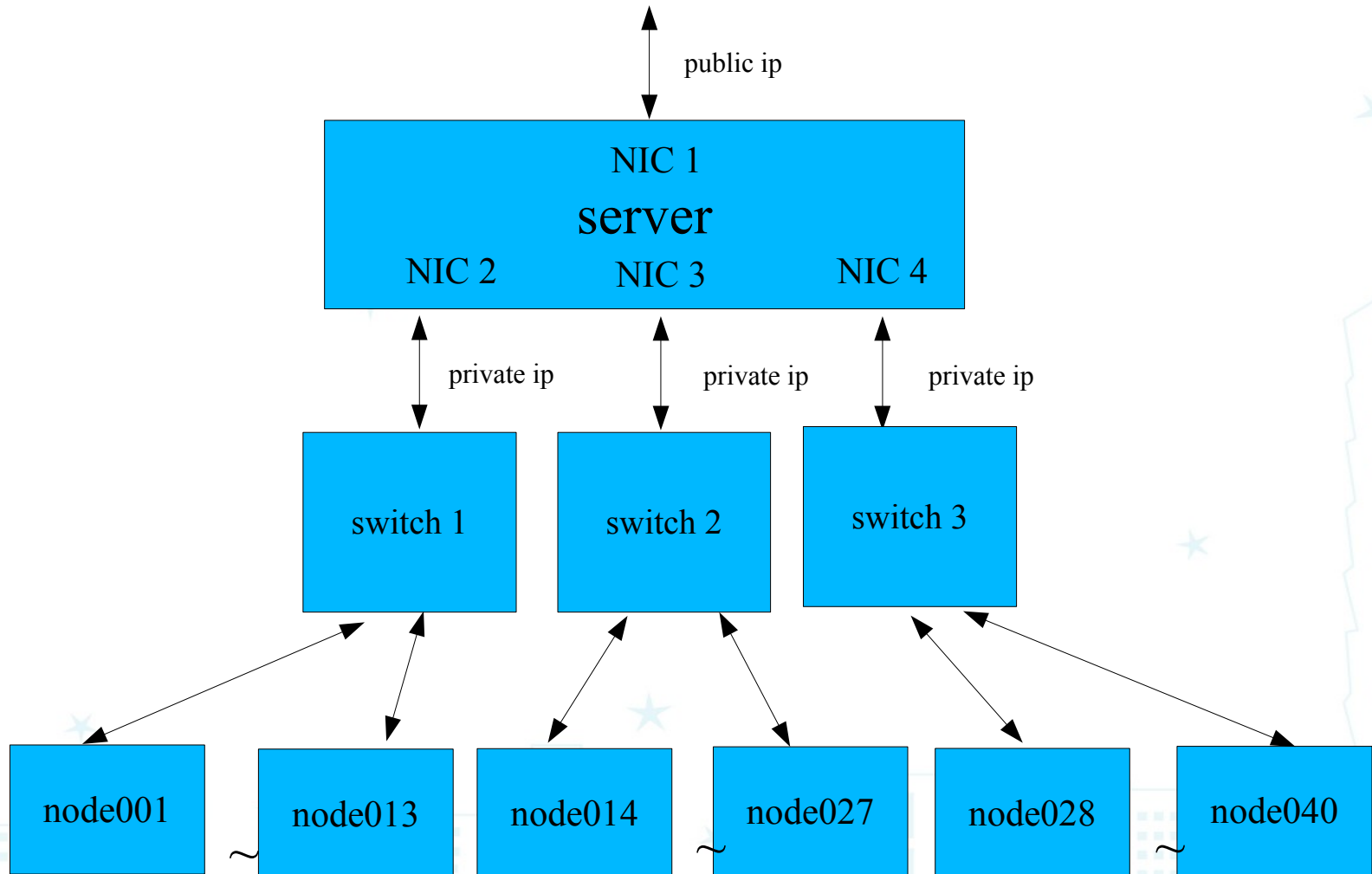
boot

/, /usr, /home ...

