Adji - Sénégal - 35 heures

Cursus

- **File Hierarchy System** - 1 hour
  - Directory Contents
  - Directory Structure
  - File Types
  - The mount command
    - Command Line Switches
  - The /etc/fstab file
    - Understanding the /etc/fstab file
      - Mountpoint Options
  - The umount command
    - Command Line Switches
  - Unix File Systems
    - Superblock
    - Inodes
    - Data Blocks
    - Hard (Physical) Links
    - Soft (Symbolic) Links
  - **Commands**: mount, umount.
- **The VIsual Editor** - 1 hour
  - Presentation
  - Creating, Opening and Closing files with VI
    - Commands
    - LAB #1 - Creating a new file with VI
    - LAB #2 - Opening a file in read-only mode using view
    - LAB #3 - Opening a file in read-write mode using VI
  - The set Command
    - Commands

        - LAB #4 - Turning on line numbering using set
    - Moving around within the file
        - Commands
    - Inserting Text
        - Commands
        - LAB #5 - Inserting text
    - Searching for Text
        - Commands
        - LAB #6 - Searching for and replacing text
    - Deleting Text
        - Commands
        - LAB #7 - Deleting lines
    - Copy, Cut and Paste
        - Commands
        - LAB #8 - Copying, Cutting and pasting text
    - Configuring a Personalised Interface
    - **Commands**: view, vi

- **Basic Shell Commands and Text Manipulation Tools** - 3 hours
    - Use of Basic Shell Commands
        - The stty Command
            - Command Line Switches
        - The date command
            - Command Line Switches
        - The who Command
            - Command Line Switches
        - The df Command
            - Command Line Switches
        - The free Command
            - Command Line Switches
        - The whoami Command
            - Command Line Switches
        - The pwd Command
            - Command Line Switches

- The cd Command
    - Command Line Switches
- The ls Command
    - Command Line Switches
- The lsof Command
    - Command Line Switches
- The touch Command
    - Command Line Switches
- The echo Command
    - Command Line Switches
- The cp Command
    - Command Line Switches
- The file Command
    - Command Line Switches
- The cat Command
    - Command Line Switches
- The mv Command
    - Command Line Switches
- The mkdir Command
    - Command Line Switches
- The rmdir Command
    - Command Line Switches
- The rm Command
    - Command Line Switches
- The sort Command
    - Command Line Switches
- The more Command
    - Command Line Switches
- The less Command
    - Command Line Switches
- The find Command
    - Command Line Switches
- The su Command
    - Command Line Switches

- The updatedb and locate Commands
  - Command Line Switches
- The whereis Command
  - Command Line Switches
- The which Command
  - Command Line Switches
- The uptime Command
  - Command Line Switches
- The w Command
  - Command Line Switches
- The uname Command
  - Command Line Switches
- The du Command
  - Command Line Switches
- The clear Command
- The exit Command
  - Command Line Switches
- The logout Command
  - Command Line Switches
- The sleep Command
  - Command Line Switches
- The wall Command
- The seq Command
  - Command Line Switches
- The screen Command
  - Command Line Switches

- Switches and Arguments
- Manipulating Text Files
  - Regular Expressions
    - BREs
    - EREs
  - Text-search Utilities
    - The grep Command
      - Command Line Switches

- The egrep Command
  - Command Line Switches
- The fgrep Command
- LAB #1 - Using grep, egrep and fgrep

- The Stream EDitor SED
  - Command Line Switches
  - LAB #2 - Using sed
- The Text Processor AWK
  - Presentation
  - Field Separation
  - Conditions
    - A regular expression applied to a record
    - A regular expression applied to a field
    - Comparisons
    - Logical Operators
    - Built-in Variables
  - Awk Scripts
  - The printf function
  - Control Statements
    - if
    - for
    - while
    - do-while
  - Command Line Switches
  - LAB #3 - Using awk

- Other Useful Commands
  - The expand Command
    - Command Line Switches
  - La Commande unexpand
    - Command Line Switches
  - The cut command
    - Command Line Switches
  - The uniq Command
    - Command Line Switches

