Clonezilla:
A better choice than Ghost

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James Lo

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

National Center for High-Performance Computing (NCHC), Taiwan

Agenda

- 13:00 - 13:30 Introduction to DRBL and Clonezilla - Steven Shiau
- 13:30 - 13:50 TDW tools based on DRBL - James Lo
- 13:50 - 14:00 Break
- 14:00 - 17:00 Clonezilla hand-on

Free Software Smart Classroom, FSSC

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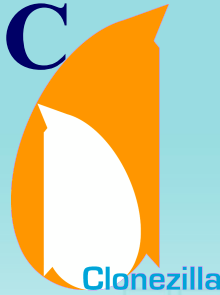
- Our goal - FSSC (Free Software Smart Classroom)
  - ◆ DRBL, Clonezilla, DRBL-winroll, Tux2live, Partclone
  - ◆ Multicast VNC
  - ◆ Access Grid, E-learning
  - ◆ Cluster computing
  - ◆ Grid computing

DRBL & Clonezilla

DRBL
(Diskless Remote Boot in Linux)

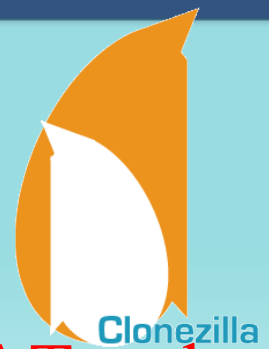Provides a diskless or systemless environment for client machines

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 M$ windows machine can be automatically changed.

Clonezilla
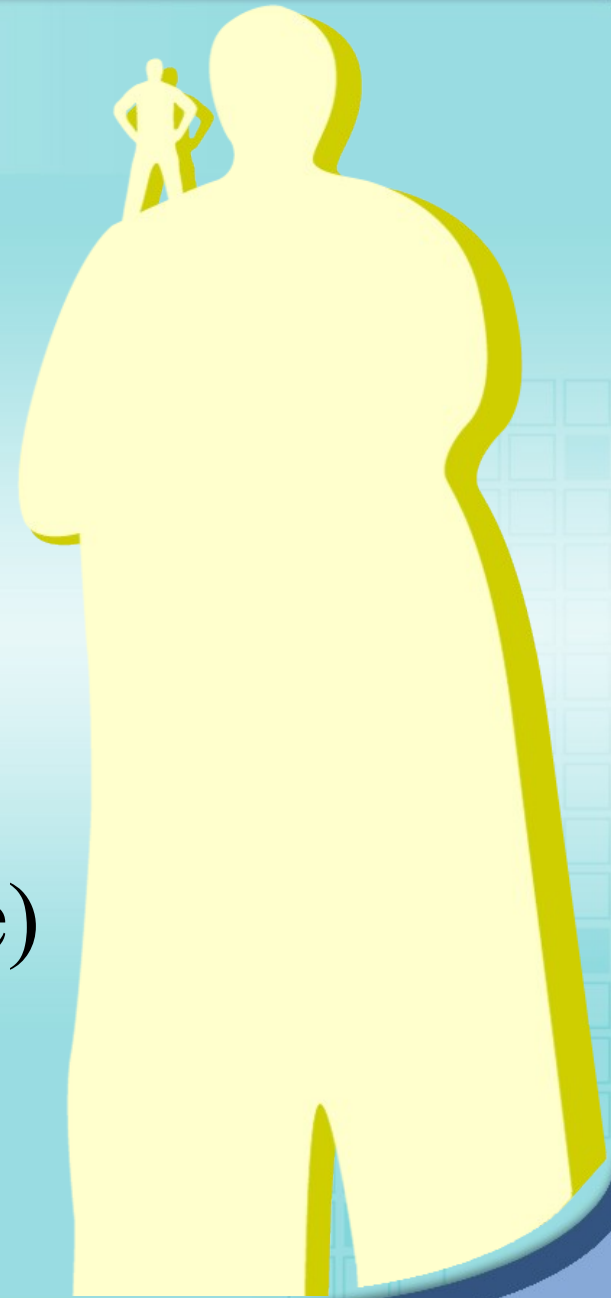
- Based on existing software
  - partimage
  - ntfsclone
  - dd
  - updcast
  - DRBL (For massive clone)
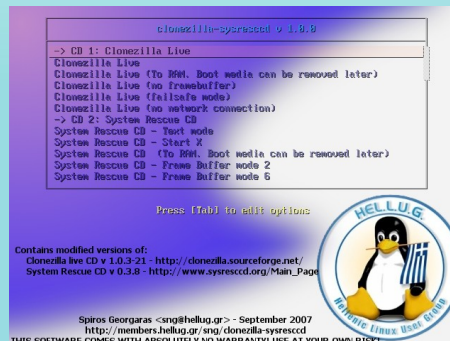 - partclone (experimental)
  - and more...