user login



# DRBL/Clonezilla Schematic





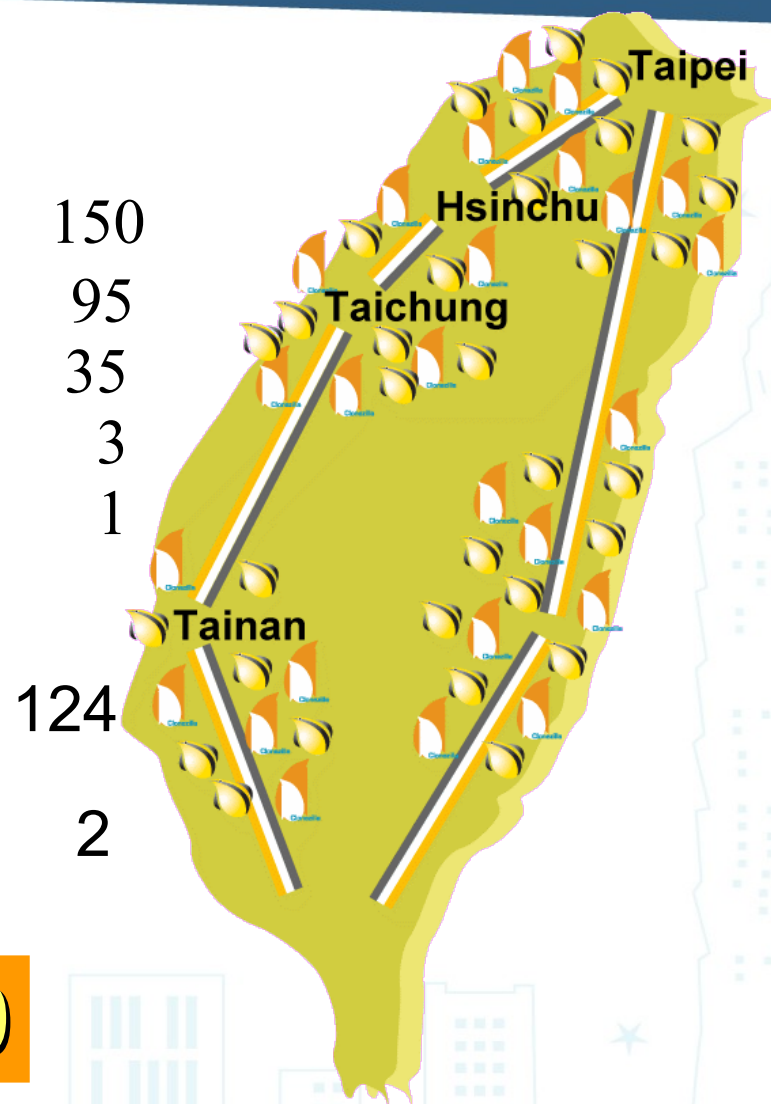
- On CD or USB flash drive
- <http://clonezilla.sf.net/clonezilla-live>
- General purpose use
  - Save or restore interactively
- Special purpose use
  - Clonezilla image embedded in CD or USB flash drive. One command to restore image.
  - Created by one command:
    - Ex: `/opt/drbl/sbin/ocs-iso sarge-image`

### ✓ Public sectors

Primary/High schools	150
Universities	95
Governments	35
Hospitals	3
TV station	1

### ✓ SMBs

### ✓ Misc



Known sites or users > **400**



More than **90K** downloads for DRBL and Clonezilla

- LSM2007, France
  - Amiens, France
  - 10 July, 2007
  - Clonezilla: A Better Choice Than Ghost
  - Speaker: Steven Shiau
- Ubuntu Live Conference
  - Portland, Oregon, USA
  - 23 July, 2007
  - Clonezilla: It's Better Than Ghost
  - Speaker: Kristian Hermansen, Security Researcher/Developer, Cisco Systems, Inc.
  - [http://www.ubuntulive.com/cs/ubuntu/view/e\\_sess/12510](http://www.ubuntulive.com/cs/ubuntu/view/e_sess/12510)

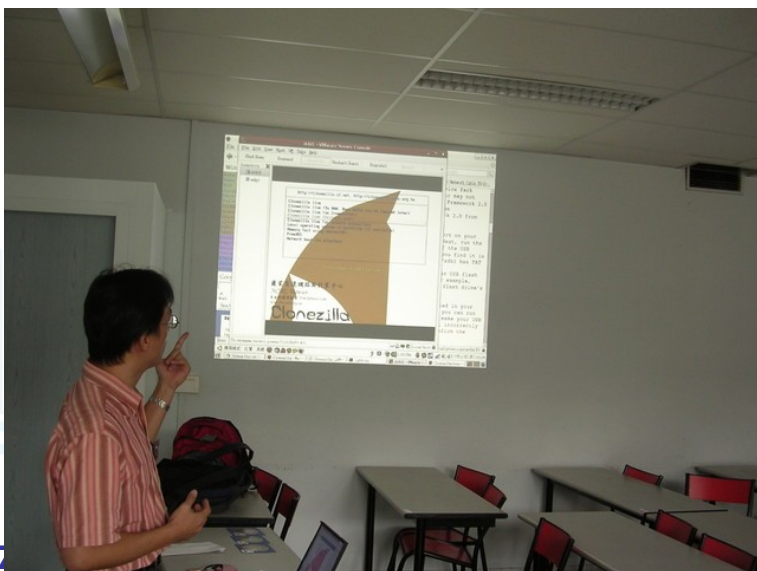


- Les Trophées du libre 2007 @ France, DRBL is in the finals
  - The finals and awards ceremony: 29 Nov, 2007
  - <http://www.tropheesdulibre.org/+Finalists-projects?lang=en>
  - In category 'public sector software', DRBL will compete with PMB and VHFFS

## ADOC, Philippine, June 07









## Ubuntu Live, USA, July 07









### Da-Feng Elementary School, Taipei, Taiwan



- ✓ Use DRBL and Clonezilla to manage the computer classroom
- ✓ Special report: Linux in education, 2006 on [distrowatch.com](http://distrowatch.com)
- ✓ DRBL/Clonezilla press conference @ Da-Feng on Jul/4/2007 **<play>**





