

Ezila

• (雲端簡單龍) – One Click to Build Your Private Cloud Easily!!

National Center for High-Performance Computing

Pervasive Computing Lab (Percomp Lab)

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Who's Serena PanPan??

- I come from PerComp team in NCHC.
- Our project is Free Software, and also Open Source



Outline

- Real Classroom Environment Limited
- What can Ezilla do??
- What is Ezilla Project?
- Use Case
- The Core Tech. of Ezilla
 - How to Install Ezilla
 - How to Use Ezilla





Real Classroom Environment Limited

—The three painful stages of system admin.

Pre-Installation

- Proper OS version
- Proper OS patches
- Application dependencies
- Config and kernel parameters
- Directories
- Hardware dependencies
- Services enabled

Installation

- File system location
- Compile necessary modules
- Address prerequisites
- Permissions
- Create users and groups
- Application incompatibilities

Post-Installation

- Updates
- App configuration
- Services setup
- Upgrades and patch management





Real Classroom Environment Limited

- Hands on in Conference
 - Unify Environment
 - Time Consuming
 - Hard Work
 - Lots of Computers for Audiences
 - Not enough computers
 - Not enough networks





Real Classroom Environment Limited



– Education

- Each student needs their own OS with specific application in different courses
 - Multiple Courses
 - Switch operation system in short time
 - Always Mess up OS
 - After school, it's hard to rebuild the same environment
 - License Issue
 - 當海賊(盜)王
 - Can't do Resource Shar



What can Ezila do? Build Virtual Classroom



What can Ezilla do?

- Simplify demos and evaluations
- Applications do not need to be re-certified
- Reduce development and support costs
- Extend applications to the cloud



What can Ezilla do?

– System manager:

- One click install build private cloud -> Fast Installation
- Easy to manage VMs -> Build Multiple Template

– Users:

- Fast and user-friendly virtual environment
- Could access VM with the browser which support HTML 5 (Google chrome / firefox)
- Could use RDP and ssh to access VM



