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DRBL and Clonezilla

The deployment and restoration system

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

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DRBL and Clonezilla

- Diskless Remote Boot in Linux (DRBL) provides a diskless or systemless environment for client machines.
  - Unlike LTSP (Linux Terminal Server Project), DRBL uses distributed hardware resources and makes it possible for clients to fully access local hardware.
  - Peacefully coexist with the OS in client's local HD
  - Client machines are plug-and-play
- Clonezilla is a partitioning and disk cloning utility similar to Symantec Ghost or Rembo.
  - Unicast or multicast clone

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 ready classroom
    - Grid computing ready classroom

DRBL - Diskless Remote Boot in Linux

- PXE/Etherboot + NFS + NIS - standing on a giant's shoulder

Orig: PC Cluster -> Free Software Classroom

1. Multi environment in computer classroom
   - Linux & M$ Windows coexist
2. Simplify the management
   - All services and programs are in one server, you do not have to check every client
   - OS and packages are installed once in DRBL server.
3. Hardware and installation are simplified, but software is full and all ready for clients!

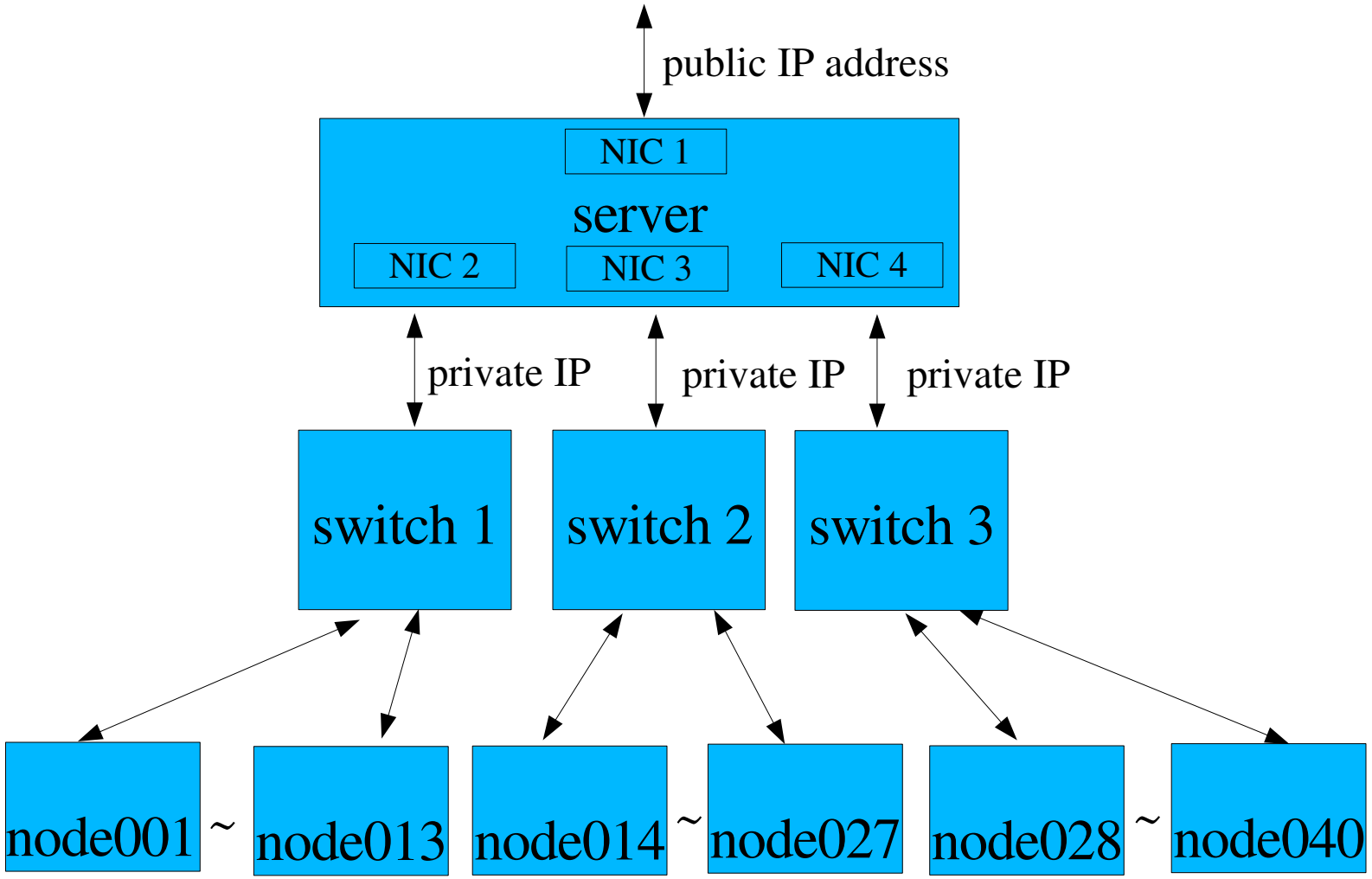
DRBL vs. LTSP

- **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 for 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