✓ **Use Clonezilla to clone GNU/Linux**

✓ **58 schools are using now (July/2007)**

✓ **The letter from Hualien County Government**

主旨：感謝 貴中心提供本縣各校 DRBL 系統建置技術，請 查照。

說明：

- 一、本府教育局推廣使用校園自由軟體業務，承蒙「自由軟體實驗室」提供縣內學校建置 DRBL 技術，使各校在使用自由軟體作業系統及電腦教室管理維具有穩定、快速、便捷等特色，大幅減少網管人員負荷，提升工作效率，使得自由軟體資訊教育順利，特此致謝。
- 二、案經本府 95 年 12 月 11 日府教學字第 0950189 函，於 12 月 19 日回收各校填報「電腦教室作業系統調查表」統計，共有 35 所國民中小學已安裝使用系統，詳如附件所示。

正本：國家高速網路與計算中心<0076 新竹市科學園區研發六路 7 號>

副本：本府教育局教育網路中心

# 花蓮縣政府

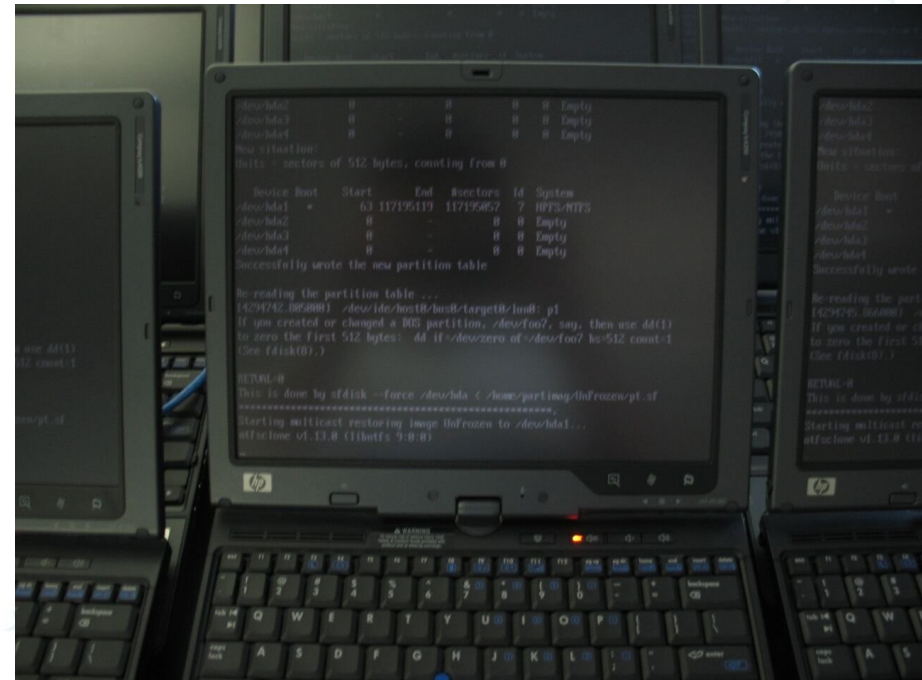


### University of Louisville, Kentucky, USA



**Deploy laptop local OS by Clonezilla**

Photo courtesy of Matt Luckett



- A user from a semiconductor company, Feb/2007
  - DRBL helps us a lot! Thank you!
    - I just wanted to send a message of thanks that since I found DRBL last year its use in our lab has **saved hundreds of hours of work**, not to mention having excellent support and while being a little "do it yourself" it has still only cost us our time invested to get it set up and configured and **has better functionality than most enterprise-class imaging tools, like Acronis and Symantec/Norton Ghost.**

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- Kristian Hermansen
- Cisco Systems, Boston, MA, USA. Sep/2007
- **Clone 5 GB image to 64 machines in 5 minutes**
  - "I used Clonezilla in the design of our Cisco Computational Cloud cluster to multicast a 5GB disk image to 64 machines simultaneously. And I did it all in under five minutes! Thanks Clonezilla!!!"

- Barny Sanchez
- Information Systems Security, Southbridge, Massachusetts, USA.
- **Cloned 1084 systems with DRBL** (Clonezilla server edition)
  - "So far I have cloned 1084 systems with DRBL. I followed carefully the advise from the website, and using multicasting plus dividing the amount of systems in groups of 80-100 PCs at the time, it has taken me somewhere from 16-38 minutes each turn, using images for various operating systems, averaging 1GB in size. **This has reduced the recovery/cloning factor from the previous commercial solution I had, for more than 500%**, so you could only imagine how happy my project managers are :-)."



- Clonezilla live



- <http://clonezilla.sf.net/clonezilla-live>

- DRBL live



- Still in beta
  - <http://free.nchc.org.tw/drbl-live>



- Steven Shiau (steven \_at\_ nchc org tw)
- Ceasar Sun (ceasar \_at\_ nchc org tw)
- Jazz Wang (jazz \_at\_ nchc org tw)
- Thomas Tsai (thomas \_at\_ nchc org tw)

# Questions ? Comments ?