

# Clonezilla: A better choice than Ghost

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

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# Free Software Smart Classroom, FSSC



- Free software projects developed by NCHC Free Software Labs
- Our goal - FSSC (Free Software Smart Classroom)

- ◆ DRBL, Clonezilla
- ◆ Multicast VNC
- ◆ Access Grid, E-learning
- ◆ Cluster computing
- ◆ Grid computing



# DRBL & Clonezilla



## DRBL

(Diskless Remote Boot in Linux)

Provides a diskless or systemless environment for client machines



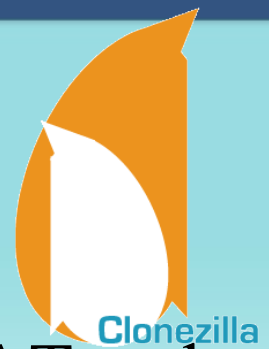
Clonezilla

## Clonezilla

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



# Clonezilla



- 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 PXEBoot Clonezilla
- 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 MS windows machine can be automatically changed.



# Clonezilla

■ Based on existing software

◆ partimage

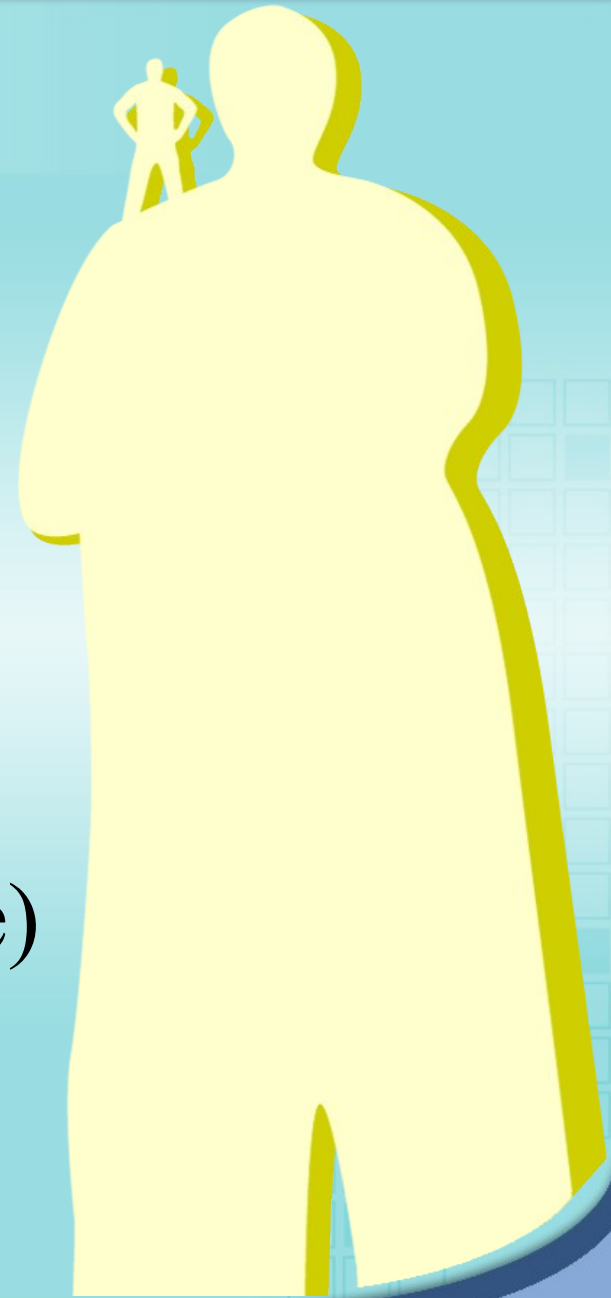
◆ ntfscclone

◆ dd

◆ updcast

◆ DRBL (For massive clone)

◆ and more...





