How to Build and Manage Linux, Remotely

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What is the problem?

How do I configure new machines?
It will take forever!

How do I update them?
It will take forever!

How do I manage them?
It will take forever! (Travel is expensive)

Open Source to the Rescue!

Open Source developers understand

Scratch your itch

SystemImager and VA Cluster Manager (VACM) are the tools for you!

Solving Remote Configuration/Update

- Physically rack and cable
  - *No way around it*
- Install and configure first system
  - *Now you can work remotely*
- SystemImager
  - *Manage images*
- VACM
  - *BIOS/ power/ console*

SystemImager

- SystemImager
  - http://systemimager.sourceforge.net/
  - "Pull" technology using rsync
  - Multiple install methods
    - Network (PXE)
    - Hard Disk
    - Floppy
    - CD−ROM

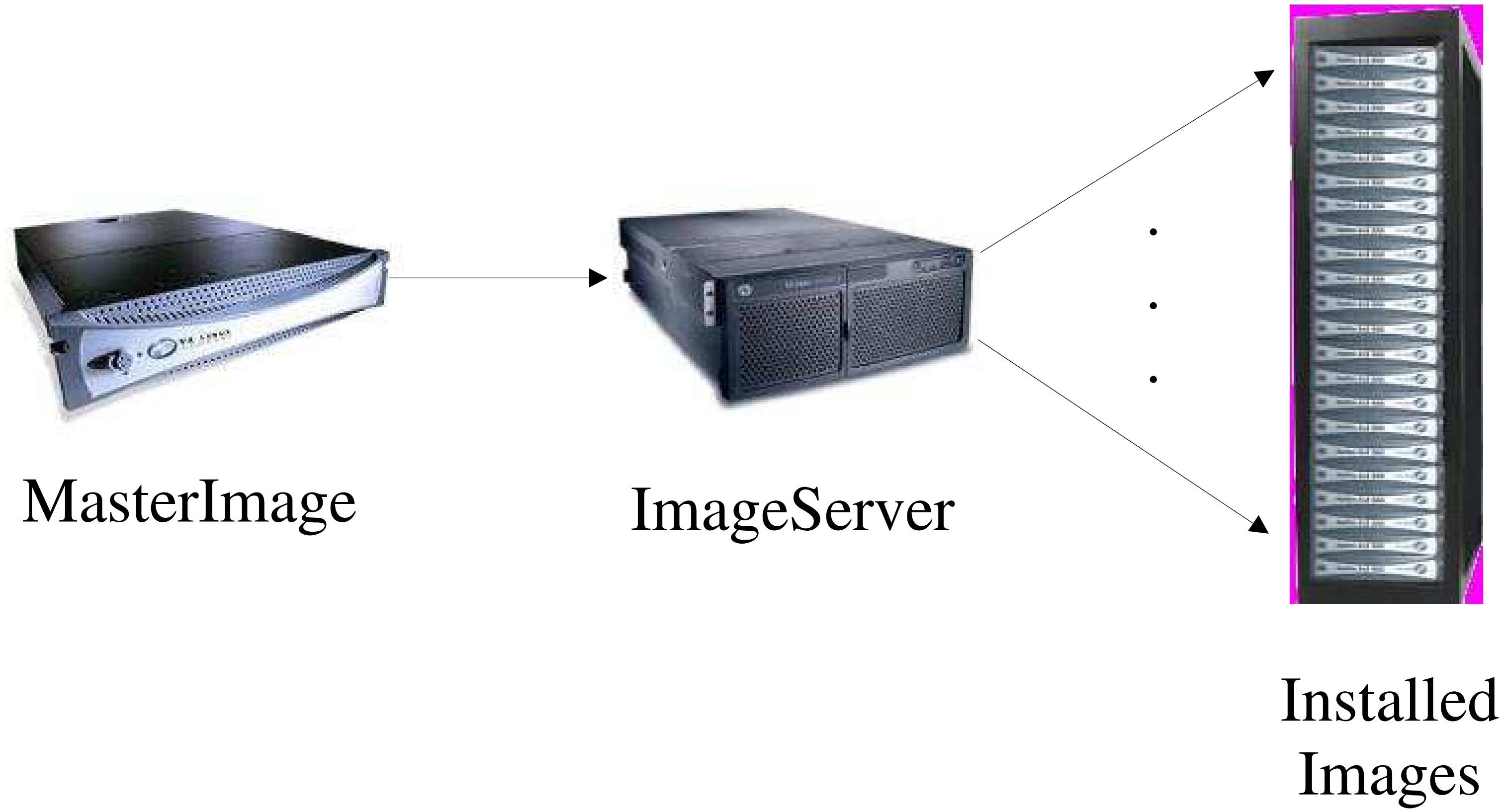
SystemImager, con't

- Multiple update methods
  - Pull from updated image
  - Change the image on server

- Archive the image

- Open Source
  - You can modify to meet your needs!

SystemImager, con’t



Roll Out

Build MasterImage
- Load and configure a machine

ImageServer pulls the MasterImage

New machines pull image from ImageServer

Remote Management

- VA Cluster Manager (VACM)
  - Controller Node
    - Serial concentrator connects nodes
      - Console access
        - "Out of Band" communication
          - Open Standard
          - Intelligent Power Management Interface (IPMI)
          - Baseboard Manager Controller (BMC)

Remote Management, con't

- BIOS access from console
  - Change BIOS remotely
- Console access if IP network fails
- "Out of Band" access
  - Power control
  - Sensor data
- Modules
  - System resources
  - Serial console
  - API to "roll your own"

Remote Management, con't

Node Controller
nexxus (daemon)
vash (cli)
flim (gui)

"Cluster"

Real World Example

Company needs a cluster of web servers

Machines are at a colocation, hours away

Company is going to manage the servers from their NOC

Real World Example, con't

- Need to build the image
  - Get a machine
  - Load the OS
  - Load specific software for application
  - Set Security policy
- Pull the image to an ImageServer
- Go to the colocation facility
  - Rack, stack, wire the machines

Real World Example, con't

- Boot the machines
  - Load image to root partition for hard disk
  - Use VACM to set BIOS for PXE install
- Use console on VACM to tweak network (as required)
- Pull image from ImageServer
- Reboot nodes using VACM
- Manage nodes using VACM from NOC

Wrap Up

Questions???