

# Mastering Clonezilla: A hands-on Lab on Disk Imaging and Cloning

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clonezilla.org

# Outline

- Introduction to Clonezilla, 5 mins
- Create a Clonezilla bootable media, 5 mins
- Disk Imaging, 10 mins
- Disk Cloning, 5 mins
- Advanced Features
  - Unattended mode, 10 mins
  - Massive deployment with multicast or bittorrent mode, 15 mins
- Hands-on, Q&A, 40 mins



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- Introduction to Clonezilla
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- Hands-on, Q&A



# System imaging and cloning - backup



You want to crash!!!  
I show you how to crash!!!

image source: [maggiesfarm.anotherdotcom.com](http://maggiesfarm.anotherdotcom.com)  
[www.compsults.com](http://www.compsults.com), and [jervisdabreo.com](http://jervisdabreo.com)



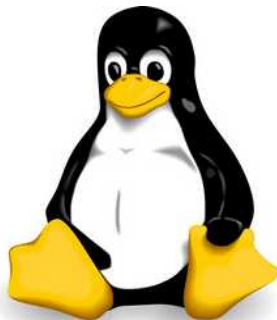
# Massive system deployment





# What is Clonezilla?

- A partition and disk imaging/cloning utility similar to True image® or Ghost®
- GPL license
- Mainly supported by NCHC, Taiwan
- A bare metal recovery tool for



\*1



\*2



\*3



\*4

**VMFS**

VMware  
ESX/ESXi

\*5



**MINIX**

\*6



\*Logo source: (1) Larry Ewing, Simon Budig and Anja Gerwinski, (2) Apple ,(3) Microsoft, (4) Marshall Kirk McKusick, (5) VMWare (6) Distrowatch.com



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# Create a Clonezilla bootable media

- CD
  - Download Clonezilla live iso file
  - Burn it on a CD
- USB flash drive
  - Download Clonezilla live zip file
  - Prepare a USB flash drive with vFAT partition (~500 MB)
  - Unzip clonezilla zip file to the vFAT partiton of USB flash drive, e.g.,
    - `unzip clonezilla-live-3.1.2-22-amd64.zip -d /media/disk/`
  - If for legacy BIOS, run makeboot.sh, e.g.,
    - `sudo bash /media/disk/util/linux/makeboot.sh /dev/sda1`





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# Disk imaging

- Save an image
  - [https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/01\\_Save\\_disk\\_image](https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/01_Save_disk_image)
- Restore an image
  - [https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/02\\_Restore\\_disk\\_image](https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/02_Restore_disk_image)



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# Disk Cloning

- Disk to disk cloning
  - [https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/03\\_Disk\\_to\\_disk\\_clone](https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/03_Disk_to_disk_clone)



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# Unattended mode

- Using **boot parameters** to make that
  - [https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/05\\_Preseed\\_options\\_to\\_do\\_job\\_after\\_booting](https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/05_Preseed_options_to_do_job_after_booting)
- The boot parameters of Clonezilla live
  - [https://clonezilla.org//fine-print-live-doc.php?path=./clonezilla-live/doc/99\\_Misc/00\\_live-boot-parameters.doc#00\\_live-boot-parameters.doc](https://clonezilla.org//fine-print-live-doc.php?path=./clonezilla-live/doc/99_Misc/00_live-boot-parameters.doc#00_live-boot-parameters.doc)





# Massive deployment

- Massive deployment normally requires
  - A server
  - Installation and setup
  - Extra storage to keep the image repository
- **Massive deployment straight from the source machine**
  - No extra server is required
  - No installation
  - No extra storage device is required

