IBM NetVista thin client & TurboLinux WorkStation 6.0 Setup Instructions

These instructions enable TurboLinux WorkStation 6.0 on IBM NetVista thin client models 2800 and 2200, booting from a Linux server. The instructions will outline the process of creating a Linux boot image on the server, modifying the boot image specifically for the thin client, and booting the thin client.

Prerequisites:

- PC installed with some Linux distribution - this will also be your boot server for the thin clients.
- Approximately 700 MB of available disk space - based on RPMs installed
- NetVista thin client boot monitor dated **7/16/01 or later** (included in this package, files **bflash.2200** for NS2200 and **bflash.2800** for NS2800, and installed in the client boot directory)
- **NetVistaLTC.tar.gz** - downloadable package containing the necessary files and scripts to create the Linux client boot image.
- TurboLinux WorkStation 6.0.4 or WorkStation 6.0.7 CD

Package Contents: *NetVistaLTC*
Kernel Binaries:

- *kernel.2x00, the 2200 and 2800 share the same kernel now*
- *kernel.2200 and kernel.2800 are links to kernel.2x00 for backwards compability*

Configuration Files:

- *rc.sysinit.IBM_NS.boot:* Base rc.sysinit configuration file added in /etc/rc.d directory - it calls other rc.IBM_NS.* files.
- *rc.IBM_NS.dev:* new configuration file added in /etc/rc.d directory
- *rc.IBM_NS.tmp:* new configuration file added in /etc/rc.d directory
- *rc.IBM_NS.var:* new configuration file added in /etc/rc.d directory
- *rc.IBM_NS.net:* new configuration file added in /etc/rc.d directory
- *rc.IBM_NS.hardware:* new configuration file added in /etc/rc.d directory
- *S2x00-kernel-2.2.18.config* kernel 2.2.18 configuration file to build the kernel
- *patches needed to build kernel*
  - o IBM-NetVista-kernel-2.2.18.patch
  - o e2compr-0.4.39-patch-2.2.18
  - o initrd-tftp-0.2.patch
  - o lpp-2.2.18-4.ibm
  - o ramdisk-NetVista.patch

Installation Programs:

- *tl_install.sh:* script to create the Linux client boot directory

- *RPM_LISTS/tlw60x_rpm.list:* List of TurboLinux WorkStation 6.0 RPMs to be installed for the client boot image

Modified Base Linux Files:

- *etc/inittab:* Modified to use rc.sysinit.IBM_NS.sboot, instead of rc.sysinit.
- *etc/fstab:* Modified to remove entries for hard drive, and add an entry for the root NFS mount point.
- *etc/X11/XF86Config:* X-server configuration file, replaced by one supplied with this package. This configuration file uses frame buffer.
- Disable some services in the /etc/rc.d/init.d directory by renaming them with a ".sav" suffix:
  - apmd, atd, crond, kudzu, network, sendmail, etc.

Server Setup of Client Code:

At this point you should have a Linux server installed with appropriate software (see Prerequisites above). You should have downloaded the **NetVistaLTC_vN.tar.gz** (N is the version/revision number) file to the **/tmp** directory on your Linux server.

Create Client Boot Directory

- Untar **NetVistaLTC.tar.gz**, use the tar -xvzf command.
  - *tar -xvzf NetVistaLTC_vN.tar.gz*
- *cd NetVistaLTC*
- *cd TurboLinux*
- Execute **tl_install.sh** script. This will create a directory **<BOOT_DIR>** that will be used as the client boot directory. Additionally, it will create client machine specific directory **<MACHINE_DIR>**, if that option (explained below) is selected.
  - *./tl_install.sh*
    An install log file is created (tmp/install.log). You can check the log file to ensure all RPMs are installed (Note: Ignore errors associated with the MAKEDEV* rpm and the execution of scripts)

    At this stage, you will be asked to enter the following:

    - **CDROM Drive mount point**
    - **Server IP address** (the IP of the machine you are installing the client image on)
    - **Linux server distribution**: This is used to give you tips regarding NFS exports. Different distributions need slightly different NFS exports setup.
    - **Client image installation directory**

Export Client Boot (BOOT_DIR) and Machine-specific (MACHINE_DIR) Directories

- **The client boot directory and the machine specific directory (if specified) are already added to */etc/exports* file.**
  However, if you wish to manually add/modify/verify the entries, do the following:
  - On your server, edit the */etc/exports* file. An example of what the entry looks like:

/nstation/linux   *(rw,no_root_squash)

You may want to restrict access to your server by replacing ***** in the above entry line, to appropriate domain name (example: ***.austin.ibm.com**). In fact, some Linux distributions do not like unresticted access and have problems running NFS with unrestricted access.

- **Restart NFS** to export the new file system:

  /etc/rc.d/init.d/nfs stop
  /etc/rc.d/init.d/nfs start

- Verify the file system is exported by issuing the following command:

  showmount   -e

Linux kernels:

The Linux kernels for models 2800 and 2200 are supplied with this package and installed for you.

If you care for some adventure, here's where you can build your own kernel for the thin clients. We used the same process to build the kernels included in this package.

Limitations:

- If you are using the TurboLinux WorkStation 6.0.4 cd you will need to install 2 additional rpm's that are not part of the toolkit.
  - gdk-pixbuf .10 or higher (ftp://ftp.gnome.org/pub/GNOME/unstable/sources/gdk-pixbuf)
  - openmotif-2.1.30-1.i386.rpm (http://www.opengroup.org/openmotif)

Feedback:

Note: Before submitting anything to IBM via this Web site, please read the terms and conditions regarding information and material you give us.

Send comments and suggestions regarding these instructions to the NetVista thin client Linux Team (rchndev@us.ibm.com). IBM may not respond to all correspondence received.

Disclaimer:

The information provided within these instructions, web site and related communications are provided on an "AS-IS" basis.

(Last update: 08/08/01)