        - The tr Command
            - Command Line Switches
        - The paste Command
            - Command Line Switches
        - The split Command
            - Command Line Switches
        - The diff Command
            - Command Line Switches
        - The cmp Command
            - Command Line Switches
        - The patch Command
            - Command Line Switches
        - The strings Command
            - Command Line Switches
        - The comm Command
            - Command Line Switches
        - The head Command
            - Command Line Switches
        - The tail Command
            - Command Line Switches
        - LAB #4 - Use the grep, tr and cut to extract your IP address from the output of ifconfig
    - **Commands**: stty, date, who, df, free, whoami, pwd, cd, ls, touch, echo, cp, file, cat, mv, mkdir, rmdir, rm, sort, more, find, su, locate, updatedb, whereis, which, uptime, w, uname, du, lsmod, modprobe, rmmod, modinfo, clear, exit, logout, sleep, grep, egrep, fgrep, sed, awk, tr, paste, cut, split, diff, cmp, uniq, patch, strings, comm, od, head, tail, wall, screen.

- **Command Line Interface** - 3 hours
    - The Shell
    - /bin/bash
        - Internal And External Commands
        - Aliases
        - The Prompt
        - The history Command
        - The TAB key
        - Metacharacters

- The * Metacharacter
- The ? Metacharacter
- The [] Metacharacter
- The extglob Option
- ?(expression)
- *(expression)
- +(expression)
- @(expression)
- !(expression)

- Protecting Metacharacters
- Exit Status
- Redirections
- Pipes
- Command Substitution
- Conditional Command Execution

- Environment Variables
  - Principal Variables
  - Internationalisation and Localisation
  - Special Variables
  - The env Command
- Bash Shell Options
  - noclobber
  - noglob
  - nounset
- Basic Shell Scripting
  - Execution
  - The read command
    - Code de retour
    - The IFS Variable
  - The test Command
    - Testing Files
      - LAB #1
    - Testing Strings
      - LAB #2

- Testing Numbers
  - LAB #3
- Expressions
  - LAB #4
- Testing the User Environment
  - LAB #5

- The [[expression]] Command
  - LAB #6
- Shell Operators
  - LAB #7
- The expr Command
  - Maths
  - Comparisons
  - Logic
    - LAB #8
  - The let Command
    - Maths
    - Comparisons
    - Logic
    - Binary
      - LAB #9
  - Control Structures
    - If
    - case
    - Loops
      - for
      - while
        - Example
    - Start-up Scripts
    - LAB #10
      - ~~/.bash_profile
      - ~/.bashrc

- **Commands**: type, alias, unalias, chsh, history, wc, tee, set, vi, script, read, test, expr, let, if, case, for, while.

- **Managing Users and Groups** - 2 hours
  - Groups
  - Users
  - Commands
    - Groups
      - groupadd
      - groupdel
      - groupmod
      - newgrp
      - gpasswd
    - Users
      - useradd
      - userdel
      - usermod
      - passwd
  - Configuration
  - LAB #1 - Managing Groups and Users
  - su et su -
  - sudo
  - **Commands** : getent, grpck, grpconv, grpunconv, pwck, pwconv, pwunconv, groupadd, groupdel, groupmod, newgrp, gpasswd, useradd, userdel, usermod, passwd, id, groups, su, sudo.
- **Package Management** - 2 hours
  - Compiling Software the Old Way
    - ./configure
    - make
    - make check
    - make install
  - The rpm command
  - Yellow Dog Updater Modified
    - Configuration
    - Repositories
    - Usage
    - LAB #1 - Working with Yum

        - The yumdownloader command
    - Shared Libraries
        - Presentation
            - Introduction
            - Shared Object Locations
            - ld-linux.so.2
            - The ldd Command
            - The /etc/ld.so.conf File
            - The ldconfig Command
    - **Commands** : rpm, yum, yumdownloader, mc, wget, configure, make, ldd, ldconfig.