# Two types of Clonezilla

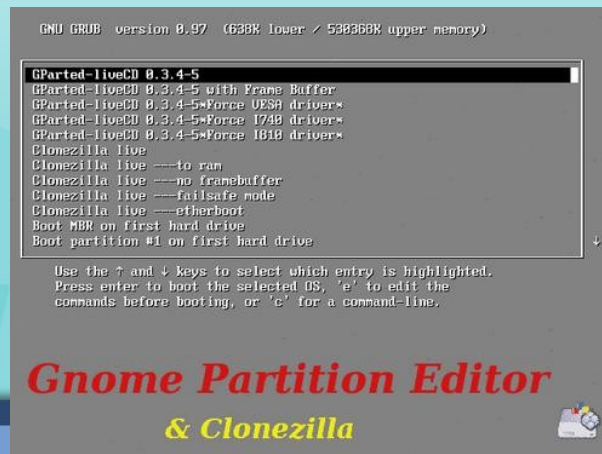
## ■ DRBL-based

### PXEBoot Clonezilla

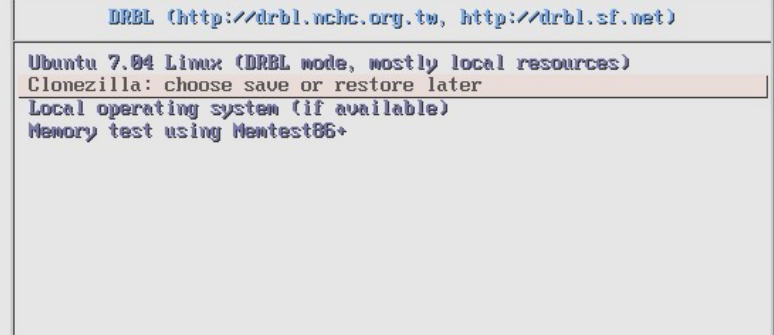
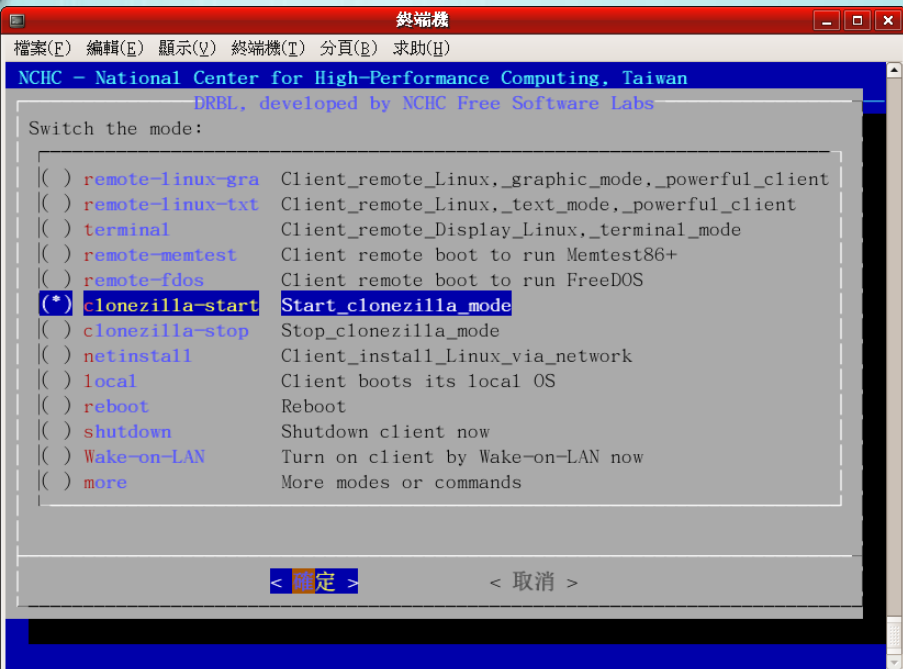
- ◆ Massive clone
- ◆ Network boot (PXE)
- ◆ DRBL server is required