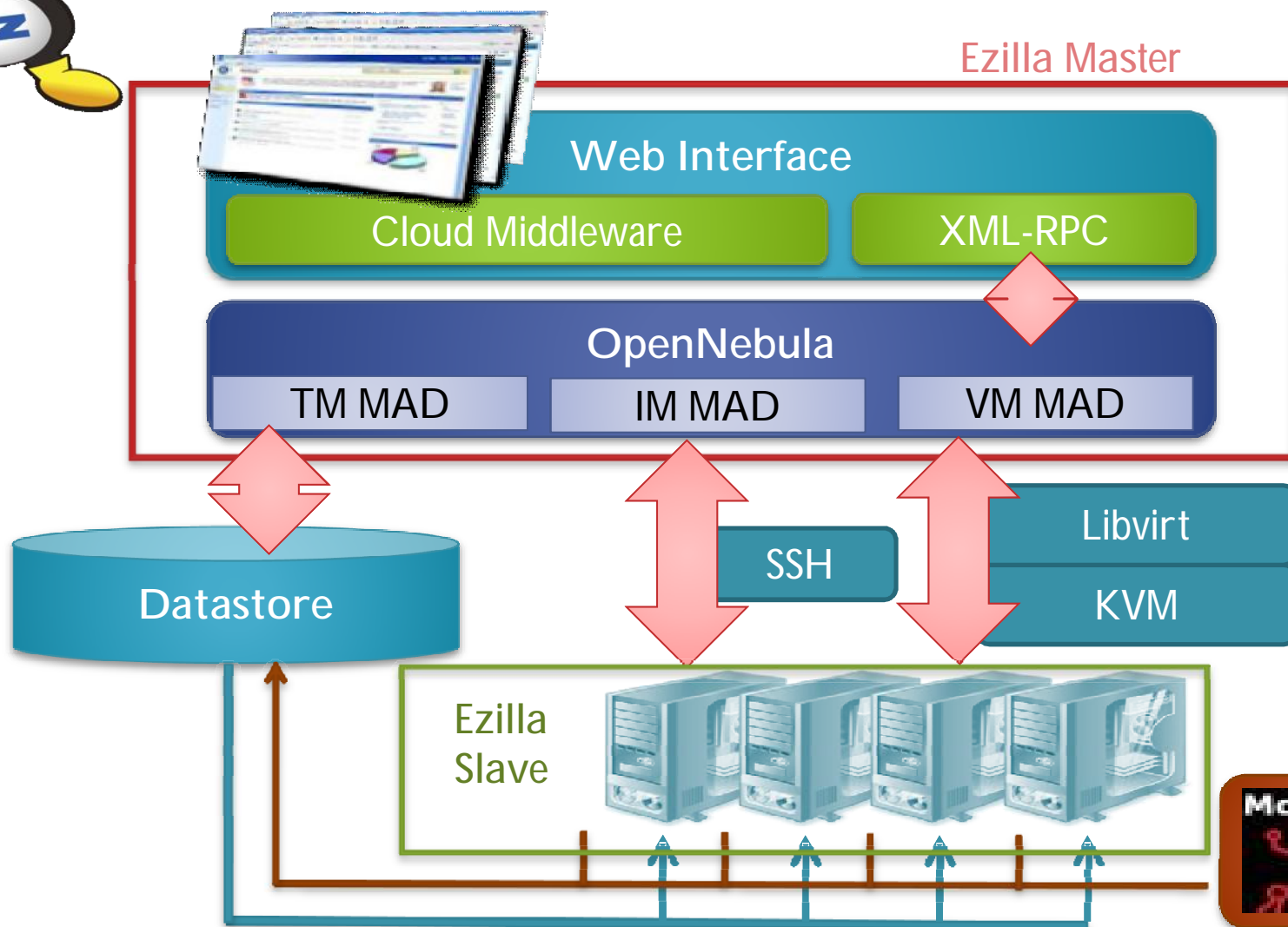
What is Ezilla

- Ezilla is designed to help users to build **their own Private Cloud** easily!
- Ezilla provides an **user-friendly interface** and an easy way to **customize** and **configure** based on users' needs!
- Ezilla is consisted with three parts:
 - DRBL (Diskless Remote Boot in Linux),
 - Cloud Middleware
 - Web Interface



System Architecture

Pervasive Computing



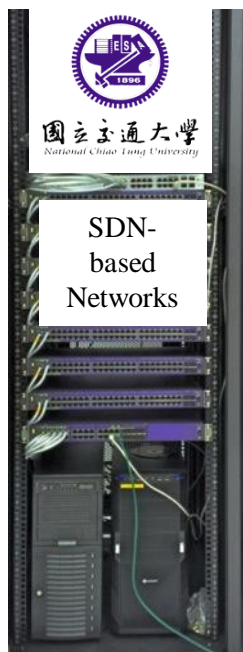


Use Case

- Who use Ezilla so far..
 - NTU, NCTU, NCKU..
 - **Virtual Classroom** - NCTU, NCHC and Inventec
 - System : SDN-based Networks
 - Software : Ezilla
 - Hardware : Zion Servers are provided by Inventec



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財團法人國家實驗研究院
國家高速網路與計算中心
NATIONAL CENTER FOR HIGH-PERFORMANCE COMPUTING