- **Managing File Permissions** - 2 hours
    - Preparation
    - Basic Unix File Permissions
        - Changing Permissions with chmod
            - Symbolic Mode
            - Octal Mode
    - The umask command
    - Changing the Owner or the Group with chown and chgrp
    - Advanced Unix Permissions
        - SUID/SGID bit
        - Inheritance Flag
        - Sticky bit
    - ACLs
        - Commande Line Switches
    - Ext2/Ext3/Ext4 Attributes
    - **Commands** : chmod, umask, chown, chgrp, setfacl, getfacl, chattr, lsattr.

- **Managing Disks and Swap Space** - 2 hours
    - Block Devices
    - Partitions
        - Master Boot Record
        - Apple Partition Map
        - GUID Partition Table
    - Partitioning

        - LAB #1 - Using fdisk and parted
    - Journaled Filesystems
        - Presentation
        - Ext3
        - Ext4
    - Swap Space
        - Swap Size
        - Swap Partitions
        - The swapon Command
        - The swapoff Command
        - The /etc/fstab file
        - Swap Files
    - **Commands** : fdisk, gdisk, parted, swapon, swapoff, mkswap, dumpe2fs, tune2fs, mke2fs, mkfs.ext3, e2fsck, resize2fs, debugfs, e2label, mkfs.ext4.

- **Process Scheduling** - 1 hour
    - cron
    - anacron
    - at
    - **Commands** : cron, anacron, at.

- **Process Management** - 2 hours
    - Process Types
    - Process priorities
    - Synchronous and Asynchronous
    - Process Commands
        - The ps Command
        - The pstree Command
        - The top Command
        - The fg and bg Commands
        - The wait Command
        - The nice Command
        - The renice Command
        - The nohup Command
        - The kill Command

- **Commands** : ps, pstree, top, fg, bg, wait, nice, renice, nohup, kill.

- **Managing Logs** - 2 hours
  - The /var/log/messages file
  - The /bin/dmesg Command
  - The /var/log/audit/audit.log file
    - Managing Audit Events
      - auditd
      - auditctl
      - audispd
    - Viewing Audit Events
      - The aureport Command
      - The ausearch Command
  - Applications
  - rsyslog
    - Priorities
    - Facilities
    - /etc/rsyslog.conf
      - Modules
      - Global Directives
      - Rules
        - Facility.Priority
        - Facility!Priority
        - Facility=Priority
        - Using the * Wildcard
        - n Facilities with Identical Priorities
        - n Selectors with Identical Actions
  - /usr/bin/logger
  - /usr/bin/logrotate
  - **Commands** : dmesg, auditd, auditctl, audoispd, aureport, ausearch, rsyslog, logger.

- **System Startup and Shutdown** - 4 hours
  - System Startup
    - Boot Loader
      - BIOS Systems

        - EFI Systems
    - GRUB
        - GRUB LEGACY on RHEL 6
    - Initramfs
        - The dracut Command
    - Kernel Booting Process
    - SysVinit startup process
        - The Init Process
        - RUNLEVELS
        - Unix System V Startup Scripts
        - Inittab
        - The /etc/init.d directory
        - The rcX.d Directories
        - The update-rc.d Command
        - The chkconfig Command
    - Upstart startup process
        - System Initialisation
        - Runlevels
        - [CTL]-[ALT]-[DEL]
        - mingetty
        - rc.sysinit
        - The /etc/rc.d/init.d Directory
        - The /etc/rc.d/rcX.d Directories
        - Managing Upstart services
    - System Shutdown
        - The shutdown Command
        - The reboot command
        - The halt Command
        - The poweroff Command
    - **Commands** : grub_install, runlevel, init, telinit, chkconfig, dracut, initctl, start, stop, restart, systemctl, systemd-analyze, shutdown, halt, reboot, poweroff.

