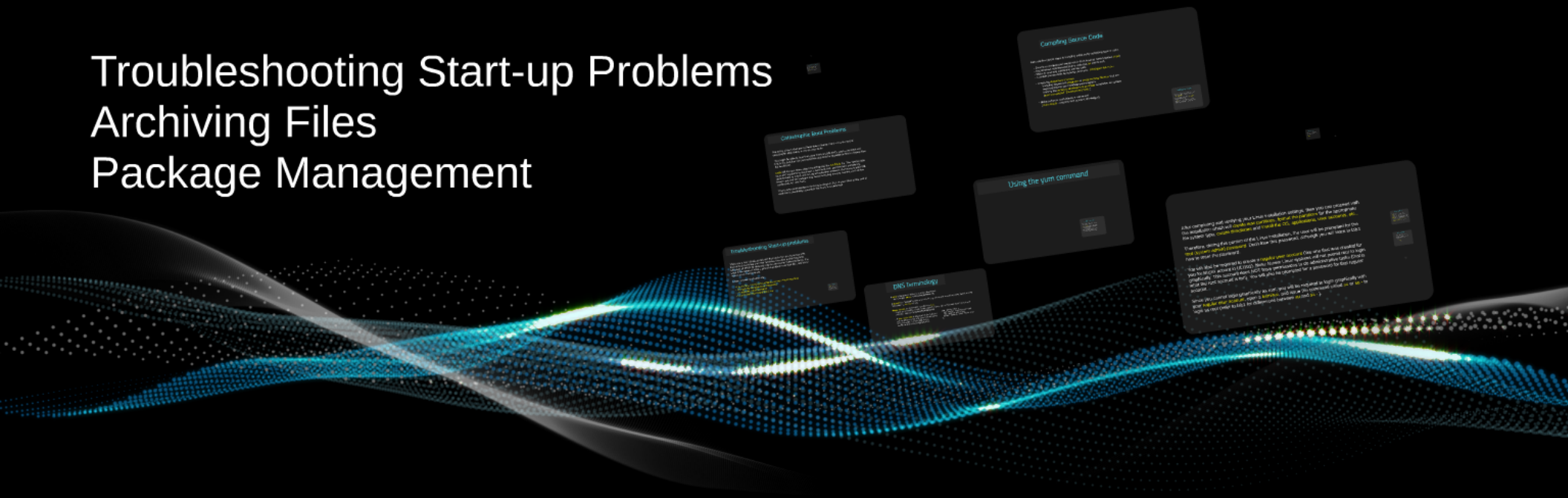
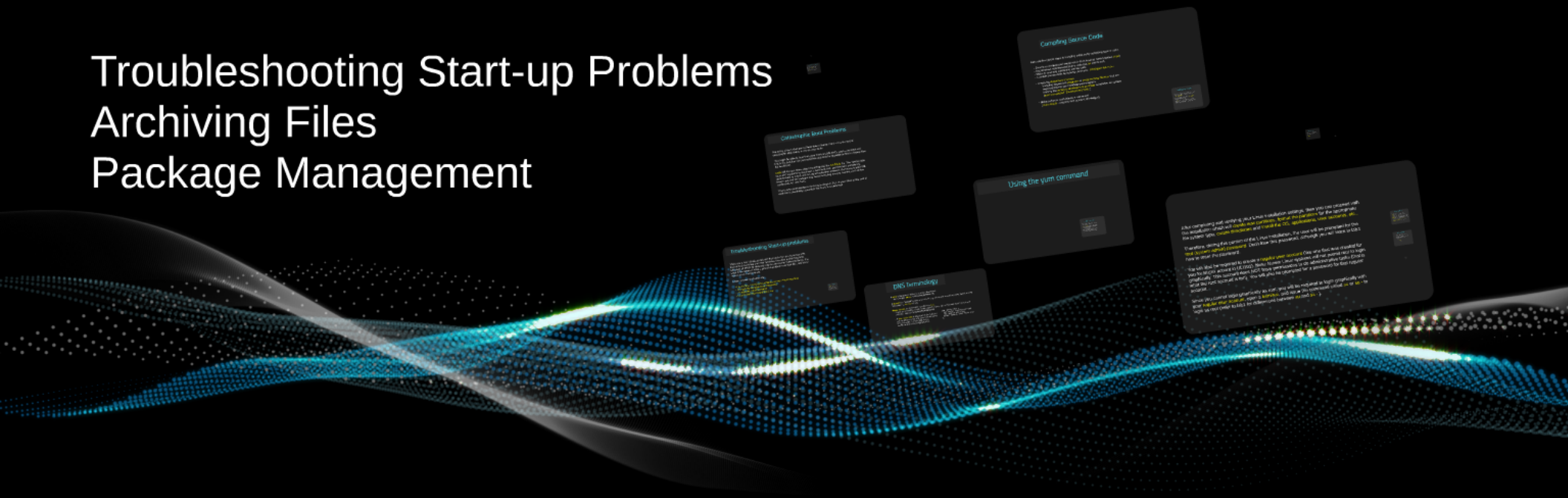
OPS235

Troubleshooting Start-up Problems
Archiving Files
Package Management



OPS235

Troubleshooting Start-up Problems
Archiving Files
Package Management



Troubleshooting Start-up problems

There are a few "classic problems" that students can encounter with their virtual machines and their host machine after performing lab2. Although all OPS235 students may not encounter these problems, it is good to be aware of what a potential problem may look like, and know how to solve that problem.