Two types of Clonezilla

Clonezila server edition

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

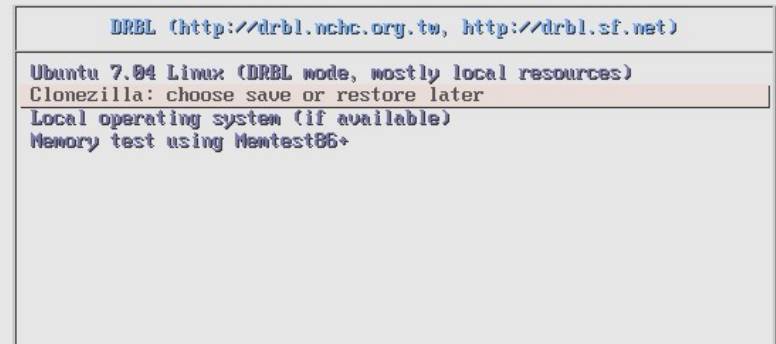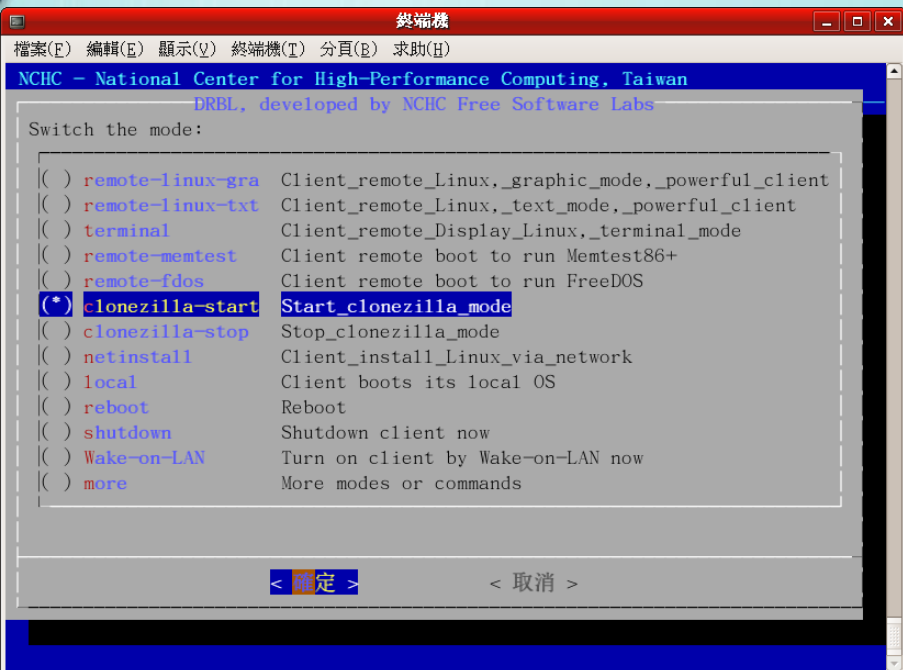## Clonezilla live

- 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: Clonezilla Server Edition