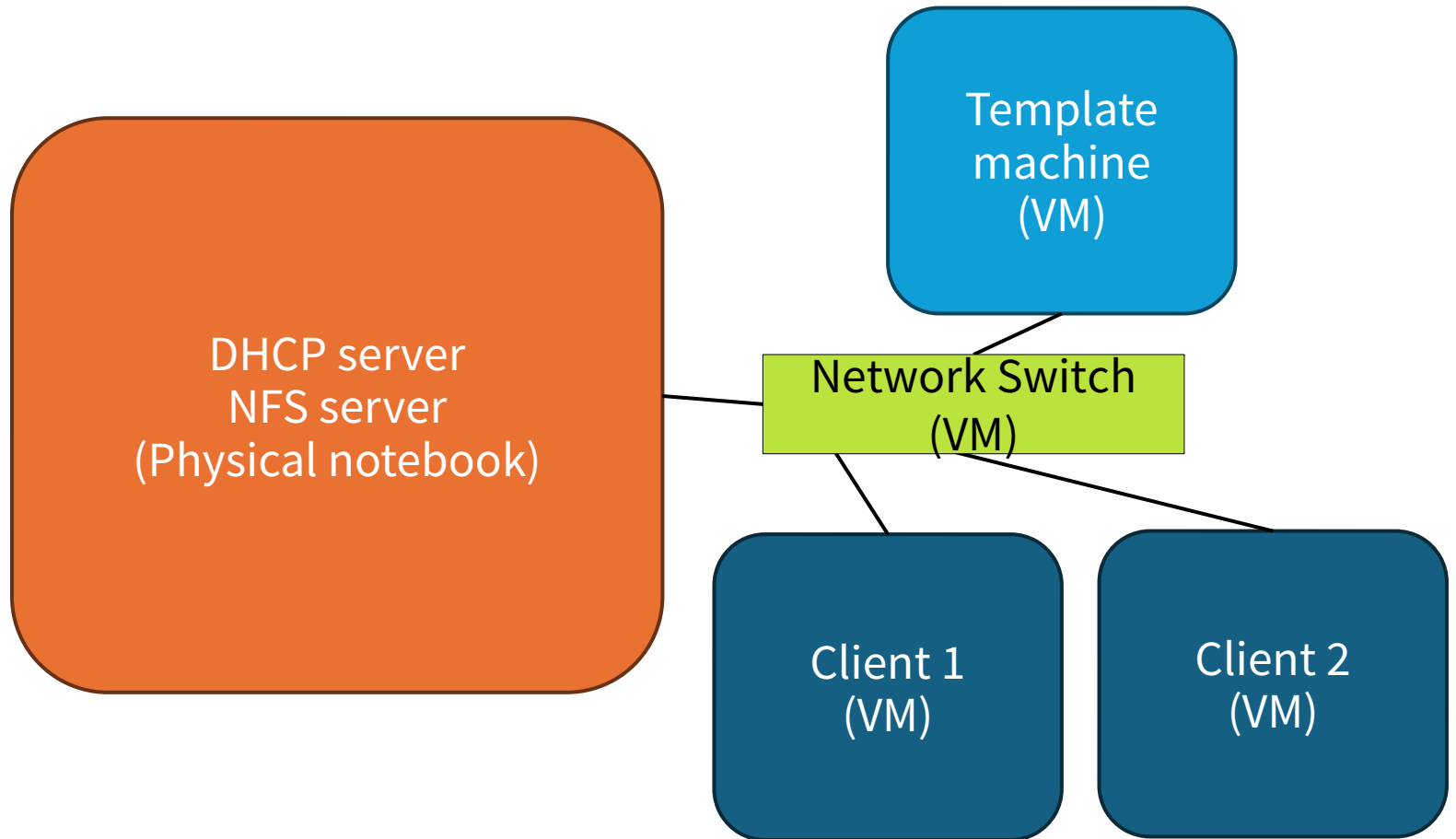


# Massive deployment

- Massive deployment **from an image**
  - Take multicast mechanism as an example
  - [https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/11\\_lite\\_server](https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/11_lite_server)
- **Massive deployment straight from the source machine**
  - Take bittorrent mechanism as a example
  - [https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/12\\_lite\\_server\\_BT\\_from\\_dev](https://clonezilla.org//fine-print-live-doc.php?path=clonezilla-live/doc/12_lite_server_BT_from_dev)



# Massive deployment schematic





- NeiPu Elementary School, Taichung, Taiwan
- Clonezilla using BT from raw device. 60 GB data
- Deployment time: ~10s minutes for each machine

Thanks to Mr. Tien-Yu Chiu & Date Huang.  
Ref: <https://www.facebook.com/chiutiennyu>



# Hands-on Lab

- It's recommended to use virtual machines for testing
  - E.g., Virtualbox (<https://www.virtualbox.org>)
  - We have prepared VM OVA files and Clonezilla images you can copy.
  - Give it a try. If any questions, please ask.
- **On site Clonezilla booth**
  - Please go to Clonezilla booth
- After LFNW 2024
  - Please ask online: <https://clonezilla.org>



# Questions ?

Great!



