Linux

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Introduction to Linux

Module 7: Disk Space

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Introduction to Linux

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In this module, we will talk about typical storage setups on servers and the importance of managing disk space on your servers.

Back up to tape

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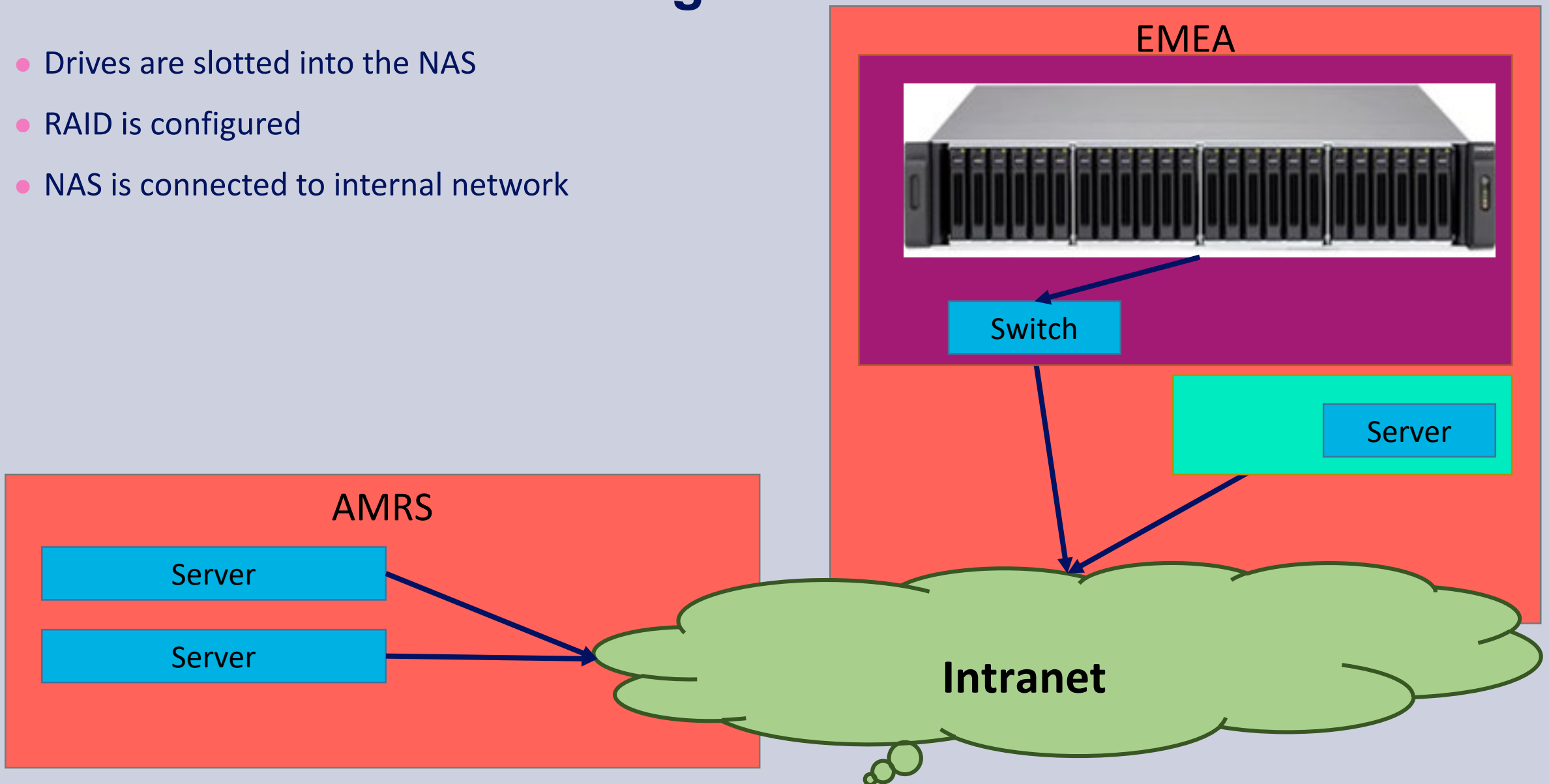
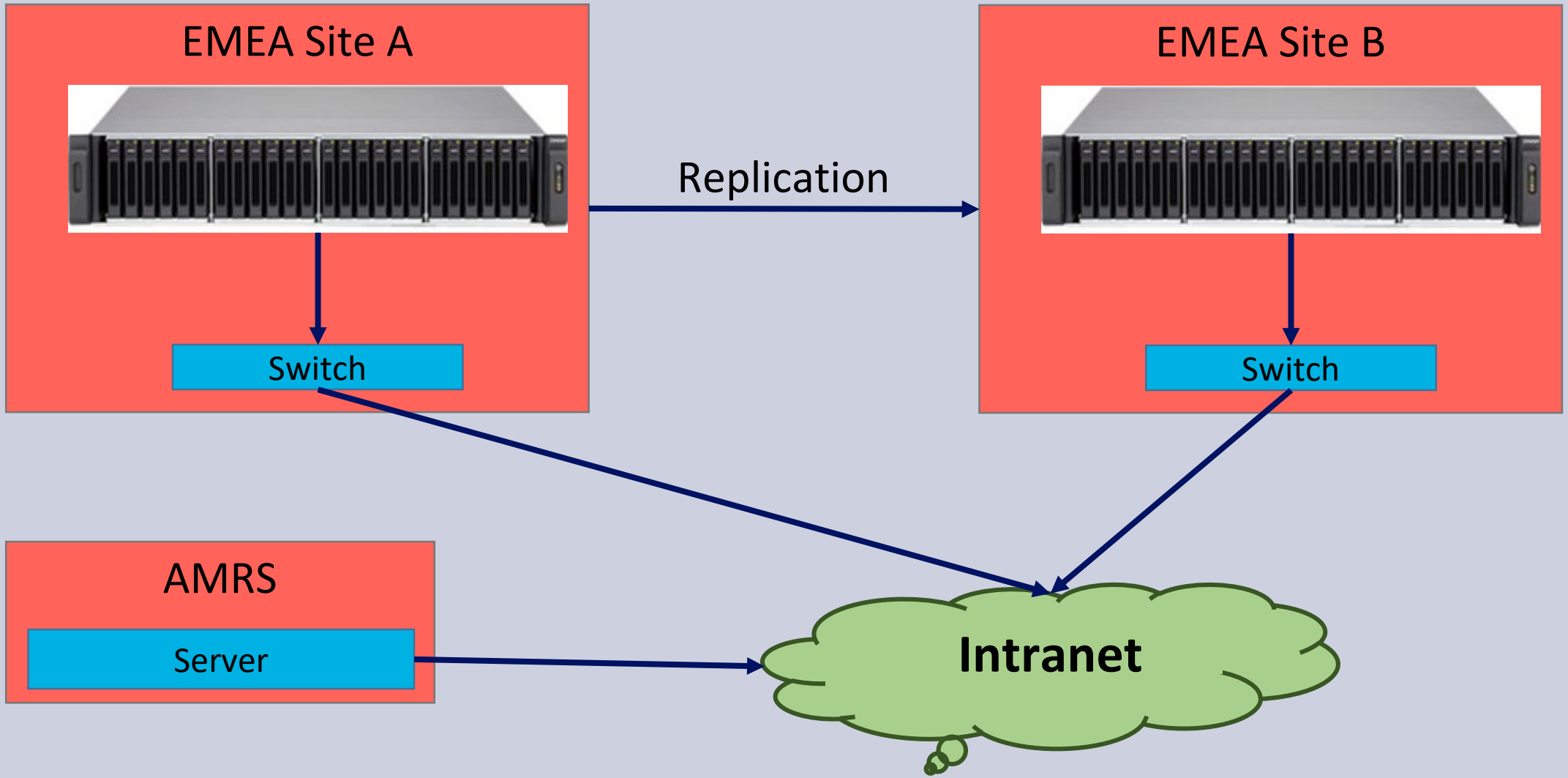
Banks have a regulatory requirement to back up data for a certain number of years. There will be processes running on your servers to ensure that your data is correctly backed up and stored for retention purposes. Policies on this will vary and the medium on which it is backed up may vary.