Clonezilla Live

DRBL – Clonezilla Server Edition

✔ 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 & M$ Windows can coexist

DRBL and LTSP

LTSP.org
Linux Terminal Server Project

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

MS Windows

Autohostname service

Autosid service

sshd service

Commands form drbl server

winroll.conf

wsname changes
* hostname
* group

newsid changes
* SID

* ssh key auth
* cmd exec

* dcs command
* Turn on/off machines

Windows registry
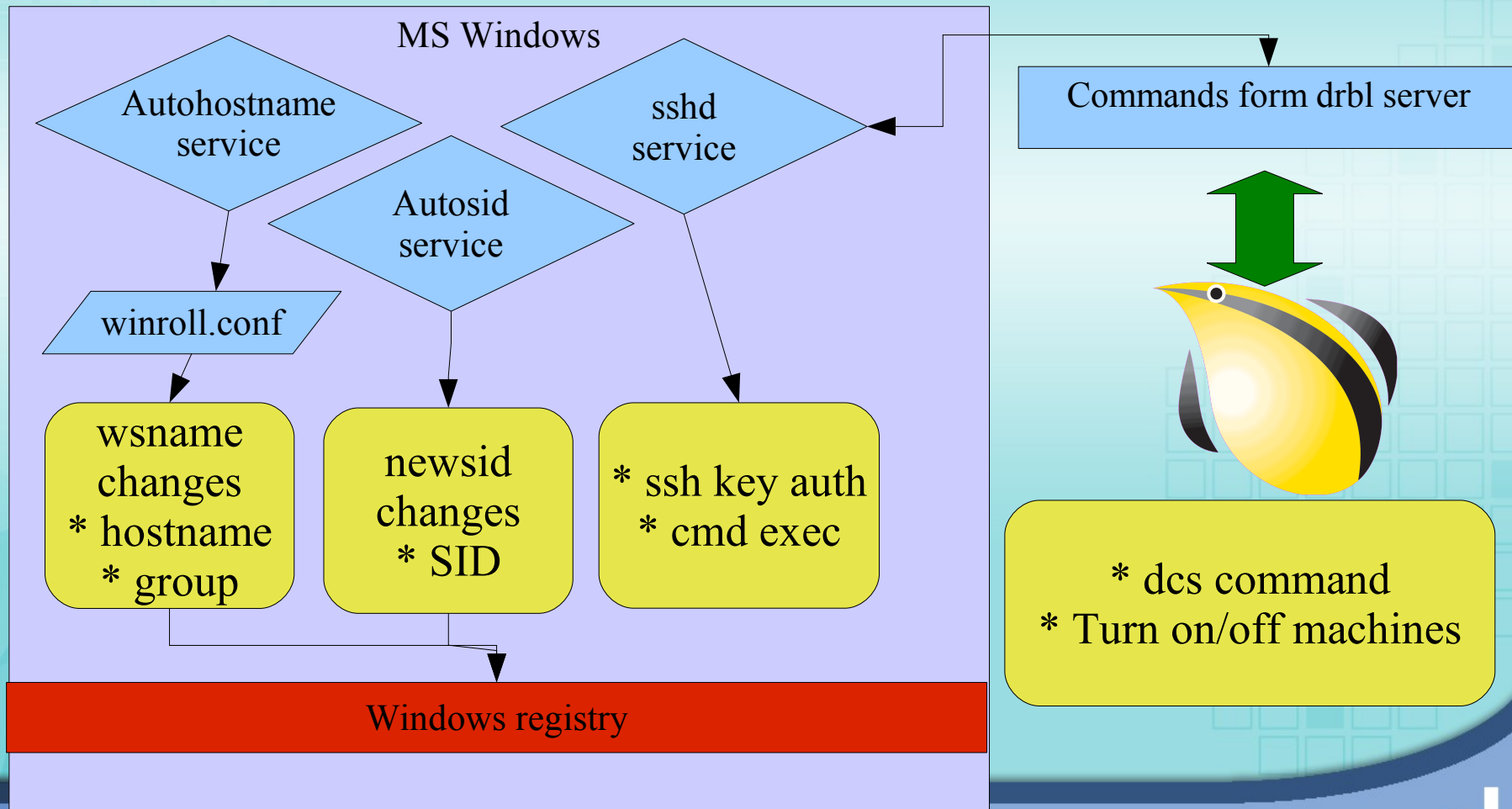
DRBL & Clonezilla Server Edition Installation