Ezilla



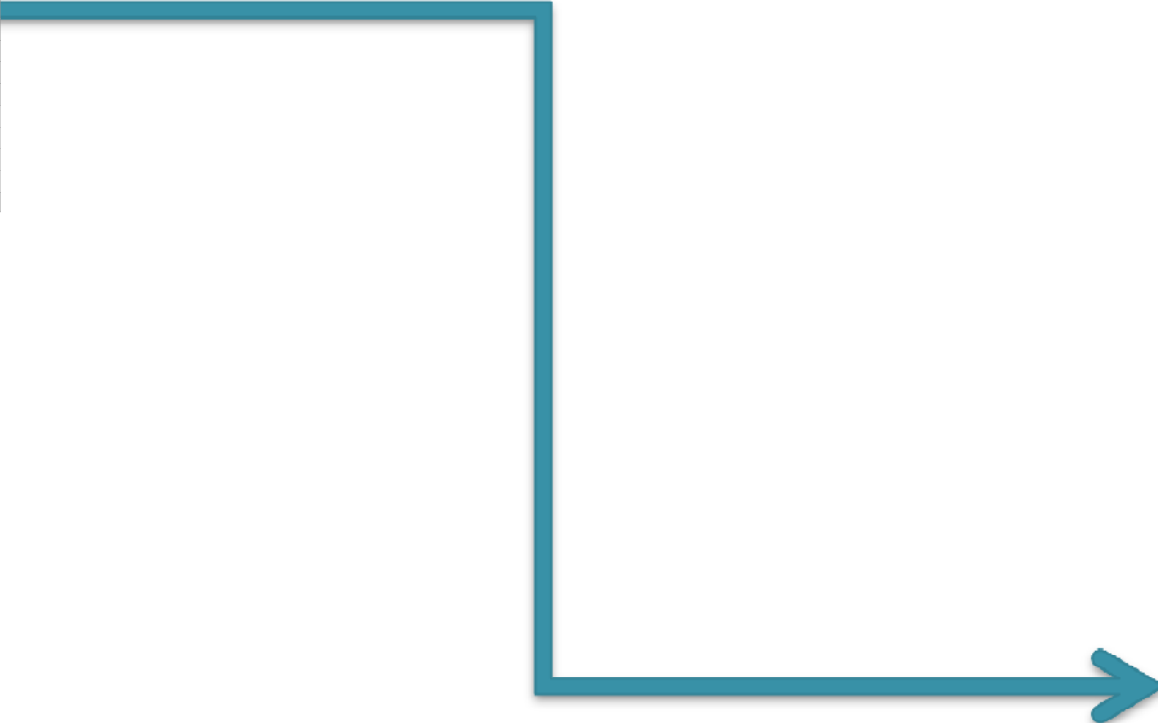
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千人雲端電腦教室

英業達捐贈價值：727萬



Create 50 Ubuntu
Create 50 Windows
Create 200 Linux



It can generate a lot virtual machi
(different OS or with specific appl



Create 1 VM only 1.8 sec(average)

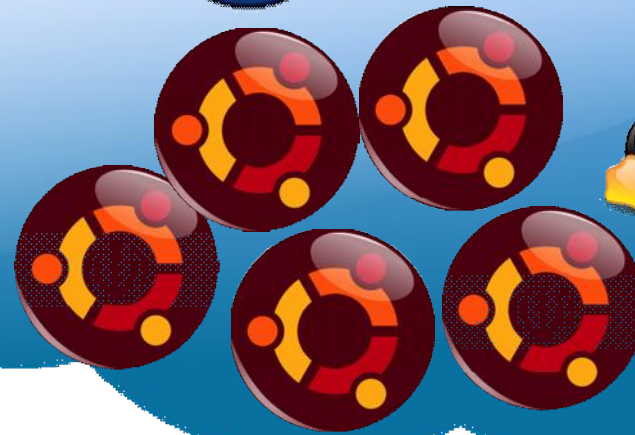
Windows



Linux



Ubuntu



Clusters



Pervasive Computing Lab



NCTU&NCHC Ezilla

– <https://www.youtube.com/watch?v=jsDMUbZjnjk>

Pervasive Computing Lab



Virtual Classroom

- Academia Sinica Open Source Software Foundry Workshop
 - For Nagios system monitor workshop
 - Hadoop workshop