?????





# Appendix

Great!



??????



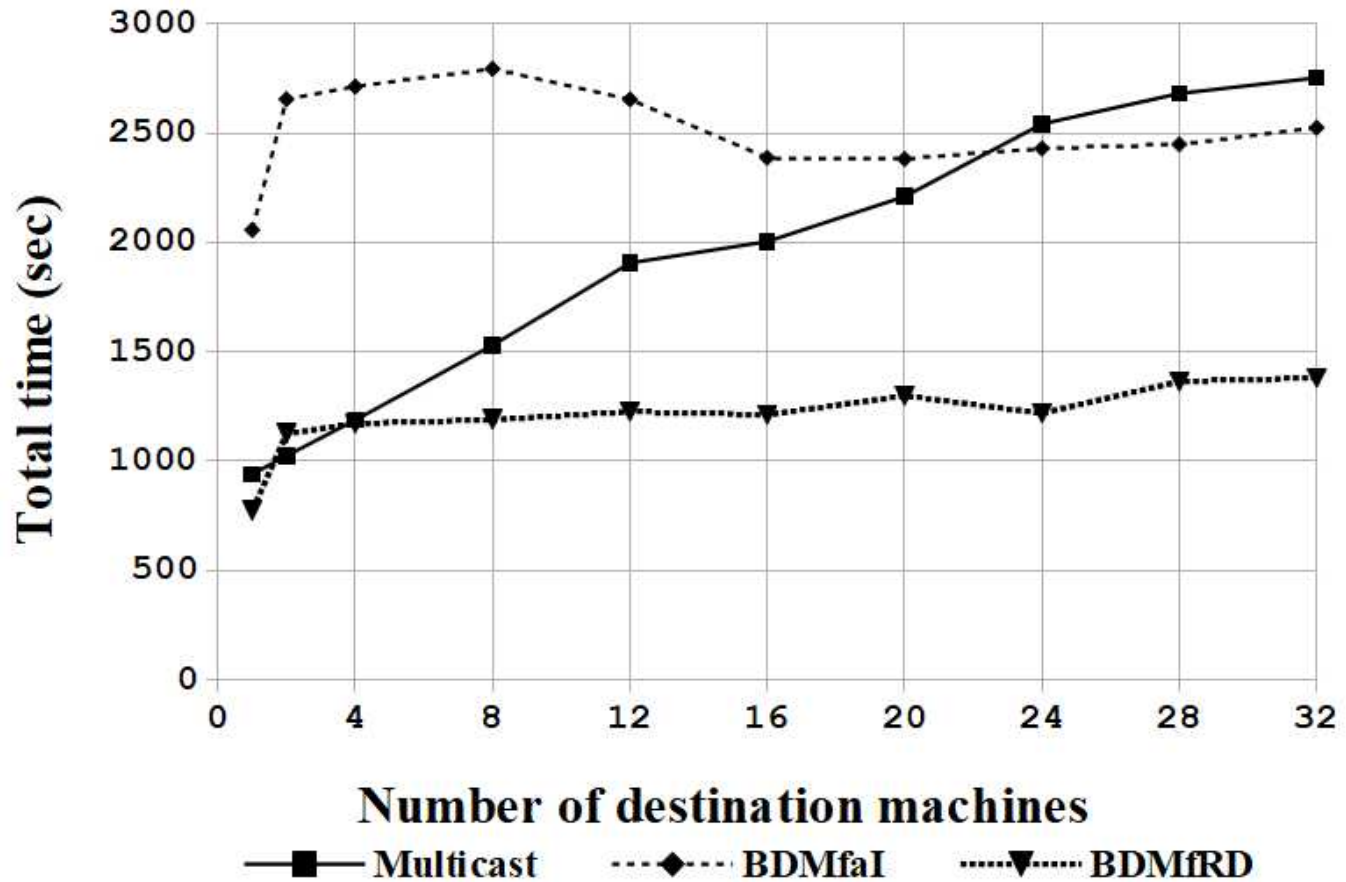
# Comparisons

- Three types of experiments for massive deployment
  - Multicast
  - BT
    - BDMfaI
      - BT deployment mechanism from an image
    - BDMfRD
      - BT deployment mechanism from the raw device
- Deployed a Ubuntu Linux system (~50 GB) to 1 to 32 destination machines in a computer classroom.