- **Managing Integrated Peripherals** - 3 hours
    - Special Files

- Commands
  - The lspci Command
  - The lsusb Command
  - The dmidecode Command
- The /proc Directory
  - Sub-directories
    - ide/scsi
    - acpi
    - bus
    - net
    - sys
    - The sysctl Command
  - Files
    - /proc/cpuinfo
    - /proc/interrupts
    - /proc/dma
    - /proc/ioports
    - /proc/devices
    - /proc/modules
    - /proc/diskstats
    - /proc/partitions
    - /proc/swaps
    - /proc/loadavg
    - /proc/meminfo
    - /proc/version
  - Interpreting Information in /proc
    - Commands
      - free
      - uptime or w
      - iostat
      - vmstat
      - mpstat
      - sar
    - Production Environements

        - Identifying a System with a CPU Bottleneck
        - Identifying a Memory Problem
        - Identifying I/O Bottlenecks
    - USB Modules
    - udev
        - The udevadm Command
    - The /sys Filesystem
    - Planning resources - the collectd command
    - Limiting Resources
        - ulimit
    - **Commands**: lspci, lsusb, dmidecode, free, uptime, w, iostat, vmstat, mpstat, sar, udevadm, collectd, sysctl.

- **Managing a the Network** - 5 hours
    - Communication models
        - OSI
            - NDIS and ODI
        - TCP/IP
            - Messages, Datagrams and Segments
            - Establishing a TCP connection
            - The TCP header
            - The UDP header
            - Fragmentation and Re-encapsulation
            - TCPv4 Classes
            - Subnet Masks
                - Variable Length Subnet Masks - VLSM
            - Ports and sockets
    - Configuring a Network Client under Linux
        - /etc/services
        - Ethernet address resolution with arp
    - Configuring TCP/IP on RHEL 6
        - DHCP
            - /etc/sysconfig/network
            - /etc/sysconfig/network-scripts/ifcfg-ethX (où X=0,1 ...)
        - Fixed IP Address

        - /etc/sysconfig/network
        - /etc/sysconfig/network-scripts/ifcfg-ethX (où X=0,1 ...)
    - The hostname command
    - The ifconfig command
    - Manually bringing up and down a network interface
    - The /etc/networks file
    - IP address resolution
        - /etc/resolv.conf
        - /etc/nsswitch.conf
        - /etc/hosts
- Network Services
    - xinetd
    - TCP Wrapper
- Network Diagostic Commands
    - ping
    - ping6
    - netstat-i
    - traceroute
    - traceroute 6
    - tracepath6
- Static Routing Tables on RHEL 6
    - The route Command
    - The netstat Command
    - Turning routing ON/OFF
- Remote Administration
    - Telnet
    - ssh
    - wget
    - ftp
    - scp
- Packet Sniffers
    - TCPdump
    - Wireshark
- Port Scanners

        - nmap
        - netcat
    - The Netfilter Firewall
        - Introduction
        - Configuration using scripts on RHEL 6
    - Cryptologie
        - GnuPG
        - Public Key Infrastructures
            - X509 Certificates
        - SSH and SCP
        - SSH Tunneling
    - **Commands** : netstat, arp, nslookup, dig, ifconfig, ifup, ifdown, ifstatus, NetworkManager, hostname, uname, ping, ping6, Traceroute, Traceroute6, Tracepath6, tcpd, xinetd, route, ntpd, telnet, wget, ftp, tcpdump, wireshark, nmap, netcat, iptables, gpg, ssh, scp.

- **Mail, SQL and Quotas** - 2 hours
    - Mail Transfer Agent (MTA) basics
        - SendMail
    - SQL data management
    - Quotas
    - **Commands** : sendmail, common SQL commands, quotacheck, edquota, repquota, quota, warnquota.

Programme

- **Système de Fichiers** - 1 heure.
    - Linux File Hierarchy System
    - L'organisation
    - La commande mount
    - La commande umount
    - Systèmes de fichiers Unix
    - Validation des acquis
    - **Commandes** : mount, umount.

- **L'Editeur VI** - 1 heure.

    - Présentation
    - Lancer et Quitter VI
    - Set
    - Commandes du Curseur
    - Insertion de Texte
    - Recherche de Texte
    - Suppression de Texte
    - Copier - Coller
    - Couper - Coller
    - En cas de problème
    - Validation des acquis
    - **Commandes** : view, vi.