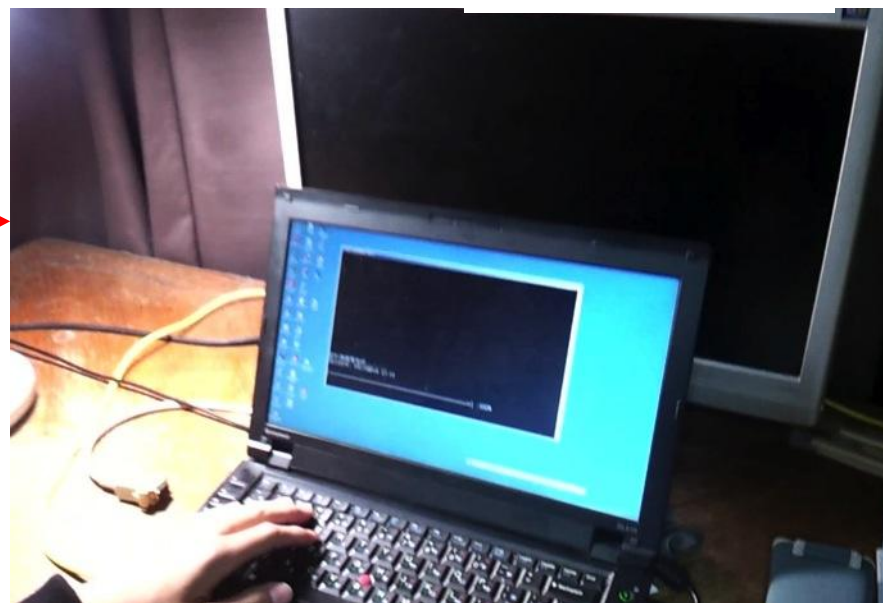
The Benefit of Cloud Virtual Classroom

- No time and space limited, students can enjoy seamless education.



In Class

After School



The Core Tech. of Ezilla

- Unattended **Installation**
 - kickstart、preseed
- Cloud Middleware
 - KVM — SPICE、USB Redirect、VirtIO、KSM
 - Libvirt
 - OpenNebula
 - ...
- Self-service Web Interface
 - Build User-friendly Environment
 - Ajax
 - HTML 5
 - Web VNC ...
 - JQuery