Clonezilla

- Clonezilla [OCS (Opensource Clone System)]
  - With partimage (http://www.partimage.org), ntfsclone, and udpcast (http://udpcast.linux.lu/), Clonezilla is a partitioning and disk cloning utility similar to Symantec Ghost or Rembo.
  - In NCHC PC classroom, it takes about 50 minutes to clone 3.5 GBytes M$ windows XP image for 36 clients. For multicast cloning, it takes about only 10 minutes.
- Save and restore different OS images
  - GNU/Linux, M$ windows
  - File system: ext2/3, xfs, jfs, reiserfs, ntfs, fat.
  - Supports LVM2
- DRBL-winRoll
  - A DRBL extension in M$ windows, (1) change hostname automatically after cloning (2) accept command from server.

DRBL Environment



DRBL

server

switch

client nodes

		pxe/etherboot	pxe/etherboot
DHCP	IP →	192.168.0.1	172.16.100.10
TFTP	kernel →	boot	boot
NFS	file system →	/, /usr, /home ...	/, /usr, /home ...
NIS	account →	user login	user login

Installation

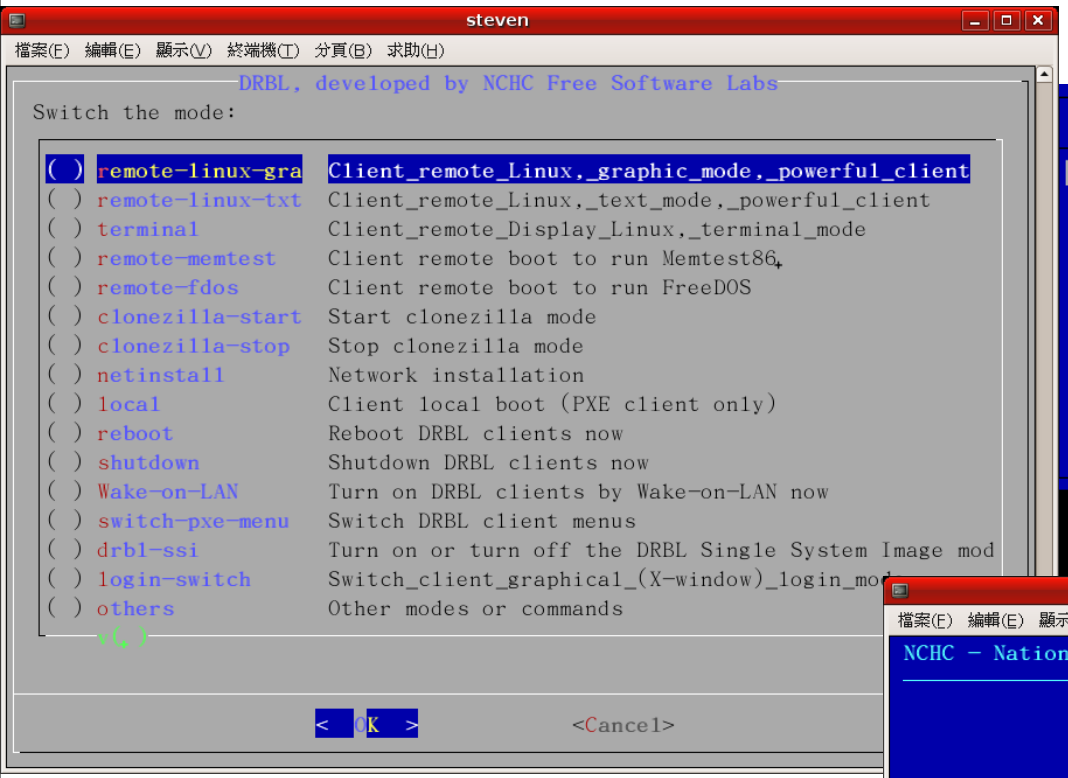
- http://drbl.nchc.org.tw; http://drbl.sf.net
- GNU/Linux distributions
  - i386/X86_64 platform
    - Debian Woody(3.0)/Sarge(3.1)/Etch, B2D, Ubuntu Breezy(5.10)/Dapper(6.06),
    - RedHat Linux 8.0, 9, Fedora Core 1, 2, 3, 4, 5,
    - Mandrake 9.2, 10.0, 10.1, Mandriva LE2005 (10.2), 2006,
    - CentOS 4 (4.1, 4.2, 4.3)
    - SuSE 9.3, 10.0, 10.1, OpenSuSE 10.0, 10.1
- 4 steps to install
  - Install GNU/Linux
  - Install DRBL package
  - Configure server
  - Configure client