## ■ 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



# DRBL-based PXEBoot Clonezilla



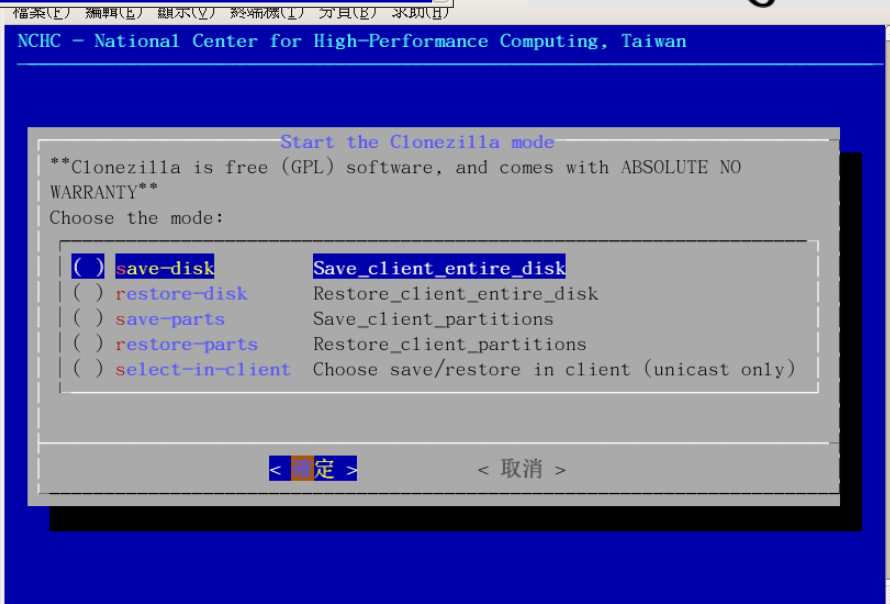
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NCHC, Taiwan

自由軟體實驗室 Free Software Labs

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

DRBL



# Clonezilla Live

<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

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# Clonezilla

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## 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>

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## 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>





# DRBL – Required by PXEBoot Clonezilla

- ✓ 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
    - Linux & MS Windows can coexist





## ■ Since there is LTSP, why DRBL ?

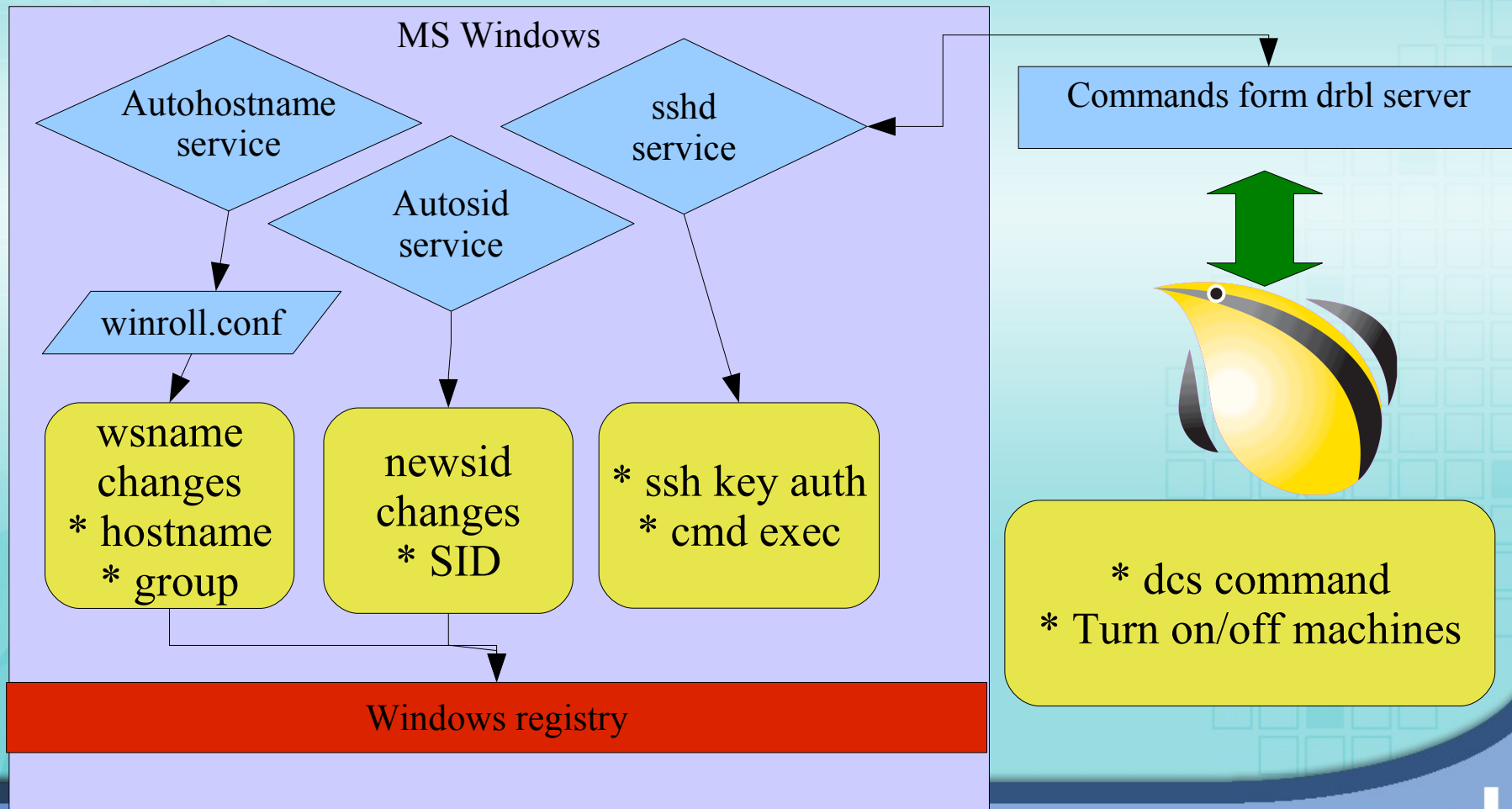
- ◆ Centralized resource vs. distributed resource
- ◆ Thin client vs. powerful client
- ◆ **Some people want to play 3D game or video in client**
- ◆ Special features of DRBL
  - ◆ Clonezilla
  - ◆ One command to switch client environment
    - DRBL, FreeDOS, OS in local HD, memtest...
  - ◆ Linux network installation
- ◆ DRBL is not suitable for old machines/thin clients
- ◆ Choose what you need