- 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

DRBL

server

switch

client nodes

		pxe/etherboot	pxe/etherboot
DHCP	IP →	192.168.0.1	192.168.0.40
TFTP	kernel →	boot	boot
NFS	file system →	/, /usr, /home ...	/, /usr, /home ...
NIS	account →	user login	user login

DRBL Schematic
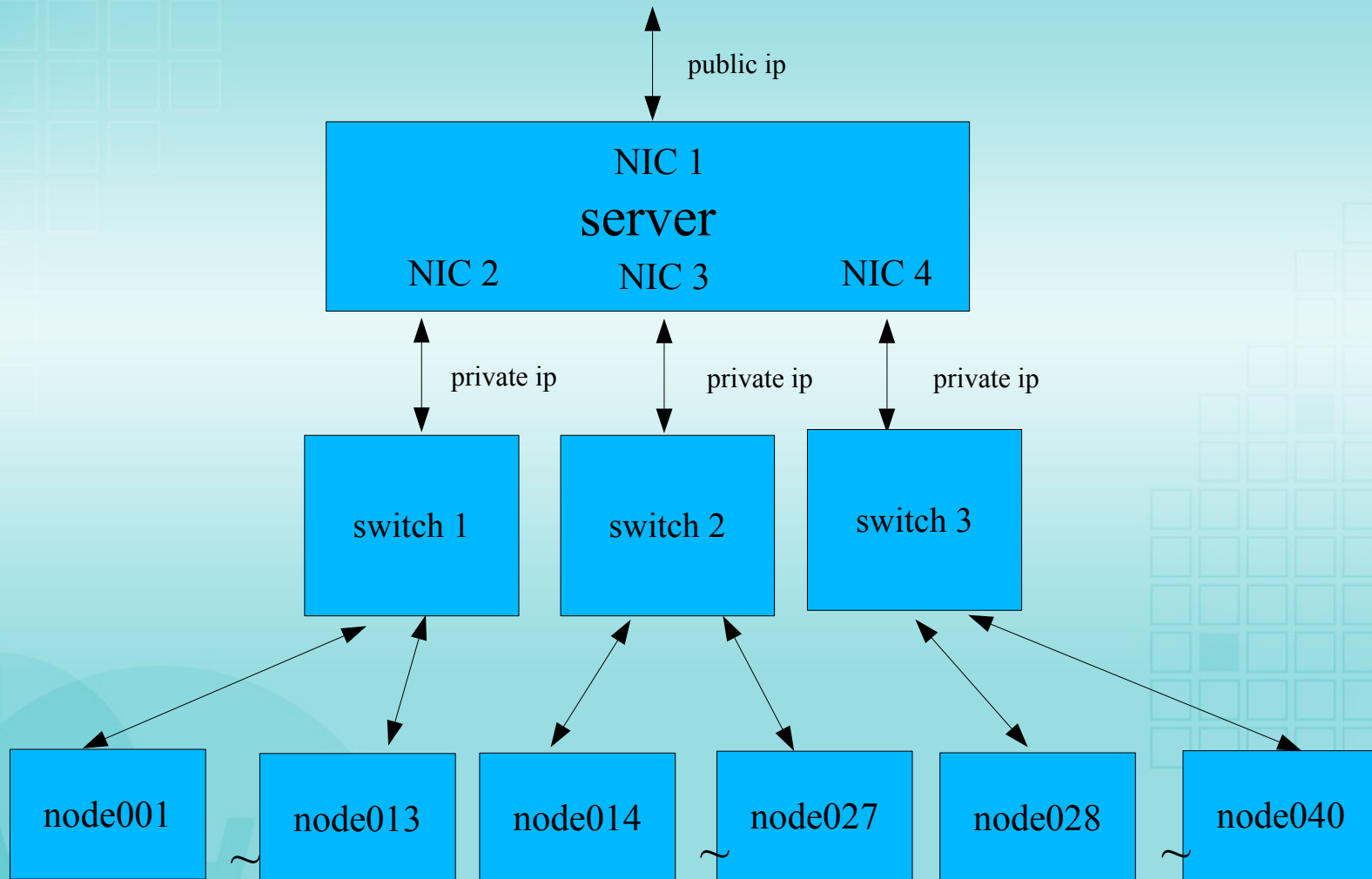
Clonezilla Live

- 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
- Japanese Clonezilla live
  - From Akira YOSHIYAMA <yosshy _at_ debian or jp>
    http://www.debian.or.jp/~yosshy/clonezilla

DRBL & Clonezilla in Taiwan

✓ **Public sectors**

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

✓ **SMBs**   124

✓ **Misc**   2

Known sites or users > 400

Taipei

Hsinchu

Taichung

Tainan

DRBL & Clonezilla worldwide

加拿大
Department of Education,
Province of Nova Scotia

美國
・Internet Cafe @ Chicago
・University of Louisville

巴西

SVK (Studio Västsvensk
Konservering)

瑞典

英國

法國

葡萄牙
College ISPGaya

德國

荷蘭
NCCW (National Computer
Centre Wonen)

西班牙

中國

日本
・Osaka Prefecture University
・Tokyo Christian University

台灣

菲律賓

印尼
Index Opensource Cafe,
Manado

南非

澳洲

More than 100K downloads for DRBL and Clonezilla

Related Talks of DRBL/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

ADOC, Philippine, June 07

Ubuntu Live, USA, July 07

MONDAY

11:00am – 11:30am	Openness and Decentralization in Internet Video *Dean Jansen*
11:35am – 12:05pm	MythTV: Live on Ubuntu *Andrew Oswald, Mario Limonciello*
12:10pm – 12:40pm	Ubuntu Thin Clients-and Fat Ones too! *Oliver Grawert*