The Core Tech. of Ezilla



— DRBL 企鵝龍

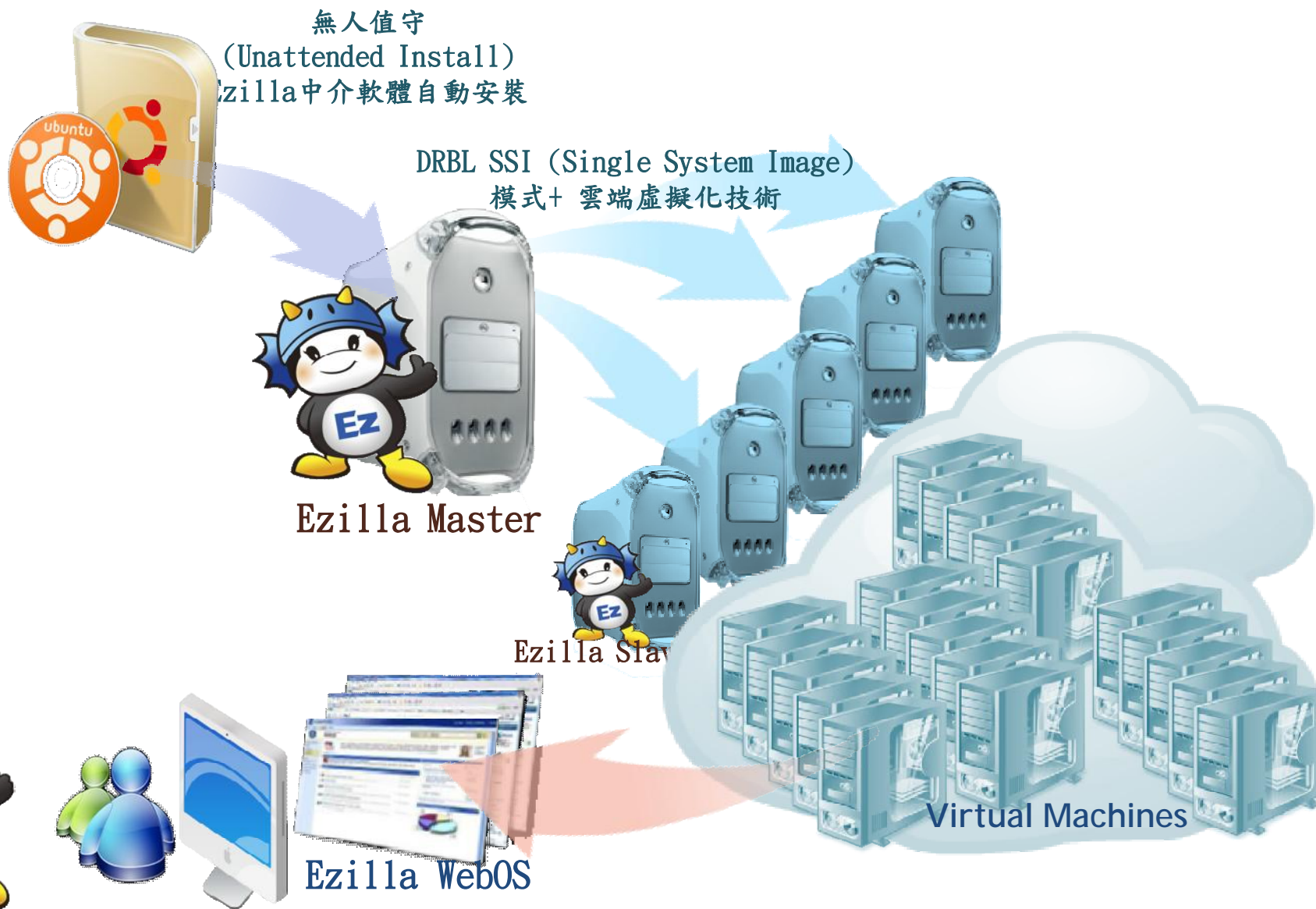


- Diskless Remote Boot in Linux
 - NCHC Free Software Lab.
 - Ezilla slave no need Hard Disk and Software
 - Clonezilla is embedded, so you can copy and reinstall computers at the same time
 - Via PXE, you can install OS easily.
- How does Ezilla Slave use DRBL?
 - Ezilla Diskless Version
 - Using Single System Image (SSI) mode
 - After network booting, OS is executed in memory
 - Dynamic extension computing resources
 - Flexible management
 - Ezilla Disk Full Version
 - Via PXE network booting, and then execute network installation



How to Install Ezilla?

Unattended Installation of Ezilla (Diskless version)



Unattended
Installation of
Ezila (Disk full
version)
Fast Deployment



Ezila Master



Ezila Slave



Distributed
Filesystem

Virtual Machines



Ezila Web Interface

Pervasive Computing



DEMO

—Ezilla Master



- .. It' s done... (What !? So easy)
- .. Using PXE to reboot Ezilla slave

```
MAC: 08:00:27:ED:DC:91 UUID: 56424f58-0000-0000-0000-080027eddc91
Searching for server (DHCP).....
Me: 10.0.0.1, DHCP: 10.0.0.254, Gateway 10.0.0.254
Loading 10.0.0.254:pxelinux.0 ...(PXE).....done

PXELINUX 4.02 debian-20101014 Copyright (C) 1994-2010 H. Peter Anvin et al
!PXE entry point found (we hope) at 9F00:0680 via plan A
UNDI code segment at 9F00 len 0B20
UNDI data segment at 9E00 len 1000
Getting cached packet 01 02 03
My IP address seems to be 0A000001 10.0.0.1
ip=10.0.0.1:10.0.0.254:10.0.0.254:255.0.0.0
BOOTIF=01-00-00-27-ed-dc-91
SYSUUID=56424f58-0000-0000-0000-080027eddc91
TFTP prefix:
Trying to load: pxelinux.cfg/default                                ok
*****
Welcome to DRBL.
NCHC Free Software Labs, Taiwan.
http://drbl.nchc.org.tw; http://drbl.sf.net
*****
```



· After DRBL booting...