- **Commandes de Base et Outils de Manipulation de Fichiers Textes** - 3 heures.
    - Etude des commandes de base
    - Options et arguments
    - Expressions Régulières
        - Expressions régulières basiques
        - Expressions régulières étendues
    - Outils et Commandes sur les Fichiers
        - La commande grep
        - La commande egrep
        - La commande fgrep
        - La commande sed
        - La commande awk
        - La commande tr
        - La commande paste
        - La commande cut
        - La commande uniq
        - La commande split
        - La commande diff
        - La commande cmp
        - La commande patch
        - La commande strings

        - La commande comm
        - La commande head
        - La commande tail
        - La commande screen
        - La commande wall
    - Validation des acquis
    - **Commandes** : stty, date, who, df, free, whoami, pwd, cd, ls, touch, echo, cp, file, cat, mv, mkdir, rmdir, rm, sort, more, find, su, locate, updatedb, whereis, which, uptime, w, uname, du, lsmod, modprobe, rmmod, modinfo, clear, exit, logout, shutdown, reboot, halt, poweroff, sleep, grep, egrep, fgrep, sed, awk, tr, paste, cut, split, diff, cmp, uniq, patch, strings, comm, od, head, tail, screen, wall.

- **La Ligne de Commande** - 3 heures.
    - Le Shell
        - Les Commandes Internes et Externes au shell
        - Les alias
        - Le Prompt
        - Rappeler des Commandes
        - Générer les fins de noms de fichiers
        - Le shell interactif
        - Affichage des variables du shell
            - Les variables principales
            - Régionalisation et Internationalisation
        - Options du shell bash
    - Les Scripts Shell
        - Exécution
        - Les variables spéciales
        - La commande read
        - Code de retour
        - La variable IFS
        - La commande test
        - La commande [[expression]]
        - Opérateurs du shell
        - L'arithmétique
            - La commande expr
            - La commande let

        - Structures de contrôle
        - Boucles
        - Scripts de Démarrage
    - Validation des acquis
    - **Commandes** : type, alias, unalias, chsh, history, wc, tee, set, vi, script, read, test, expr, let, if, case, for, while.

- **Gestion des Utilisateurs** - 2 heures.
    - Groupes
    - Utilisateurs
    - Commandes
    - LAB #1 - Gestion des Utilisateurs
    - su et su -
    - sudo
    - Validation des acquis
    - **Commandes** : grpck, grpconv, grpunconv, pwck, pwconv, pwunconv, groupadd, groupdel, groupmod, newgrp, gpasswd, useradd, userdel, usermod, passwd, id, groups, su, sudo.

- **Gestion des Paquets** - 2 heures.
    - Installer à partir des sources
    - La commande rpm
    - La commande yum
    - La commande yumdownloader
    - LAB #1 - Gestion des Paquets
    - Les Bibliothèques Partagées
        - La Commande ldd
        - Le fichier /etc/ld.so.conf
        - La Commande ldconfig
    - Validation des acquis
    - **Commandes** : rpm, yum, yumdownloader, mc, wget, configure, make,ldd, ldconfig.

- **Gestion de Droits** - 2 heures.
    - Les Droits Unix Simples
    - La Modification des Droits
    - Modifier le propriétaire ou le groupe
    - Les Droits Unix Etendus

    - Les ACL
    - Les Attributs Ext2/Ext3/Ext4
    - Validation des acquis
    - **Commandes** : chmod, umask, chown, chgrp, setfacl, getfacl, chattr, lsattr.

- **Gestion des Disques, des Systèmes de Fichiers et du Swap** - 2 heures.
    - Périphériques de stockage
    - Partitionnement
    - Systèmes de Fichiers Journalisés
        - Présentation
            - Ext3
            - Ext4
    - Pagination
        - Taille du swap
        - Partitions de swap
        - Fichiers de swap
        - La commande swapon
        - La commande swapoff
        - Le fichier /etc/fstab
    - Validation des acquis
    - **Commandes** : fdisk, gdisk, parted, swapon, swapoff, mkswap, dumpe2fs, tune2fs, mke2fs, mkfs.ext3, e2fsck, resize2fs, debugfs, e2label, mkfs.ext4.