NAS – network area storage

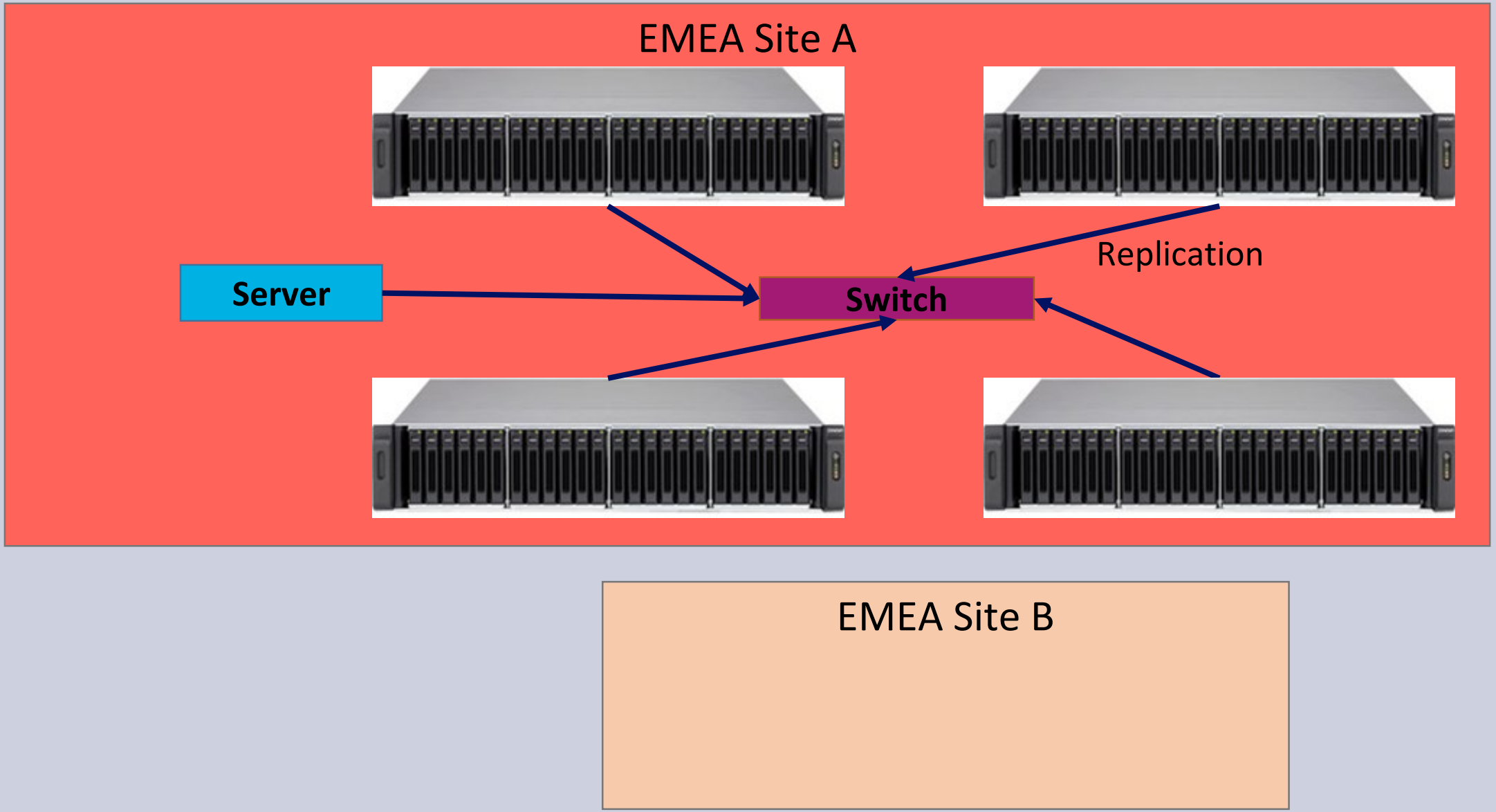
- Drives are slotted into the NAS
- RAID is configured
- NAS is connected to internal network



NAS


EMEA Site A
Replication
EMEA Site B
Switch
Switch
AMRS
Server
Intranet

SAN



Managing Disk Space

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Linux provides us with a couple of useful tools to understanding disk usage on our hosts.

df	Disk Filesystem – will show you a full summary of available and used disk on your system
df -h	This will put the output into human readable form (i.e., in bytes, megabytes and gigabytes)
df –kh ~	This will show you the disk usage of your home directory in human readable format (block size=1K)

Space Usage

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Linux provides another useful command called **du** – disk usage.

Command	Comments
du ~	Disk usage for your home directory
du ~ -sh	Provides a summary of the disk usage in your home directory in human readable form
du /*bin	Here we are using wildcards to show how much space /bin and /sbin use
du /*bin -Lch	Follow any sym links (-L option) in human readable form (-h) and count it for me (-c)
du –ah	This will display disk usage of all files and folders in human readable format

The du command is most useful when you need to decide what you want to delete to reduce disk usage in a certain directory.

File compression

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There are ways in Linux to compress files to save disk space, which means you do not need to delete the original data to create space. The command **tar** stands for tape archive and it allows you to compress a collection of files and directories into a tarball. This then allows you to easily move the files/directories around. (Potentially to another disk partition that has more space).

Command	Comments
tar –cvf nameOfTarball.tar /home	Here we create a tarball called nameOfTarball.tar and compress the /home directory into it -c option creates a new .tar archive file -v option verbosely shows the .tar file progress when you create it -f option is the file name type of the archive file You can list as many files/directories as you want post the tarball name
tar –cvzf nameOfTarball.tar.gz /home	You may want to compress the file further in one command so adding the –z option will do this for you
tar –tvf tarball.tar.gz	This will list the contents of the file
tar –rvf tarball.tar file.txt	This will allow you to add an additional file to a current tar file

Further tar commands

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Command	Comments
tar –xvf nameOfTarball.tar	This will extract the tar file to the current location. This is the –x option.
tar –xvf nameOfTarball.tar -C /home	If you want to untar into a different directory you can use –C and the path of the directory
tar –xvf nameOfTarball.tar.gz	This will untar the files into the specified directory.
tar –czf – tarball.tar | wc –c	This will display the size of the archive file in KBs

Further compression/un-compression

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GZIP is another command we can use for compression. GZIP is typically much better than ZIP, especially when compressing a huge number of files

Command	Comments
gzip mydoc.txt	This will compress the file and delete the original file
gunzip mydoc.txt.gz	This will uncompress the .gz file
gzip –k mydoc.txt	This will compress the file and complete the original
gzip –r logs	This will compress every file in a folder and its subfolders – it doesn't create one file but traverses the directory structure and compresses each file in that folder structure
gunzip –c mydoc.txt.tar.gz	You can use this option to view the text within a compressed file without compressing it – it has to be a txt file only