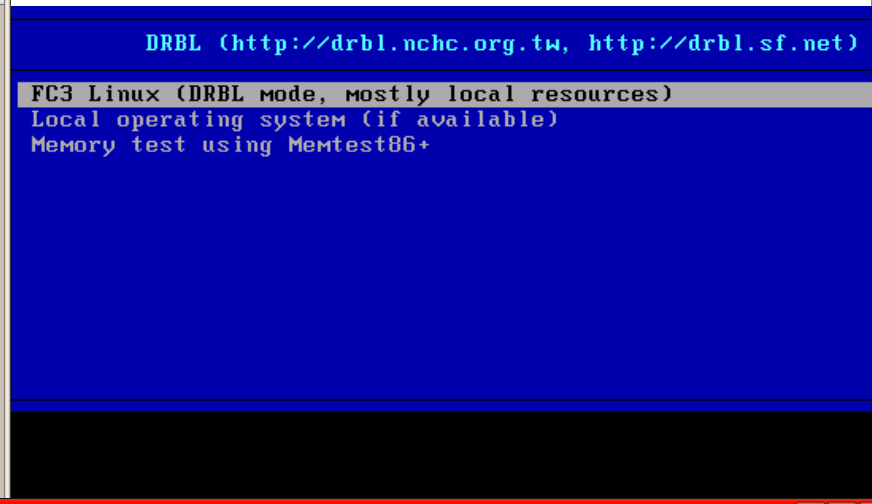
Modes of DRBL/Clonezilla

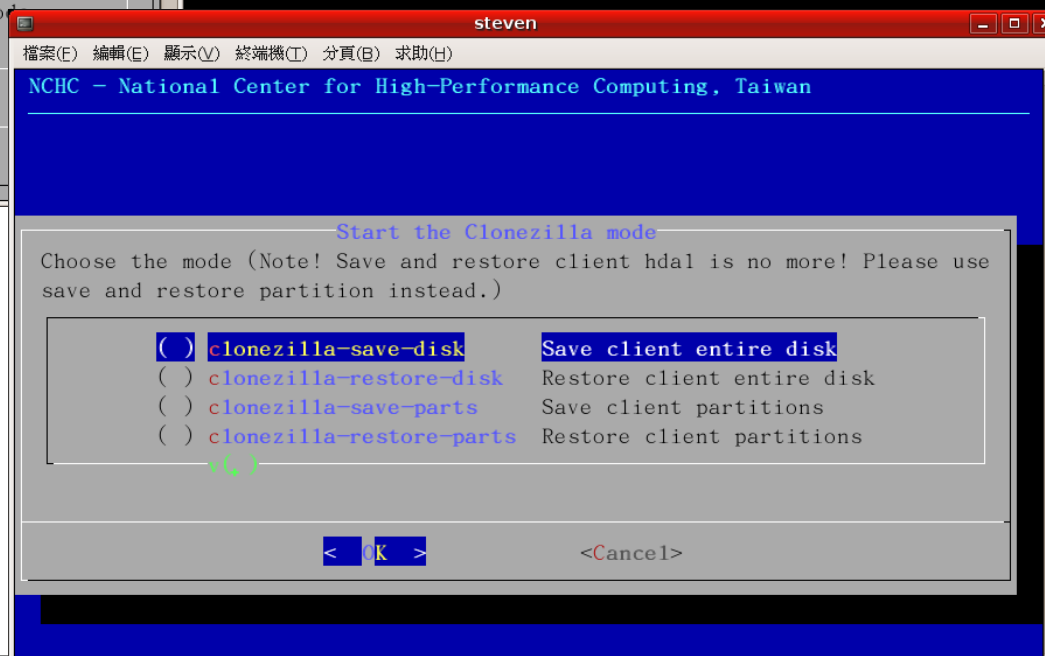
	Full DRBL	Full Clonezilla	DRBL SSI	Clonezilla Box
/etc, /var of client	NFS-based	NFS-based	Tmpfs-based	Tmpfs-based
Files in /etc and /var of client after reboot	Kept	Kept	Gone	Gone
Extra space in server/client	~ 50 MB*	~ 50MB*	0	0
Max client #/ethernet card in server	253	253	253	253