3:30pm – 4:00pm	Clonezilla: It's Better Than Ghost *Kristian Hermansen*
4:05pm – 4:35pm	Ubuntu: A Global Story *Jono Bacon*
4:40pm – 5:10pm	Why Do We Need an Ubuntu Women's Project? *Belinda Lopez*
5:15pm – 5:45pm	Ubuntu Semplice: An Italian Collaborative Book *Simone Brunozzi*

Linux world and Expo, San Francisco, 07
Dell booth, 'Massive Deployments'

The Winner at International Free Software Contest, 29, Nov, 2007, France

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**

- ✓ **DRBL/Clonezilla press conference @ Da-Feng on Jul/4/2007 <play>**

source: distrowatch.com

Success stories
- Hualien County, Taiwan

Clonezilla

✓ **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組具有穩定、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

Testimonials

- 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.

Testimonials

- 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%!!!
  - ◆ INCREDIBILE   and   absolutely greaaaaaaaaaattttttttttttttttttttttttttttttttttttt!!!

Testimonials

- Mark Binner
  - Manchester, England.
  - Clone 20 PCs with a 16GB image using multicasting in 55 minutes.
- Dave Haakenhout
  - National Computer Centre Wonen, Netherlands
  - Clone 3 GB image to 27 machines, the average speed is 2.4 GB/min
- Barny Sanchez
  - Information Systems Security, Southbridge, Massachusetts, USA.
  - Cloned 1084 systems with DRBL.

Hand-on Workshop

- 14:00-17:00
- Clonezilla live
  - ◆ Backup and restore image
  - ◆ Customized live CD/USB flash drive
- DRBL-Clonezilla Server Edition
  - ◆ Setup a Clonezilla server
  - ◆ Save and restore images

Questions ?