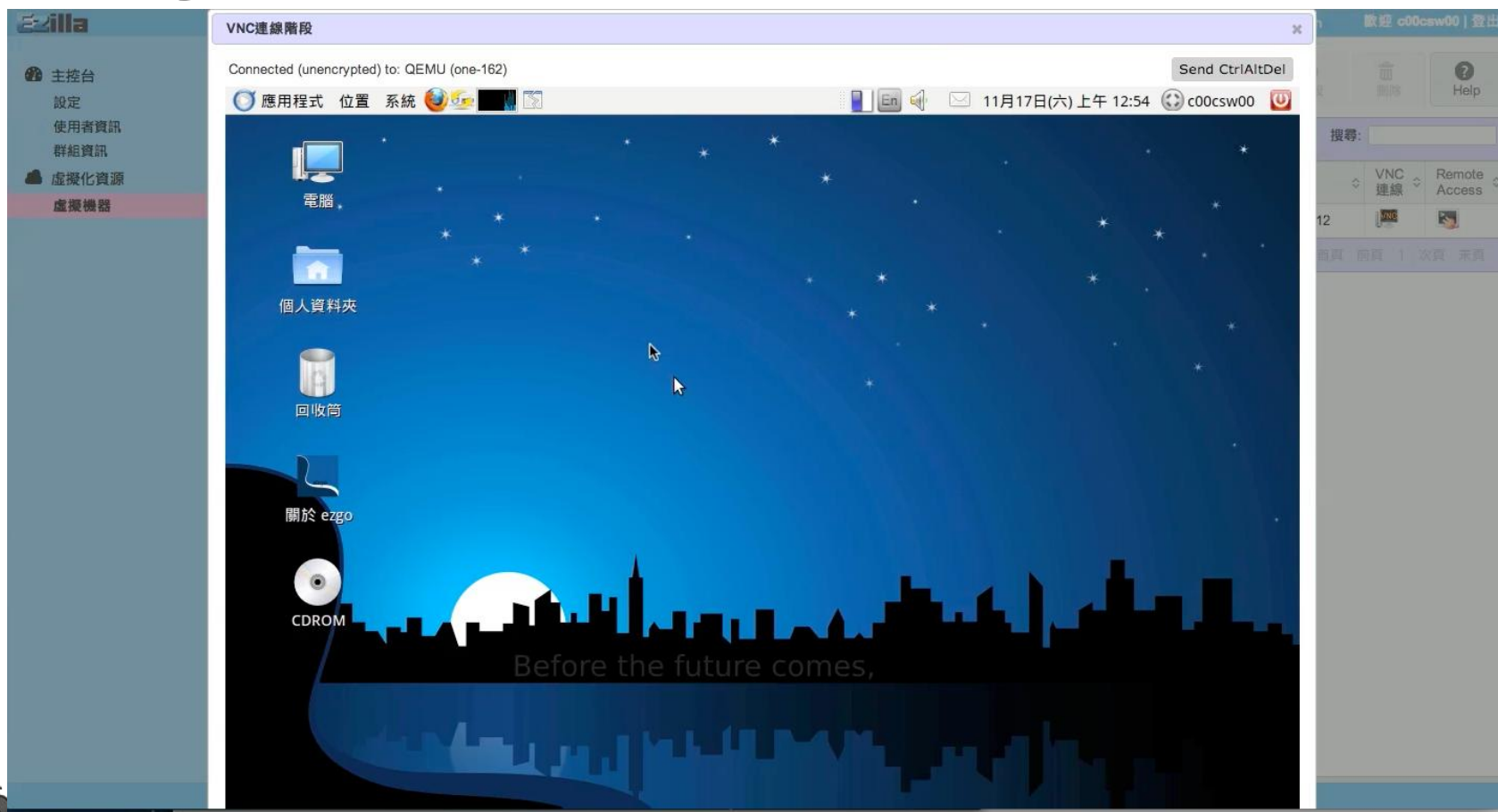


How to Use Ezilla?



