



RedHat Enterprise Linux Essential

Unit 13: Network Clients

Objectives

- ❖ Upon completion of this unit, you should be able to:
- ❖ Browse the web
- ❖ Exchange email and instant messages
- ❖ Access a Linux system remotely
- ❖ Transfer files between systems
- ❖ Use network diagnostic tools

Web Clients

- ❖ Firefox
- ❖ Other web browsers (chrome, IE ?)
- ❖ Non-GUI web browsers (**links**)
- ❖ **wget**

wget

- ❖ Retrieves files via HTTP and FTP
- ❖ Non-interactive - useful in shell scripts
- ❖ Can follow links and traverse directory trees on the remote server - useful for mirroring web
- ❖ and FTP sites
 - **wget** <http://mirror-fpt-telecom.fpt.net/centos/5.6/isos/i386/CentOS-5.6-i386-LiveCD.iso>
 - **wget -bc -o /tmp/monitorwget.log http://mirror-fpt-telecom.fpt.net/centos/5.6/isos/i386/CentOS-5.6-i386-LiveCD.iso**
 - **wget --tries=50 --wait=30** https://calomel.org/bootable_openbsd_cd.html
 - **wget --recursive --level=1 --convert-links** <http://vef.vn>

Email and Messaging

- ❖ Evolution
- ❖ Other email clients (thunderbird, Msoutlook ?)
- ❖ Non-GUI email clients (mutt)
- ❖ Gaim

Gaim

- ❖ Multi-protocol Instant messaging client
- ❖ Available in Red Hat Enterprise Linux Client
- ❖ Supports AIM, MSN, ICQ, Yahoo, Jabber, Gadu-Gadu, SILC, GroupWise Messenger, IRC and Zephyr networks.
- ❖ Plugins can be used to add functionality.

OpenSSH: Secure Remote Shell

- ❖ Secure replacement for older remote-access tools
- ❖ Allows authenticated, encrypted access to remote systems

ssh [user@]hostname

ssh [user@]hostname command

ssh vmintam@localhost

ssh vmintam@localhost 'who'

scp: Secure File Transfer

❖ Secure replacement for rcp

❖ Layered on top of ssh

- scp source destination
- Remote files can be specified using:

[user@]host:/path/to/file

- Use -r to enable recursion
- Use -p to preserve times and permissions
- Use -C to compress datastream

Example: `scp -r /etc/* vmintam@localhost:/home/vmintam`

rsync: Efficient File Sync

- ❖ Efficiently copies files to or from remote systems
- ❖ Uses secure ssh connections for transport
 - **rsync *.conf localhost:/home/vmintam/configs/**
- ❖ Faster than scp - copies differences in like files

rsync /var/log/* vmintam@localhost:/home/vmintam/rsync

OpenSSH Key-based Authentication

- ❖ Optional, password-less, but still secure, authentication
- ❖ Uses two keys generated by ssh-keygen:
 - private key stays on your system
 - Usually passphrase -protected (recommended)
 - public key is copied to destination with ssh-copy-id

ssh-copy-id [user@]host

OpenSSH Key-based Authentication continued

- ❖ An authentication agent stores decrypted private keys
 - Thus, passphrase only needs to be entered once
 - An agent is provided automatically in GNOME
 - Otherwise, run **ssh-agent** bash
- ❖ Keys are added to the agent with **ssh-add**

FTP Clients

❖ CLI: lftp

```
$ lftp ftp.example.com
```

```
$ lftp -u joe ftp.example.com
```

- Automated transfers with lftpget

❖ GUI: gFTP

- Applications->Internet->gFTP
- Allows Drag-and-Drop transfers
- Anonymous or authenticated access
- Optional secure transfer via ssh (sftp)

smbclient

❖ FTP-like client to access SMB/CIFS resources

❖ Examples:

- `smbclient -L server1` lists shares on server1
- `smbclient -U student //server1/homes`
- `Smbclient \\\\192.168.1.1\\Setup -U vmintam`

❖ accesses a share

Xorg Clients

- ❖ All graphical applications are X clients
 - Can connect to remote X servers via tcp/ip
 - Data is not encrypted but can be tunneled securely over an ssh connection
 - **ssh -X user@hostB xterm**
- ❖ xterm will display on hostA's X server
- ❖ Transmitted data will be encrypted through the ssh connection

Network Diagnostic Tools

- ❖ ping
- ❖ traceroute
- ❖ host
- ❖ dig
- ❖ netstat



Thank You !