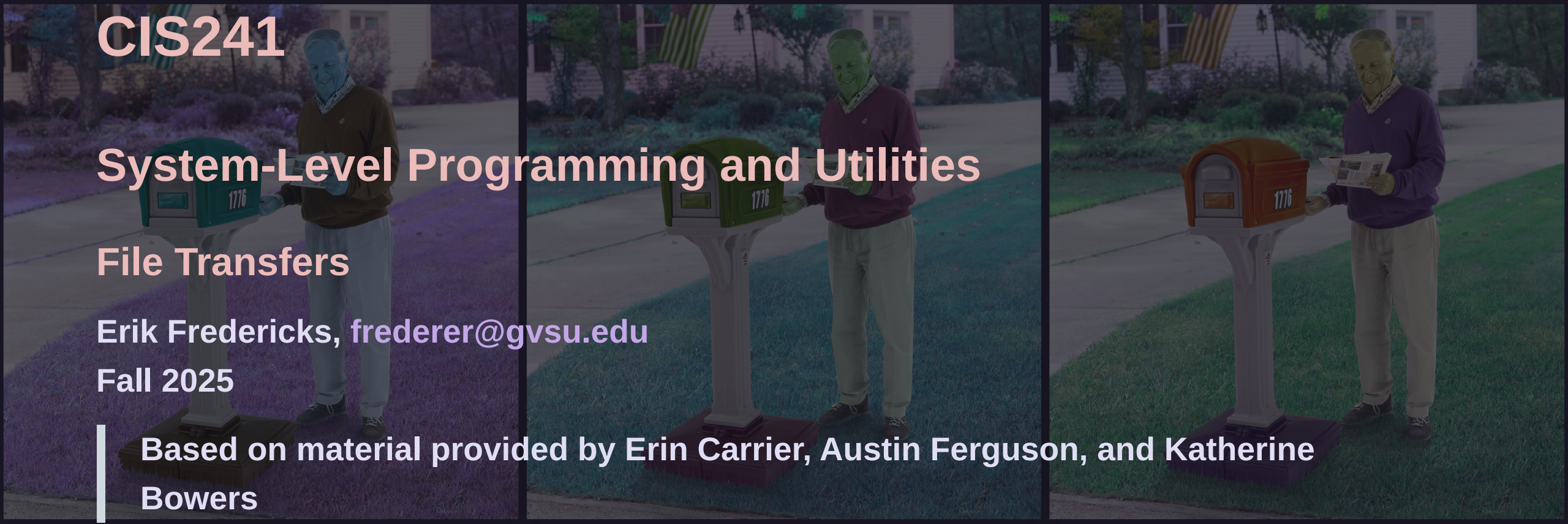

CIS241

System-Level Programming and Utilities

File Transfers

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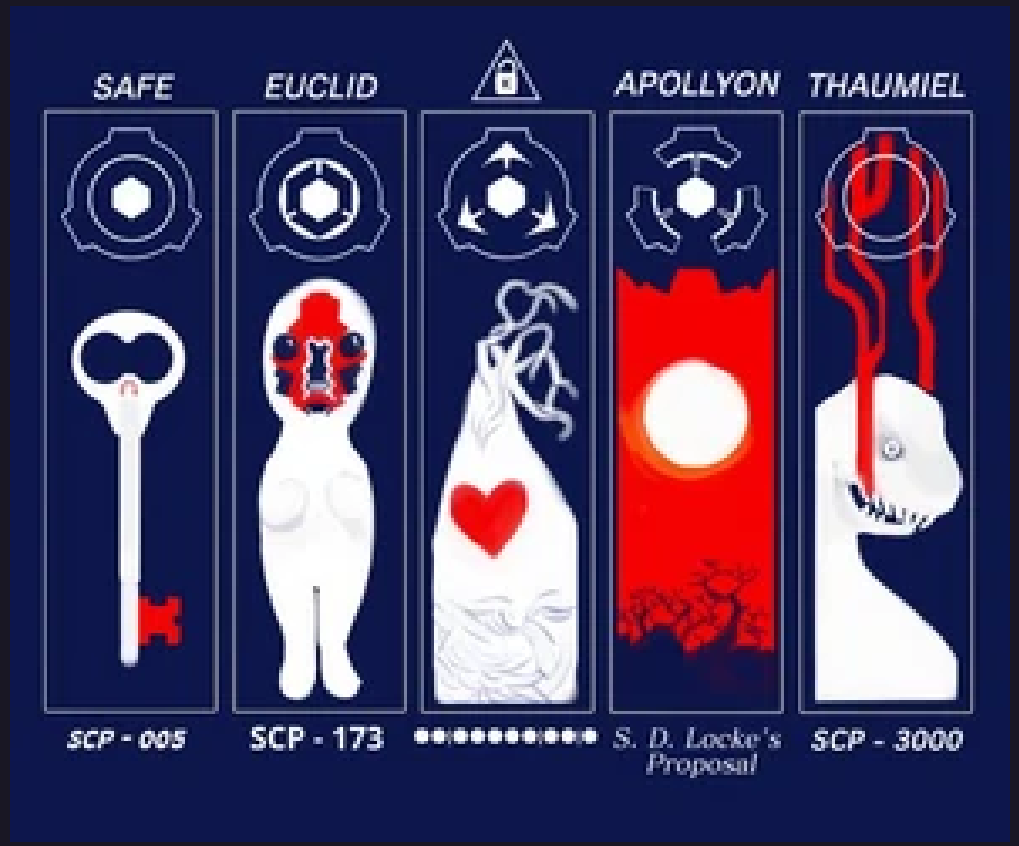
> Based on material provided by Erin Carrier, Austin Ferguson, and Katherine Bowers