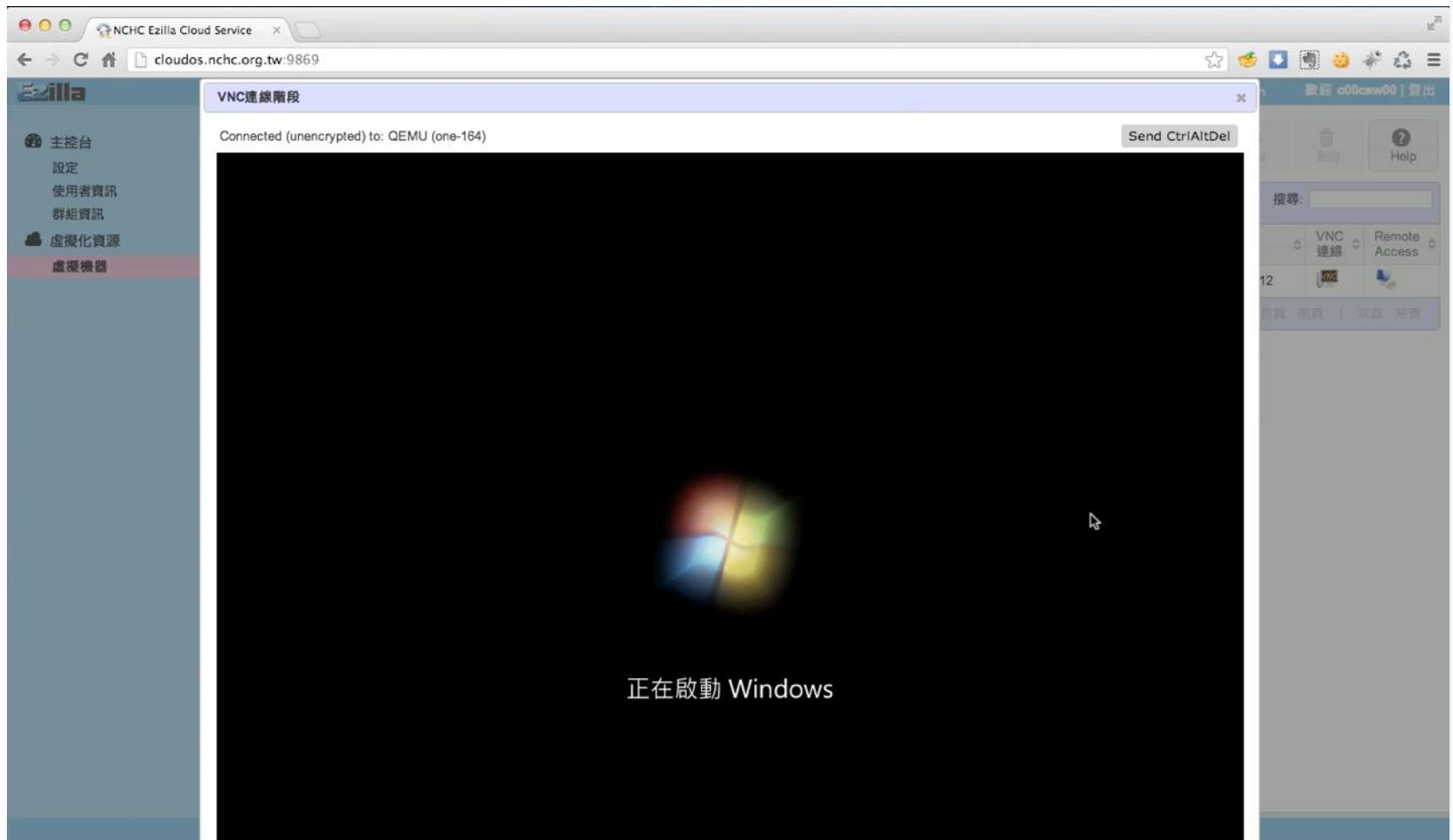
Access Ezilla

— Ezgo 9 and ezview

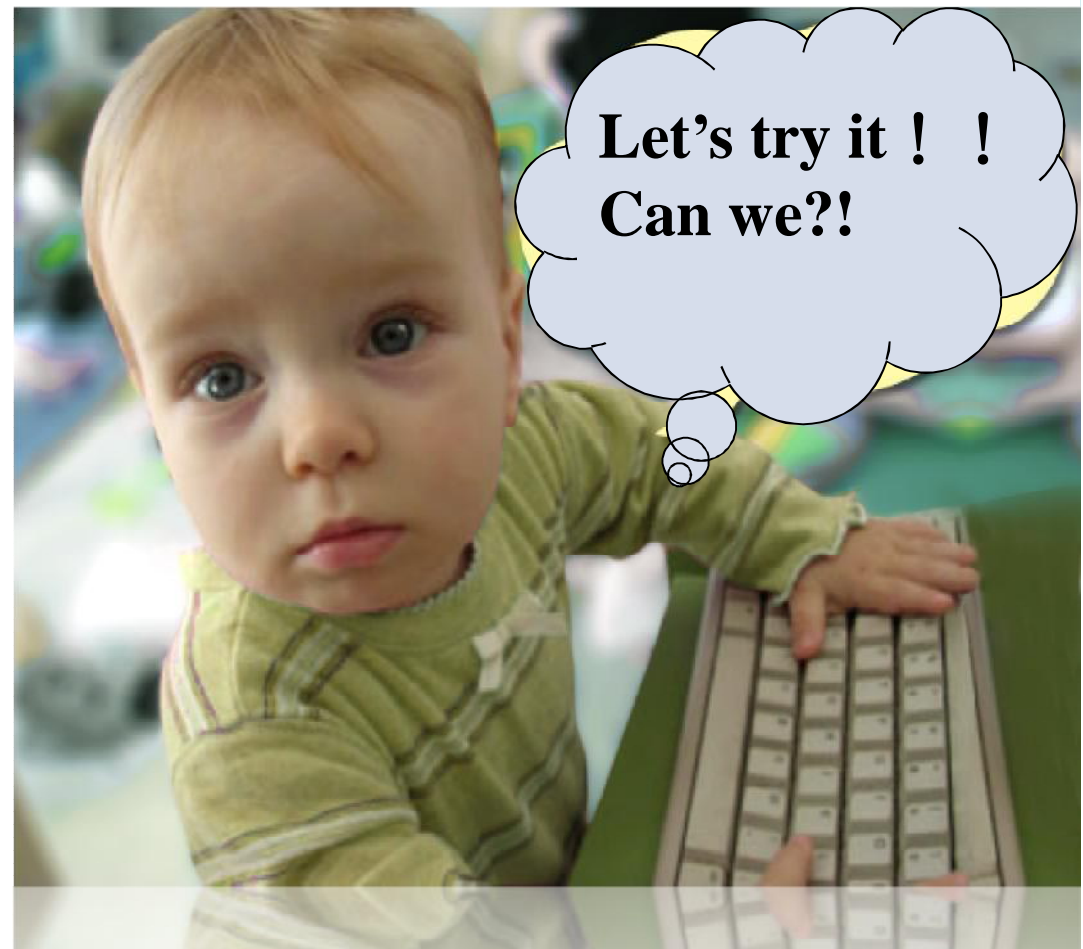


How about M\$ Windows?

—Win7



EasyCloud Service (Public Cloud)



What is EasyCloud Service

- We built **Public Cloud** service based on Ezilla projects
- Get VM as fast as you want.



The screenshot shows the EasyCloud website interface. At the top is a navigation bar with links: 首頁, 使用情境, 資源規格, 用戶註冊, 用戶登入, 新手上路, 常見問題, 討論區, 聯絡我們, and a Home button with a house icon. Below the navigation bar is the main content area. It starts with a cartoon penguin mascot and the title "國網中心簡單龍雲端服務 - EasyCloud". Below the title is a list of bullet points in Chinese:

- **主要服務:** 提供使用者快速產生虛擬機器以建置個人化的實驗、研究、教學的平台。
- **主要目的:** 建立、整合並管理虛擬電腦資源，服務研究、教學及各方專業人士。
- **適用對象:** 研究學者、知識教育者、IT管理員及各方專業人士。

Below the text are three icons, each representing a different aspect of the service:

-  EasyCloud 優點(4省6高)
-  EasyCloud 使用情境
-  EasyCloud 效能評比

At the bottom of the page, there are two links: "重要紀事/最新消息" and "EasyCloud使用示範影片".

Websites

– NCHC

- <http://ezilla.nchc.org.tw>
- <http://ezilla.info>

– EasyCloud Service

- <http://easycloud.nchc.org.tw>

– Sourceforge

- <http://ezilla-nchc.sf.net>

– PerComp Team

- <http://percomp.nchc.org.tw>





The Open Source in NCHC - The Five Zillas



NCHC - 5 Zillas

- System Level



DRBL



Clonezilla



- Virtual Level



Ezilla



- Data Mining



Crawlzilla



Haduzilla





謝謝各位!!! Thank You!