CIS-2235 Advanced Sys Admin
Lab #9 Assignment

Objective

Implement custom backup strategies using tar and rsync.

Introduction

Backup apps with GUI's can be convenient if they do what you need, but if they don't you'll need to be able to implement a custom solution. In this lab you will create scripts that use rsync and tar to do full, differential, and incremental backups.

Tasks

Rsync:

1. Write a script that uses rsync to mirror your personal VM home directory (/home/<user>) to a directory in your home space on lemuria (for example, /home/<lemuria-user>/vm-backup/). Include verification your script worked and files were backed up correctly. Since lemuria uses non-standard ssh port 2221, you'll need to pass the port to rsync with option: -e 'ssh -p 2221'

2. Add at least one new file to your VM home and modify an existing one, run your script again, and verify changes are mirrored to lemuria correctly.

3. Delete a file or directory from your VM home and use rsync to recover it from your mirror on lemuria. You don't need to write a script for recovery, you can just run an rsync command from your terminal.

Tar:

4. Write a script using tar to implement a week-long daily backup strategy of /home (all users) including a full backup, at least one differential backup, and incremental backups on other days. Choose which backup type should be used each day of the week and document your strategy. Resulting backup tar files can be stored locally vs. on lemuria, just choose a location outside of /home to keep them (for example, /backups/ or /var/home-backup/ or …).

    - You will need to use and keep multiple snar files, likely at least 3 or more depending on your strategy. Keep your snar files in the same space as your tar files.

    - "date +%w" is a convenient way to figure out the days of the week

- To test your script, make it take a command line argument to specify a day of the week, for example: $ ./backup-home.sh 3 (should run the backup for Wednesday). Here is an example to get you started:

```
# current day of the week from 0..6. (Sun..Sat)
# to use DAY in future commands just prefix with $:  $DAY
DAY = `date + %w`

# if run with 1 argument (ex: ./backup-home.sh 3)
# then use the number given in place of today's actual date
if [ $# -eq 1 ]; then
   DAY = $1
fi

# add if statements below to run different commands
# for different days of the week as needed
```

- Test your script at least once on different full, inc, and diff backup days by passing in different day numbers to simulate days of the week. Modify files between different backup runs so you can show changes are being captured correctly. You don't have to simulate all days (0..6) unless you want to, just pick at least 3, 1 per backup type. Your writeup should show evidence that full, inc., and diff. are working as expected. For example, a differential backup should capture *all* changes since the last full, several days worth, vs. inc. which is just one day of changes.

- Run your full day backup at least twice and verify the second time it does indeed backup everything and is not accidentally running as an inc. or diff. backup. Are you managing snar files correctly?

5. Delete a users home directory and recover it using your tar files. It's probably a good idea to pick a fake user vs. your id in case you encounter problems. Restore on an incremental backup day (vs. full or diff) to show the multiple steps involved. For example, if your strategy does a full backup on Sun. and incremental on Tue., restore the current state of the user's home on Tuesday. Make sure there are differences between some days so you can show the result of each step.