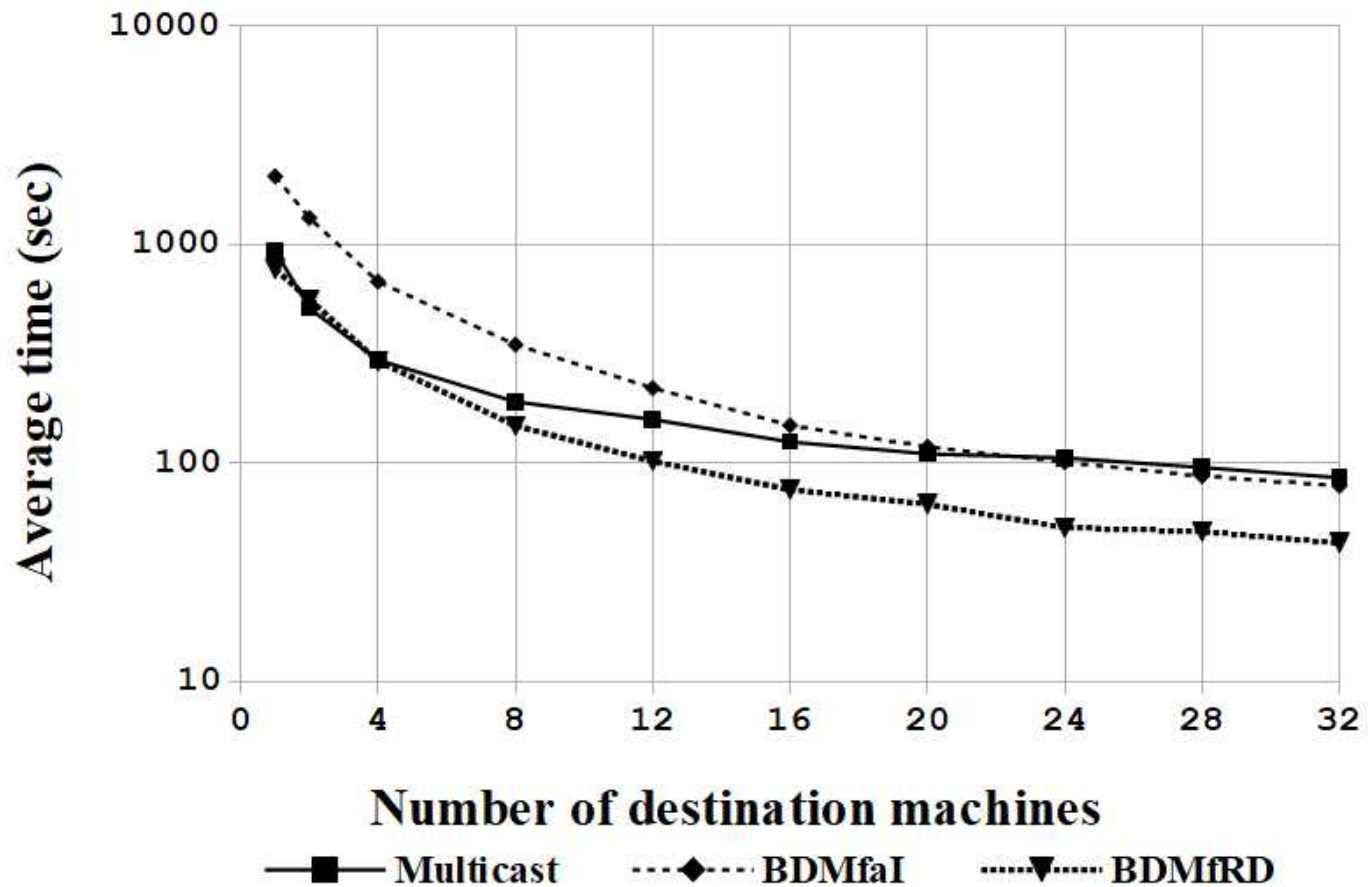
# Experimental results

## Total deployment time



# Experimental results

## Average time for each client



# Experimental results

## Speedup

