

COLUG presentation
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anaconda PXE mirrors development

Russ Herrold
herrold@owriver.com

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0.1 Executive Summary

The attendees at the February 2005 COLUG (<http://www.colug.net/>) meeting will travel through the PXE preserve, observing deployment, development and installation practice, armed with nothing but a camera and a diary to take notes.

Along the way, they will see the wily LFTP mirror, which gathers SRPMS [Source RPMs] and ISO's [so-called ISO-9660 filesystem images] and its partners, FTP, and HTTP which hand the mirror process' prey back out to the development community around it; they will see DHCP and DNS in their natural environment; we will observe our guides, Russ Herrold and Jim Wildman, tame the rare and special TFTP and PXE, and cox them to performing wonderous feats.

0.2 Mirroring

An easy entry step is to build a well stocked preserve for your collection to live in. The *lftp* (<http://lftp.yar.ru/>) package has a remote FTP and HTTP mirroring capability build in. As a convention, let's mirror in a fashion which permits to know at a glance where a given image comes from:

```
#
# Centos - RH AS21 rebuild
#
mirror -e -c \
    http://mirror.caosity.org/centos-2/final/isos \
    /var/ftp/pub/mirror/centos-2/isos
```

More quickly moving prey may also be snapshotted; here is one to grab the day-to-day changes in the Red Hat RawHide SRPM archive:

```
#
mirror -c -e \
    http://download.fedora.redhat.com/pub/fedora/linux/core/development/SRPMS
    var/ftp/pub/mirror/redhat/fedora/core/SRPMS
#
```

This process can be a 'fire and forget' process; install *lftp*, make up a few configuration files for favored sites, and link a little scriptlet called */usr/local/bin/daily_mirror* into */etc/cron.daily/* like this:

```
#!/bin/sh
ln -s /usr/local/bin/daily_mirror /etc/cron.daily
for i in `find /root -name '*conf'` ; do
lftp -f $i
done
```

0.3 DNS and DHCP

A full blown presentation on setting up DNS for a local developmental subnet is outside of the time we have available today. A complete copy of the DHCP settings and file for the presentation today are freely available at:

<http://www.owlriver.com/tips/pxe-install/>

The ISC *bind* (*bind* <http://www.isc.org/products/BIND/>) and *dhcp* (*dhcp* <http://isc.org/products/DHCP/>) packages are used, in their default forms with local configurations.

0.4 FTP and HTTP

The FTP (*vsftpd* - <http://vsftpd.beasts.org/>) server is configured to provide a flat and installable archive for ANACONDA (Anaconda is the Red Hat maintained installation tool) to pull boot images,

and packages from. We loop mount the ISO images and manage setting up a given ISO set to use, using the *install-from-iso.sh* and *ORCsetPXE* scripts, which are freely available at:

`ftp://ftp.owlriver.com/pub/local/ORC/k12ltsp`

The HTTP (`apache - http://httpd.apache.org/`) server is set up to provide the *ks.cfg* (KICKSTART configuration file) when called for during the installation process. We add *PHP* (`php http://www.php.net/`) and *MySQL* (`MySQL http://www.mysql.com/`) additional services for easier CGI and state retention.

0.5 Hands on

We perform:

1. An initial baseline hands off install of CentOS-3.4
2. A revised hands off install, with addition of changes to quell boot time noise about the absence of a floppy disk drive on the test unit, and the ram limitation to *just* 128 Meg; and to prompt for the conventional setup parameters of an unconfigured new unit
3. A edit session on the *anaconda* produced
4. *A session with yum, doing both updates, and additional package installation*

Our *yum.conf* for this demonstration is interesting, for we have adopted usage of a local 'active-release' created from material yielded from our mirror process.

```
/etc/yum.conf
```

```
[main]
```

```
cachedir=/var/cache/yum
debuglevel=2
logfile=/var/log/yum.log
pkgpolicy=newest
distroverpkg=redhat-release
installonlypkgs=kernel kernel-smp kernel-hugemem kernel-enterprise
                kernel-debugkernel-unsupported kernel-smp-unsupported
                kernel-hugemem-unsupported
tolerant=1
exactarch=1
```

```
[base]
name=Centos Linux $releasever - $basearch - Base
# baseurl=file:///localhost/var/ftp/pub/mirror/active-release/RPMS
baseurl=ftp://ftp.first.lan/pub/mirror/active-release/base/RPMS
```

```
[updates]
name=Centos Linux $releasever - Updates
baseurl=ftp://ftp.first.lan/pub/mirror/active-release/updates
```

0.6 Advanced items

Once these environments are working, many things become possible:

- A well-devined maintenance model, using the *YUM* (`yum` <http://www.dulug.com> tool
- Quick provision and deployment of workstations, of many well-defined types
- Creation of identical slave application servers, to work in a very scalable provisioning model

with the virtue that one may use a *NFS* mount of a home directory on a central machine, and *NIS*, *ldap*, or more simply *rsync* post-provisioning of mountpoint information, authentication configurations and the like.

Open Discussion, and Question and Answer time.

0.7 Going forward

We have not yet touched on thin terminals, the *LTSP* (<http://www.ltsp.org/> and <http://www.k12ltsp.org/>), and *Tao-TC / ThinTao* (http://taolinux.org/tao_tc)*pr*

The master copy of this document will live at:
<http://www.colug.net/notes/0502mtg/>