# drbl-winroll

The tool in M\$ windows

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



# DRBL-based PXEBoot Clonezilla Installation

- <http://drbl.sf.net>

- 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

- French document is available. Thanks to Georges Connard (0quack\_at\_gmail com).

- ◆ [https://drbl.sf.net/related\\_article/](https://drbl.sf.net/related_article/)

- ◆ In the future, maybe this is drbl-fr.sf.net for French doc.

- Herve Lauwerier translated French language files for Clonezilla live. We will try to merge that in the future release.



# DRBL



server



switch



client nodes

DHCP — IP →

pxe/etherboot

192.168.0.1

pxe/etherboot

192.168.0.40

TFTP — kernel →

boot

boot

NFS — file system →

/, /usr, /home ...

/, /usr, /home ...

NIS — account →

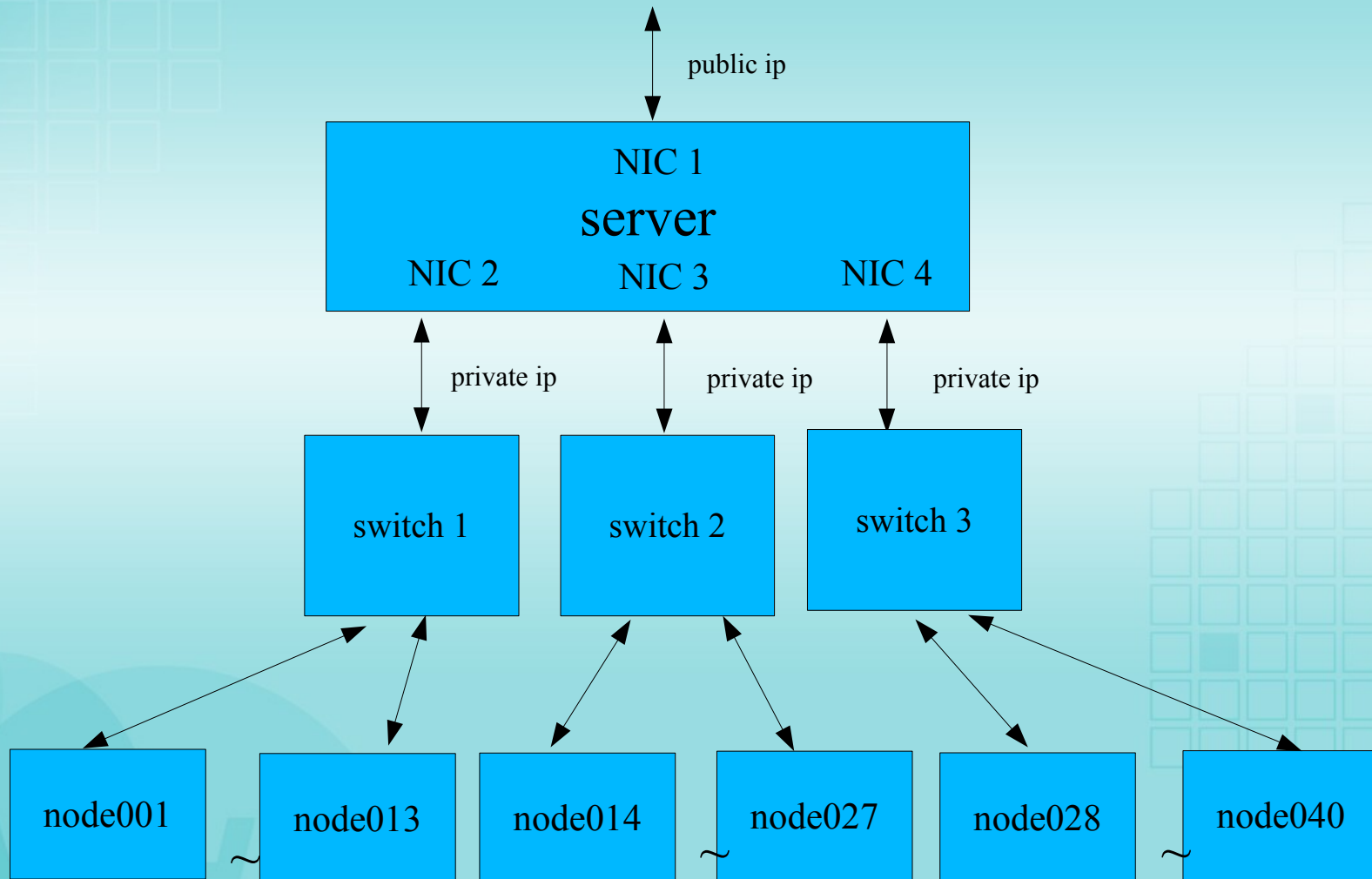
user login

user login

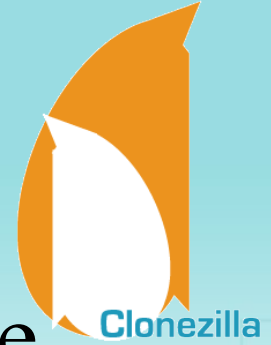




# DRBL/Clonezilla Schematic



# Clonezilla Live



- 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`



# DRBL & Clonezilla in Taiwan

## ☒ Public sectors

|                     |     |
|---------------------|-----|
| Primary/High school | 150 |
| University          | 95  |
| Government          | 35  |
| Hospital            | 3   |
| TV station          | 1   |

## ☒ SMB

## ☒ Misc

124  
2

Known sites or users > **400**



# DRBL & Clonezilla worldwide



More than **40K** downloads for DRBL and Clonezilla