A few common problems are:

- I Can't boot into Graphical Mode on my c7host machine
- I Forgot My Regular User Password
- I Forgot My root Password
- I Can't Start My Virtual Machine

Troubleshooting Start-up problems

Troubleshooting consists of 3 basic elements:

- Asking Questions (eg. what was done recently prior to problem?)
- Eliminating what the problem IS NOT
- Having Tenacity and patience
  (ability to focus on finding the cause of the problem)

If you cannot log graphically into your machine (first two common problems), there is a trick to boot your system into single-user mode. This mode does not provide networking, graphics, or logging in as other regular users, but can connect to a text-based interface as the root user.

This method (discussed in lab2) will only work if a GRUB (Grand Unified Boot-loader) password has not been set, or that you haven't forgotten the GRUB password.

Troubleshooting Start-up problems

Unfortunately, booting into Single-User Mode does not work if you forgot your root password, since the procedure in the previous part requires that you enter your root password.

In order to reset your root password, you need to perform a different procedure (refer to lab2).

Regardless of the method, you can then use Linux commands to remove large files that can cause login issues, or use the passwd command to reset root's password.

Catastrophic Boot Problems

Not being able to start your c7host due to Kernel Panic or some sort of catastrophic disk failure is not as easy to fix.

You might be able to boot from your Centos LIVE DVD, open a terminal and mount the partition via command line and look for possible problems (setup files like /etc/fstab).

Lab5 will discuss more about mounting and the /etc/fstab file. The "worst-case scenario" would be to purchase a new hard disk, perform lab1 completely, perform lab2 to install and set-up virtualization software, then restore your VM image and xml file backups (eg. decompressing images, issuing virsh define commands for .xml files).

That is why consistently performing backups of ALL of your VMS at the end of each lab is absolutely essential! You have been warned!

Hard Disk Management - Archiving Files

You would have learned in ULI101 how to manage files and directories. It is essential for a System Administrator to periodically monitor the Hard Disk usage to prevent running out of hard disk space.

One method to help backup files, yet not take up the same amount of disk-space is to archive files. This allows you to compress the back-up copy of your original file.

Archives allow have the advantage of having less download-times due to smaller sizes. Therefore, archived files are a popular form of files that are downloaded to a server (for example downloading source code in order to compile to create a program).

Hard Disk Management - Archiving Files

You can use the tar (tape archiver) command to create an archive file named "/tmp/archive.tar" by issuing the command:
tar cvf /tmp/archive.tar [file(s) or directory pathname]

Compress the file using gzip by issuing the command:
gzip /tmp/archive.tar
This creates a file called archive1.tar.gz

Note: You can use the z option for the tar command to simultaneously create a compressed archive by issuing just one command:

tar cvfz /tmp/archive.tar [file(s) or directory pathname]

Hard Disk Management - Archiving Files

You can use the tar command to restore a archived file named
"/tmp/archive.tar.gz" by issuing the command:
tar xvf /tmp/archive.tar.gz
Then you can un-pack the tar achive by issuing the command:
gunzip /tmp/archive.tar

Note: You can use the z option for the tar command to simultaneously decompress and unpack a "zipped tarball" archive by issuing just one command:

tar xvfz /tmp/archive.tar.gz

Compiling Source Code

An excellent example of using the tar command is to download, unpack, and compile source code in order to install a program (application).

Compiling source code was the traditional method of installing programs for Unix/Linux. This method can be frustrating since this method does not resolve dependency issues (missing programs or programming libraries).

Although considered "obsolete" by many, sometimes Linux system administrators may not be able to install software on their systems without compiling source code (eg. software may NOT be available in the online software repositories)

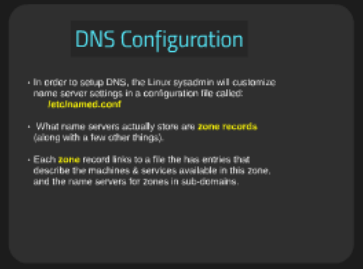
Compiling Source Code

Here are the typical steps in installing software by compiling source code:

- Download compressed source code from Internet (web-browser, wget)
- Decompress compressed source code (eg tar command)
- Move to directory containing source code
- Compile source code by issuing command: ./configure && make

- Resolving dependency issues:
  Installing dependent programs or programming libraries that are required prior to you installing your program.
  Making the software development package is installed on system (yum groupinstall "Development Tools")

- Make software available as a command
  (make install - requires root account priviledges)



Using the yum Command

There are other newer, more efficient methods of installing software in Linux / Unix (both graphical and command line Interface)

The yum command is particularly useful since it can install software on Internet repositories or local files:

yum install package-name
yum remove package-name
yum info package-name
yum localinstall rpm-file

Maintaining Software Repositories using yum Command

By default, your Centos7 installation links to a default or main software depository for software updates and software installs.

If you cannot find software with the default repository, you can add other repositories that may have the software program. You can use the yum command to manage software repositories on your system:

```
yum repolist
yum install epel-release   #  (installs the epel repository)
yum clean all
```

If you cannot find a particular version of software on any repository, then you can perform a Google Net search to obtain rpm files or compress source codes on various web sites.