Lots of options!

Ones we'll talk about:

- scp
- sftp
- rsync

SCP


SAFE
EUCLID
APOLLYON
THAUMIEL
SCP - 005
SCP - 173
S. D. Locke's Proposal
SCP - 3000

SCP

Remember `ssh` - Secure SHell

`scp` - Secure CoPy

Recall - copying files locally: `cp source destination`

scp is similar, but works remotely!

Information required:

- Host we are copying to/from
- Username we'll use on that host

SCP

```
scp [[user@]src_host:]src_path [[user@]dest_host:]dest_path
```

- Note that items in [] can sometimes be omitted
- Example, transfer local file to EOS
  - `scp local_file username@eos01.cis.gvsu.edu:~/my_dir`

SCP directedness

scp doesn’t care which systems we are moving files to/from

The last example copied a local file to the server

- `scp local_file username@eos01.cis.gvsu.edu:~/my_dir`

What if we want to copy a file from server to laptop?

- `scp username@eos01.cis.gvsu.edu:~/my_dir/file .`

Why stop there? We could also copy files directly from one server to another, all from our local machine!

SFTP

Secure File Transfer Protocol

sftp username@address

Common commands:

- `get file`
- `put file`
- **Limited subset of terminal commands (e.g., `ls`)**
- **Can interact with local (your computer) terminal using `!` in front**
  - e.g., `!ls` lists the files in your current directory

SFTP

SFTP Commands

Cheat Sheet Series — comparitech

Command	Description
?	List of all commands or explain a command, eg ? get
!	Leave the environment temporarily *
cd	Change the active directory on the remote host
chmod	Change the permissions of files on the remote host
chown	Change the owner of files on the remote host
dir	List the contents of the current directory on the remote host
exit	Close the connection and leave SFTP
get	Copy a file from the remote host to the local computer
help	Same as ?
lcd	Change the active directory on the local computer
lls	List the contents of the current directory on the local computer
lmkdir	Create a directory on the local computer
ln	Create a symbolic link for a file on the remote host
lpwd	Show the present working directory on the local computer
ls	Same as dir
lumask	Change the local umask value
mkdir	Create a directory on the remote host
put	Copy a file from the local computer to the remote host
pwd	Show the present working directory on the remote host
quit	Same as exit
rename	Rename a file on the remote host
rm	Delete a file on the remote host
rmdir	Remove an empty directory on the remote host
symlink	Same as ln
version	Show the SFTP version

Which one?

- **SCP is older, SFTP is newer**
- **Both get the job done *fine***
- **However**
  - SFTP gives you a bit *more*
    - Such as resumable transfers, file system access, etc.
- **Both still better than FTP!**
  - Why?

RSYNC

rsync is like a fancier scp

It checks to make sure there are differences between the files

- If there are differences, it only copies them, not the whole file

Command format is very similar to scp:

- `rsync [[user@]src_host:]src_path [[user@]dest_host:]dest_path`

Note that rsync has a ton of options!

- Automatic compression
- Progress bars
- Partial files (in case of restarts)
- Much more!

rsync

https://www.digitalocean.com/community/tutorials/how-to-use-rsync-to-sync-local-and-remote-directories