- **Gestion des Tâches** 1 heure.
    - cron
    - anacron
    - at
    - Validation des acquis
    - **Commandes** : crond, crontab, anacrond, at.

- **Gestion des Processus** - 2 heures.
    - Les Types de Processus
    - Les Commandes relatives aux Processus
    - Synchone vs Asynchrone
    - Priorités de processus

- Validation des acquis
- **Commandes** : ps, pstree, pgrep, top, fg, bg, wait, nice, renice, nohup, kill, pkill, fuser.

- **Gestion de la Journalisation** - 2 heures.
  - Le fichier /var/log/messages
  - Surveillance Sécuritaire
    - La commande last
    - La commande lastlog
    - La Commande faillog
    - /var/log/secure
  - La commande /bin/dmesg
  - Le fichier /var/log/audit/audit.log
    - Gestion des évènements audit
      - auditd
      - auditctl
      - audispd
    - La consultation des évènements audit
      - La commande aureport
      - La commande ausearch
  - Applications
  - rsyslog
    - Priorités
    - Sous-systèmes applicatifs
      - /etc/rsyslog.conf
      - Modules
      - Directives Globales
      - Règles
        - Sous-système applicatif.Priorité
        - Sous-système applicatif!Priorité
        - Sous-système applicatif=Priorité
        - L'utilisation du caractère spécial *
        - n Sous-systèmes avec la même priorité
        - n Sélecteurs avec la même Action
    - /usr/bin/logger

            - Options de la commande
        - /usr/sbin/logrotate
            - Options de la commande
    - Validation des acquis
    - **Commandes** : dmesg, auditd, auditctl, audoispd, aureport, ausearch, rsyslog, logger, logrotate.

- **Gestion du Démarrage et de l'Arrêt du Système** - 4 heures.
    - Détail du démarrage
        - Systèmes à base du BIOS
        - Systèmes EFI
        - Autres Systèmes
        - Gestionnaire d'amorçage
            - LILO
            - Grub Legacy sous RHEL 6
                - Le fichier menu.lst
                - Configurer l'Authentification
                - Modifier la Configuration de GRUB Legacy en Ligne de Commande
    - Initramfs
        - Examiner l'image existante
        - Le script init
        - Créer un Initial Ram Disk
            - La commande dracut sous RHEL
    - Le Démarrage du Noyau
    - Le Processus Init
    - Le Système de Démarrage SysVinit sous RHEL 5
        - Niveaux d'exécution sous RHEL 5
        - Scripts de Démarrage
            - rc.sysinit sous RHEL
        - Scripts Unix Système V sous RHEL 5
            - inittab
            - Répertoire init.d
            - Répertoires rcX.d
            - Linux Standard Base
            - La commande chkconfig sous RHEL 5

        - La Gestion des Services sous SysVinit
    - Le Système de Démarrage Upstart sous RHEL 6
        - Scripts Upstart
            - Initialisation du Système
            - Runlevels
            - [CTL]-[ALT]-[DEL]
            - mingetty
        - La Gestion des Services sous Upstart
    - Arrêt Système du Système
        - La commande shutdown
        - La commande reboot
        - La commande halt
        - La commande poweroff
    - Validation des acquis
    - **Commandes** : grub_install, grub2-mkconfig, runlevel, init, telinit, chkconfig, dracut, initctl, start, stop, restart, shutdown, halt, reboot, poweroff.

- **Gestion des Paramètres et les Ressources du Matériel** - 3 heures.
    - Fichiers Spéciaux
    - Commandes
        - La Commande lspci
        - La Commande lsusb
        - La Commande dmidecode
    - Répertoire /proc
        - Répertoires
            - ide/scsi
            - acpi
            - bus
            - net
            - sys
                - La commande sysctl
                    - Options de la commande
        - Fichiers
            - Processeur

- Interruptions système
- Canaux DMA
- Plages d'entrée/sortie
- Périphériques
- Modules
- Statistiques de l'utilisation des disques
- Partitions
- Espaces de pagination
- Statistiques d'utilisation du processeur
- Statistiques d'utilisation de la mémoire
- Version du noyau