* depends on the packages installed in the server

DRBL and Clonezilla





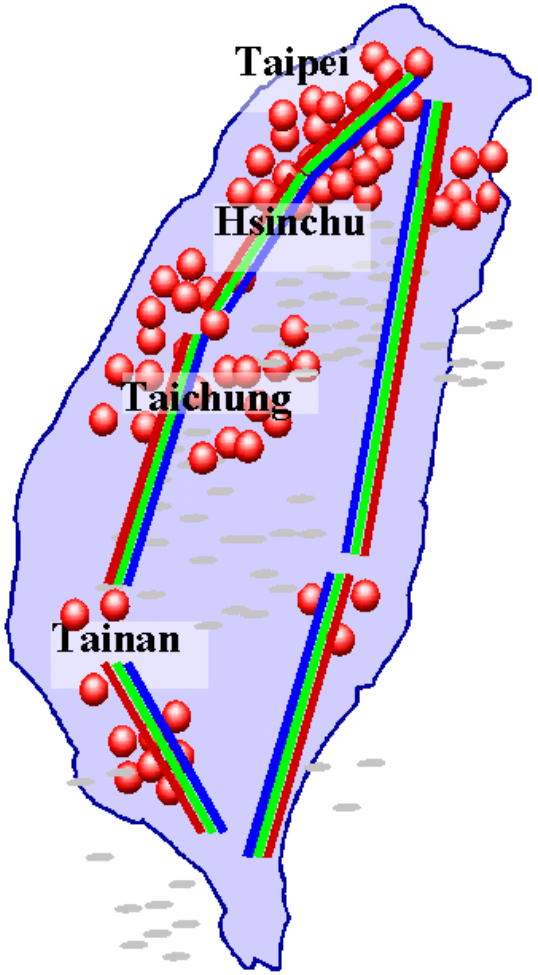


Demo/Workshop for DRBL/Clonezilla

- In Room I 124, 14:00
- DRBL deployment
  - Install and configure.
  - Manage the clients.
- Clonezilla save/restore image
  1. Add one application or modify the setting to one client machine,
  2. Upload an image to a set of images to be distributed to clients on a LAN.
  3. Restore the image to the clients.
- Some video in NCHC about DRBL and Clonezilla

Known sites/users in Taiwan

- Known sites/users about 310
  - Public Sector
    - Primary/High school 102
    - University 68
    - Hospital 3
    - TV station 1
    - Government 7
    - NPOs 18
  - SMB 78
  - Misc 35



*Statistics on 2006/5/29

DRBL/Clonezilla users around the world

- Japan
  - Osaka Prefecture University
  - Tokyo Christian University
- USA
  - Internet Cafe @ Chicago
- Canada
  - Department of Education, Province of Nova Scotia
- Indonesia
  - E-learning Centre, Aceh
  - Index Opensource Cafe, Manado (North Sulawesi)
- Portugal
  - College ISPGaya
- Brazil, France, Germany, Sweden, UK...

Question ?