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PV208 Advanced Topics of Linux Administration

Remote access

Basic overview   Having looked at the tools of remote access from a visual angle, we can divide it into the textual and graphical interface and only graphical interface type. In the first mentioned, we have terminal services, file system or particular files access, messaging and other web protocols, time synchronization, audio transmission, database manipulation or wireless types of connection such as wi-fi, bluetooth or infraport. The latter includes more sophisticated tools such as a window manager of multi-user systems and desktop sharing which is useable for real-time collaboration of group of users.

Terminal Services on Thin Client and Protocols   Non-secure tools, which does not contain an encryption of transmitted data, are *telnet*, *rlogin* which follows rhosts authorization mechanism, *rsh*, which does the same as rlogin but can be used with a command, or *screen* and the protocols are for example *http*, *nntp* (news), *pop3*, *irc*, *ntp* or *rtp*. We have *rcp*, *ftp*, *nfs*, *svn* (replacement of svn) or *LDAP* as file transfer or file system connection.

Although the non-secure utilities are sufficient in many cases, recommended are secure tools using an encryption such as *ssh*, *VPN* or among protocols it is *https*, *pop3*s or *nntps*. For the purpose of file transfer or file system connection, there exist *scp*, *sftp* or *sfs*.

Remote usage of the X Window System   The X Window System transmits remotely started applications to the local X server and displays them on specified display. It is easy to use *ssh -X* command (can be set manually via DISPLAY environment variable) to connect to the X server and use X forwarding in GNU/Linux systems or *putty* in Windows OS from Microsoft. Configuring the system can be done by editing xhost, which allows hosts to connect to the X server, or xauth, which allows users to connect with the knowledge of some secret (~/.Xauthority).

Another way of using the X Window System is XDMCP (X Display Manager Control Protocol) for a trusted network (possible with VPN). The *Xming*, which acts as an X server, can be used in Windows. The XDMCP starts remote window manager after login. The usage of it is by *X [local display] -query [host]* and then we can start X applications in it by *[app] -display [specified display]*. It can be required to use in windowed mode with *Xnest*.

Remote Frame Buffer protocol (RFB)   It is a relatively simple protocol applicable to X Window System, Windows and Mac OS X and is used specially by Virtual Network Computing (VNC) which uses a VNC viewer (vncviewer) to connect to a VNC server (*vncserver*). The startup script is ~/.vnc/xstartup which can be edited to change for example a window manager. We can use *krfb* for desktop sharing as a server and *krdc* as a client in KDE. The Mac OS X uses Apple Remote Desktop.

Remote Desktop Protocol (RDP)   This is a proprietary protocol used especially in Windows system and provides almost all required features such as 128-bit encryption with RC4, redirection of audio, local file system, printers, ports and others. We can use Terminal Services in Windows which consist of Terminal Server and a client named Terminal Services Client or Remote Desktop Connection. There is just one session per PC allowed. If we want to use desktop sharing, there exist Windows Desktop Sharing which shares the entire desktop, a specific region or a particular application potentionally to multiple clients. This protocol can be used by *rdesktop*, which is a Unix client utility, if we want to use it in Unix based system. It has a GUI frontend named *tsclient*. Another tool based on rdesktop is *xrdp*.

References:

http://tldp.org/HOWTO/Remote-X-Apps.html
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    http://en.wikipedia.org/wiki/XDMCP
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    http://en.wikipedia.org/wiki/Remote_Desktop_Protocol
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