▪ Interprétation des informations dans /proc
- Commandes
  - free
  - uptime ou w
  - iostat
  - vmstat
  - mpstat
  - sar
  - Utilisation des commandes en production
    - Identifier un système limité par le processeur
    - Identifier un système ayant un problème de mémoire
    - Identifier un système ayant un problème d'E/S

◦ Modules usb
◦ udev
▪ La commande udevadm
- Les options de la commande

◦ Système de fichiers /sys
◦ Limiter les Ressources
◦ Prévoir des Besoins en Ressources
▪ La commande collectd
◦ Validation des acquis
◦ **Commandes** : netstat, pstree, w, lsof, free, top, uptime, lspci, lsusb, dmidecode, free, uptime, w, iostat, vmstat, hdparm, mpstat, sar, udevadm, collectd, sysctl.

- **Gestion du Réseau** 5 heures.
  - Introduction
    - Modèles de Communication
    - Message/Datagramme/Segment
    - Etablissement de la connexion TCP
    - En-tête TCP
    - En-tête UDP
    - Fragmentation et Ré-encapsulation
    - Adressage
    - Masques de sous-réseaux
    - VLSM
    - Ports et sockets
  - Configuration du Réseau sous RHEL 5 et 6
    - Configuration de TCP/IP
      - DHCP
        - /etc/sysconfig/network
        - /etc/sysconfig/network-scripts/ifcfg-ethX (où X=0,1 ...)
      - IP Fixe
        - /etc/sysconfig/network
        - /etc/sysconfig/network-scripts/ifcfg-ethX (où X=0,1 ...)
    - La Commande hostname
    - La Commande ifconfig
    - Activer/Désactiver une Interface Manuellement
    - /etc/networks
    - Résolution d'adresses IP
      - /etc/resolv.conf
      - /etc/nsswitch.conf
      - /etc/hosts
  - Services réseaux
    - xinetd
    - TCP Wrapper
  - Diagnostique du Réseau
    - La commande ping
    - La commande ping6

        - La commande netstat -i
        - La commande traceroute
        - La commande traceroute6
        - La commande tracepath6
    - Routage Statique
        - RHEL 6
            - La Commande route
            - Activer/désactiver le routage sur le serveur
    - Connexions à Distance
        - telnet
        - ftp
        - ssh
        - scp
    - Packet Sniffers
        - TCPdump
            - Installation
            - Utilisation
        - Wireshark
            - Installation
            - Utilisation
    - Port Scanners
        - nmap
            - Installation
            - Utilisation
            - Fichiers de configuration
            - Scripts
        - netcat
            - Installation
            - Utilisation
    - Le Pare-feu Netfilter/iptables
        - Introduction
        - La Configuration par Scripts sous RHEL 6
            - LAB #1
            - LAB #2

    - Encryption
        - GnuPG
            - Presentation
            - Installation
            - Utilisation
        - Public Key Infrastructures - PKI
            - Certificats X509
        - SSH et SCP
            - SSH
                - Introduction
                    - SSH-1
                    - SSH-2
                - Authentification par mot de passe
                - Authentification par clefs asymétriques
                    - Serveur SSH
                    - Client SSH
                    - Utilisation
            - SCP
                - Introduction
                - Utilisation
            - Tunnels SSH
    - Validation des acquis
    - **Commandes** : netstat, arp, nslookup, dig, ifconfig, ifup, ifdown, ifstatus, NetworkManager, hostname, uname, ping, ping6, Traceroute, Traceroute6, Tracepath6, tcpd, xinetd, route, ntpd, telnet, wget, ftp, tcpdump, wireshark, nmap, netcat, iptables, gpg, ssh, scp.

- **Mail, SQL et Quotas** - 2 heures.
    - Bases des Mail Transfer Agent (MTA)
        - SendMail
    - Gérer des données avec SQL
    - Quotas
    - **Commandes** : sendmail, Commandes SQL usuelles, quotacheck, edquota, repquota, quota, warnquota.