# DRBL & Clonezilla related talk

## ■ 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)





# Success stories

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



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



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



# Success stories

## - Hualien County, Taiwan



- ✓ Use Clonzilla 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 系統建置技術業務，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

# Success Stories



University of Louisville, Kentucky, USA



Deploy laptop local OS by Clonezilla

Photo courtesy of Matt Luckett





# Feedbacks

■ 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.**



# Feedbacks

■ A user from Italy, June/2007

- I think DRBL+Clonezilla is like white magic!
- We need to clone some linux machines for government projects. Before DRBL, we use G4L: no multicast and 35 minutes of cloning time for a 40 GB HDD. Now, with DRBL we can clone up to 10 machine in 7 minutes with a 40 GB HDD. So, 350 minutes (G4L cloning time) vs 7 minutes (DRBL cloning time with Clonezilla)! The time is reduced to 2%!!!
- INCREDIBLE and absolutely greaaaaaaaaatttttttttttttttttttttttttttttttt!!!!!!  
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!



# Hand-on Workshop

- 15:00-16:30, Thu, 12/Jul/2007. Room H11
- DRBL-based PXEBoot Clonezilla
  - ◆ Setup a Clonezilla server
  - ◆ Save and restore images
- Clonezilla live
  - ◆ Backup and restore image
  - ◆ Customized live CD/USB flash drive



# Questions ?

